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 320-34835-1

Naval Air Warfare Center Warminster
Warminster, Pennsylvania

August 2019

N62269_001161
WARMINSTER_NAWC
SSIC 5000-33c

LABORATORY DATA PACKAGE, 320-34835-1, NAS WILLOW GROVE NAWC WARMINSTER PA

01/22/2018

TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-34835-1

SDG Number: WE04

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
1/22/2018 3:19 PM

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01/22/2018

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Qualifiers

LCMS

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

Glossary

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

Job Narrative
320-34835-1

Receipt
The samples were received on 1/4/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.8º C and 3.5º C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): NAWC-010318-RW-261 (320-34835-9), NAWC-010318-FRB-261 (320-34835-10) and WGNA-010318-FRB-0500 (320-34835-19).
Sample #9 label ID did not match COC. Label had NAWC-010318-FRB-261, COC IS NAWC-010318-RW-261. Labeled according to COC.
Sample #10 ID did not match COC. Label had NAWC-010318-RW-261, COC IS NAWC-010319-FRB-261. Labeled according to COC.
1 of 2 from sample #19 ID did not match COC Label had WGNA-010318-RW-0500, COC is WGNA-010318-FRB-0500. Labeled according to COC.

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

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

Organic Prep
Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-203874.

Method(s) 537: The following samples: NAWC-010318-RW-106 (320-34835-24) were decanted prior to preparation due to sediment being present.

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: 320-34835-1
SDG: WE04

Client Sample ID: NAWC-010318-RW-275 — Lab Sample ID: 320-34835-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	25	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	J	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-275 — Lab Sample ID: 320-34835-2

No Detections.

Client Sample ID: NAWC-010318-RW-304 — Lab Sample ID: 320-34835-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	23	J M	43	7.3	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J	22	3.0	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.8	J	32	5.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.9	J	11	2.1	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-304 — Lab Sample ID: 320-34835-4

No Detections.

Client Sample ID: NAWC-010318-RW-154 — Lab Sample ID: 320-34835-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	28		20	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.8	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-154 — Lab Sample ID: 320-34835-6

No Detections.

Client Sample ID: NAWC-010318-RW-276 — Lab Sample ID: 320-34835-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	26	J M	42	7.2	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21		21	3.0	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12	J	32	5.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.3	J	11	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-276 — Lab Sample ID: 320-34835-8

No Detections.

Client Sample ID: NAWC-010318-RW-261 — Lab Sample ID: 320-34835-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	15	J	42	7.2	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	14	J	21	3.0	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.6	J	32	5.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3	J	11	2.0	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: 320-34835-1
SDG: WE04

Client Sample ID: NAWC-010318-FRB-261 — Lab Sample ID: 320-34835-10

No Detections.

Client Sample ID: NAWC-010318-RW-10 — Lab Sample ID: 320-34835-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	34	J	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	19	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.0	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-10 — Lab Sample ID: 320-34835-12

No Detections.

Client Sample ID: WGNA-010318-RW-0443 — Lab Sample ID: 320-34835-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	31	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	24		20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	10		9.9	1.9	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	17	J	89	16	ng/L	1		537	Total/NA

Client Sample ID: WGNA-010318-FRB-0443 — Lab Sample ID: 320-34835-14

No Detections.

Client Sample ID: WGNA-010318-RW-3493 — Lab Sample ID: 320-34835-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	33	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.4	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-010318-FRB-3493 — Lab Sample ID: 320-34835-16

No Detections.

Client Sample ID: WGNA-010318-DUP-15 — Lab Sample ID: 320-34835-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	32	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	20		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	17	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.6	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-010318-RW-0500 — Lab Sample ID: 320-34835-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	23	J	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	5.6	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: WGNA-010318-RW-0500 (Continued) — Lab Sample ID: 320-34835-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	6.9	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-010318-FRB-0500 — Lab Sample ID: 320-34835-19

No Detections.

Client Sample ID: NAWC-010318-RW-145 — Lab Sample ID: 320-34835-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	21	J	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	23		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.2	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.6	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-145 — Lab Sample ID: 320-34835-21

No Detections.

Client Sample ID: NAWC-010318-RW-60 — Lab Sample ID: 320-34835-22

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	29	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	19	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)	4.8	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-60 — Lab Sample ID: 320-34835-23

No Detections.

Client Sample ID: NAWC-010318-RW-106 — Lab Sample ID: 320-34835-24

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	21	J	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)	9.6	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.8	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010318-FRB-106 — Lab Sample ID: 320-34835-25

No Detections.

Client Sample ID: NAWC-010318-RW-289 — Lab Sample ID: 320-34835-26

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	14	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	10	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.6	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.2	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: 320-34835-1
SDG: WE04

Client Sample ID: NAWC-010318-FRB-289 **Lab Sample ID: 320-34835-27**

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: NAWC-010318-RW-275

Lab Sample ID: 320-34835-1
Date Collected: 01/03/18 08:10
Matrix: Water
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**25**	**J M**	41	7.0	ng/L		01/10/18 08:12	01/12/18 17:44	1
Perfluorooctanoic acid (PFOA)	**13**	**J**	21	2.9	ng/L		01/10/18 08:12	01/12/18 17:44	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/10/18 08:12	01/12/18 17:44	1
Perfluorohexanesulfonic acid (PFHxS)	**8.0**	**J**	31	5.7	ng/L		01/10/18 08:12	01/12/18 17:44	1
Perfluoroheptanoic acid (PFHpA)	**4.6**	**J**	10	2.0	ng/L		01/10/18 08:12	01/12/18 17:44	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/10/18 08:12	01/12/18 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*70 - 130*	*01/10/18 08:12*	*01/12/18 17:44*	*1*
13C2 PFDA	*83*		*70 - 130*	*01/10/18 08:12*	*01/12/18 17:44*	*1*

Client Sample ID: NAWC-010318-FRB-275

Lab Sample ID: 320-34835-2
Date Collected: 01/03/18 08:05
Matrix: Water
Date Received: 01/04/18 10:05

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		01/10/18 08:12	01/12/18 17:58	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		01/10/18 08:12	01/12/18 17:58	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		01/10/18 08:12	01/12/18 17:58	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		01/10/18 08:12	01/12/18 17:58	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		01/10/18 08:12	01/12/18 17:58	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		01/10/18 08:12	01/12/18 17:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*70 - 130*	*01/10/18 08:12*	*01/12/18 17:58*	*1*
13C2 PFDA	*88*		*70 - 130*	*01/10/18 08:12*	*01/12/18 17:58*	*1*

Client Sample ID: NAWC-010318-RW-304

Lab Sample ID: 320-34835-3
Date Collected: 01/03/18 08:40
Matrix: Water
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**23**	**J M**	43	7.3	ng/L		01/10/18 08:12	01/12/18 18:03	1
Perfluorooctanoic acid (PFOA)	**17**	**J**	22	3.0	ng/L		01/10/18 08:12	01/12/18 18:03	1
Perfluorononanoic acid (PFNA)	22	U M	26	8.6	ng/L		01/10/18 08:12	01/12/18 18:03	1
Perfluorohexanesulfonic acid (PFHxS)	**9.8**	**J**	32	5.9	ng/L		01/10/18 08:12	01/12/18 18:03	1
Perfluoroheptanoic acid (PFHpA)	**4.9**	**J**	11	2.1	ng/L		01/10/18 08:12	01/12/18 18:03	1
Perfluorobutanesulfonic acid (PFBS)	39	U	97	17	ng/L		01/10/18 08:12	01/12/18 18:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:03*	*1*
13C2 PFDA	*85*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:03*	*1*

Client Sample ID: NAWC-010318-FRB-304 — Lab Sample ID: 320-34835-4

Date Collected: 01/03/18 08:35 **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/10/18 08:12	01/12/18 18:08	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/10/18 08:12	01/12/18 18:08	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/10/18 08:12	01/12/18 18:08	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/10/18 08:12	01/12/18 18:08	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/10/18 08:12	01/12/18 18:08	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/10/18 08:12	01/12/18 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:08*	*1*
13C2 PFDA	*87*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:08*	*1*

Client Sample ID: NAWC-010318-RW-154 — Lab Sample ID: 320-34835-5

Date Collected: 01/03/18 09:10 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**20**	**J**	41	6.9	ng/L		01/10/18 08:12	01/12/18 18:12	1
Perfluorooctanoic acid (PFOA)	**28**		20	2.9	ng/L		01/10/18 08:12	01/12/18 18:12	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.2	ng/L		01/10/18 08:12	01/12/18 18:12	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/10/18 08:12	01/12/18 18:12	1
Perfluoroheptanoic acid (PFHpA)	**8.8**	**J**	10	1.9	ng/L		01/10/18 08:12	01/12/18 18:12	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/10/18 08:12	01/12/18 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:12*	*1*
13C2 PFDA	*88*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:12*	*1*

Client Sample ID: NAWC-010318-FRB-154 — Lab Sample ID: 320-34835-6

Date Collected: 01/03/18 09:05 **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/10/18 08:12	01/12/18 18:17	1
Perfluorooctanoic acid (PFOA)	8.2	U	20	2.9	ng/L		01/10/18 08:12	01/12/18 18:17	1
Perfluorononanoic acid (PFNA)	20	U	25	8.2	ng/L		01/10/18 08:12	01/12/18 18:17	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/10/18 08:12	01/12/18 18:17	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/10/18 08:12	01/12/18 18:17	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/10/18 08:12	01/12/18 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*102*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:17*	*1*
13C2 PFDA	*98*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:17*	*1*

Client Sample ID: NAWC-010318-RW-276 — Lab Sample ID: 320-34835-7

Date Collected: 01/03/18 09:40 — **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**26**	**J M**	42	7.2	ng/L		01/10/18 08:12	01/12/18 18:31	1
Perfluorooctanoic acid (PFOA)	**21**		21	3.0	ng/L		01/10/18 08:12	01/12/18 18:31	1
Perfluorononanoic acid (PFNA)	21	U	25	8.5	ng/L		01/10/18 08:12	01/12/18 18:31	1
Perfluorohexanesulfonic acid (PFHxS)	**12**	**J**	32	5.8	ng/L		01/10/18 08:12	01/12/18 18:31	1
Perfluoroheptanoic acid (PFHpA)	**8.3**	**J**	11	2.0	ng/L		01/10/18 08:12	01/12/18 18:31	1
Perfluorobutanesulfonic acid (PFBS)	38	U	95	17	ng/L		01/10/18 08:12	01/12/18 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:31*	*1*
13C2 PFDA	*86*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:31*	*1*

Client Sample ID: NAWC-010318-FRB-276 — Lab Sample ID: 320-34835-8

Date Collected: 01/03/18 09:35 — **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/10/18 08:12	01/12/18 18:36	1
Perfluorooctanoic acid (PFOA)	8.2	U	21	2.9	ng/L		01/10/18 08:12	01/12/18 18:36	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		01/10/18 08:12	01/12/18 18:36	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/10/18 08:12	01/12/18 18:36	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	2.0	ng/L		01/10/18 08:12	01/12/18 18:36	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/10/18 08:12	01/12/18 18:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:36*	*1*
13C2 PFDA	*92*		*70 - 130*	*01/10/18 08:12*	*01/12/18 18:36*	*1*

Client Sample ID: NAWC-010318-RW-261 — Lab Sample ID: 320-34835-9

Date Collected: 01/03/18 10:05 — **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**15**	**J**	42	7.2	ng/L		01/15/18 08:55	01/19/18 07:30	1
Perfluorooctanoic acid (PFOA)	**14**	**J**	21	3.0	ng/L		01/15/18 08:55	01/19/18 07:30	1
Perfluorononanoic acid (PFNA)	21	U M	25	8.4	ng/L		01/15/18 08:55	01/19/18 07:30	1
Perfluorohexanesulfonic acid (PFHxS)	**7.6**	**J**	32	5.8	ng/L		01/15/18 08:55	01/19/18 07:30	1
Perfluoroheptanoic acid (PFHpA)	**4.3**	**J**	11	2.0	ng/L		01/15/18 08:55	01/19/18 07:30	1
Perfluorobutanesulfonic acid (PFBS)	38	U	95	17	ng/L		01/15/18 08:55	01/19/18 07:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:30*	*1*
13C2 PFDA	*98*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:30*	*1*

Client Sample ID: NAWC-010318-FRB-261 — Lab Sample ID: 320-34835-10

Date Collected: 01/03/18 10:10 **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/15/18 08:55	01/19/18 07:35	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/15/18 08:55	01/19/18 07:35	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 07:35	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/15/18 08:55	01/19/18 07:35	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/15/18 08:55	01/19/18 07:35	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 07:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:35*	*1*
13C2 PFDA	*87*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:35*	*1*

Client Sample ID: NAWC-010318-RW-10 — Lab Sample ID: 320-34835-11

Date Collected: 01/03/18 10:40 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**34**	**J**	40	6.9	ng/L		01/15/18 08:55	01/19/18 07:40	1
Perfluorooctanoic acid (PFOA)	**25**		20	2.8	ng/L		01/15/18 08:55	01/19/18 07:40	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/15/18 08:55	01/19/18 07:40	1
Perfluorohexanesulfonic acid (PFHxS)	**19**	**J**	30	5.5	ng/L		01/15/18 08:55	01/19/18 07:40	1
Perfluoroheptanoic acid (PFHpA)	**7.0**	**J**	10	1.9	ng/L		01/15/18 08:55	01/19/18 07:40	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/15/18 08:55	01/19/18 07:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:40*	*1*
13C2 PFDA	*92*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:40*	*1*

Client Sample ID: NAWC-010318-FRB-10 — Lab Sample ID: 320-34835-12

Date Collected: 01/03/18 10:35 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		01/15/18 08:55	01/19/18 07:44	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		01/15/18 08:55	01/19/18 07:44	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		01/15/18 08:55	01/19/18 07:44	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		01/15/18 08:55	01/19/18 07:44	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		01/15/18 08:55	01/19/18 07:44	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		01/15/18 08:55	01/19/18 07:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*98*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:44*	*1*
13C2 PFDA	*100*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:44*	*1*

Client Sample ID: WGNA-010318-RW-0443 — Lab Sample ID: 320-34835-13

Date Collected: 01/03/18 11:10 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**31**	**J**	40	6.8	ng/L		01/15/18 08:55	01/19/18 07:49	1
Perfluorooctanoic acid (PFOA)	**24**		20	2.8	ng/L		01/15/18 08:55	01/19/18 07:49	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 07:49	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/15/18 08:55	01/19/18 07:49	1
Perfluoroheptanoic acid (PFHpA)	**10**		9.9	1.9	ng/L		01/15/18 08:55	01/19/18 07:49	1
Perfluorobutanesulfonic acid (PFBS)	**17**	**J**	89	16	ng/L		01/15/18 08:55	01/19/18 07:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*86*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:49*	*1*
13C2 PFDA	*101*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:49*	*1*

Client Sample ID: WGNA-010318-FRB-0443 — Lab Sample ID: 320-34835-14

Date Collected: 01/03/18 11:05 **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/15/18 08:55	01/19/18 07:54	1
Perfluorooctanoic acid (PFOA)	8.2	U	20	2.9	ng/L		01/15/18 08:55	01/19/18 07:54	1
Perfluorononanoic acid (PFNA)	20	U	24	8.2	ng/L		01/15/18 08:55	01/19/18 07:54	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/15/18 08:55	01/19/18 07:54	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/15/18 08:55	01/19/18 07:54	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/15/18 08:55	01/19/18 07:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*99*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:54*	*1*
13C2 PFDA	*101*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:54*	*1*

Client Sample ID: WGNA-010318-RW-3493 — Lab Sample ID: 320-34835-15

Date Collected: 01/03/18 11:40 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**33**	**J**	40	6.8	ng/L		01/15/18 08:55	01/19/18 07:58	1
Perfluorooctanoic acid (PFOA)	**21**		20	2.8	ng/L		01/15/18 08:55	01/19/18 07:58	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 07:58	1
Perfluorohexanesulfonic acid (PFHxS)	**16**	**J**	30	5.5	ng/L		01/15/18 08:55	01/19/18 07:58	1
Perfluoroheptanoic acid (PFHpA)	**6.4**	**J**	9.9	1.9	ng/L		01/15/18 08:55	01/19/18 07:58	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 07:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*88*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:58*	*1*
13C2 PFDA	*96*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:58*	*1*

Client Sample ID: WGNA-010318-FRB-3493 — Lab Sample ID: 320-34835-16

Date Collected: 01/03/18 11:35 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	17	U	42	7.1	ng/L		01/15/18 08:55	01/19/18 08:12	1
Perfluorooctanoic acid (PFOA)	8.3	U	21	2.9	ng/L		01/15/18 08:55	01/19/18 08:12	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/15/18 08:55	01/19/18 08:12	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/15/18 08:55	01/19/18 08:12	1
Perfluoroheptanoic acid (PFHpA)	4.2	U	10	2.0	ng/L		01/15/18 08:55	01/19/18 08:12	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/15/18 08:55	01/19/18 08:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*96*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:12*	*1*
13C2 PFDA	*98*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:12*	*1*

Client Sample ID: WGNA-010318-DUP-15 — Lab Sample ID: 320-34835-17

Date Collected: 01/03/18 07:00 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**32**	**J**	40	6.8	ng/L		01/15/18 08:55	01/19/18 08:17	1
Perfluorooctanoic acid (PFOA)	**20**		20	2.8	ng/L		01/15/18 08:55	01/19/18 08:17	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 08:17	1
Perfluorohexanesulfonic acid (PFHxS)	**17**	**J**	30	5.5	ng/L		01/15/18 08:55	01/19/18 08:17	1
Perfluoroheptanoic acid (PFHpA)	**6.6**	**J**	10	1.9	ng/L		01/15/18 08:55	01/19/18 08:17	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 08:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*83*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:17*	*1*
13C2 PFDA	*91*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:17*	*1*

Client Sample ID: WGNA-010318-RW-0500 — Lab Sample ID: 320-34835-18

Date Collected: 01/03/18 12:40 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**23**	**J**	40	6.9	ng/L		01/15/18 08:55	01/19/18 08:22	1
Perfluorooctanoic acid (PFOA)	**25**	**M**	20	2.8	ng/L		01/15/18 08:55	01/19/18 08:22	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/15/18 08:55	01/19/18 08:22	1
Perfluorohexanesulfonic acid (PFHxS)	**7.8**	**J**	30	5.6	ng/L		01/15/18 08:55	01/19/18 08:22	1
Perfluoroheptanoic acid (PFHpA)	**6.9**	**J**	10	1.9	ng/L		01/15/18 08:55	01/19/18 08:22	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/15/18 08:55	01/19/18 08:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:22*	*1*
13C2 PFDA	*92*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:22*	*1*

Client Sample ID: WGNA-010318-FRB-0500 — Lab Sample ID: 320-34835-19

Date Collected: 01/03/18 12:35 — **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		01/15/18 08:55	01/19/18 08:26	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		01/15/18 08:55	01/19/18 08:26	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		01/15/18 08:55	01/19/18 08:26	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		01/15/18 08:55	01/19/18 08:26	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		01/15/18 08:55	01/19/18 08:26	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		01/15/18 08:55	01/19/18 08:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:26*	*1*
13C2 PFDA	*93*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:26*	*1*

Client Sample ID: NAWC-010318-RW-145 — Lab Sample ID: 320-34835-20

Date Collected: 01/03/18 13:10 — **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**21**	**J**	39	6.7	ng/L		01/15/18 08:55	01/19/18 08:31	1
Perfluorooctanoic acid (PFOA)	**23**		20	2.8	ng/L		01/15/18 08:55	01/19/18 08:31	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		01/15/18 08:55	01/19/18 08:31	1
Perfluorohexanesulfonic acid (PFHxS)	**8.2**	**J**	30	5.4	ng/L		01/15/18 08:55	01/19/18 08:31	1
Perfluoroheptanoic acid (PFHpA)	**6.6**	**J**	9.9	1.9	ng/L		01/15/18 08:55	01/19/18 08:31	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		01/15/18 08:55	01/19/18 08:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*90*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:31*	*1*
13C2 PFDA	*98*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:31*	*1*

Client Sample ID: NAWC-010318-FRB-145 — Lab Sample ID: 320-34835-21

Date Collected: 01/03/18 13:05 — **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/15/18 08:55	01/19/18 08:36	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/15/18 08:55	01/19/18 08:36	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/15/18 08:55	01/19/18 08:36	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/15/18 08:55	01/19/18 08:36	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/15/18 08:55	01/19/18 08:36	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		01/15/18 08:55	01/19/18 08:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*94*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:36*	*1*
13C2 PFDA	*102*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:36*	*1*

Client Sample ID: NAWC-010318-RW-60 — Lab Sample ID: 320-34835-22

Date Collected: 01/03/18 13:40 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**29**	**J**	40	6.8	ng/L		01/15/18 08:55	01/19/18 08:40	1
Perfluorooctanoic acid (PFOA)	**19**	**J**	20	2.8	ng/L		01/15/18 08:55	01/19/18 08:40	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.0	ng/L		01/15/18 08:55	01/19/18 08:40	1
Perfluorohexanesulfonic acid (PFHxS)	**11**	**J**	30	5.5	ng/L		01/15/18 08:55	01/19/18 08:40	1
Perfluoroheptanoic acid (PFHpA)	**4.8**	**J**	10	1.9	ng/L		01/15/18 08:55	01/19/18 08:40	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 08:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:40*	*1*
13C2 PFDA	*98*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:40*	*1*

Client Sample ID: NAWC-010318-FRB-60 — Lab Sample ID: 320-34835-23

Date Collected: 01/03/18 13:35 **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/15/18 08:55	01/19/18 08:45	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/15/18 08:55	01/19/18 08:45	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 08:45	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/15/18 08:55	01/19/18 08:45	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/15/18 08:55	01/19/18 08:45	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/15/18 08:55	01/19/18 08:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:45*	*1*
13C2 PFDA	*89*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:45*	*1*

Client Sample ID: NAWC-010318-RW-106 — Lab Sample ID: 320-34835-24

Date Collected: 01/03/18 15:40 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**21**	**J**	40	6.8	ng/L		01/15/18 08:55	01/19/18 08:50	1
Perfluorooctanoic acid (PFOA)	**23**		20	2.8	ng/L		01/15/18 08:55	01/19/18 08:50	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 08:50	1
Perfluorohexanesulfonic acid (PFHxS)	**9.6**	**J**	30	5.5	ng/L		01/15/18 08:55	01/19/18 08:50	1
Perfluoroheptanoic acid (PFHpA)	**8.8**	**J**	10	1.9	ng/L		01/15/18 08:55	01/19/18 08:50	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 08:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*89*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:50*	*1*
13C2 PFDA	*97*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:50*	*1*

Client Sample ID: NAWC-010318-FRB-106 Lab Sample ID: 320-34835-25

Date Collected: 01/03/18 15:35 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	17	U	42	7.1	ng/L		01/15/18 08:55	01/19/18 08:55	1
Perfluorooctanoic acid (PFOA)	8.3	U	21	2.9	ng/L		01/15/18 08:55	01/19/18 08:55	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/15/18 08:55	01/19/18 08:55	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/15/18 08:55	01/19/18 08:55	1
Perfluoroheptanoic acid (PFHpA)	4.2	U	10	2.0	ng/L		01/15/18 08:55	01/19/18 08:55	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/15/18 08:55	01/19/18 08:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*97*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:55*	*1*
13C2 PFDA	*99*		*70 - 130*	*01/15/18 08:55*	*01/19/18 08:55*	*1*

Client Sample ID: NAWC-010318-RW-289 Lab Sample ID: 320-34835-26

Date Collected: 01/03/18 16:10 **Matrix: Water**
Date Received: 01/04/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**14**	**J**	40	6.8	ng/L		01/15/18 08:55	01/19/18 09:08	1
Perfluorooctanoic acid (PFOA)	**10**	**J**	20	2.8	ng/L		01/15/18 08:55	01/19/18 09:08	1
Perfluorononanoic acid (PFNA)	20	U M	24	8.0	ng/L		01/15/18 08:55	01/19/18 09:08	1
Perfluorohexanesulfonic acid (PFHxS)	**5.6**	**J**	30	5.5	ng/L		01/15/18 08:55	01/19/18 09:08	1
Perfluoroheptanoic acid (PFHpA)	**3.2**	**J**	10	1.9	ng/L		01/15/18 08:55	01/19/18 09:08	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 09:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*97*		*70 - 130*	*01/15/18 08:55*	*01/19/18 09:08*	*1*
13C2 PFDA	*94*		*70 - 130*	*01/15/18 08:55*	*01/19/18 09:08*	*1*

Client Sample ID: NAWC-010318-FRB-289 Lab Sample ID: 320-34835-27

Date Collected: 01/03/18 16:05 **Matrix: Water**
Date Received: 01/04/18 10:05

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		01/15/18 08:55	01/19/18 09:13	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/15/18 08:55	01/19/18 09:13	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 09:13	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/15/18 08:55	01/19/18 09:13	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/15/18 08:55	01/19/18 09:13	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 09:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*91*		*70 - 130*	*01/15/18 08:55*	*01/19/18 09:13*	*1*
13C2 PFDA	*97*		*70 - 130*	*01/15/18 08:55*	*01/19/18 09:13*	*1*

Default Detection Limits

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

TestAmerica Job ID: 320-34835-1
SDG: WE04

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

Prep: 537

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

Surrogate Summary

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

TestAmerica Job ID: 320-34835-1
SDG: WE04

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)
320-34835-1	NAWC-010318-RW-275	83	83
320-34835-1 MS	NAWC-010318-RW-275	93	90
320-34835-1 MSD	NAWC-010318-RW-275	94	91
320-34835-2	NAWC-010318-FRB-275	91	88
320-34835-3	NAWC-010318-RW-304	92	85
320-34835-4	NAWC-010318-FRB-304	89	87
320-34835-5	NAWC-010318-RW-154	86	88
320-34835-6	NAWC-010318-FRB-154	102	98
320-34835-7	NAWC-010318-RW-276	92	86
320-34835-8	NAWC-010318-FRB-276	94	92
320-34835-9	NAWC-010318-RW-261	90	98
320-34835-10	NAWC-010318-FRB-261	90	87
320-34835-11	NAWC-010318-RW-10	92	92
320-34835-12	NAWC-010318-FRB-10	98	100
320-34835-13	WGNA-010318-RW-0443	86	101
320-34835-14	WGNA-010318-FRB-0443	99	101
320-34835-15	WGNA-010318-RW-3493	88	96
320-34835-16	WGNA-010318-FRB-3493	96	98
320-34835-17	WGNA-010318-DUP-15	83	91
320-34835-18	WGNA-010318-RW-0500	94	92
320-34835-19	WGNA-010318-FRB-0500	95	93
320-34835-20	NAWC-010318-RW-145	90	98
320-34835-21	NAWC-010318-FRB-145	94	102
320-34835-22	NAWC-010318-RW-60	92	98
320-34835-23	NAWC-010318-FRB-60	92	89
320-34835-24	NAWC-010318-RW-106	89	97
320-34835-25	NAWC-010318-FRB-106	97	99
320-34835-26	NAWC-010318-RW-289	97	94
320-34835-27	NAWC-010318-FRB-289	91	97
LCS 320-203312/2-A	Lab Control Sample	97	89
LCS 320-203874/2-A	Lab Control Sample	93	90
LCSD 320-203874/3-A	Lab Control Sample Dup	94	98
MB 320-203312/1-A	Method Blank	92	84
MB 320-203874/1-A	Method Blank	95	101

Surrogate Legend

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

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

Lab Sample ID: MB 320-203312/1-A
Matrix: Water
Analysis Batch: 203801

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 203312

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/10/18 08:12	01/12/18 17:35	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/10/18 08:12	01/12/18 17:35	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/10/18 08:12	01/12/18 17:35	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/10/18 08:12	01/12/18 17:35	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/10/18 08:12	01/12/18 17:35	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/10/18 08:12	01/12/18 17:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*92*		*70 - 130*	*01/10/18 08:12*	*01/12/18 17:35*	*1*
13C2 PFDA	*84*		*70 - 130*	*01/10/18 08:12*	*01/12/18 17:35*	*1*

Lab Sample ID: LCS 320-203312/2-A
Matrix: Water
Analysis Batch: 203801

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 203312

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	222	212		ng/L		95	70 - 130
Perfluorooctanoic acid (PFOA)	111	108		ng/L		97	70 - 130
Perfluorononanoic acid (PFNA)	111	105		ng/L		94	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	167	174		ng/L		105	70 - 130
Perfluoroheptanoic acid (PFHpA)	55.6	60.7		ng/L		109	70 - 130
Perfluorobutanesulfonic acid (PFBS)	500	530		ng/L		106	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*97*		*70 - 130*
13C2 PFDA	*89*		*70 - 130*

Lab Sample ID: 320-34835-1 MS
Matrix: Water
Analysis Batch: 203801

Client Sample ID: NAWC-010318-RW-275
Prep Type: Total/NA
Prep Batch: 203312

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	25	J M	220	241		ng/L		98	70 - 130
Perfluorooctanoic acid (PFOA)	13	J	110	121		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	21	U	110	108		ng/L		98	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	8.0	J	165	181		ng/L		105	70 - 130
Perfluoroheptanoic acid (PFHpA)	4.6	J	55.0	58.4		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	37	U	495	536		ng/L		108	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
13C2 PFHxA	*93*		*70 - 130*
13C2 PFDA	*90*		*70 - 130*

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

Lab Sample ID: 320-34835-1 MSD
Matrix: Water
Analysis Batch: 203801

Client Sample ID: NAWC-010318-RW-275
Prep Type: Total/NA
Prep Batch: 203312

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	25	J M	232	263		ng/L		103	70 - 130	9	30
Perfluorooctanoic acid (PFOA)	13	J	116	130	M	ng/L		101	70 - 130	7	30
Perfluorononanoic acid (PFNA)	21	U	116	112		ng/L		97	70 - 130	4	30
Perfluorohexanesulfonic acid (PFHxS)	8.0	J	174	191		ng/L		106	70 - 130	6	30
Perfluoroheptanoic acid (PFHpA)	4.6	J	57.9	65.0		ng/L		104	70 - 130	11	30
Perfluorobutanesulfonic acid (PFBS)	37	U	521	578		ng/L		111	70 - 130	8	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C2 PFHxA	*94*		*70 - 130*
13C2 PFDA	*91*		*70 - 130*

Lab Sample ID: MB 320-203874/1-A
Matrix: Water
Analysis Batch: 204650

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 203874

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/15/18 08:55	01/19/18 07:16	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/15/18 08:55	01/19/18 07:16	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/15/18 08:55	01/19/18 07:16	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/15/18 08:55	01/19/18 07:16	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/15/18 08:55	01/19/18 07:16	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/15/18 08:55	01/19/18 07:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:16*	*1*
13C2 PFDA	*101*		*70 - 130*	*01/15/18 08:55*	*01/19/18 07:16*	*1*

Lab Sample ID: LCS 320-203874/2-A
Matrix: Water
Analysis Batch: 204650

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 203874

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	222	221	M	ng/L		100	70 - 130
Perfluorooctanoic acid (PFOA)	111	107		ng/L		96	70 - 130
Perfluorononanoic acid (PFNA)	111	103		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	167	176		ng/L		105	70 - 130
Perfluoroheptanoic acid (PFHpA)	55.6	58.7		ng/L		106	70 - 130
Perfluorobutanesulfonic acid (PFBS)	500	519		ng/L		104	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C2 PFHxA	*93*		*70 - 130*
13C2 PFDA	*90*		*70 - 130*

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

Lab Sample ID: LCSD 320-203874/3-A
Matrix: Water
Analysis Batch: 204650

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 203874

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)			222	225	M	ng/L		101	70 - 130	1	30
Perfluorooctanoic acid (PFOA)			111	115		ng/L		103	70 - 130	7	30
Perfluorononanoic acid (PFNA)			111	114		ng/L		103	70 - 130	10	30
Perfluorohexanesulfonic acid (PFHxS)			167	178		ng/L		107	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)			55.6	59.4		ng/L		107	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)			500	517		ng/L		103	70 - 130	1	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C2 PFHxA	*94*		*70 - 130*
13C2 PFDA	*98*		*70 - 130*

LCMS

Prep Batch: 203312

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-1	NAWC-010318-RW-275	Total/NA	Water	537	
320-34835-2	NAWC-010318-FRB-275	Total/NA	Water	537	
320-34835-3	NAWC-010318-RW-304	Total/NA	Water	537	
320-34835-4	NAWC-010318-FRB-304	Total/NA	Water	537	
320-34835-5	NAWC-010318-RW-154	Total/NA	Water	537	
320-34835-6	NAWC-010318-FRB-154	Total/NA	Water	537	
320-34835-7	NAWC-010318-RW-276	Total/NA	Water	537	
320-34835-8	NAWC-010318-FRB-276	Total/NA	Water	537	
MB 320-203312/1-A	Method Blank	Total/NA	Water	537	
LCS 320-203312/2-A	Lab Control Sample	Total/NA	Water	537	
320-34835-1 MS	NAWC-010318-RW-275	Total/NA	Water	537	
320-34835-1 MSD	NAWC-010318-RW-275	Total/NA	Water	537	

Analysis Batch: 203801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-1	NAWC-010318-RW-275	Total/NA	Water	537	203312
320-34835-2	NAWC-010318-FRB-275	Total/NA	Water	537	203312
320-34835-3	NAWC-010318-RW-304	Total/NA	Water	537	203312
320-34835-4	NAWC-010318-FRB-304	Total/NA	Water	537	203312
320-34835-5	NAWC-010318-RW-154	Total/NA	Water	537	203312
320-34835-6	NAWC-010318-FRB-154	Total/NA	Water	537	203312
MB 320-203312/1-A	Method Blank	Total/NA	Water	537	203312
LCS 320-203312/2-A	Lab Control Sample	Total/NA	Water	537	203312
320-34835-1 MS	NAWC-010318-RW-275	Total/NA	Water	537	203312
320-34835-1 MSD	NAWC-010318-RW-275	Total/NA	Water	537	203312

Analysis Batch: 203803

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-7	NAWC-010318-RW-276	Total/NA	Water	537	203312
320-34835-8	NAWC-010318-FRB-276	Total/NA	Water	537	203312

Prep Batch: 203874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-9	NAWC-010318-RW-261	Total/NA	Water	537	
320-34835-10	NAWC-010318-FRB-261	Total/NA	Water	537	
320-34835-11	NAWC-010318-RW-10	Total/NA	Water	537	
320-34835-12	NAWC-010318-FRB-10	Total/NA	Water	537	
320-34835-13	WGNA-010318-RW-0443	Total/NA	Water	537	
320-34835-14	WGNA-010318-FRB-0443	Total/NA	Water	537	
320-34835-15	WGNA-010318-RW-3493	Total/NA	Water	537	
320-34835-16	WGNA-010318-FRB-3493	Total/NA	Water	537	
320-34835-17	WGNA-010318-DUP-15	Total/NA	Water	537	
320-34835-18	WGNA-010318-RW-0500	Total/NA	Water	537	
320-34835-19	WGNA-010318-FRB-0500	Total/NA	Water	537	
320-34835-20	NAWC-010318-RW-145	Total/NA	Water	537	
320-34835-21	NAWC-010318-FRB-145	Total/NA	Water	537	
320-34835-22	NAWC-010318-RW-60	Total/NA	Water	537	
320-34835-23	NAWC-010318-FRB-60	Total/NA	Water	537	
320-34835-24	NAWC-010318-RW-106	Total/NA	Water	537	
320-34835-25	NAWC-010318-FRB-106	Total/NA	Water	537	
320-34835-26	NAWC-010318-RW-289	Total/NA	Water	537	

LCMS (Continued)

Prep Batch: 203874 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-27	NAWC-010318-FRB-289	Total/NA	Water	537	
MB 320-203874/1-A	Method Blank	Total/NA	Water	537	
LCS 320-203874/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-203874/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 204650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-9	NAWC-010318-RW-261	Total/NA	Water	537	203874
320-34835-10	NAWC-010318-FRB-261	Total/NA	Water	537	203874
320-34835-11	NAWC-010318-RW-10	Total/NA	Water	537	203874
320-34835-12	NAWC-010318-FRB-10	Total/NA	Water	537	203874
320-34835-13	WGNA-010318-RW-0443	Total/NA	Water	537	203874
320-34835-14	WGNA-010318-FRB-0443	Total/NA	Water	537	203874
320-34835-15	WGNA-010318-RW-3493	Total/NA	Water	537	203874
MB 320-203874/1-A	Method Blank	Total/NA	Water	537	203874
LCS 320-203874/2-A	Lab Control Sample	Total/NA	Water	537	203874
LCSD 320-203874/3-A	Lab Control Sample Dup	Total/NA	Water	537	203874

Analysis Batch: 204651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-16	WGNA-010318-FRB-3493	Total/NA	Water	537	203874
320-34835-17	WGNA-010318-DUP-15	Total/NA	Water	537	203874
320-34835-18	WGNA-010318-RW-0500	Total/NA	Water	537	203874
320-34835-19	WGNA-010318-FRB-0500	Total/NA	Water	537	203874
320-34835-20	NAWC-010318-RW-145	Total/NA	Water	537	203874
320-34835-21	NAWC-010318-FRB-145	Total/NA	Water	537	203874
320-34835-22	NAWC-010318-RW-60	Total/NA	Water	537	203874
320-34835-23	NAWC-010318-FRB-60	Total/NA	Water	537	203874
320-34835-24	NAWC-010318-RW-106	Total/NA	Water	537	203874
320-34835-25	NAWC-010318-FRB-106	Total/NA	Water	537	203874

Analysis Batch: 204654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34835-26	NAWC-010318-RW-289	Total/NA	Water	537	203874
320-34835-27	NAWC-010318-FRB-289	Total/NA	Water	537	203874

Client Sample ID: NAWC-010318-RW-275
Lab Sample ID: 320-34835-1
Date Collected: 01/03/18 08:10
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203801	01/12/18 17:44	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-275
Lab Sample ID: 320-34835-2
Date Collected: 01/03/18 08:05
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203801	01/12/18 17:58	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-304
Lab Sample ID: 320-34835-3
Date Collected: 01/03/18 08:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203801	01/12/18 18:03	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-304
Lab Sample ID: 320-34835-4
Date Collected: 01/03/18 08:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203801	01/12/18 18:08	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-154
Lab Sample ID: 320-34835-5
Date Collected: 01/03/18 09:10
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203801	01/12/18 18:12	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-154
Lab Sample ID: 320-34835-6
Date Collected: 01/03/18 09:05
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203801	01/12/18 18:17	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-276

Lab Sample ID: 320-34835-7
Date Collected: 01/03/18 09:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203803	01/12/18 18:31	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-276

Lab Sample ID: 320-34835-8
Date Collected: 01/03/18 09:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203312	01/10/18 08:12	CCB	TAL SAC
Total/NA	Analysis	537		1	203803	01/12/18 18:36	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-261

Lab Sample ID: 320-34835-9
Date Collected: 01/03/18 10:05
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:30	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-261

Lab Sample ID: 320-34835-10
Date Collected: 01/03/18 10:10
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:35	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-10

Lab Sample ID: 320-34835-11
Date Collected: 01/03/18 10:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:40	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-10

Lab Sample ID: 320-34835-12
Date Collected: 01/03/18 10:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:44	JRB	TAL SAC

Client Sample ID: WGNA-010318-RW-0443
Lab Sample ID: 320-34835-13
Date Collected: 01/03/18 11:10
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:49	JRB	TAL SAC

Client Sample ID: WGNA-010318-FRB-0443
Lab Sample ID: 320-34835-14
Date Collected: 01/03/18 11:05
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:54	JRB	TAL SAC

Client Sample ID: WGNA-010318-RW-3493
Lab Sample ID: 320-34835-15
Date Collected: 01/03/18 11:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204650	01/19/18 07:58	JRB	TAL SAC

Client Sample ID: WGNA-010318-FRB-3493
Lab Sample ID: 320-34835-16
Date Collected: 01/03/18 11:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:12	JRB	TAL SAC

Client Sample ID: WGNA-010318-DUP-15
Lab Sample ID: 320-34835-17
Date Collected: 01/03/18 07:00
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:17	JRB	TAL SAC

Client Sample ID: WGNA-010318-RW-0500
Lab Sample ID: 320-34835-18
Date Collected: 01/03/18 12:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:22	JRB	TAL SAC

Client Sample ID: WGNA-010318-FRB-0500
Lab Sample ID: 320-34835-19
Date Collected: 01/03/18 12:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:26	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-145
Lab Sample ID: 320-34835-20
Date Collected: 01/03/18 13:10
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:31	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-145
Lab Sample ID: 320-34835-21
Date Collected: 01/03/18 13:05
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:36	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-60
Lab Sample ID: 320-34835-22
Date Collected: 01/03/18 13:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:40	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-60
Lab Sample ID: 320-34835-23
Date Collected: 01/03/18 13:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:45	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-106
Lab Sample ID: 320-34835-24
Date Collected: 01/03/18 15:40
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:50	JRB	TAL SAC

Lab Chronicle

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

TestAmerica Job ID: 320-34835-1
SDG: WE04

Client Sample ID: NAWC-010318-FRB-106

Lab Sample ID: 320-34835-25

Date Collected: 01/03/18 15:35
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204651	01/19/18 08:55	JRB	TAL SAC

Client Sample ID: NAWC-010318-RW-289

Lab Sample ID: 320-34835-26

Date Collected: 01/03/18 16:10
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204654	01/19/18 09:08	JRB	TAL SAC

Client Sample ID: NAWC-010318-FRB-289

Lab Sample ID: 320-34835-27

Date Collected: 01/03/18 16:05
Matrix: Water
Date Received: 01/04/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			203874	01/15/18 08:55	CCB	TAL SAC
Total/NA	Analysis	537		1	204654	01/19/18 09:13	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: 320-34835-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove SDG: WE04

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	UST-055	01-31-18
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	04-18-18
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	01-29-20
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
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-34835-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove SDG: WE04

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

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

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

Sample Summary

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

TestAmerica Job ID: 320-34835-1
SDG: WE04

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-34835-1	NAWC-010318-RW-275	Water	01/03/18 08:10	01/04/18 10:05
320-34835-2	NAWC-010318-FRB-275	Water	01/03/18 08:05	01/04/18 10:05
320-34835-3	NAWC-010318-RW-304	Water	01/03/18 08:40	01/04/18 10:05
320-34835-4	NAWC-010318-FRB-304	Water	01/03/18 08:35	01/04/18 10:05
320-34835-5	NAWC-010318-RW-154	Water	01/03/18 09:10	01/04/18 10:05
320-34835-6	NAWC-010318-FRB-154	Water	01/03/18 09:05	01/04/18 10:05
320-34835-7	NAWC-010318-RW-276	Water	01/03/18 09:40	01/04/18 10:05
320-34835-8	NAWC-010318-FRB-276	Water	01/03/18 09:35	01/04/18 10:05
320-34835-9	NAWC-010318-RW-261	Water	01/03/18 10:05	01/04/18 10:05
320-34835-10	NAWC-010318-FRB-261	Water	01/03/18 10:10	01/04/18 10:05
320-34835-11	NAWC-010318-RW-10	Water	01/03/18 10:40	01/04/18 10:05
320-34835-12	NAWC-010318-FRB-10	Water	01/03/18 10:35	01/04/18 10:05
320-34835-13	WGNA-010318-RW-0443	Water	01/03/18 11:10	01/04/18 10:05
320-34835-14	WGNA-010318-FRB-0443	Water	01/03/18 11:05	01/04/18 10:05
320-34835-15	WGNA-010318-RW-3493	Water	01/03/18 11:40	01/04/18 10:05
320-34835-16	WGNA-010318-FRB-3493	Water	01/03/18 11:35	01/04/18 10:05
320-34835-17	WGNA-010318-DUP-15	Water	01/03/18 07:00	01/04/18 10:05
320-34835-18	WGNA-010318-RW-0500	Water	01/03/18 12:40	01/04/18 10:05
320-34835-19	WGNA-010318-FRB-0500	Water	01/03/18 12:35	01/04/18 10:05
320-34835-20	NAWC-010318-RW-145	Water	01/03/18 13:10	01/04/18 10:05
320-34835-21	NAWC-010318-FRB-145	Water	01/03/18 13:05	01/04/18 10:05
320-34835-22	NAWC-010318-RW-60	Water	01/03/18 13:40	01/04/18 10:05
320-34835-23	NAWC-010318-FRB-60	Water	01/03/18 13:35	01/04/18 10:05
320-34835-24	NAWC-010318-RW-106	Water	01/03/18 15:40	01/04/18 10:05
320-34835-25	NAWC-010318-FRB-106	Water	01/03/18 15:35	01/04/18 10:05
320-34835-26	NAWC-010318-RW-289	Water	01/03/18 16:10	01/04/18 10:05
320-34835-27	NAWC-010318-FRB-289	Water	01/03/18 16:05	01/04/18 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Analysis Batch Number: 203801

Lab Sample ID: 320-34835-1 Client Sample ID: NAWC-010318-RW-275

Date Analyzed: 01/12/18 17:44 Lab File ID: 2018.01.12_537A_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Baseline	westendorfc	01/15/18 09:30

Lab Sample ID: 320-34835-1 MSD Client Sample ID: NAWC-010318-RW-275 MSD

Date Analyzed: 01/12/18 17:53 Lab File ID: 2018.01.12_537A_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.81	Incomplete Integration	barnettj	01/15/18 13:53

Lab Sample ID: 320-34835-3 Client Sample ID: NAWC-010318-RW-304

Date Analyzed: 01/12/18 18:03 Lab File ID: 2018.01.12_537A_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.06	Assign Peak	westendorfc	01/15/18 09:30
Perfluorooctanesulfonic acid (PFOS)	2.06	Split Peak	westendorfc	01/15/18 09:30

Lab Sample ID: 320-34835-5 Client Sample ID: NAWC-010318-RW-154

Date Analyzed: 01/12/18 18:12 Lab File ID: 2018.01.12_537A_015.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.06	Assign Peak	westendorfc	01/15/18 09:31

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Analysis Batch Number: 203803

Lab Sample ID: 320-34835-7 Client Sample ID: NAWC-010318-RW-276

Date Analyzed: 01/12/18 18:31 Lab File ID: 2018.01.12_537A_019.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Split Peak	westendorfc	01/15/18 09:31

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LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Analysis Batch Number: 204650

Lab Sample ID: CCV 320-204650/1 CCVIS Client Sample ID:

Date Analyzed: 01/19/18 07:07 Lab File ID: 2018.01.18_537AA_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Split Peak	westendorfc	01/19/18 14:05

Lab Sample ID: LCS 320-203874/2-A Client Sample ID:

Date Analyzed: 01/19/18 07:21 Lab File ID: 2018.01.18_537AA_028.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Split Peak	westendorfc	01/19/18 14:05

Lab Sample ID: LCSD 320-203874/3-A Client Sample ID:

Date Analyzed: 01/19/18 07:26 Lab File ID: 2018.01.18_537AA_029.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Split Peak	westendorfc	01/19/18 14:06

Lab Sample ID: 320-34835-9 Client Sample ID: NAWC-010318-RW-261

Date Analyzed: 01/19/18 07:30 Lab File ID: 2018.01.18_537AA_030.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.05	Assign Peak	westendorfc	01/19/18 14:06

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Analysis Batch Number: 204651

Lab Sample ID: 320-34835-18 Client Sample ID: WGNA-010318-RW-0500

Date Analyzed: 01/19/18 08:22 Lab File ID: 2018.01.18_537AA_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.79	Incomplete Integration	westendorfc	01/19/18 14:07

Lab Sample ID: 320-34835-22 Client Sample ID: NAWC-010318-RW-60

Date Analyzed: 01/19/18 08:40 Lab File ID: 2018.01.18_537AA_045.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.04	Assign Peak	westendorfc	01/19/18 14:08

Lab Sample ID: CCV 320-204651/25 CCVIS Client Sample ID:

Date Analyzed: 01/19/18 08:59 Lab File ID: 2018.01.18_537AA_049.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Split Peak	westendorfc	01/19/18 14:08

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Analysis Batch Number: 204654

Lab Sample ID: CCV 320-204654/25 CCVIS Client Sample ID:

Date Analyzed: 01/19/18 08:59 Lab File ID: 2018.01.18_537AA_049.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Split Peak	westendorfc	01/19/18 14:08

Lab Sample ID: 320-34835-26 Client Sample ID: NAWC-010318-RW-289

Date Analyzed: 01/19/18 09:08 Lab File ID: 2018.01.18_537AA_051.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorononanoic acid (PFNA)	2.05	Assign Peak	westendorfc	01/19/18 14:09

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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_00056	05/27/18	11/27/17	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.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-SU_00054	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

P: 4/1/15 SPV

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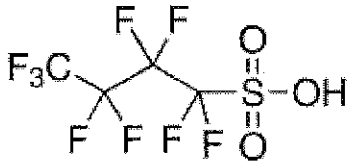
Outside USA: eurtechserv@sial.com

Certificate of Analysis

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

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



PFBS

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

Jamie Gleason

Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

Reagent

LC537_PFBS2_00002

1:6:17 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

R: 4/1/15 SRV

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Certificate of Analysis

PFHpA

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

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

Reagent

LC537_PFHpA2_00002

Alfa Aesar

Certificate of analysis

r: 6.13.17 SW

PFHp A

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

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

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Reagent

LC537_PFHxS_00002

R: 4/1/15 SKV

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Certificate of Analysis

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

PFH_xS-K

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity = 90.94 / w/m.w correction

SKV 4/1/15

Reagent

LC537_PFHxS2_00002

n: 6.8.17 SKW

CERTIFICATE OF ANALYSIS

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

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

$PFH_xS\text{-}K$

$C_6F_{13}SO_3K$ 438.201

$C_6F_{13}SO_3H$ 400.111

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

Purity & MW correction = 90.9%

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Reagent

LC537_PFNA_00002

R: 4/1/15 SKV

Certificate of Analysis

Apr 2, 2015 (JST)

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

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

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

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

Customer service:

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

PFNA

Reagent

LC537_PFNA2_00002

P: 6.14.17 SKV

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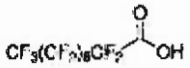
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

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.

Version Number: 1

Reagent

LC537_PFOA_00003

R: 11/30/16 SKV
PFOA

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Certificate of Analysis

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

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

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

Reagent

LC537_PFOA2_00002

Alfa Aesar

Certificate of analysis

Π: 6/9/17 SK✓

PFOA

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

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

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Reagent

LC537_PFOS_00003

r: 11/30/16 SK

PFOS

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CERTIFICATE OF ANALYSIS

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

Seelze, 22.04.2014/524107/14/08646

Order-No.:
Customer-No.:

Order-Code:

Quantity:

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

Article/Product: 33829 Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

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

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

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

2. Batch Analysis

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

3. Advice and Remarks

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

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

Reagent

LC537_PFOS2_00002

n: 6.14.17 SKV

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Certificate of Analysis

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

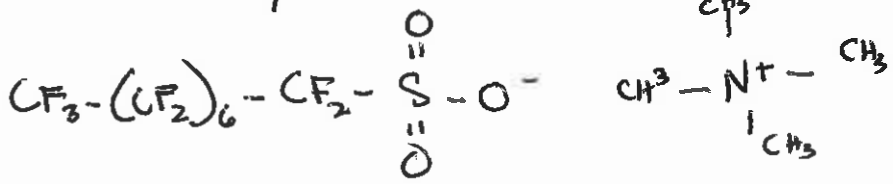
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity & MW correction = 77.87%



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

Reagent

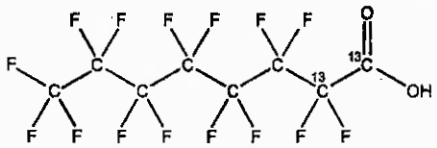
LCM2PFOA_00007

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:

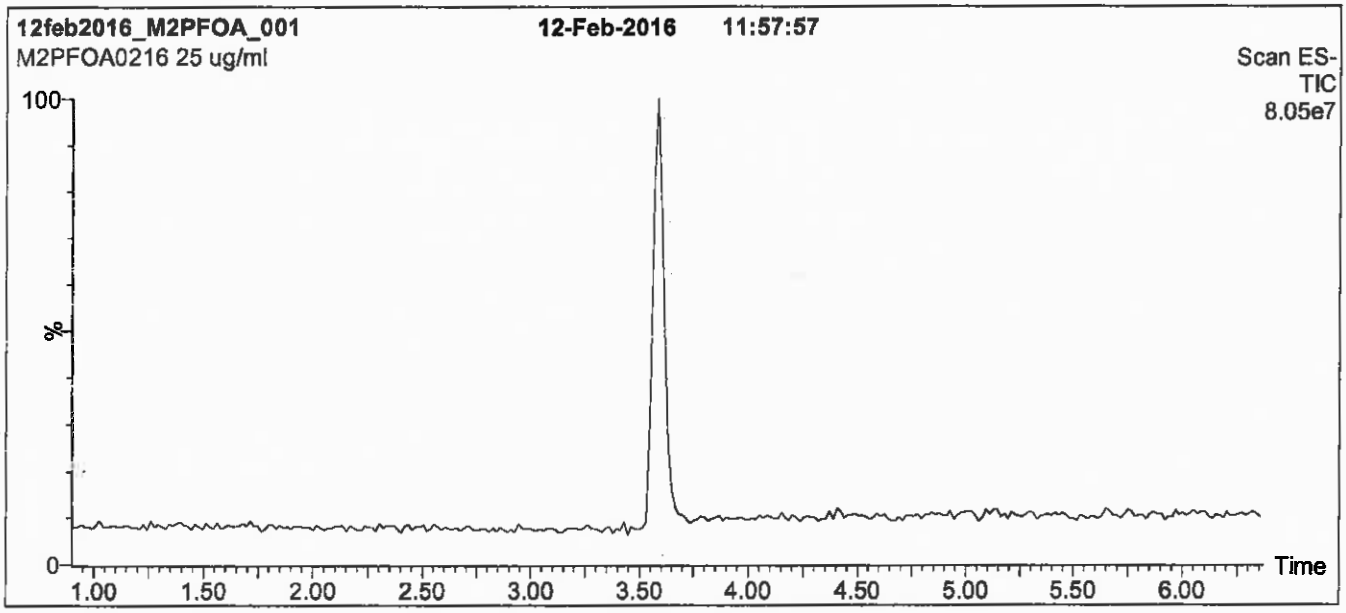
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

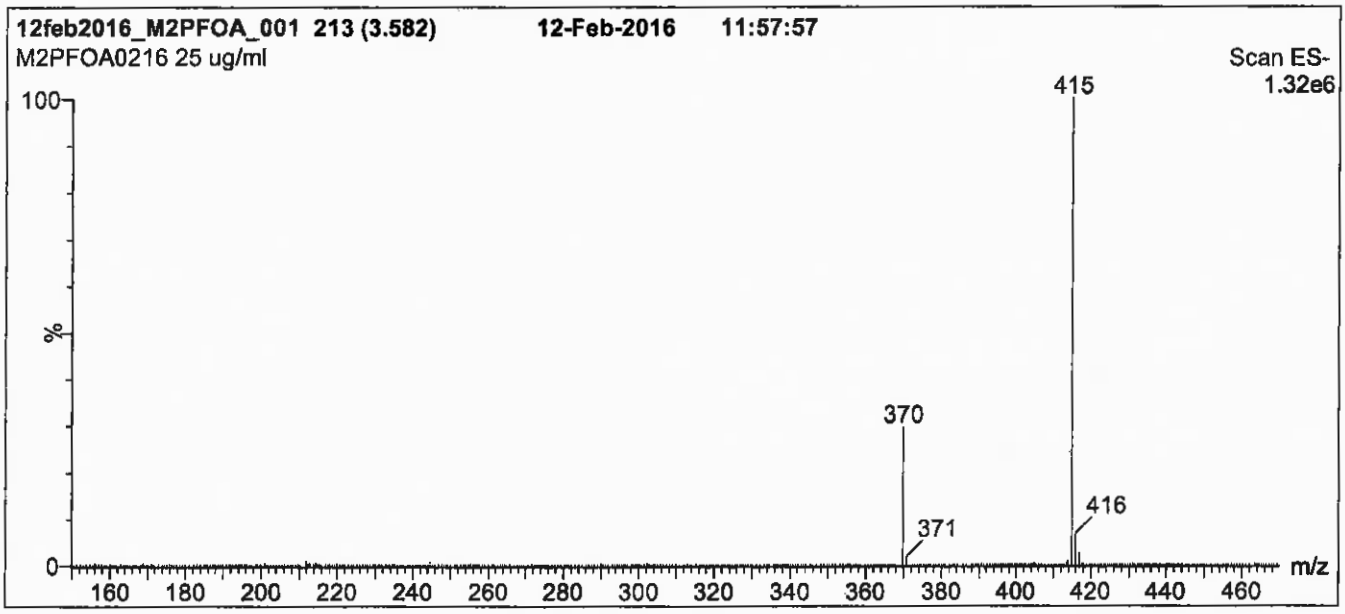
CALA

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

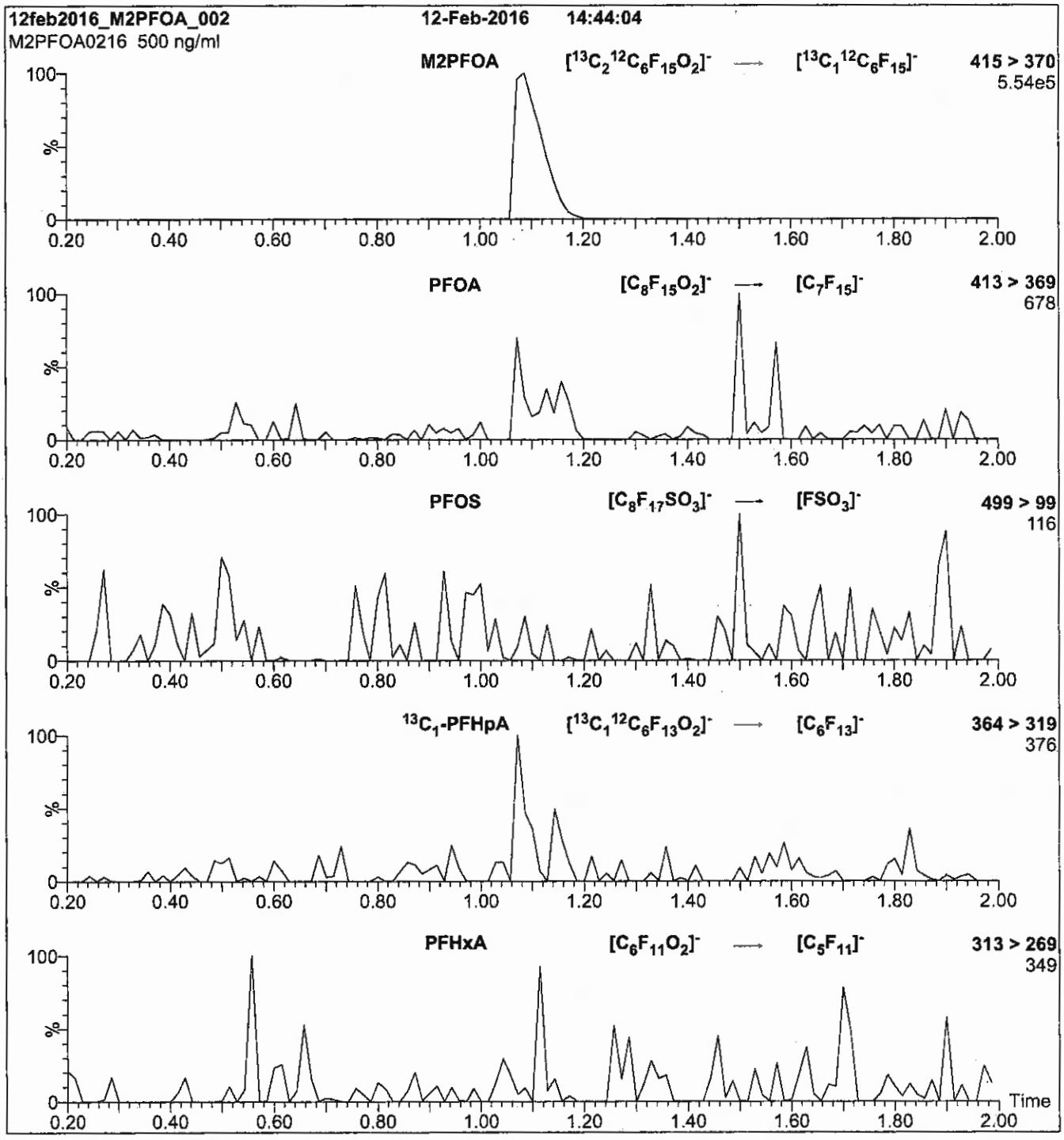
Flow: 300 µl/min

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-Perfluorodecanoic a

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

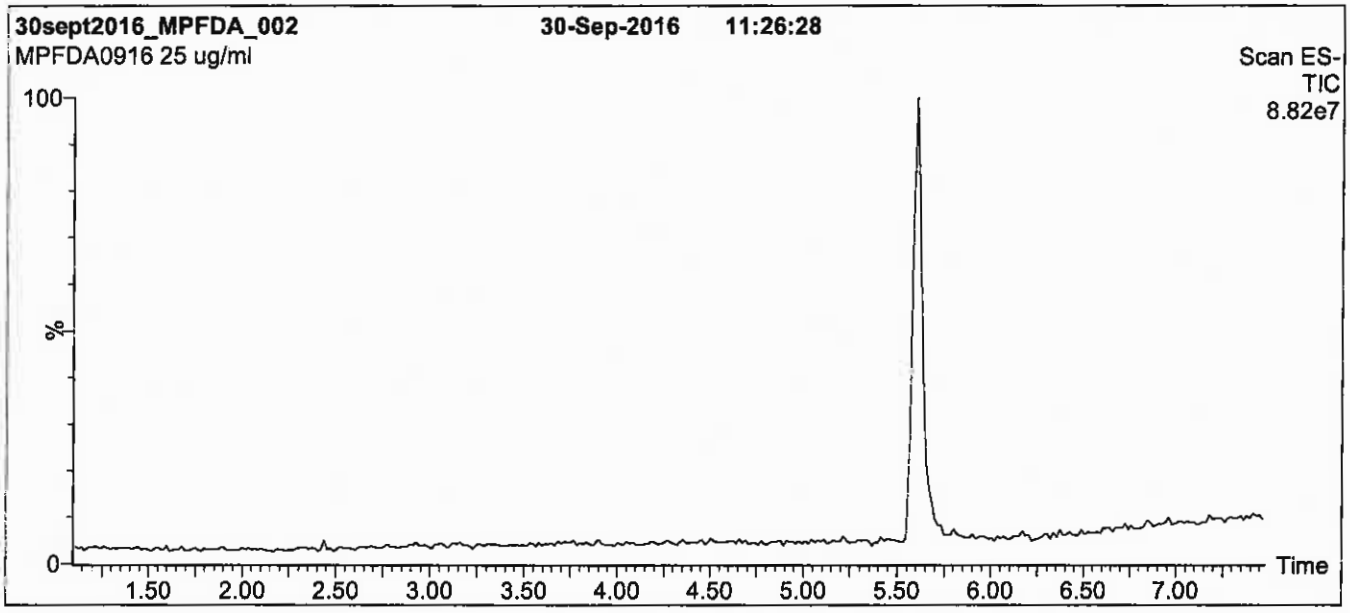
At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

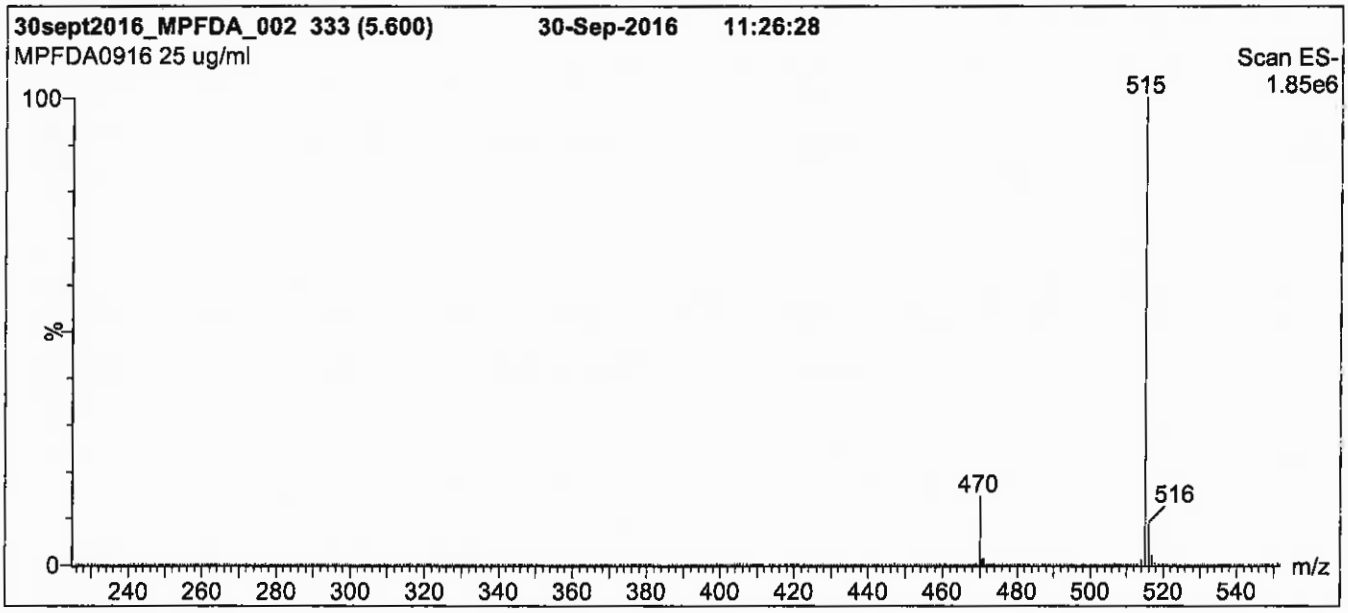
QUALITY MANAGEMENT:

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

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

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

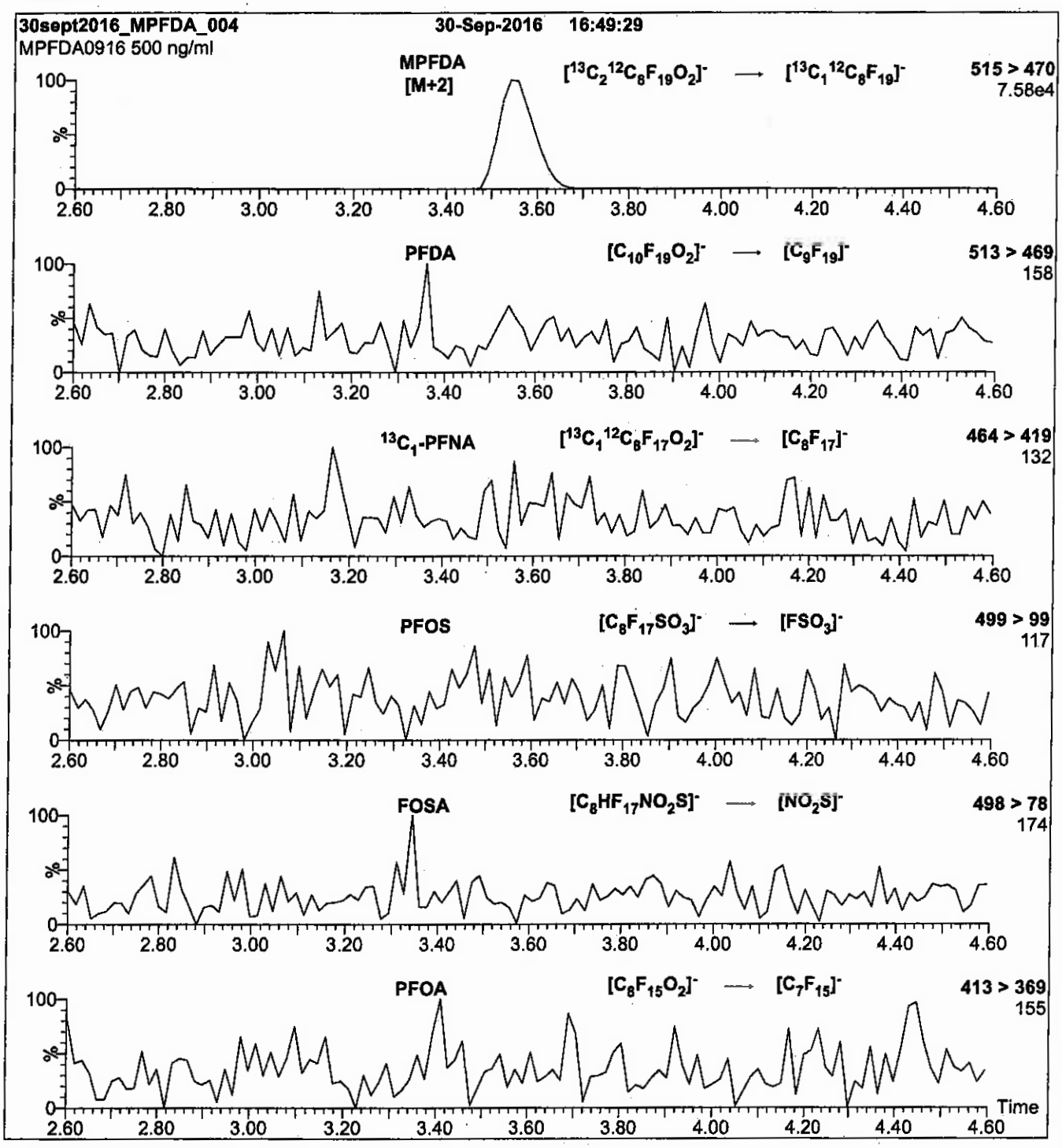
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

MS Parameters

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

Reagent

LCMPFHxA_00013

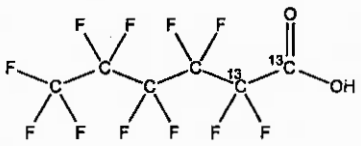
R: SBC 12/21/16

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

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

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



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

QUALITY MANAGEMENT:

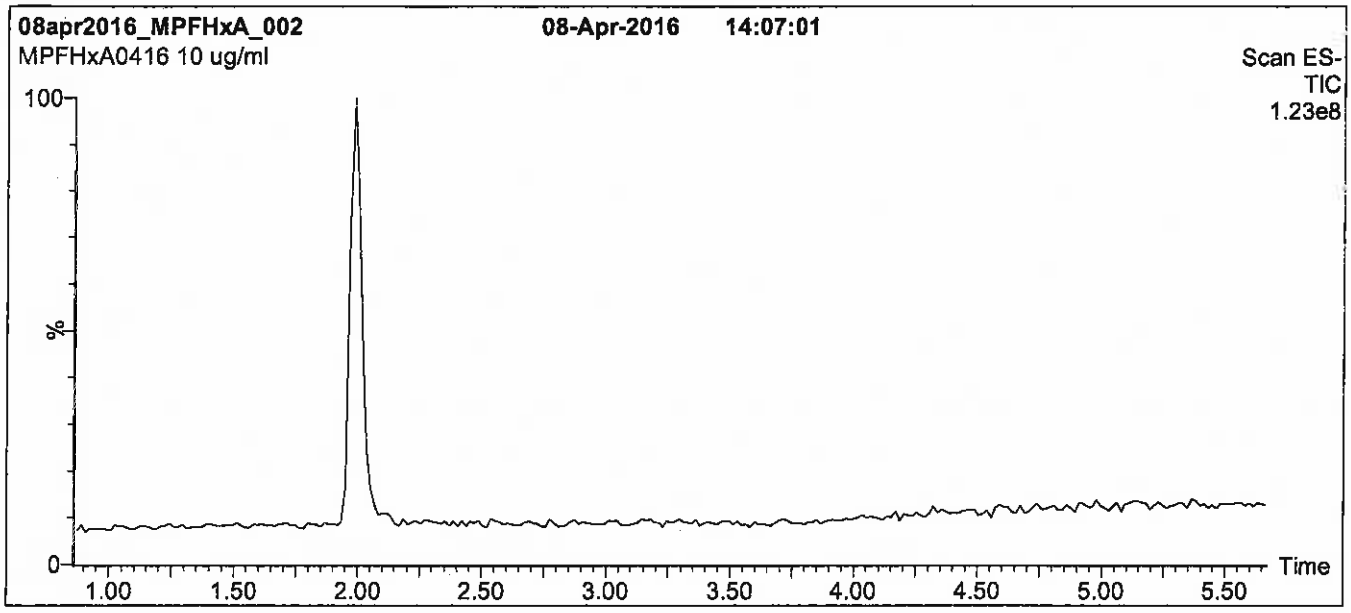
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

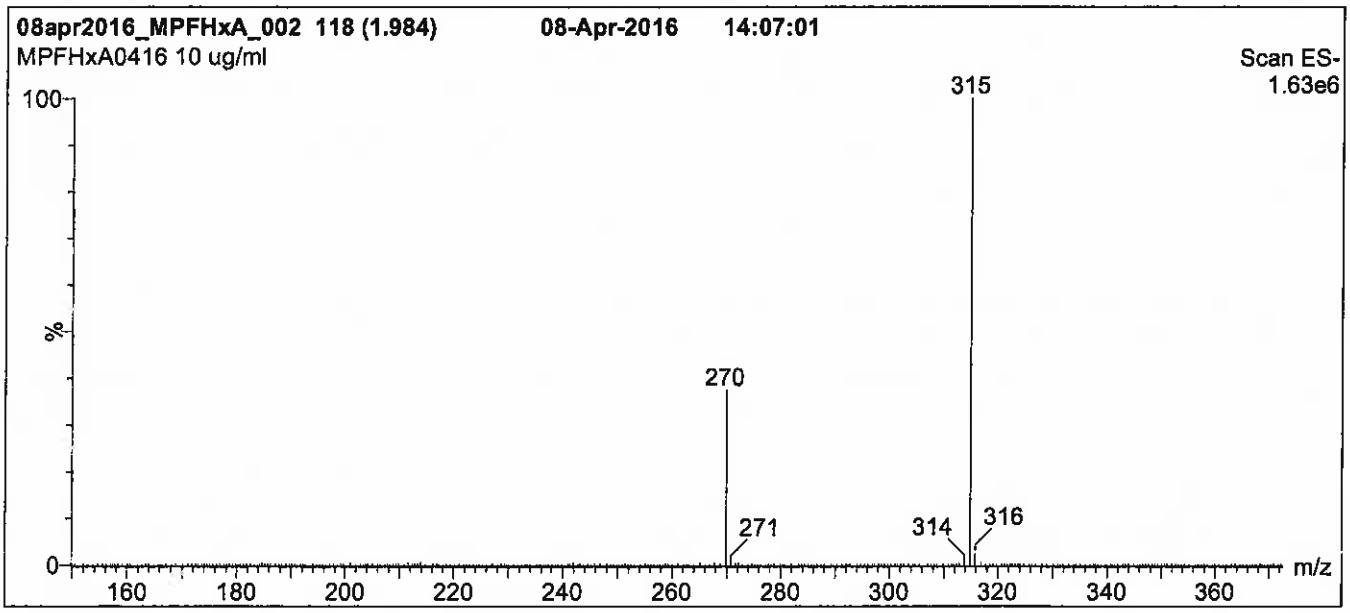
CALA Testing Accreditation No. A1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

Figure 1: **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

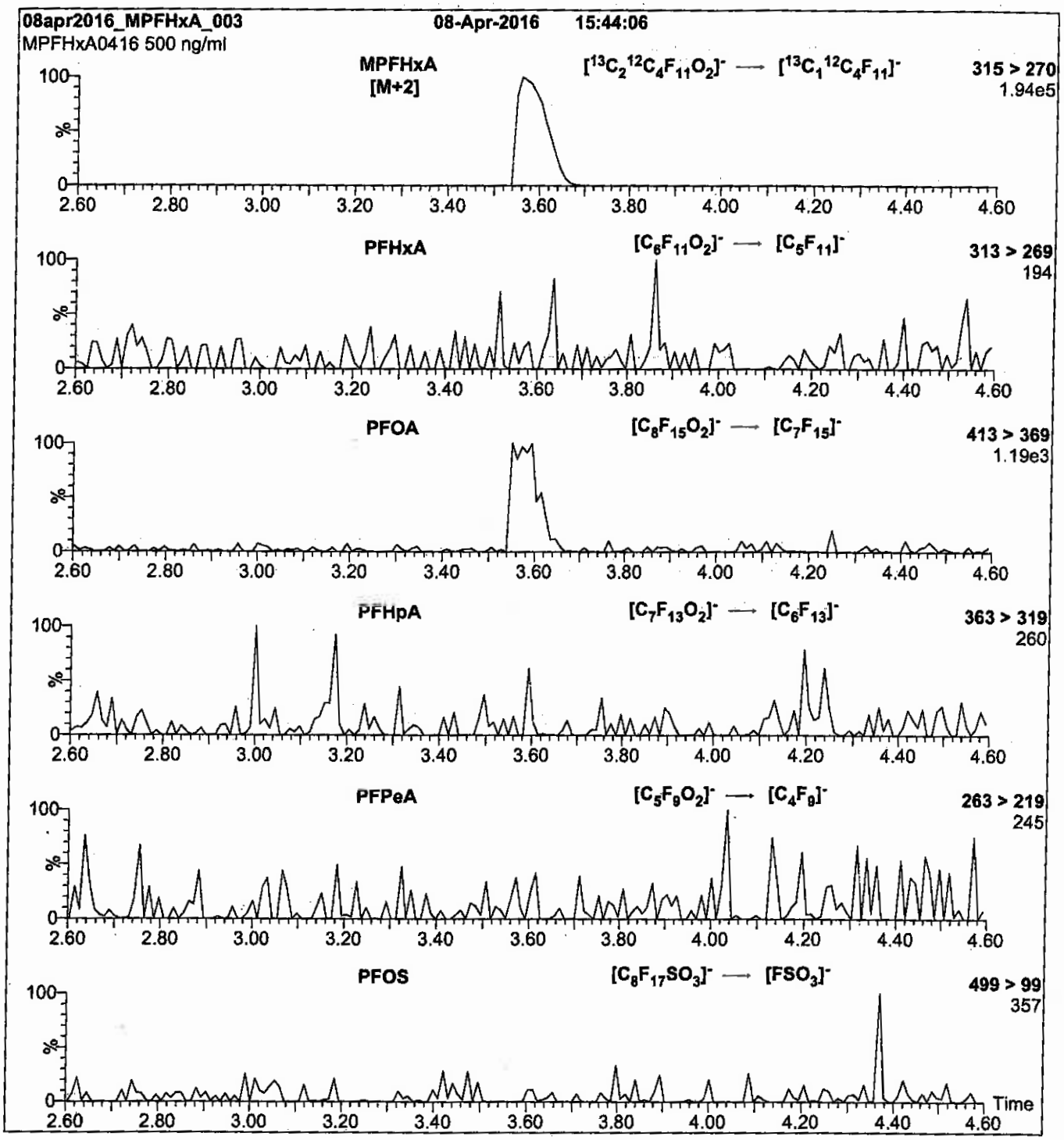
Flow: 300 µl/min

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

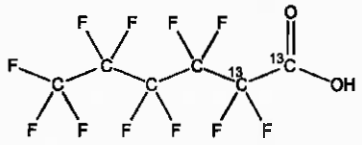
LCMPFHxA_00015

Tr: 5/8/17 Std

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFHxA	**LOT NUMBER:**	MPFHxA1116
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2-$^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: B.G. Chittim **Date:** 12/13/2016 (mm/dd/yyyy)

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

INTENDED USE:

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CALA

ANAB ACCREDITED

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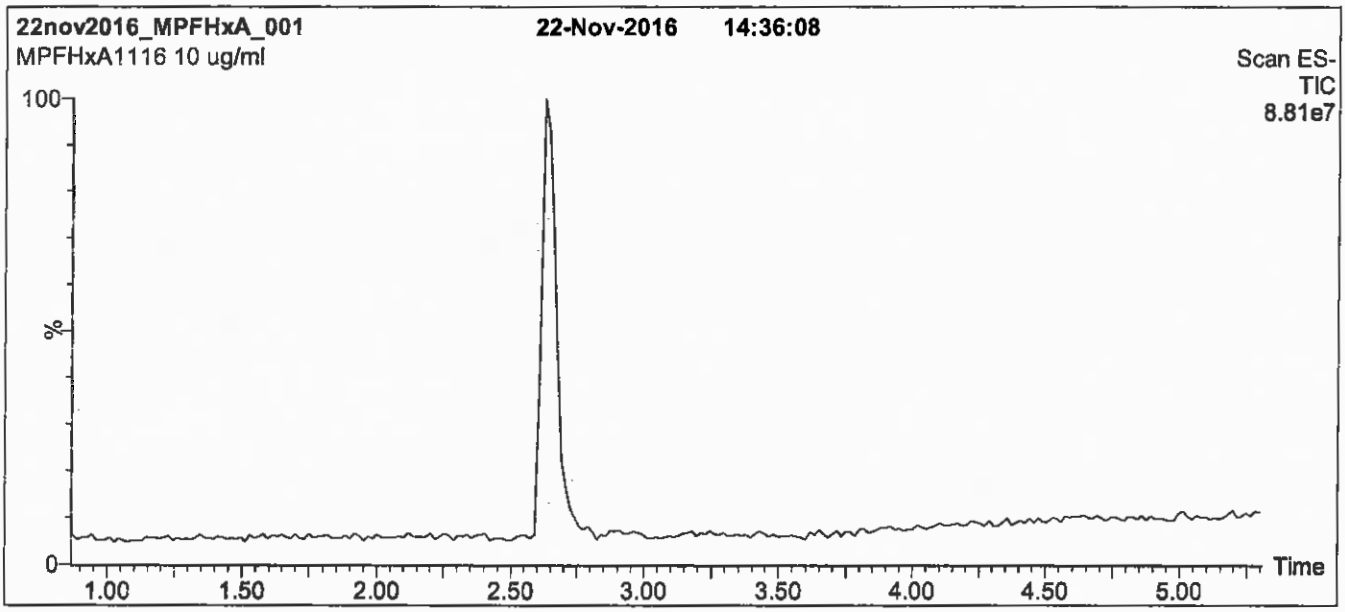
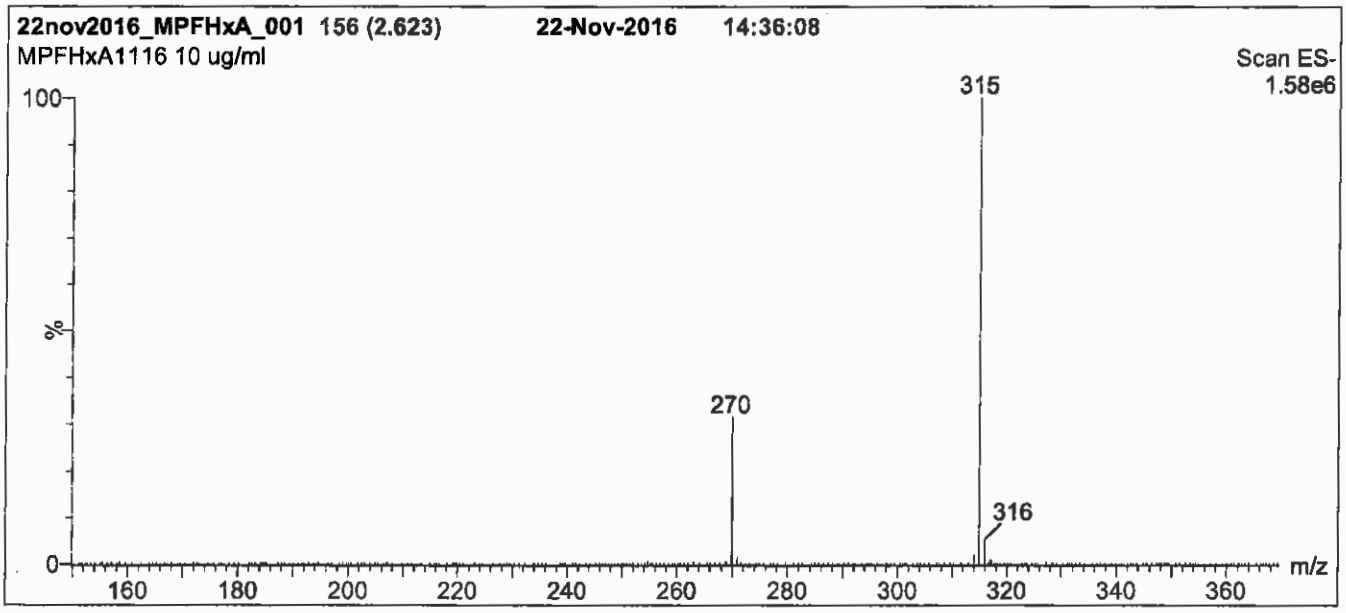
Figure 1: **MPFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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

Chromatographic Conditions

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

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

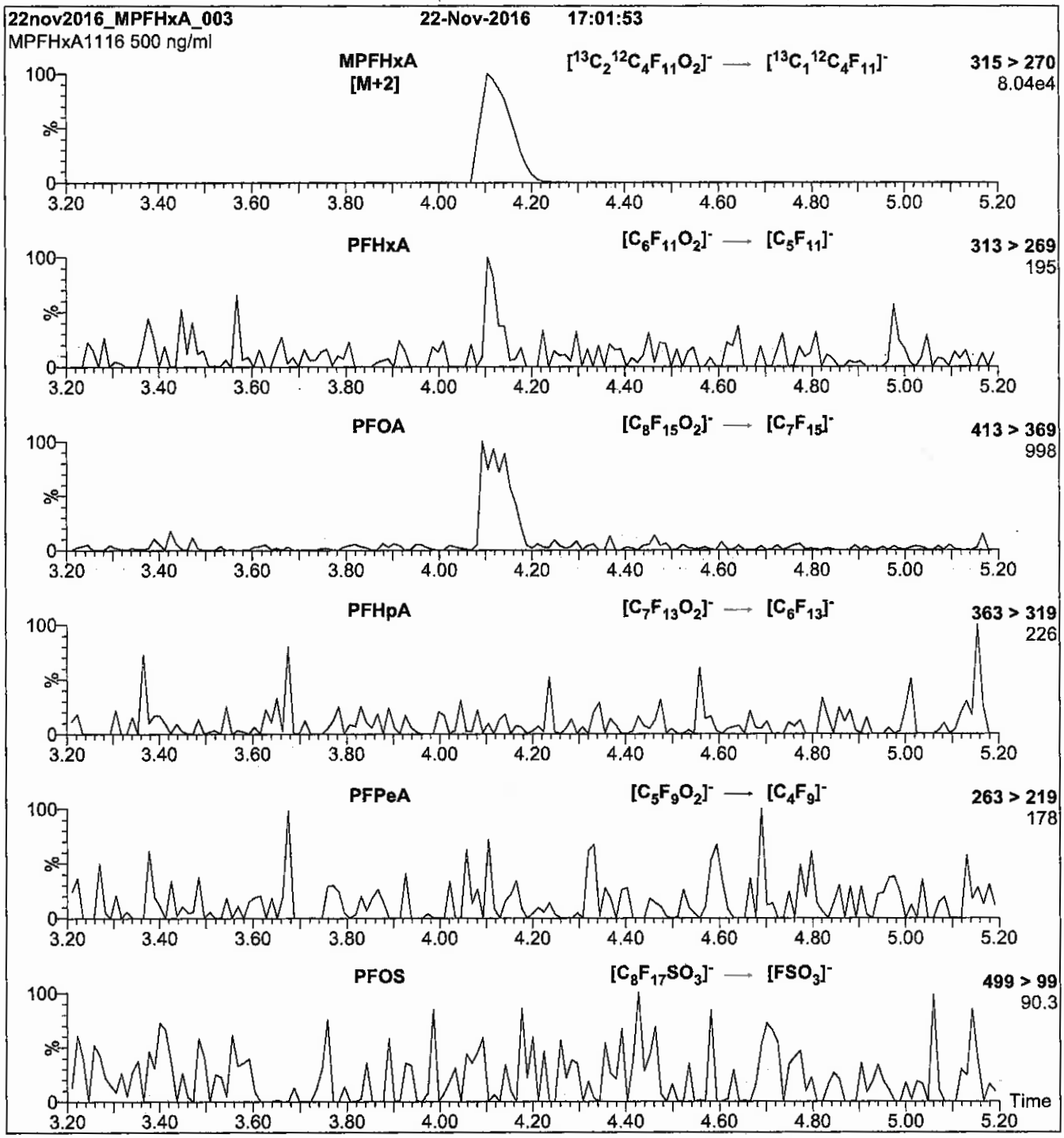
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

Flow: 300 µl/min

MS Parameters

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

Reagent

LCMPFOS_00019

R: SBC 12/21/16

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

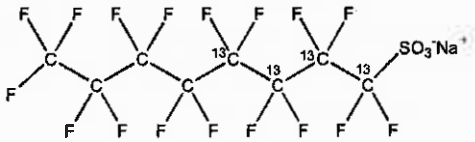
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

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

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
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:

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:

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

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

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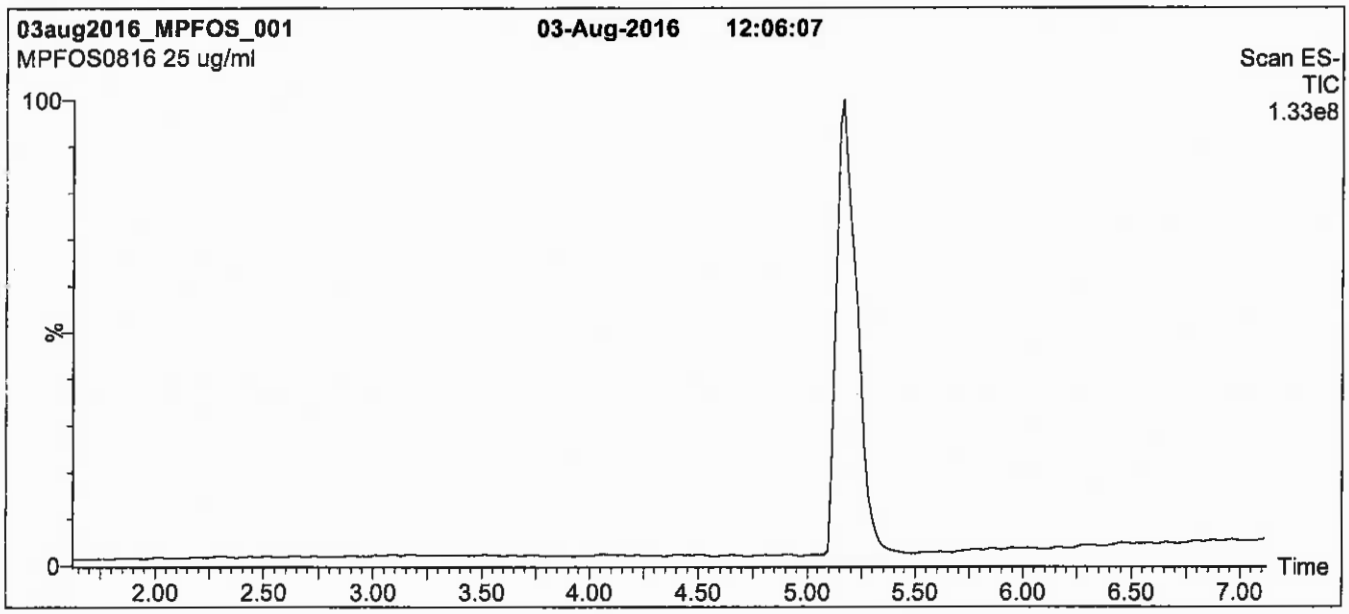
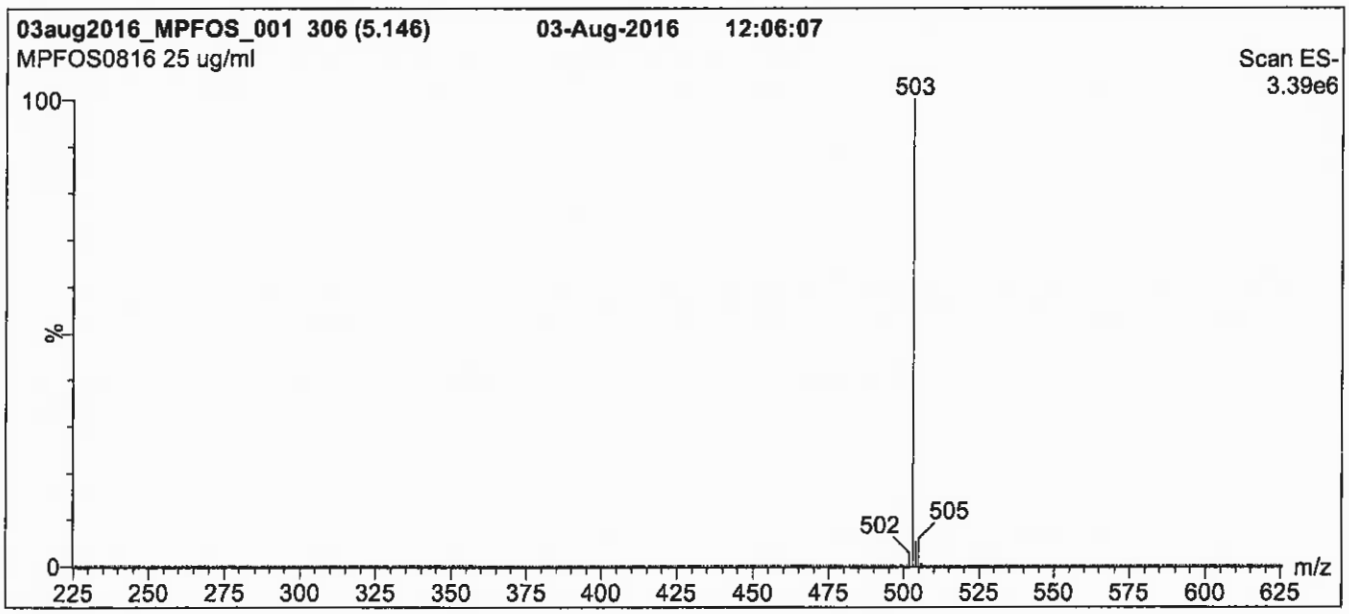
Figure 1: **MPFOS; LC/MS Data (TIC and Mass Spectrum)**





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

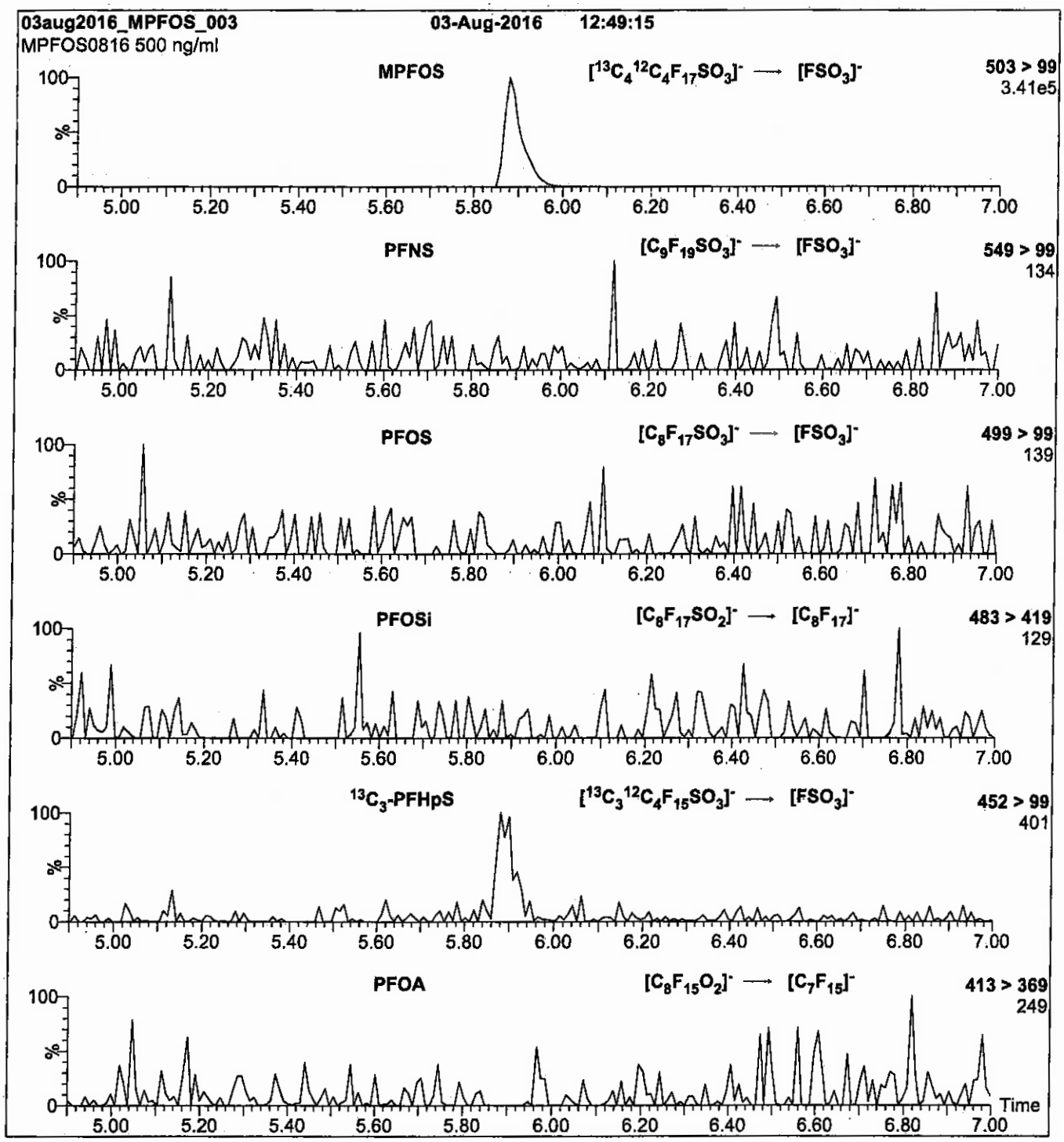
Flow: 300 µl/min

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

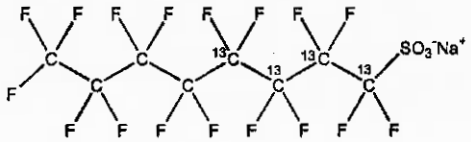
WELLINGTON LABORATORIES

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



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

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

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CALA

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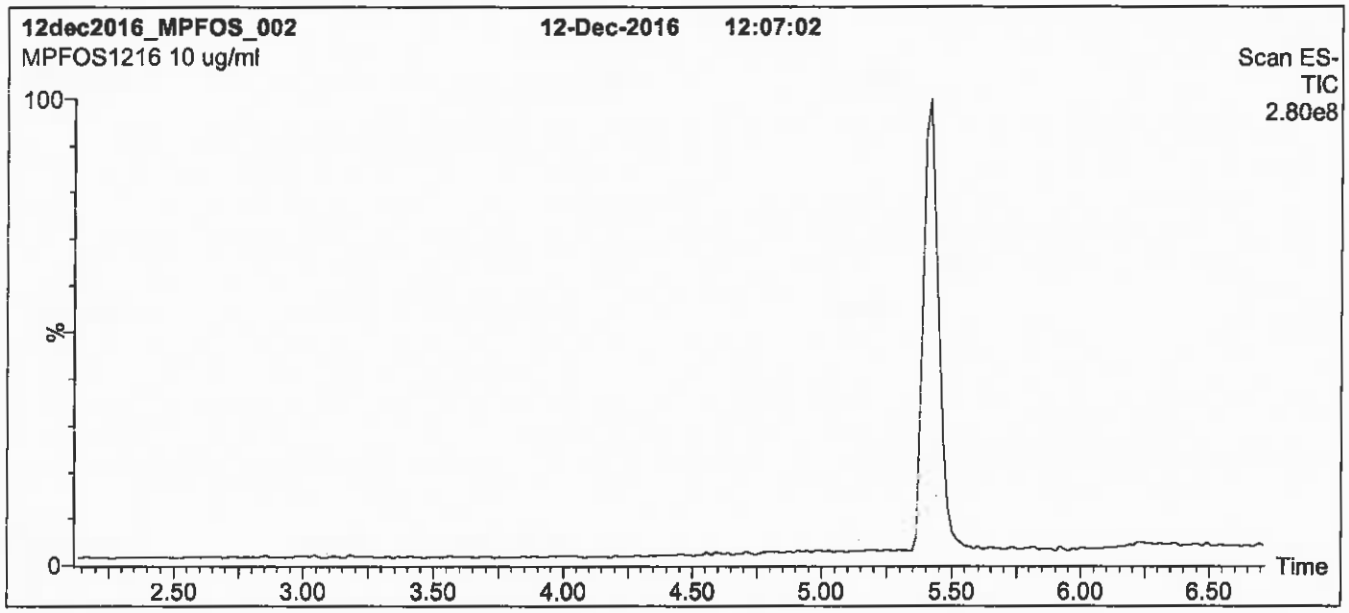

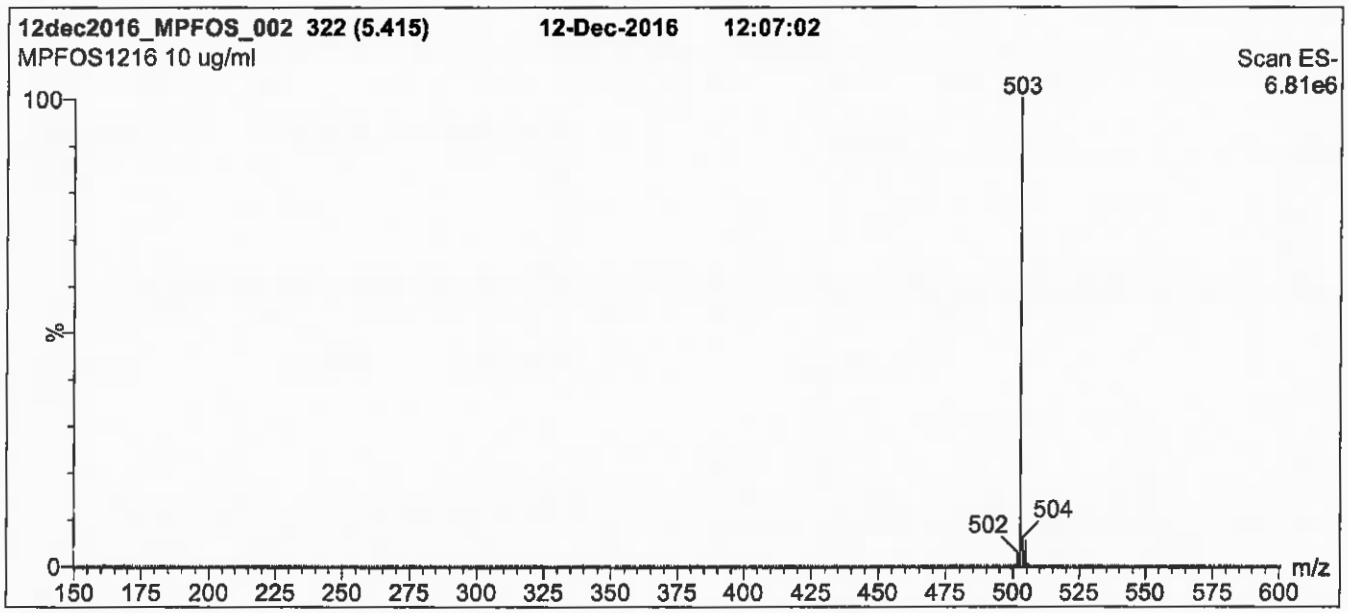

Conditions for Figure 1:

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

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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

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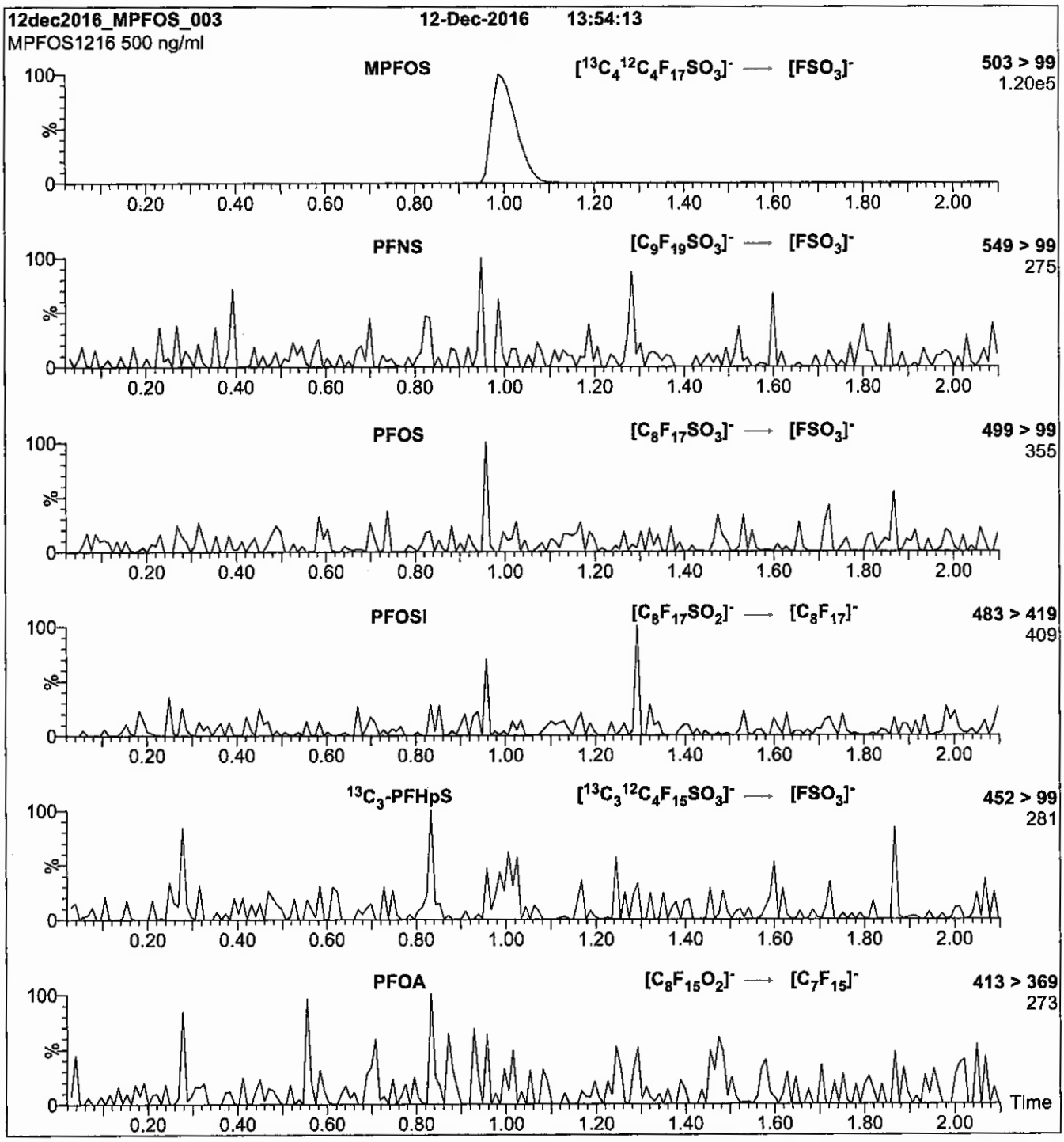

Conditions for Figure 2:

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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-010318-RW-275	320-34835-1	83	83
NAWC-010318-FRB-275	320-34835-2	91	88
NAWC-010318-RW-304	320-34835-3	92	85
NAWC-010318-FRB-304	320-34835-4	89	87
NAWC-010318-RW-154	320-34835-5	86	88
NAWC-010318-FRB-154	320-34835-6	102	98
NAWC-010318-RW-276	320-34835-7	92	86
NAWC-010318-FRB-276	320-34835-8	94	92
NAWC-010318-RW-261	320-34835-9	90	98
NAWC-010318-FRB-261	320-34835-10	90	87
NAWC-010318-RW-10	320-34835-11	92	92
NAWC-010318-FRB-10	320-34835-12	98	100
WGNA-010318-RW-0443	320-34835-13	86	101
WGNA-010318-FRB-0443	320-34835-14	99	101
WGNA-010318-RW-3493	320-34835-15	88	96
WGNA-010318-FRB-3493	320-34835-16	96	98
WGNA-010318-DUP-15	320-34835-17	83	91
WGNA-010318-RW-0500	320-34835-18	94	92
WGNA-010318-FRB-0500	320-34835-19	95	93
NAWC-010318-RW-145	320-34835-20	90	98
NAWC-010318-FRB-145	320-34835-21	94	102
NAWC-010318-RW-60	320-34835-22	92	98
NAWC-010318-FRB-60	320-34835-23	92	89
NAWC-010318-RW-106	320-34835-24	89	97
NAWC-010318-FRB-106	320-34835-25	97	99
NAWC-010318-RW-289	320-34835-26	97	94
NAWC-010318-FRB-289	320-34835-27	91	97
	MB 320-203312/1-A	92	84

	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	MB 320-203874/1-A	95	101
	LCS 320-203312/2-A	97	89
	LCS 320-203874/2-A	93	90
	LCSD 320-203874/3-A	94	98
NAWC-010318-RW-275 MS	320-34835-1 MS	93	90
NAWC-010318-RW-275 MSD	320-34835-1 MSD	94	91

	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.12_537A_008.d

Lab ID: LCS 320-203312/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	212	95	70-130	
Perfluorooctanoic acid (PFOA)	111	108	97	70-130	
Perfluorononanoic acid (PFNA)	111	105	94	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	174	105	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	60.7	109	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	530	106	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.18_537AA_028.d

Lab ID: LCS 320-203874/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	221	100	70-130	M
Perfluorooctanoic acid (PFOA)	111	107	96	70-130	
Perfluorononanoic acid (PFNA)	111	103	93	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	176	105	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	58.7	106	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	519	104	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.18_537AA_029.d

Lab ID: LCSD 320-203874/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	225	101	1	30	70-130	M
Perfluorooctanoic acid (PFOA)	111	115	103	7	30	70-130	
Perfluorononanoic acid (PFNA)	111	114	103	10	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	178	107	1	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	59.4	107	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	517	103	1	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.12_537A_010.d

Lab ID: 320-34835-1 MS Client ID: NAWC-010318-RW-275 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	220	25 J	241	98	70-130	
Perfluorooctanoic acid (PFOA)	110	13 J	121	98	70-130	
Perfluorononanoic acid (PFNA)	110	21 U	108	98	70-130	
Perfluorohexanesulfonic acid (PFHxS)	165	8.0 J	181	105	70-130	
Perfluoroheptanoic acid (PFHpA)	55.0	4.6 J	58.4	98	70-130	
Perfluorobutanesulfonic acid (PFBS)	495	37 U	536	108	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.12_537A_011.d

Lab ID: 320-34835-1 MSD Client ID: NAWC-010318-RW-275 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	232	263	103	9	30	70-130	
Perfluorooctanoic acid (PFOA)	116	130	101	7	30	70-130	M
Perfluorononanoic acid (PFNA)	116	112	97	4	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	174	191	106	6	30	70-130	
Perfluoroheptanoic acid (PFHpA)	57.9	65.0	104	11	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	521	578	111	8	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.: 320-34835-1

SDG No.: WE04

Lab File ID: 2018.01.12_537A_007.d Lab Sample ID: MB 320-203312/1-A

Matrix: Water Date Extracted: 01/10/2018 08:12

Instrument ID: A8_N Date Analyzed: 01/12/2018 17:35

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-203312/2-A	2018.01.12_537A_008.d	01/12/2018 17:39
NAWC-010318-RW-275	320-34835-1	2018.01.12_537A_009.d	01/12/2018 17:44
NAWC-010318-RW-275 MS	320-34835-1 MS	2018.01.12_537A_010.d	01/12/2018 17:49
NAWC-010318-RW-275 MSD	320-34835-1 MSD	2018.01.12_537A_011.d	01/12/2018 17:53
NAWC-010318-FRB-275	320-34835-2	2018.01.12_537A_012.d	01/12/2018 17:58
NAWC-010318-RW-304	320-34835-3	2018.01.12_537A_013.d	01/12/2018 18:03
NAWC-010318-FRB-304	320-34835-4	2018.01.12_537A_014.d	01/12/2018 18:08
NAWC-010318-RW-154	320-34835-5	2018.01.12_537A_015.d	01/12/2018 18:12
NAWC-010318-FRB-154	320-34835-6	2018.01.12_537A_016.d	01/12/2018 18:17
NAWC-010318-RW-276	320-34835-7	2018.01.12_537A_019.d	01/12/2018 18:31
NAWC-010318-FRB-276	320-34835-8	2018.01.12_537A_020.d	01/12/2018 18:36

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LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab File ID: 2018.01.18_537AA_027.d Lab Sample ID: MB 320-203874/1-A

Matrix: Water Date Extracted: 01/15/2018 08:55

Instrument ID: A8_N Date Analyzed: 01/19/2018 07:16

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-203874/2-A	2018.01.18_537AA_028.d	01/19/2018 07:21
	LCSD 320-203874/3-A	2018.01.18_537AA_029.d	01/19/2018 07:26
NAWC-010318-RW-261	320-34835-9	2018.01.18_537AA_030.d	01/19/2018 07:30
NAWC-010318-FRB-261	320-34835-10	2018.01.18_537AA_031.d	01/19/2018 07:35
NAWC-010318-RW-10	320-34835-11	2018.01.18_537AA_032.d	01/19/2018 07:40
NAWC-010318-FRB-10	320-34835-12	2018.01.18_537AA_033.d	01/19/2018 07:44
WGNA-010318-RW-0443	320-34835-13	2018.01.18_537AA_034.d	01/19/2018 07:49
WGNA-010318-FRB-0443	320-34835-14	2018.01.18_537AA_035.d	01/19/2018 07:54
WGNA-010318-RW-3493	320-34835-15	2018.01.18_537AA_036.d	01/19/2018 07:58
WGNA-010318-FRB-3493	320-34835-16	2018.01.18_537AA_039.d	01/19/2018 08:12
WGNA-010318-DUP-15	320-34835-17	2018.01.18_537AA_040.d	01/19/2018 08:17
WGNA-010318-RW-0500	320-34835-18	2018.01.18_537AA_041.d	01/19/2018 08:22
WGNA-010318-FRB-0500	320-34835-19	2018.01.18_537AA_042.d	01/19/2018 08:26
NAWC-010318-RW-145	320-34835-20	2018.01.18_537AA_043.d	01/19/2018 08:31
NAWC-010318-FRB-145	320-34835-21	2018.01.18_537AA_044.d	01/19/2018 08:36
NAWC-010318-RW-60	320-34835-22	2018.01.18_537AA_045.d	01/19/2018 08:40
NAWC-010318-FRB-60	320-34835-23	2018.01.18_537AA_046.d	01/19/2018 08:45
NAWC-010318-RW-106	320-34835-24	2018.01.18_537AA_047.d	01/19/2018 08:50
NAWC-010318-FRB-106	320-34835-25	2018.01.18_537AA_048.d	01/19/2018 08:55
NAWC-010318-RW-289	320-34835-26	2018.01.18_537AA_051.d	01/19/2018 09:08
NAWC-010318-FRB-289	320-34835-27	2018.01.18_537AA_052.d	01/19/2018 09:13

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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 320-203796/1		1588932	1.82	3285434	2.08		
CCV 320-203801/24 CCVIS		1449500	1.80	3080512	2.06		
MB 320-203312/1-A		1514209	1.81	3179488	2.06		
LCS 320-203312/2-A		1470940	1.80	3210272	2.05		
320-34835-1	NAWC-010318-RW-275	1658305	1.80	3349651	2.05		
320-34835-1 MS	NAWC-010318-RW-275 MS	1528627	1.81	3234823	2.06		
320-34835-1 MSD	NAWC-010318-RW-275 MSD	1543137	1.81	3203051	2.06		
320-34835-2	NAWC-010318-FRB-275	1482490	1.80	3216746	2.05		
320-34835-3	NAWC-010318-RW-304	1480796	1.80	3199088	2.06		
320-34835-4	NAWC-010318-FRB-304	1503011	1.81	3200325	2.06		
320-34835-5	NAWC-010318-RW-154	1497753	1.80	3179545	2.05		
320-34835-6	NAWC-010318-FRB-154	1423717	1.81	3133709	2.06		
CCV 320-203801/36 CCVIS		1559037	1.81	3132099	2.06		
CCV 320-203803/36 CCVIS		1559037	1.81	3132099	2.06		
320-34835-7	NAWC-010318-RW-276	1560456	1.80	3342120	2.05		
320-34835-8	NAWC-010318-FRB-276	1503114	1.81	3043533	2.05		
CCV 320-203803/40 CCVIS		1519356	1.81	3210832	2.06		
CCVL 320-204450/1		1486601	1.81	3144562	2.07		
CCV 320-204650/1 CCVIS		1547300	1.80	3364289	2.04		
MB 320-203874/1-A		1533627	1.80	3369760	2.05		
LCS 320-203874/2-A		1610627	1.79	3341864	2.04		
LCSD 320-203874/3-A		1603492	1.80	3446900	2.05		
320-34835-9	NAWC-010318-RW-261	1615211	1.79	3396247	2.04		
320-34835-10	NAWC-010318-FRB-261	1663807	1.80	3387447	2.05		
320-34835-11	NAWC-010318-RW-10	1621192	1.80	3547464	2.05		

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.: 320-34835-1

SDG No.: WE04

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						
320-34835-12	NAWC-010318-FRB-10	1526405	1.80	3466038	2.05		
320-34835-13	WGNA-010318-RW-0443	1645502	1.80	3564384	2.05		
320-34835-14	WGNA-010318-FRB-0443	1585577	1.79	3402238	2.04		
320-34835-15	WGNA-010318-RW-3493	1682825	1.80	3560565	2.05		
CCV 320-204650/13 CCVIS		1602486	1.80	3325198	2.04		
CCV 320-204651/13 CCVIS		1602486	1.80	3325198	2.04		
320-34835-16	WGNA-010318-FRB-3493	1608441	1.80	3448304	2.05		
320-34835-17	WGNA-010318-DUP-15	1758057	1.80	3706319	2.04		
320-34835-18	WGNA-010318-RW-0500	1649193	1.79	3615644	2.04		
320-34835-19	WGNA-010318-FRB-0500	1664203	1.80	3368986	2.04		
320-34835-20	NAWC-010318-RW-145	1627358	1.79	3497964	2.03		
320-34835-21	NAWC-010318-FRB-145	1592244	1.79	3563241	2.04		
320-34835-22	NAWC-010318-RW-60	1605437	1.79	3395464	2.03		
320-34835-23	NAWC-010318-FRB-60	1608194	1.79	3630499	2.04		
320-34835-24	NAWC-010318-RW-106	1654275	1.80	3687553	2.04		
320-34835-25	NAWC-010318-FRB-106	1599562	1.79	3388397	2.04		
CCV 320-204651/25 CCVIS		1573197	1.80	3606926	2.05		
CCV 320-204654/25 CCVIS		1573197	1.80	3606926	2.05		
320-34835-26	NAWC-010318-RW-289	1568022	1.79	3485481	2.04		
320-34835-27	NAWC-010318-FRB-289	1570143	1.79	3471389	2.04		
CCV 320-204654/29 CCVIS		1611950	1.79	3510319	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.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203801/24 Date Analyzed: 01/12/2018 17:16

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

Lab File ID (Standard): 2018.01.12_537A_045 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1449500	1.80	3080512	2.06		
UPPER LIMIT		2029300	2.30	4312717	2.56		
LOWER LIMIT		1014650	1.30	2156358	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203312/1-A		1514209	1.81	3179488	2.06		
LCS 320-203312/2-A		1470940	1.80	3210272	2.05		
320-34835-1	NAWC-010318-RW-275	1658305	1.80	3349651	2.05		
320-34835-1 MS	NAWC-010318-RW-275 MS	1528627	1.81	3234823	2.06		
320-34835-1 MSD	NAWC-010318-RW-275 MSD	1543137	1.81	3203051	2.06		
320-34835-2	NAWC-010318-FRB-275	1482490	1.80	3216746	2.05		
320-34835-3	NAWC-010318-RW-304	1480796	1.80	3199088	2.06		
320-34835-4	NAWC-010318-FRB-304	1503011	1.81	3200325	2.06		
320-34835-5	NAWC-010318-RW-154	1497753	1.80	3179545	2.05		
320-34835-6	NAWC-010318-FRB-154	1423717	1.81	3133709	2.06		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203801/36 Date Analyzed: 01/12/2018 18:22

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

Lab File ID (Standard): 2018.01.12_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1559037	1.81	3132099	2.06		
UPPER LIMIT		2182652	2.31	4384939	2.56		
LOWER LIMIT		1091326	1.31	2192469	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203312/1-A		1514209	1.81	3179488	2.06		
LCS 320-203312/2-A		1470940	1.80	3210272	2.05		
320-34835-1	NAWC-010318-RW-275	1658305	1.80	3349651	2.05		
320-34835-1 MS	NAWC-010318-RW-275 MS	1528627	1.81	3234823	2.06		
320-34835-1 MSD	NAWC-010318-RW-275 MSD	1543137	1.81	3203051	2.06		
320-34835-2	NAWC-010318-FRB-275	1482490	1.80	3216746	2.05		
320-34835-3	NAWC-010318-RW-304	1480796	1.80	3199088	2.06		
320-34835-4	NAWC-010318-FRB-304	1503011	1.81	3200325	2.06		
320-34835-5	NAWC-010318-RW-154	1497753	1.80	3179545	2.05		
320-34835-6	NAWC-010318-FRB-154	1423717	1.81	3133709	2.06		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203803/36 Date Analyzed: 01/12/2018 18:22

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

Lab File ID (Standard): 2018.01.12_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1559037	1.81	3132099	2.06		
UPPER LIMIT		2182652	2.31	4384939	2.56		
LOWER LIMIT		1091326	1.31	2192469	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-7	NAWC-010318-RW-276	1560456	1.80	3342120	2.05		
320-34835-8	NAWC-010318-FRB-276	1503114	1.81	3043533	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203803/40 Date Analyzed: 01/12/2018 18:40

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

Lab File ID (Standard): 2018.01.12_537A_021 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1519356	1.81	3210832	2.06		
UPPER LIMIT		2127098	2.31	4495165	2.56		
LOWER LIMIT		1063549	1.31	2247582	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-7	NAWC-010318-RW-276	1560456	1.80	3342120	2.05		
320-34835-8	NAWC-010318-FRB-276	1503114	1.81	3043533	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204650/1 Date Analyzed: 01/19/2018 07:07

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

Lab File ID (Standard): 2018.01.18_537AA_02 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1547300	1.80	3364289	2.04		
UPPER LIMIT		2166220	2.30	4710005	2.54		
LOWER LIMIT		1083110	1.30	2355002	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203874/1-A		1533627	1.80	3369760	2.05		
LCS 320-203874/2-A		1610627	1.79	3341864	2.04		
LCSD 320-203874/3-A		1603492	1.80	3446900	2.05		
320-34835-9	NAWC-010318-RW-261	1615211	1.79	3396247	2.04		
320-34835-10	NAWC-010318-FRB-261	1663807	1.80	3387447	2.05		
320-34835-11	NAWC-010318-RW-10	1621192	1.80	3547464	2.05		
320-34835-12	NAWC-010318-FRB-10	1526405	1.80	3466038	2.05		
320-34835-13	WGNA-010318-RW-0443	1645502	1.80	3564384	2.05		
320-34835-14	WGNA-010318-FRB-0443	1585577	1.79	3402238	2.04		
320-34835-15	WGNA-010318-RW-3493	1682825	1.80	3560565	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204650/13 Date Analyzed: 01/19/2018 08:03

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

Lab File ID (Standard): 2018.01.18_537AA_03 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1602486	1.80	3325198	2.04		
UPPER LIMIT		2243480	2.30	4655277	2.54		
LOWER LIMIT		1121740	1.30	2327639	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203874/1-A		1533627	1.80	3369760	2.05		
LCS 320-203874/2-A		1610627	1.79	3341864	2.04		
LCSD 320-203874/3-A		1603492	1.80	3446900	2.05		
320-34835-9	NAWC-010318-RW-261	1615211	1.79	3396247	2.04		
320-34835-10	NAWC-010318-FRB-261	1663807	1.80	3387447	2.05		
320-34835-11	NAWC-010318-RW-10	1621192	1.80	3547464	2.05		
320-34835-12	NAWC-010318-FRB-10	1526405	1.80	3466038	2.05		
320-34835-13	WGNA-010318-RW-0443	1645502	1.80	3564384	2.05		
320-34835-14	WGNA-010318-FRB-0443	1585577	1.79	3402238	2.04		
320-34835-15	WGNA-010318-RW-3493	1682825	1.80	3560565	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204651/13 Date Analyzed: 01/19/2018 08:03

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

Lab File ID (Standard): 2018.01.18_537AA_03 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1602486	1.80	3325198	2.04		
UPPER LIMIT		2243480	2.30	4655277	2.54		
LOWER LIMIT		1121740	1.30	2327639	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-16	WGNA-010318-FRB-3493	1608441	1.80	3448304	2.05		
320-34835-17	WGNA-010318-DUP-15	1758057	1.80	3706319	2.04		
320-34835-18	WGNA-010318-RW-0500	1649193	1.79	3615644	2.04		
320-34835-19	WGNA-010318-FRB-0500	1664203	1.80	3368986	2.04		
320-34835-20	NAWC-010318-RW-145	1627358	1.79	3497964	2.03		
320-34835-21	NAWC-010318-FRB-145	1592244	1.79	3563241	2.04		
320-34835-22	NAWC-010318-RW-60	1605437	1.79	3395464	2.03		
320-34835-23	NAWC-010318-FRB-60	1608194	1.79	3630499	2.04		
320-34835-24	NAWC-010318-RW-106	1654275	1.80	3687553	2.04		
320-34835-25	NAWC-010318-FRB-106	1599562	1.79	3388397	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204651/25 Date Analyzed: 01/19/2018 08:59

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

Lab File ID (Standard): 2018.01.18_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1573197	1.80	3606926	2.05		
UPPER LIMIT		2202476	2.30	5049696	2.55		
LOWER LIMIT		1101238	1.30	2524848	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-16	WGNA-010318-FRB-3493	1608441	1.80	3448304	2.05		
320-34835-17	WGNA-010318-DUP-15	1758057	1.80	3706319	2.04		
320-34835-18	WGNA-010318-RW-0500	1649193	1.79	3615644	2.04		
320-34835-19	WGNA-010318-FRB-0500	1664203	1.80	3368986	2.04		
320-34835-20	NAWC-010318-RW-145	1627358	1.79	3497964	2.03		
320-34835-21	NAWC-010318-FRB-145	1592244	1.79	3563241	2.04		
320-34835-22	NAWC-010318-RW-60	1605437	1.79	3395464	2.03		
320-34835-23	NAWC-010318-FRB-60	1608194	1.79	3630499	2.04		
320-34835-24	NAWC-010318-RW-106	1654275	1.80	3687553	2.04		
320-34835-25	NAWC-010318-FRB-106	1599562	1.79	3388397	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204654/25 Date Analyzed: 01/19/2018 08:59

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

Lab File ID (Standard): 2018.01.18_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1573197	1.80	3606926	2.05		
UPPER LIMIT		2202476	2.30	5049696	2.55		
LOWER LIMIT		1101238	1.30	2524848	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-26	NAWC-010318-RW-289	1568022	1.79	3485481	2.04		
320-34835-27	NAWC-010318-FRB-289	1570143	1.79	3471389	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204654/29 Date Analyzed: 01/19/2018 09:18

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

Lab File ID (Standard): 2018.01.18_537AA_05 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1611950	1.79	3510319	2.04		
UPPER LIMIT		2256730	2.29	4914447	2.54		
LOWER LIMIT		1128365	1.29	2457223	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-26	NAWC-010318-RW-289	1568022	1.79	3485481	2.04		
320-34835-27	NAWC-010318-FRB-289	1570143	1.79	3471389	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-275 | Lab Sample ID: 320-34835-1

Matrix: Water | Lab File ID: 2018.01.12_537A_009.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 241.6(mL) | Date Analyzed: 01/12/2018 17:44

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	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	83		70-130
STL00996	13C2 PFDA	83		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_009.d
Lims ID: 320-34835-A-1-A
Client ID: NAWC-010318-RW-275
Sample Type: Client
Inject. Date: 12-Jan-2018 17:44:39 ALS Bottle#: 16 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:30:12

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	1.444	-0.086	1.000	389454	2.99		405	
298.90 > 99.00	1.358	1.444	-0.086	1.000	288221		1.35(0.00-0.00)	606	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1520371	8.33		8089	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	379633	1.94		187	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	171732	1.11		31.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1658305	10.0		7469	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	489363	3.19		64.6	
413.00 > 169.00	1.798	1.914	-0.116	1.000	289629		1.69(0.00-0.00)	573	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.048	2.056	-0.008	1.000	652746	5.95		219	M
499.00 > 99.00	2.056	2.056	0.0	1.004	120929		5.40(0.00-0.00)	200	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3349651	28.7		2860	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	70341	0.6387		10.9	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1049821	8.27		6705	

QC Flag Legend

Review Flags

M - Manually Integrated

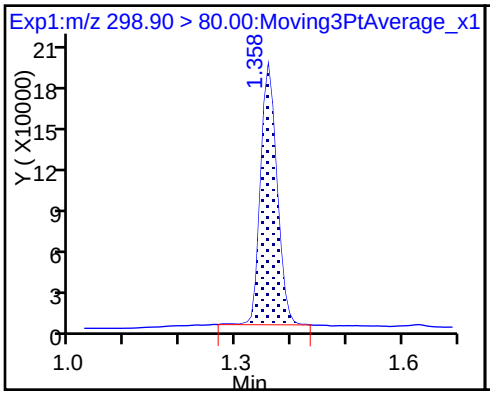
Report Date: 15-Jan-2018 13:47:12 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

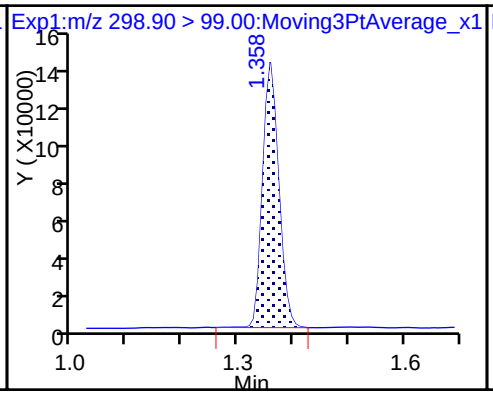
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_009.d

Injection Date:	12-Jan-2018 17:44:39	Instrument ID:	A8_N		
Lims ID:	320-34835-A-1-A	Lab Sample ID:	320-34835-1		
Client ID:	NAWC-010318-RW-275				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

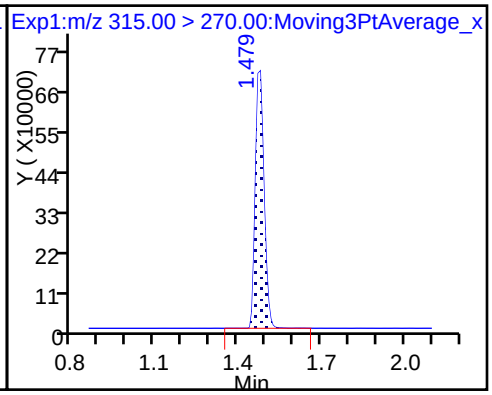
1 Perfluorobutanesulfonic acid



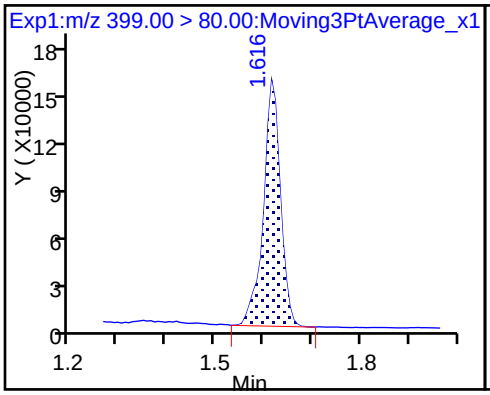
1 Perfluorobutanesulfonic acid



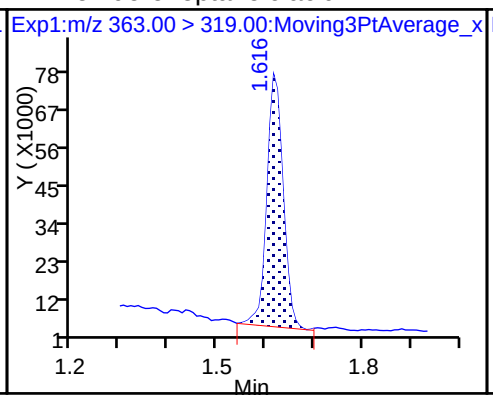
$ 2 13C2 PFHxA



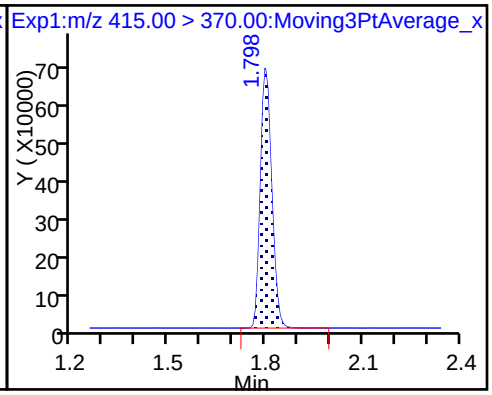
3 Perfluorohexanesulfonic acid



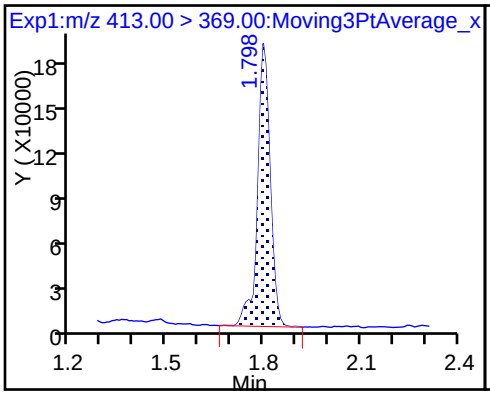
4 Perfluoroheptanoic acid



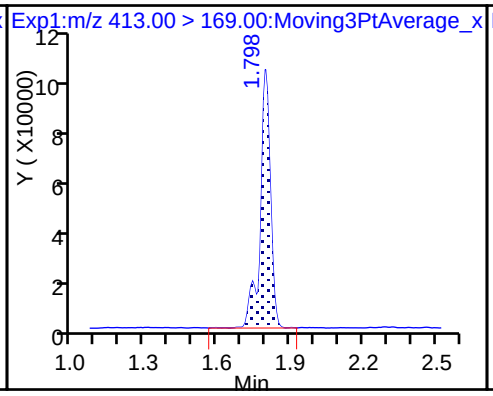
* 6 13C2-PFOA



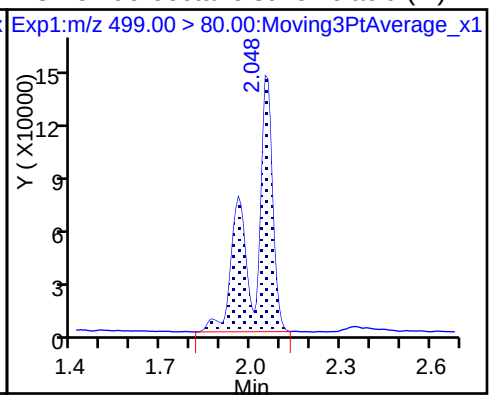
5 Perfluorooctanoic acid



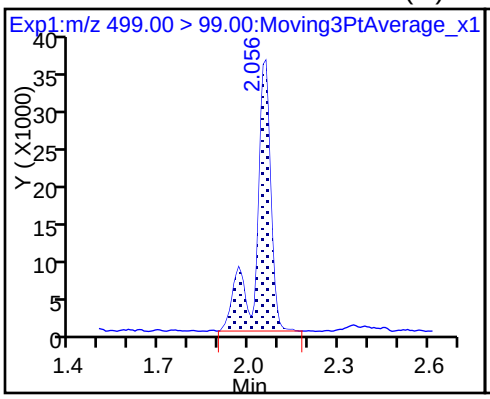
5 Perfluorooctanoic acid



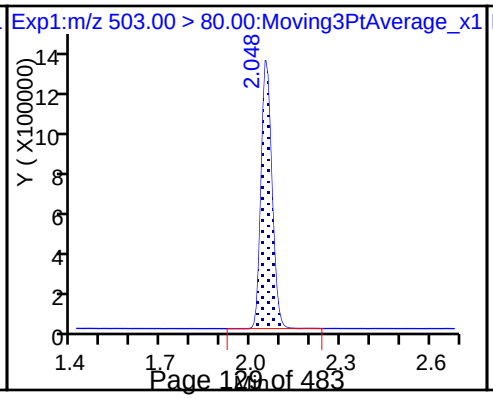
8 Perfluorooctane sulfonic acid (M)



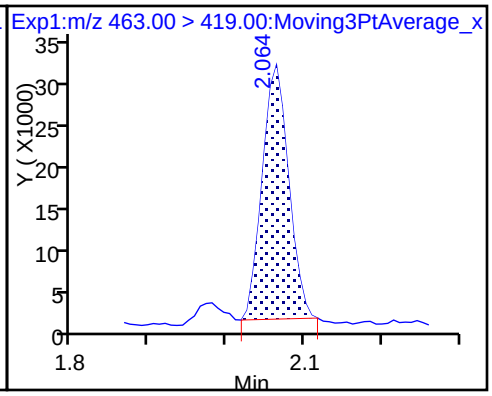
8 Perfluorooctane sulfonic acid (M)



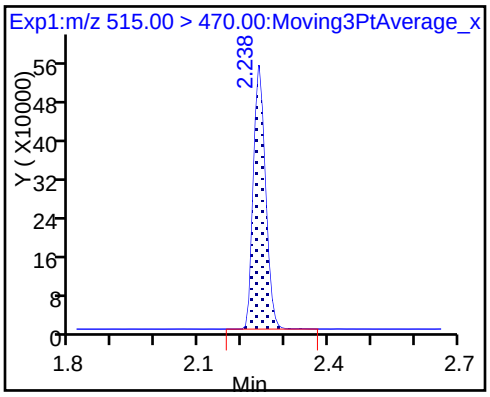
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 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

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_009.d				
Lims ID:	320-34835-A-1-A				
Client ID:	NAWC-010318-RW-275				
Sample Type:	Client				
Inject. Date:	12-Jan-2018 17:44:39	ALS Bottle#:	16	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-1-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	15-Jan-2018 13:47:05	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:	XAWRK028				
First Level Reviewer: westendorfc		Date:	15-Jan-2018 09:30:12		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.33	83.33
$ 10 13C2 PFDA	10.0	8.27	82.73

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

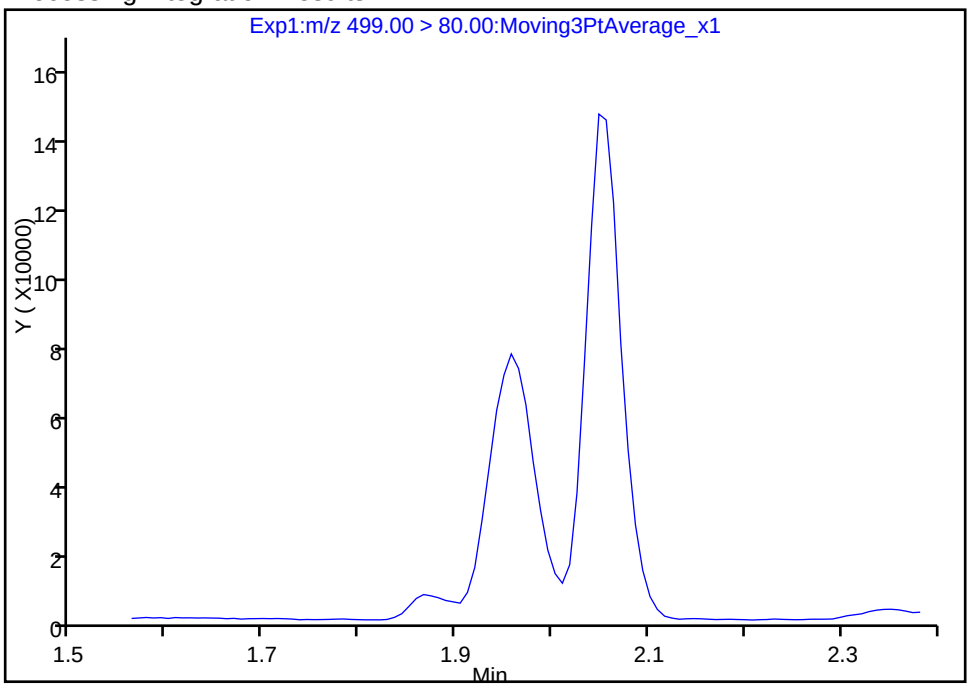
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_009.d				
Injection Date:	12-Jan-2018 17:44:39	Instrument ID:	A8_N		
Lims ID:	320-34835-A-1-A	Lab Sample ID:	320-34835-1		
Client ID:	NAWC-010318-RW-275				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	28
Injection 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

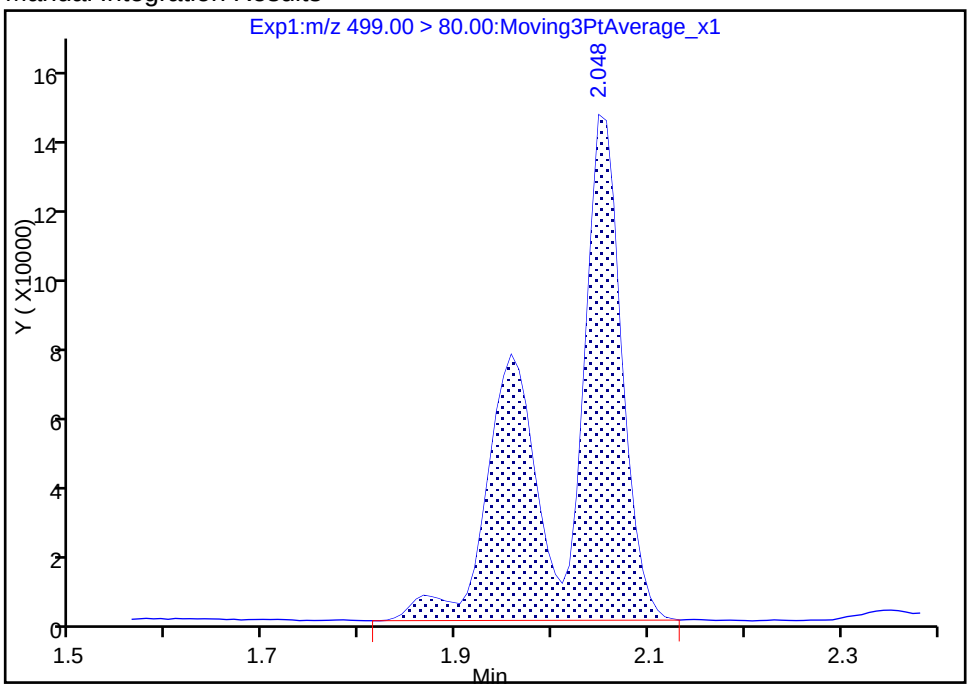
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 652746
Amount: 5.952261
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:29:49
Audit Action: Assigned Compound ID Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

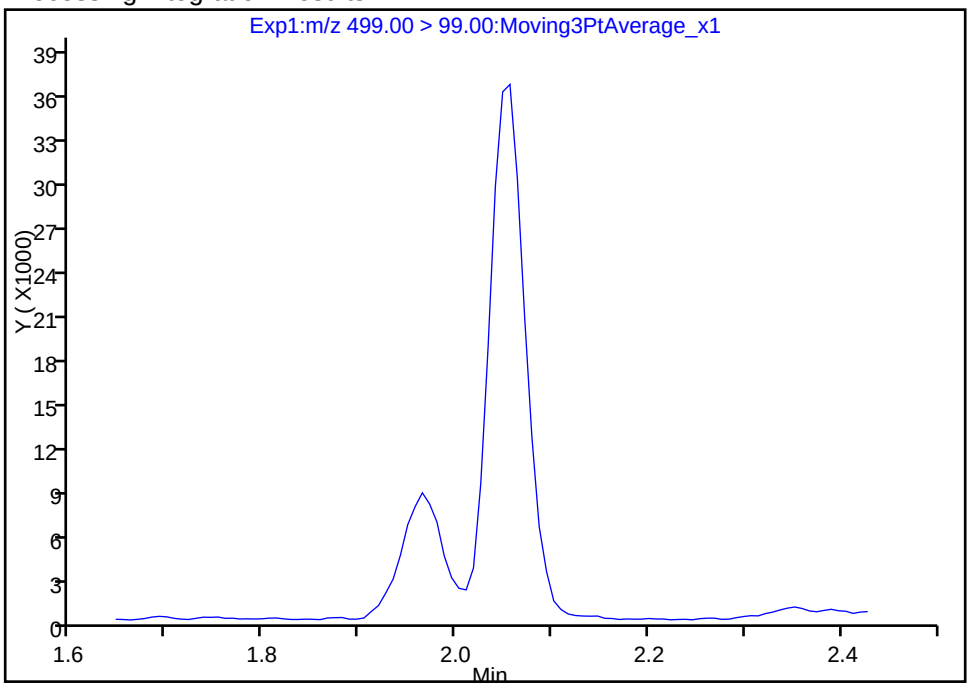
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_009.d				
Injection Date:	12-Jan-2018 17:44:39	Instrument ID:	A8_N		
Lims ID:	320-34835-A-1-A	Lab Sample ID:	320-34835-1		
Client ID:	NAWC-010318-RW-275				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	28
Injection 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

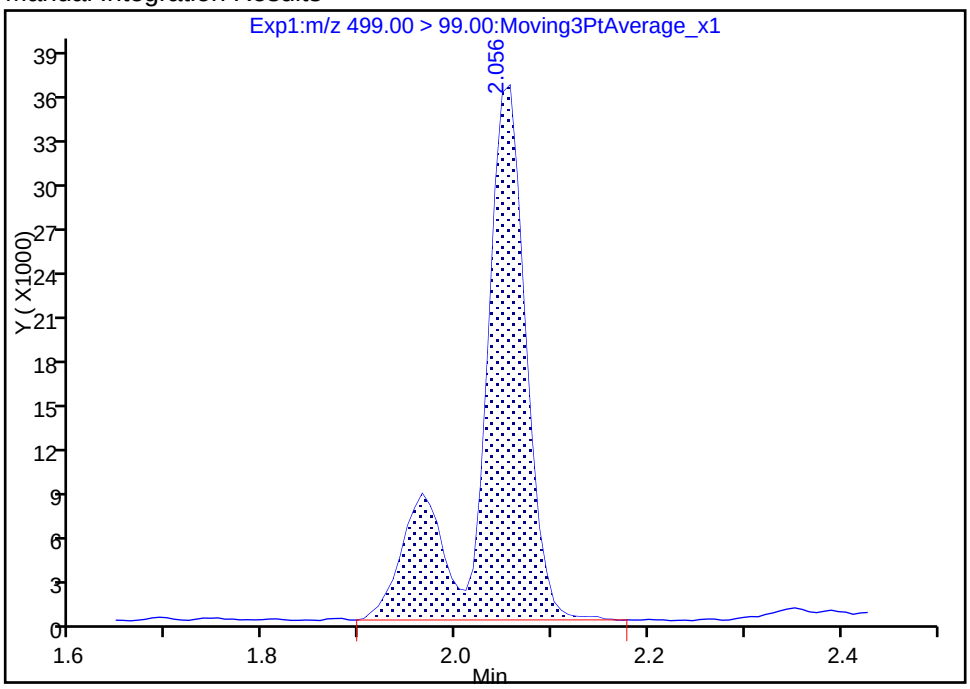
Processing Integration Results

Not Detected
Expected RT: 2.06



Manual Integration Results

RT: 2.06
Area: 120929
Amount: 5.952261
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:30:04
Audit Action: Manually Integrated Audit Reason: Baseline

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

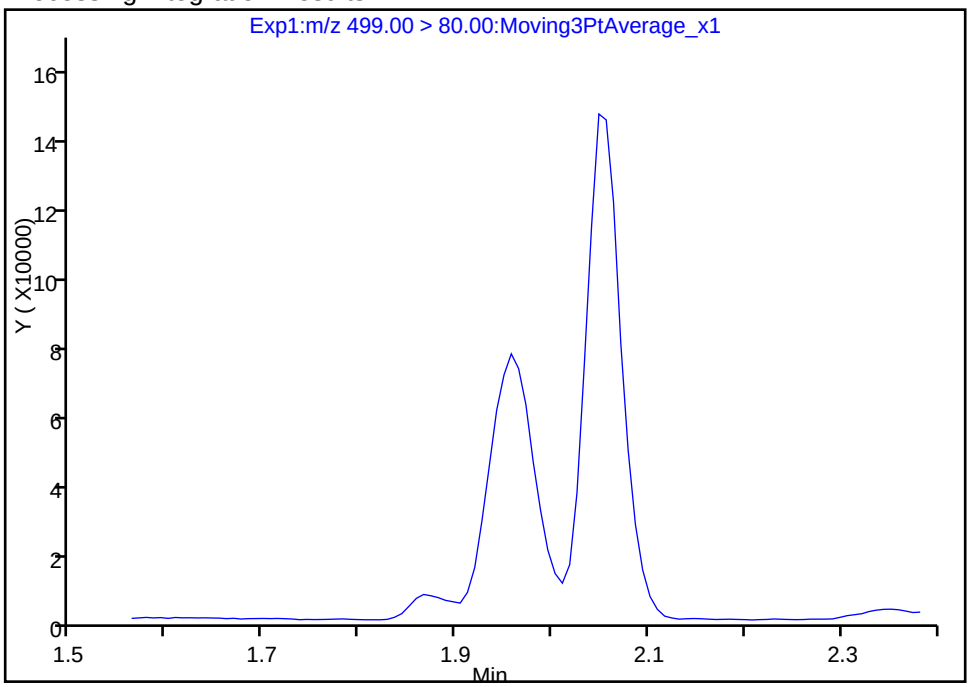
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_009.d				
Injection Date:	12-Jan-2018 17:44:39	Instrument ID:	A8_N		
Lims ID:	320-34835-A-1-A	Lab Sample ID:	320-34835-1		
Client ID:	NAWC-010318-RW-275				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	16	Worklist Smp#:	28
Injection 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

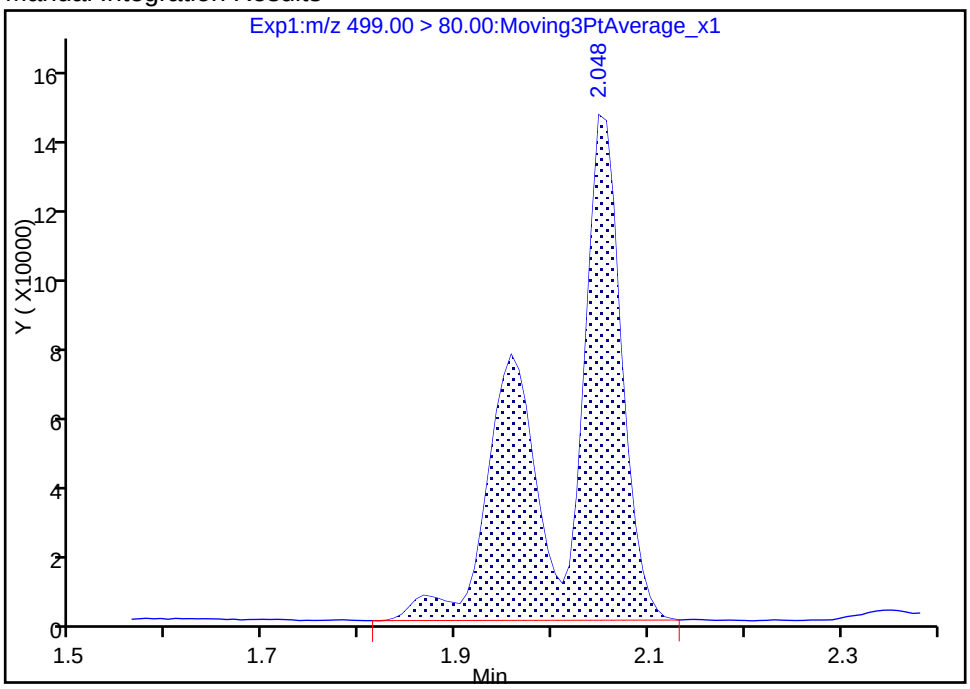
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 652746
Amount: 5.952261
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:30:04
Audit Action: Manually Integrated Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-275 | Lab Sample ID: 320-34835-2

Matrix: Water | Lab File ID: 2018.01.12_537A_012.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:05

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 252.6(mL) | Date Analyzed: 01/12/2018 17:58

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

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

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

Analysis Batch No.: 203801 | 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	91		70-130
STL00996	13C2 PFDA	88		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_012.d
Lims ID: 320-34835-A-2-A
Client ID: NAWC-010318-FRB-275
Sample Type: Client
Inject. Date: 12-Jan-2018 17:58:39 ALS Bottle#: 19 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1489297	9.13		7742	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1482490	10.0		7218	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3216746	28.7		8398	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	993628	8.76		6478	

Report Date: 15-Jan-2018 13:47:15 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_012.d

Injection Date: 12-Jan-2018 17:58:39 Instrument ID: A8_N

Lims ID: 320-34835-A-2-A Lab Sample ID: 320-34835-2

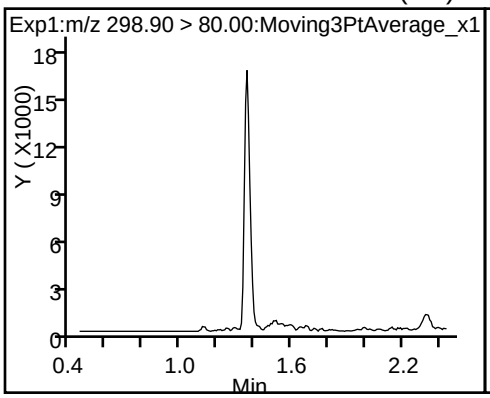
Client ID: NAWC-010318-FRB-275

Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 31

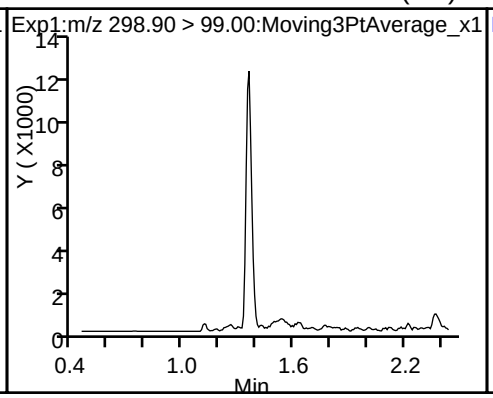
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

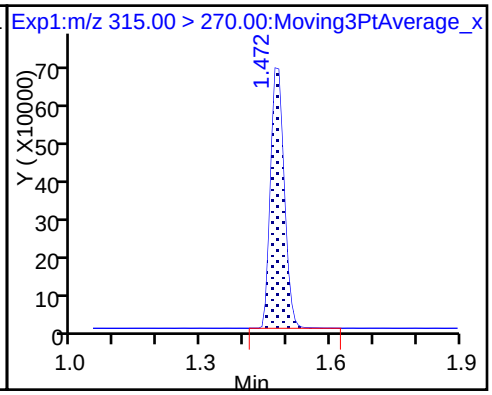
1 Perfluorobutanesulfonic acid (ND)



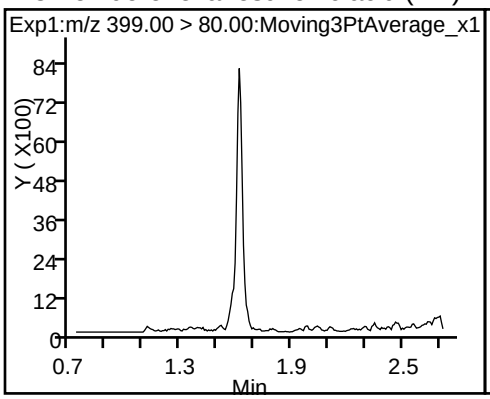
1 Perfluorobutanesulfonic acid (ND)



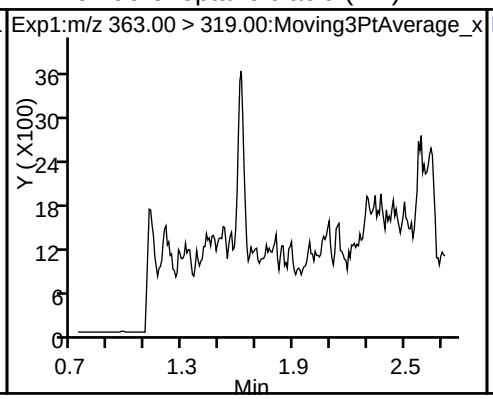
$ 2 13C2 PFHxA



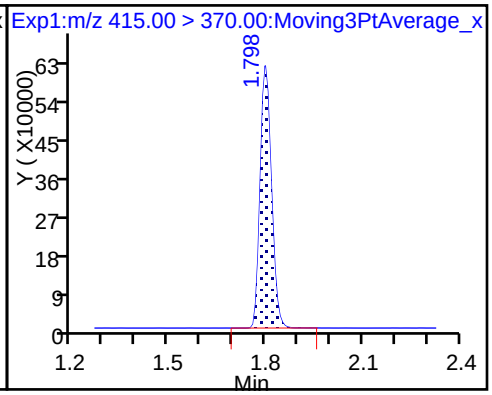
3 Perfluorohexanesulfonic acid (ND)



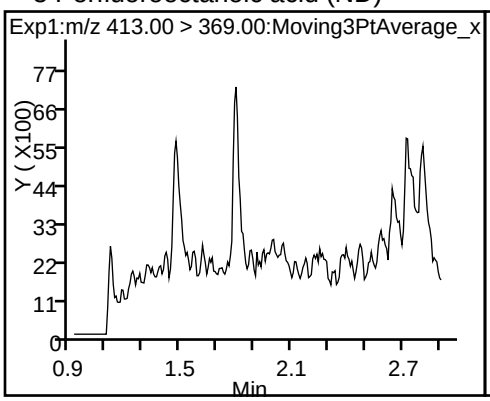
4 Perfluoroheptanoic acid (ND)



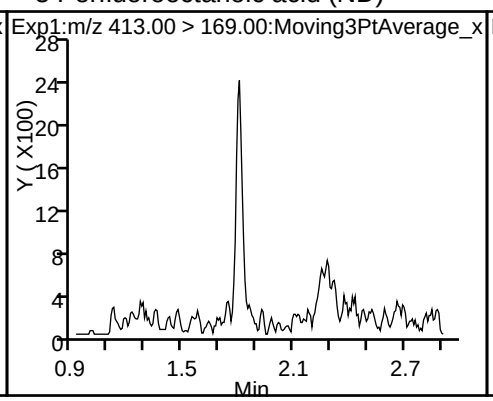
* 6 13C2-PFOA



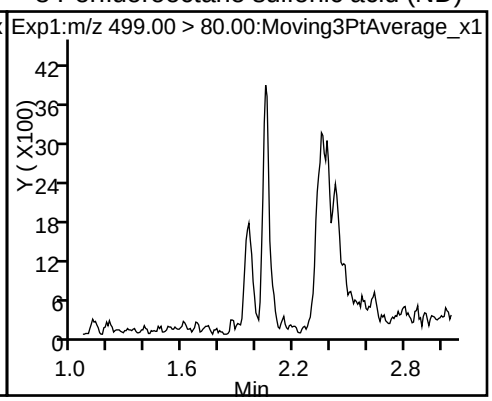
5 Perfluorooctanoic acid (ND)



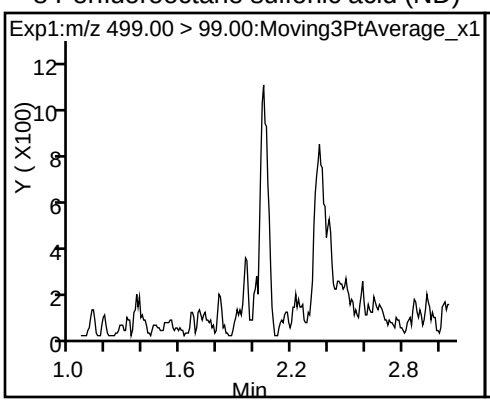
5 Perfluorooctanoic acid (ND)



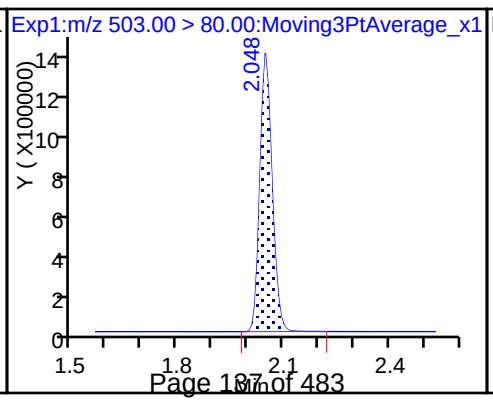
8 Perfluorooctane sulfonic acid (ND)



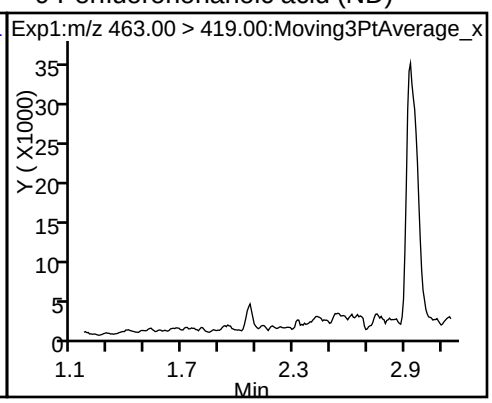
8 Perfluorooctane sulfonic acid (ND)



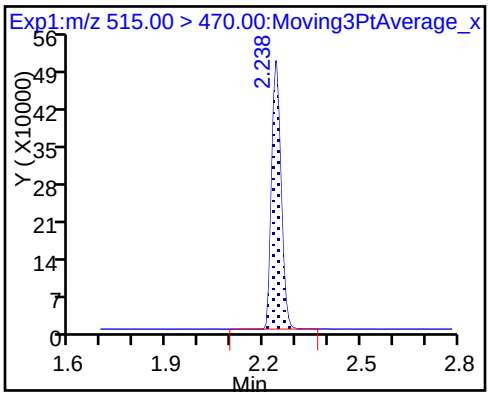
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
56
49
42
35
28
21
14
7
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_012.d				
Lims ID:	320-34835-A-2-A				
Client ID:	NAWC-010318-FRB-275				
Sample Type:	Client				
Inject. Date:	12-Jan-2018 17:58:39	ALS Bottle#:	19	Worklist Smp#:	31
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-2-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	15-Jan-2018 13:47:05	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:	XAWRK028				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.13	91.30
$ 10 13C2 PFDA	10.0	8.76	87.59

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-304 | Lab Sample ID: 320-34835-3

Matrix: Water | Lab File ID: 2018.01.12_537A_013.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:40

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 231.4(mL) | Date Analyzed: 01/12/2018 18:03

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J M	43	17	7.3
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	22	8.6	3.0
375-95-1	Perfluorononanoic acid (PFNA)	22	U M	26	22	8.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.8	J	32	13	5.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	11	4.3	2.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	39	U	97	39	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	85		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_013.d
Lims ID: 320-34835-A-3-A
Client ID: NAWC-010318-RW-304
Sample Type: Client
Inject. Date: 12-Jan-2018 18:03:20 ALS Bottle#: 20 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	204938	1.65		242	
298.90 > 99.00	1.358	1.444	-0.086	1.000	146975		1.39(0.00-0.00)	335	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1493662	9.17		8571	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	423729	2.27		373	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	157202	1.13		36.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1480796	10.0		6212	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	525621	3.83		80.0	
413.00 > 169.00	1.806	1.914	-0.108	1.000	304114		1.73(0.00-0.00)	593	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.056	2.056	0.0	1.000	565728	5.40		248	M
499.00 > 99.00	2.056	2.056	0.0	1.000	111951		5.05(0.00-0.00)	244	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3199088	28.7		5189	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.064	2.158	-0.094	1.000	44112	0.4485		6.2	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	967764	8.54		6836	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 15-Jan-2018 13:47:16 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_013.d

Injection Date: 12-Jan-2018 18:03:20 Instrument ID: A8_N

Lims ID: 320-34835-A-3-A Lab Sample ID: 320-34835-3

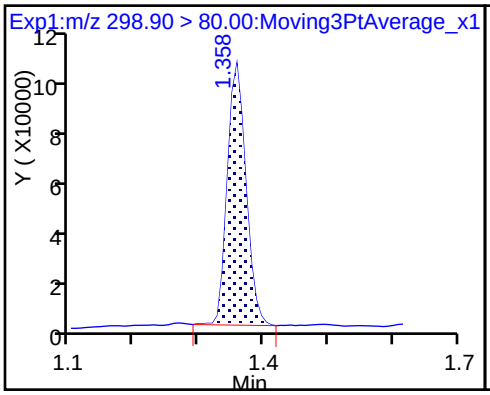
Client ID: NAWC-010318-RW-304

Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 32

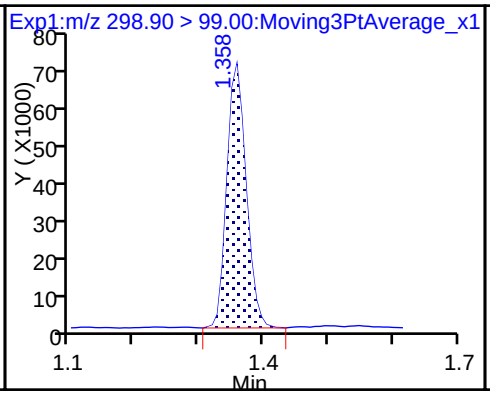
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

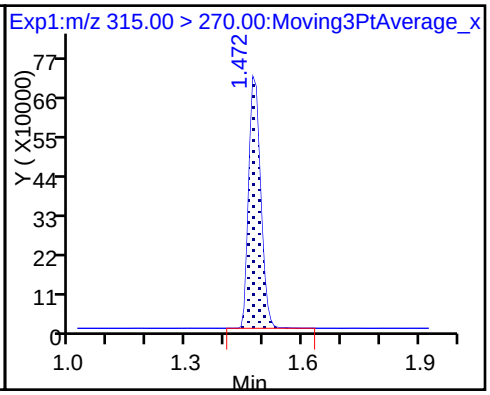
1 Perfluorobutanesulfonic acid



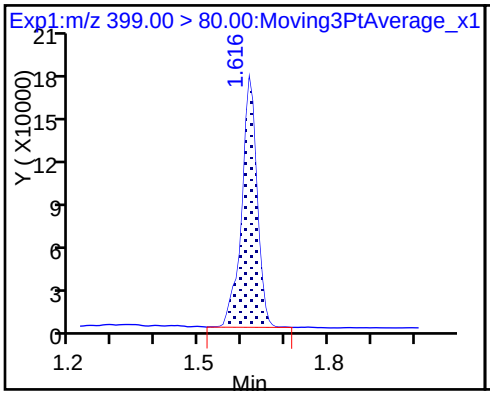
1 Perfluorobutanesulfonic acid



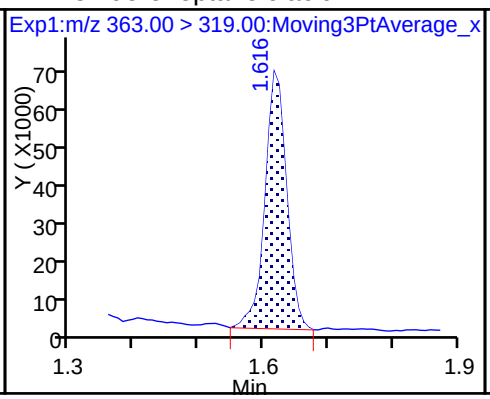
$ 2 13C2 PFHxA



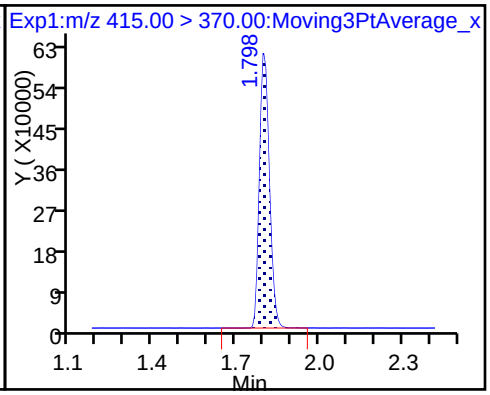
3 Perfluorohexanesulfonic acid



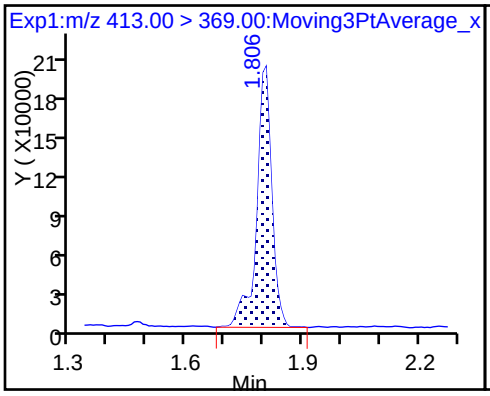
4 Perfluoroheptanoic acid



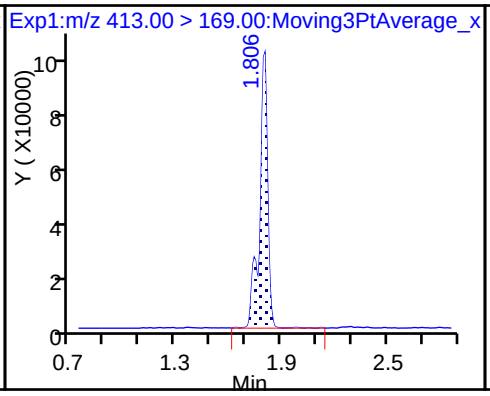
* 6 13C2-PFOA



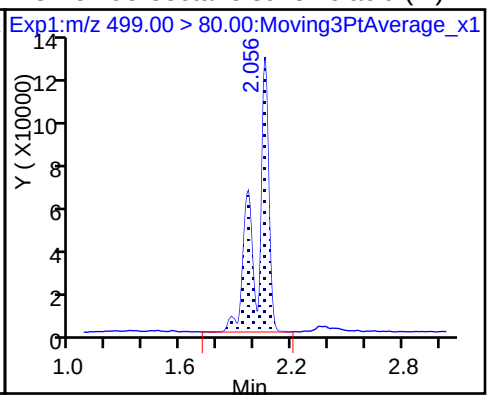
5 Perfluorooctanoic acid



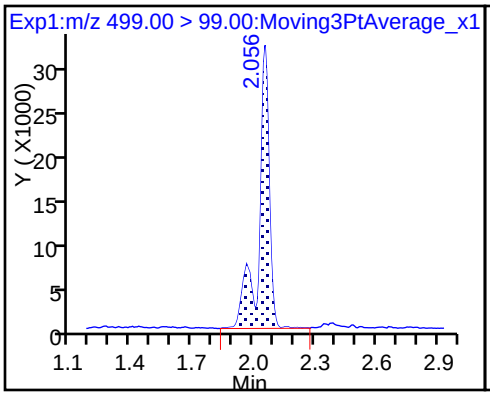
5 Perfluorooctanoic acid



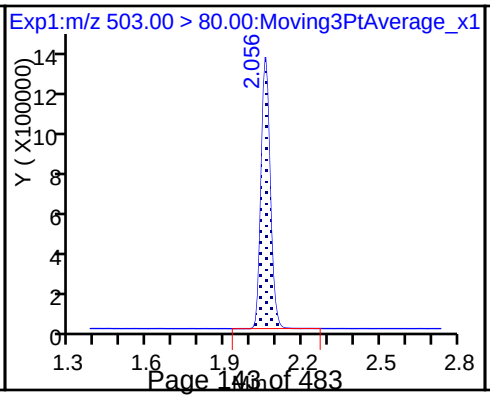
8 Perfluorooctane sulfonic acid (M)



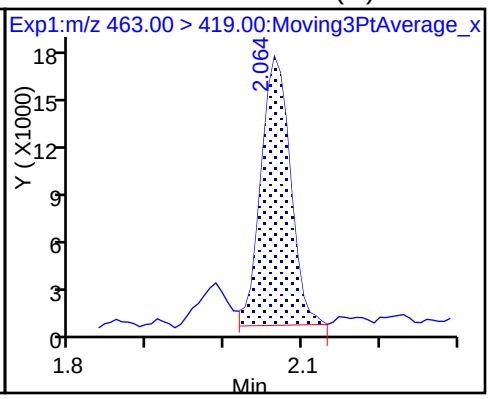
8 Perfluorooctane sulfonic acid



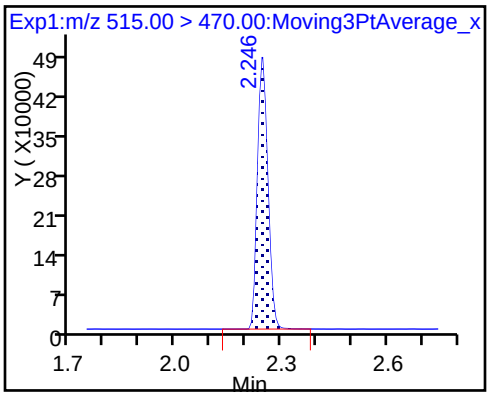
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
49
42
35
28
21
14
7
0
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_013.d				
Lims ID:	320-34835-A-3-A				
Client ID:	NAWC-010318-RW-304				
Sample Type:	Client				
Inject. Date:	12-Jan-2018 18:03:20	ALS Bottle#:	20	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-3-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	15-Jan-2018 13:47:05	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:	XAWRK028				
First Level Reviewer: westendorfc		Date:	15-Jan-2018 09:31:01		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.17	91.67
$ 10 13C2 PFDA	10.0	8.54	85.41

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

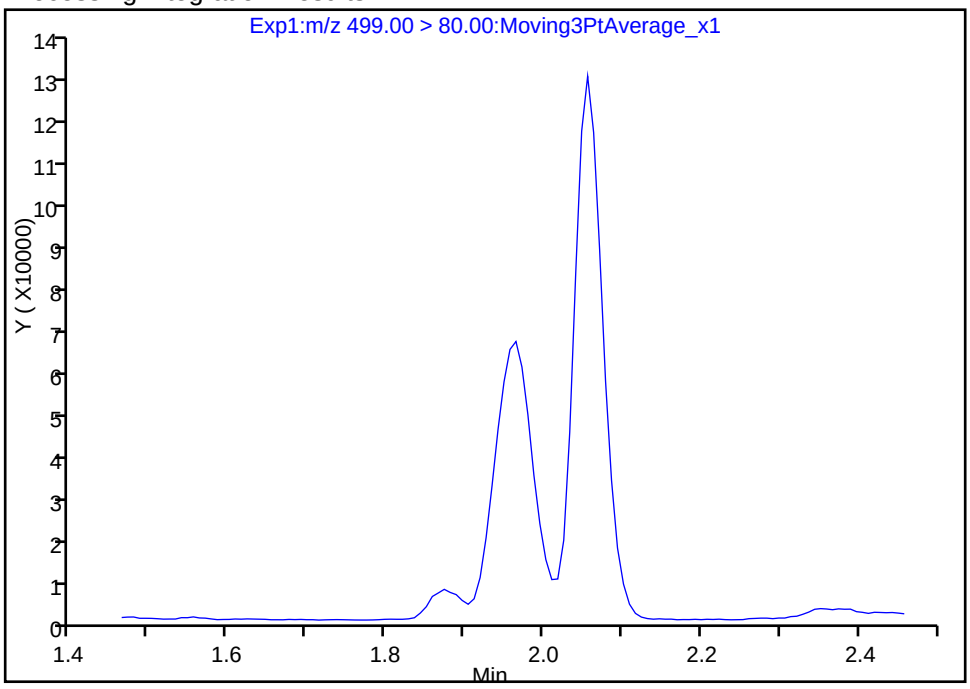
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_013.d				
Injection Date:	12-Jan-2018 18:03:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-3-A	Lab Sample ID:	320-34835-3		
Client ID:	NAWC-010318-RW-304				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

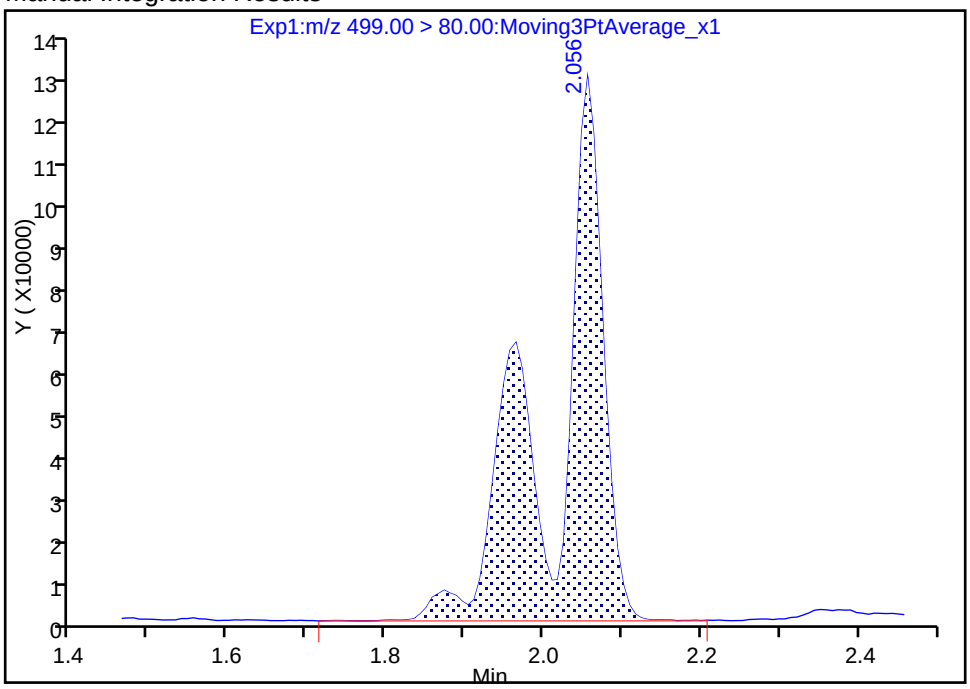
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 565728
Amount: 5.401555
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:30:43
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

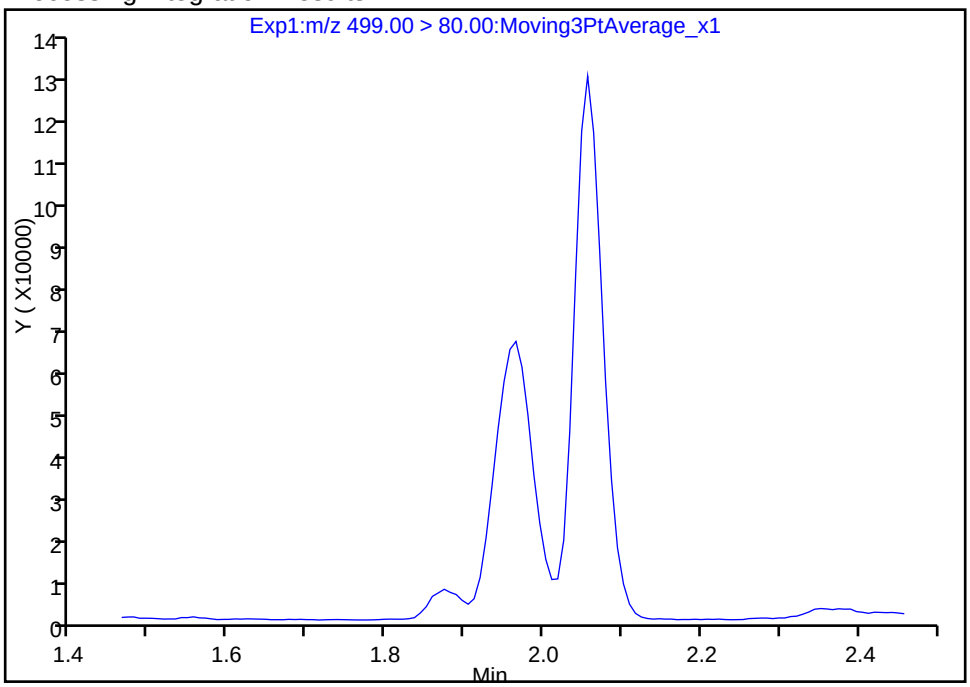
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_013.d				
Injection Date:	12-Jan-2018 18:03:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-3-A	Lab Sample ID:	320-34835-3		
Client ID:	NAWC-010318-RW-304				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	32
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

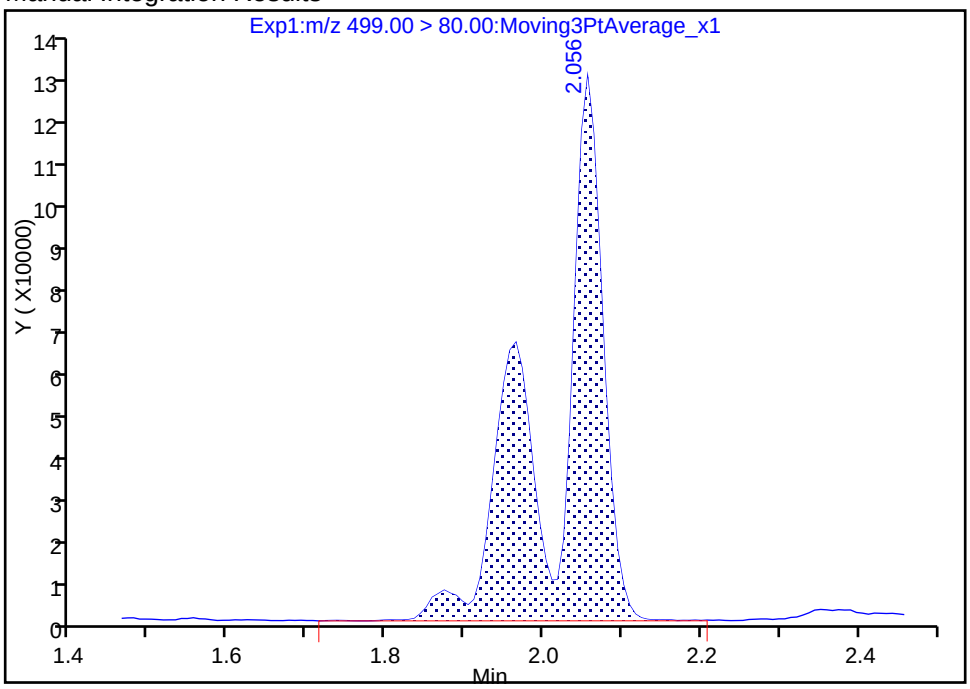
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 565728
Amount: 5.401555
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:30:48
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

TestAmerica Sacramento

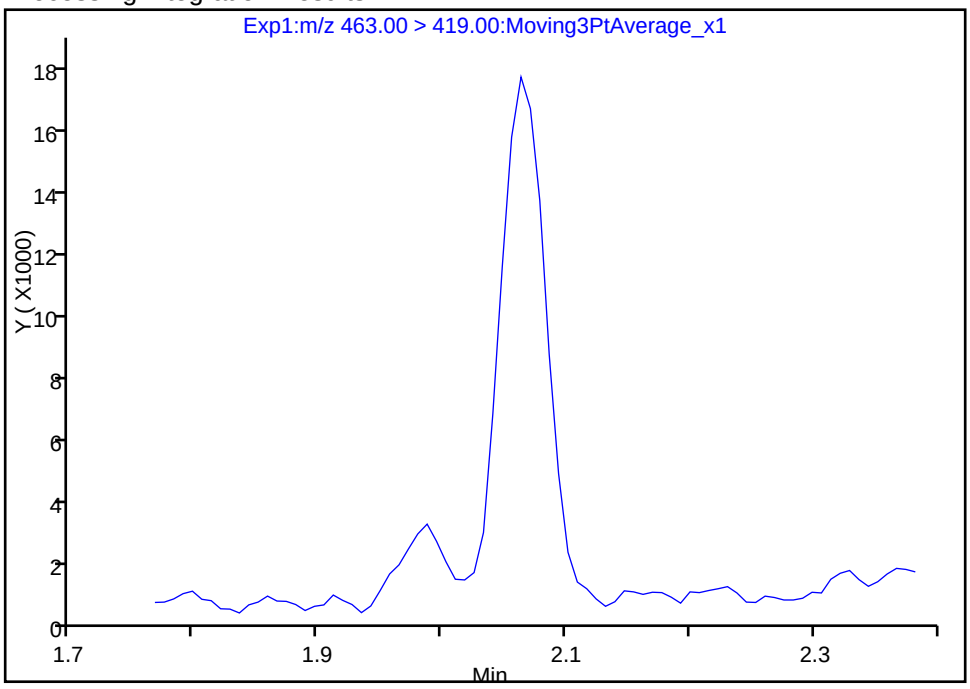
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_013.d				
Injection Date:	12-Jan-2018 18:03:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-3-A	Lab Sample ID:	320-34835-3		
Client ID:	NAWC-010318-RW-304				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	32
Injection 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

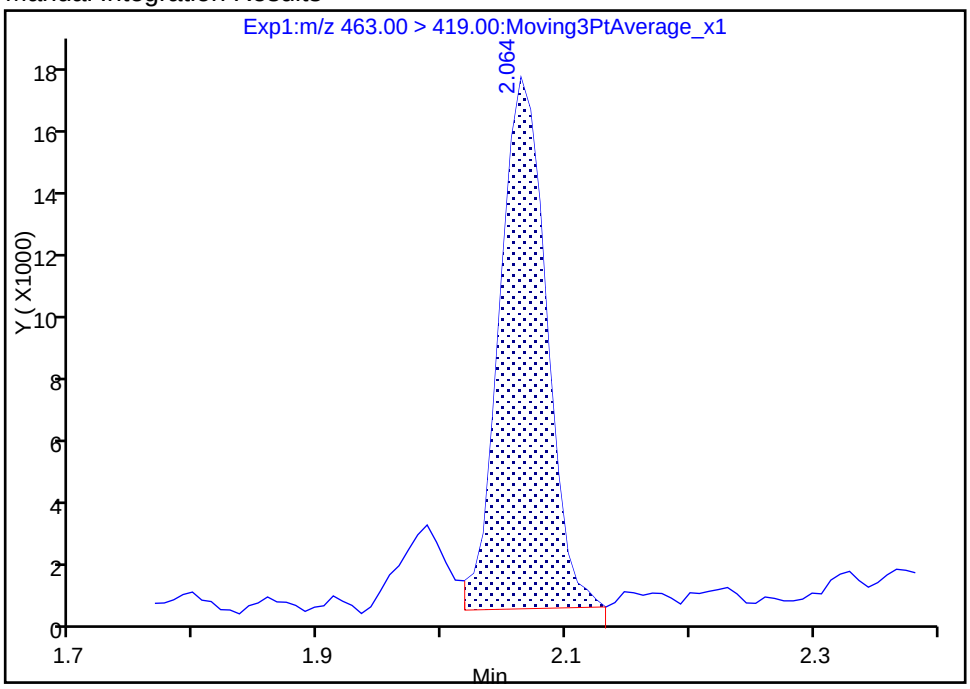
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 44112
Amount: 0.448527
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:30:57
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-304 | Lab Sample ID: 320-34835-4

Matrix: Water | Lab File ID: 2018.01.12_537A_014.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:35

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/12/2018 18:08

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

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

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

Analysis Batch No.: 203801 | 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	89		70-130
STL00996	13C2 PFDA	87		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_014.d
Lims ID: 320-34835-A-4-A
Client ID: NAWC-010318-FRB-304
Sample Type: Client
Inject. Date: 12-Jan-2018 18:08:00 ALS Bottle#: 21 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:09

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	1.573	-0.094	1.000	1469717	8.89		7960	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1503011	10.0		6820	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3200325	28.7		8110	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	996089	8.66		6345	

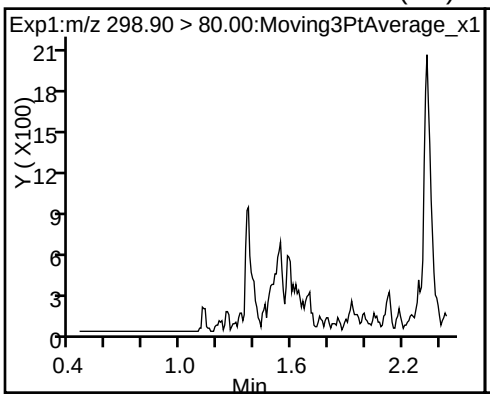
Report Date: 15-Jan-2018 13:47:17 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

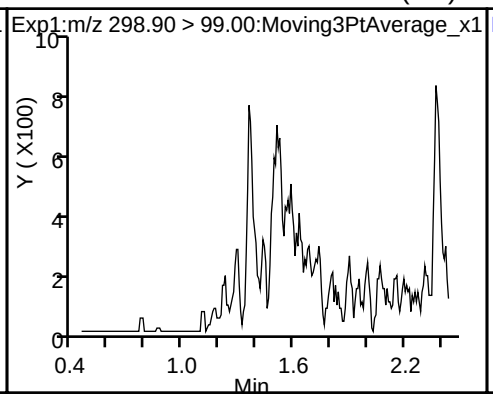
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_014.d

Injection Date:	12-Jan-2018 18:08:00	Instrument ID:	A8_N		
Lims ID:	320-34835-A-4-A	Lab Sample ID:	320-34835-4		
Client ID:	NAWC-010318-FRB-304				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

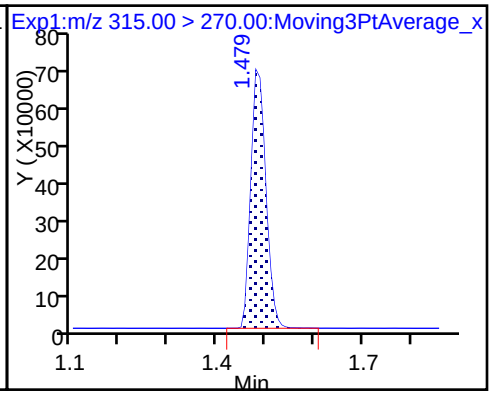
1 Perfluorobutanesulfonic acid (ND)



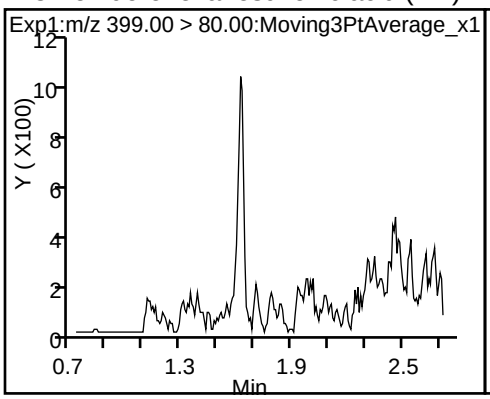
1 Perfluorobutanesulfonic acid (ND)



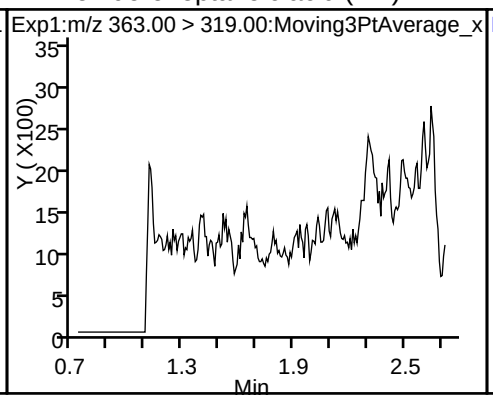
$ 2 13C2 PFHxA



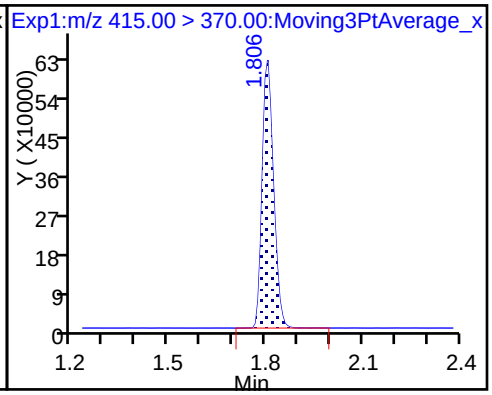
3 Perfluorohexanesulfonic acid (ND)



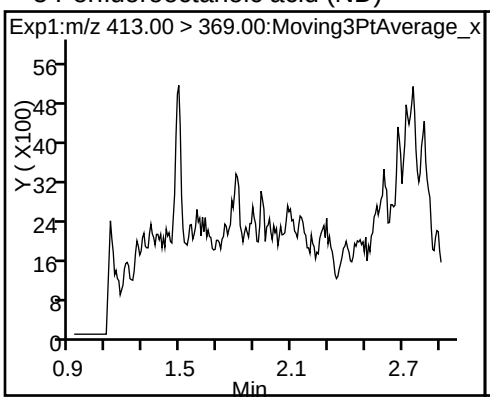
4 Perfluoroheptanoic acid (ND)



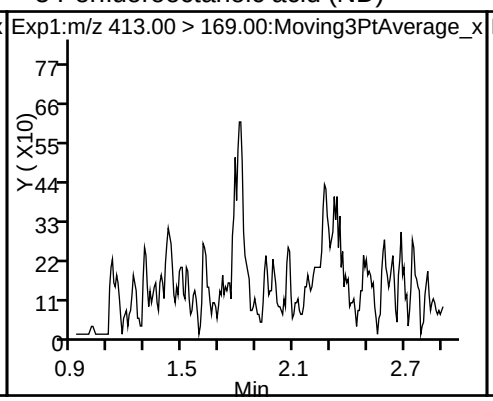
* 6 13C2-PFOA



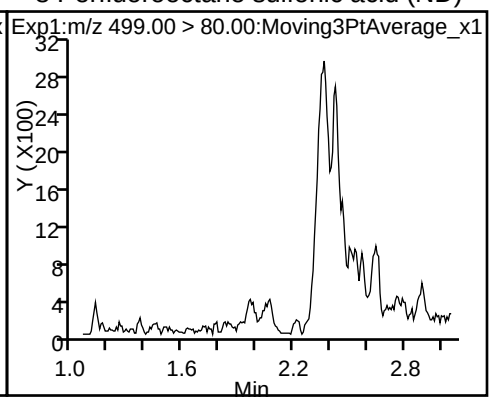
5 Perfluorooctanoic acid (ND)



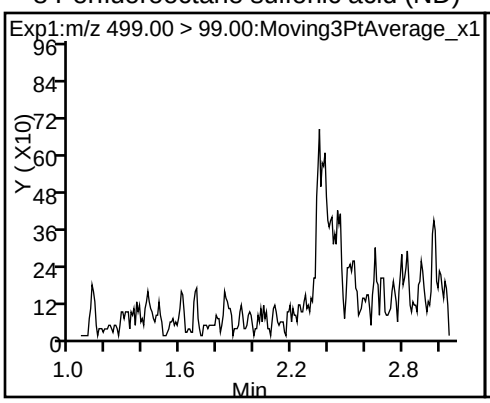
5 Perfluorooctanoic acid (ND)



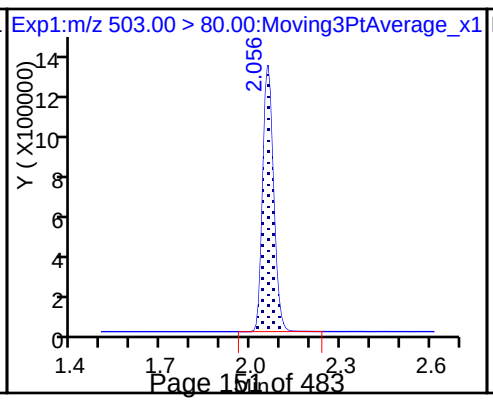
8 Perfluorooctane sulfonic acid (ND)



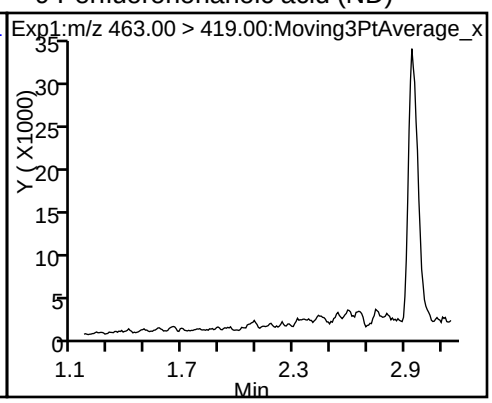
8 Perfluorooctane sulfonic acid (ND)



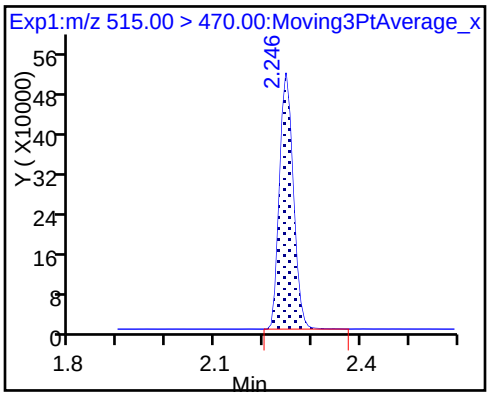
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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40
32
24
16
8
0
1.8
2.1
2.4
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_014.d
Lims ID: 320-34835-A-4-A
Client ID: NAWC-010318-FRB-304
Sample Type: Client
Inject. Date: 12-Jan-2018 18:08:00 ALS Bottle#: 21 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:09

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.89	88.87
$ 10 13C2 PFDA	10.0	8.66	86.61

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-154 | Lab Sample ID: 320-34835-5

Matrix: Water | Lab File ID: 2018.01.12_537A_015.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 244.9(mL) | Date Analyzed: 01/12/2018 18:12

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	28		20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.8	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	86		70-130
STL00996	13C2 PFDA	88		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_015.d
Lims ID: 320-34835-A-5-A
Client ID: NAWC-010318-RW-154
Sample Type: Client
Inject. Date: 12-Jan-2018 18:12:39 ALS Bottle#: 22 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	218656	1.77		370	
298.90 > 99.00	1.358	1.444	-0.086	1.000	159772		1.37(0.00-0.00)	380	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1416502	8.60		7562	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	234791	1.27		193	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	302305	2.15		66.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1497753	10.0		6430	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	938948	6.77		150	
413.00 > 169.00	1.798	1.914	-0.116	1.000	552242		1.70(0.00-0.00)	1075	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.056	-0.008	1.000	509633	4.90		207	
499.00 > 99.00	2.048	2.056	-0.008	1.000	93998		5.42(0.00-0.00)	196	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3179545	28.7		5093	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.056	2.158	-0.102	1.000	68993	0.6936		10.0	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1003216	8.75		6839	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 15-Jan-2018 13:47:18 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_015.d

Injection Date: 12-Jan-2018 18:12:39 Instrument ID: A8_N

Lims ID: 320-34835-A-5-A Lab Sample ID: 320-34835-5

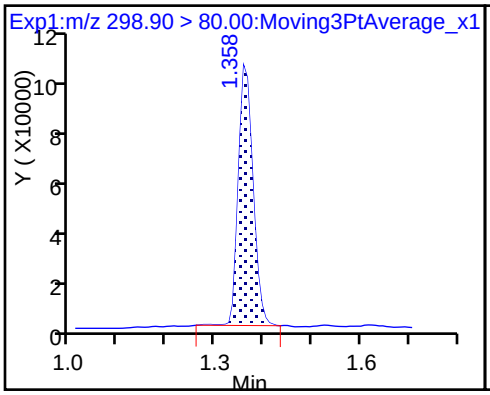
Client ID: NAWC-010318-RW-154

Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 34

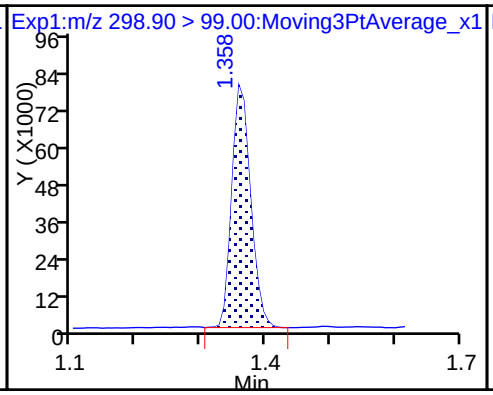
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

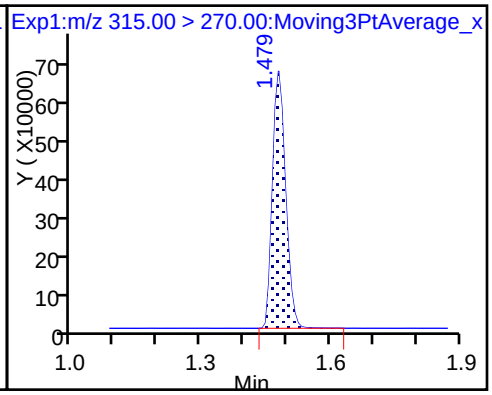
1 Perfluorobutanesulfonic acid



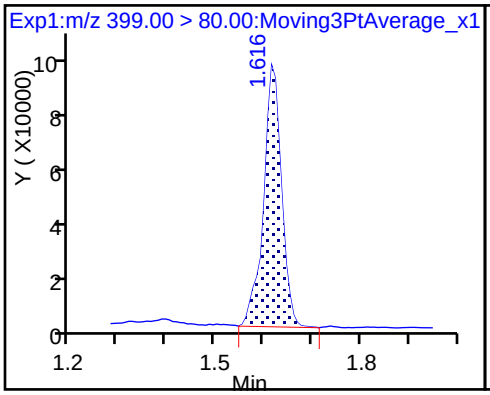
1 Perfluorobutanesulfonic acid



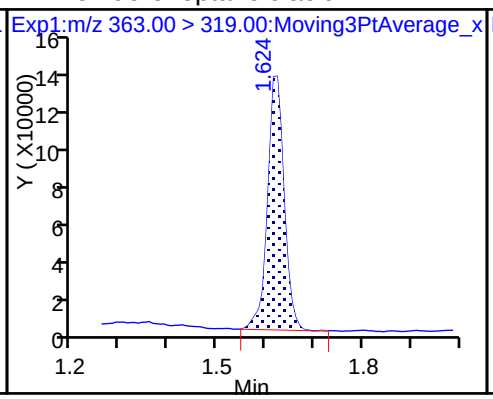
$ 2 13C2 PFHxA



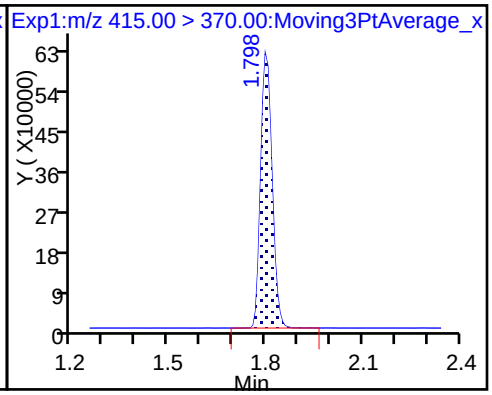
3 Perfluorohexanesulfonic acid



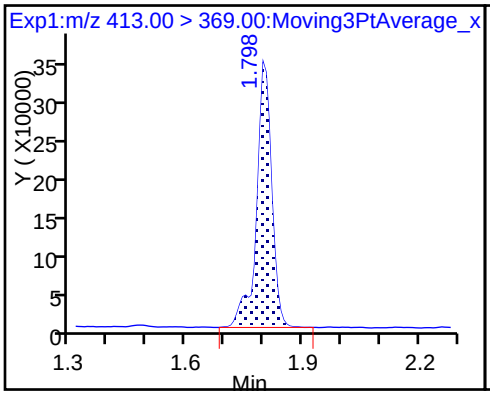
4 Perfluoroheptanoic acid



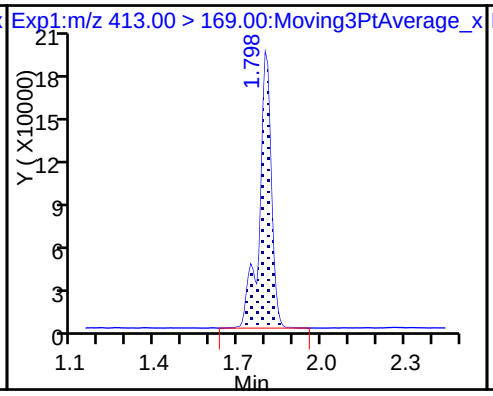
* 6 13C2-PFOA



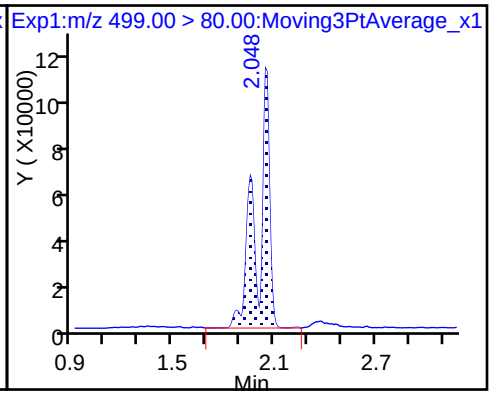
5 Perfluorooctanoic acid



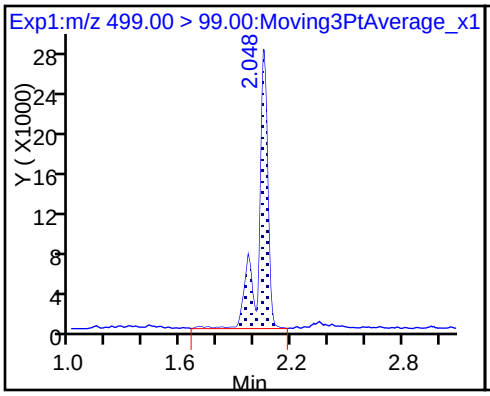
5 Perfluorooctanoic acid



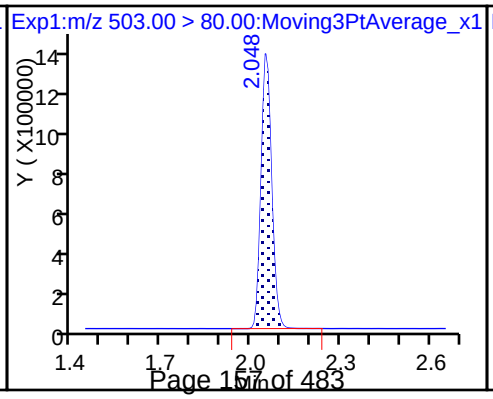
8 Perfluorooctane sulfonic acid



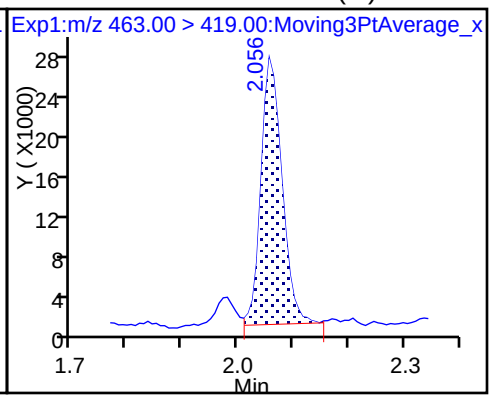
8 Perfluorooctane sulfonic acid



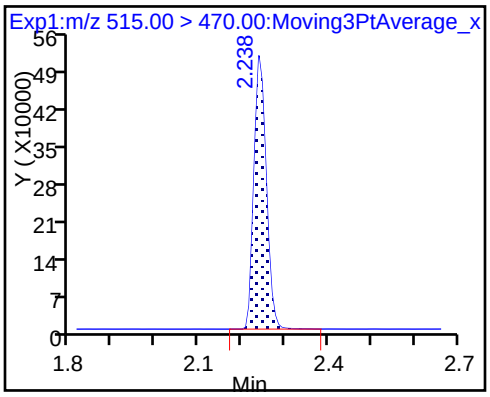
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 10 13C2 PFDA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0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_015.d				
Lims ID:	320-34835-A-5-A				
Client ID:	NAWC-010318-RW-154				
Sample Type:	Client				
Inject. Date:	12-Jan-2018 18:12:39	ALS Bottle#:	22	Worklist Smp#:	34
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-5-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	15-Jan-2018 13:47:05	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:	XAWRK028				
First Level Reviewer: westendorfc		Date:	15-Jan-2018 09:31:26		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.60	85.95
$ 10 13C2 PFDA	10.0	8.75	87.53

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

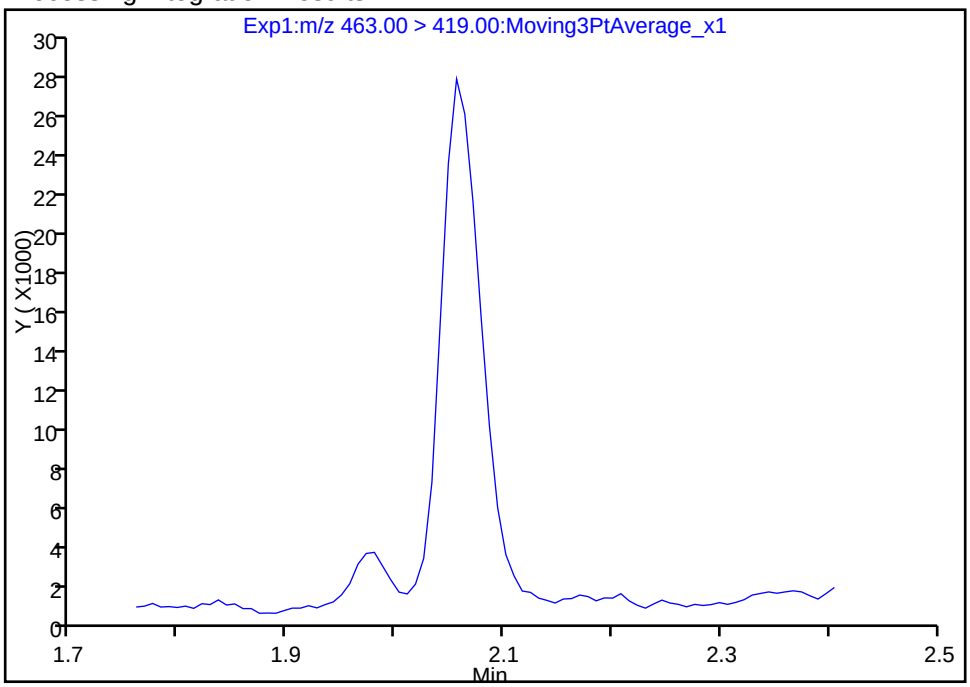
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_015.d				
Injection Date:	12-Jan-2018 18:12:39	Instrument ID:	A8_N		
Lims ID:	320-34835-A-5-A	Lab Sample ID:	320-34835-5		
Client ID:	NAWC-010318-RW-154				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	34
Injection 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

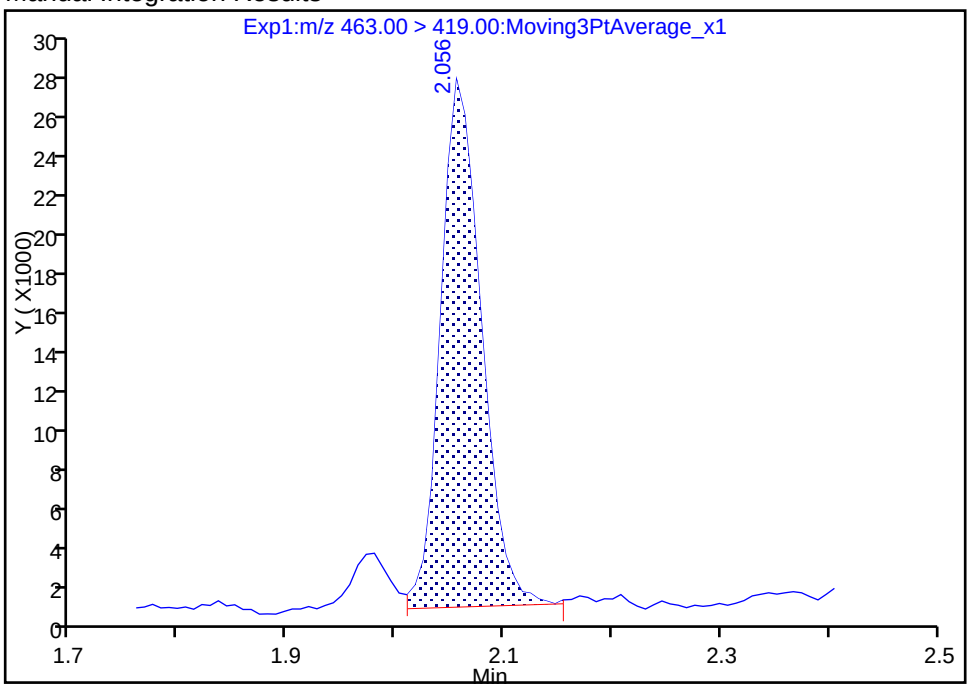
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 68993
Amount: 0.693572
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:31:23
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-154 | Lab Sample ID: 320-34835-6

Matrix: Water | Lab File ID: 2018.01.12_537A_016.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:05

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 244.8(mL) | Date Analyzed: 01/12/2018 18:17

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	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	102		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_016.d
Lims ID: 320-34835-A-6-A
Client ID: NAWC-010318-FRB-154
Sample Type: Client
Inject. Date: 12-Jan-2018 18:17:19 ALS Bottle#: 23 Worklist Smp#: 35
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:31

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1595449	10.2		8276	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1423717	10.0		7309	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3133709	28.7		7863	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1071942	9.84		7811	

Report Date: 15-Jan-2018 13:47:19 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_016.d

Injection Date: 12-Jan-2018 18:17:19 Instrument ID: A8_N

Lims ID: 320-34835-A-6-A Lab Sample ID: 320-34835-6

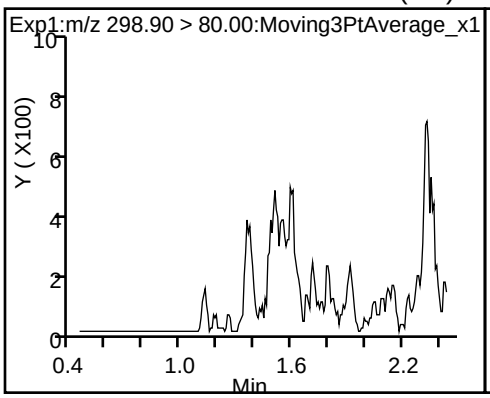
Client ID: NAWC-010318-FRB-154

Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 35

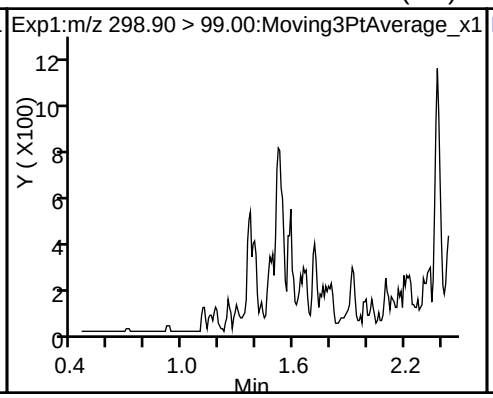
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

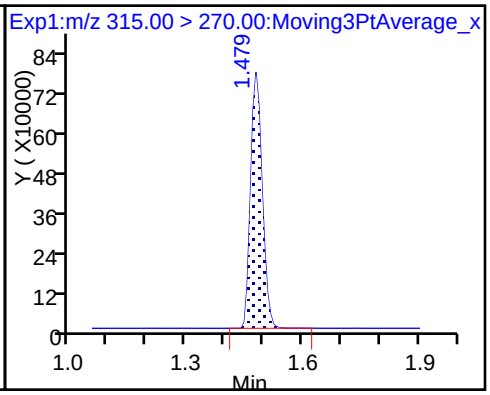
1 Perfluorobutanesulfonic acid (ND)



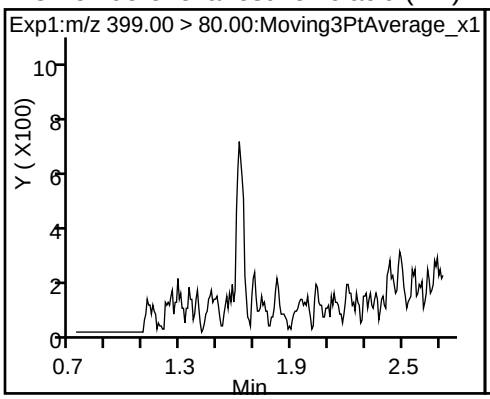
1 Perfluorobutanesulfonic acid (ND)



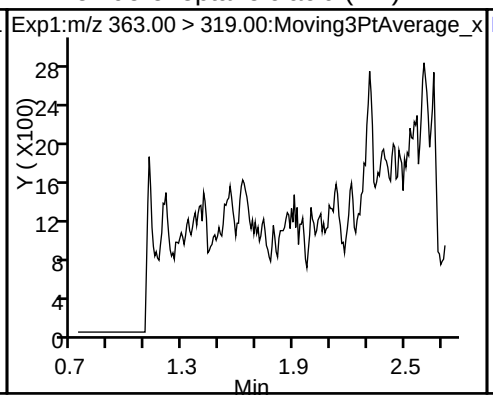
$ 2 13C2 PFHxA



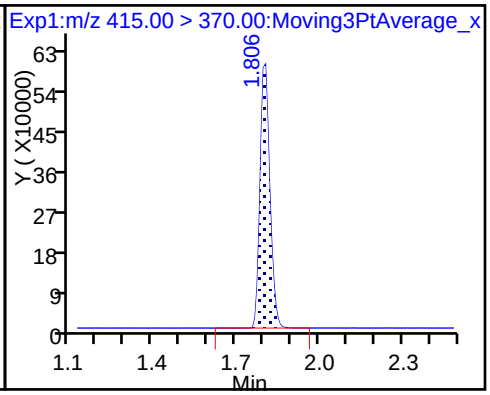
3 Perfluorohexanesulfonic acid (ND)



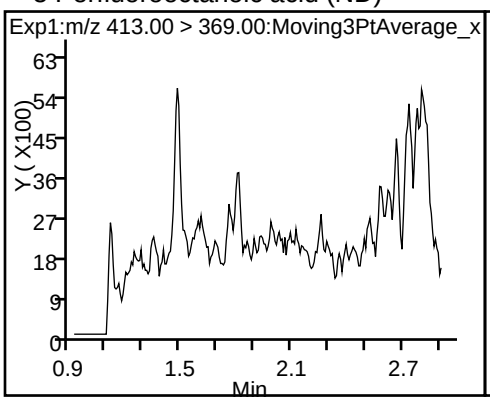
4 Perfluoroheptanoic acid (ND)



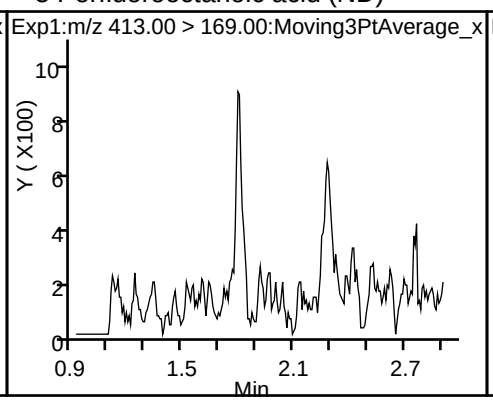
* 6 13C2-PFOA



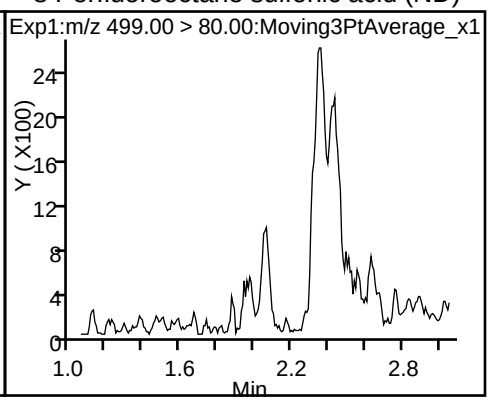
5 Perfluorooctanoic acid (ND)



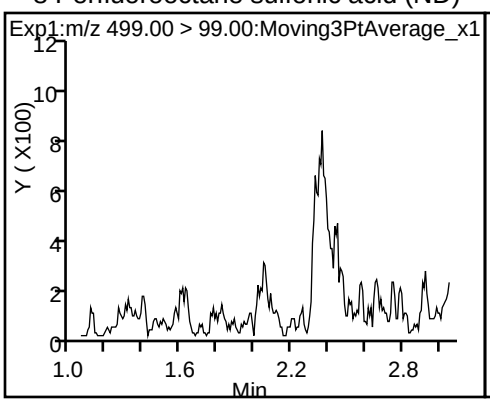
5 Perfluorooctanoic acid (ND)



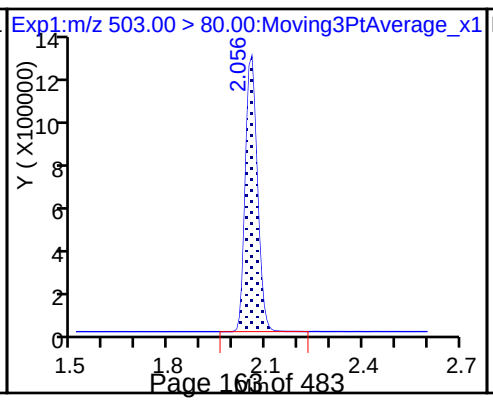
8 Perfluorooctane sulfonic acid (ND)



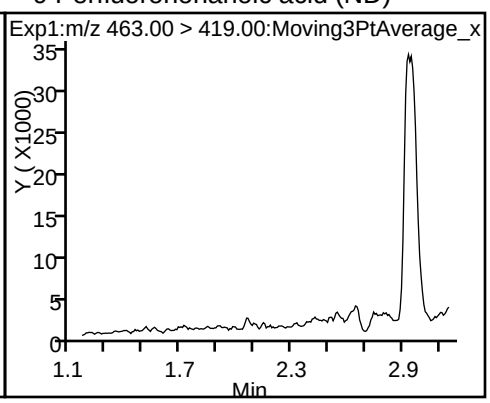
8 Perfluorooctane sulfonic acid (ND)



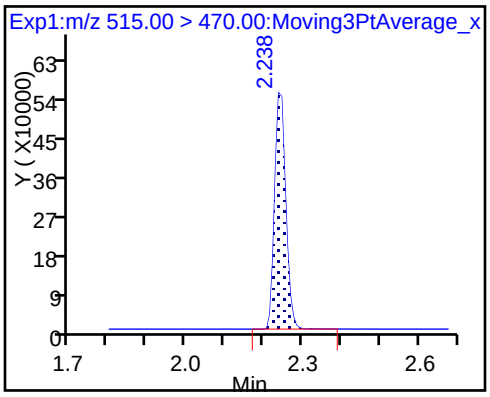
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
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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\20180114-52849.b\2018.01.12_537A_016.d
Lims ID: 320-34835-A-6-A
Client ID: NAWC-010318-FRB-154
Sample Type: Client
Inject. Date: 12-Jan-2018 18:17:19 ALS Bottle#: 23 Worklist Smp#: 35
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:31

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	10.2	101.85
$ 10 13C2 PFDA	10.0	9.84	98.39

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-276 | Lab Sample ID: 320-34835-7

Matrix: Water | Lab File ID: 2018.01.12_537A_019.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:40

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 235.8(mL) | Date Analyzed: 01/12/2018 18:31

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

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

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

Analysis Batch No.: 203803 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J M	42	17	7.2
335-67-1	Perfluorooctanoic acid (PFOA)	21		21	8.5	3.0
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	32	13	5.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.3	J	11	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	95	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	86		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_019.d
Lims ID: 320-34835-A-7-A
Client ID: NAWC-010318-RW-276
Sample Type: Client
Inject. Date: 12-Jan-2018 18:31:20 ALS Bottle#: 24 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:20 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:32:03

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	1.444	-0.086	1.000	165473	1.27		103	
298.90 > 99.00	1.358	1.444	-0.086	1.000	111235		1.49(0.00-0.00)	203	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1574042	9.17		7971	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	535368	2.74		219	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	285061	1.95		43.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1560456	10.0		6888	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	731566	5.06		94.8	
413.00 > 169.00	1.798	1.914	-0.116	1.000	418578		1.75(0.00-0.00)	908	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.048	2.056	-0.008	1.000	668921	6.11		207	M
499.00 > 99.00	2.048	2.056	-0.008	1.000	124207		5.39(0.00-0.00)	214	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3342120	28.7		2840	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	61484	0.5932		8.1	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1020969	8.55		7328	

QC Flag Legend

Review Flags

M - Manually Integrated

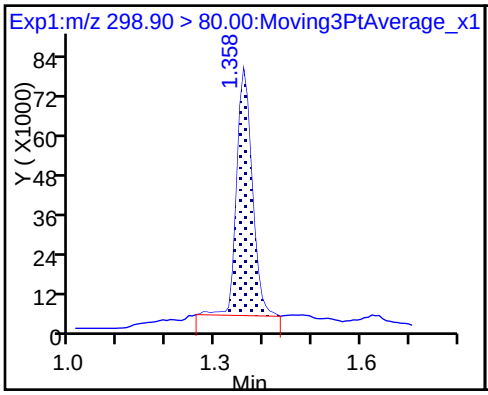
Report Date: 15-Jan-2018 13:47:25 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

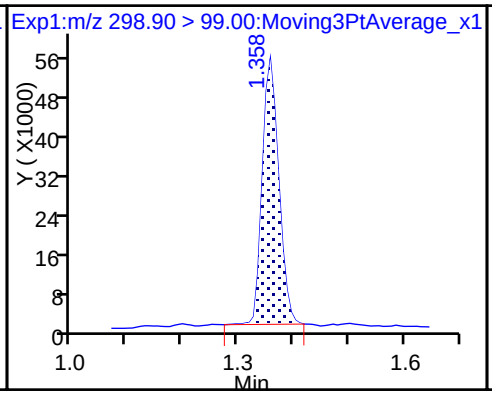
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_019.d

Injection Date:	12-Jan-2018 18:31:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-7-A	Lab Sample ID:	320-34835-7		
Client ID:	NAWC-010318-RW-276				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

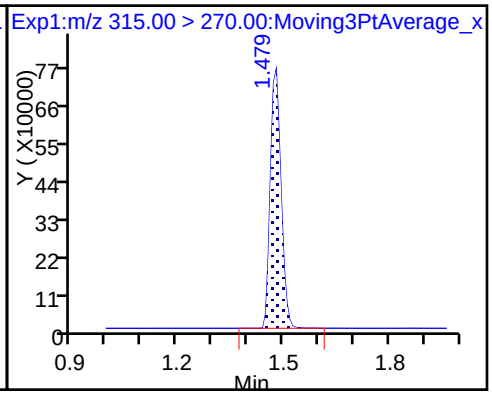
1 Perfluorobutanesulfonic acid



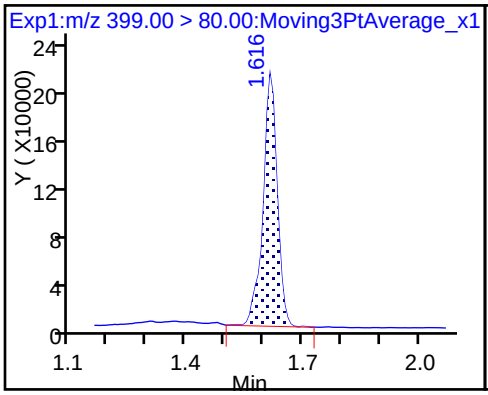
1 Perfluorobutanesulfonic acid



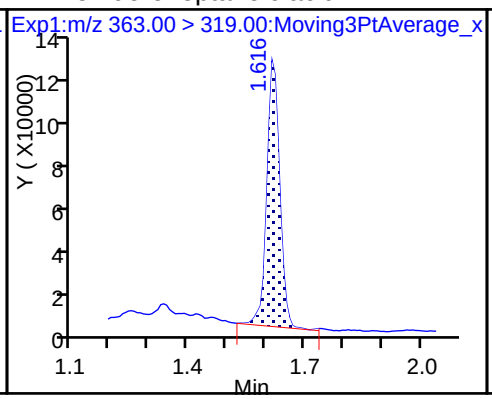
$ 2 13C2 PFHxA



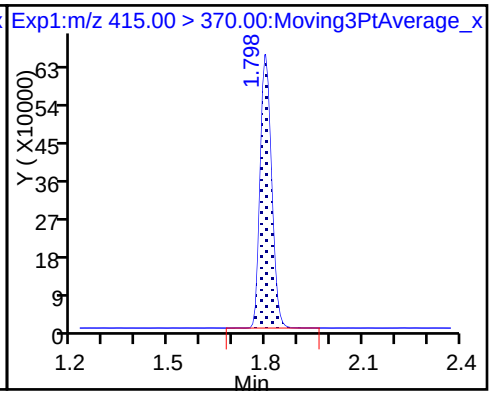
3 Perfluorohexanesulfonic acid



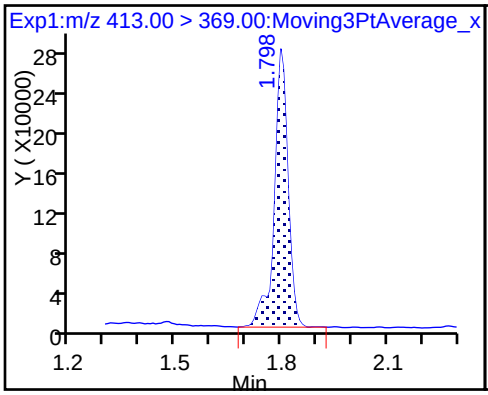
4 Perfluoroheptanoic acid



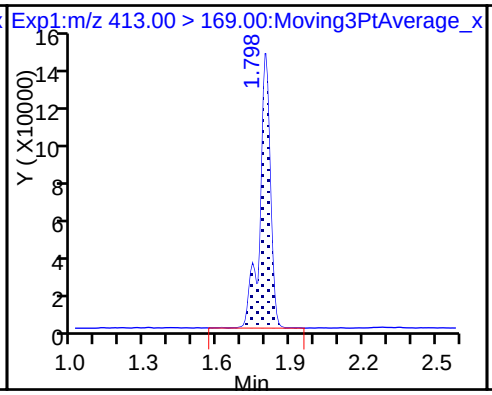
* 6 13C2-PFOA



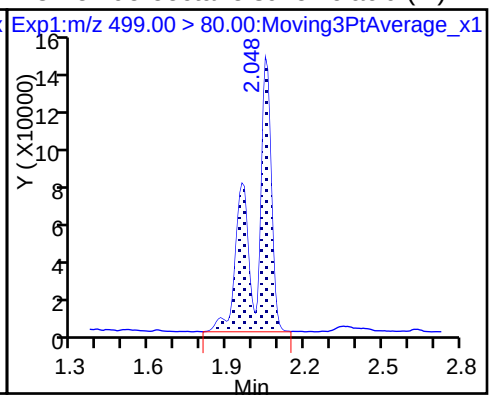
5 Perfluorooctanoic acid



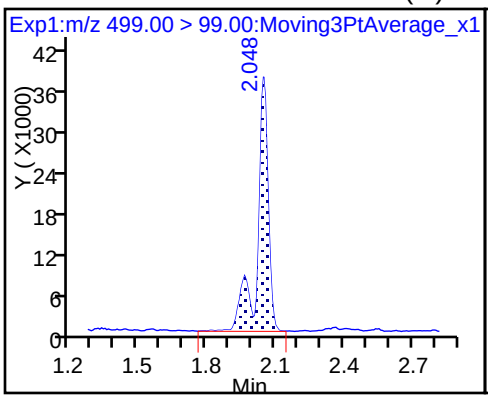
5 Perfluorooctanoic acid



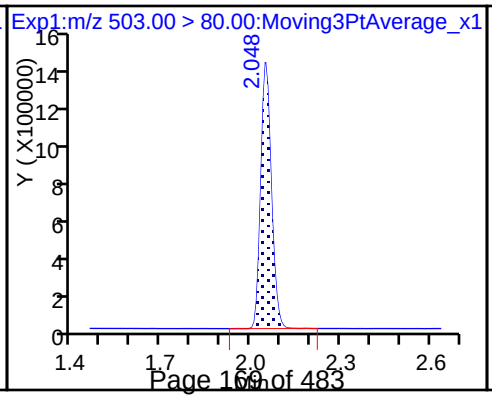
8 Perfluorooctane sulfonic acid (M)



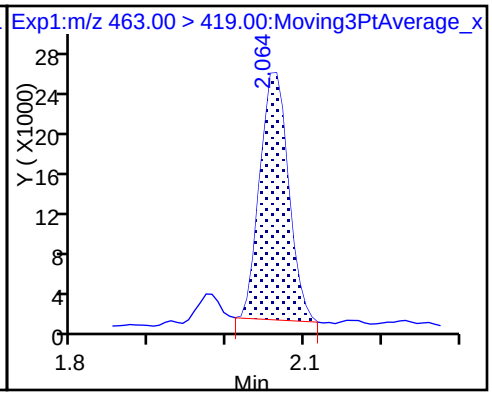
8 Perfluorooctane sulfonic acid (M)



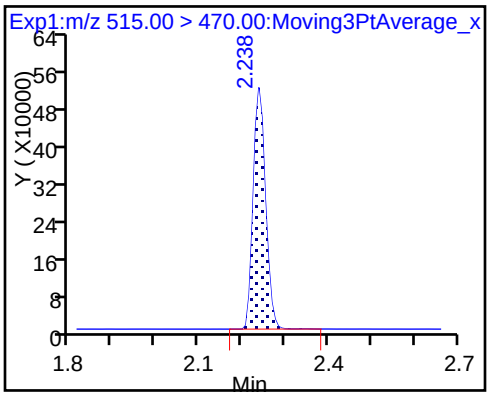
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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Y (X10000)
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48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_019.d
Lims ID: 320-34835-A-7-A
Client ID: NAWC-010318-RW-276
Sample Type: Client
Inject. Date: 12-Jan-2018 18:31:20 ALS Bottle#: 24 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:20 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:32:03

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.17	91.68
$ 10 13C2 PFDA	10.0	8.55	85.50

TestAmerica Sacramento

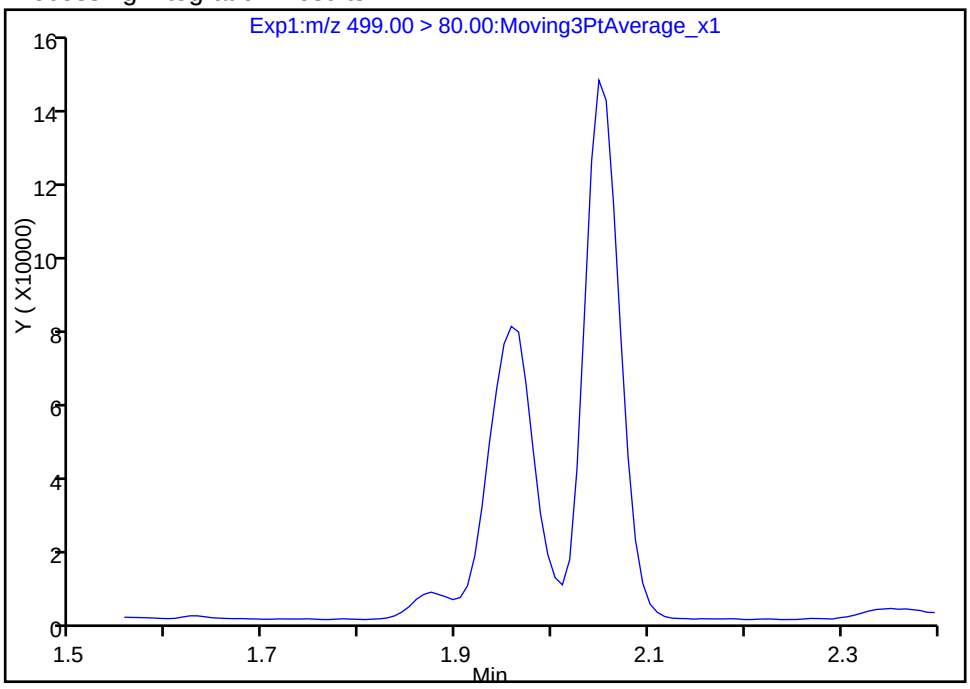
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_019.d				
Injection Date:	12-Jan-2018 18:31:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-7-A	Lab Sample ID:	320-34835-7		
Client ID:	NAWC-010318-RW-276				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

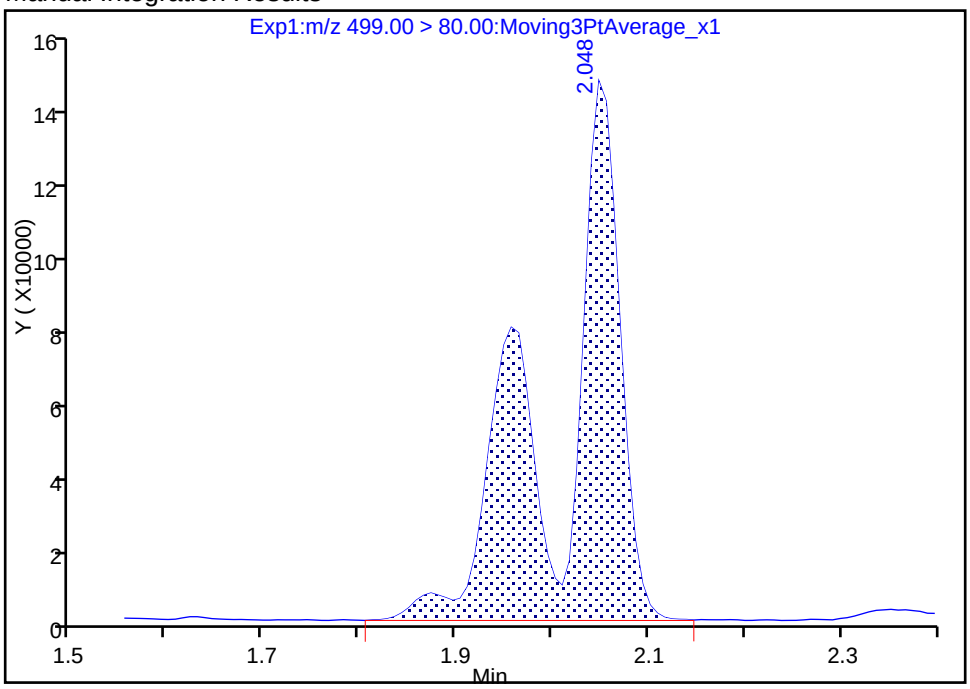
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 668921
Amount: 6.113502
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:31:50
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

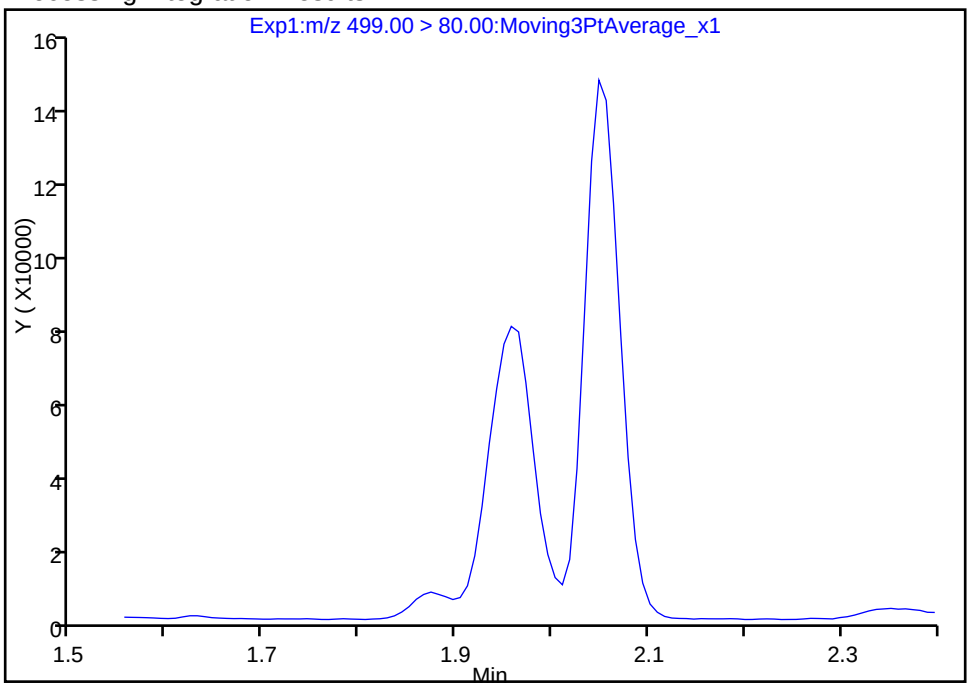
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_019.d				
Injection Date:	12-Jan-2018 18:31:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-7-A	Lab Sample ID:	320-34835-7		
Client ID:	NAWC-010318-RW-276				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

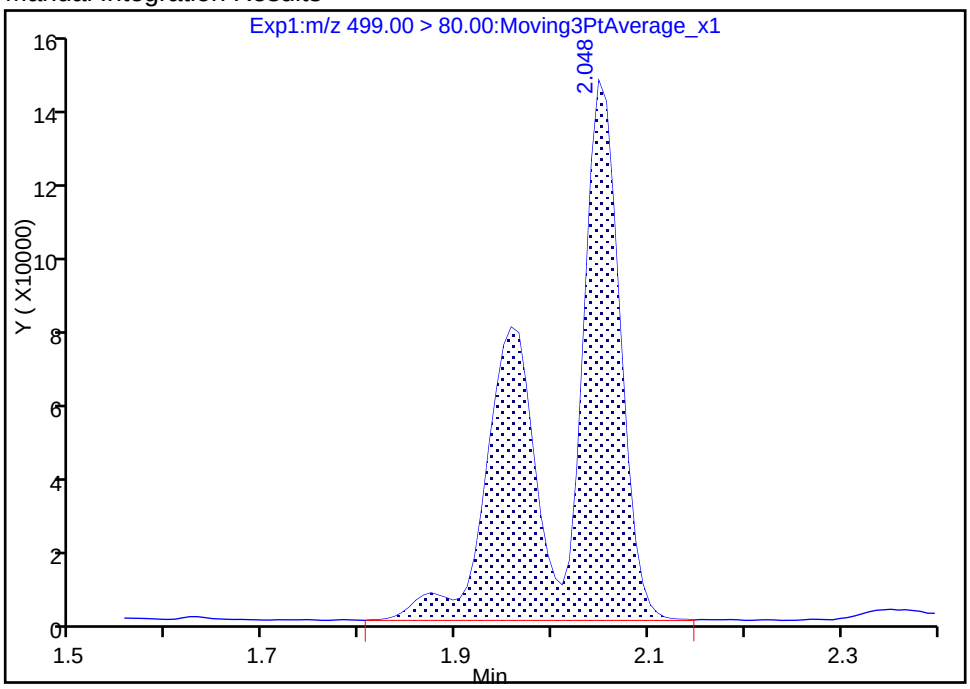
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 668921
Amount: 6.113502
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:31:55
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

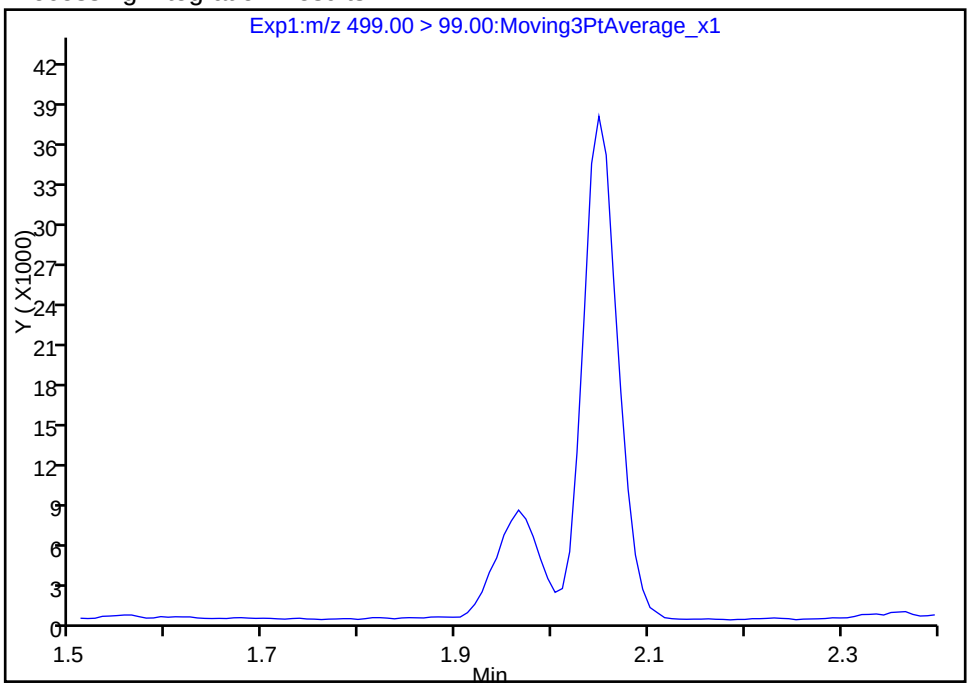
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_019.d				
Injection Date:	12-Jan-2018 18:31:20	Instrument ID:	A8_N		
Lims ID:	320-34835-A-7-A	Lab Sample ID:	320-34835-7		
Client ID:	NAWC-010318-RW-276				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	24	Worklist Smp#:	38
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 2

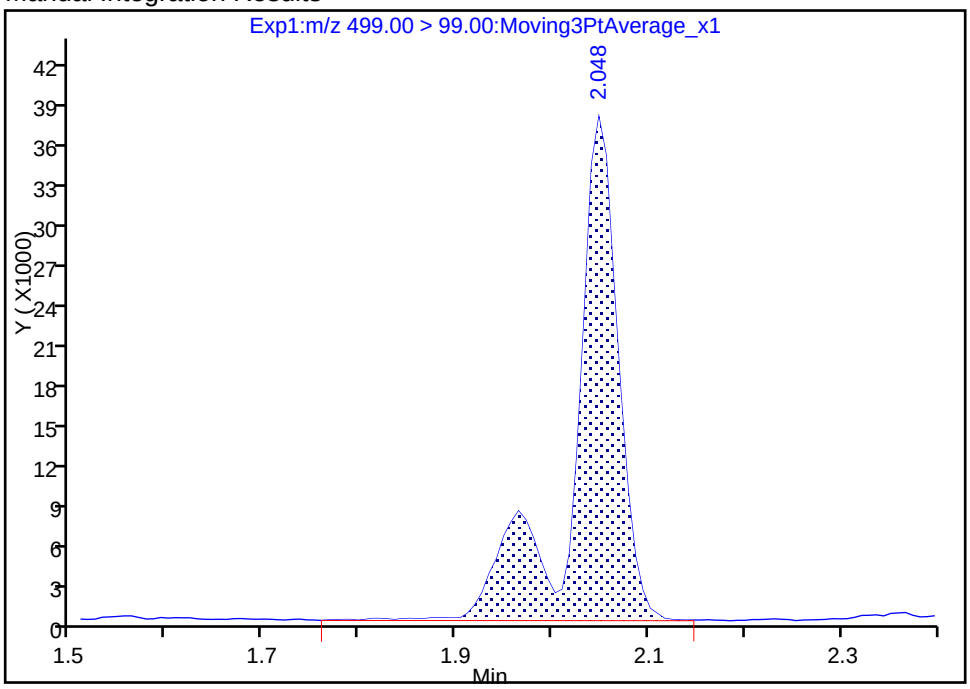
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 124207
Amount: 6.113502
Amount Units: ng/ml



Reviewer: westendorfc, 15-Jan-2018 09:31:58
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-276 | Lab Sample ID: 320-34835-8

Matrix: Water | Lab File ID: 2018.01.12_537A_020.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:35

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 242.8(mL) | Date Analyzed: 01/12/2018 18:36

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

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

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

Analysis Batch No.: 203803 | 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	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	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	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	94		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_020.d
Lims ID: 320-34835-A-8-A
Client ID: NAWC-010318-FRB-276
Sample Type: Client
Inject. Date: 12-Jan-2018 18:36:00 ALS Bottle#: 25 Worklist Smp#: 39
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:20 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: XAWRK028

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	1.573	-0.094	1.000	1556507	9.41		7974	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1503114	10.0		6728	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3043533	28.7		8555	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1052780	9.15		7908	

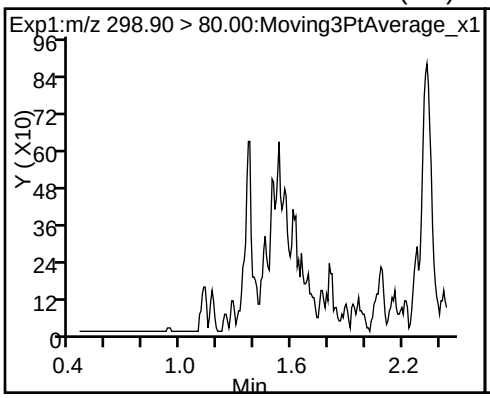
Report Date: 15-Jan-2018 13:47:26 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

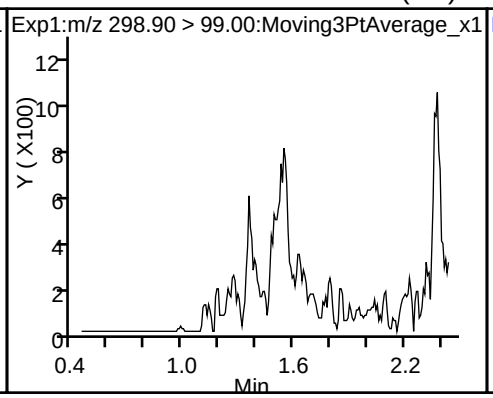
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_020.d

Injection Date:	12-Jan-2018 18:36:00	Instrument ID:	A8_N		
Lims ID:	320-34835-A-8-A	Lab Sample ID:	320-34835-8		
Client ID:	NAWC-010318-FRB-276				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	25	Worklist Smp#:	39
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

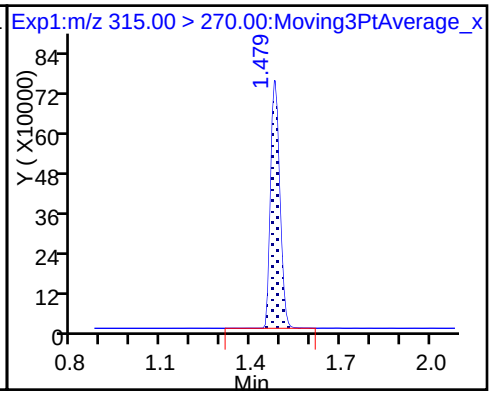
1 Perfluorobutanesulfonic acid (ND)



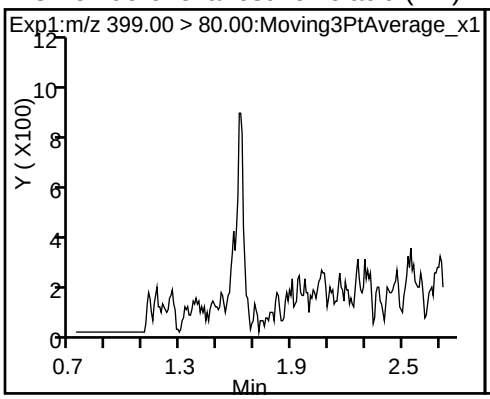
1 Perfluorobutanesulfonic acid (ND)



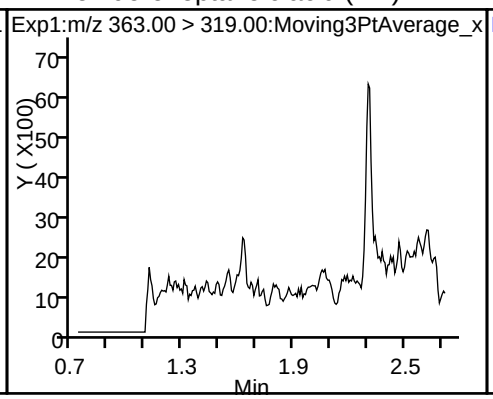
$ 2 13C2 PFHxA



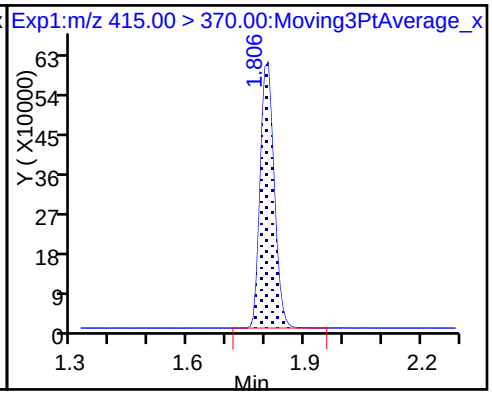
3 Perfluorohexanesulfonic acid (ND)



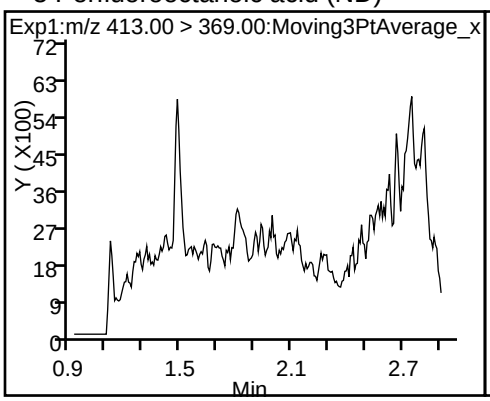
4 Perfluoroheptanoic acid (ND)



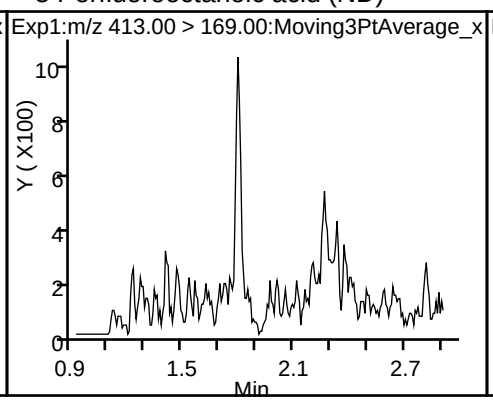
* 6 13C2-PFOA



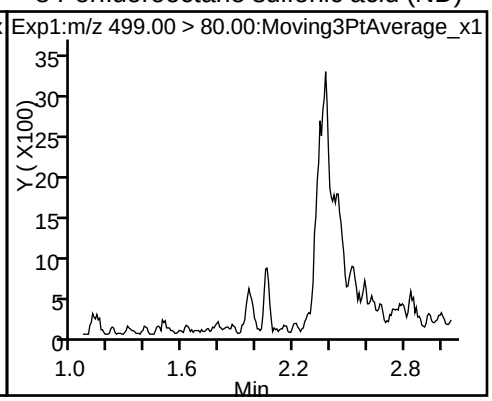
5 Perfluorooctanoic acid (ND)



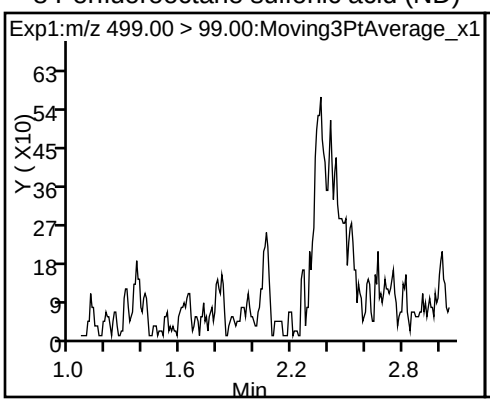
5 Perfluorooctanoic acid (ND)



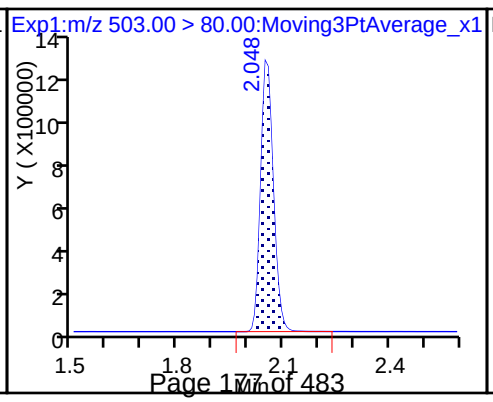
8 Perfluorooctane sulfonic acid (ND)



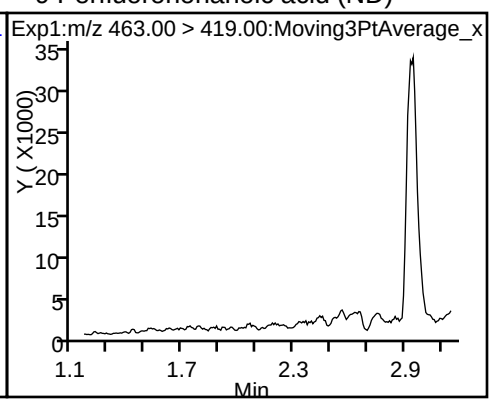
8 Perfluorooctane sulfonic acid (ND)



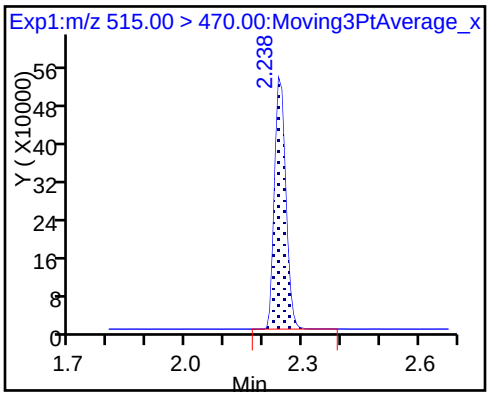
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
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\20180114-52849.b\2018.01.12_537A_020.d				
Lims ID:	320-34835-A-8-A				
Client ID:	NAWC-010318-FRB-276				
Sample Type:	Client				
Inject. Date:	12-Jan-2018 18:36:00	ALS Bottle#:	25	Worklist Smp#:	39
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-8-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	15-Jan-2018 13:47:20	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:	XAWRK028				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.41	94.11
$ 10 13C2 PFDA	10.0	9.15	91.53

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-261 | Lab Sample ID: 320-34835-9

Matrix: Water | Lab File ID: 2018.01.18_537AA_030.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 237.1(mL) | Date Analyzed: 01/19/2018 07:30

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J	42	17	7.2
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	21	8.4	3.0
375-95-1	Perfluorononanoic acid (PFNA)	21	U M	25	21	8.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.6	J	32	13	5.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	11	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	95	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_030.d
Lims ID: 320-34835-A-9-A
Client ID: NAWC-010318-RW-261
Sample Type: Client
Inject. Date: 19-Jan-2018 07:30:51 ALS Bottle#: 20 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	213617	1.62		290	
298.90 > 99.00	1.358	1.444	-0.086	1.000	157384		1.36(0.00-0.00)	452	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1591494	8.96		7975	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	355794	1.79		387	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	153254	1.01		35.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1615211	10.0		6902	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.914	-0.123	1.000	504519	3.37		69.7	
413.00 > 169.00	1.791	1.914	-0.123	1.000	312035		1.62(0.00-0.00)	636	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	388910	3.50		44.2	
499.00 > 99.00	2.041	2.041	0.0	1.000	67887		5.73(0.00-0.00)	48.1	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3396247	28.7		5352	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.048	2.158	-0.110	1.000	37079	0.3456		5.9	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1205988	9.76		7385	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 19-Jan-2018 14:09:44 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_030.d

Injection Date: 19-Jan-2018 07:30:51 Instrument ID: A8_N

Lims ID: 320-34835-A-9-A Lab Sample ID: 320-34835-9

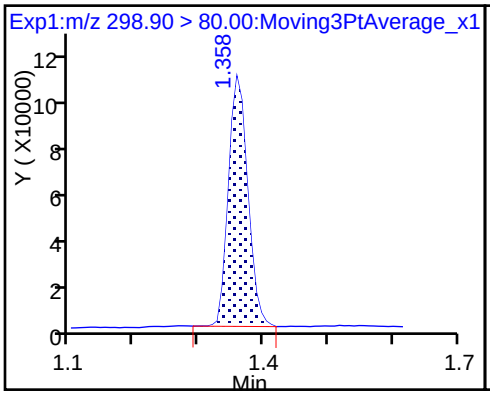
Client ID: NAWC-010318-RW-261

Operator ID: SACINSTLCMS01 ALS Bottle#: 20 Worklist Smp#: 6

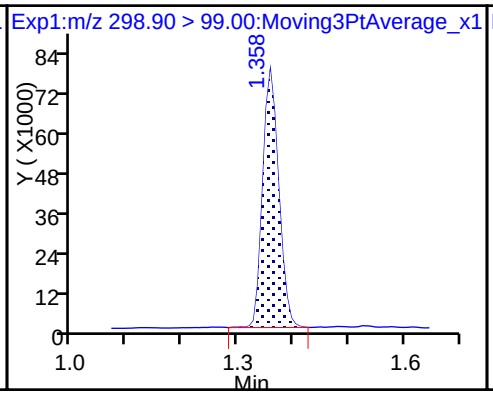
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

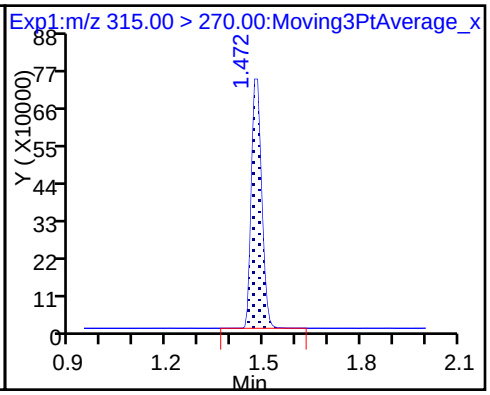
1 Perfluorobutanesulfonic acid



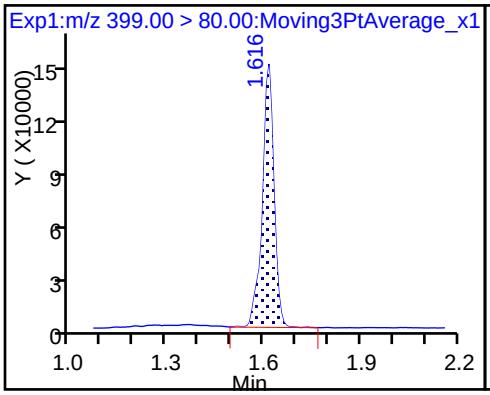
1 Perfluorobutanesulfonic acid



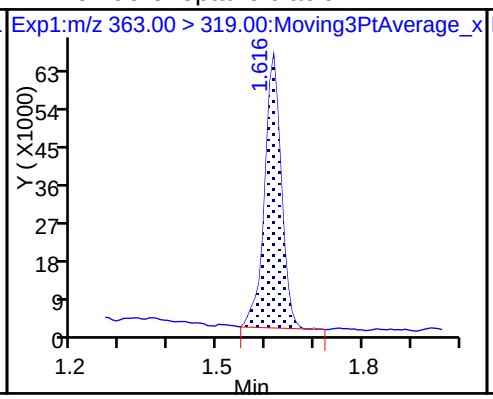
$ 2 13C2 PFHxA



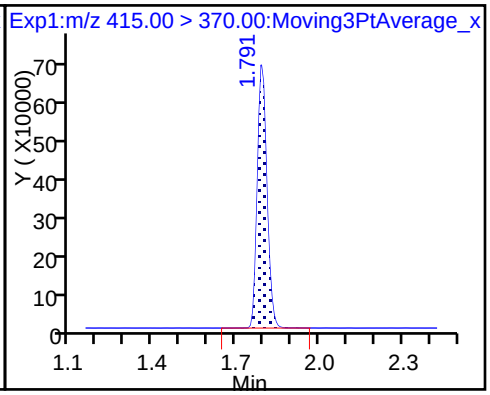
3 Perfluorohexanesulfonic acid



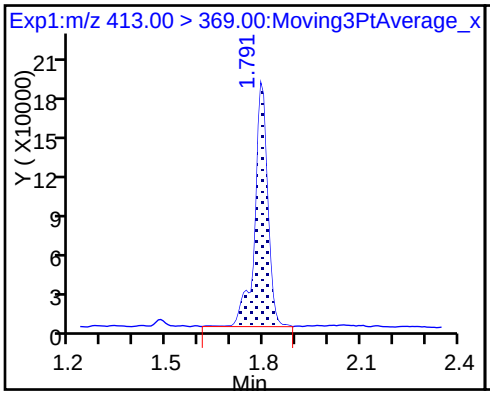
4 Perfluoroheptanoic acid



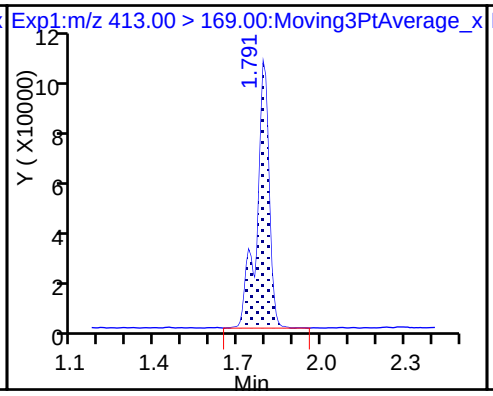
* 6 13C2-PFOA



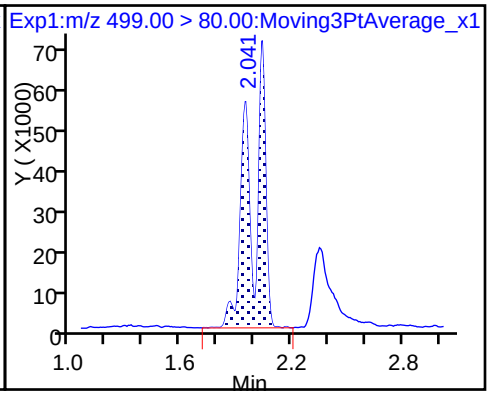
5 Perfluorooctanoic acid



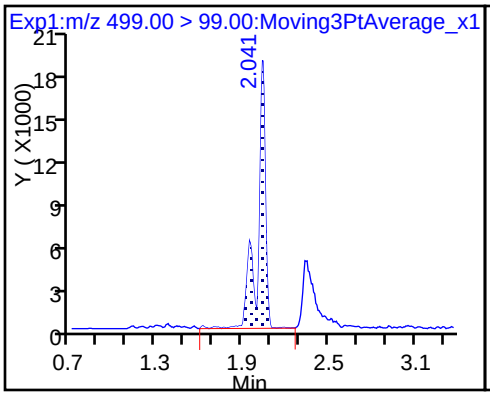
5 Perfluorooctanoic acid



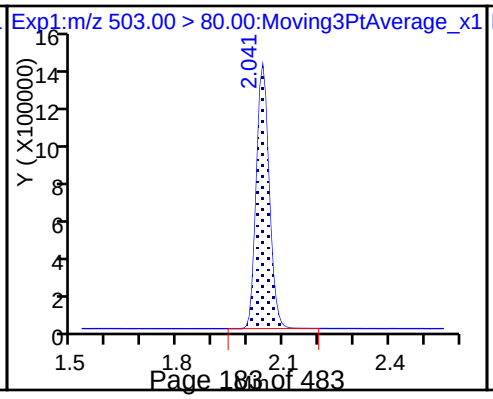
8 Perfluorooctane sulfonic acid



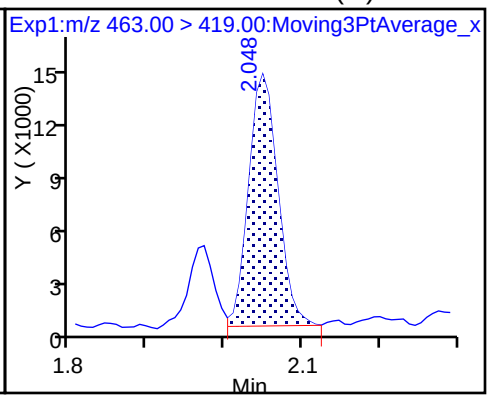
8 Perfluorooctane sulfonic acid



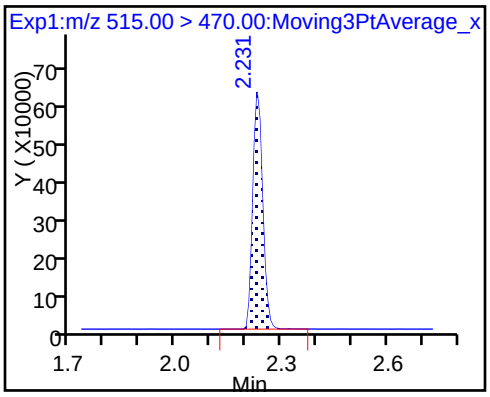
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 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\20180119-53091.b\2018.01.18_537AA_030.d
Lims ID: 320-34835-A-9-A
Client ID: NAWC-010318-RW-261
Sample Type: Client
Inject. Date: 19-Jan-2018 07:30:51 ALS Bottle#: 20 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:38

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.96	89.55
$ 10 13C2 PFDA	10.0	9.76	97.57

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

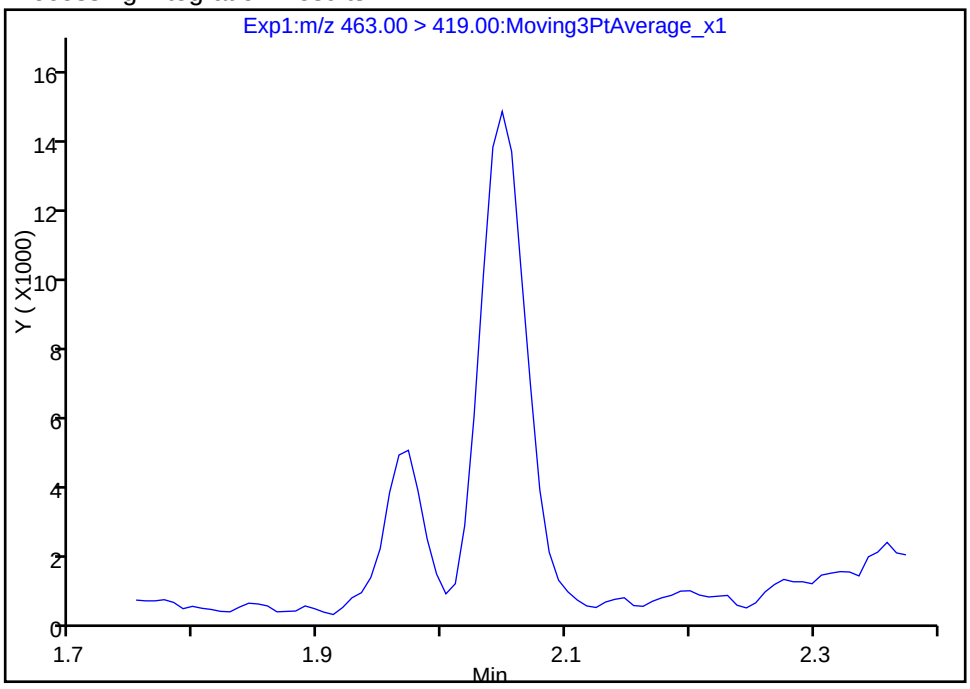
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_030.d				
Injection Date:	19-Jan-2018 07:30:51	Instrument ID:	A8_N		
Lims ID:	320-34835-A-9-A	Lab Sample ID:	320-34835-9		
Client ID:	NAWC-010318-RW-261				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	6
Injection 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

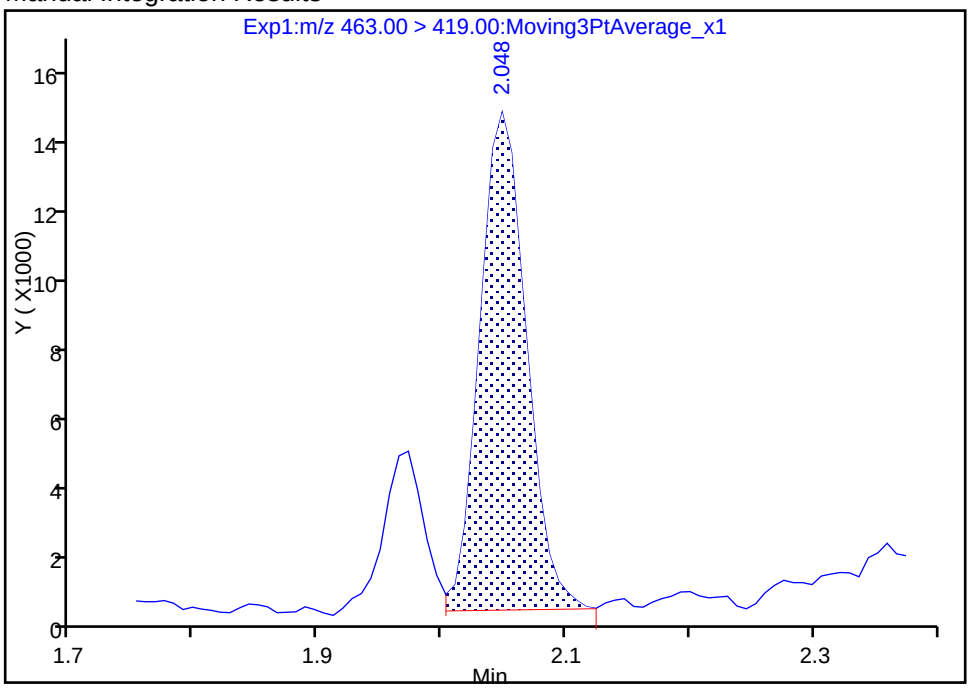
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 37079
Amount: 0.345641
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:06:34
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-261 | Lab Sample ID: 320-34835-10

Matrix: Water | Lab File ID: 2018.01.18_537AA_031.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.1(mL) | Date Analyzed: 01/19/2018 07:35

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

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

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

Analysis Batch No.: 204650 | 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	90		70-130
STL00996	13C2 PFDA	87		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_031.d
Lims ID: 320-34835-A-10-A
Client ID: NAWC-010318-FRB-261
Sample Type: Client
Inject. Date: 19-Jan-2018 07:35:31 ALS Bottle#: 21 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

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	1.573	-0.094	1.000	1655173	9.04		8357	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1663807	10.0		6485	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3387447	28.7		7515	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1102594	8.66		6047	

Report Date: 19-Jan-2018 14:09:45 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_031.d

Injection Date: 19-Jan-2018 07:35:31 Instrument ID: A8_N

Lims ID: 320-34835-A-10-A Lab Sample ID: 320-34835-10

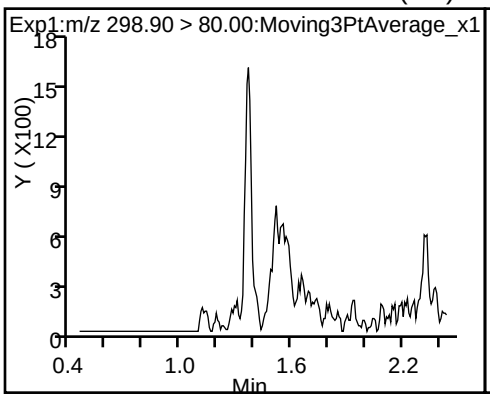
Client ID: NAWC-010318-FRB-261

Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 7

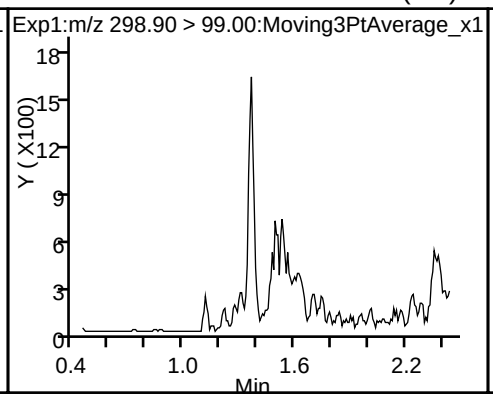
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

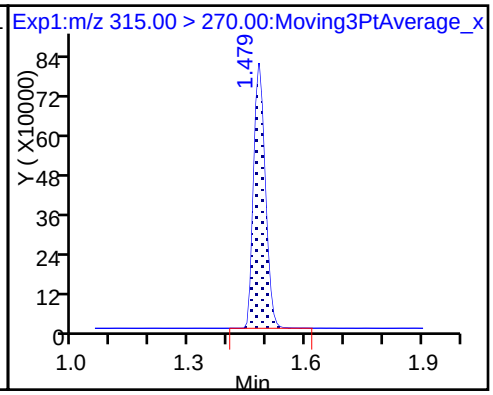
1 Perfluorobutanesulfonic acid (ND)



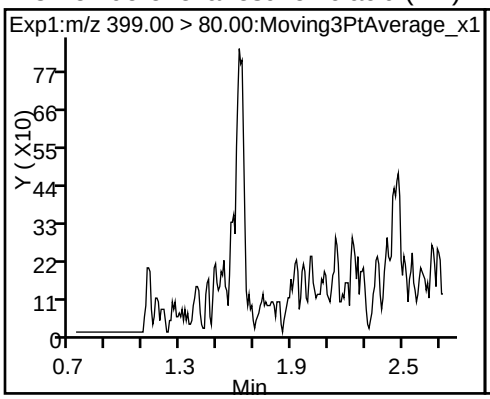
1 Perfluorobutanesulfonic acid (ND)



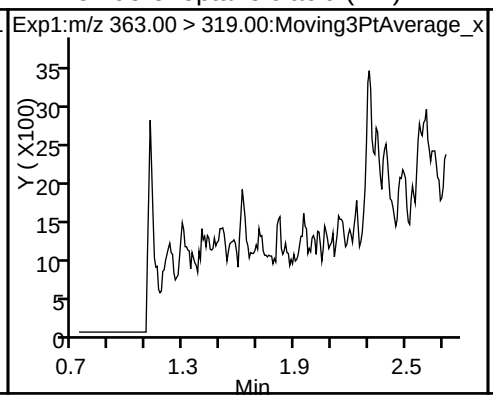
$ 2 13C2 PFHxA



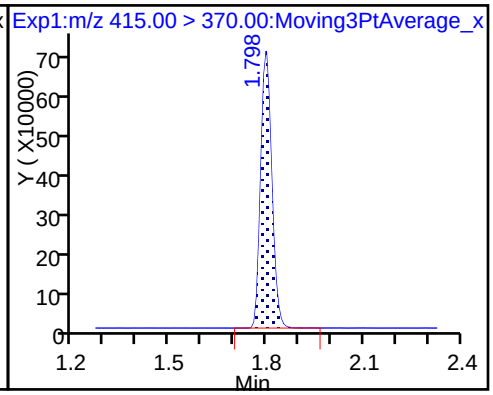
3 Perfluorohexanesulfonic acid (ND)



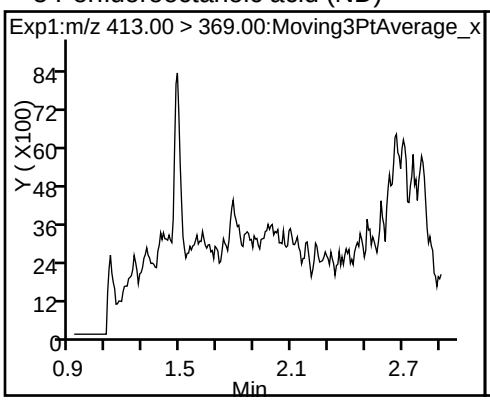
4 Perfluoroheptanoic acid (ND)



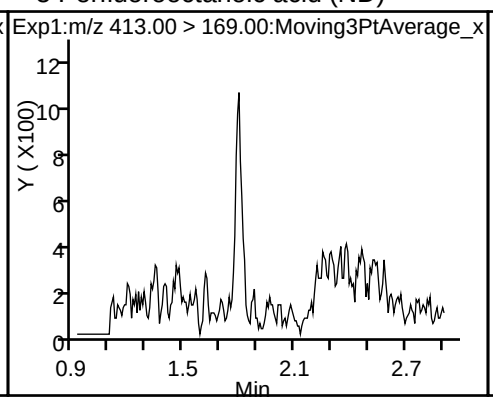
* 6 13C2-PFOA



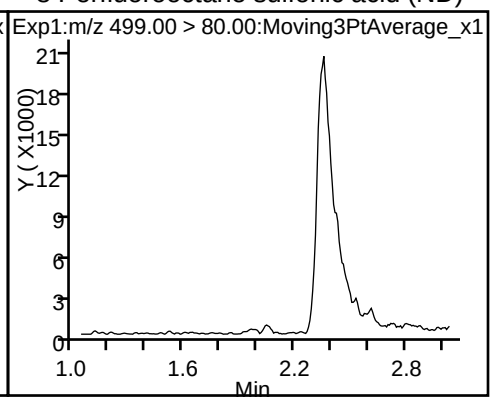
5 Perfluorooctanoic acid (ND)



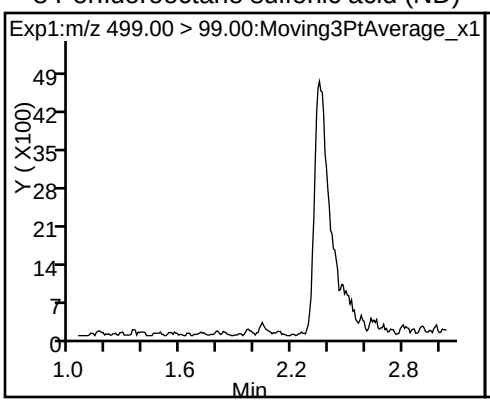
5 Perfluorooctanoic acid (ND)



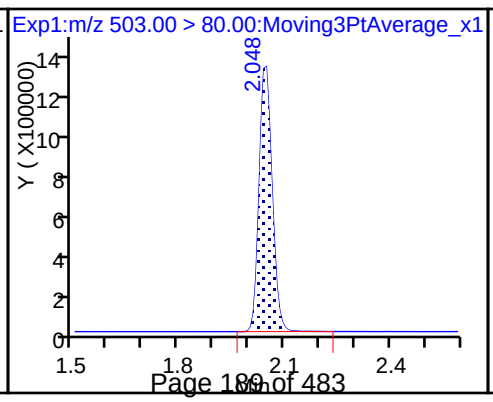
8 Perfluorooctane sulfonic acid (ND)



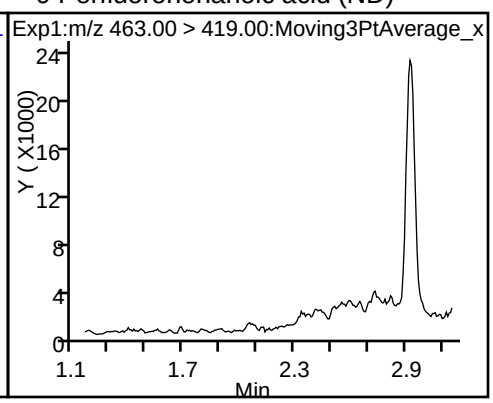
8 Perfluorooctane sulfonic acid (ND)



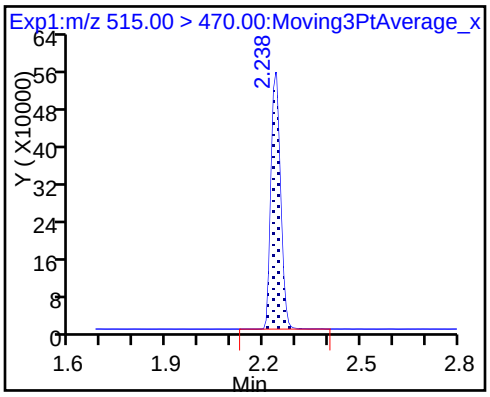
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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Y (X10000)
64
56
48
40
32
24
16
8
0
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_031.d				
Lims ID:	320-34835-A-10-A				
Client ID:	NAWC-010318-FRB-261				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 07:35:31	ALS Bottle#:	21	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-10-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:41	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.04	90.41
$ 10 13C2 PFDA	10.0	8.66	86.60

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-10 | Lab Sample ID: 320-34835-11

Matrix: Water | Lab File ID: 2018.01.18_537AA_032.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 247.9(mL) | Date Analyzed: 01/19/2018 07:40

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	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	92		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_032.d
Lims ID: 320-34835-A-11-A
Client ID: NAWC-010318-RW-10
Sample Type: Client
Inject. Date: 19-Jan-2018 07:40:12 ALS Bottle#: 22 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	121023	0.8752		87.8	
298.90 > 99.00	1.366	1.444	-0.078	1.000	91009		1.33(0.00-0.00)	182	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1635831	9.17		8452	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	985527	4.76		452	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	265143	1.75		52.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1621192	10.0		6314	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	935047	6.23		111	
413.00 > 169.00	1.798	1.914	-0.116	1.000	556444		1.68(0.00-0.00)	1110	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.041	0.007	1.000	974280	8.39		124	
499.00 > 99.00	2.048	2.041	0.007	1.000	201351		4.84(0.00-0.00)	160	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3547464	28.7		2760	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	84218	0.7822		12.7	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1137116	9.17		7395	

Report Date: 19-Jan-2018 14:09:45 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_032.d

Injection Date: 19-Jan-2018 07:40:12 Instrument ID: A8_N

Lims ID: 320-34835-A-11-A Lab Sample ID: 320-34835-11

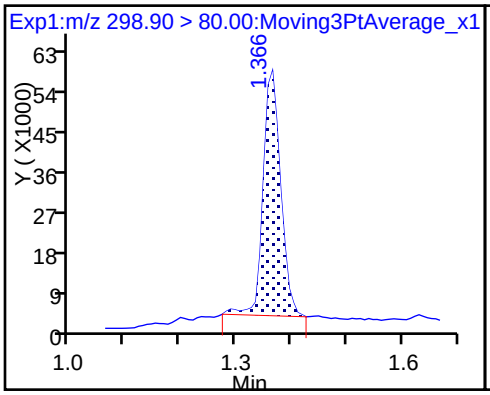
Client ID: NAWC-010318-RW-10

Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 8

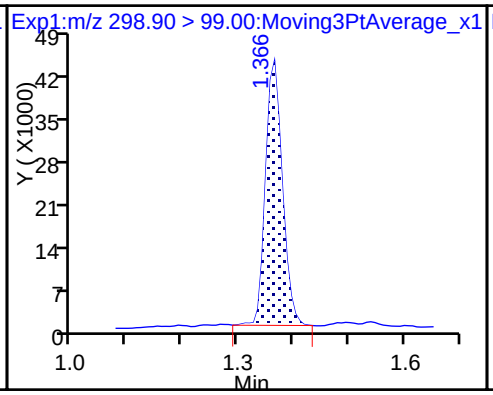
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

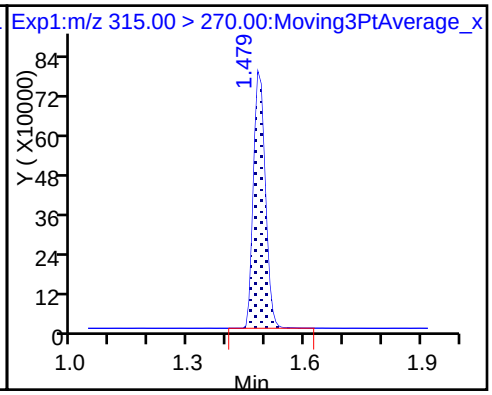
1 Perfluorobutanesulfonic acid



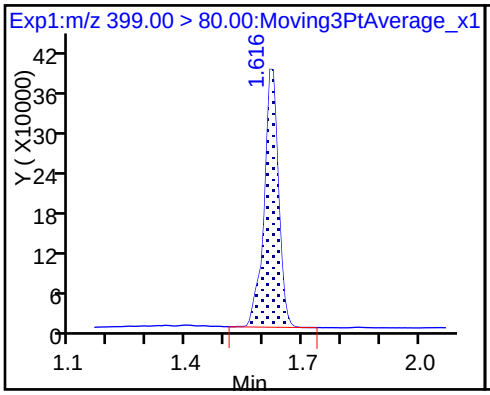
1 Perfluorobutanesulfonic acid



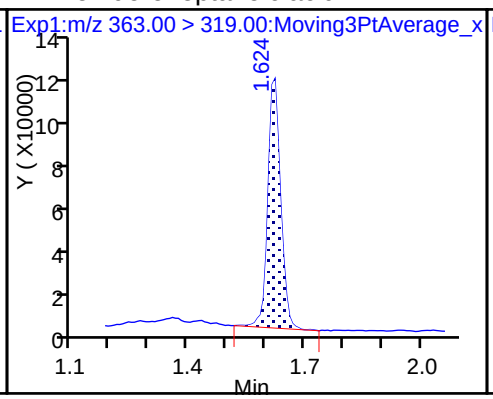
$ 2 13C2 PFHxA



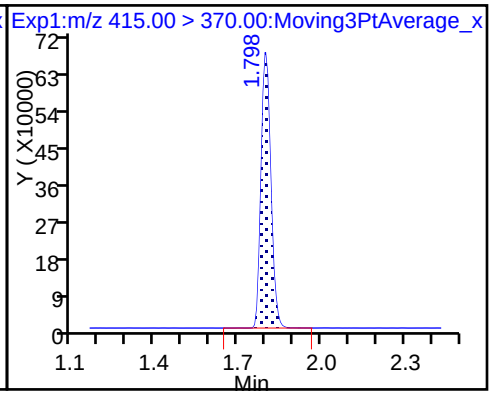
3 Perfluorohexanesulfonic acid



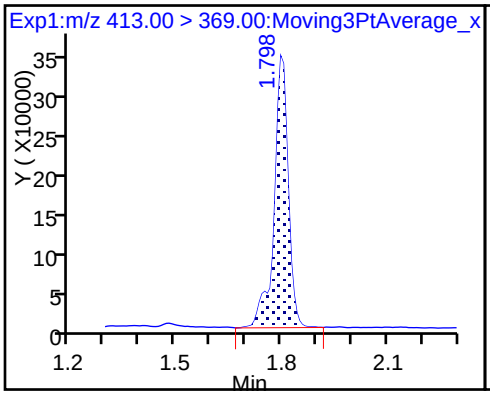
4 Perfluoroheptanoic acid



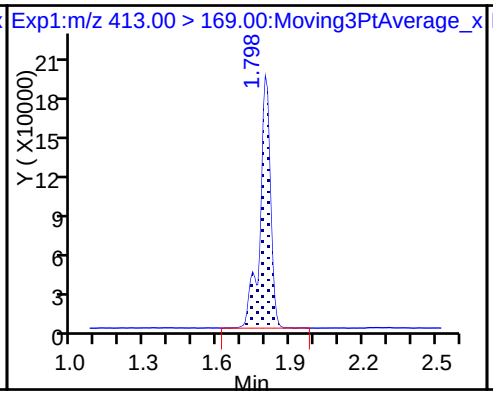
* 6 13C2-PFOA



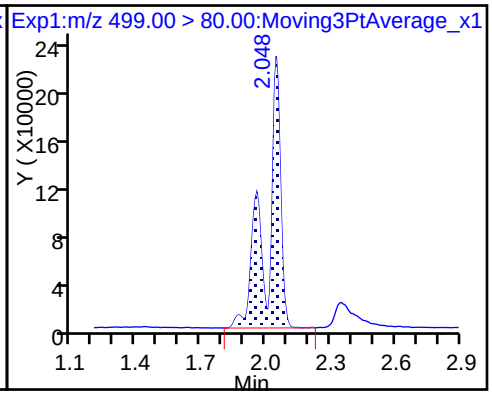
5 Perfluorooctanoic acid



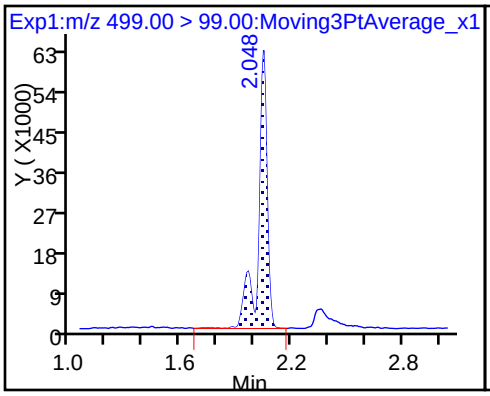
5 Perfluorooctanoic acid



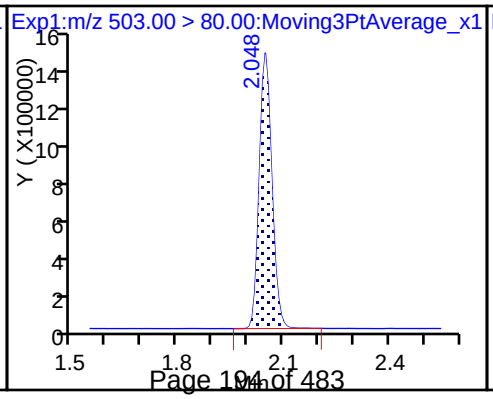
8 Perfluorooctane sulfonic acid



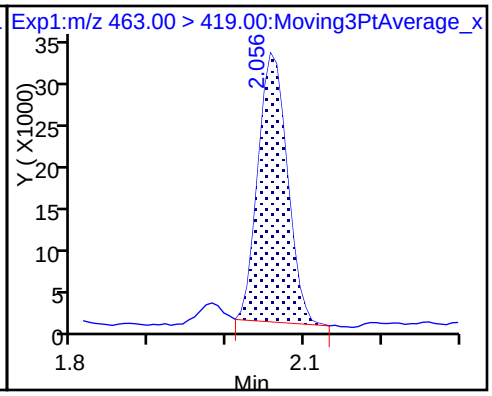
8 Perfluorooctane sulfonic acid



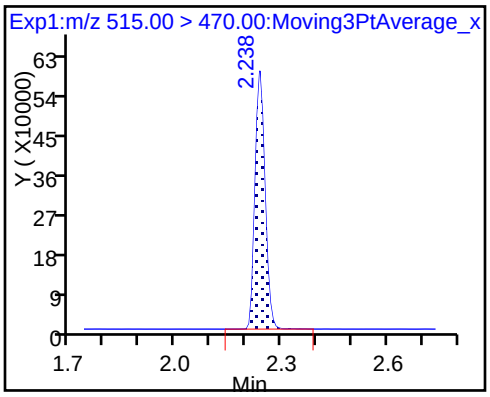
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
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\20180119-53091.b\2018.01.18_537AA_032.d				
Lims ID:	320-34835-A-11-A				
Client ID:	NAWC-010318-RW-10				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 07:40:12	ALS Bottle#:	22	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-11-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:41	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:	XAWRK023				

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:51

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.17	91.71
$ 10 13C2 PFDA	10.0	9.17	91.66

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-10 | Lab Sample ID: 320-34835-12

Matrix: Water | Lab File ID: 2018.01.18_537AA_033.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 255.8(mL) | Date Analyzed: 01/19/2018 07:44

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_033.d
Lims ID: 320-34835-A-12-A
Client ID: NAWC-010318-FRB-10
Sample Type: Client
Inject. Date: 19-Jan-2018 07:44:53 ALS Bottle#: 23 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

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	1.573	-0.094	1.000	1641800	9.78		7517	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1526405	10.0		5811	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3466038	28.7		7400	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1169458	10.0		7283	

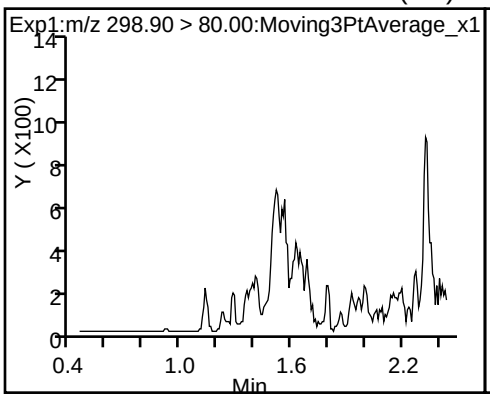
Report Date: 19-Jan-2018 14:09:46 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

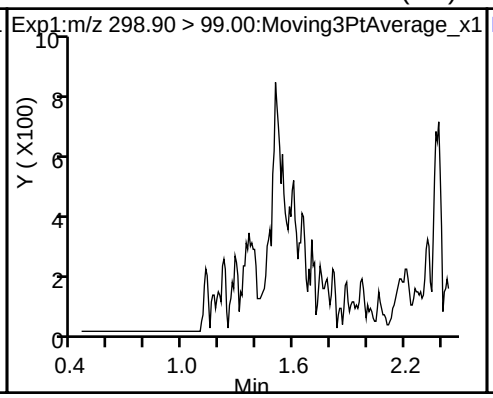
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_033.d

Injection Date:	19-Jan-2018 07:44:53	Instrument ID:	A8_N		
Lims ID:	320-34835-A-12-A	Lab Sample ID:	320-34835-12		
Client ID:	NAWC-010318-FRB-10				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	23	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

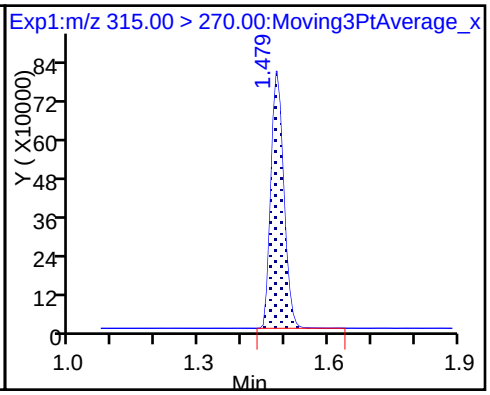
1 Perfluorobutanesulfonic acid (ND)



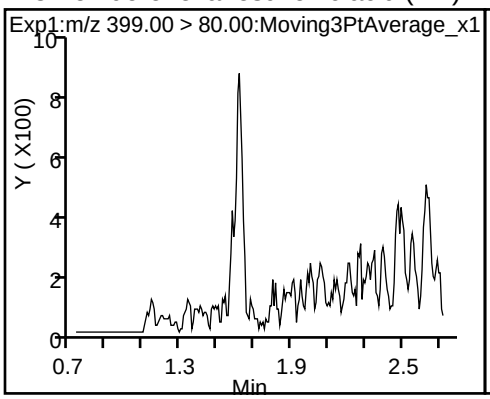
1 Perfluorobutanesulfonic acid (ND)



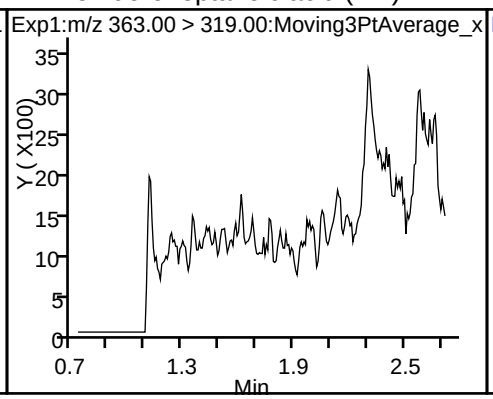
$ 2 13C2 PFHxA



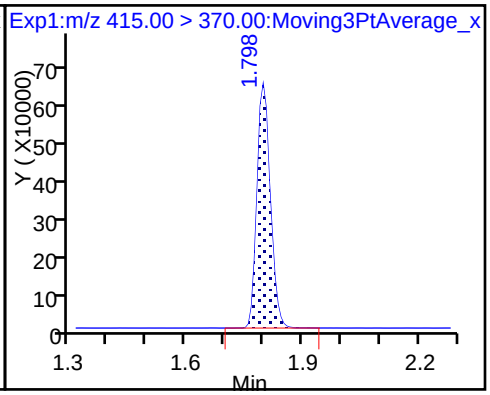
3 Perfluorohexanesulfonic acid (ND)



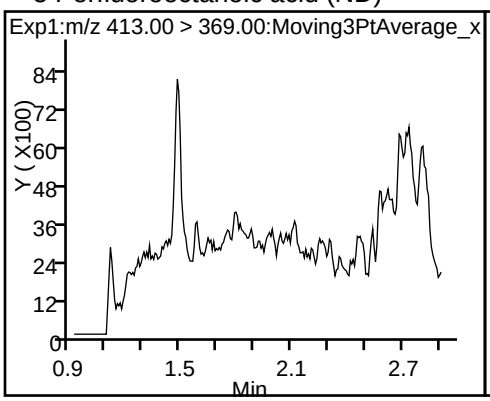
4 Perfluoroheptanoic acid (ND)



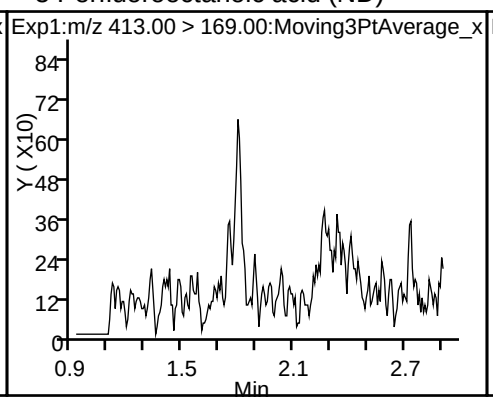
* 6 13C2-PFOA



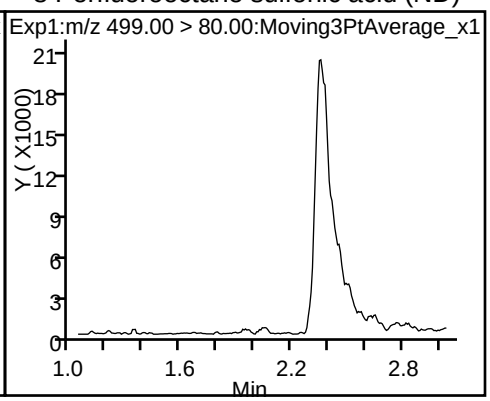
5 Perfluorooctanoic acid (ND)



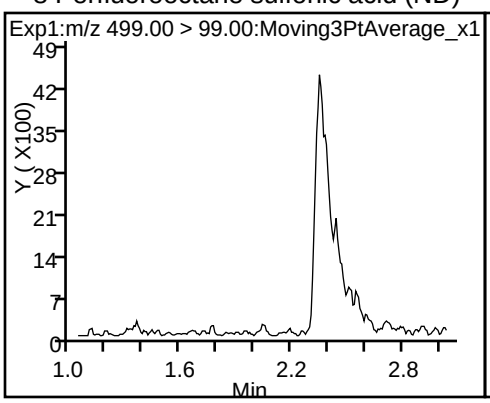
5 Perfluorooctanoic acid (ND)



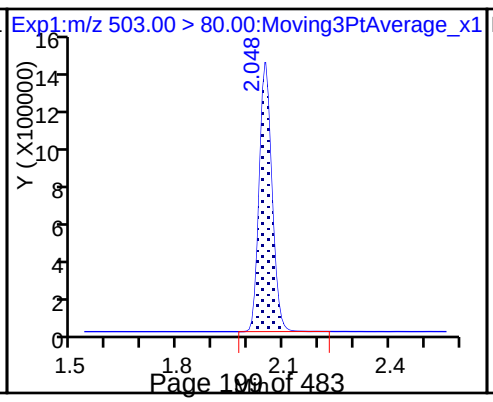
8 Perfluorooctane sulfonic acid (ND)



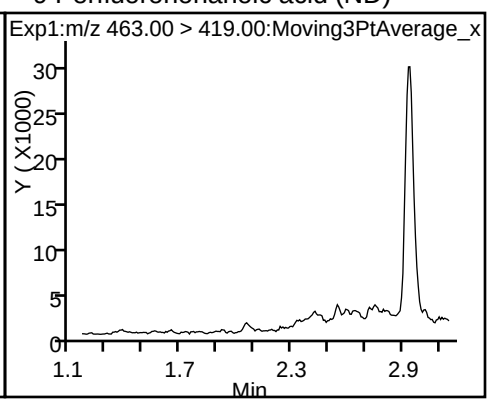
8 Perfluorooctane sulfonic acid (ND)



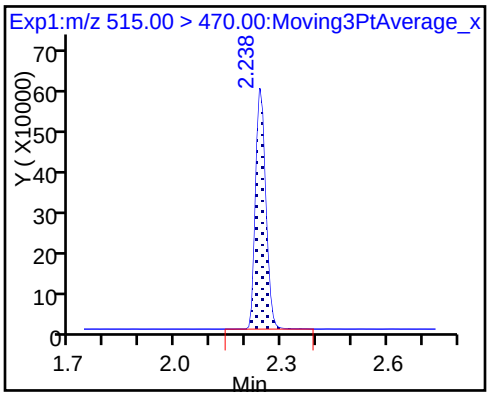
* 7 13C4 PFOS



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
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_033.d				
Lims ID:	320-34835-A-12-A				
Client ID:	NAWC-010318-FRB-10				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 07:44:53	ALS Bottle#:	23	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-12-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:41	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.78	97.76
$ 10 13C2 PFDA	10.0	10.0	100.12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-0443 | Lab Sample ID: 320-34835-13

Matrix: Water | Lab File ID: 2018.01.18_537AA_034.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 251.5(mL) | Date Analyzed: 01/19/2018 07:49

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	24		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)	10		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	17	J	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_034.d
Lims ID: 320-34835-A-13-A
Client ID: WGNA-010318-RW-0443
Sample Type: Client
Inject. Date: 19-Jan-2018 07:49:34 ALS Bottle#: 24 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:05

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	1.444	-0.078	1.000	606135	4.38		447	
298.90 > 99.00	1.366	1.444	-0.078	1.000	451331		1.34(0.00-0.00)	1106	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1564152	8.64		7274	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	264195	1.27		140	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	387890	2.52		63.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1645502	10.0		7064	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	913722	6.00		106	
413.00 > 169.00	1.798	1.914	-0.116	1.000	513816		1.78(0.00-0.00)	1101	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.041	0.007	1.000	906913	7.77		112	
499.00 > 99.00	2.048	2.041	0.007	1.000	163999		5.53(0.00-0.00)	131	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3564384	28.7		3287	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	98991	0.9058		15.2	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1272504	10.1		7691	

Report Date: 19-Jan-2018 14:09:46 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_034.d

Injection Date: 19-Jan-2018 07:49:34 Instrument ID: A8_N

Lims ID: 320-34835-A-13-A Lab Sample ID: 320-34835-13

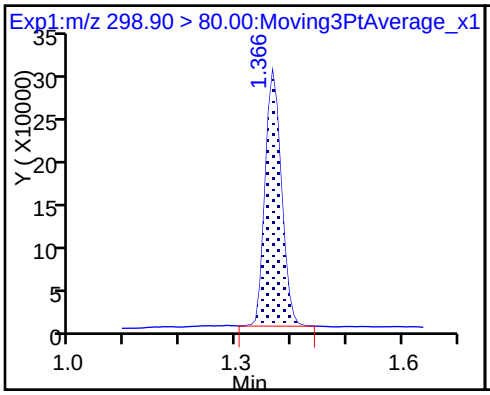
Client ID: WGNA-010318-RW-0443

Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 10

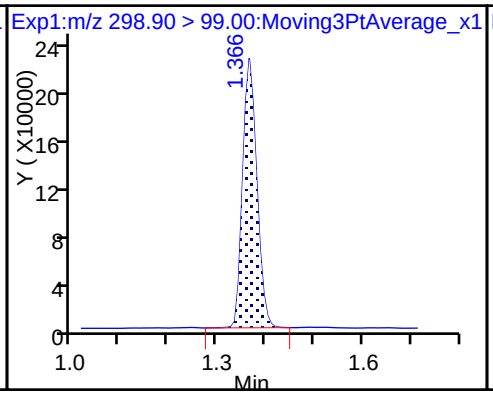
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

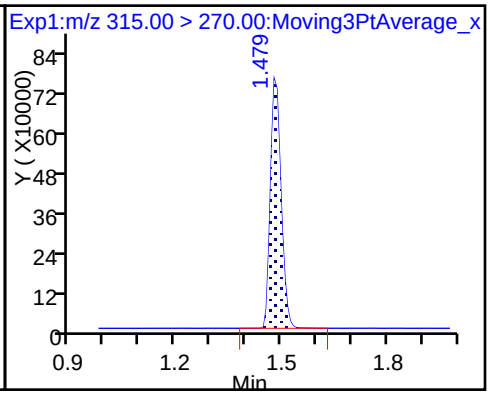
1 Perfluorobutanesulfonic acid



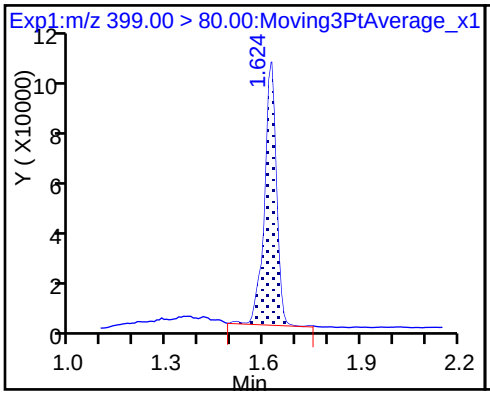
1 Perfluorobutanesulfonic acid



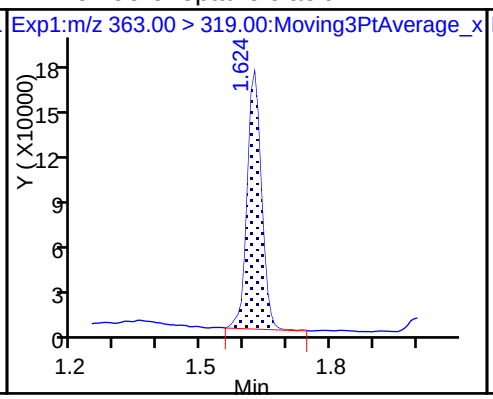
$ 2 13C2 PFHxA



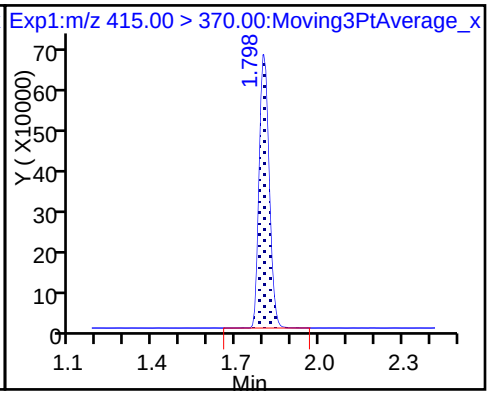
3 Perfluorohexanesulfonic acid



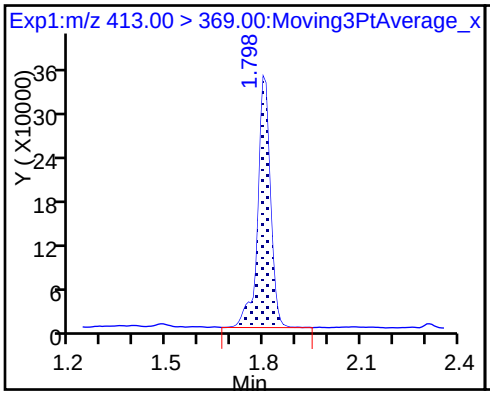
4 Perfluoroheptanoic acid



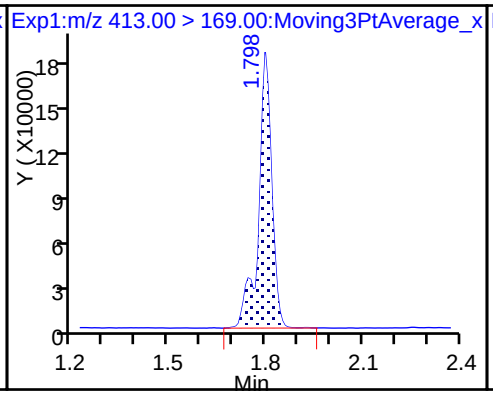
* 6 13C2-PFOA



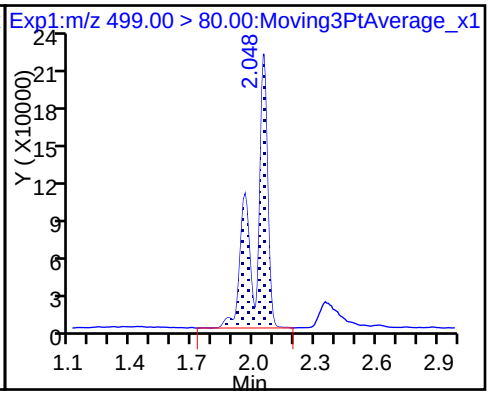
5 Perfluorooctanoic acid



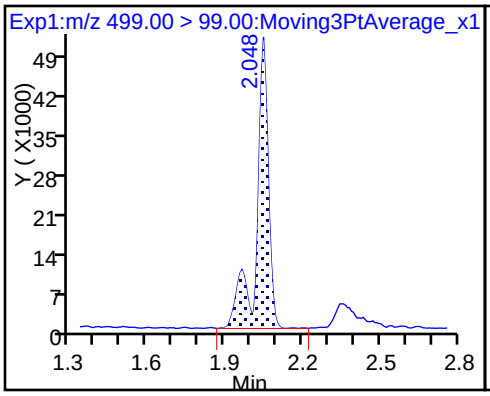
5 Perfluorooctanoic acid



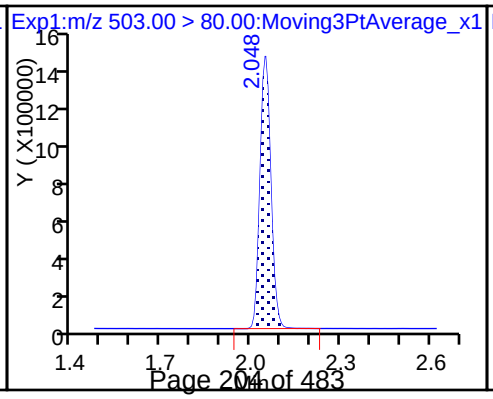
8 Perfluorooctane sulfonic acid



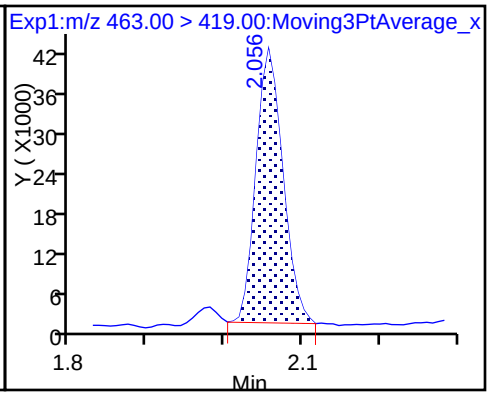
8 Perfluorooctane sulfonic acid



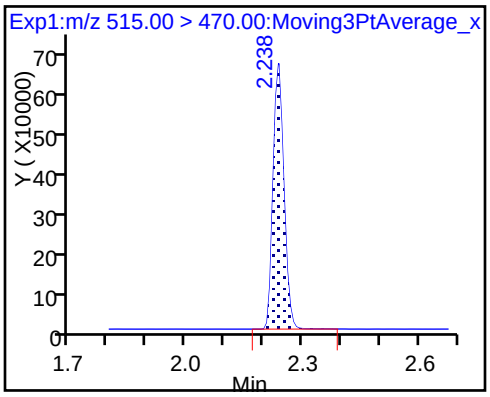
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
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\20180119-53091.b\2018.01.18_537AA_034.d
Lims ID: 320-34835-A-13-A
Client ID: WGNA-010318-RW-0443
Sample Type: Client
Inject. Date: 19-Jan-2018 07:49:34 ALS Bottle#: 24 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:05

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.64	86.39
$ 10 13C2 PFDA	10.0	10.1	101.06

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-0443 Lab Sample ID: 320-34835-14

Matrix: Water Lab File ID: 2018.01.18_537AA_035.d

Analysis Method: 537 Date Collected: 01/03/2018 11:05

Extraction Method: 537 Date Extracted: 01/15/2018 08:55

Sample wt/vol: 245.2(mL) Date Analyzed: 01/19/2018 07:54

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

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

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

Analysis Batch No.: 204650 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_035.d
Lims ID: 320-34835-A-14-A
Client ID: WGNA-010318-FRB-0443
Sample Type: Client
Inject. Date: 19-Jan-2018 07:54:14 ALS Bottle#: 25 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-14-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

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	1.573	-0.094	1.000	1718777	9.85		9330	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1585577	10.0		6460	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3402238	28.7		7851	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1220333	10.1		7165	

Report Date: 19-Jan-2018 14:09:47 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_035.d

Injection Date: 19-Jan-2018 07:54:14 Instrument ID: A8_N

Lims ID: 320-34835-A-14-A Lab Sample ID: 320-34835-14

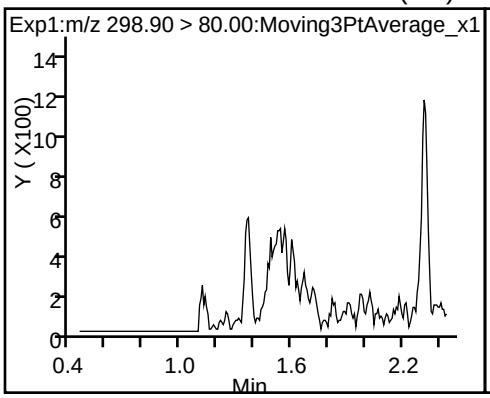
Client ID: WGNA-010318-FRB-0443

Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 11

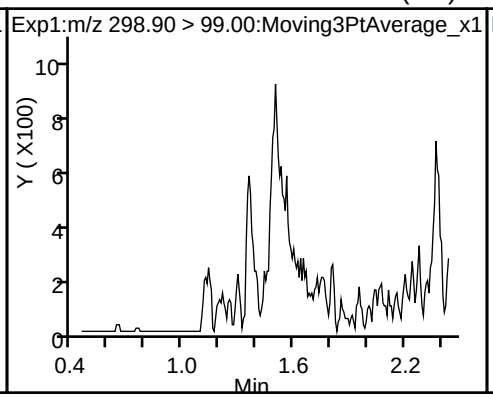
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

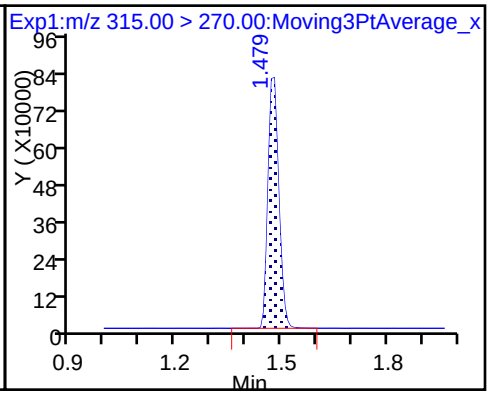
1 Perfluorobutanesulfonic acid (ND)



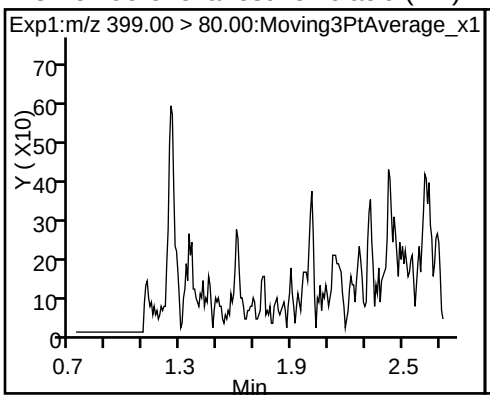
1 Perfluorobutanesulfonic acid (ND)



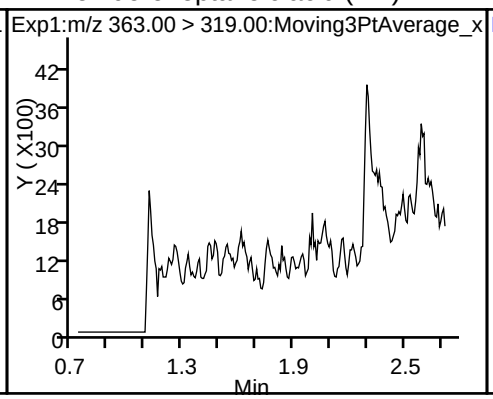
$ 2 13C2 PFHxA



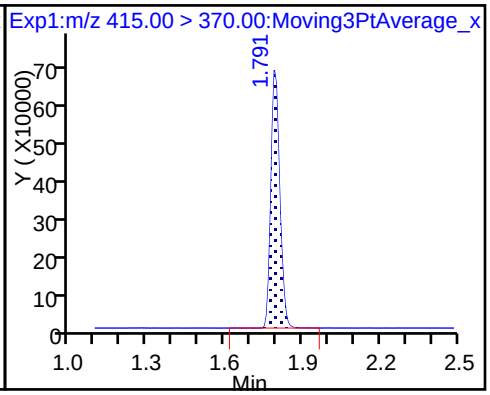
3 Perfluorohexanesulfonic acid (ND)



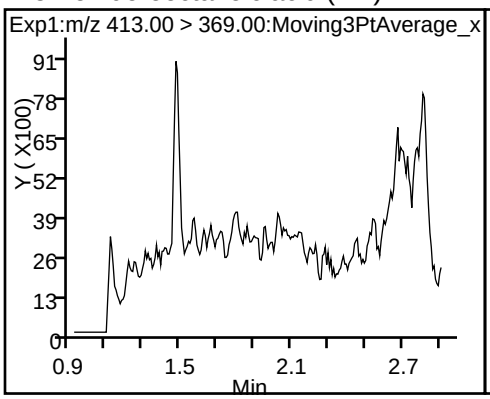
4 Perfluoroheptanoic acid (ND)



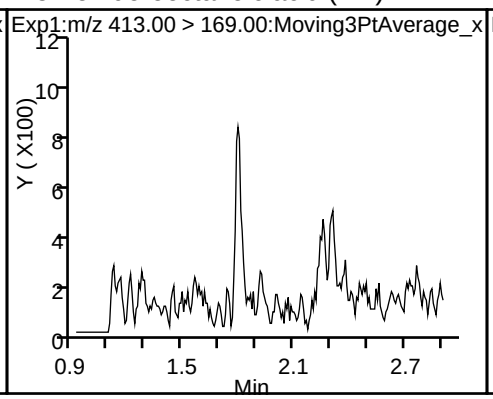
* 6 13C2-PFOA



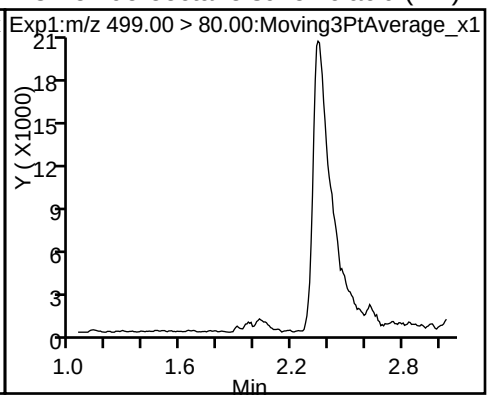
5 Perfluorooctanoic acid (ND)



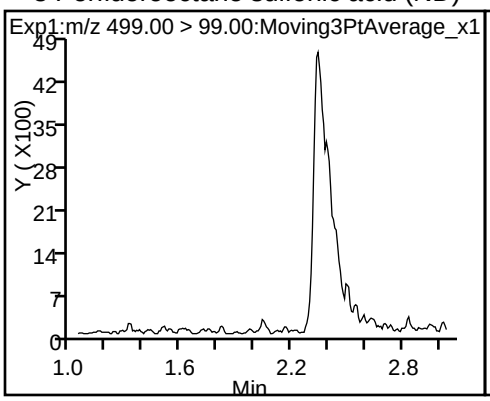
5 Perfluorooctanoic acid (ND)



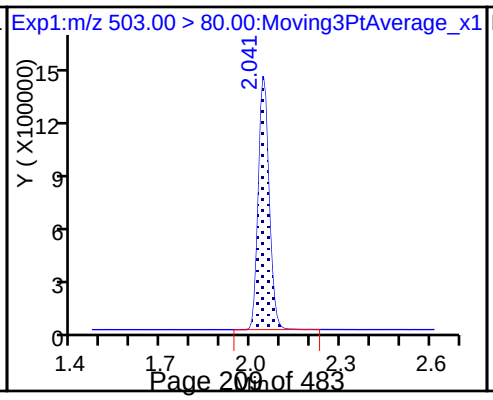
8 Perfluorooctane sulfonic acid (ND)



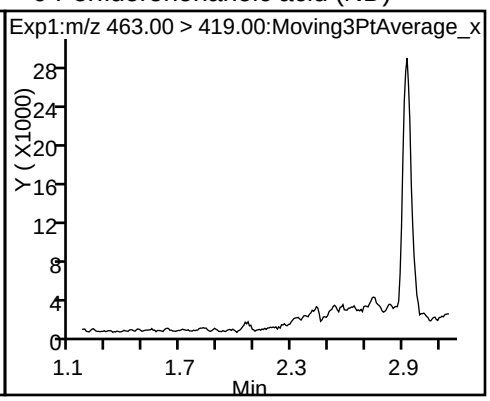
8 Perfluorooctane sulfonic acid (ND)



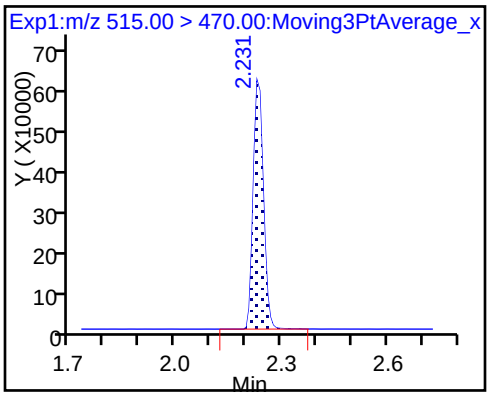
* 7 13C4 PFOS



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
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_035.d				
Lims ID:	320-34835-A-14-A				
Client ID:	WGNA-010318-FRB-0443				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 07:54:14	ALS Bottle#:	25	Worklist Smp#:	11
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-14-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:41	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.85	98.52
$ 10 13C2 PFDA	10.0	10.1	100.58

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-3493 | Lab Sample ID: 320-34835-15

Matrix: Water | Lab File ID: 2018.01.18_537AA_036.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 251.3(mL) | Date Analyzed: 01/19/2018 07:58

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.4	J	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	88		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_036.d
Lims ID: 320-34835-A-15-A
Client ID: WGNA-010318-RW-3493
Sample Type: Client
Inject. Date: 19-Jan-2018 07:58:54 ALS Bottle#: 26 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	283367	2.04		224	
298.90 > 99.00	1.366	1.444	-0.078	1.000	214015		1.32(0.00-0.00)	528	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1634879	8.83		8088	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	854487	4.11		413	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	253643	1.61		44.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1682825	10.0		6352	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	825565	5.30		93.7	
413.00 > 169.00	1.798	1.914	-0.116	1.000	483127		1.71(0.00-0.00)	990	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.041	0.007	1.000	972047	8.34		122	
499.00 > 99.00	2.048	2.041	0.007	1.000	193296		5.03(0.00-0.00)	150	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3560565	28.7		3051	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	67066	0.6001		9.0	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1238476	9.62		7762	

Report Date: 19-Jan-2018 14:09:47 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_036.d

Injection Date: 19-Jan-2018 07:58:54 Instrument ID: A8_N

Lims ID: 320-34835-A-15-A Lab Sample ID: 320-34835-15

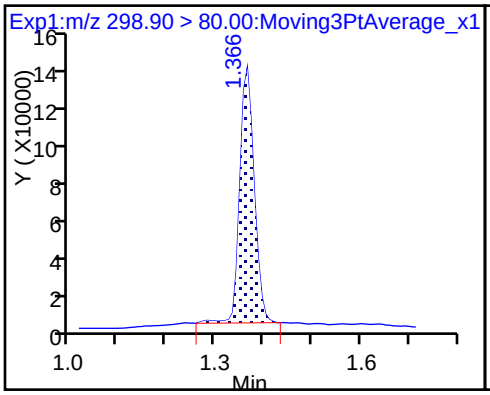
Client ID: WGNA-010318-RW-3493

Operator ID: SACINSTLCMS01 ALS Bottle#: 26 Worklist Smp#: 12

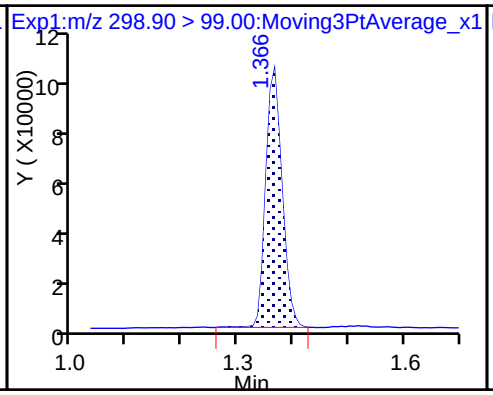
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

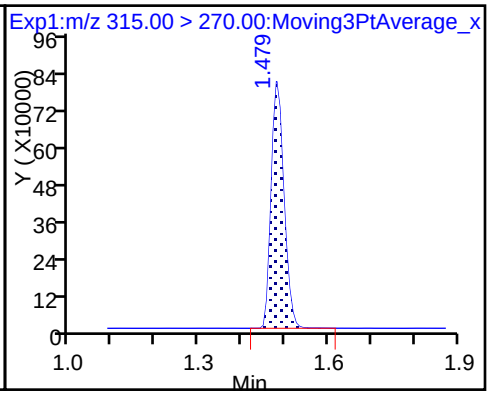
1 Perfluorobutanesulfonic acid



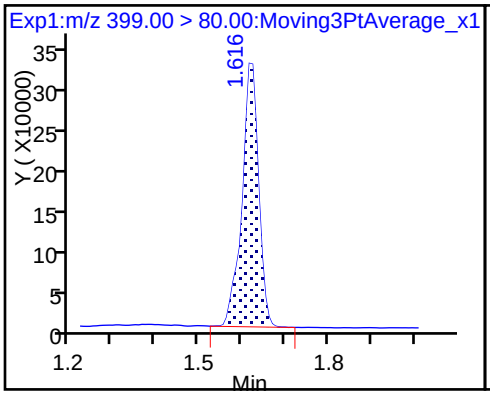
1 Perfluorobutanesulfonic acid



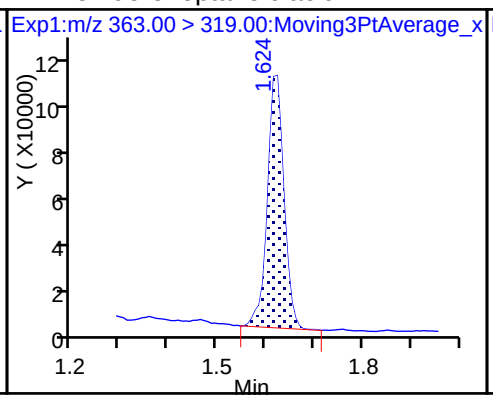
$ 2 13C2 PFHxA



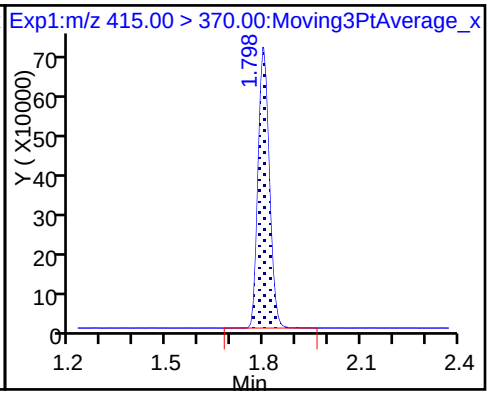
3 Perfluorohexanesulfonic acid



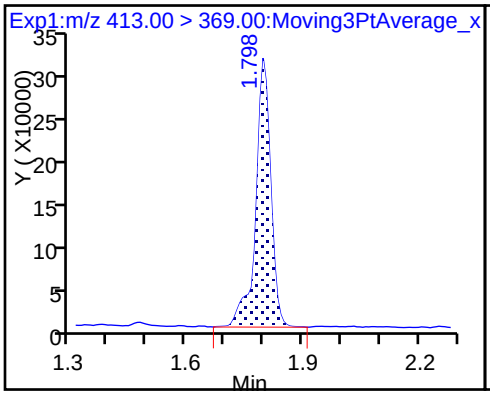
4 Perfluoroheptanoic acid



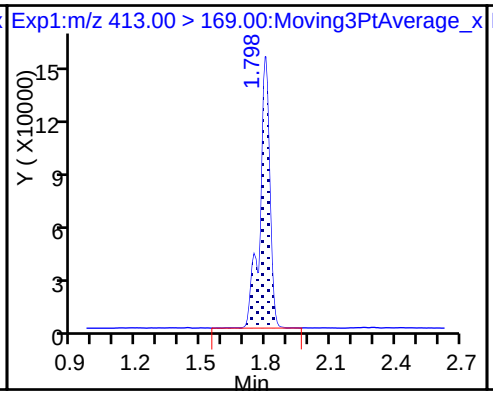
* 6 13C2-PFOA



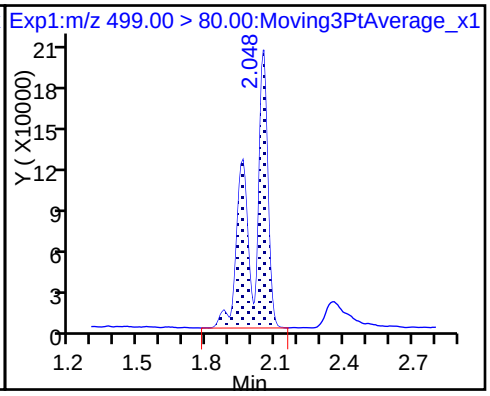
5 Perfluorooctanoic acid



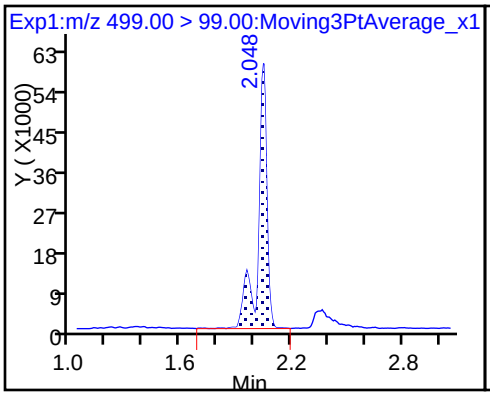
5 Perfluorooctanoic acid



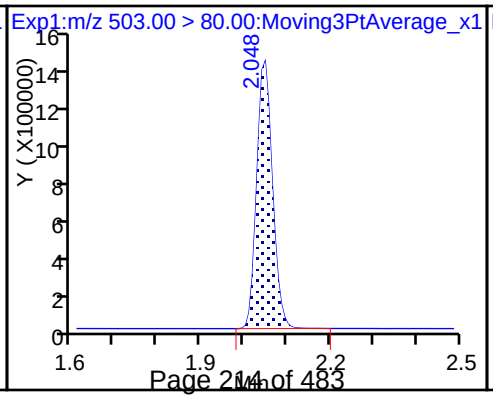
8 Perfluorooctane sulfonic acid



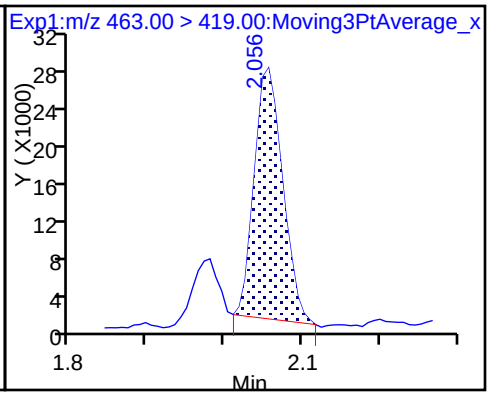
8 Perfluorooctane sulfonic acid



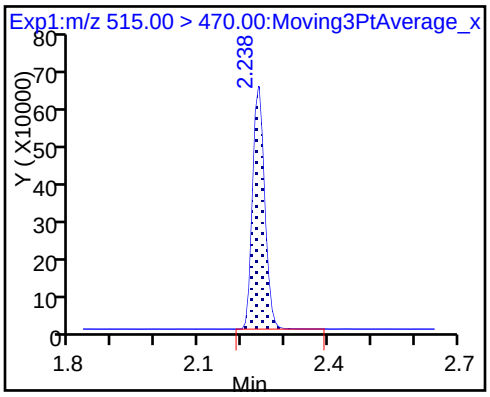
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
80
70
60
50
40
30
20
10
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_036.d
Lims ID: 320-34835-A-15-A
Client ID: WGNA-010318-RW-3493
Sample Type: Client
Inject. Date: 19-Jan-2018 07:58:54 ALS Bottle#: 26 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:19

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.83	88.30
$ 10 13C2 PFDA	10.0	9.62	96.18

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-3493 | Lab Sample ID: 320-34835-16

Matrix: Water | Lab File ID: 2018.01.18_537AA_039.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 240.8(mL) | Date Analyzed: 01/19/2018 08:12

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	8.3	U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	U	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_039.d
Lims ID: 320-34835-A-16-A
Client ID: WGNA-010318-FRB-3493
Sample Type: Client
Inject. Date: 19-Jan-2018 08:12:56 ALS Bottle#: 27 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-16-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

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	1.573	-0.094	1.000	1690634	9.55		8250	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1608441	10.0		6036	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3448304	28.7		7605	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1209911	9.83		7103	

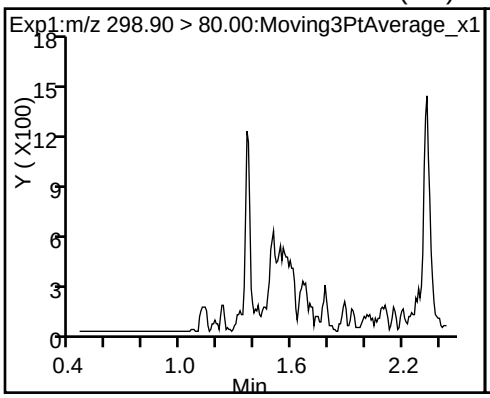
Report Date: 19-Jan-2018 14:09:49 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

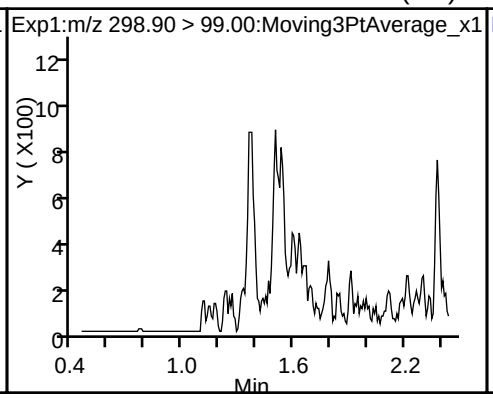
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_039.d

Injection Date:	19-Jan-2018 08:12:56	Instrument ID:	A8_N		
Lims ID:	320-34835-A-16-A	Lab Sample ID:	320-34835-16		
Client ID:	WGNA-010318-FRB-3493				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

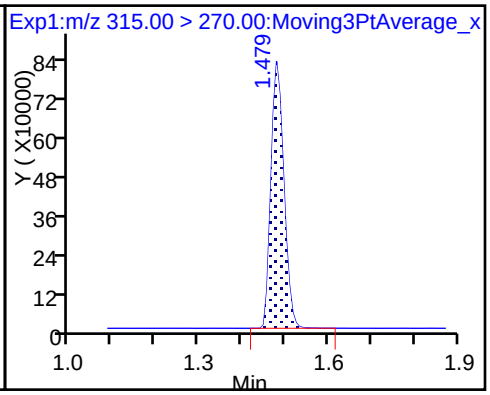
1 Perfluorobutanesulfonic acid (ND)



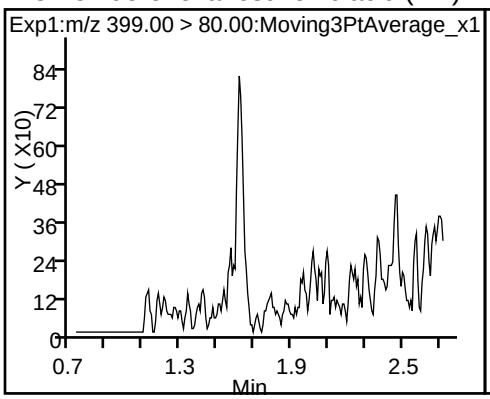
1 Perfluorobutanesulfonic acid (ND)



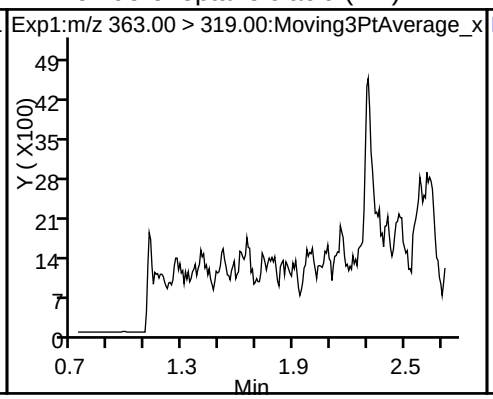
$ 2 13C2 PFHxA



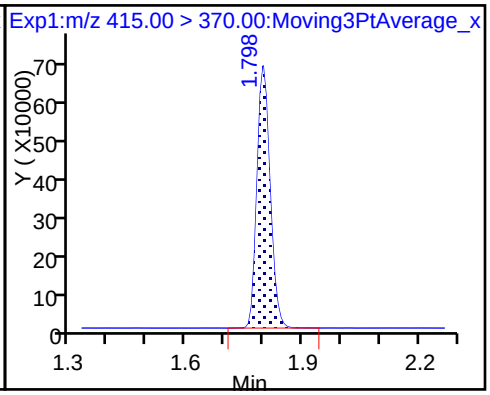
3 Perfluorohexanesulfonic acid (ND)



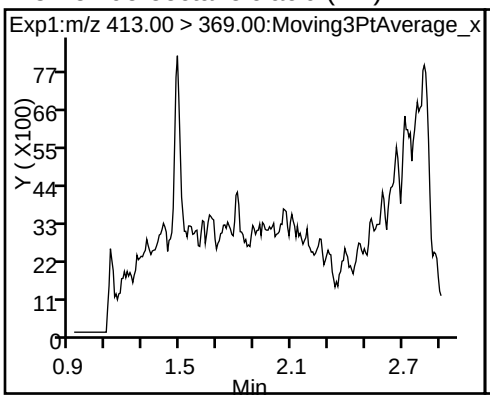
4 Perfluoroheptanoic acid (ND)



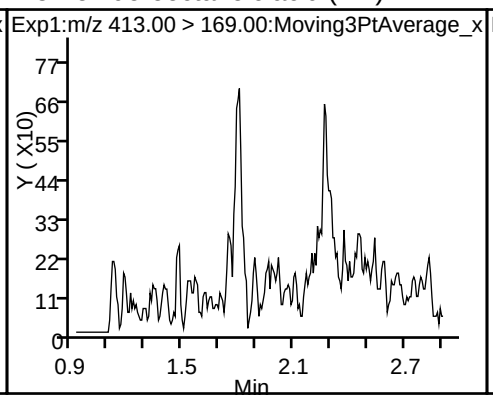
* 6 13C2-PFOA



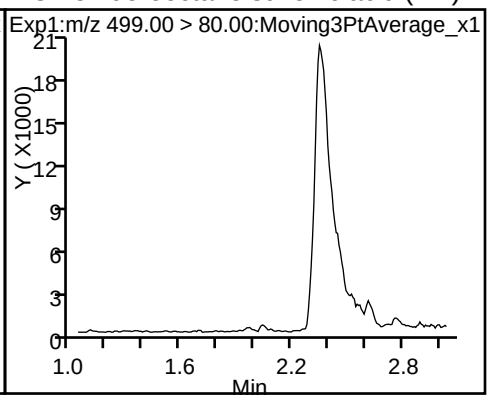
5 Perfluorooctanoic acid (ND)



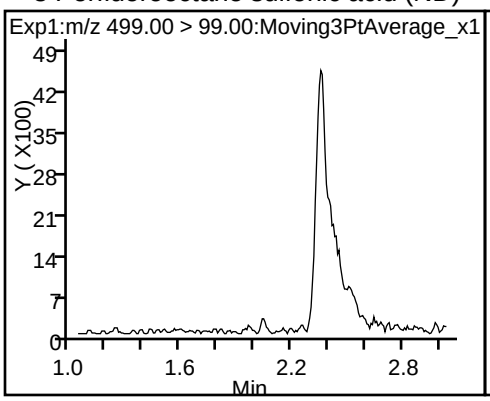
5 Perfluorooctanoic acid (ND)



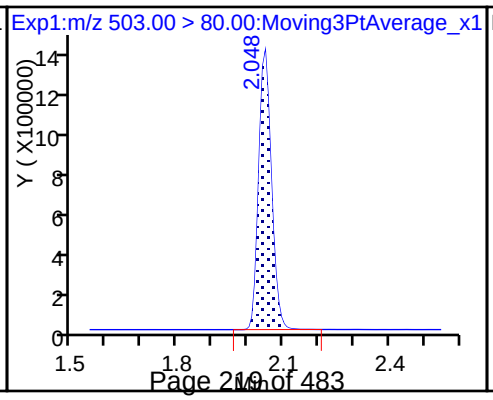
8 Perfluorooctane sulfonic acid (ND)



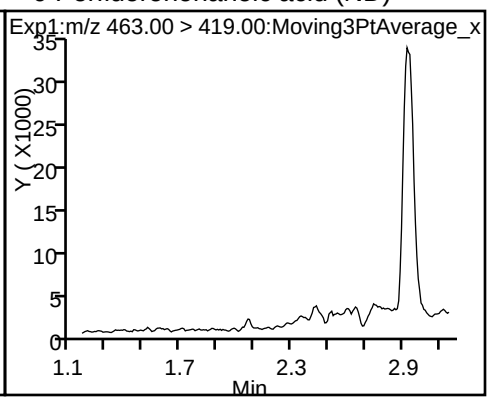
8 Perfluorooctane sulfonic acid (ND)



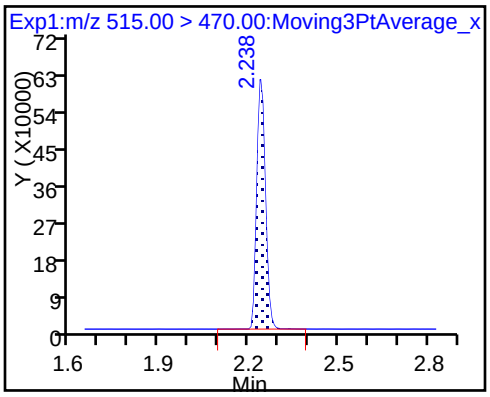
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
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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\20180119-53091.b\2018.01.18_537AA_039.d				
Lims ID:	320-34835-A-16-A				
Client ID:	WGNA-010318-FRB-3493				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:12:56	ALS Bottle#:	27	Worklist Smp#:	15
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-16-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.55	95.53
$ 10 13C2 PFDA	10.0	9.83	98.30

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-DUP-15 | Lab Sample ID: 320-34835-17

Matrix: Water | Lab File ID: 2018.01.18_537AA_040.d

Analysis Method: 537 | Date Collected: 01/03/2018 07:00

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 08:17

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	17	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	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	83		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_040.d
Lims ID: 320-34835-A-17-A
Client ID: WGNA-010318-DUP-15
Sample Type: Client
Inject. Date: 19-Jan-2018 08:17:35 ALS Bottle#: 28 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-17-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:40

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	1.444	-0.078	1.000	282207	1.96		204	
298.90 > 99.00	1.358	1.444	-0.086	0.994	201640		1.40(0.00-0.00)	383	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1603812	8.29		7704	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	909888	4.21		466	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	271274	1.65		50.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1758057	10.0		6615	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	810207	4.98		91.8	
413.00 > 169.00	1.798	1.914	-0.116	1.000	489542		1.66(0.00-0.00)	898	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	975725	8.04		119	
499.00 > 99.00	2.041	2.041	0.0	1.000	190386		5.12(0.00-0.00)	139	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3706319	28.7		3459	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	65126	0.5578		9.0	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1217709	9.05		6880	

Report Date: 19-Jan-2018 14:09:50 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_040.d

Injection Date: 19-Jan-2018 08:17:35 Instrument ID: A8_N

Lims ID: 320-34835-A-17-A Lab Sample ID: 320-34835-17

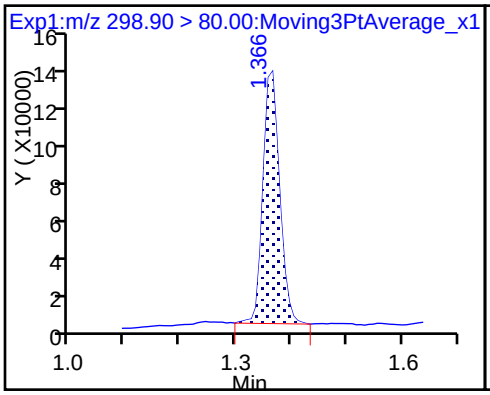
Client ID: WGNA-010318-DUP-15

Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 16

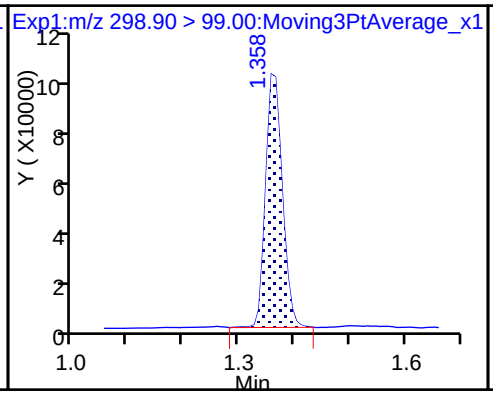
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

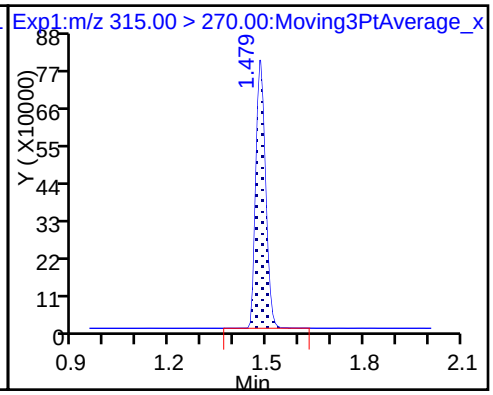
1 Perfluorobutanesulfonic acid



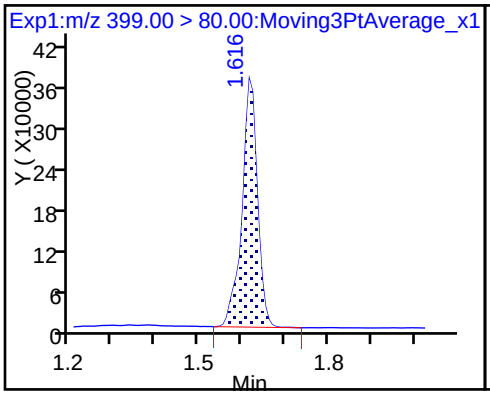
1 Perfluorobutanesulfonic acid



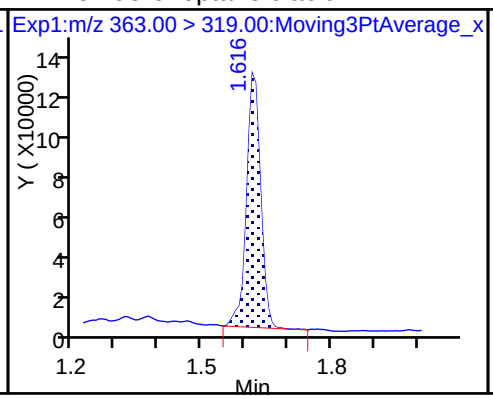
$ 2 13C2 PFHxA



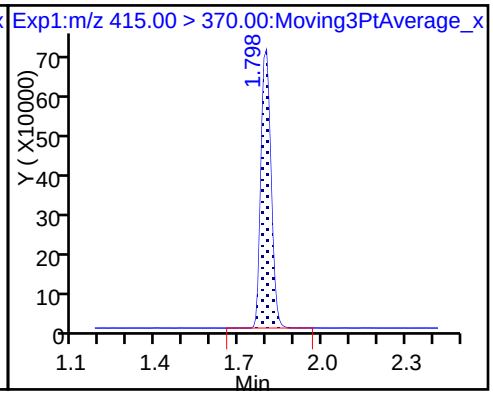
3 Perfluorohexanesulfonic acid



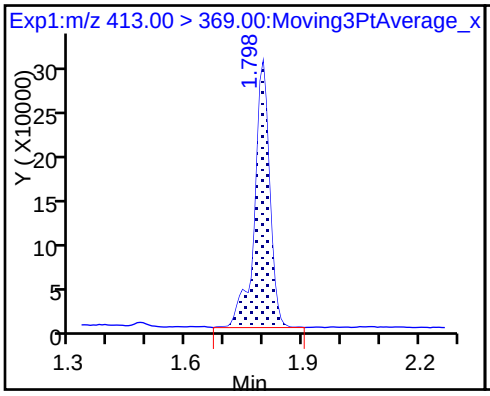
4 Perfluoroheptanoic acid



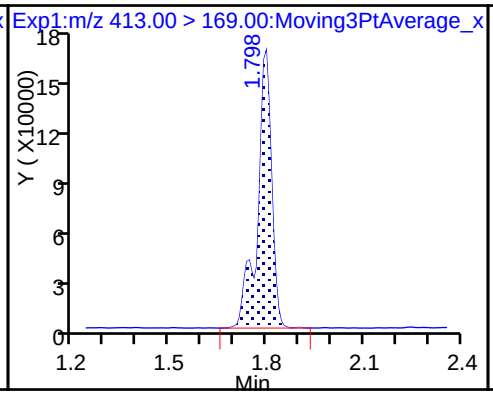
* 6 13C2-PFOA



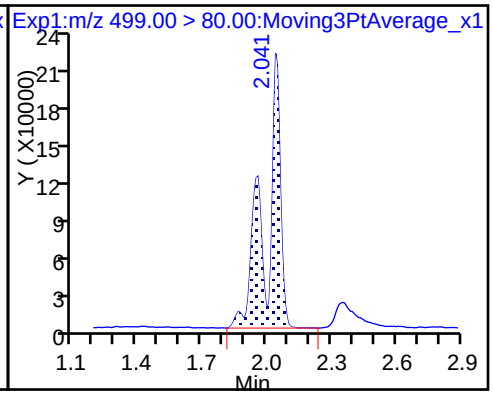
5 Perfluorooctanoic acid



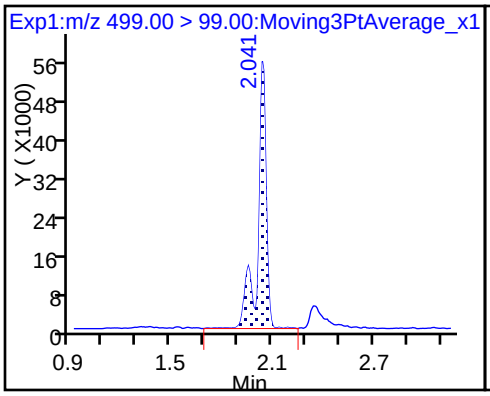
5 Perfluorooctanoic acid



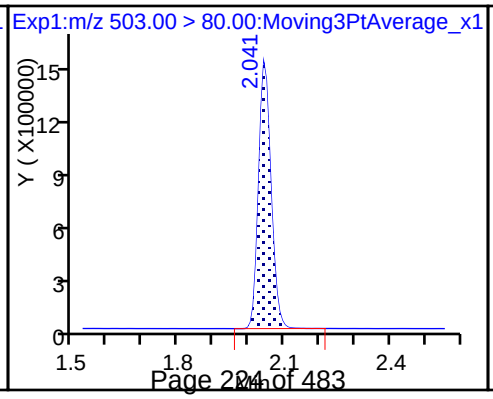
8 Perfluorooctane sulfonic acid



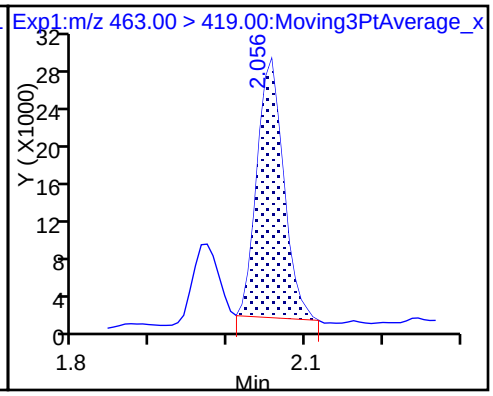
8 Perfluorooctane sulfonic acid



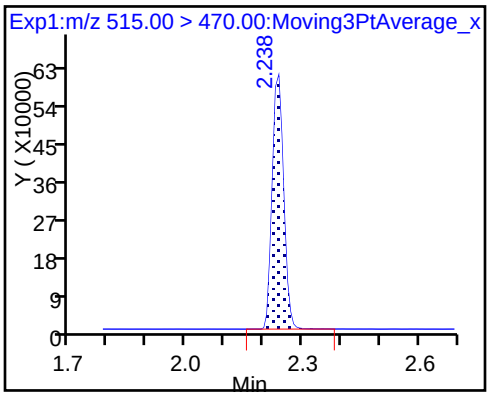
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

Report Date: 19-Jan-2018 14:09:50 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_040.d				
Lims ID:	320-34835-A-17-A				
Client ID:	WGNA-010318-DUP-15				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:17:35	ALS Bottle#:	28	Worklist Smp#:	16
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-17-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				
First Level Reviewer: westendorfc		Date:	19-Jan-2018 14:07:40		

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.29	82.91
$ 10 13C2 PFDA	10.0	9.05	90.52

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-0500 | Lab Sample ID: 320-34835-18

Matrix: Water | Lab File ID: 2018.01.18_537AA_041.d

Analysis Method: 537 | Date Collected: 01/03/2018 12:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 247.4(mL) | Date Analyzed: 01/19/2018 08:22

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.9	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	94		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_041.d
Lims ID: 320-34835-A-18-A
Client ID: WGNA-010318-RW-0500
Sample Type: Client
Inject. Date: 19-Jan-2018 08:22:16 ALS Bottle#: 29 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-18-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	318647	2.27		285	
298.90 > 99.00	1.358	1.444	-0.086	1.000	232084		1.37(0.00-0.00)	541	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1700493	9.37		7643	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	406289	1.93		249	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	264004	1.71		49.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1649193	10.0		5700	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.791	1.914	-0.123	1.000	928457	6.08		110	M
413.00 > 169.00	1.791	1.914	-0.123	1.000	528039		1.76(0.00-0.00)	1174	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	664687	5.62		79.7	
499.00 > 99.00	2.041	2.041	0.0	1.000	118476		5.61(0.00-0.00)	85.1	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3615644	28.7		4146	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.158	-0.110	1.000	66975	0.6115		9.6	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1155012	9.15		7756	

QC Flag Legend

Review Flags

M - Manually Integrated

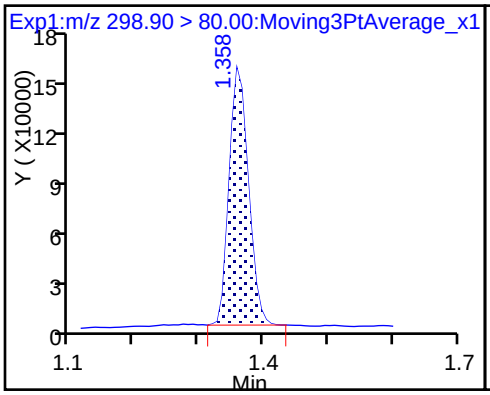
Report Date: 19-Jan-2018 14:09:50 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

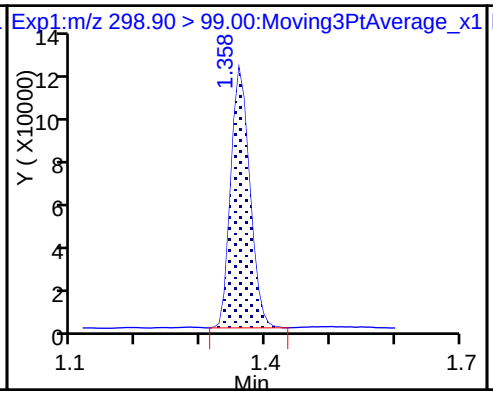
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_041.d

Injection Date:	19-Jan-2018 08:22:16	Instrument ID:	A8_N		
Lims ID:	320-34835-A-18-A	Lab Sample ID:	320-34835-18		
Client ID:	WGNA-010318-RW-0500				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		

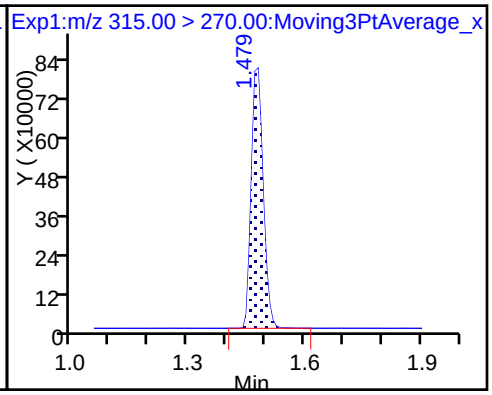
1 Perfluorobutanesulfonic acid



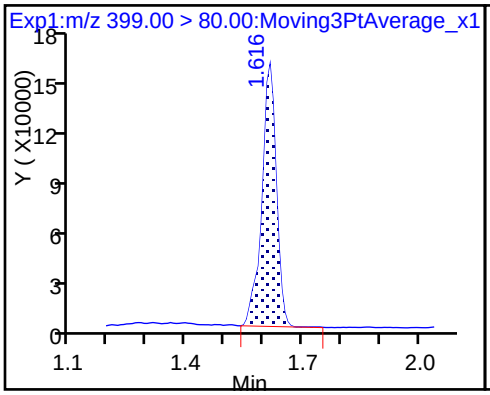
1 Perfluorobutanesulfonic acid



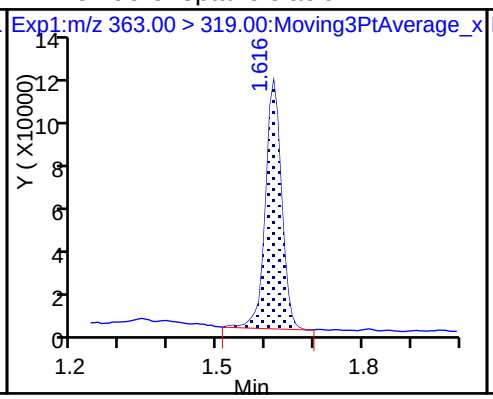
$ 2 13C2 PFHxA



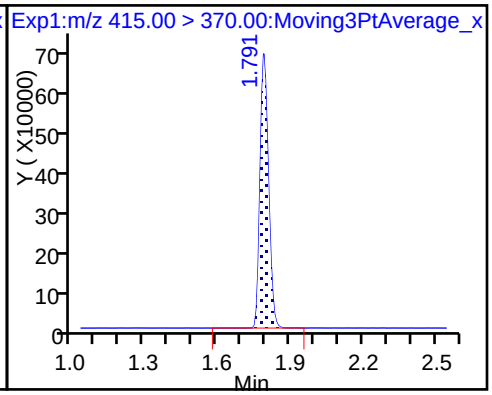
3 Perfluorohexanesulfonic acid



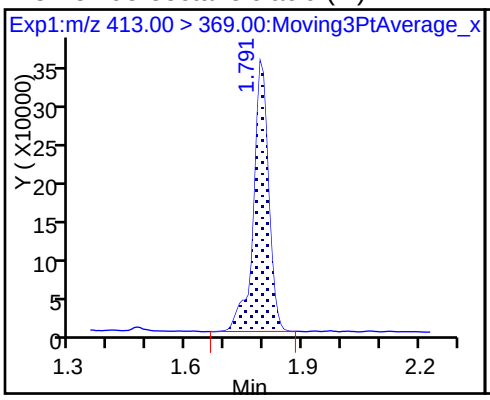
4 Perfluoroheptanoic acid



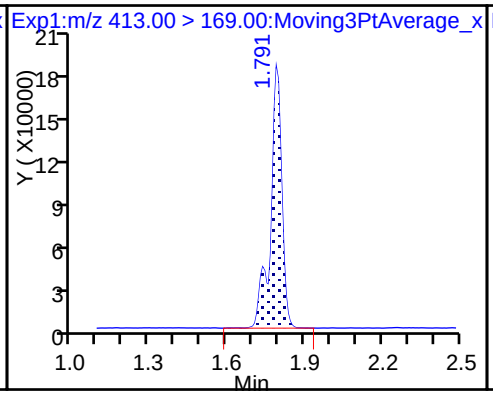
* 6 13C2-PFOA



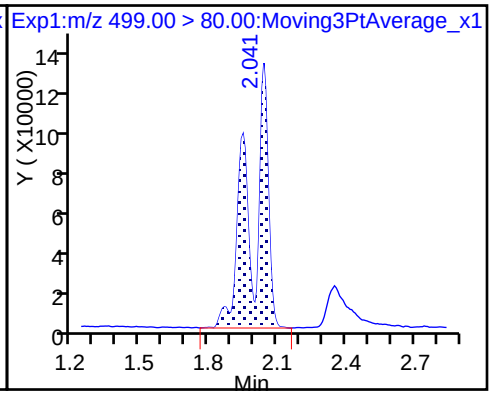
5 Perfluorooctanoic acid (M)



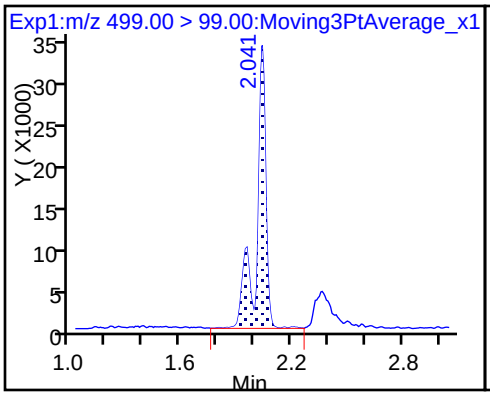
5 Perfluorooctanoic acid



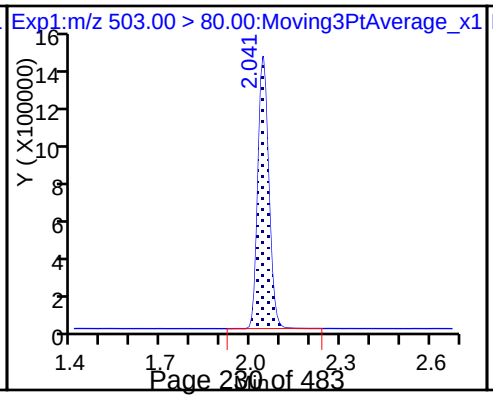
8 Perfluorooctane sulfonic acid



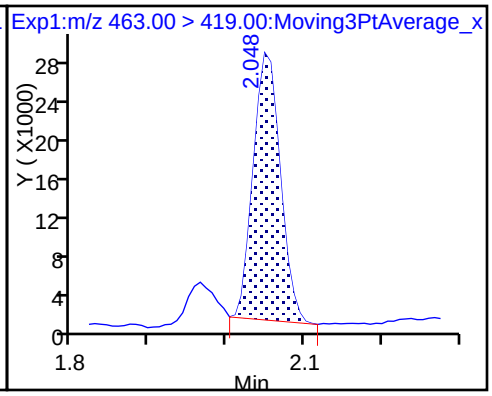
8 Perfluorooctane sulfonic acid



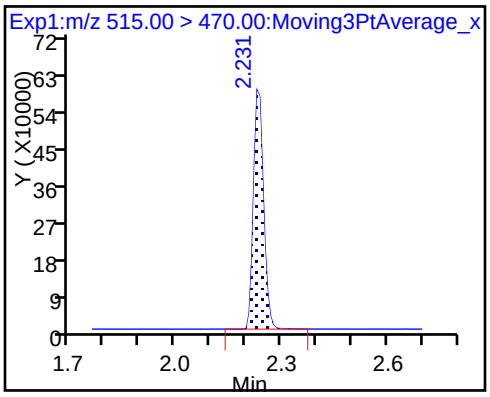
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
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\20180119-53091.b\2018.01.18_537AA_041.d				
Lims ID:	320-34835-A-18-A				
Client ID:	WGNA-010318-RW-0500				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:22:16	ALS Bottle#:	29	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-18-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:01

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.37	93.71
$ 10 13C2 PFDA	10.0	9.15	91.52

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

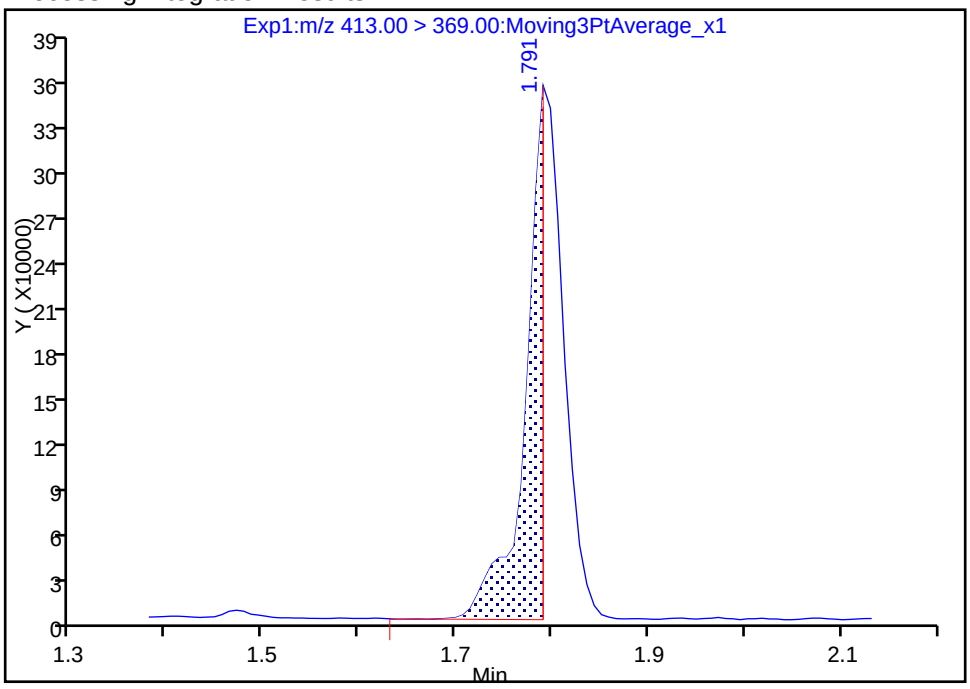
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_041.d				
Injection Date:	19-Jan-2018 08:22:16	Instrument ID:	A8_N		
Lims ID:	320-34835-A-18-A	Lab Sample ID:	320-34835-18		
Client ID:	WGNA-010318-RW-0500				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

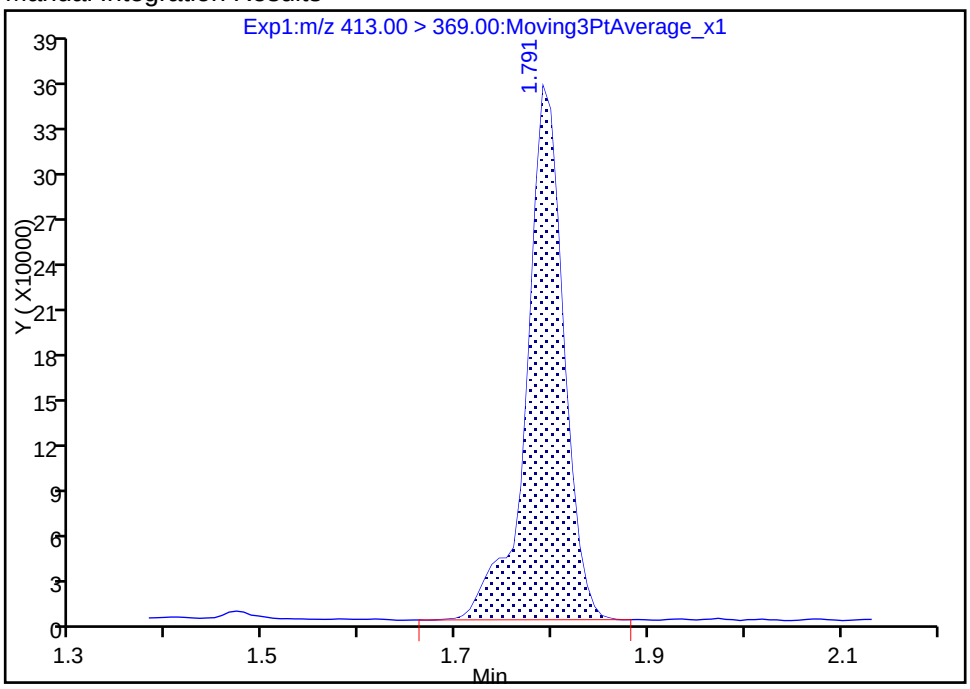
Processing Integration Results

RT: 1.79
Area: 423509
Amount: 2.773919
Amount Units: ng/ml



Manual Integration Results

RT: 1.79
Area: 928457
Amount: 6.081252
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:07:55

Audit Action: Manually Integrated Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-0500 | Lab Sample ID: 320-34835-19

Matrix: Water | Lab File ID: 2018.01.18_537AA_042.d

Analysis Method: 537 | Date Collected: 01/03/2018 12:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 256.3(mL) | Date Analyzed: 01/19/2018 08:26

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_042.d
Lims ID: 320-34835-A-19-A
Client ID: WGNA-010318-FRB-0500
Sample Type: Client
Inject. Date: 19-Jan-2018 08:26:56 ALS Bottle#: 30 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-19-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

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	1.573	-0.094	1.000	1734676	9.47		9079	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1664203	10.0		6343	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3368986	28.7		6354	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1189900	9.34		7092	

Report Date: 19-Jan-2018 14:09:51 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_042.d

Injection Date: 19-Jan-2018 08:26:56 Instrument ID: A8_N

Lims ID: 320-34835-A-19-A Lab Sample ID: 320-34835-19

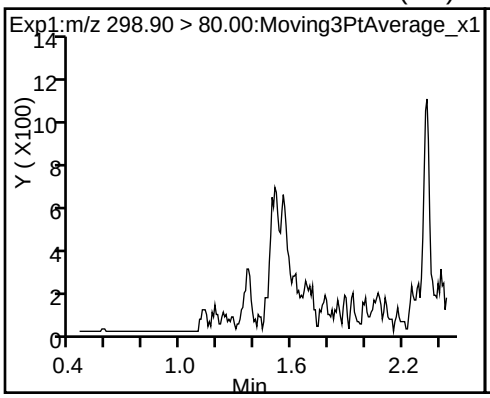
Client ID: WGNA-010318-FRB-0500

Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 18

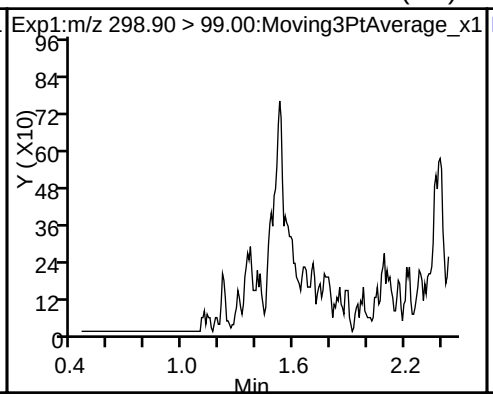
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

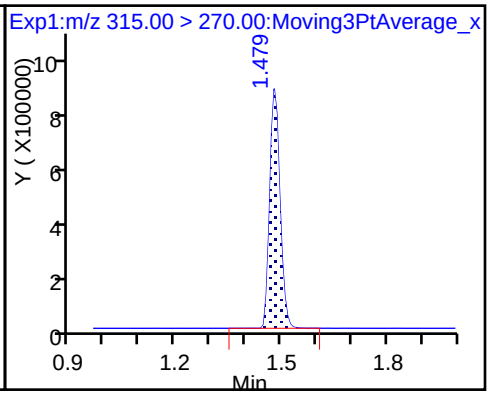
1 Perfluorobutanesulfonic acid (ND)



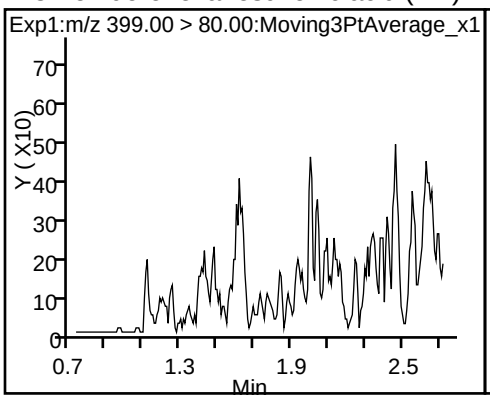
1 Perfluorobutanesulfonic acid (ND)



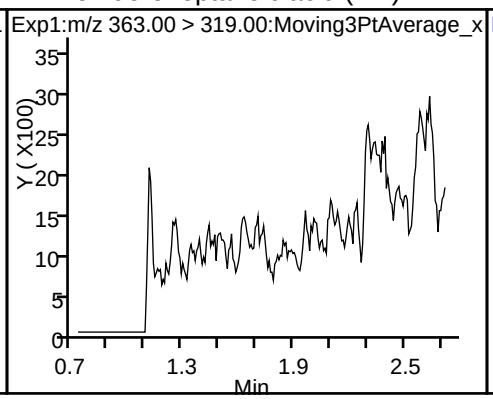
$ 2 13C2 PFHxA



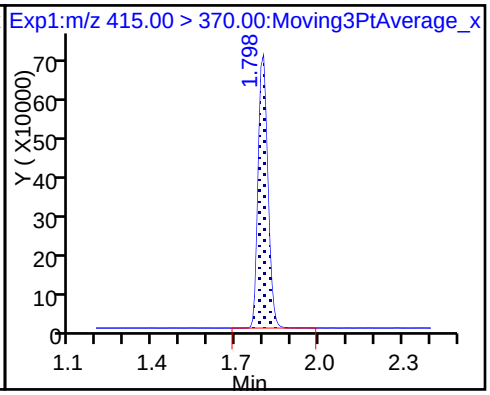
3 Perfluorohexanesulfonic acid (ND)



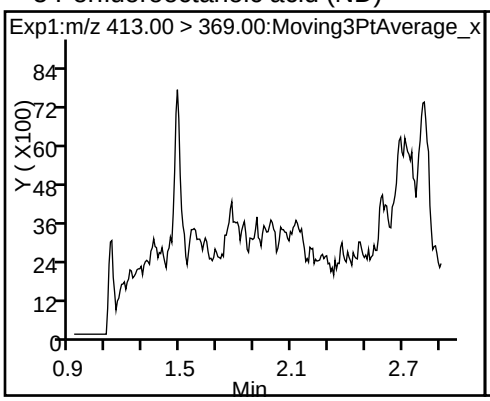
4 Perfluoroheptanoic acid (ND)



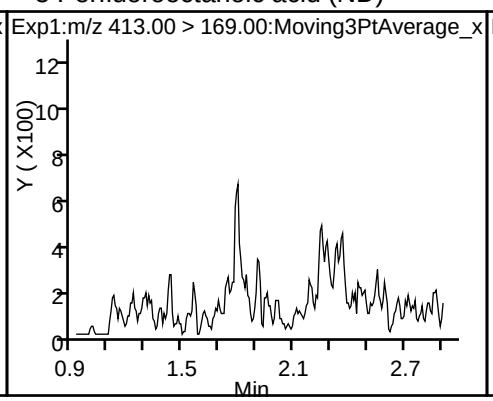
* 6 13C2-PFOA



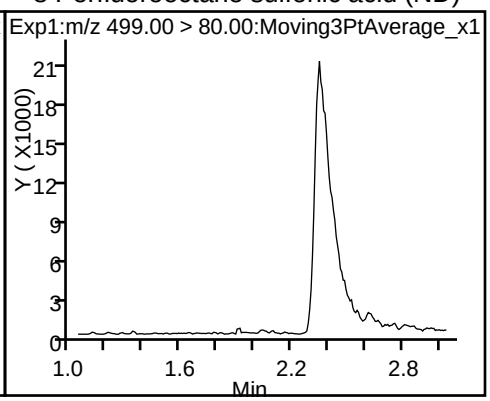
5 Perfluorooctanoic acid (ND)



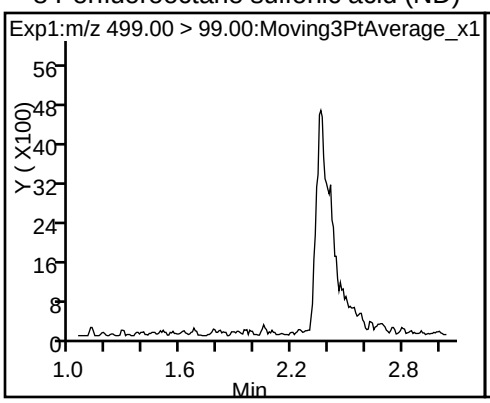
5 Perfluorooctanoic acid (ND)



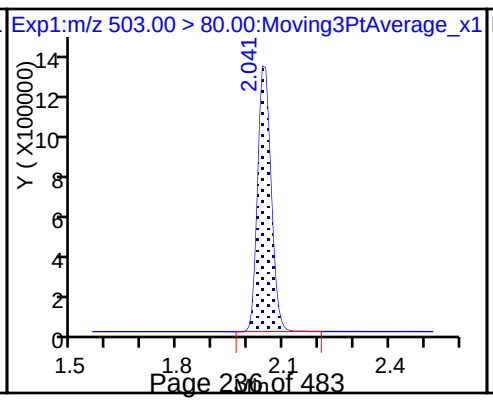
8 Perfluorooctane sulfonic acid (ND)



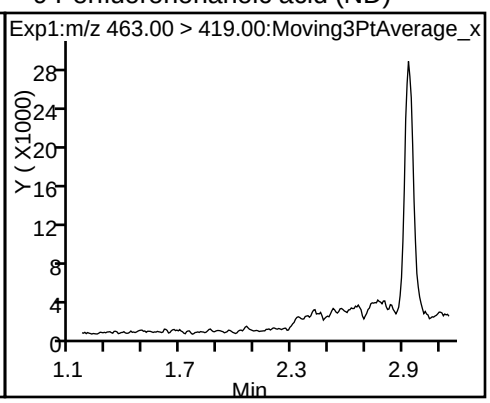
8 Perfluorooctane sulfonic acid (ND)



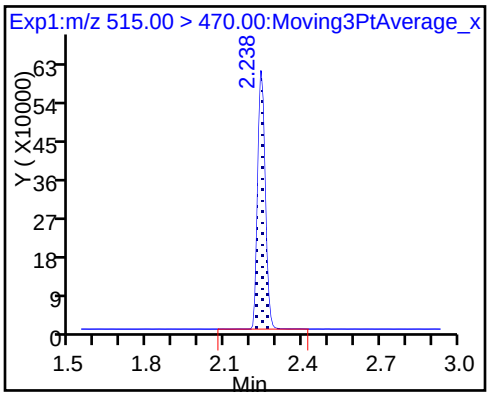
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
63
54
45
36
27
18
9
0
1.5
1.8
2.1
2.4
2.7
3.0
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_042.d				
Lims ID:	320-34835-A-19-A				
Client ID:	WGNA-010318-FRB-0500				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:26:56	ALS Bottle#:	30	Worklist Smp#:	18
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-19-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.47	94.73
$ 10 13C2 PFDA	10.0	9.34	93.44

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-145 | Lab Sample ID: 320-34835-20

Matrix: Water | Lab File ID: 2018.01.18_537AA_043.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 253.4(mL) | Date Analyzed: 01/19/2018 08:31

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.2	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_043.d
Lims ID: 320-34835-A-20-A
Client ID: NAWC-010318-RW-145
Sample Type: Client
Inject. Date: 19-Jan-2018 08:31:37 ALS Bottle#: 31 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-20-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:14

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	1.444	-0.086	1.000	322808	2.37		380	
298.90 > 99.00	1.358	1.444	-0.086	1.000	242241		1.33(0.00-0.00)	520	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1605427	8.97		8005	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.608	1.725	-0.117	1.000	425901	2.09		307	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.608	1.725	-0.117	1.000	253805	1.66		49.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1627358	10.0		5795	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.914	-0.123	1.000	867122	5.76		100	
413.00 > 169.00	1.791	1.914	-0.123	1.000	487308		1.78(0.00-0.00)	1087	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	607559	5.31		66.7	
499.00 > 99.00	2.041	2.041	0.0	1.000	103483		5.87(0.00-0.00)	66.9	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.151	-0.118		3497964	28.7		3803	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.158	-0.110	1.000	85062	0.7870		10.3	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1224607	9.83		8323	

Report Date: 19-Jan-2018 14:09:52 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_043.d

Injection Date: 19-Jan-2018 08:31:37 Instrument ID: A8_N

Lims ID: 320-34835-A-20-A Lab Sample ID: 320-34835-20

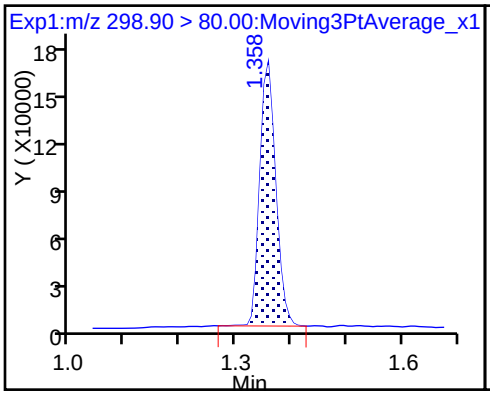
Client ID: NAWC-010318-RW-145

Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 19

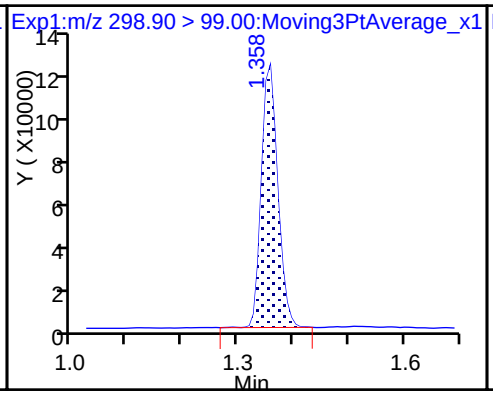
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

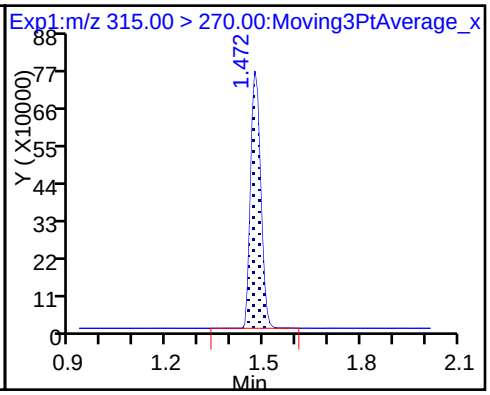
1 Perfluorobutanesulfonic acid



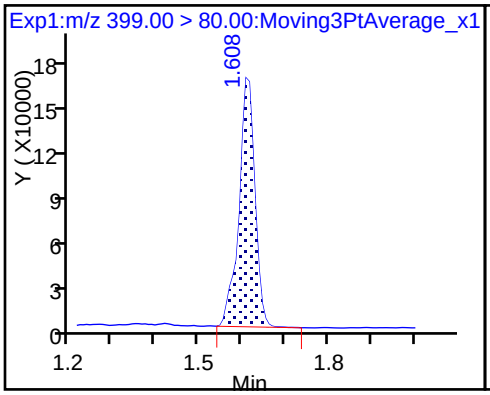
1 Perfluorobutanesulfonic acid



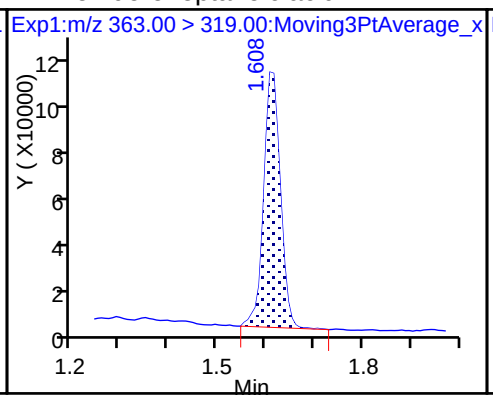
$ 2 13C2 PFHxA



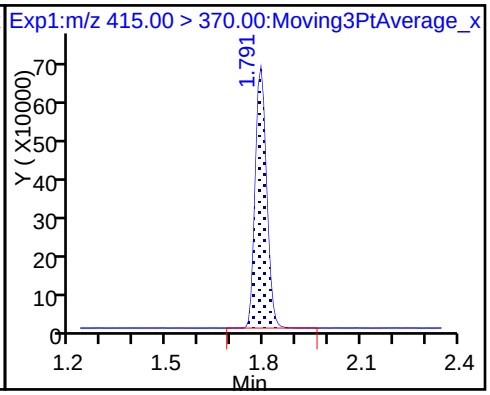
3 Perfluorohexanesulfonic acid



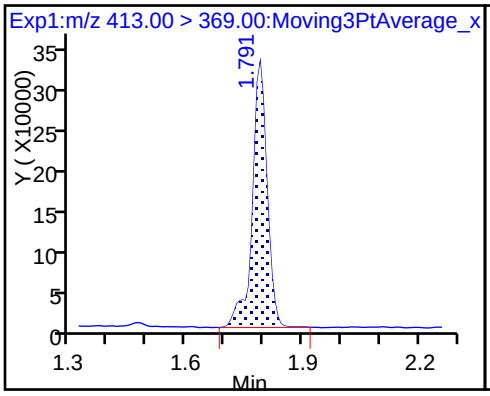
4 Perfluoroheptanoic acid



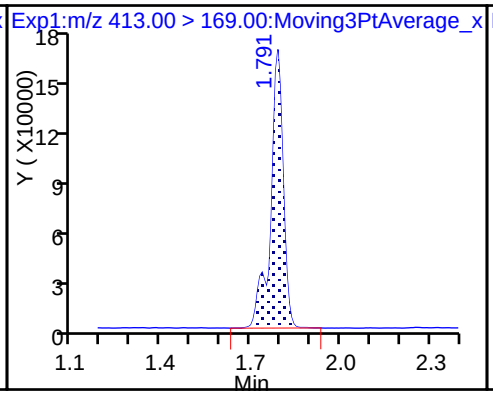
* 6 13C2-PFOA



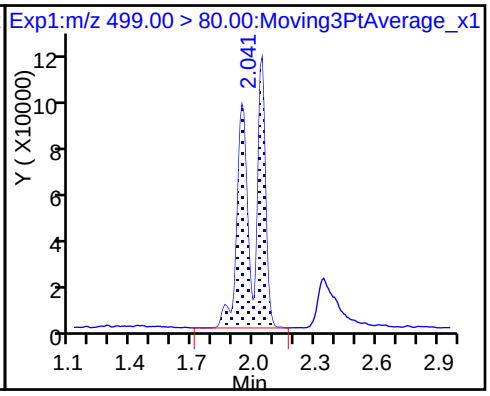
5 Perfluorooctanoic acid



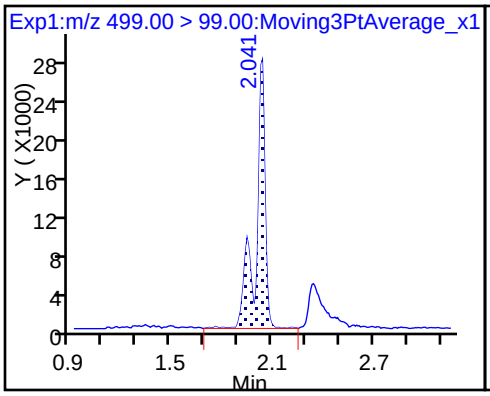
5 Perfluorooctanoic acid



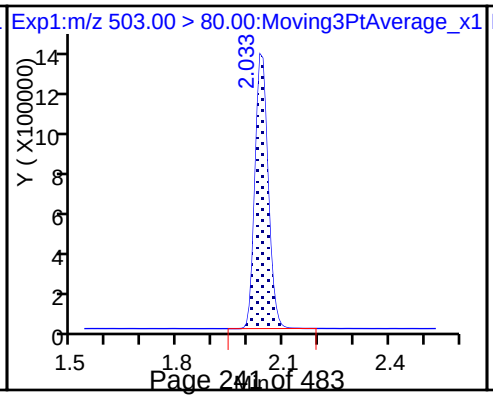
8 Perfluorooctane sulfonic acid



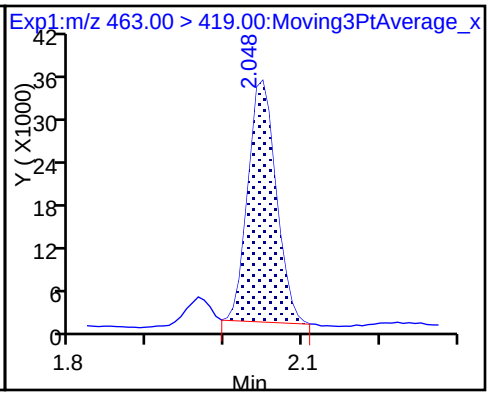
8 Perfluorooctane sulfonic acid



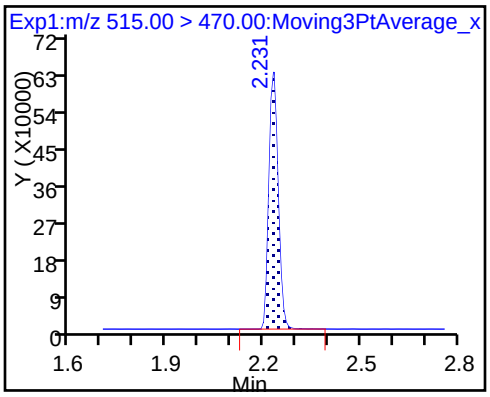
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
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\20180119-53091.b\2018.01.18_537AA_043.d
Lims ID: 320-34835-A-20-A
Client ID: NAWC-010318-RW-145
Sample Type: Client
Inject. Date: 19-Jan-2018 08:31:37 ALS Bottle#: 31 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-20-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:14

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.97	89.66
$ 10 13C2 PFDA	10.0	9.83	98.34

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-145 | Lab Sample ID: 320-34835-21

Matrix: Water | Lab File ID: 2018.01.18_537AA_044.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 246.5(mL) | Date Analyzed: 01/19/2018 08:36

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_044.d
Lims ID: 320-34835-A-21-A
Client ID: NAWC-010318-FRB-145
Sample Type: Client
Inject. Date: 19-Jan-2018 08:36:19 ALS Bottle#: 32 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-21-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1652362	9.43		9519	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1592244	10.0		6170	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3563241	28.7		6374	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1248108	10.2		7588	

Report Date: 19-Jan-2018 14:09:52 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_044.d

Injection Date: 19-Jan-2018 08:36:19 Instrument ID: A8_N

Lims ID: 320-34835-A-21-A Lab Sample ID: 320-34835-21

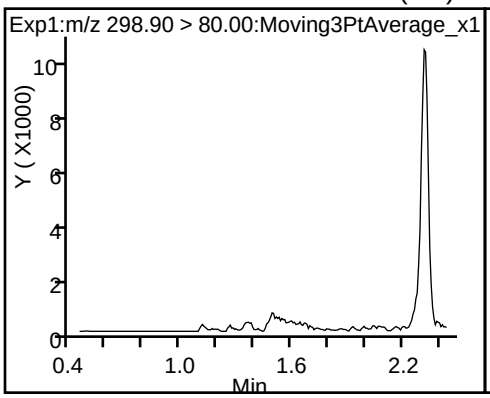
Client ID: NAWC-010318-FRB-145

Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 20

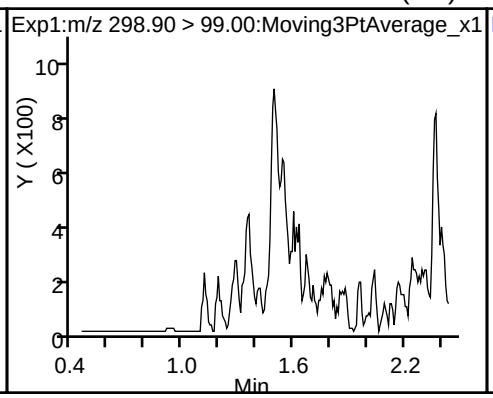
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

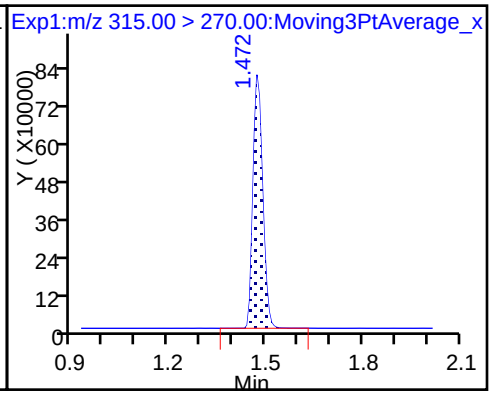
1 Perfluorobutanesulfonic acid (ND)



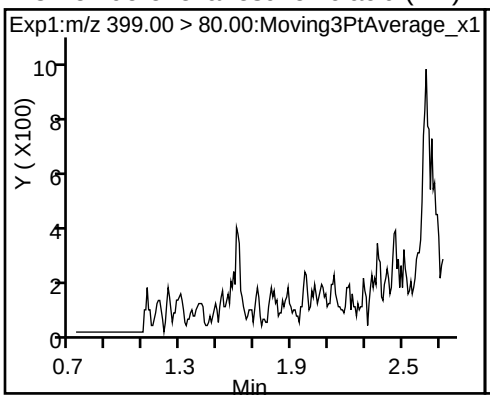
1 Perfluorobutanesulfonic acid (ND)



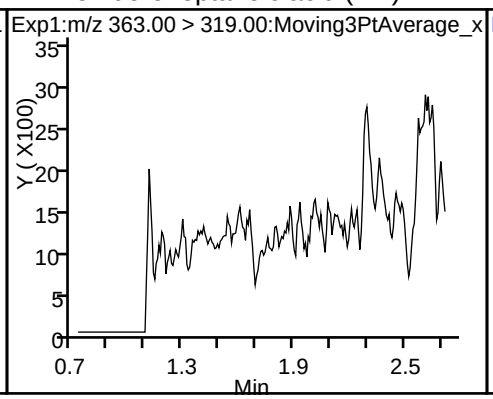
$ 2 13C2 PFHxA



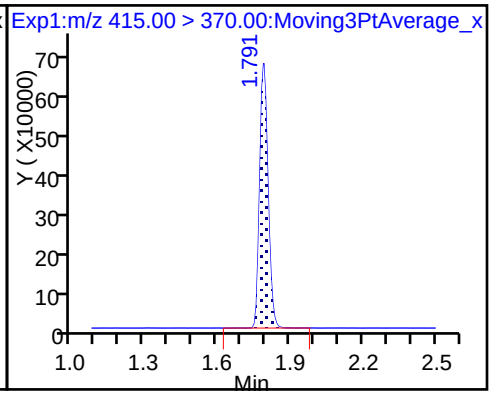
3 Perfluorohexanesulfonic acid (ND)



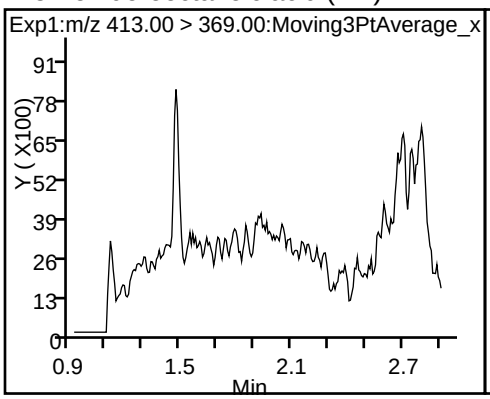
4 Perfluoroheptanoic acid (ND)



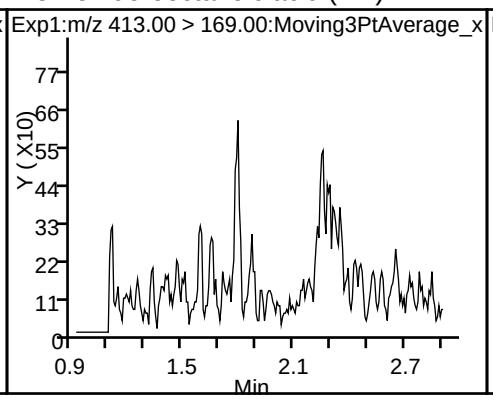
* 6 13C2-PFOA



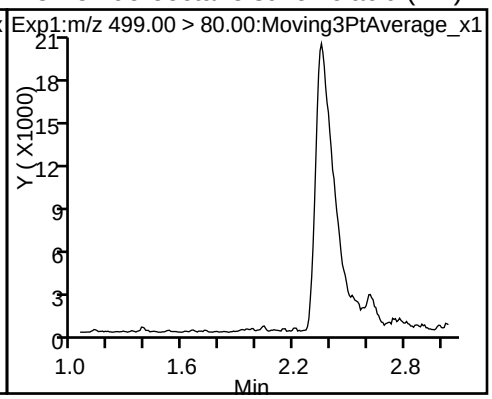
5 Perfluorooctanoic acid (ND)



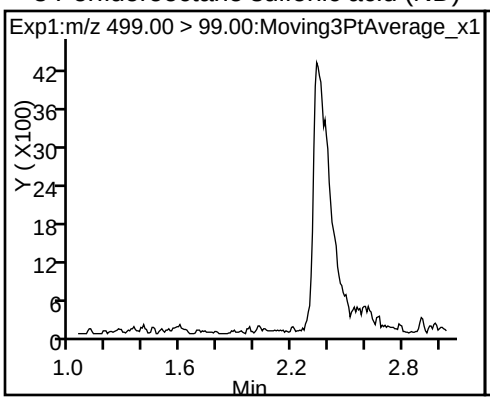
5 Perfluorooctanoic acid (ND)



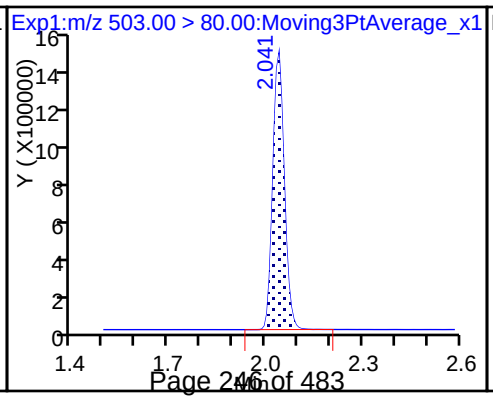
8 Perfluorooctane sulfonic acid (ND)



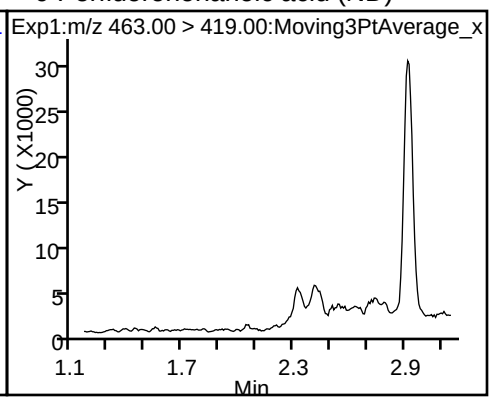
8 Perfluorooctane sulfonic acid (ND)



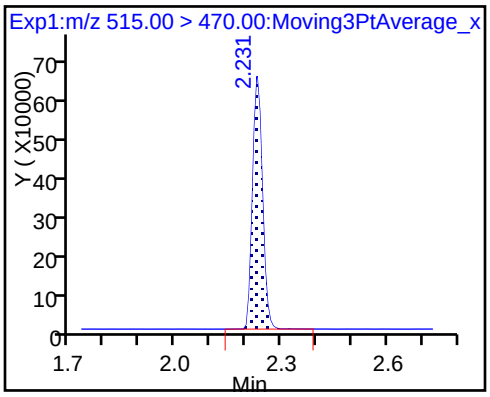
* 7 13C4 PFOS



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
1.7
2.0
2.3
2.6
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_044.d				
Lims ID:	320-34835-A-21-A				
Client ID:	NAWC-010318-FRB-145				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:36:19	ALS Bottle#:	32	Worklist Smp#:	20
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-21-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.43	94.32
$ 10 13C2 PFDA	10.0	10.2	102.44

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-60 | Lab Sample ID: 320-34835-22

Matrix: Water | Lab File ID: 2018.01.18_537AA_045.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 249.5(mL) | Date Analyzed: 01/19/2018 08:40

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	19	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	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	92		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_045.d
Lims ID: 320-34835-A-22-A
Client ID: NAWC-010318-RW-60
Sample Type: Client
Inject. Date: 19-Jan-2018 08:40:59 ALS Bottle#: 33 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-22-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	192280	1.45		111	
298.90 > 99.00	1.358	1.444	-0.086	1.000	135879		1.42(0.00-0.00)	274	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1626674	9.21		7508	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	555430	2.80		202	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	180754	1.20		29.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1605437	10.0		6674	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.914	-0.123	1.000	695597	4.68		70.7	
413.00 > 169.00	1.791	1.914	-0.123	1.000	408191		1.70(0.00-0.00)	810	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.033	2.041	-0.008	1.000	811160	7.30		86.5	
499.00 > 99.00	2.033	2.041	-0.008	1.000	154992		5.23(0.00-0.00)	117	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.151	-0.118		3395464	28.7		2639	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.041	2.158	-0.117	1.000	57549	0.5397		8.0	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1207780	9.83		6742	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 19-Jan-2018 14:09:53 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_045.d

Injection Date: 19-Jan-2018 08:40:59 Instrument ID: A8_N

Lims ID: 320-34835-A-22-A Lab Sample ID: 320-34835-22

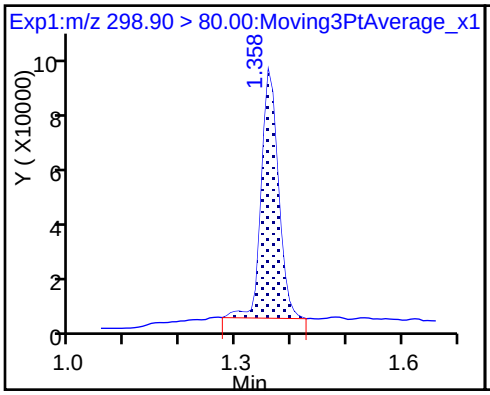
Client ID: NAWC-010318-RW-60

Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 21

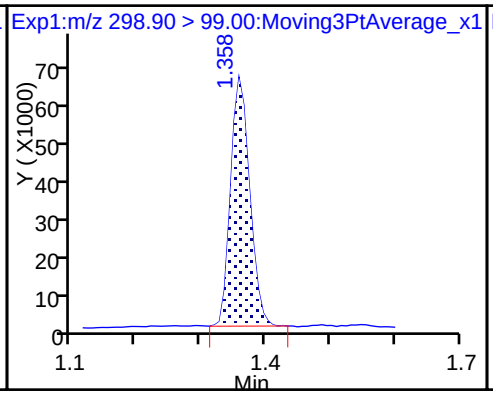
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

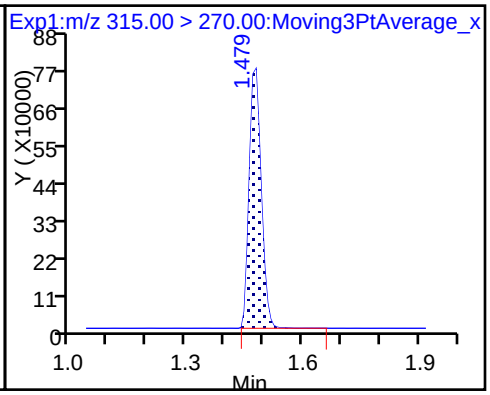
1 Perfluorobutanesulfonic acid



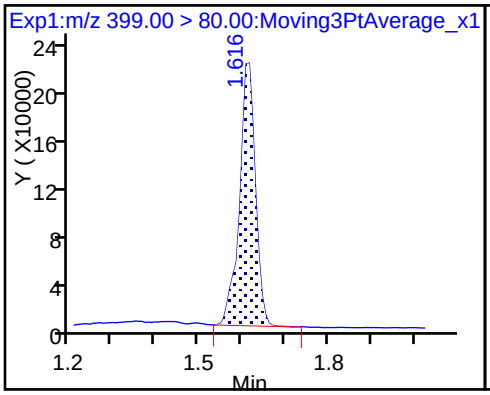
1 Perfluorobutanesulfonic acid



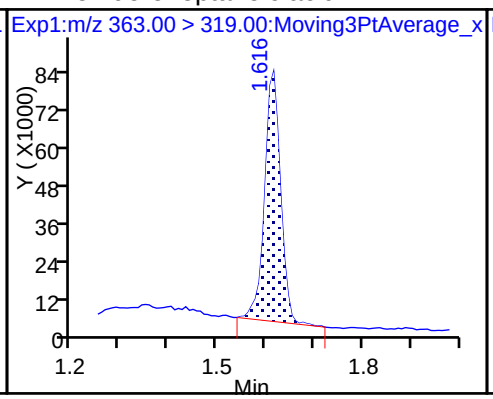
$ 2 13C2 PFHxA



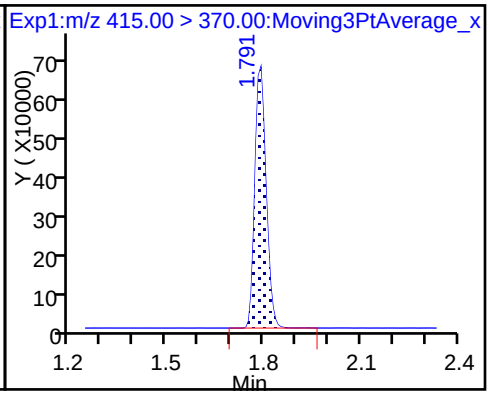
3 Perfluorohexanesulfonic acid



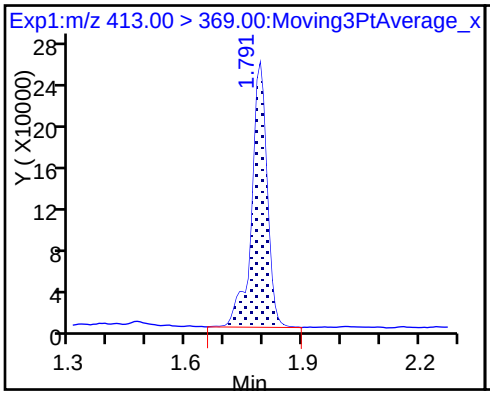
4 Perfluoroheptanoic acid



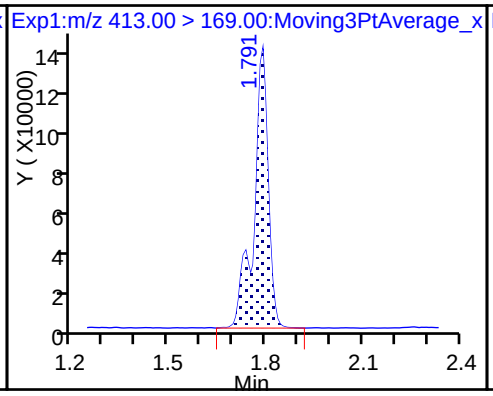
* 6 13C2-PFOA



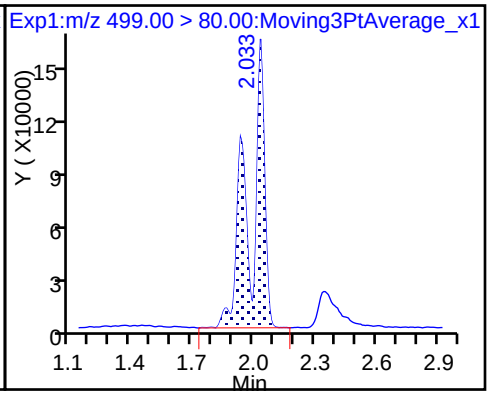
5 Perfluorooctanoic acid



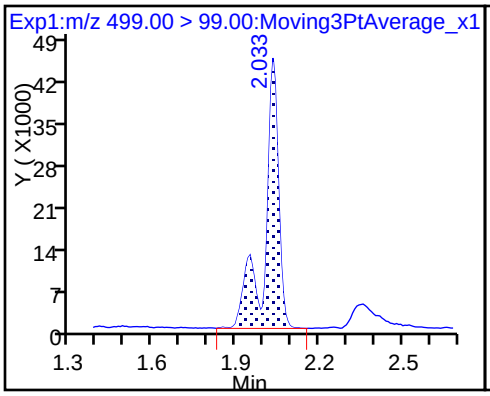
5 Perfluorooctanoic acid



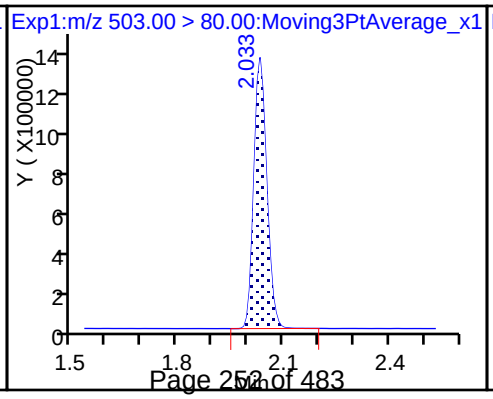
8 Perfluorooctane sulfonic acid



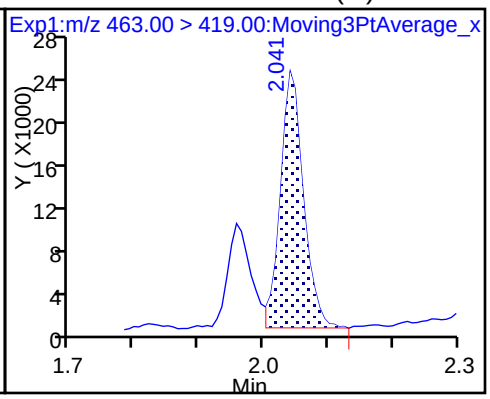
8 Perfluorooctane sulfonic acid



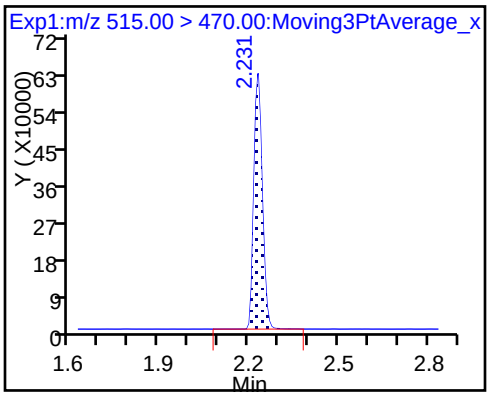
* 7 13C4 PFOS



9 Perfluorononanoic acid (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
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_045.d
Lims ID: 320-34835-A-22-A
Client ID: NAWC-010318-RW-60
Sample Type: Client
Inject. Date: 19-Jan-2018 08:40:59 ALS Bottle#: 33 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-22-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:33

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.21	92.09
$ 10 13C2 PFDA	10.0	9.83	98.31

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

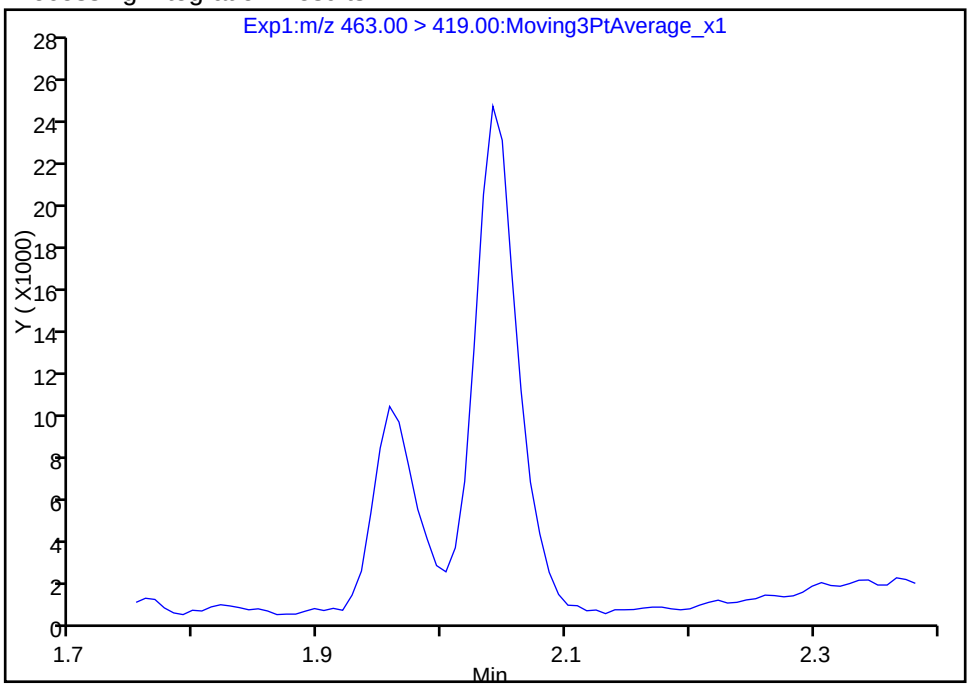
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_045.d				
Injection Date:	19-Jan-2018 08:40:59	Instrument ID:	A8_N		
Lims ID:	320-34835-A-22-A	Lab Sample ID:	320-34835-22		
Client ID:	NAWC-010318-RW-60				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	33	Worklist Smp#:	21
Injection 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

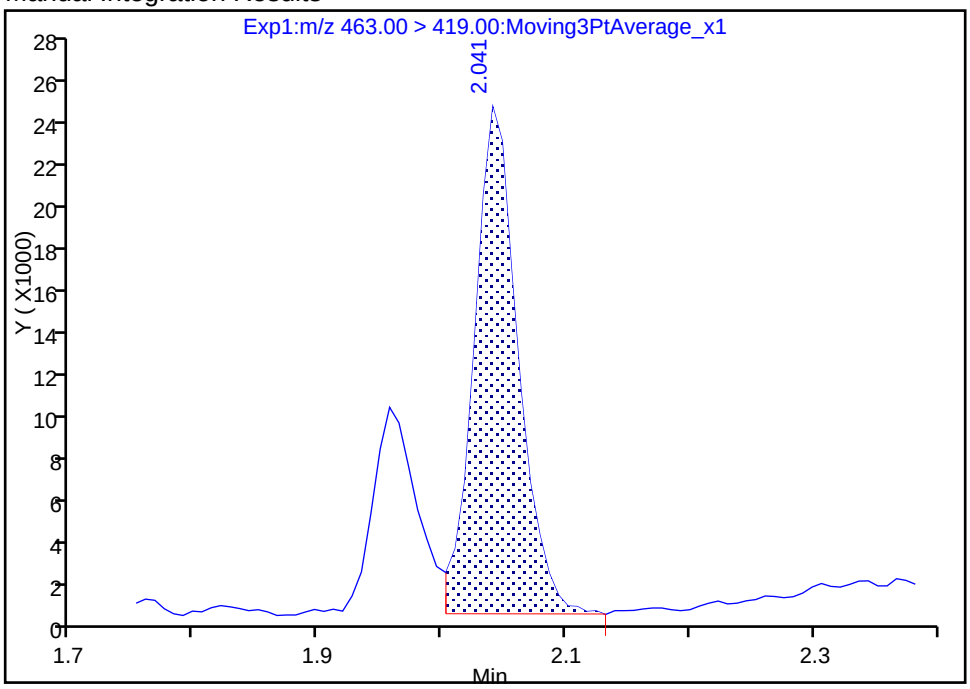
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 57549
Amount: 0.539724
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:08:30
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-60 | Lab Sample ID: 320-34835-23

Matrix: Water | Lab File ID: 2018.01.18_537AA_046.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 248.5(mL) | Date Analyzed: 01/19/2018 08:45

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

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

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

Analysis Batch No.: 204651 | 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	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	89		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_046.d
Lims ID: 320-34835-A-23-A
Client ID: NAWC-010318-FRB-60
Sample Type: Client
Inject. Date: 19-Jan-2018 08:45:39 ALS Bottle#: 34 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-23-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

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	1.573	-0.094	1.000	1627614	9.20		8642	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1608194	10.0		5577	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3630499	28.7		7221	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1100918	8.95		5859	

Report Date: 19-Jan-2018 14:09:53 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_046.d

Injection Date: 19-Jan-2018 08:45:39 Instrument ID: A8_N

Lims ID: 320-34835-A-23-A Lab Sample ID: 320-34835-23

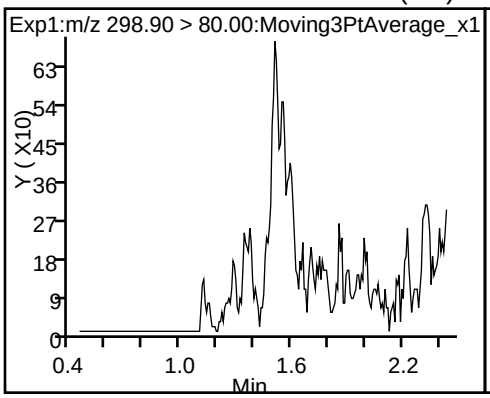
Client ID: NAWC-010318-FRB-60

Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 22

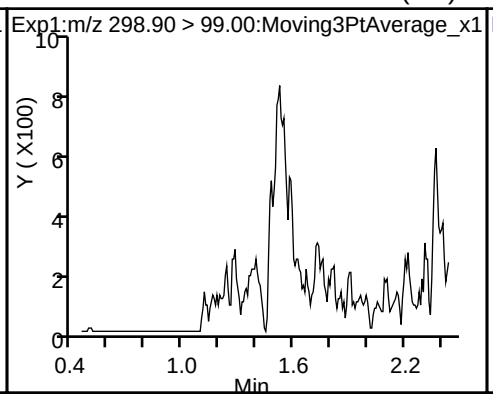
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

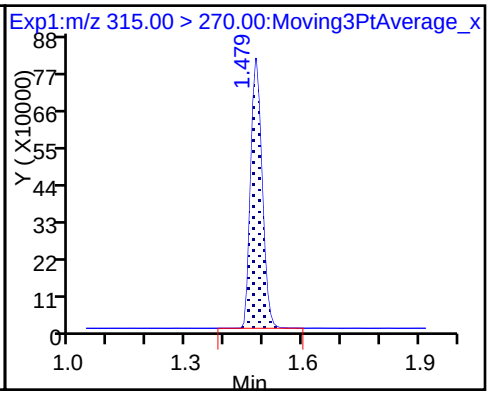
1 Perfluorobutanesulfonic acid (ND)



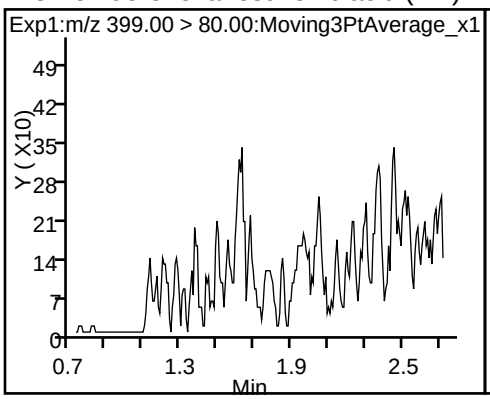
1 Perfluorobutanesulfonic acid (ND)



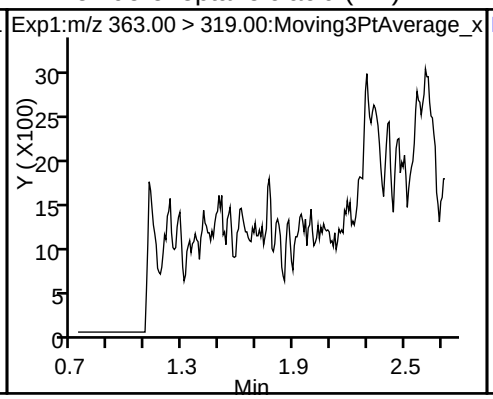
$ 2 13C2 PFHxA



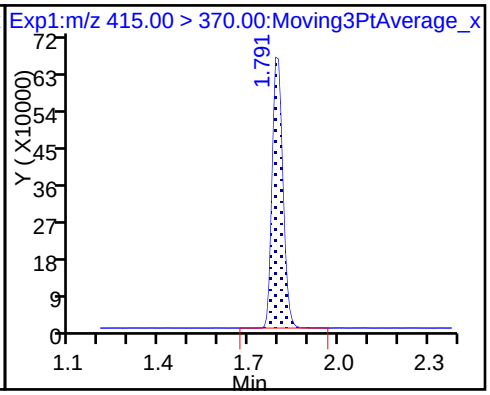
3 Perfluorohexanesulfonic acid (ND)



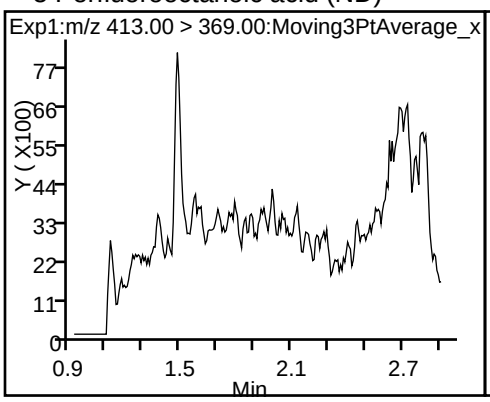
4 Perfluoroheptanoic acid (ND)



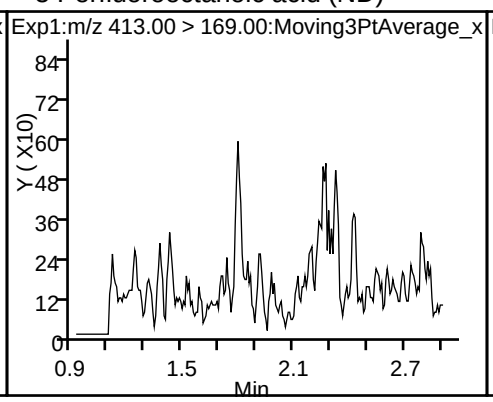
* 6 13C2-PFOA



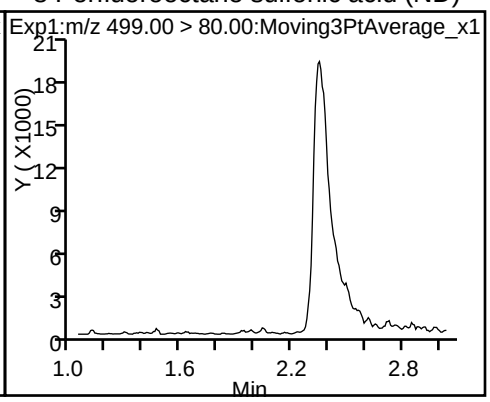
5 Perfluorooctanoic acid (ND)



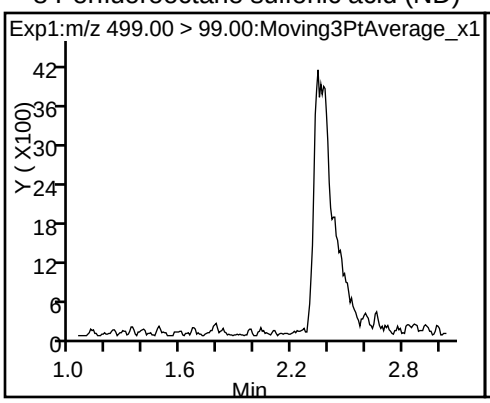
5 Perfluorooctanoic acid (ND)



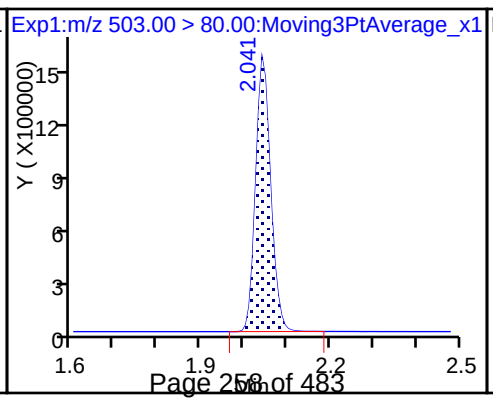
8 Perfluorooctane sulfonic acid (ND)



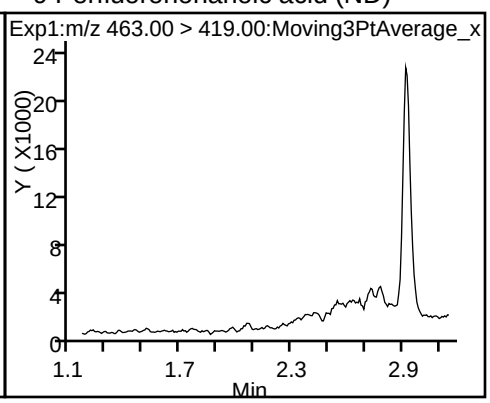
8 Perfluorooctane sulfonic acid (ND)



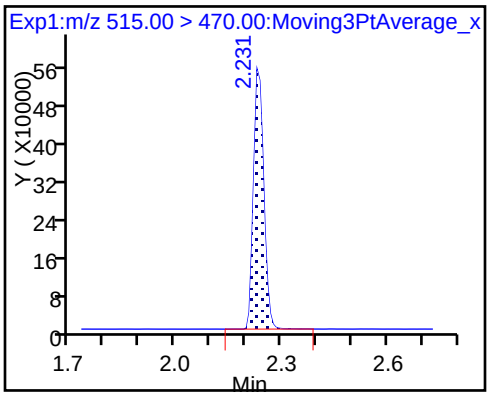
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
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\20180119-53091.b\2018.01.18_537AA_046.d				
Lims ID:	320-34835-A-23-A				
Client ID:	NAWC-010318-FRB-60				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:45:39	ALS Bottle#:	34	Worklist Smp#:	22
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-23-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.20	91.98
$ 10 13C2 PFDA	10.0	8.95	89.46

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-106 | Lab Sample ID: 320-34835-24

Matrix: Water | Lab File ID: 2018.01.18_537AA_047.d

Analysis Method: 537 | Date Collected: 01/03/2018 15:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 249.1(mL) | Date Analyzed: 01/19/2018 08:50

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.6	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.8	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	89		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_047.d
Lims ID: 320-34835-A-24-A
Client ID: NAWC-010318-RW-106
Sample Type: Client
Inject. Date: 19-Jan-2018 08:50:19 ALS Bottle#: 35 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-24-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	193281	1.35		54.3	
298.90 > 99.00	1.358	1.444	-0.086	1.000	147217		1.31(0.00-0.00)	244	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1612209	8.86		7079	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	516172	2.40		145	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	339996	2.19		43.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1654275	10.0		5441	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	883169	5.77		82.1	
413.00 > 169.00	1.798	1.914	-0.116	1.000	521049		1.69(0.00-0.00)	1076	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	624300	5.17		61.7	
499.00 > 99.00	2.041	2.041	0.0	1.000	114696		5.44(0.00-0.00)	79.3	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3687553	28.7		2236	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.158	-0.110	1.000	105879	0.9637		13.6	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1228684	9.71		6204	

Report Date: 19-Jan-2018 14:09:54 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_047.d

Injection Date: 19-Jan-2018 08:50:19 Instrument ID: A8_N

Lims ID: 320-34835-A-24-A Lab Sample ID: 320-34835-24

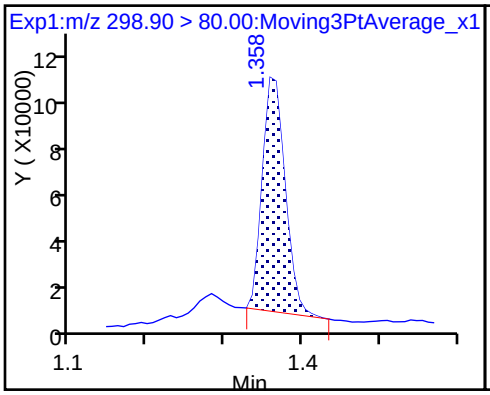
Client ID: NAWC-010318-RW-106

Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 23

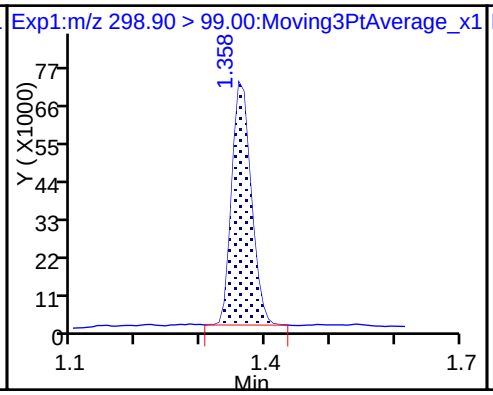
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

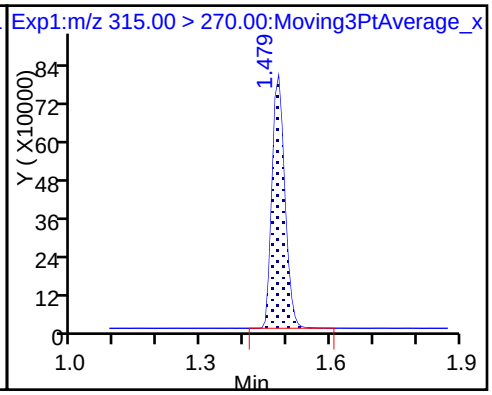
1 Perfluorobutanesulfonic acid



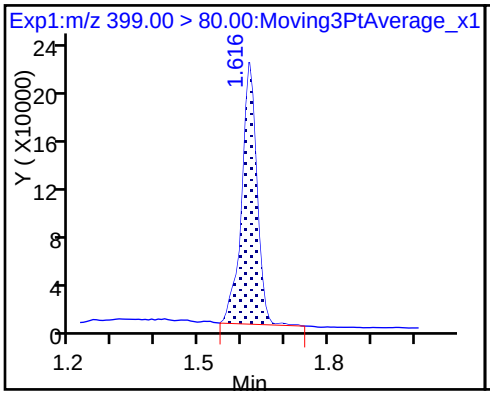
1 Perfluorobutanesulfonic acid



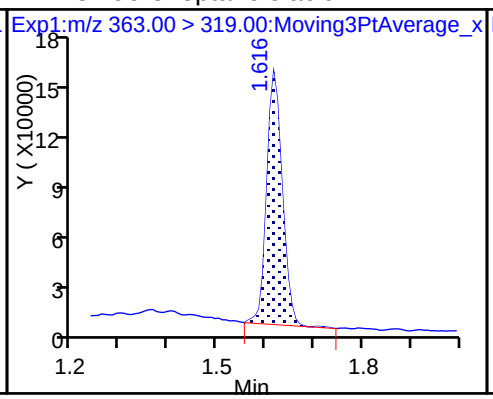
$ 2 13C2 PFHxA



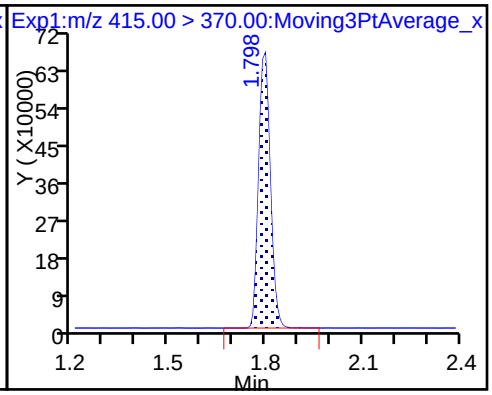
3 Perfluorohexanesulfonic acid



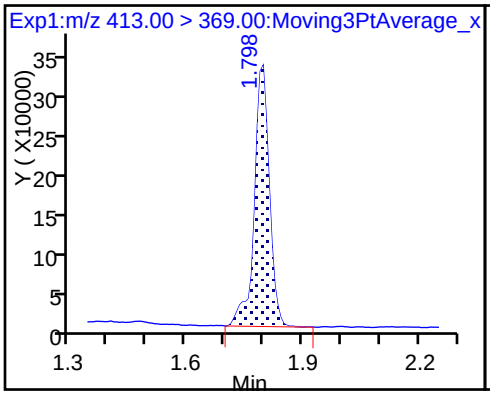
4 Perfluoroheptanoic acid



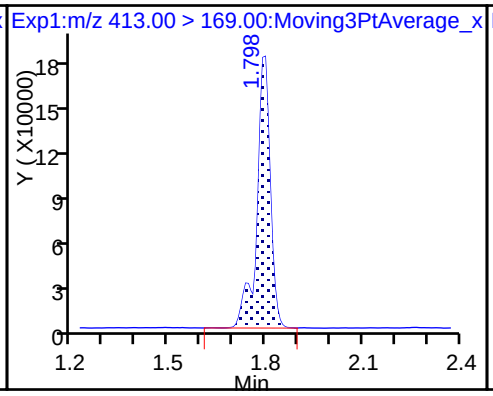
* 6 13C2-PFOA



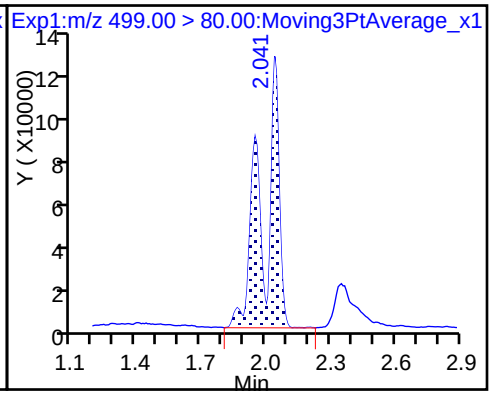
5 Perfluorooctanoic acid



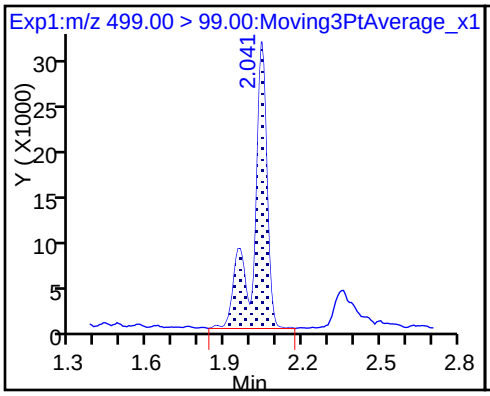
5 Perfluorooctanoic acid



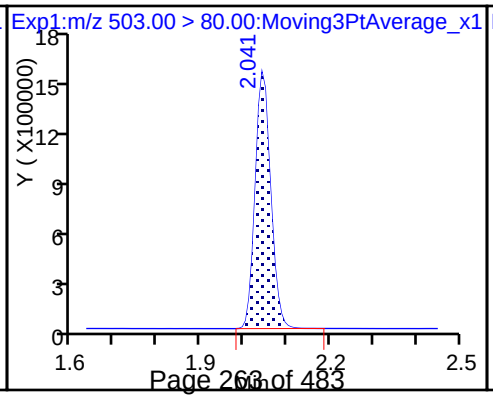
8 Perfluorooctane sulfonic acid



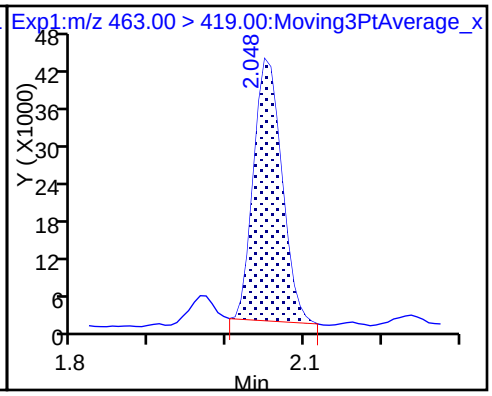
8 Perfluorooctane sulfonic acid



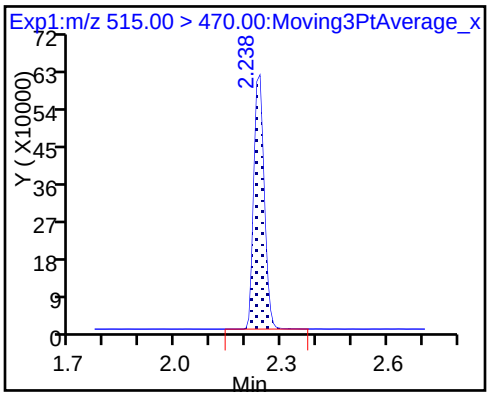
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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2.238
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\20180119-53091.b\2018.01.18_537AA_047.d
Lims ID: 320-34835-A-24-A
Client ID: NAWC-010318-RW-106
Sample Type: Client
Inject. Date: 19-Jan-2018 08:50:19 ALS Bottle#: 35 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-24-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:08:46

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	8.86	88.57
$ 10 13C2 PFDA	10.0	9.71	97.06

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-106 | Lab Sample ID: 320-34835-25

Matrix: Water | Lab File ID: 2018.01.18_537AA_048.d

Analysis Method: 537 | Date Collected: 01/03/2018 15:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 240.8(mL) | Date Analyzed: 01/19/2018 08:55

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	8.3	U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	U	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_048.d
Lims ID: 320-34835-A-25-A
Client ID: NAWC-010318-FRB-106
Sample Type: Client
Inject. Date: 19-Jan-2018 08:55:00 ALS Bottle#: 36 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-25-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

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	1.573	-0.094	1.000	1707006	9.70		8479	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1599562	10.0		5872	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3388397	28.7		6610	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1211276	9.90		7776	

Report Date: 19-Jan-2018 14:09:54 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_048.d

Injection Date: 19-Jan-2018 08:55:00 Instrument ID: A8_N

Lims ID: 320-34835-A-25-A Lab Sample ID: 320-34835-25

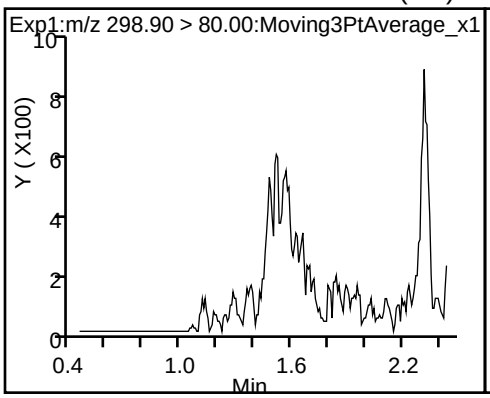
Client ID: NAWC-010318-FRB-106

Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 24

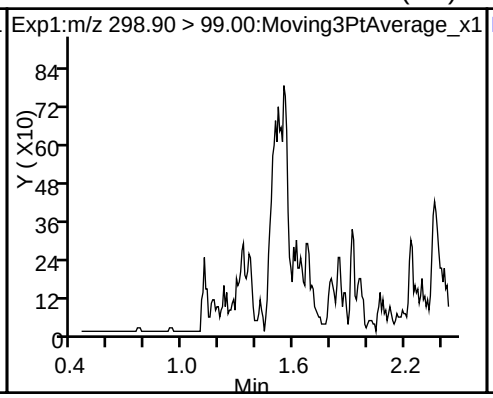
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

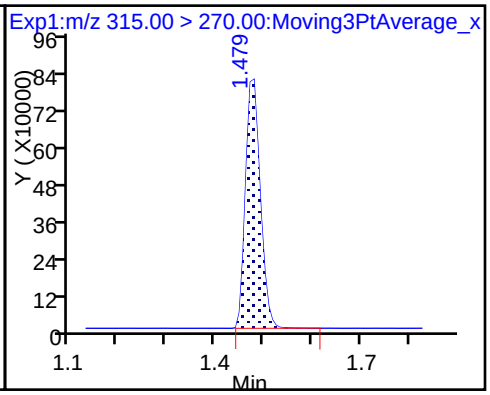
1 Perfluorobutanesulfonic acid (ND)



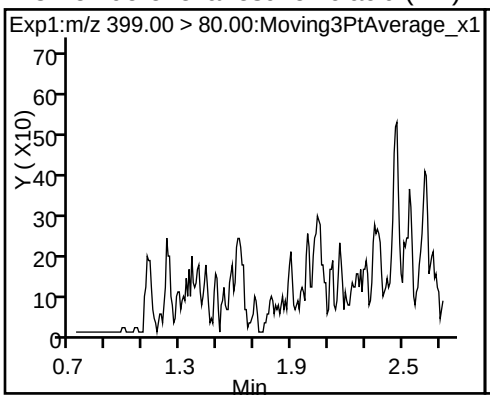
1 Perfluorobutanesulfonic acid (ND)



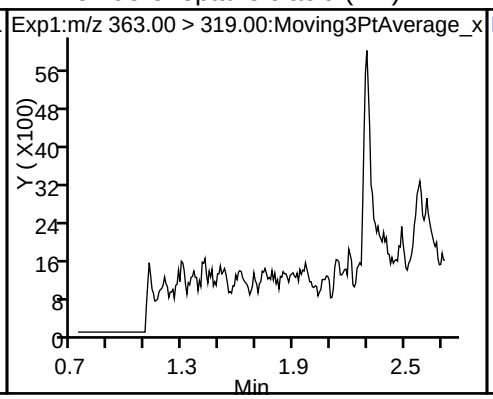
$ 2 13C2 PFHxA



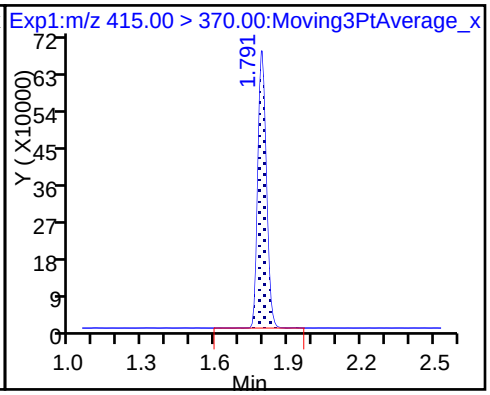
3 Perfluorohexanesulfonic acid (ND)



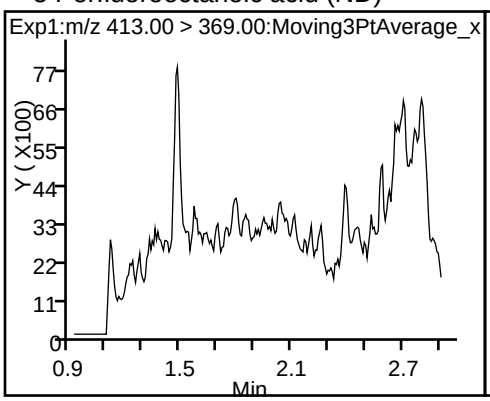
4 Perfluoroheptanoic acid (ND)



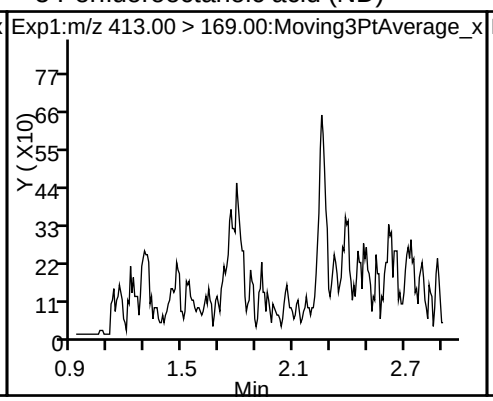
* 6 13C2-PFOA



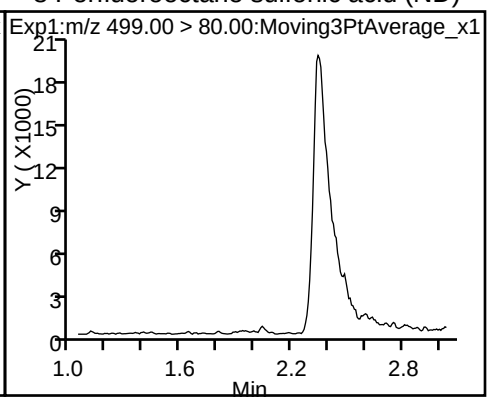
5 Perfluorooctanoic acid (ND)



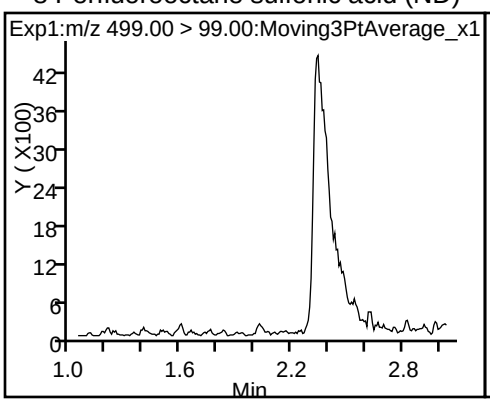
5 Perfluorooctanoic acid (ND)



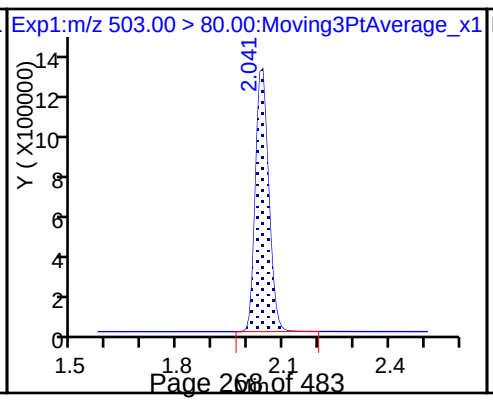
8 Perfluorooctane sulfonic acid (ND)



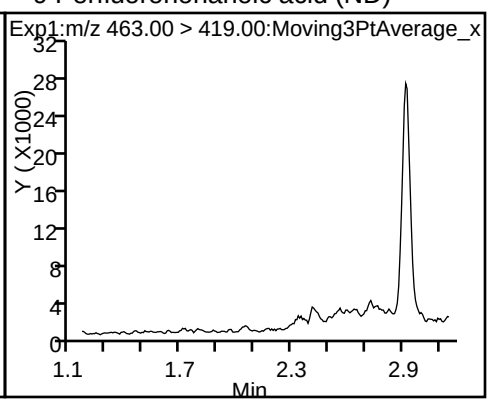
8 Perfluorooctane sulfonic acid (ND)



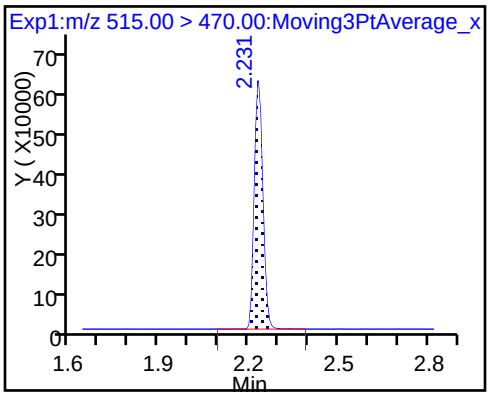
* 7 13C4 PFOS



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
1.6
1.9
2.2
2.5
2.8
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_048.d				
Lims ID:	320-34835-A-25-A				
Client ID:	NAWC-010318-FRB-106				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 08:55:00	ALS Bottle#:	36	Worklist Smp#:	24
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-25-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:48	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.70	96.99
$ 10 13C2 PFDA	10.0	9.90	98.96

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-289 | Lab Sample ID: 320-34835-26

Matrix: Water | Lab File ID: 2018.01.18_537AA_051.d

Analysis Method: 537 | Date Collected: 01/03/2018 16:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/19/2018 09:08

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

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

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

Analysis Batch No.: 204654 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	10	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.6	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.2	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	97		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_051.d
Lims ID: 320-34835-A-26-A
Client ID: NAWC-010318-RW-289
Sample Type: Client
Inject. Date: 19-Jan-2018 09:08:59 ALS Bottle#: 37 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-26-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:55 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:09:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	152538	1.12		189	
298.90 > 99.00	1.358	1.444	-0.086	1.000	114694		1.33(0.00-0.00)	339	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1673285	9.70		7739	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	283327	1.39		262	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	116524	0.7932		24.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1568022	10.0		6483	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.914	-0.123	1.000	363405	2.50		43.2	
413.00 > 169.00	1.791	1.914	-0.123	1.000	227500		1.60(0.00-0.00)	561	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	413961	3.63		53.4	
499.00 > 99.00	2.041	2.041	0.0	1.000	80195		5.16(0.00-0.00)	61.0	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3485481	28.7		4403	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.048	2.158	-0.110	1.000	35214	0.3381		6.0	M
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1130223	9.42		6477	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 19-Jan-2018 14:09:57 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_051.d

Injection Date: 19-Jan-2018 09:08:59 Instrument ID: A8_N

Lims ID: 320-34835-A-26-A Lab Sample ID: 320-34835-26

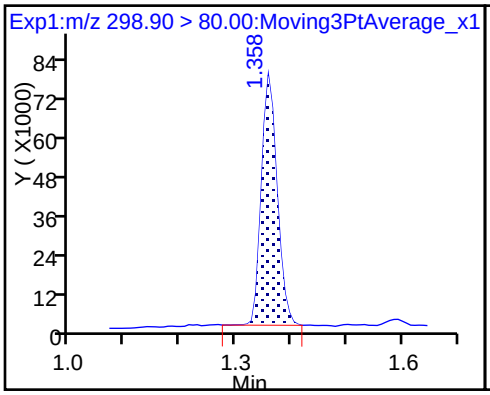
Client ID: NAWC-010318-RW-289

Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 27

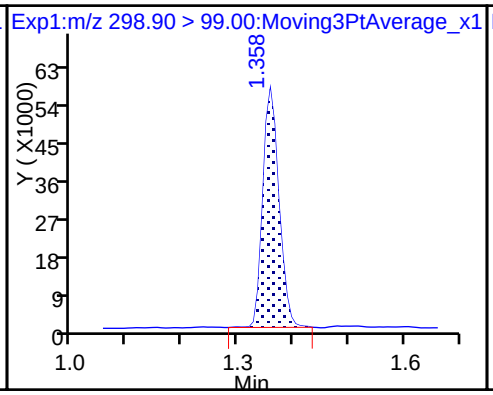
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

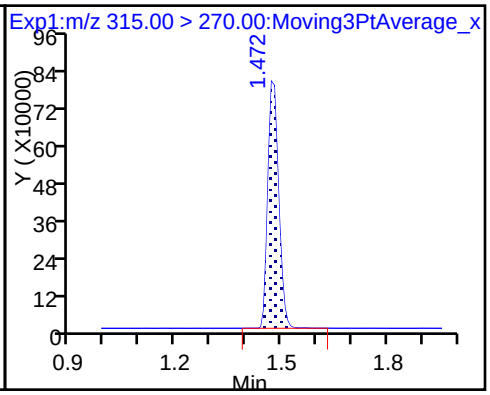
1 Perfluorobutanesulfonic acid



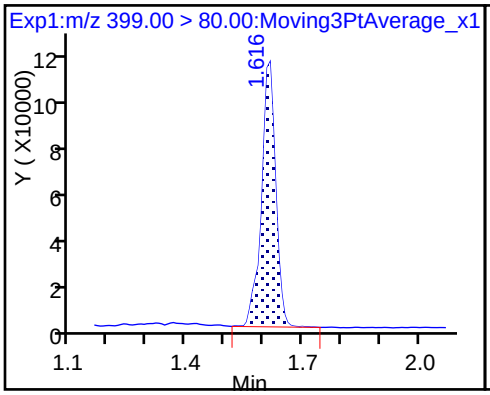
1 Perfluorobutanesulfonic acid



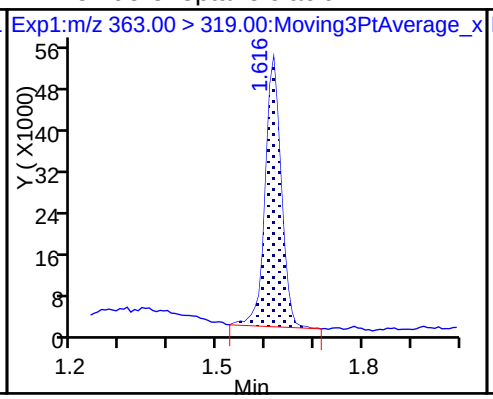
$ 2 13C2 PFHxA



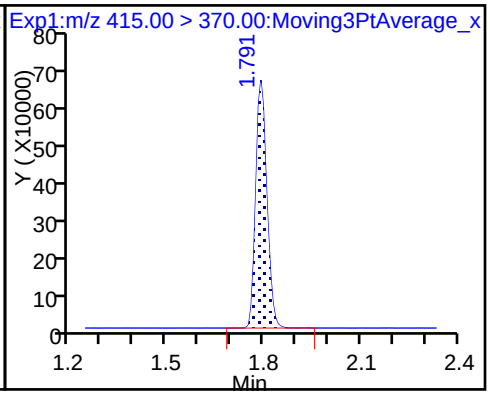
3 Perfluorohexanesulfonic acid



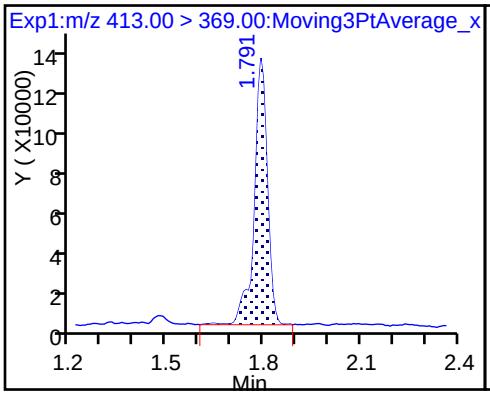
4 Perfluoroheptanoic acid



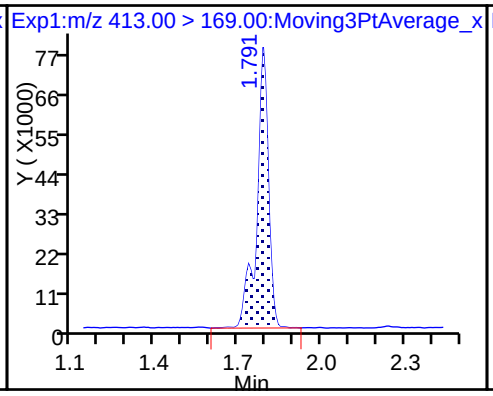
* 6 13C2-PFOA



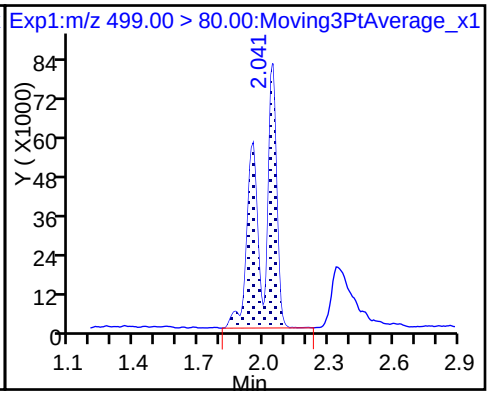
5 Perfluorooctanoic acid



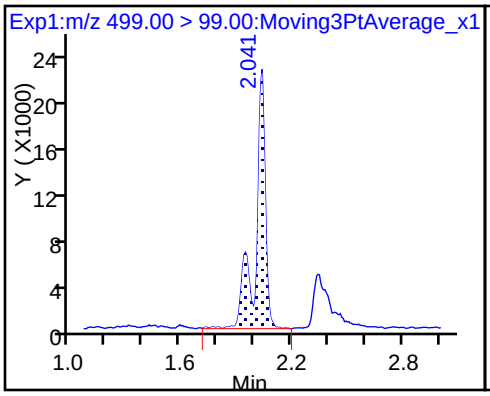
5 Perfluorooctanoic acid



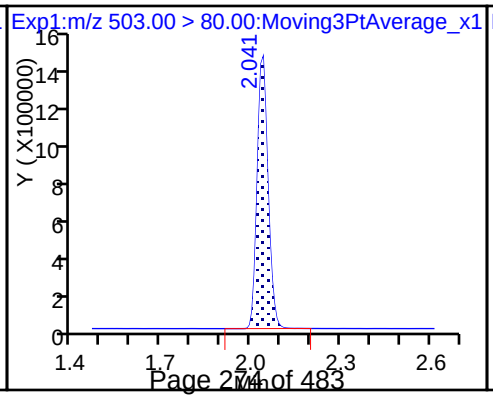
8 Perfluorooctane sulfonic acid



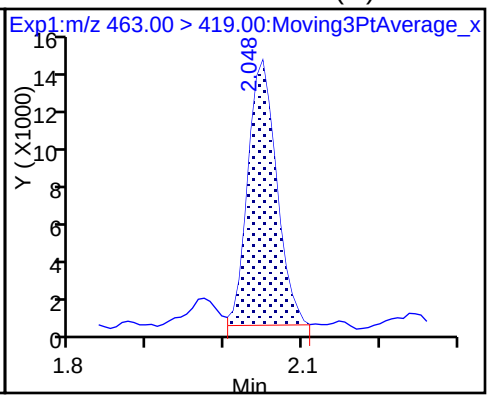
8 Perfluorooctane sulfonic acid



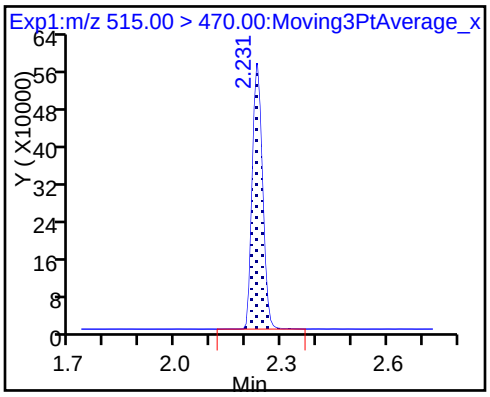
* 7 13C4 PFOS



9 Perfluorononanoic acid (M)



$ 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\20180119-53091.b\2018.01.18_537AA_051.d
Lims ID: 320-34835-A-26-A
Client ID: NAWC-010318-RW-289
Sample Type: Client
Inject. Date: 19-Jan-2018 09:08:59 ALS Bottle#: 37 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-26-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:55 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:09:24

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.70	96.99
$ 10 13C2 PFDA	10.0	9.42	94.20

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

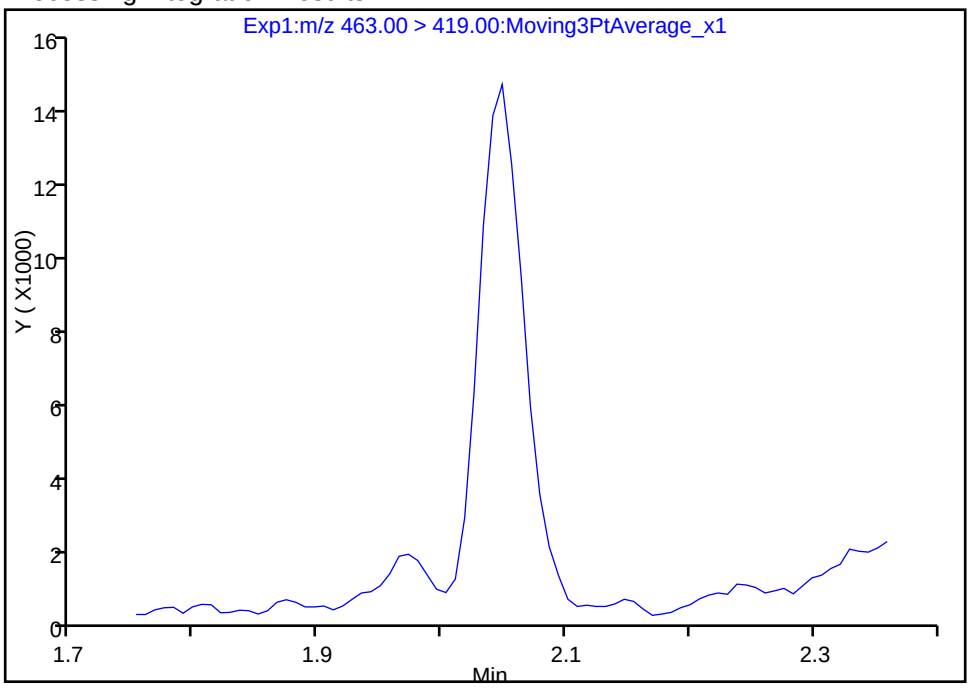
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_051.d				
Injection Date:	19-Jan-2018 09:08:59	Instrument ID:	A8_N		
Lims ID:	320-34835-A-26-A	Lab Sample ID:	320-34835-26		
Client ID:	NAWC-010318-RW-289				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	37	Worklist Smp#:	27
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

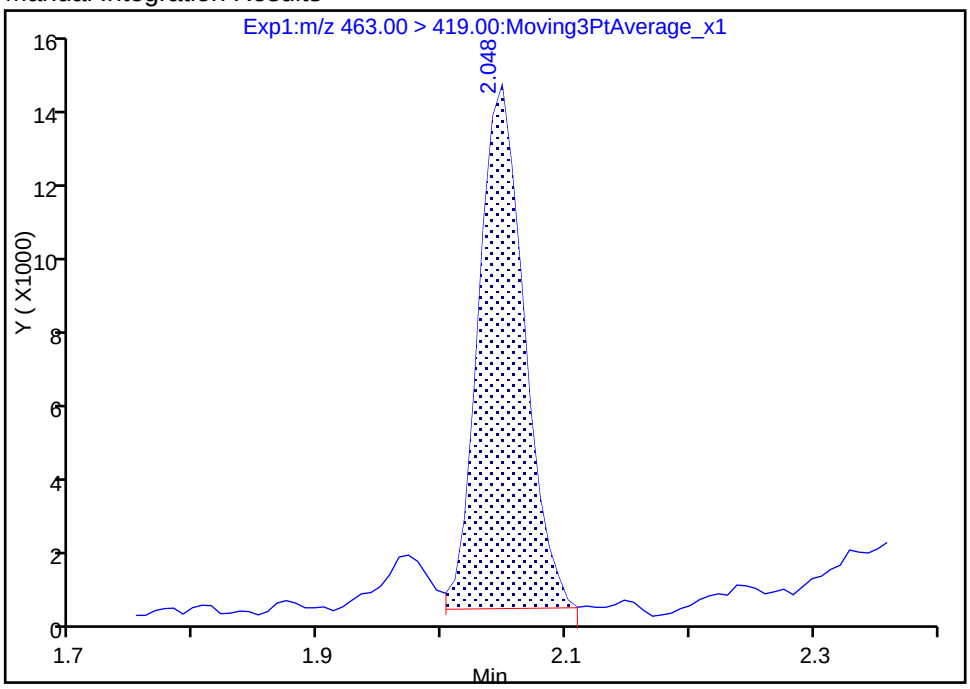
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 35214
Amount: 0.338135
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:09:21
Audit Action: Manually Integrated Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-289 | Lab Sample ID: 320-34835-27

Matrix: Water | Lab File ID: 2018.01.18_537AA_052.d

Analysis Method: 537 | Date Collected: 01/03/2018 16:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/19/2018 09:13

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

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

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

Analysis Batch No.: 204654 | 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	91		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_052.d
Lims ID: 320-34835-A-27-A
Client ID: NAWC-010318-FRB-289
Sample Type: Client
Inject. Date: 19-Jan-2018 09:13:40 ALS Bottle#: 38 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-27-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:55 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: XAWRK023

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	1.573	-0.094	1.000	1573121	9.11		7089	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1570143	10.0		5830	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3471389	28.7		7412	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1164598	9.69		7227	

Report Date: 19-Jan-2018 14:09:57 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_052.d

Injection Date: 19-Jan-2018 09:13:40 Instrument ID: A8_N

Lims ID: 320-34835-A-27-A Lab Sample ID: 320-34835-27

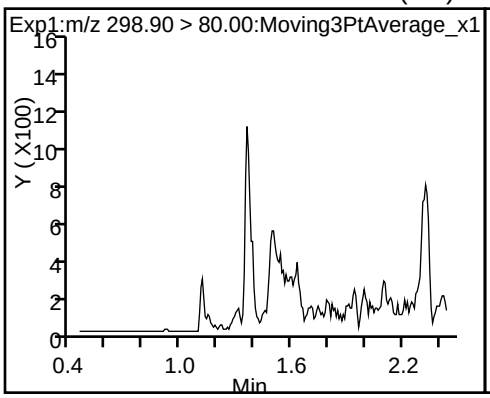
Client ID: NAWC-010318-FRB-289

Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 28

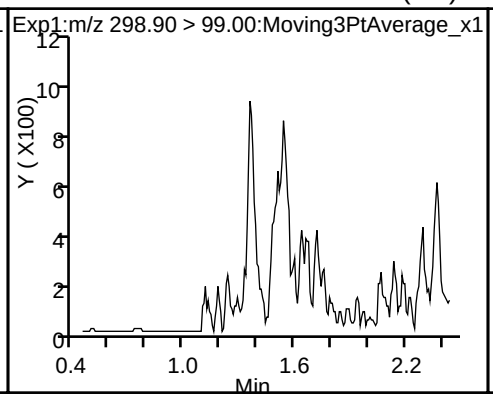
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

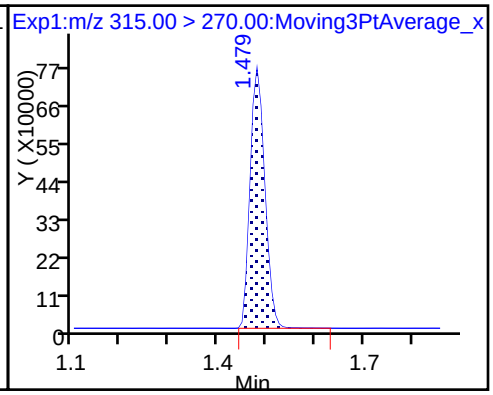
1 Perfluorobutanesulfonic acid (ND)



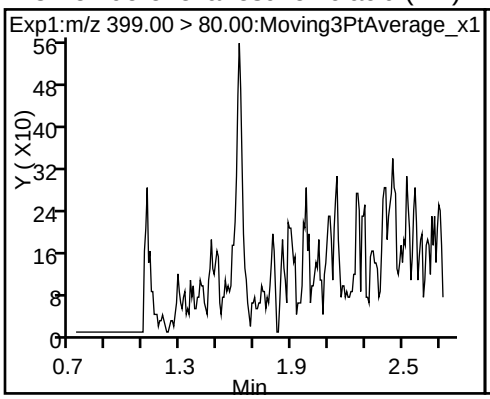
1 Perfluorobutanesulfonic acid (ND)



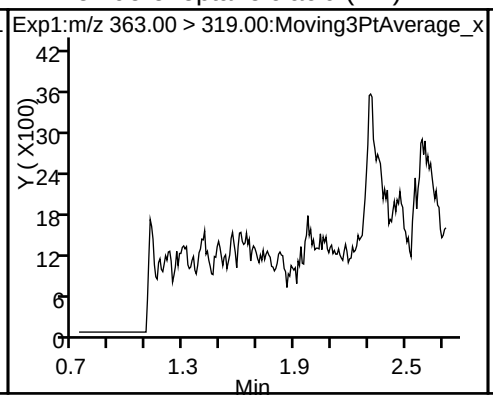
$ 2 13C2 PFHxA



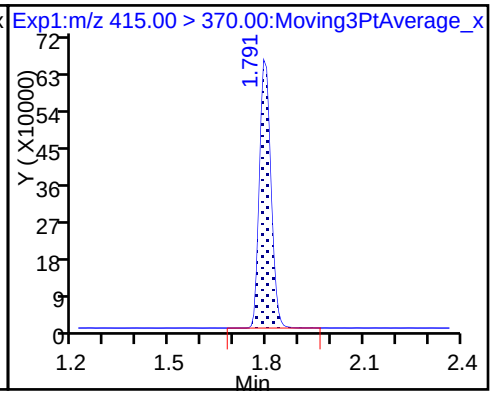
3 Perfluorohexanesulfonic acid (ND)



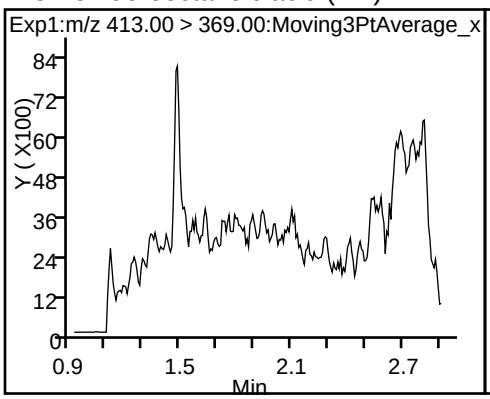
4 Perfluoroheptanoic acid (ND)



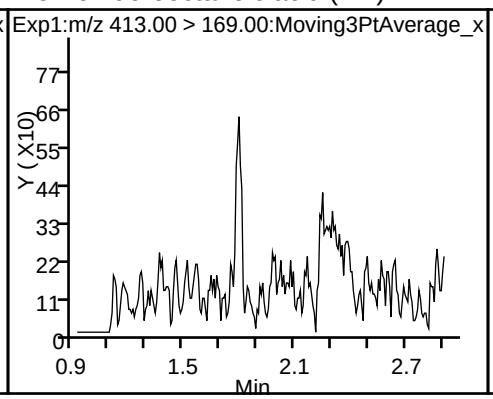
* 6 13C2-PFOA



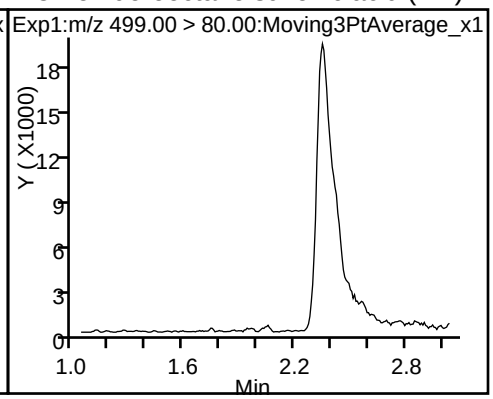
5 Perfluorooctanoic acid (ND)



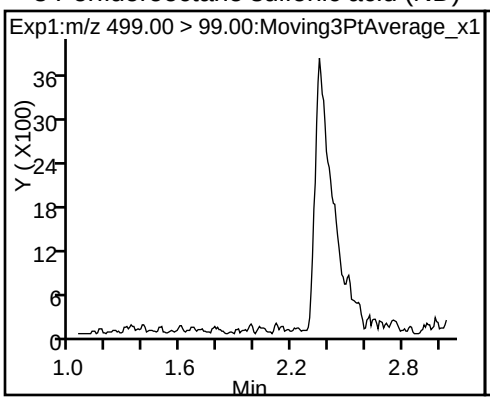
5 Perfluorooctanoic acid (ND)



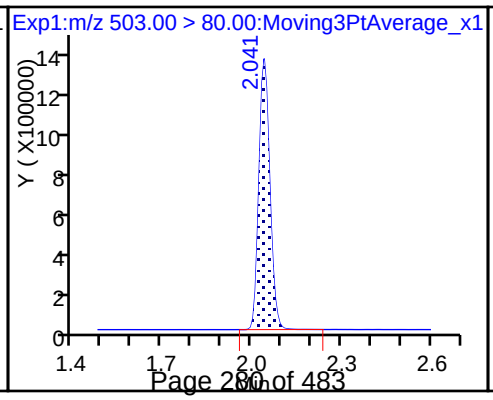
8 Perfluorooctane sulfonic acid (ND)



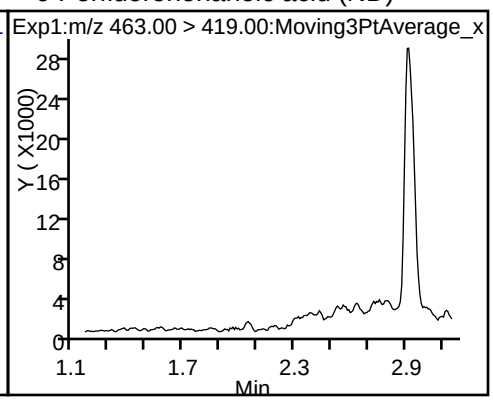
8 Perfluorooctane sulfonic acid (ND)



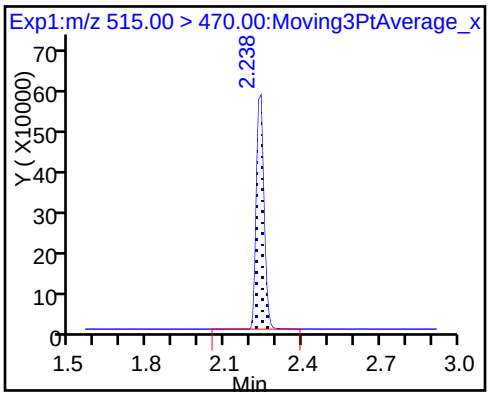
* 7 13C4 PFOS



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
1.5
1.8
2.1
2.4
2.7
3.0
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_052.d				
Lims ID:	320-34835-A-27-A				
Client ID:	NAWC-010318-FRB-289				
Sample Type:	Client				
Inject. Date:	19-Jan-2018 09:13:40	ALS Bottle#:	38	Worklist Smp#:	28
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	320-34835-a-27-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	19-Jan-2018 14:09:55	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:	XAWRK023				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.11	91.06
$ 10 13C2 PFDA	10.0	9.69	96.93

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

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1 Analy Batch No.: 192908

SDG No.: WE04

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.: 320-34835-1 Analy Batch No.: 192908

SDG No.: WE04

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.: 320-34835-1 Analy Batch No.: 192908

SDG No.: WE04

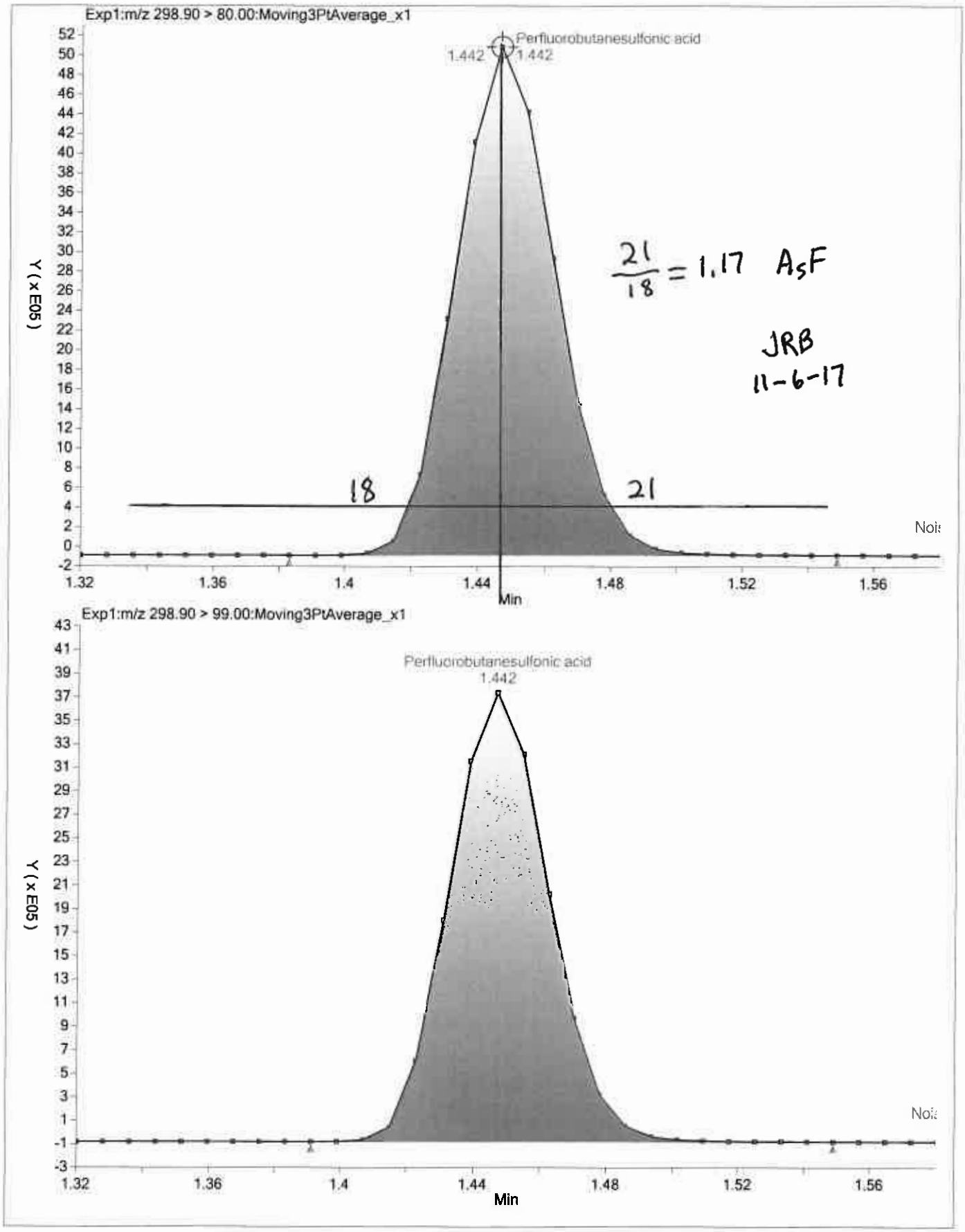
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

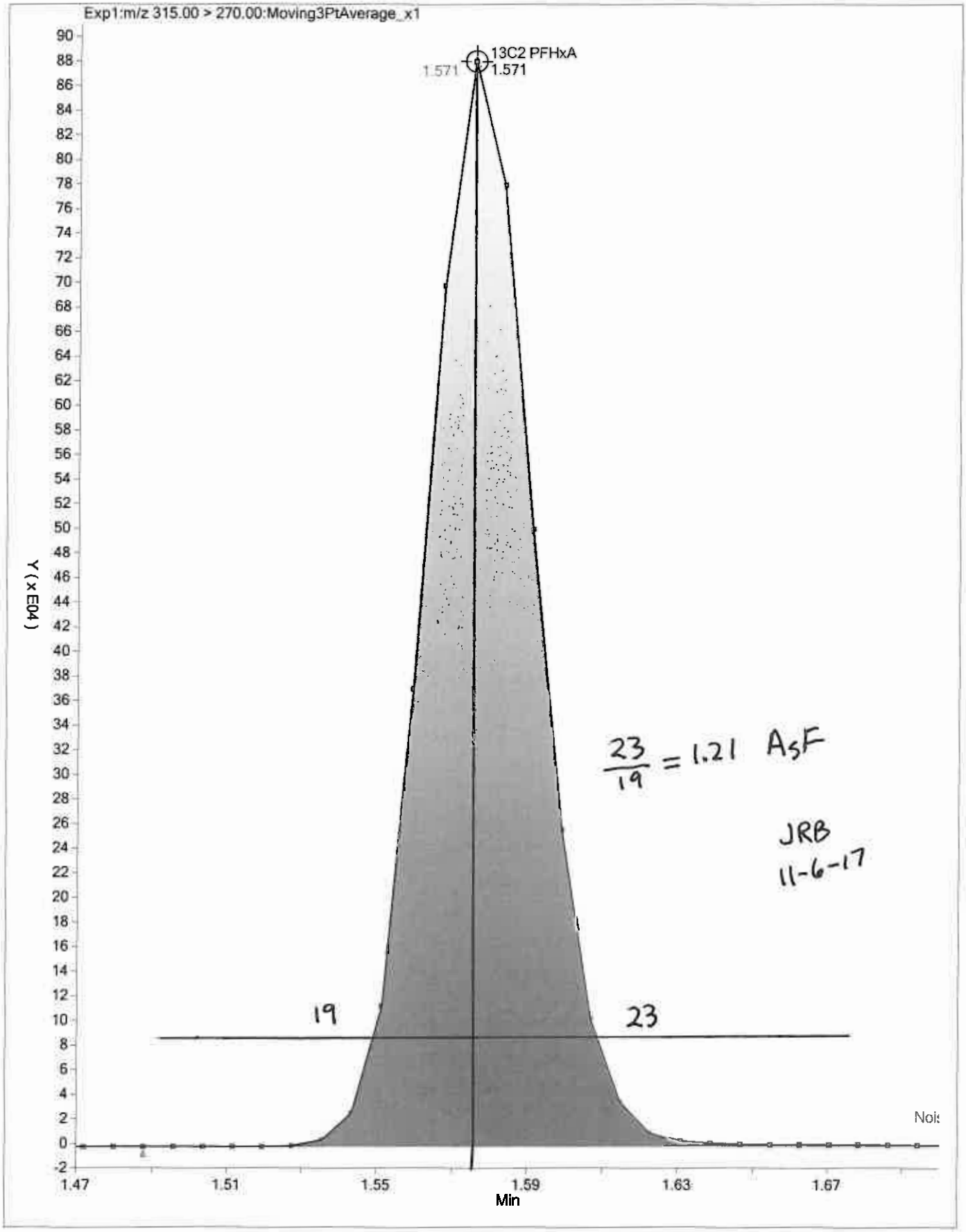
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

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 A5F
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

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

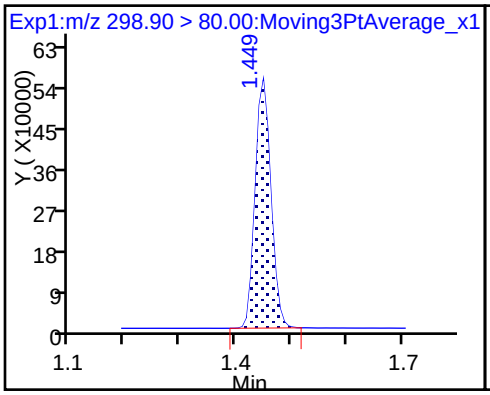
Client ID:

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

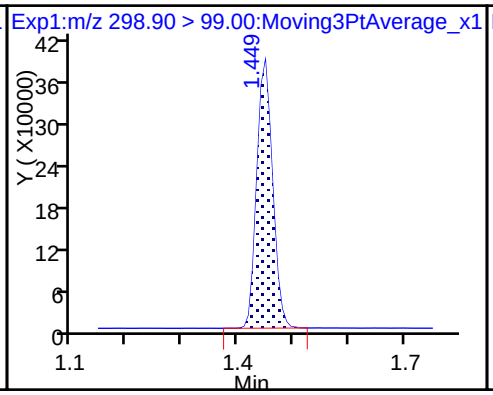
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

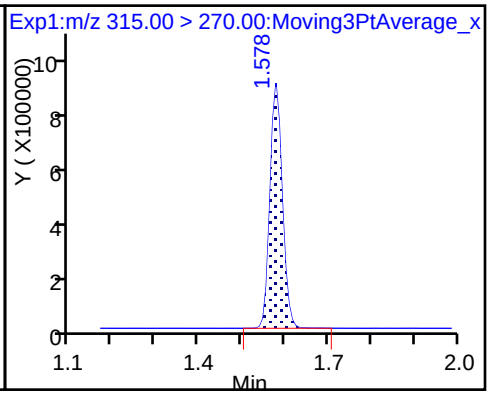
1 Perfluorobutanesulfonic acid



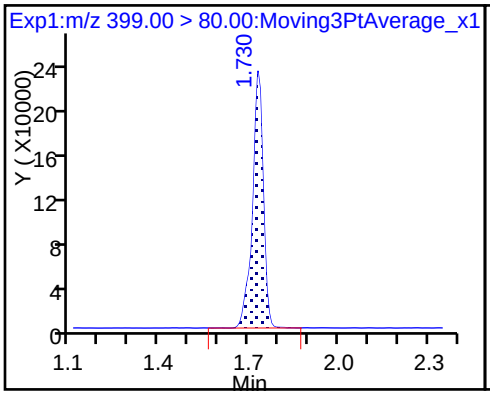
1 Perfluorobutanesulfonic acid



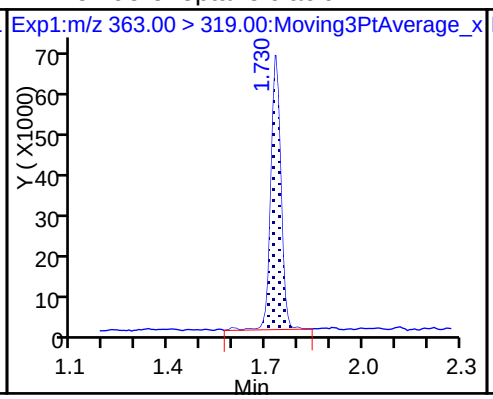
$ 2 13C2 PFHxA



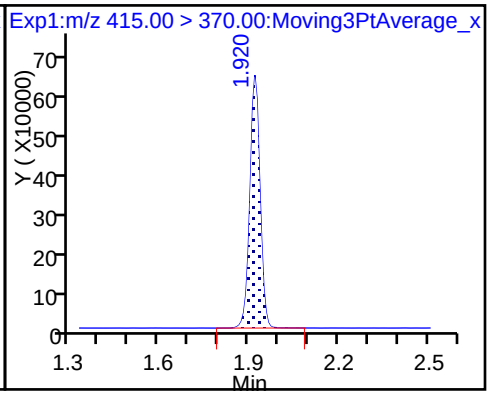
3 Perfluorohexanesulfonic acid



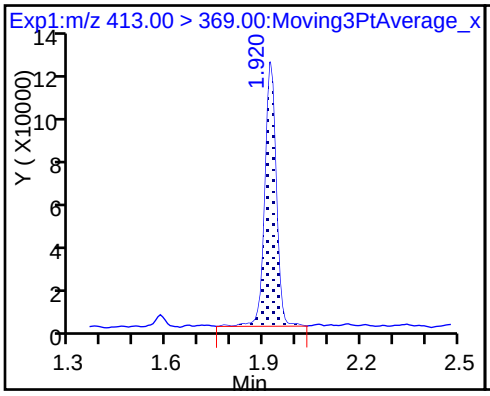
4 Perfluoroheptanoic acid



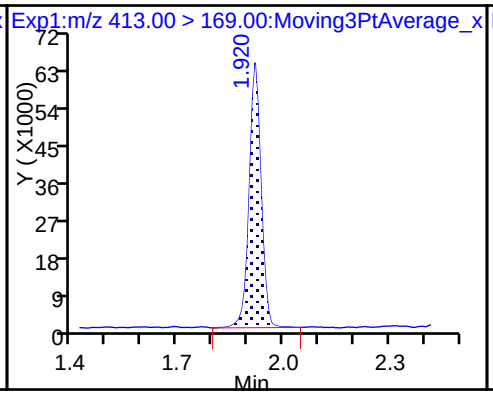
* 6 13C2-PFOA



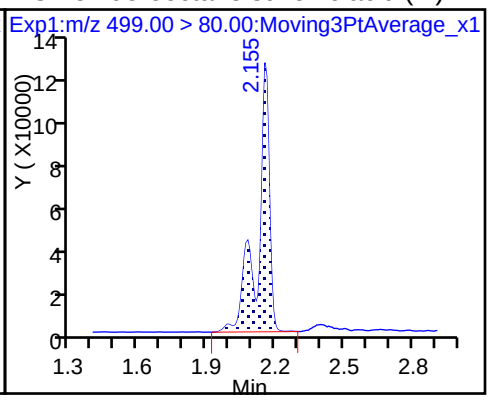
5 Perfluorooctanoic acid



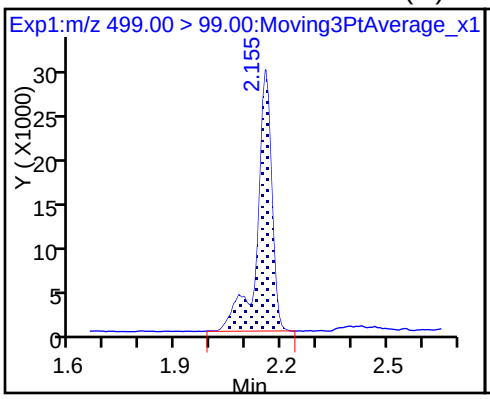
5 Perfluorooctanoic acid



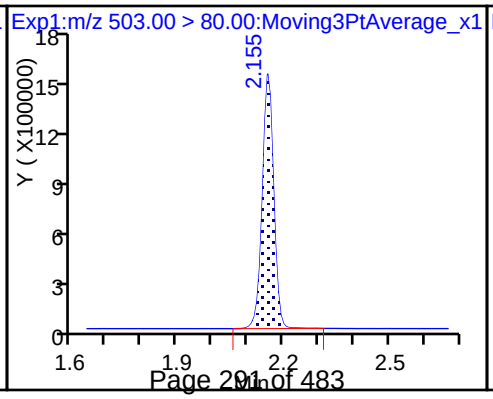
8 Perfluorooctane sulfonic acid (M)



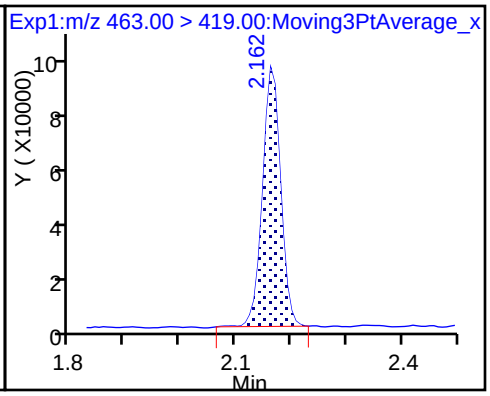
8 Perfluorooctane sulfonic acid (M)



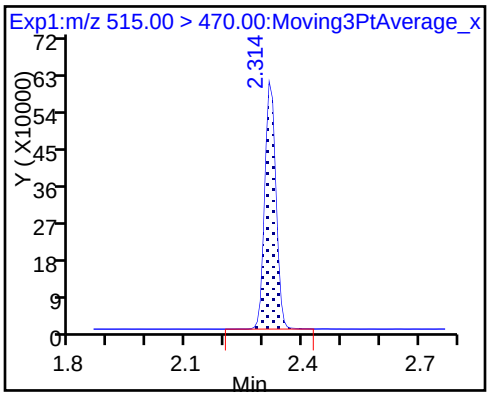
* 7 13C4 PFOS



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

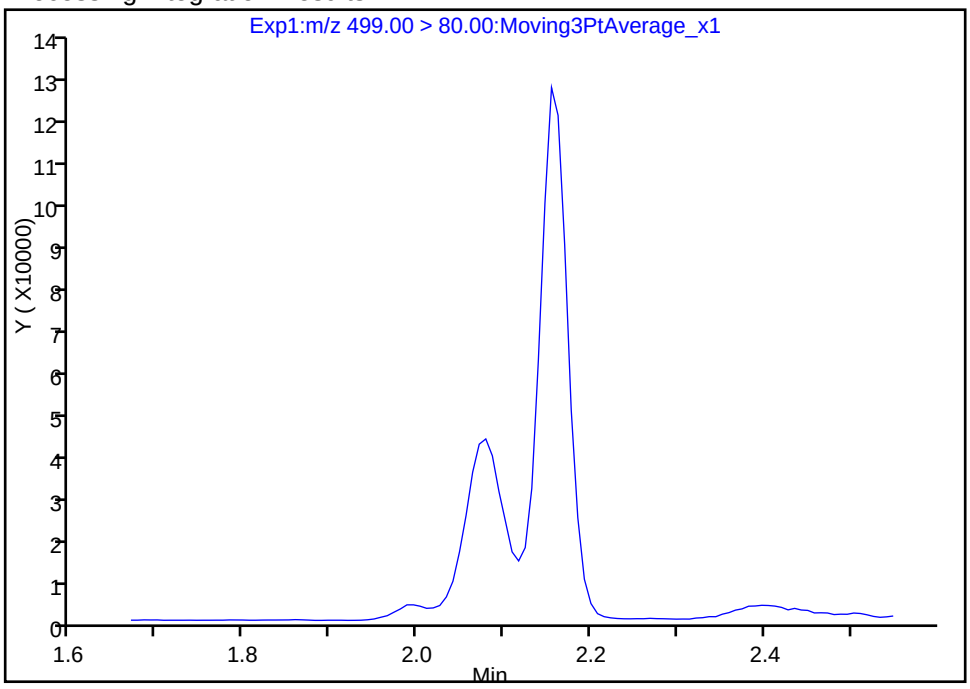
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d				
Injection Date:	03-Nov-2017 13:37:59	Instrument ID:	A8_N		
Lims ID:	IC L1				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	1	Worklist Smp#:	4
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

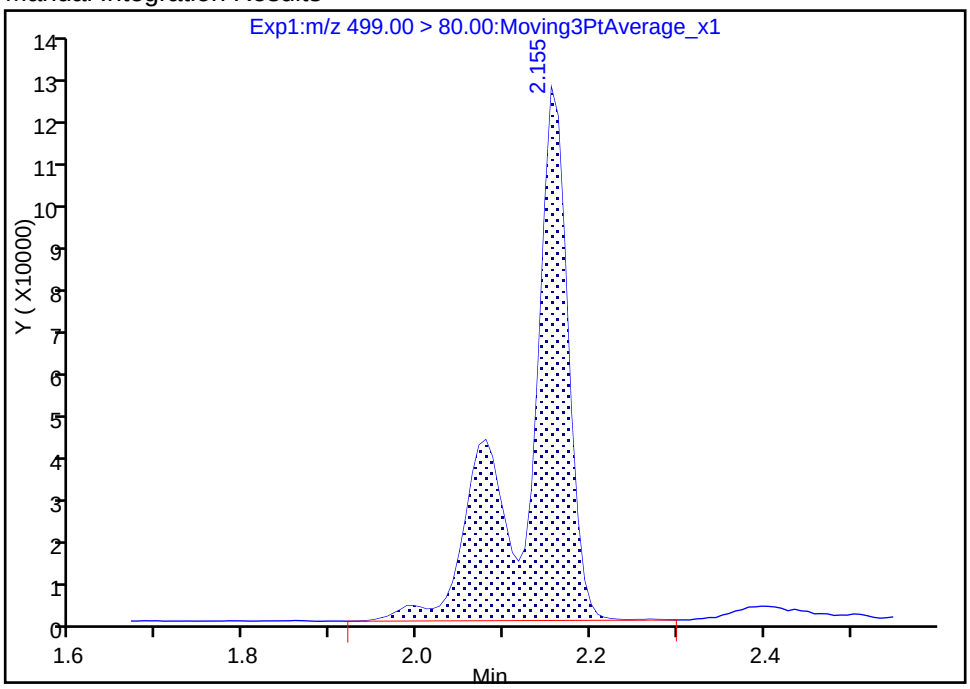
Not Detected
Expected RT: 2.15

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

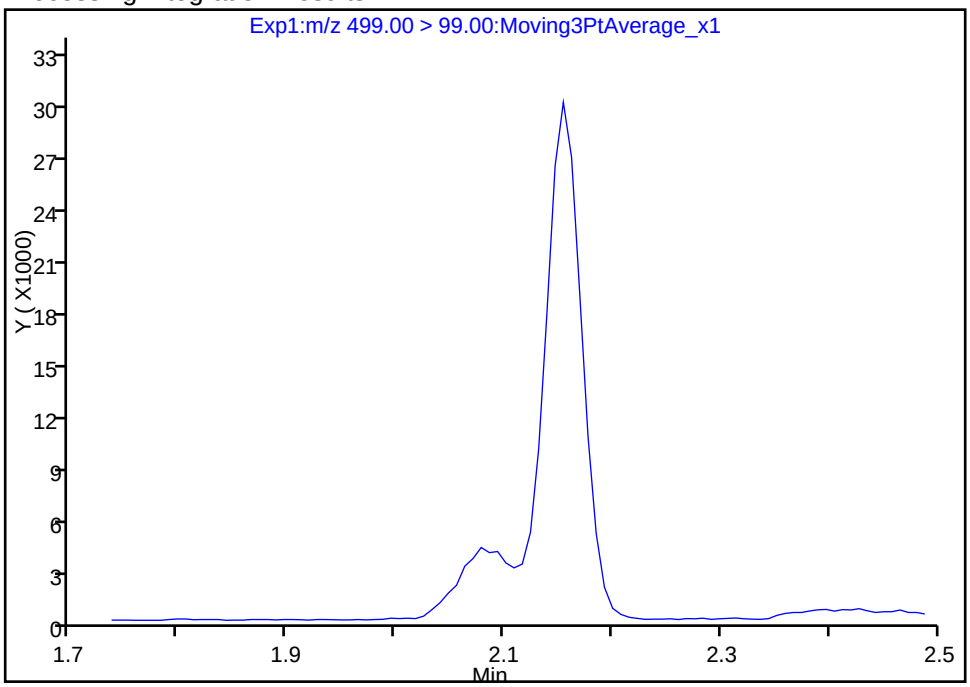
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

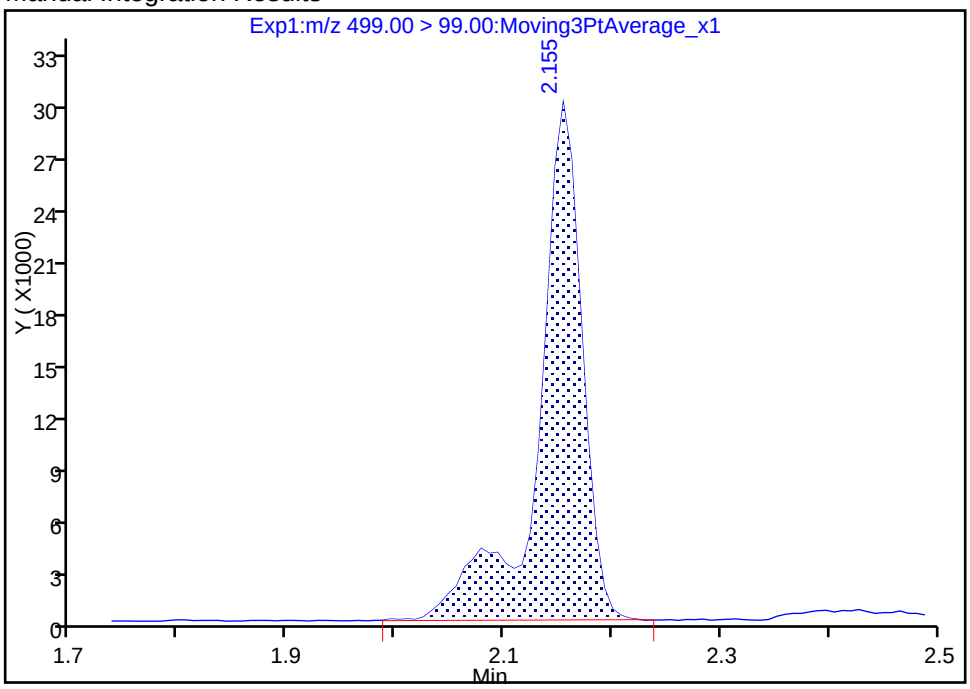
Not Detected
Expected RT: 2.15

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

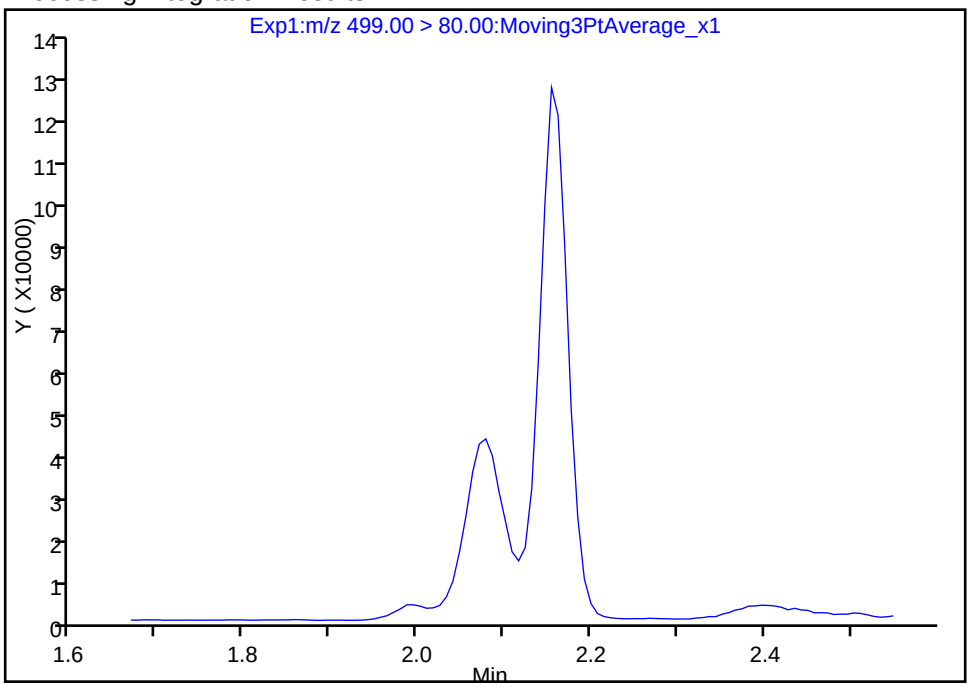
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

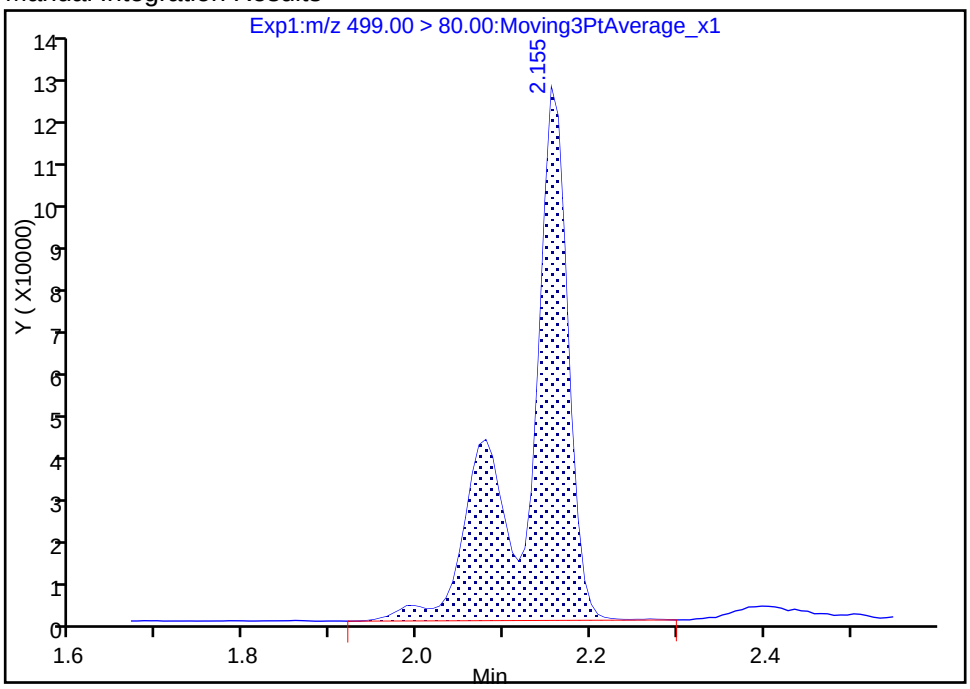
Not Detected
Expected RT: 2.15

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

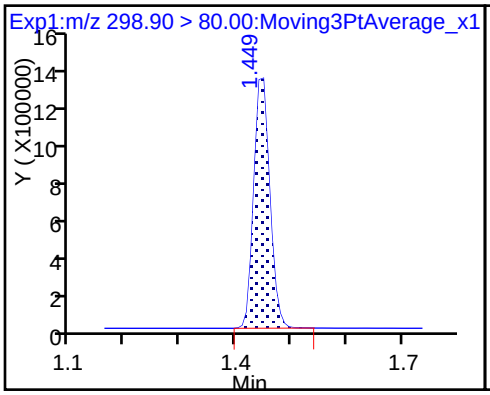
Client ID:

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

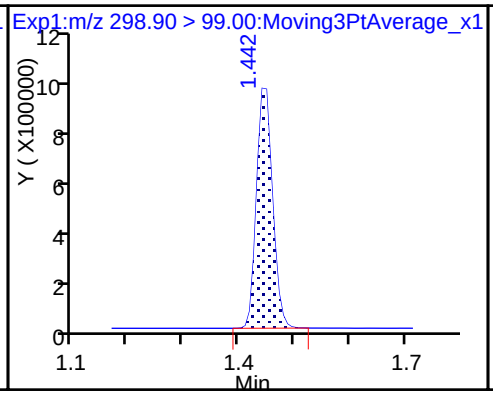
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

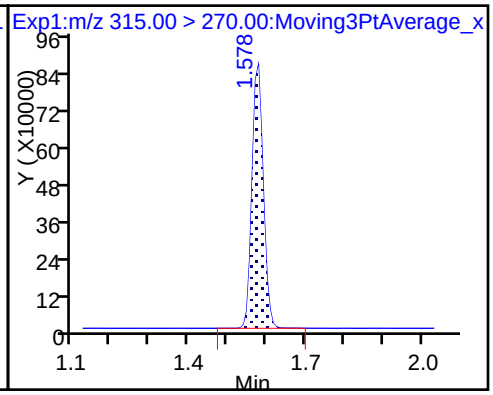
1 Perfluorobutanesulfonic acid



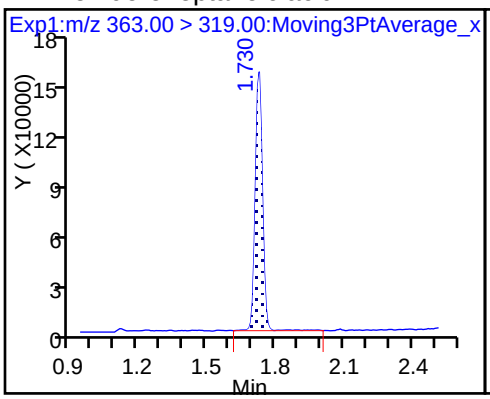
1 Perfluorobutanesulfonic acid



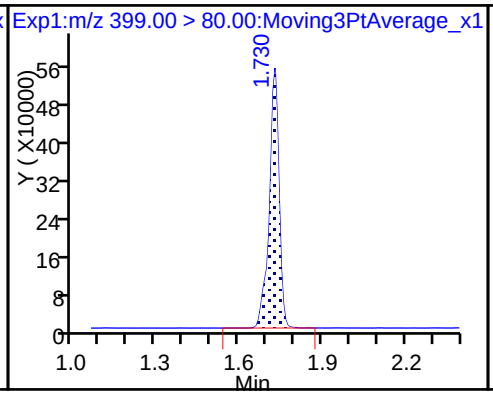
$ 2 13C2 PFHxA



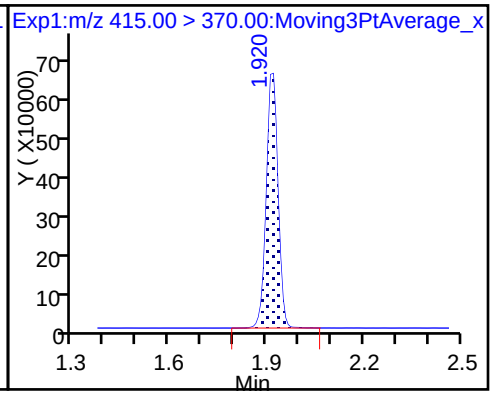
4 Perfluoroheptanoic acid



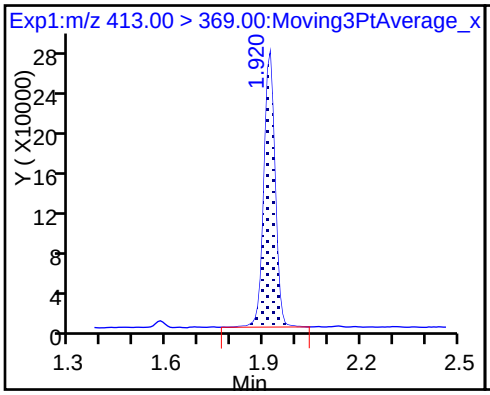
3 Perfluorohexanesulfonic acid



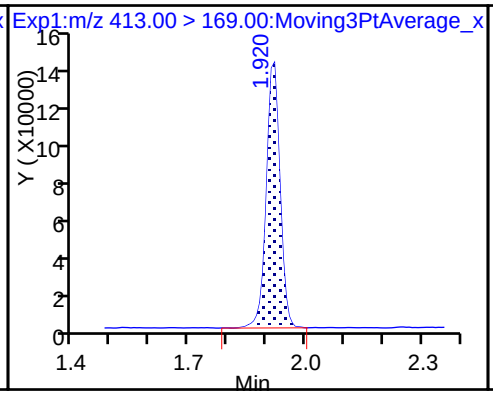
* 6 13C2-PFOA



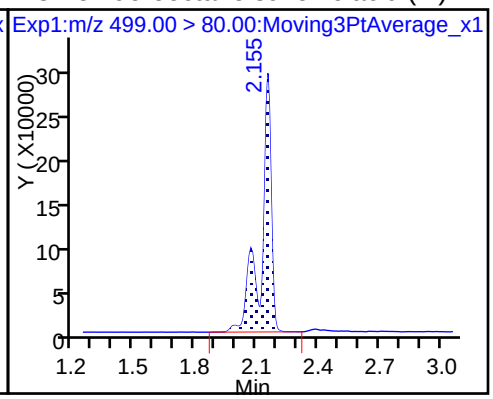
5 Perfluorooctanoic acid



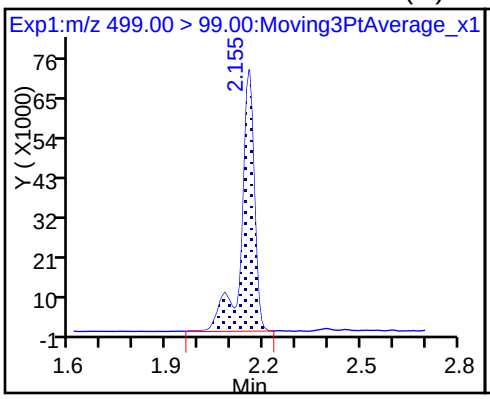
5 Perfluorooctanoic acid



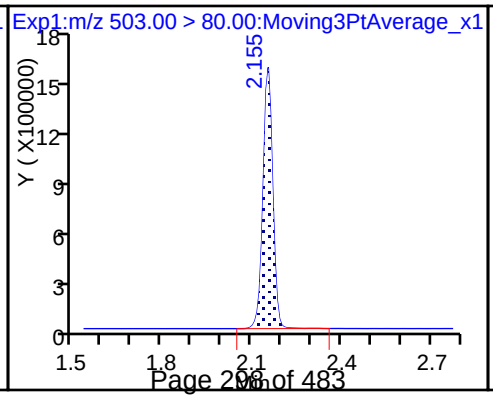
8 Perfluorooctane sulfonic acid (M)



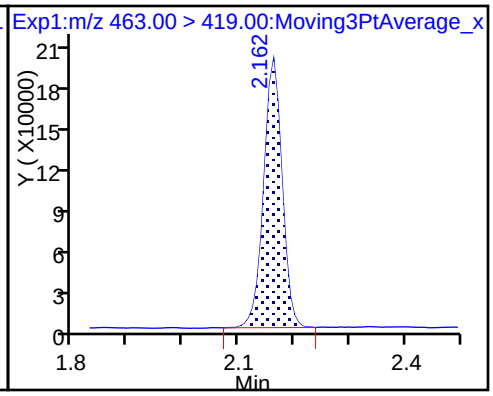
8 Perfluorooctane sulfonic acid (M)



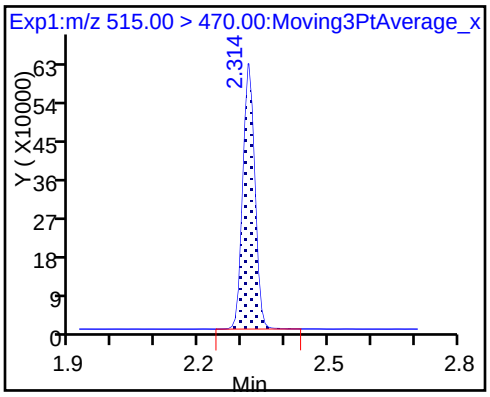
* 7 13C4 PFOS



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

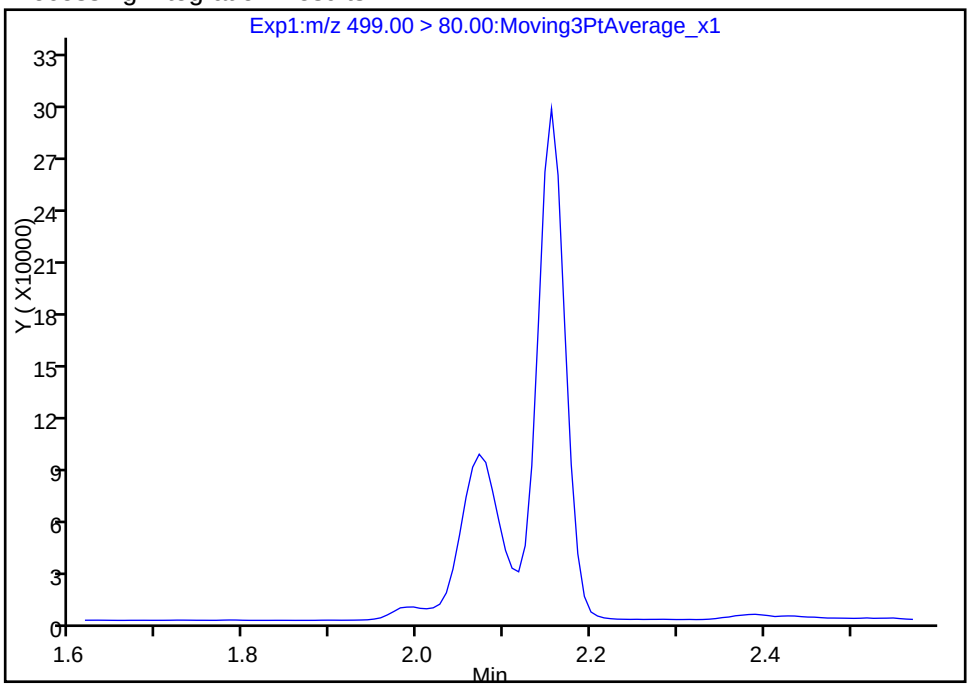
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

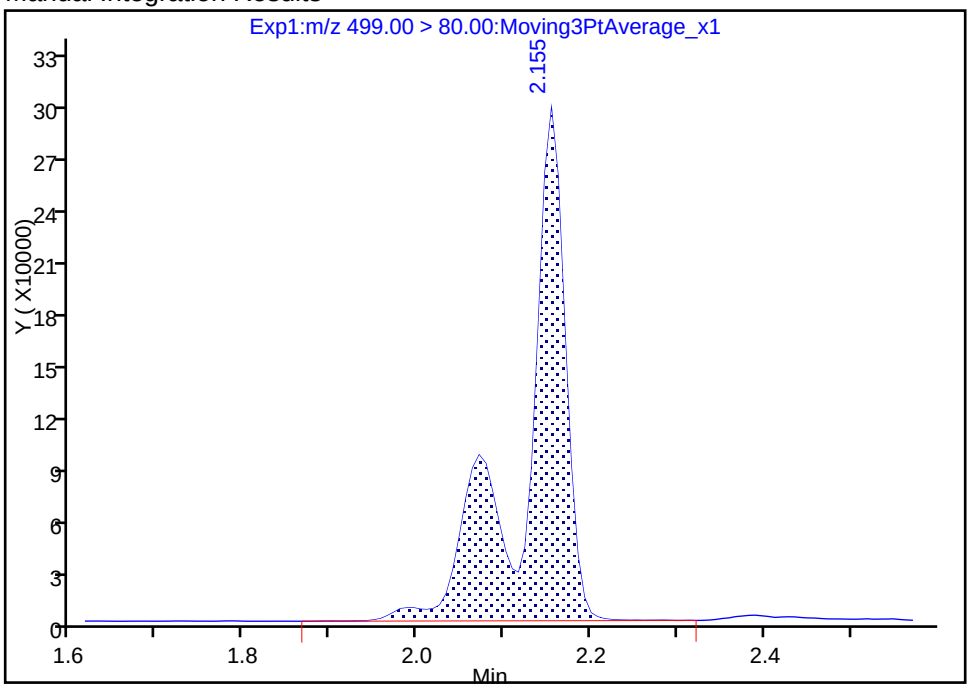
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 985487
Amount: 8.723576
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:18:13
Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

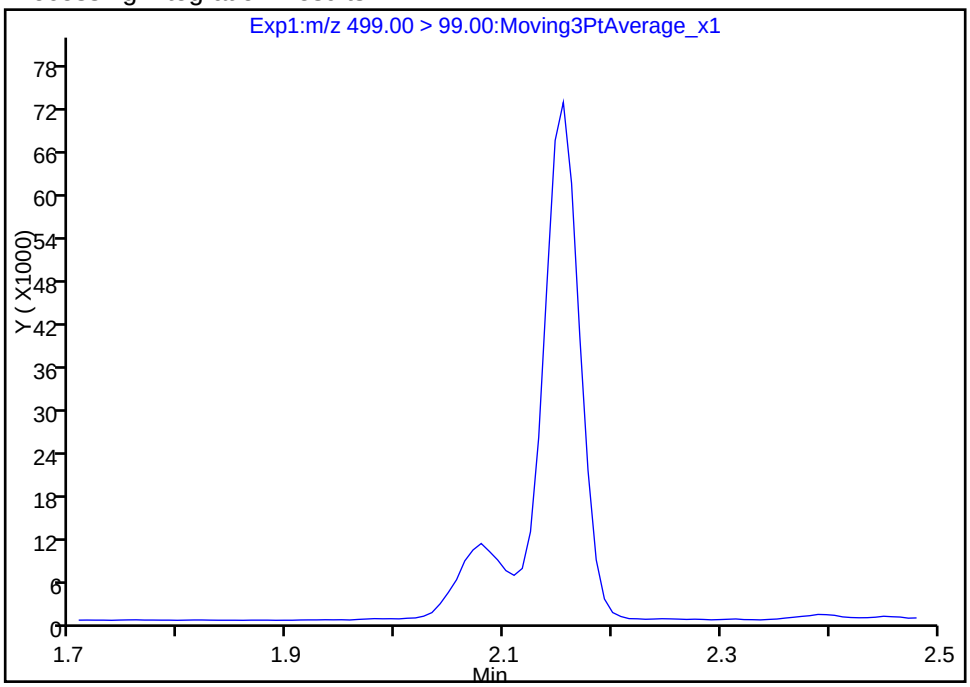
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

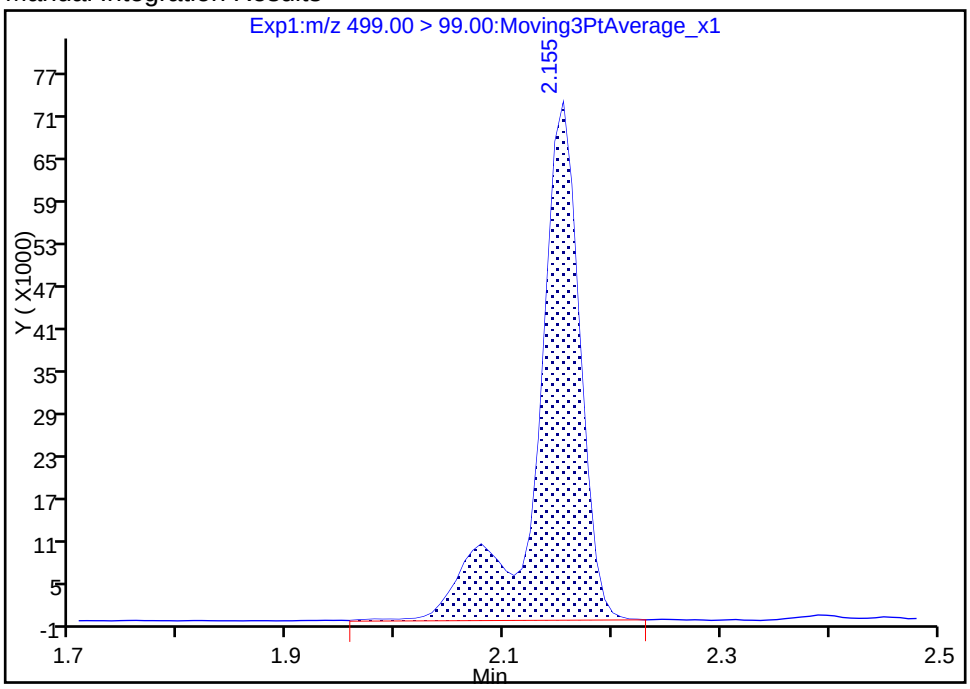
Not Detected
Expected RT: 2.15

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

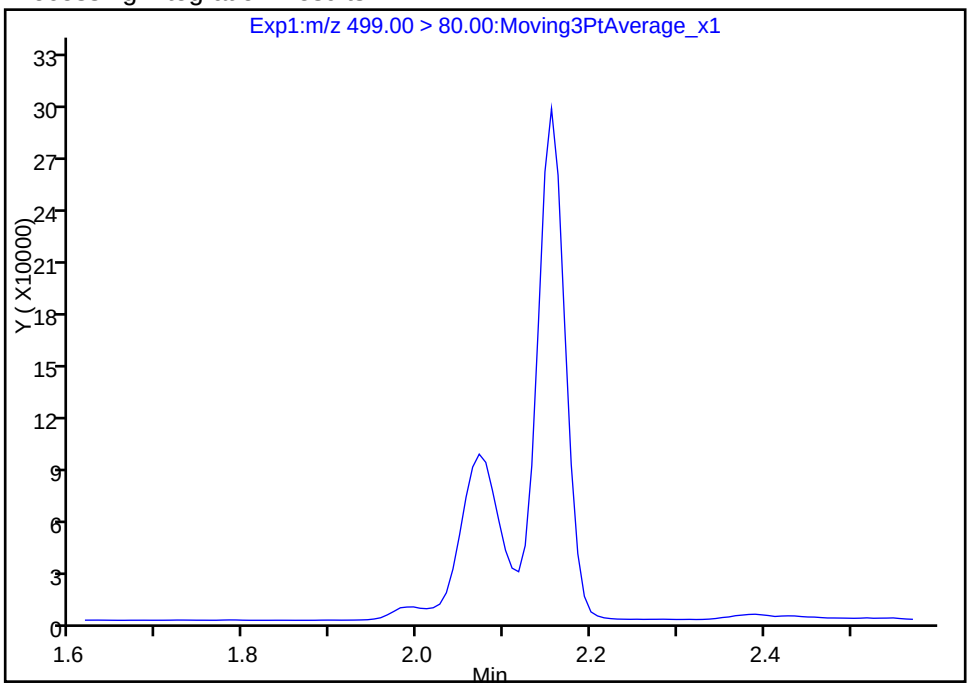
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

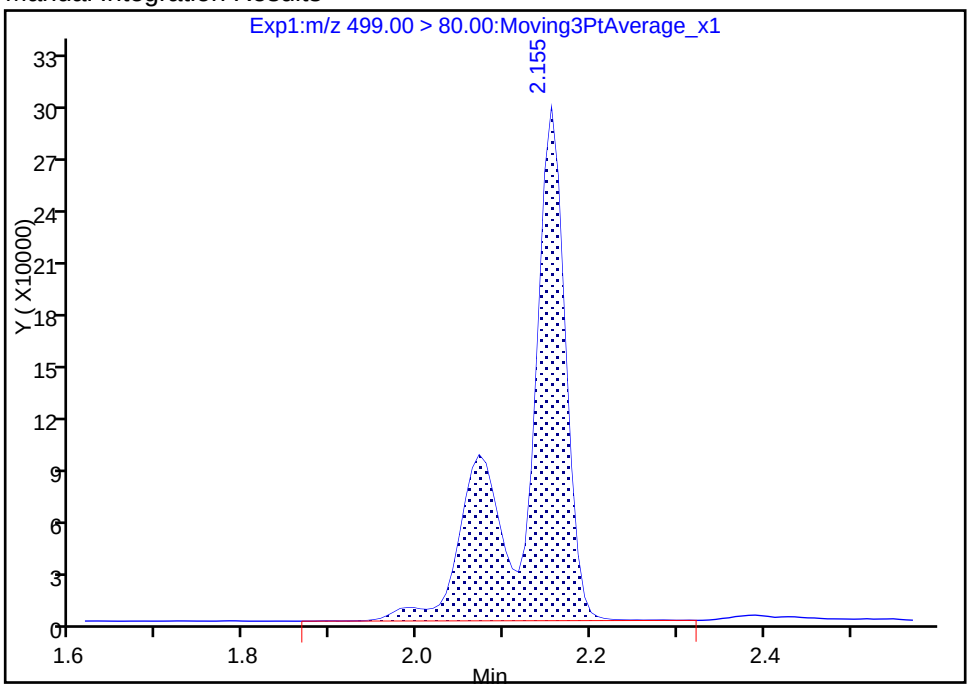
Not Detected
Expected RT: 2.15

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

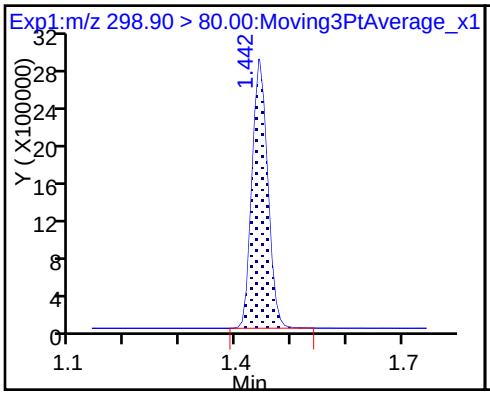
Client ID:

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

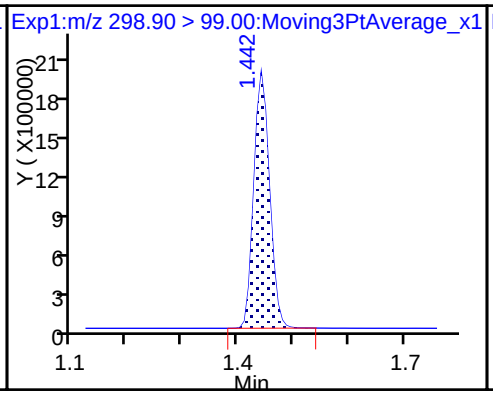
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

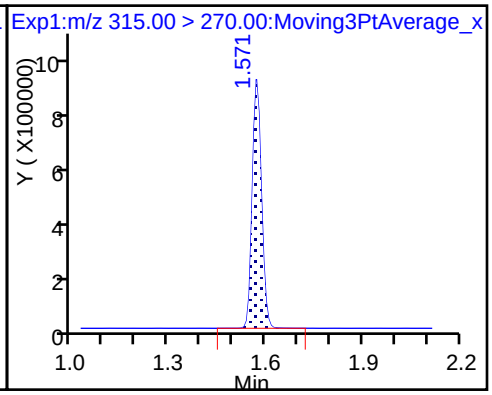
1 Perfluorobutanesulfonic acid



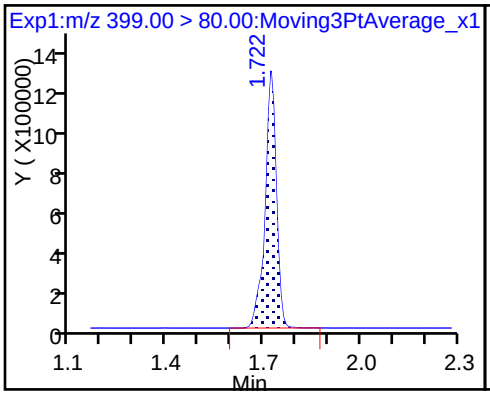
1 Perfluorobutanesulfonic acid



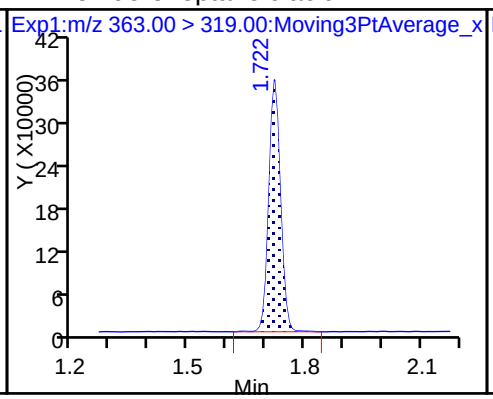
$ 2 13C2 PFHxA



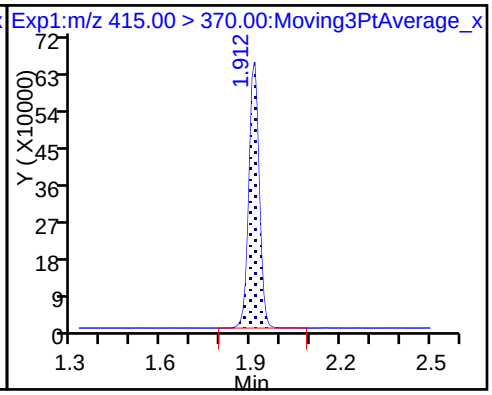
3 Perfluorohexanesulfonic acid



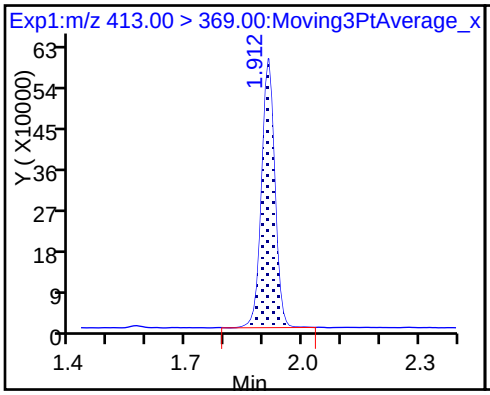
4 Perfluoroheptanoic acid



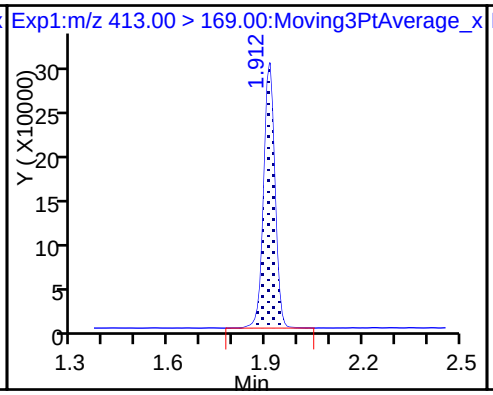
* 6 13C2-PFOA



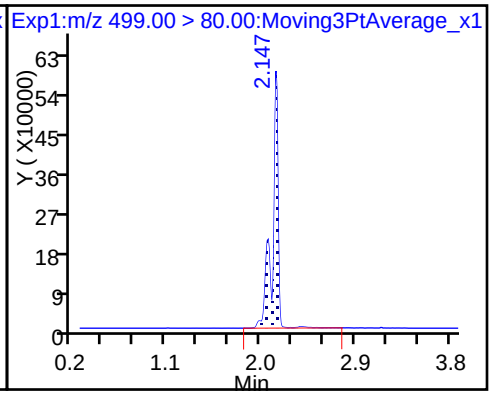
5 Perfluorooctanoic acid



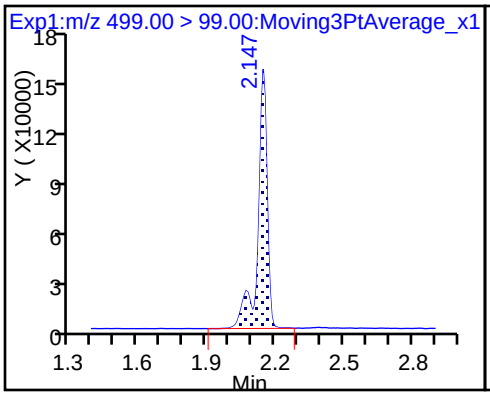
5 Perfluorooctanoic acid



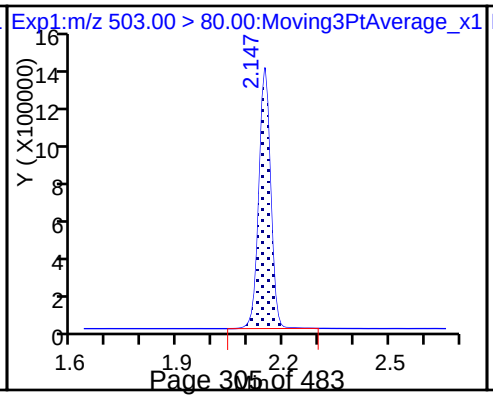
8 Perfluorooctane sulfonic acid



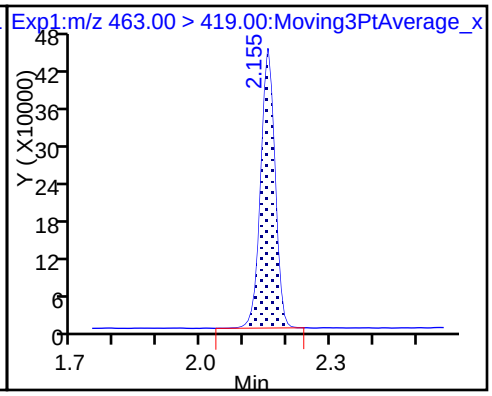
8 Perfluorooctane sulfonic acid



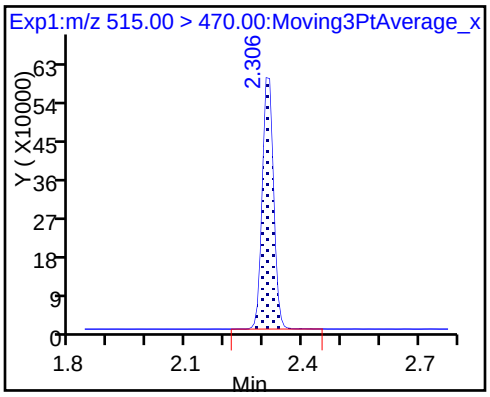
* 7 13C4 PFOS



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

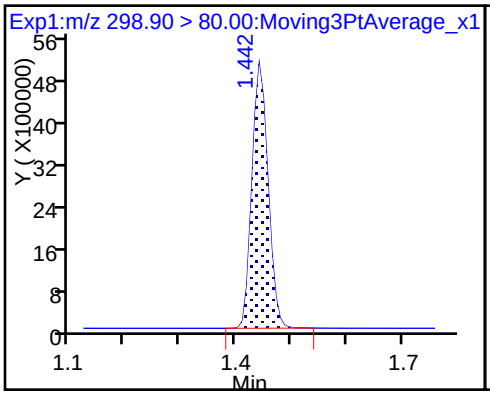
Client ID:

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

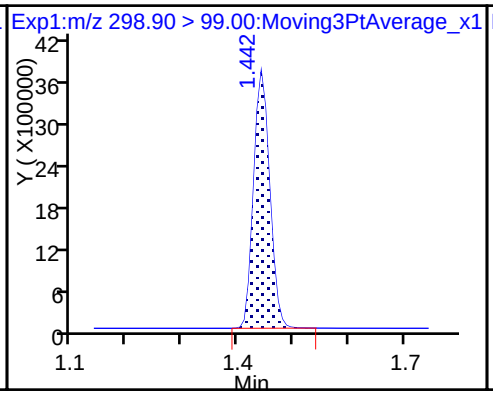
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

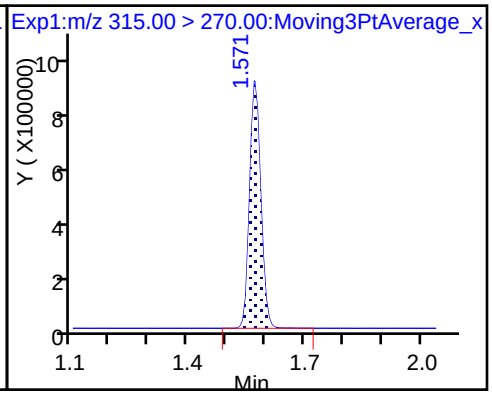
1 Perfluorobutanesulfonic acid



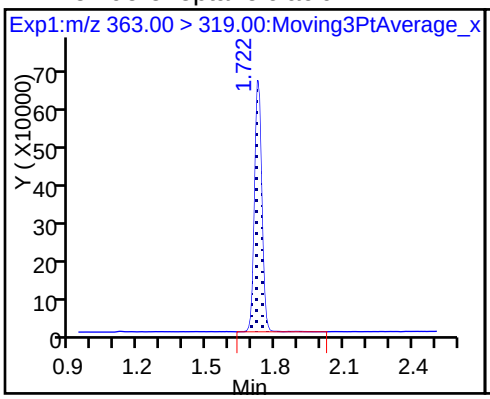
1 Perfluorobutanesulfonic acid



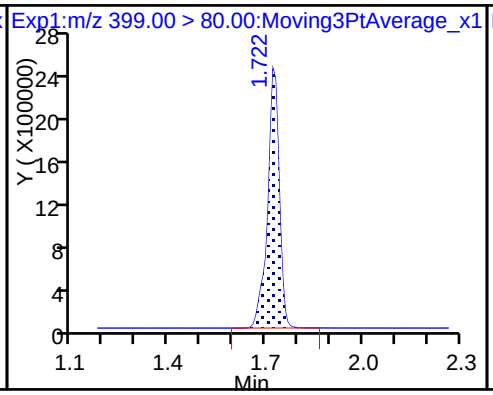
$ 2 13C2 PFHxA



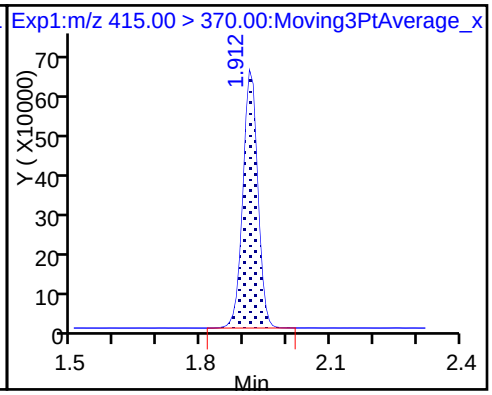
4 Perfluoroheptanoic acid



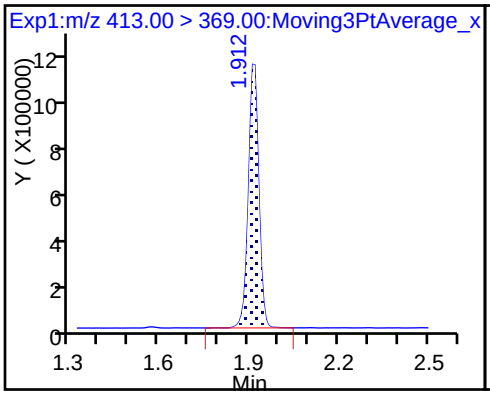
3 Perfluorohexanesulfonic acid



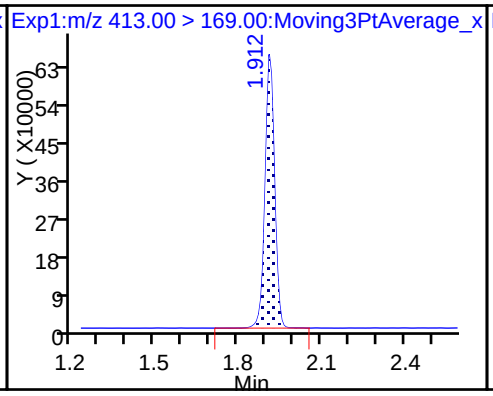
* 6 13C2-PFOA



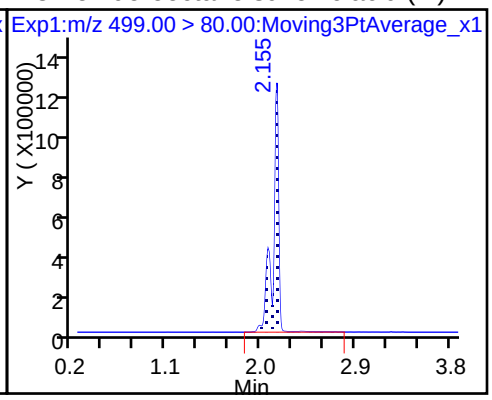
5 Perfluorooctanoic acid



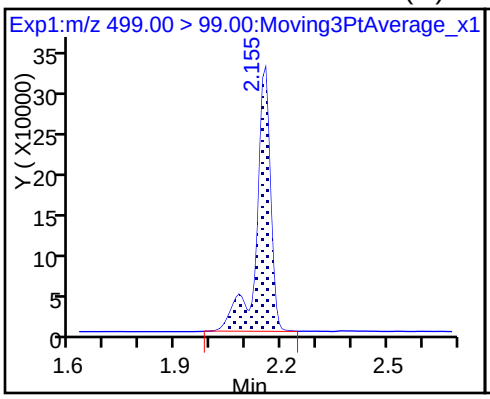
5 Perfluorooctanoic acid



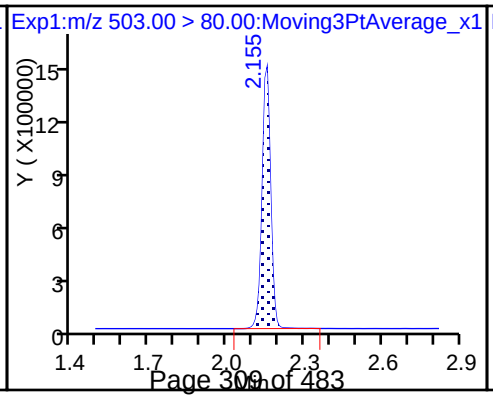
8 Perfluorooctane sulfonic acid (M)



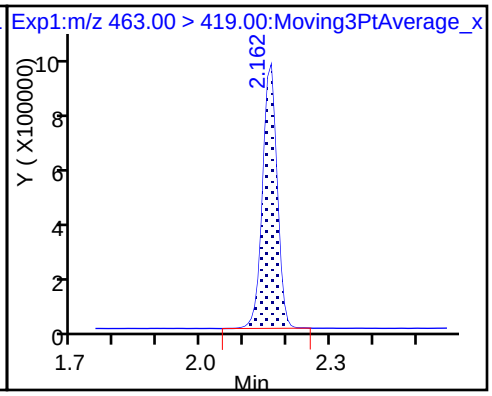
8 Perfluorooctane sulfonic acid (M)



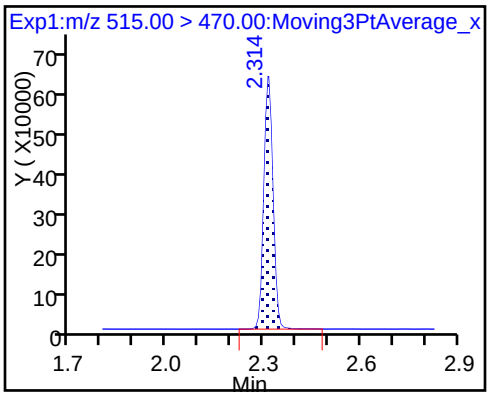
* 7 13C4 PFOS



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

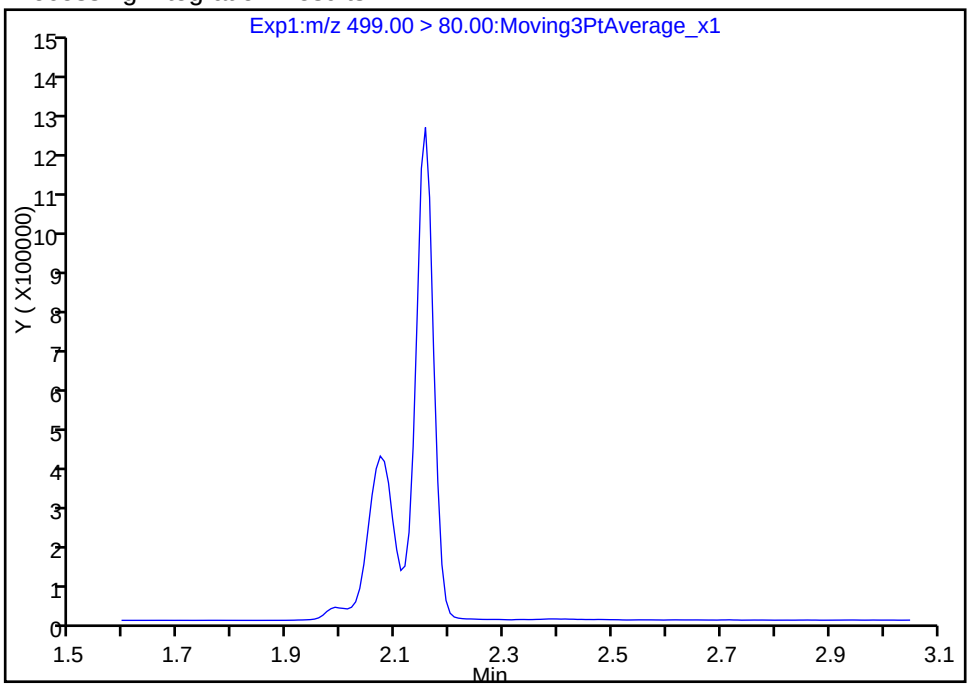
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

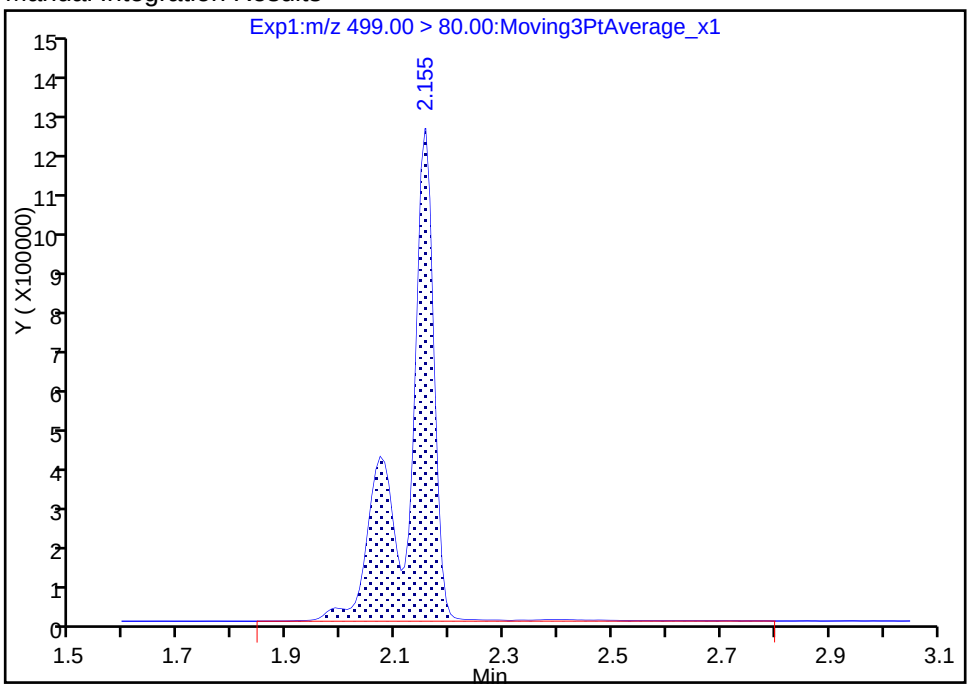
Not Detected
Expected RT: 2.15

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

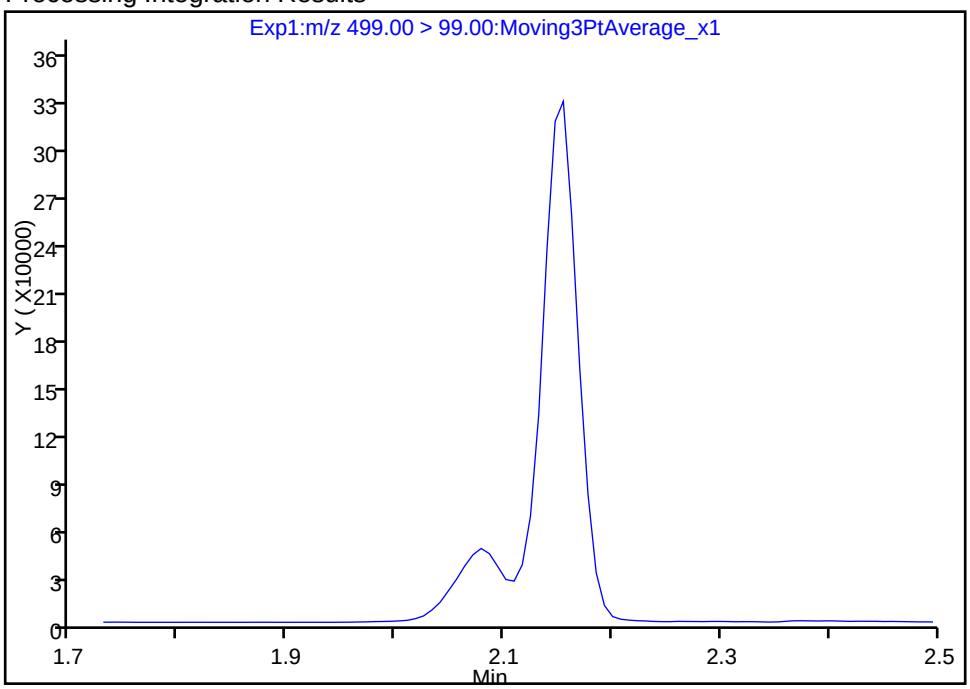
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

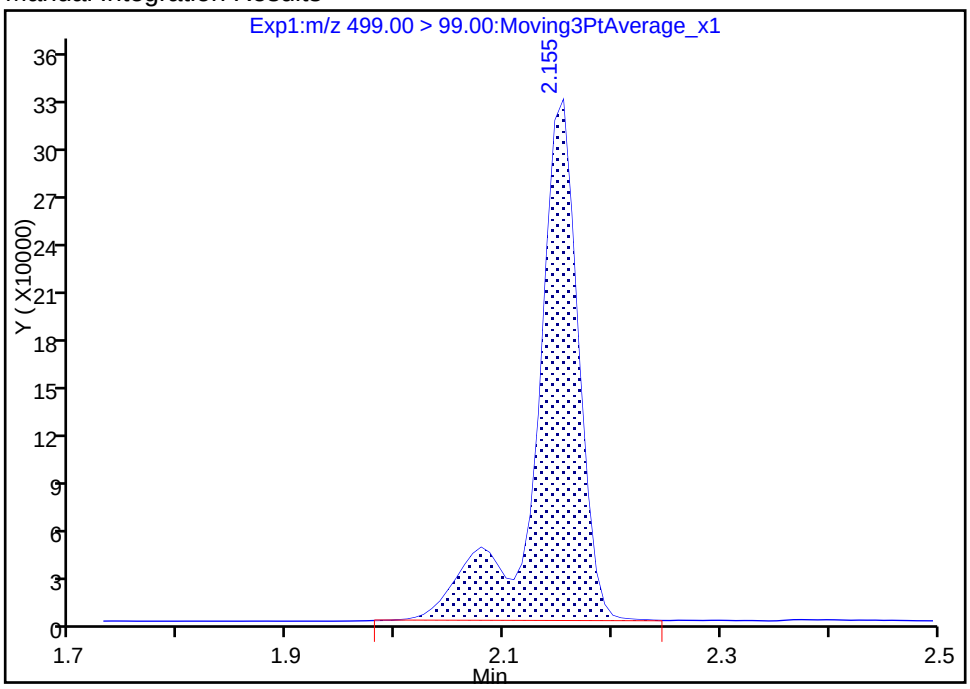
Not Detected
Expected RT: 2.15

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

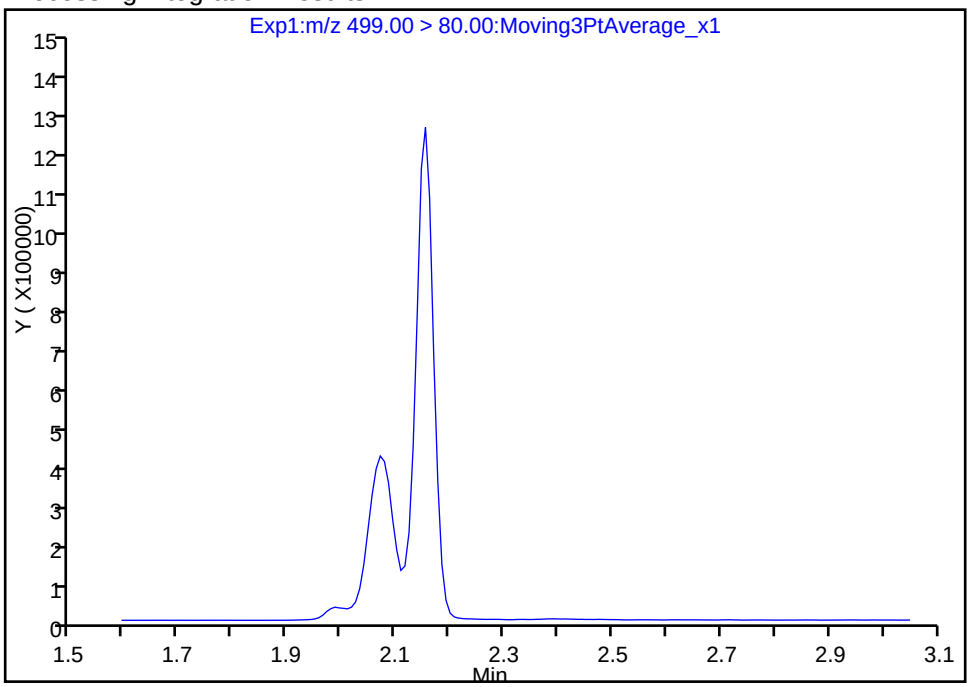
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

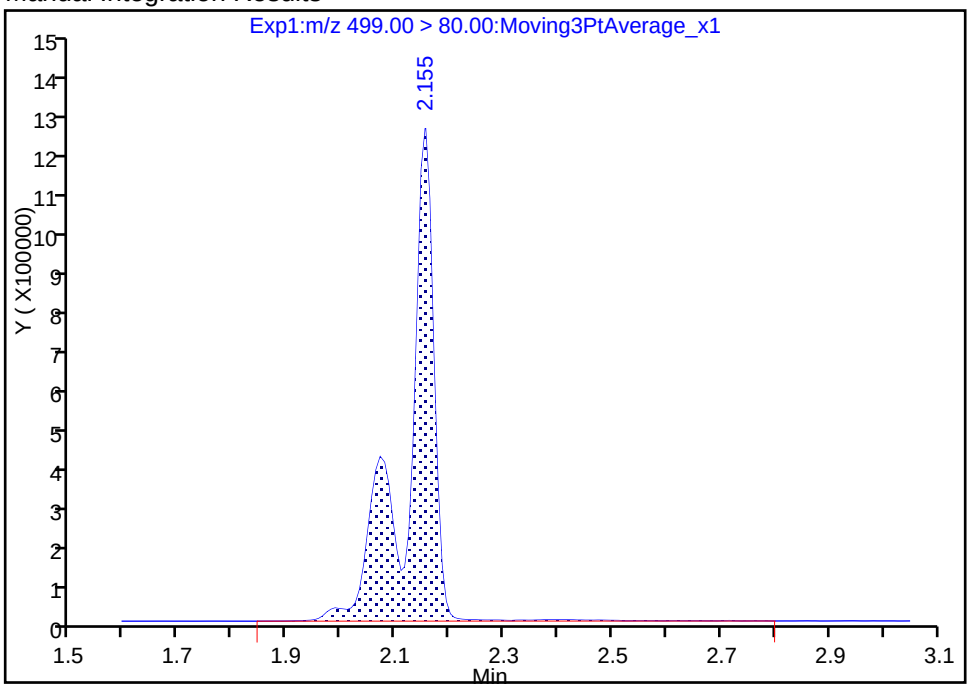
Not Detected
Expected RT: 2.15

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

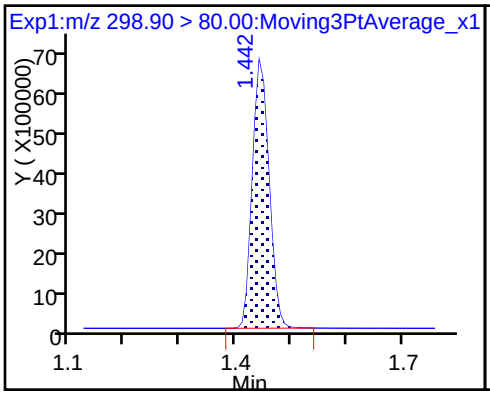
Client ID:

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

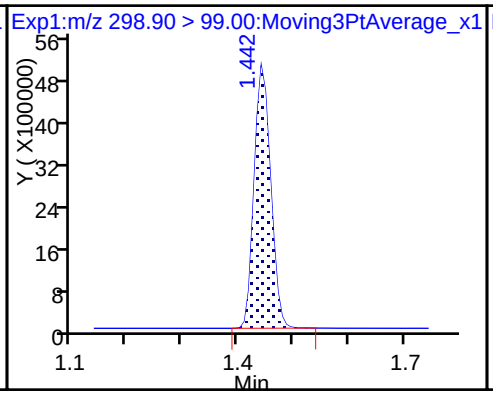
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

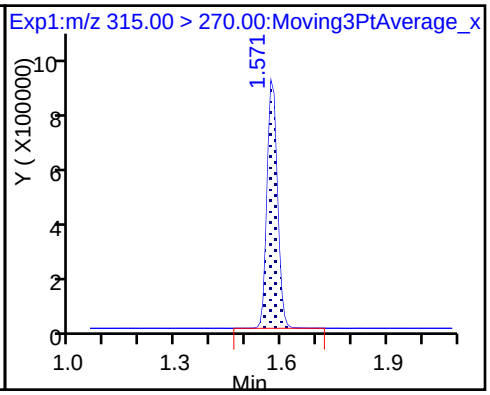
1 Perfluorobutanesulfonic acid



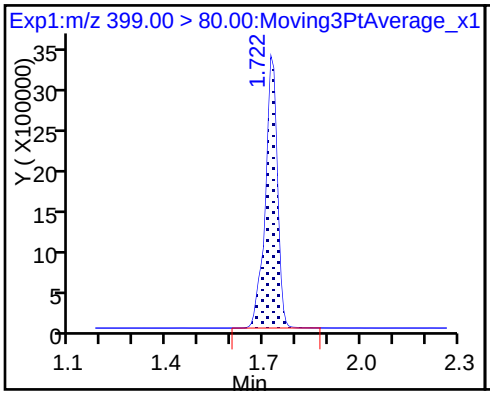
1 Perfluorobutanesulfonic acid



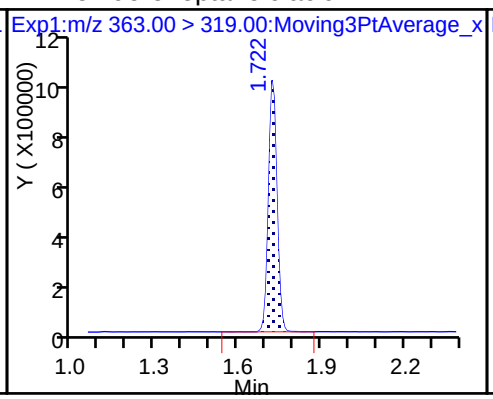
$ 2 13C2 PFHxA



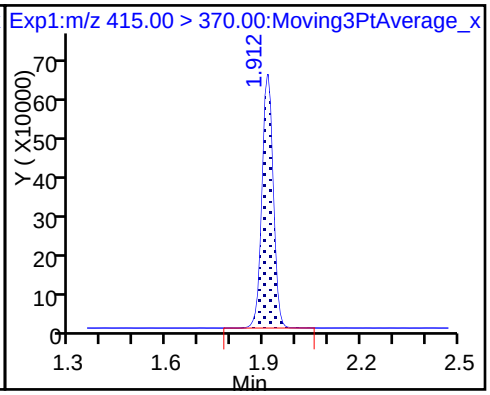
3 Perfluorohexanesulfonic acid



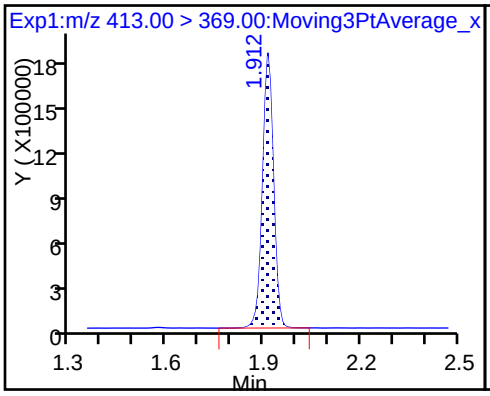
4 Perfluoroheptanoic acid



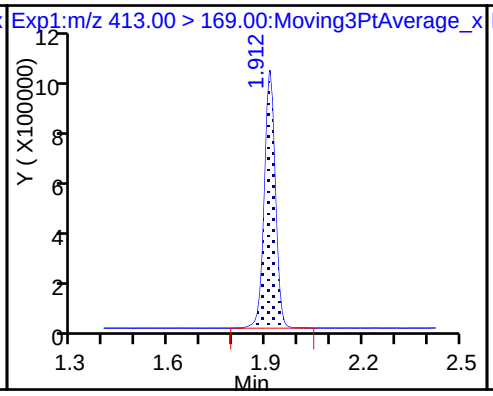
* 6 13C2-PFOA



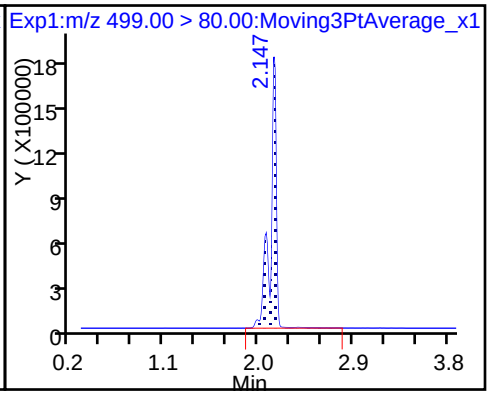
5 Perfluorooctanoic acid



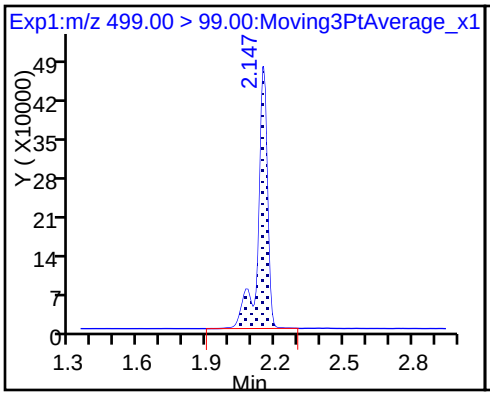
5 Perfluorooctanoic acid



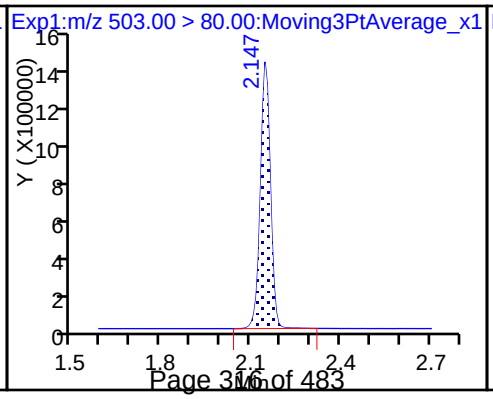
8 Perfluorooctane sulfonic acid



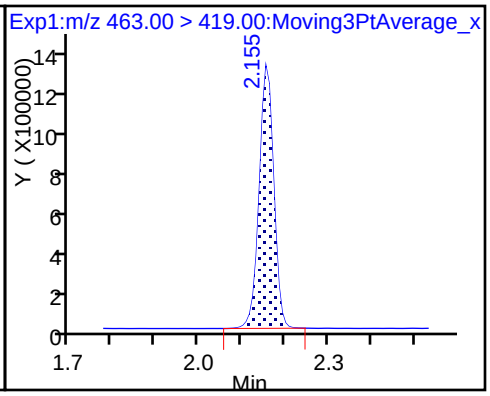
8 Perfluorooctane sulfonic acid



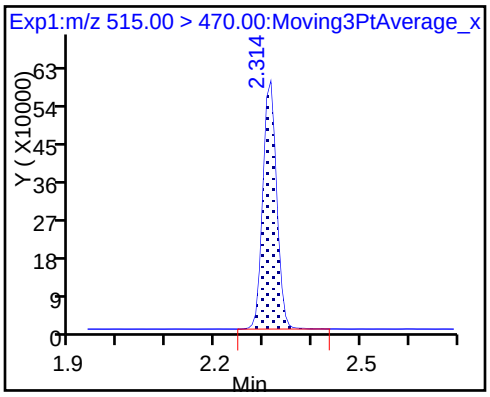
* 7 13C4 PFOS



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

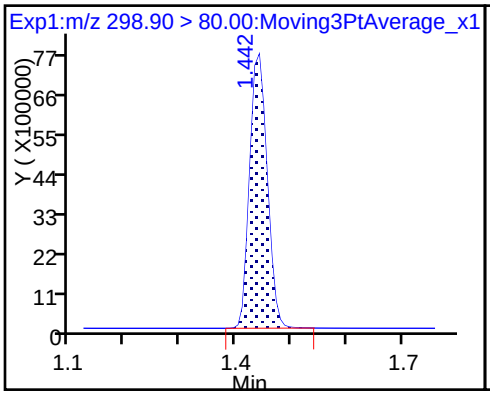
Client ID:

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

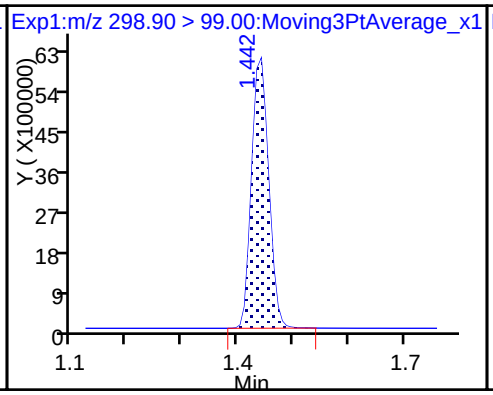
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

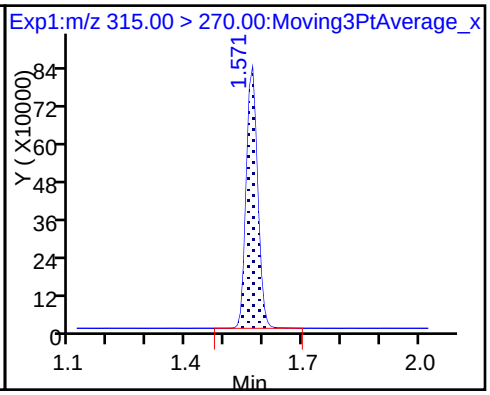
1 Perfluorobutanesulfonic acid



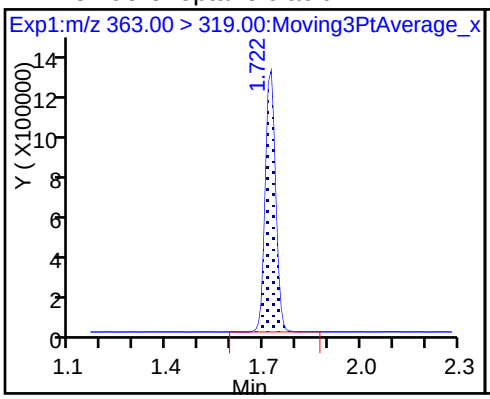
1 Perfluorobutanesulfonic acid



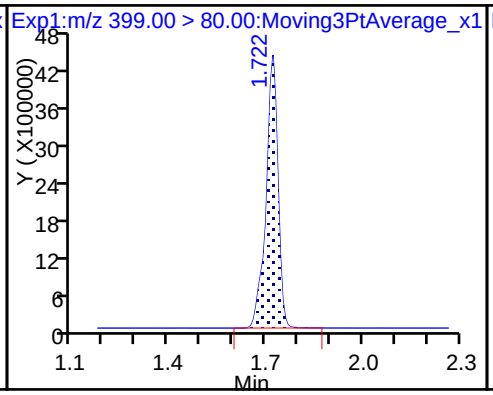
$ 2 13C2 PFHxA



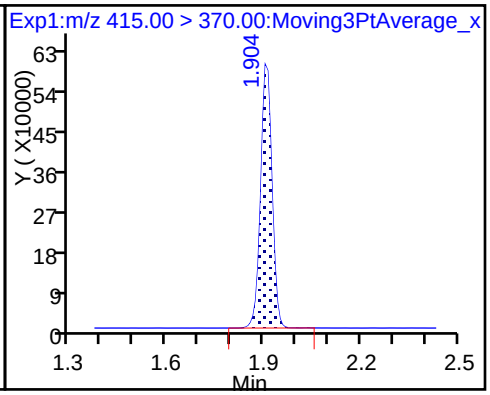
4 Perfluoroheptanoic acid



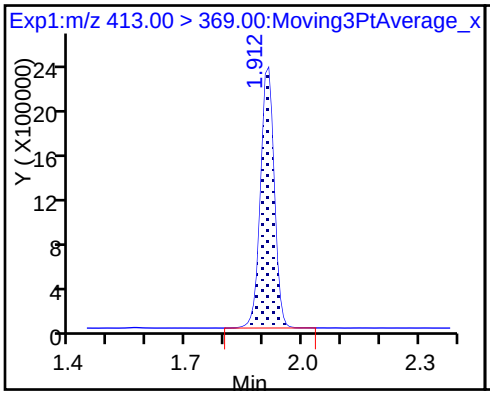
3 Perfluorohexanesulfonic acid



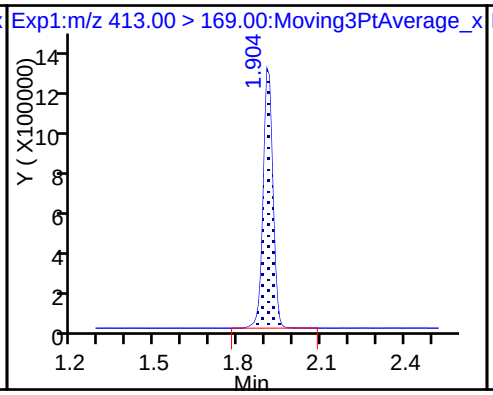
* 6 13C2-PFOA



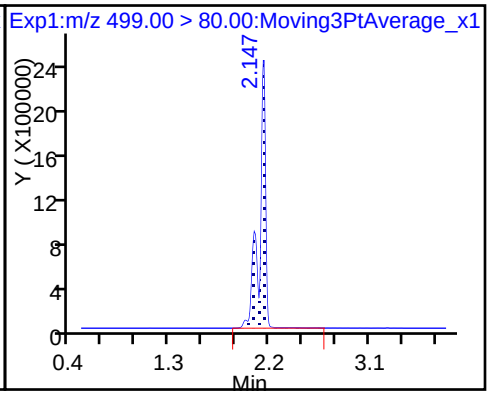
5 Perfluorooctanoic acid



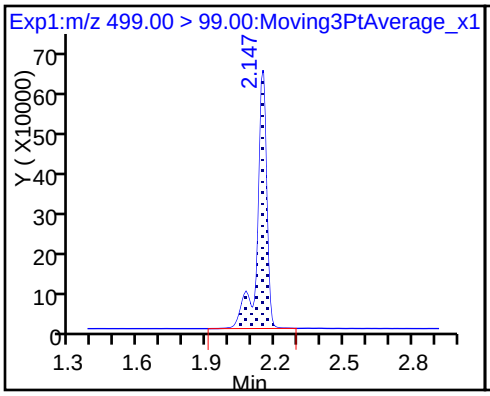
5 Perfluorooctanoic acid



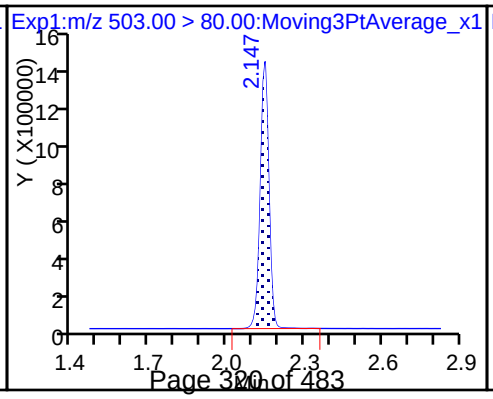
8 Perfluorooctane sulfonic acid



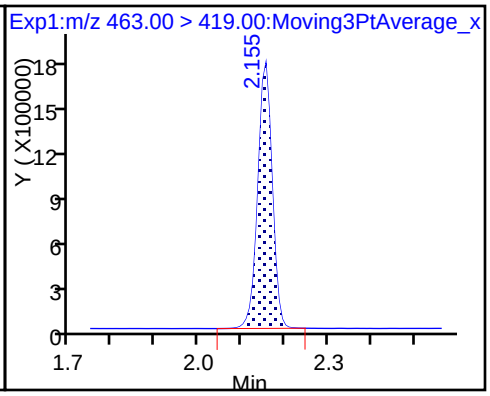
8 Perfluorooctane sulfonic acid



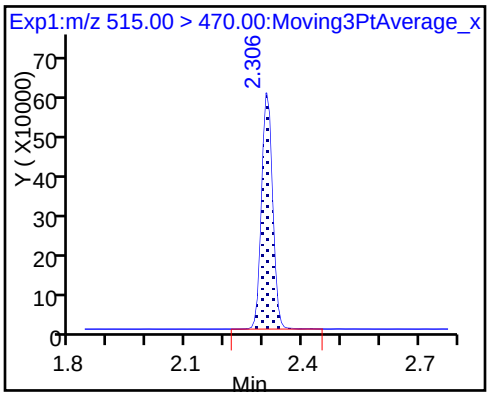
* 7 13C4 PFOS



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.: 320-34835-1

SDG No.: WE04

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

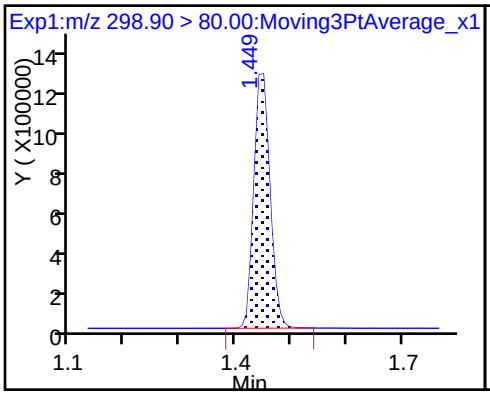
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11

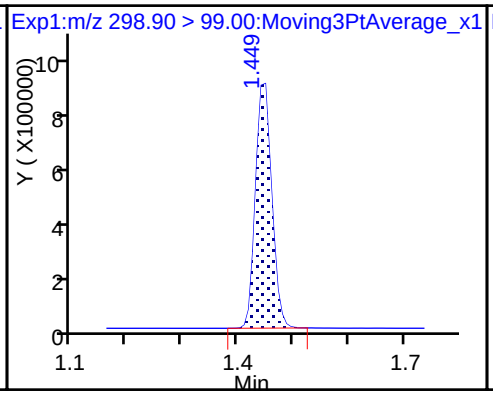
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

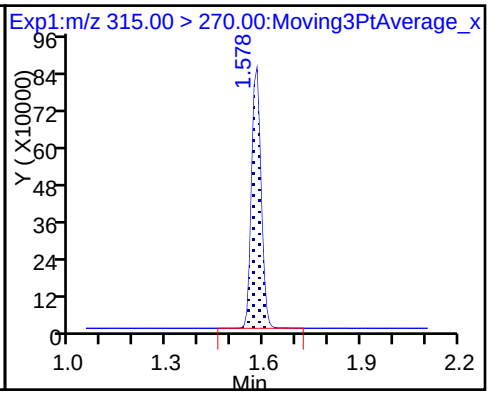
1 Perfluorobutanesulfonic acid



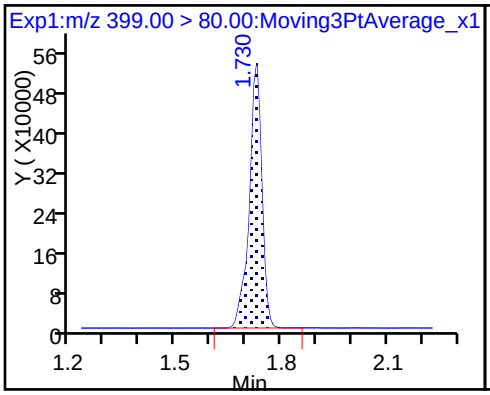
1 Perfluorobutanesulfonic acid



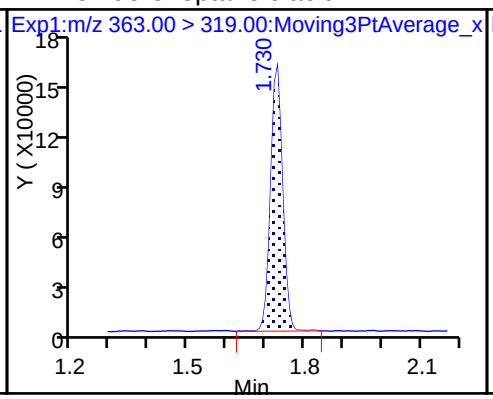
$ 2 13C2 PFHxA



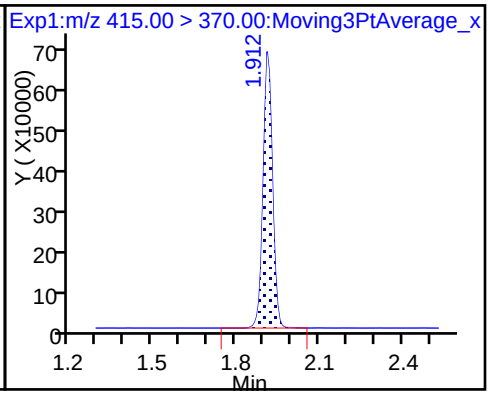
3 Perfluorohexanesulfonic acid



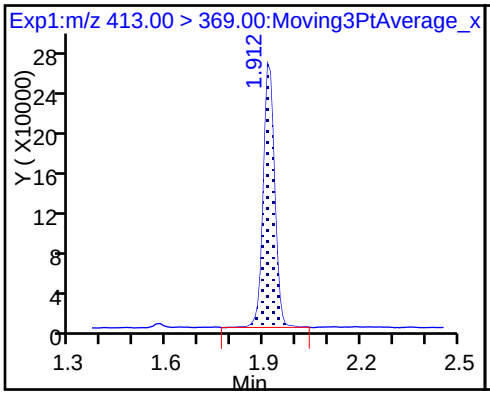
4 Perfluoroheptanoic acid



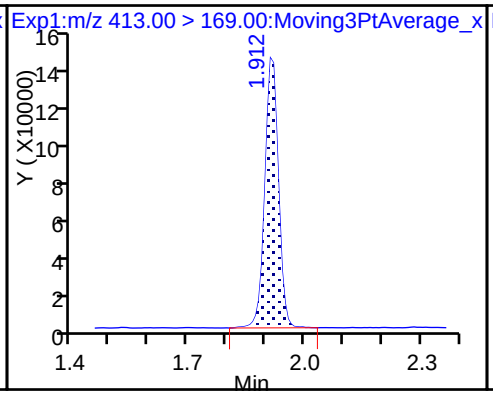
* 6 13C2-PFOA



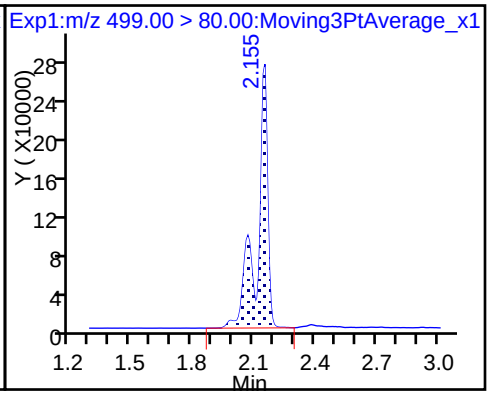
5 Perfluorooctanoic acid



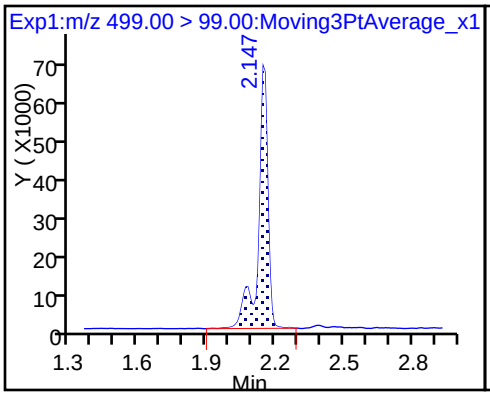
5 Perfluorooctanoic acid



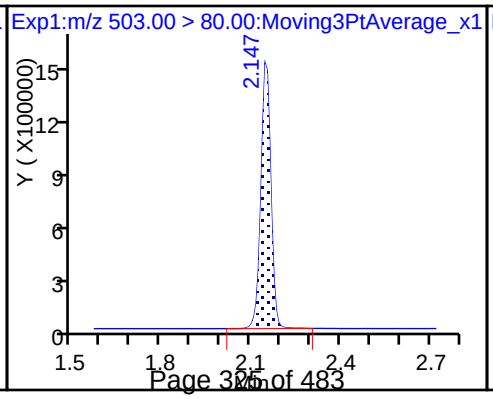
8 Perfluorooctane sulfonic acid



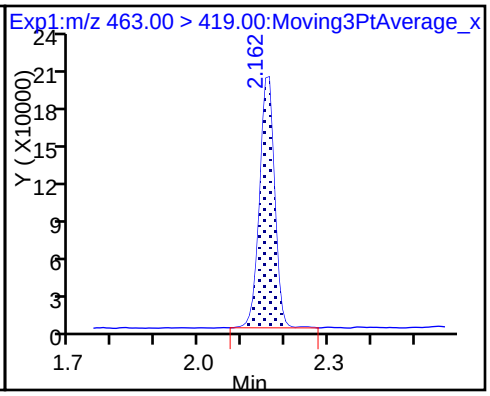
8 Perfluorooctane sulfonic acid



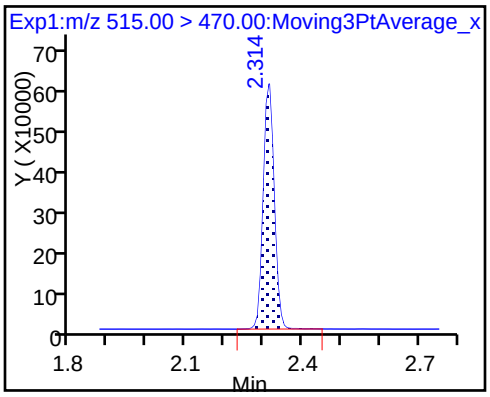
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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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.: 320-34835-1

SDG No.: WE04

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

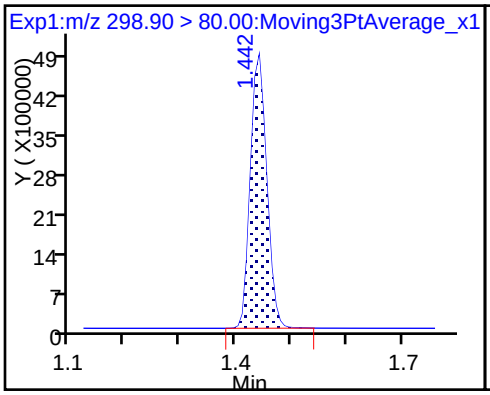
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13

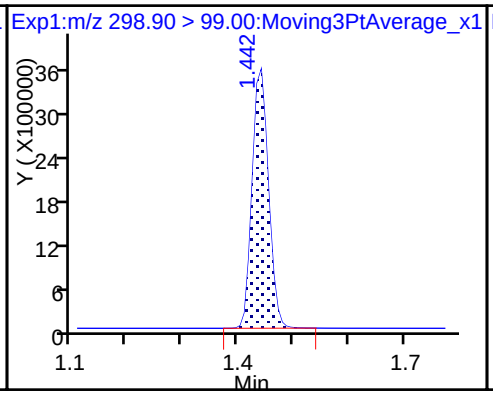
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

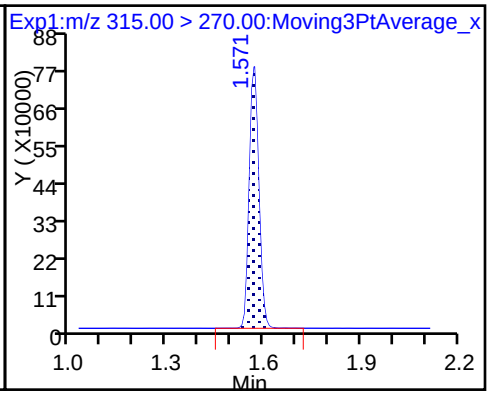
1 Perfluorobutanesulfonic acid



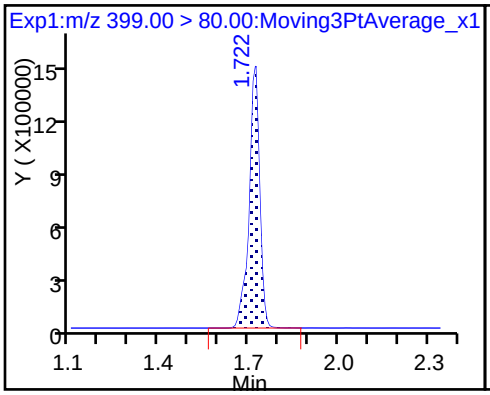
1 Perfluorobutanesulfonic acid



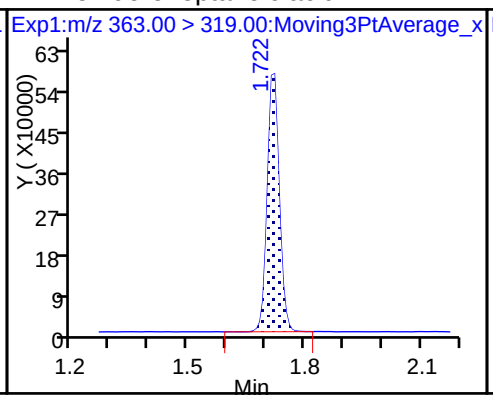
$ 2 13C2 PFHxA



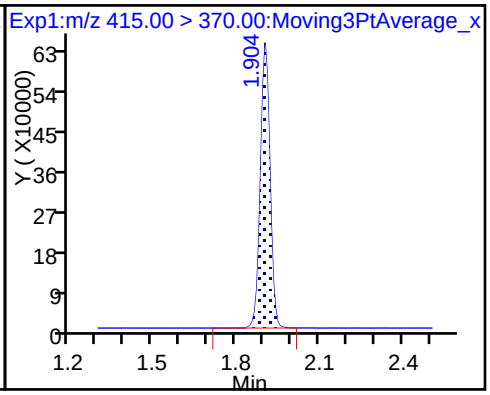
3 Perfluorohexanesulfonic acid



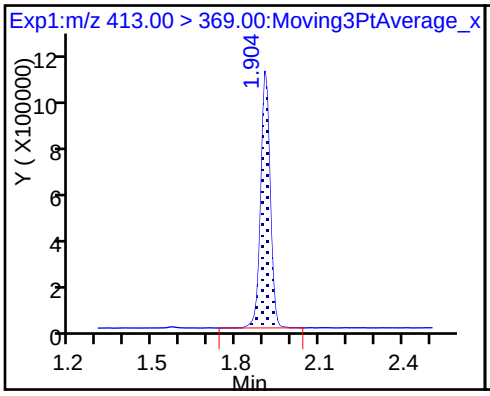
4 Perfluoroheptanoic acid



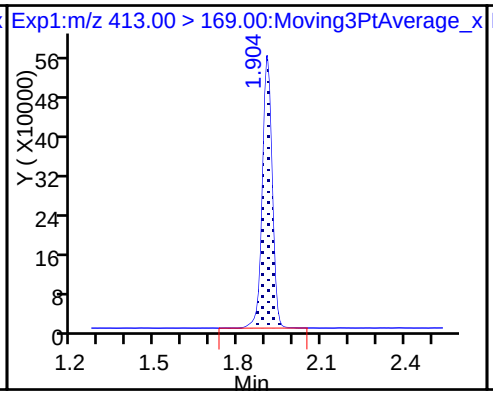
* 6 13C2-PFOA



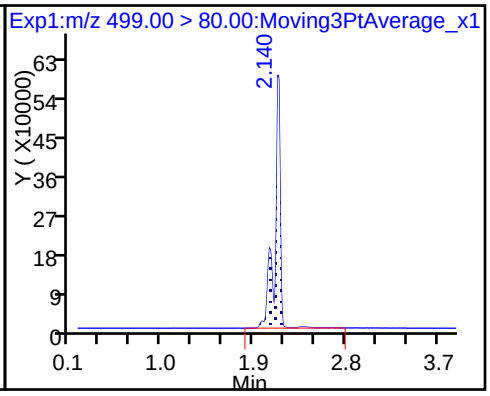
5 Perfluorooctanoic acid



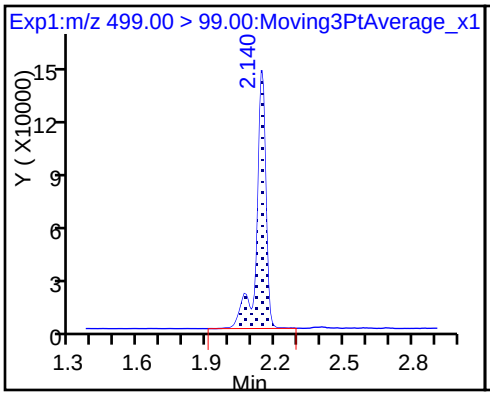
5 Perfluorooctanoic acid



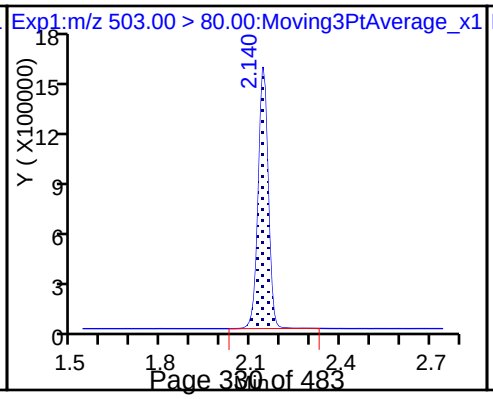
8 Perfluorooctane sulfonic acid



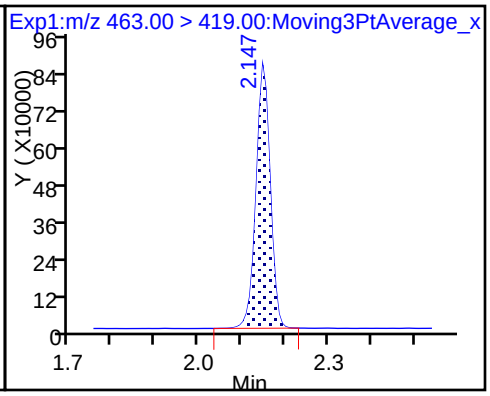
8 Perfluorooctane sulfonic acid



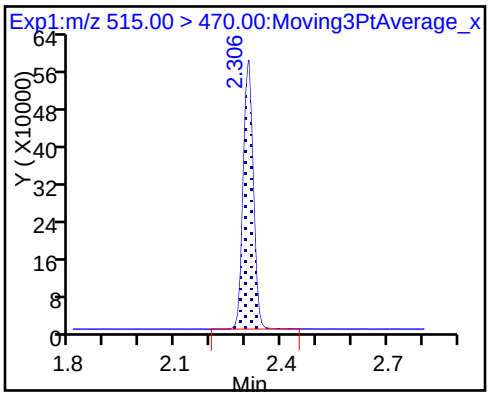
* 7 13C4 PFOS



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.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCVL 320-203796/1 Calibration Date: 01/12/2018 15:29

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: 2018.01.12_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		1.191		21.9	20.0	9.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.768		7.04	6.67	5.6	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9646		2.29	2.22	2.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9106		4.38	4.45	-1.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9589		9.08	8.89	2.1	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6229		4.17	4.45	-6.2	50.0
13C2 PFHxA	Ave	1.100	1.174		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.7652	0.6987		9.13	10.0	-8.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 12-Jan-2018 15:29:17 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\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:36:01 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:13:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	2729683	21.9		7886	
298.90 > 99.00	1.366	1.444	-0.078	1.000	1946632		1.40(0.00-0.00)	5200	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1865076	10.7		9622	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	1350466	7.04		3863	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	340661	2.29		121	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.913	-0.092		1588932	10.0		6359	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	643613	4.38		147	
413.00 > 169.00	1.813	1.914	-0.101	1.000	342198		1.88(0.00-0.00)	1225	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.079	2.056	0.023	1.000	976635	9.08		1895	
499.00 > 99.00	2.079	2.056	0.023	1.000	204625		4.77(0.00-0.00)	532	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.151	-0.072		3285434	28.7		9202	
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.158	-0.072	1.000	439997	4.17		163	
$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.312	-0.051	1.000	1110111	9.13		7040	

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 15-Jan-2018 13:36:02 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_004.d

Injection Date: 12-Jan-2018 15:29:17 Instrument ID: A8_N

Lims ID: CCVL

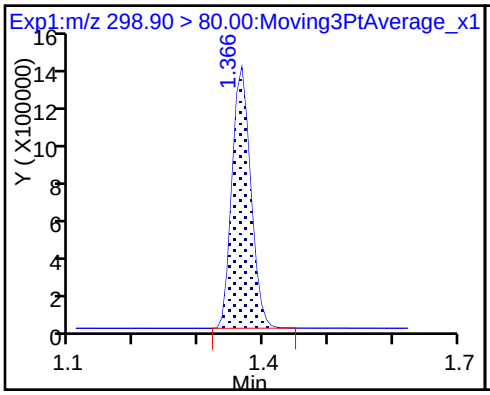
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1

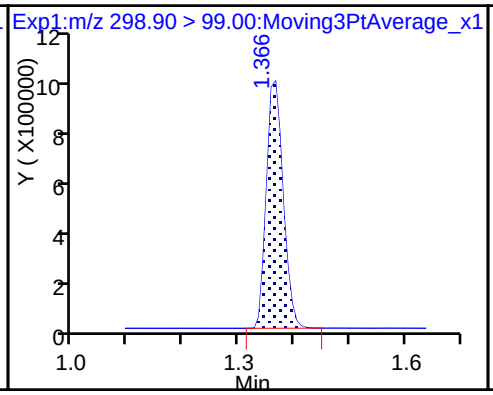
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

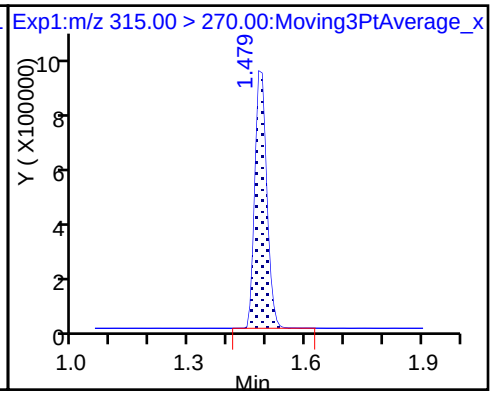
1 Perfluorobutanesulfonic acid



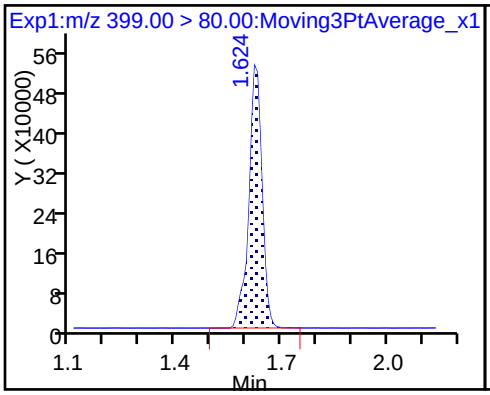
1 Perfluorobutanesulfonic acid



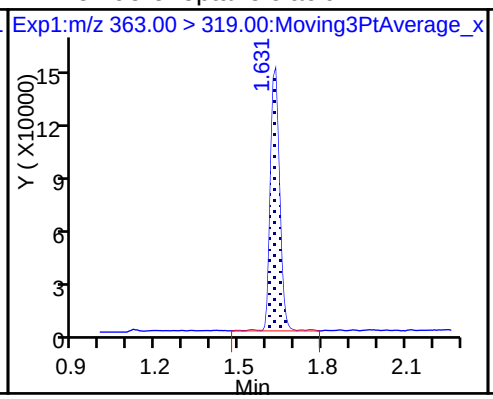
$ 2 13C2 PFHxA



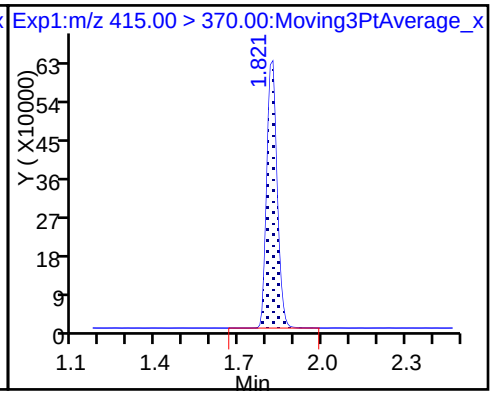
3 Perfluorohexanesulfonic acid



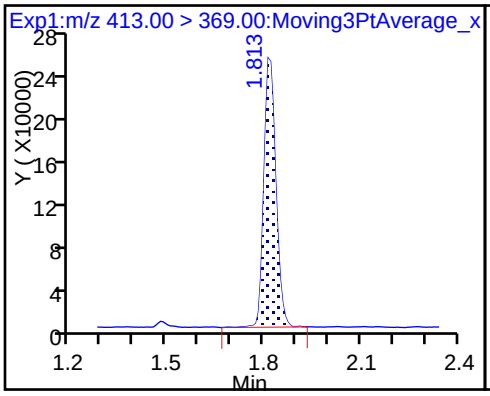
4 Perfluoroheptanoic acid



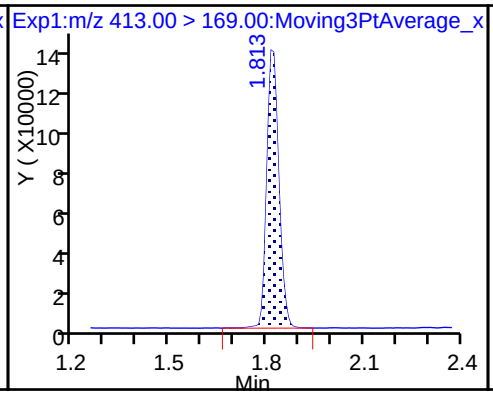
* 6 13C2-PFOA



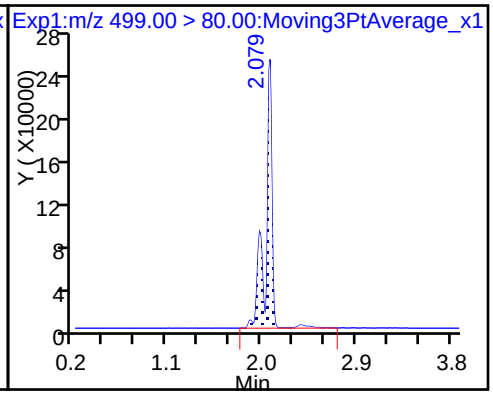
5 Perfluorooctanoic acid



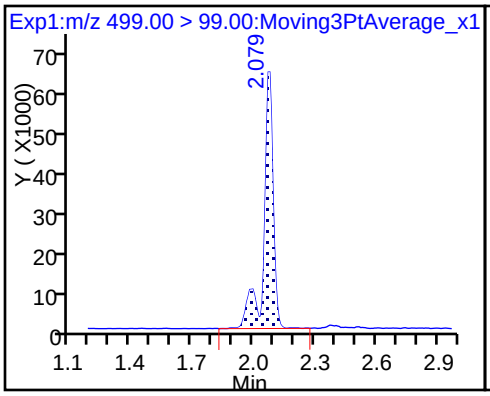
5 Perfluorooctanoic acid



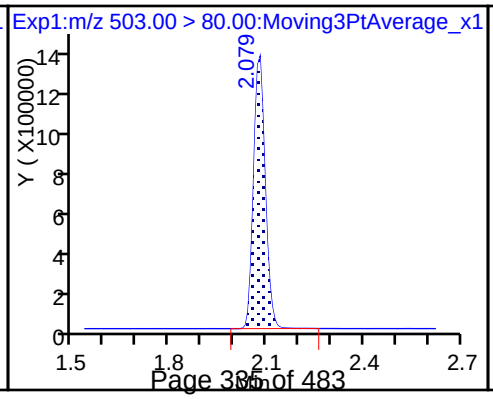
8 Perfluorooctane sulfonic acid



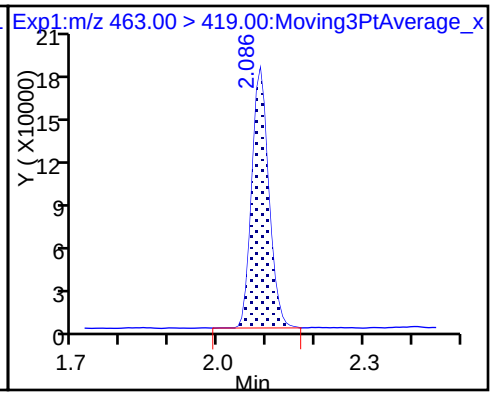
8 Perfluorooctane sulfonic acid



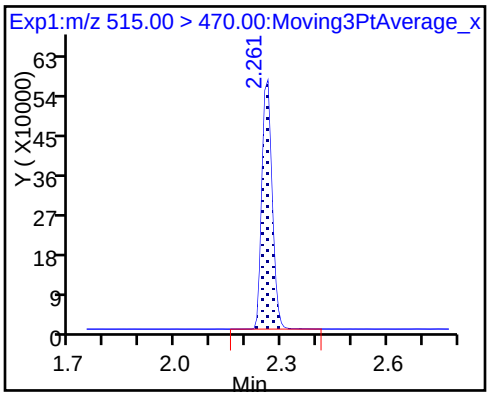
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.261
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203801/24 Calibration Date: 01/12/2018 17:16

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: 2018.01.12_537A_045.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.996		150	135	11.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.775		47.7	45.0	6.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9839		15.8	15.0	5.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9307		30.2	30.0	0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9852		63.0	60.0	4.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6565		29.7	30.0	-1.1	30.0
13C2 PFHxA	Ave	1.100	1.178		10.7	10.0	7.1	30.0
13C2 PFDA	Ave	0.7652	0.7399		9.67	10.0	-3.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_045.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 12-Jan-2018 17:16:36 ALS Bottle#: 5 Worklist Smp#: 24
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\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:29:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	14445339	150.4		18157	
298.90 > 99.00	1.358	1.444	-0.086	1.000	11302026		1.28(0.00-0.00)	17279	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1707486	10.7		10130	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	8579233	47.7		14369	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2139651	15.8		709	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1449500	10.0		5795	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	4050447	30.2		716	
413.00 > 169.00	1.806	1.914	-0.108	1.000	2184821		1.85(0.00-0.00)	4352	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6350502	63.0		6936	
499.00 > 99.00	2.056	2.056	0.0	1.000	1322202		4.80(0.00-0.00)	3428	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3080512	28.7		7290	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	2855467	29.7		739	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1072468	9.67		6320	

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 15-Jan-2018 13:47:06 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_045.d

Injection Date: 12-Jan-2018 17:16:36 Instrument ID: A8_N

Lims ID: CCV L5

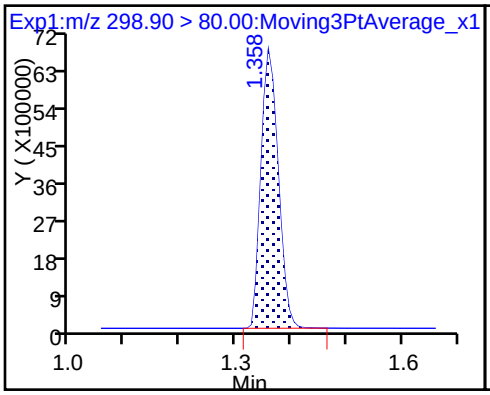
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 24

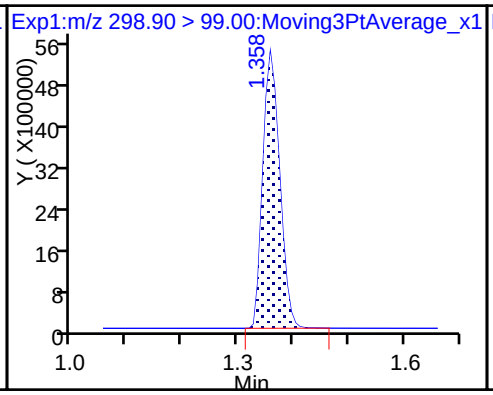
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

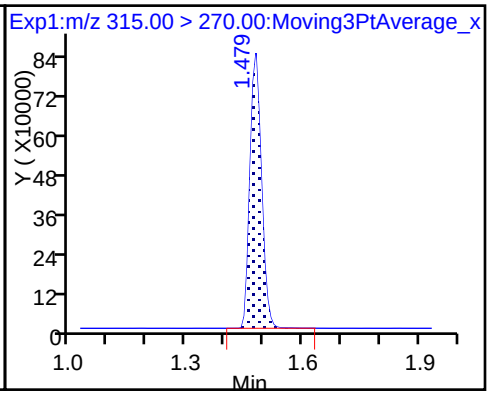
1 Perfluorobutanesulfonic acid



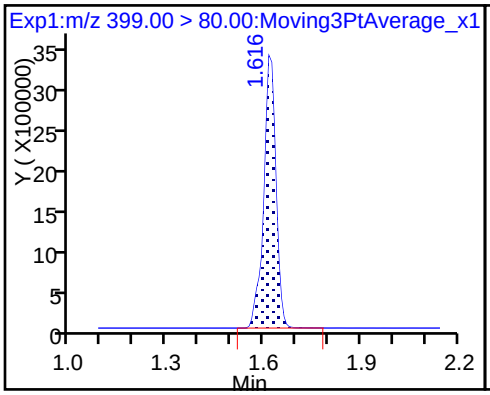
1 Perfluorobutanesulfonic acid



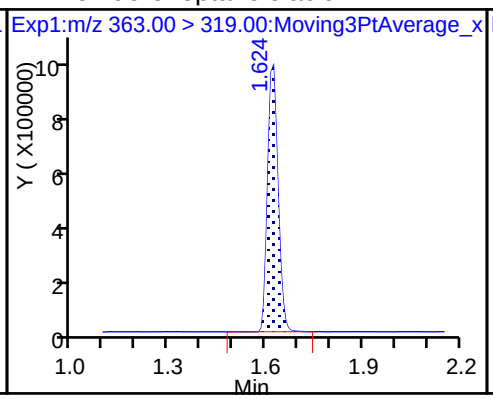
$ 2 13C2 PFHxA



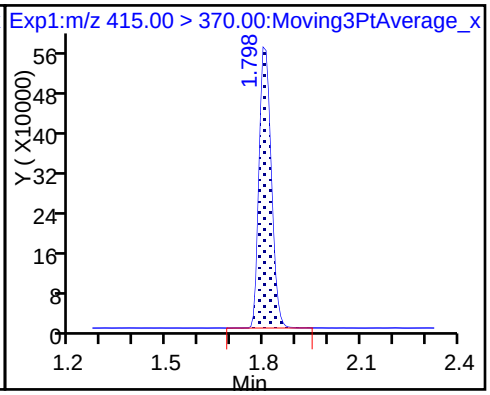
3 Perfluorohexanesulfonic acid



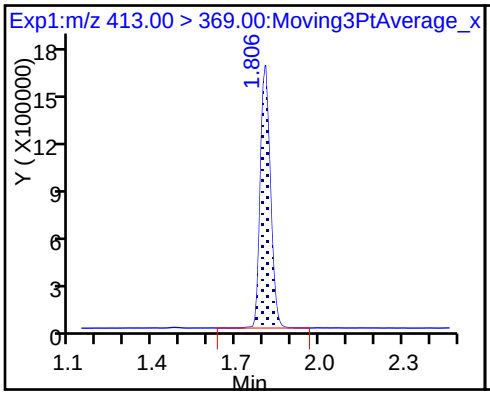
4 Perfluoroheptanoic acid



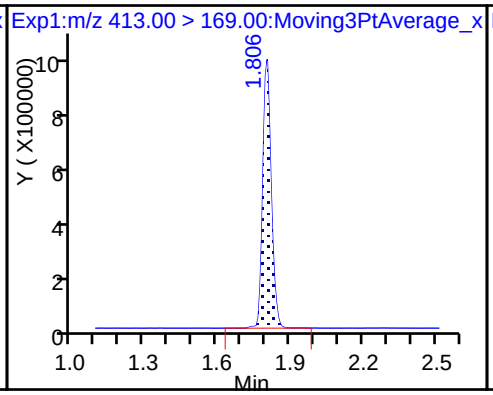
* 6 13C2-PFOA



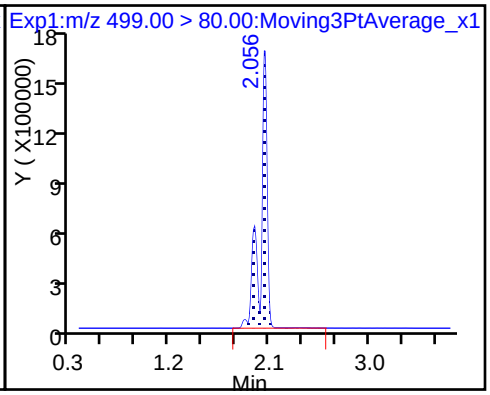
5 Perfluorooctanoic acid



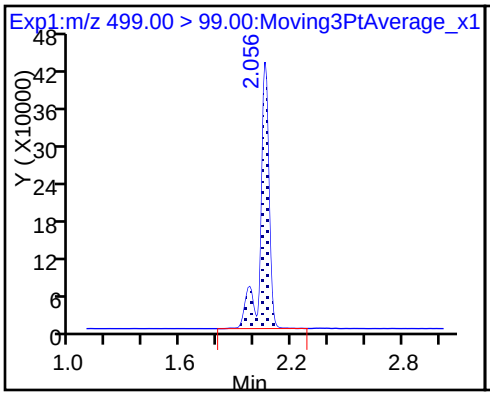
5 Perfluorooctanoic acid



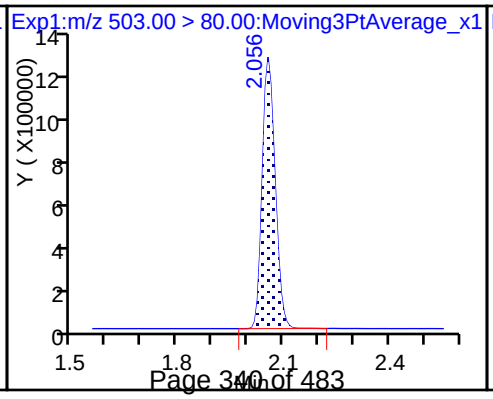
8 Perfluorooctane sulfonic acid



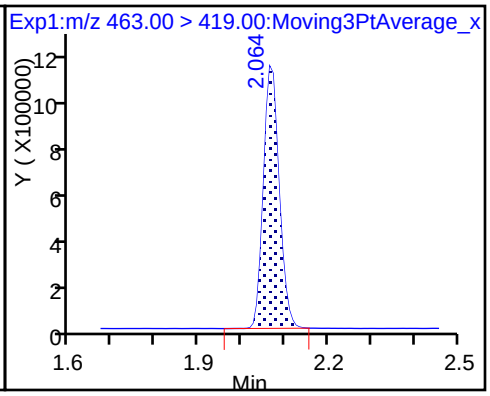
8 Perfluorooctane sulfonic acid



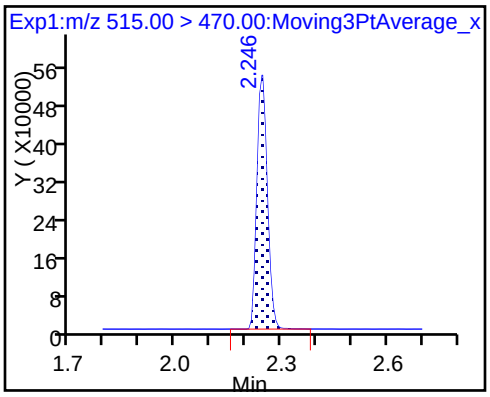
* 7 13C4 PFOS



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

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203801/36 Calibration Date: 01/12/2018 18:22

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: 2018.01.12_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		1.157		49.9	45.0	10.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9321		4.98	5.00	-0.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.845		16.5	15.0	10.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8734		9.44	10.0	-5.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9795		20.9	20.0	4.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6241		9.40	10.0	-6.0	30.0
13C2 PFHxA	Ave	1.100	1.138		10.3	10.0	3.4	30.0
13C2 PFDA	Ave	0.7652	0.7153		9.35	10.0	-6.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203803/36 Calibration Date: 01/12/2018 18:22

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: 2018.01.12_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		1.157		49.9	45.0	10.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9321		4.98	5.00	-0.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.845		16.5	15.0	10.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8734		9.44	10.0	-5.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9795		20.9	20.0	4.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6241		9.40	10.0	-6.0	30.0
13C2 PFHxA	Ave	1.100	1.138		10.3	10.0	3.4	30.0
13C2 PFDA	Ave	0.7652	0.7153		9.35	10.0	-6.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_017.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 12-Jan-2018 18:22:00 ALS Bottle#: 3 Worklist Smp#: 36
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\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:20 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	5687602	49.9		12577	
298.90 > 99.00	1.358	1.444	-0.086	1.000	4236459		1.34(0.00-0.00)	9434	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1773680	10.3		8690	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	3023375	16.5		7499	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	726787	4.98		245	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1559037	10.0		6573	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	1362852	9.44		251	
413.00 > 169.00	1.806	1.914	-0.108	1.000	738673		1.85(0.00-0.00)	2193	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	2139962	20.9		3019	
499.00 > 99.00	2.056	2.056	0.0	1.000	446417		4.79(0.00-0.00)	1201	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3132099	28.7		8100	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	973178	9.40		252	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1115151	9.35		6485	

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_017.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 12-Jan-2018 18:22:00 ALS Bottle#: 3 Worklist Smp#: 36
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\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:20 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:31:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	5687602	49.9		12577	
298.90 > 99.00	1.358	1.444	-0.086	1.000	4236459		1.34(0.00-0.00)	9434	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1773680	10.3		8690	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	3023375	16.5		7499	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	726787	4.98		245	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1559037	10.0		6573	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	1362852	9.44		251	
413.00 > 169.00	1.806	1.914	-0.108	1.000	738673		1.85(0.00-0.00)	2193	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	2139962	20.9		3019	
499.00 > 99.00	2.056	2.056	0.0	1.000	446417		4.79(0.00-0.00)	1201	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3132099	28.7		8100	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	973178	9.40		252	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1115151	9.35		6485	

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 15-Jan-2018 13:47:21 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_017.d

Injection Date: 12-Jan-2018 18:22:00 Instrument ID: A8_N

Lims ID: CCV L3

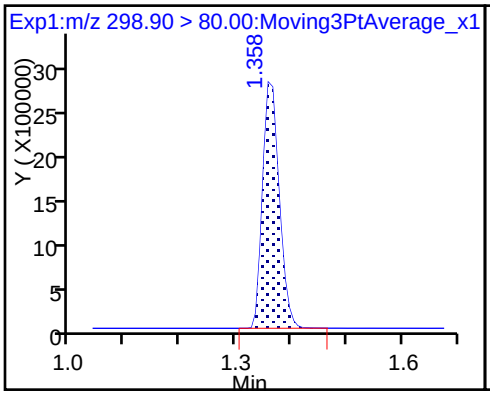
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 36

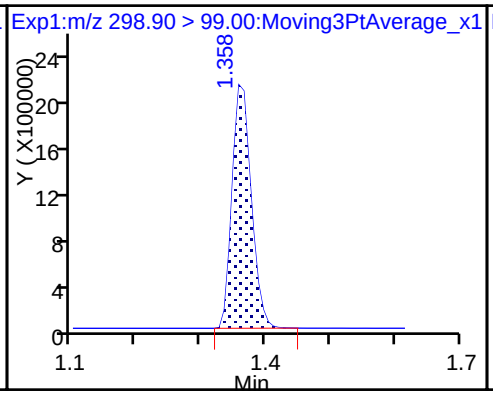
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

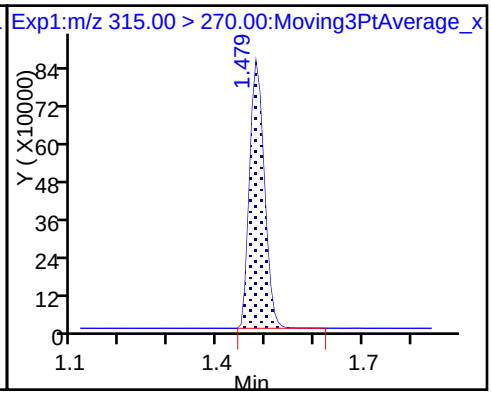
1 Perfluorobutanesulfonic acid



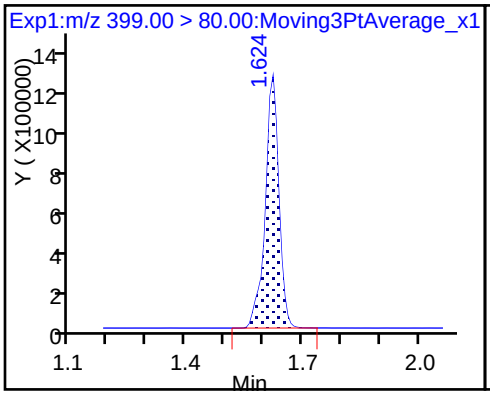
1 Perfluorobutanesulfonic acid



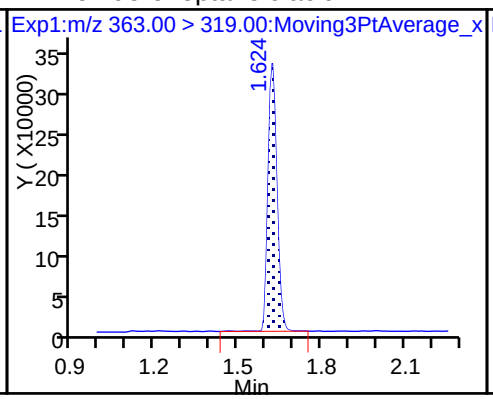
$ 2 13C2 PFHxA



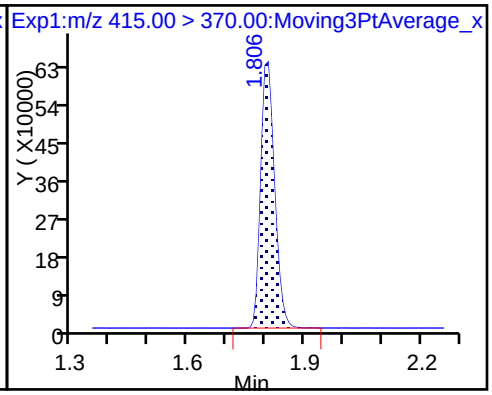
3 Perfluorohexanesulfonic acid



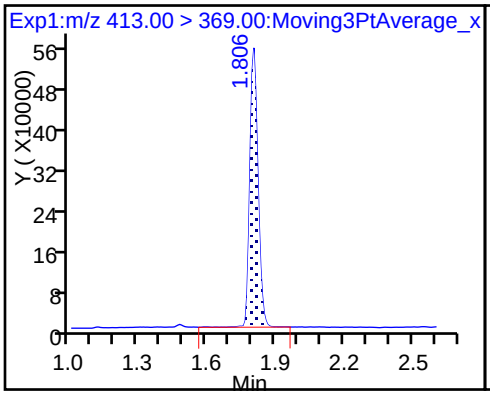
4 Perfluoroheptanoic acid



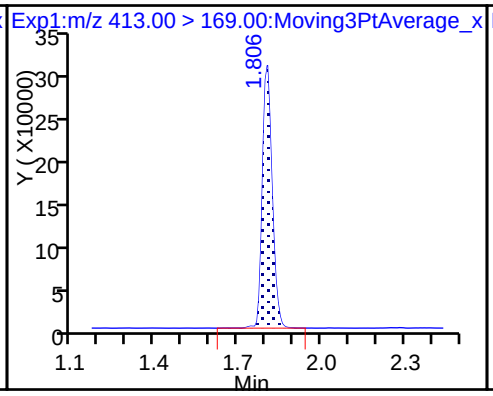
* 6 13C2-PFOA



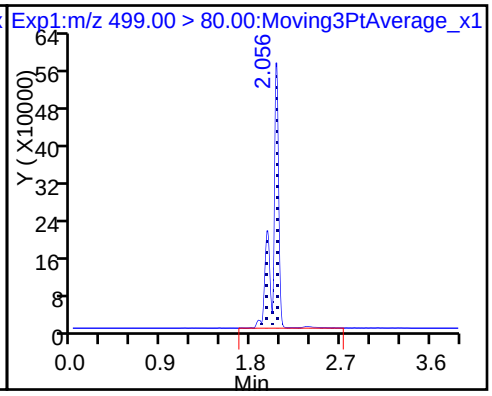
5 Perfluorooctanoic acid



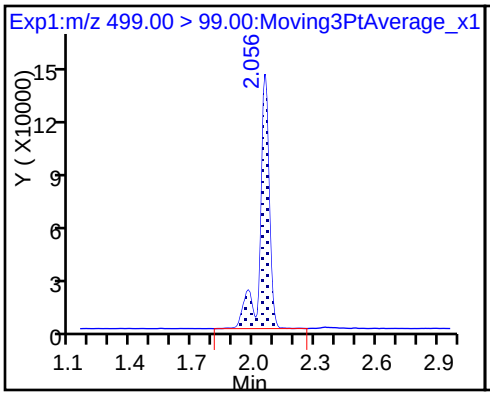
5 Perfluorooctanoic acid



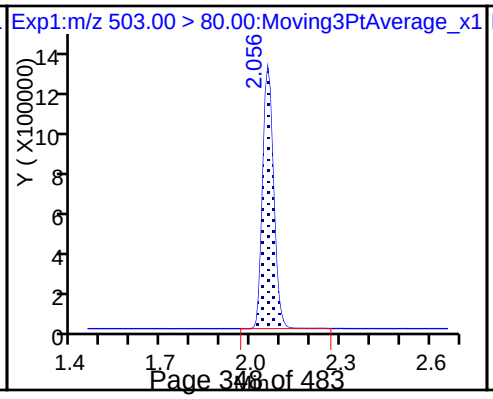
8 Perfluorooctane sulfonic acid



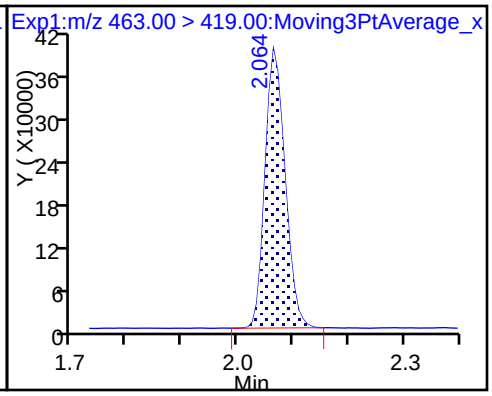
8 Perfluorooctane sulfonic acid



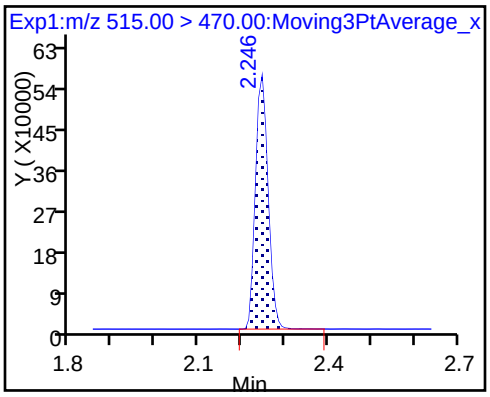
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

Report Date: 15-Jan-2018 13:47:22 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_017.d

Injection Date: 12-Jan-2018 18:22:00 Instrument ID: A8_N

Lims ID: CCV L3

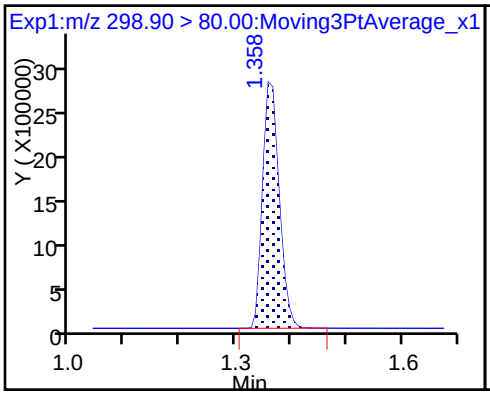
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 36

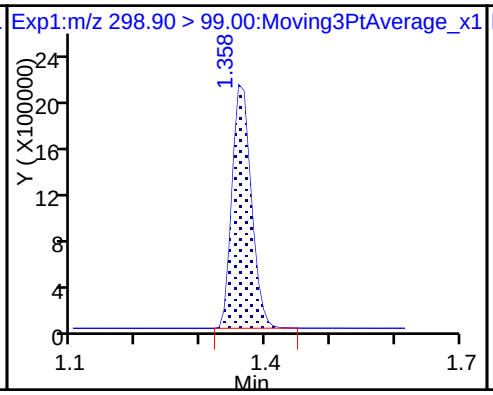
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

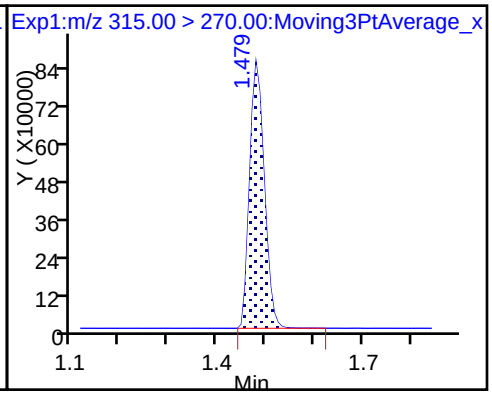
1 Perfluorobutanesulfonic acid



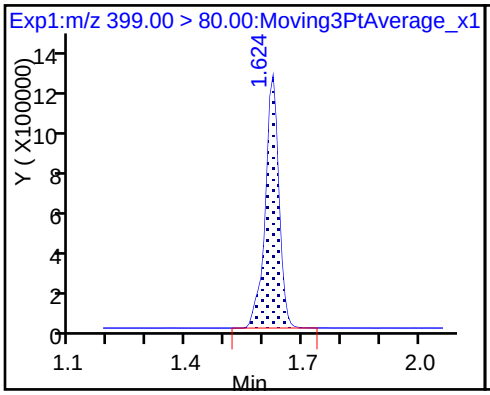
1 Perfluorobutanesulfonic acid



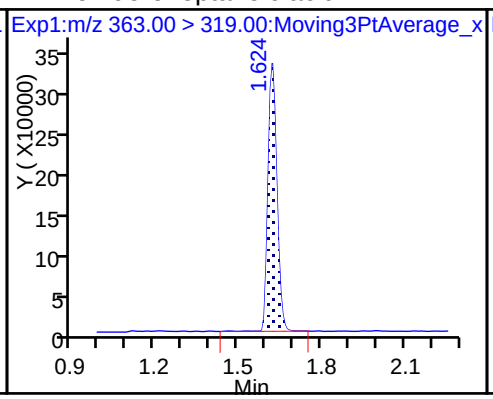
$ 2 13C2 PFHxA



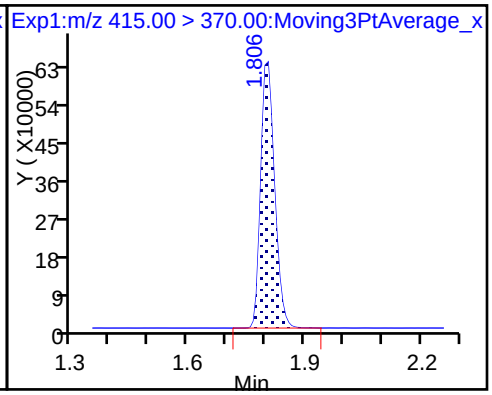
3 Perfluorohexanesulfonic acid



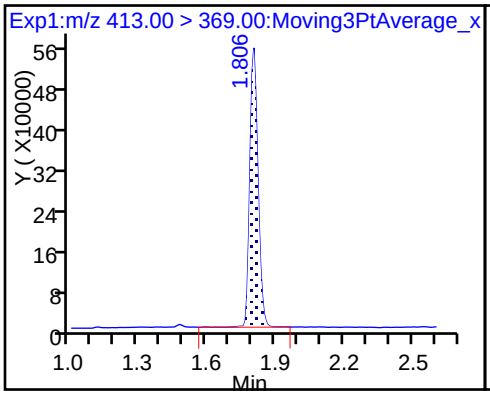
4 Perfluoroheptanoic acid



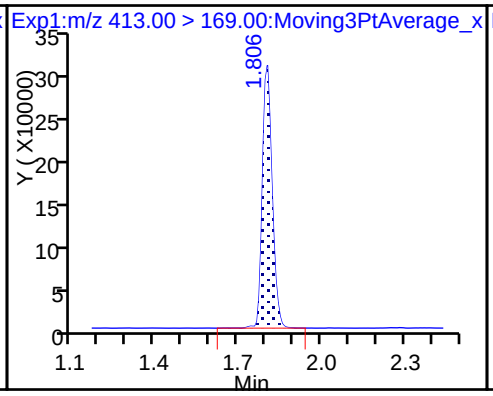
* 6 13C2-PFOA



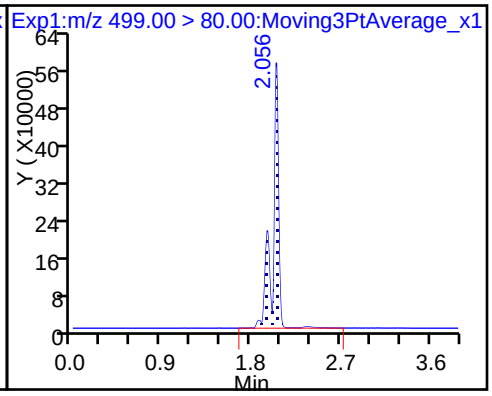
5 Perfluorooctanoic acid



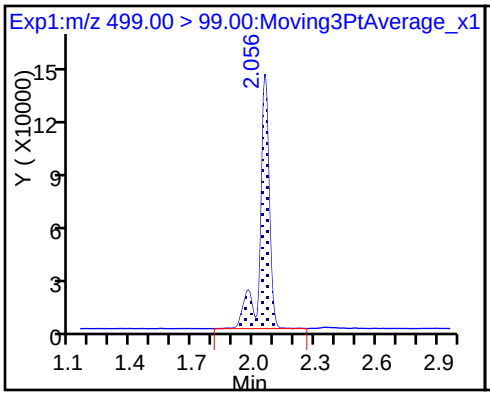
5 Perfluorooctanoic acid



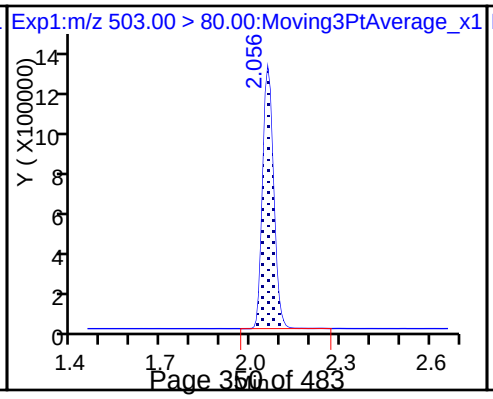
8 Perfluorooctane sulfonic acid



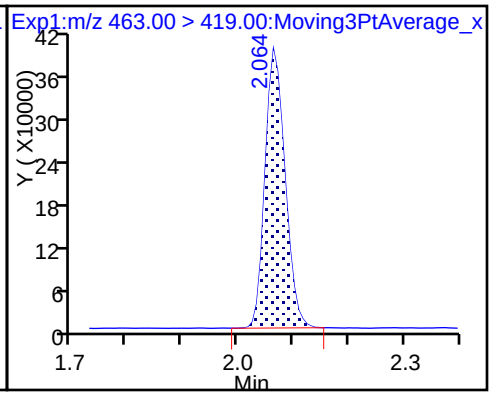
8 Perfluorooctane sulfonic acid



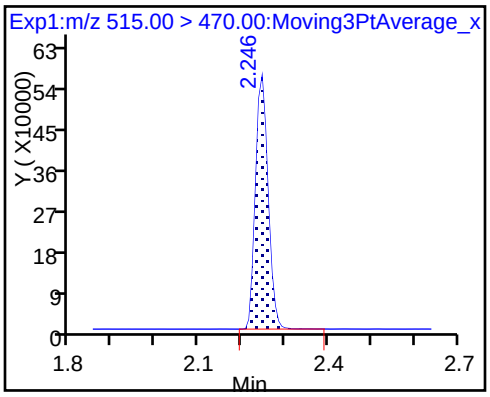
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203803/40 Calibration Date: 01/12/2018 18:40

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: 2018.01.12_537A_021.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9678		145	135	7.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9206		14.7	15.0	-1.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.715		46.1	45.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8908		28.9	30.0	-3.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9424		60.2	60.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6243		28.2	30.0	-6.0	30.0
13C2 PFHxA	Ave	1.100	1.144		10.4	10.0	4.0	30.0
13C2 PFDA	Ave	0.7652	0.6976		9.12	10.0	-8.8	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_021.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 12-Jan-2018 18:40:41 ALS Bottle#: 5 Worklist Smp#: 40
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\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:27 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:32:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	14627686	144.8		17284	
298.90 > 99.00	1.366	1.444	-0.078	1.000	11135620		1.31(0.00-0.00)	16227	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1738090	10.4		9690	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	8642011	46.1		14269	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2098522	14.7		725	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1519356	10.0		6420	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	4063579	28.9		746	
413.00 > 169.00	1.806	1.914	-0.108	1.000	2235504		1.82(0.00-0.00)	6033	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6331623	60.2		8477	
499.00 > 99.00	2.056	2.056	0.0	1.000	1316203		4.81(0.00-0.00)	2992	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3210832	28.7		7676	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	2845900	28.2		716	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1059922	9.12		6164	

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 15-Jan-2018 13:47:27 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_021.d

Injection Date: 12-Jan-2018 18:40:41 Instrument ID: A8_N

Lims ID: CCV L5

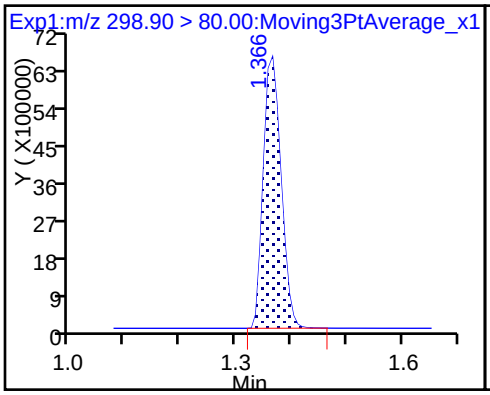
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 40

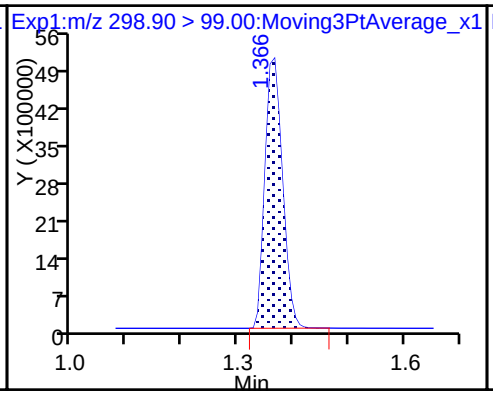
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

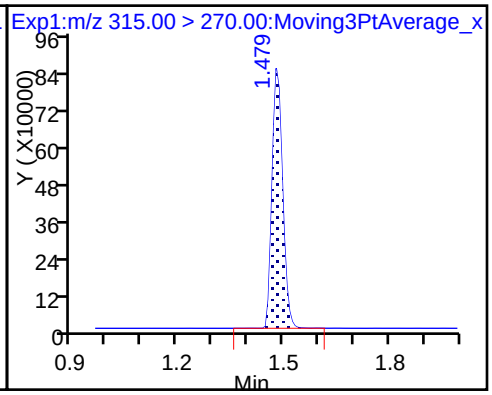
1 Perfluorobutanesulfonic acid



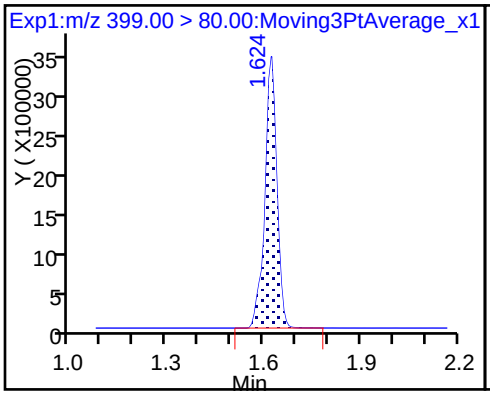
1 Perfluorobutanesulfonic acid



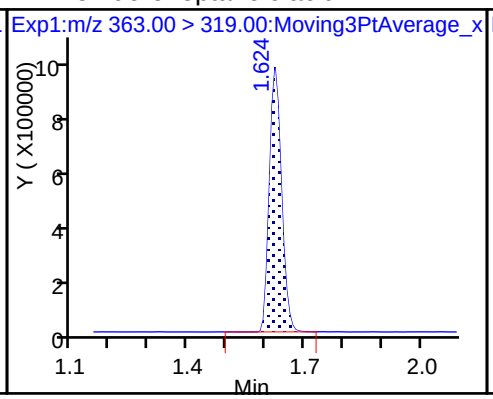
$ 2 13C2 PFHxA



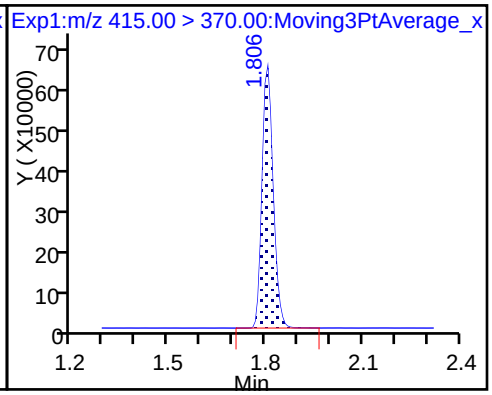
3 Perfluorohexanesulfonic acid



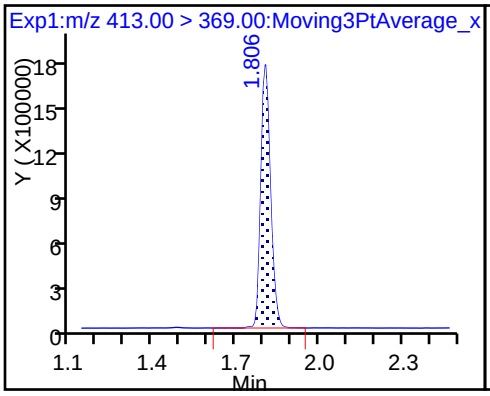
4 Perfluoroheptanoic acid



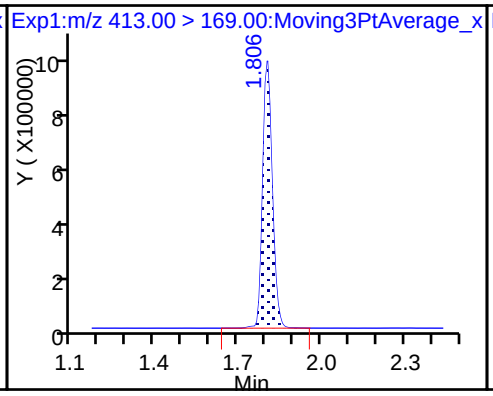
* 6 13C2-PFOA



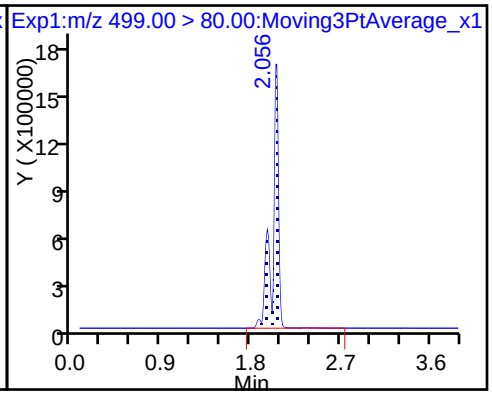
5 Perfluorooctanoic acid



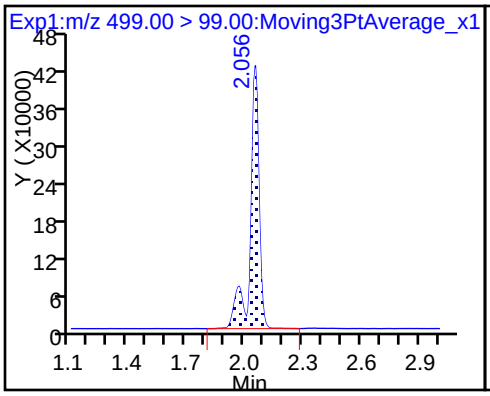
5 Perfluorooctanoic acid



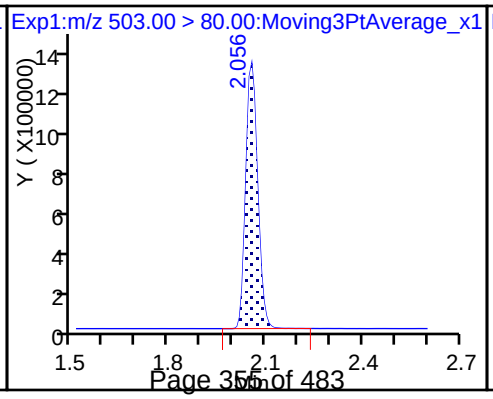
8 Perfluorooctane sulfonic acid



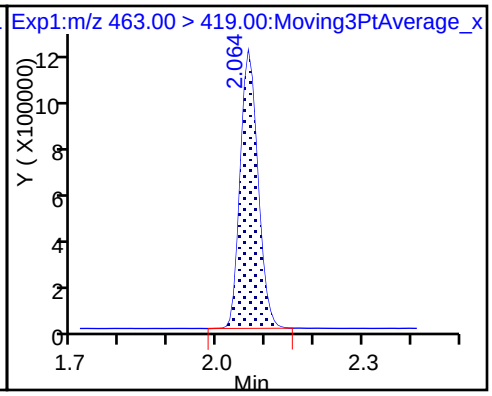
8 Perfluorooctane sulfonic acid



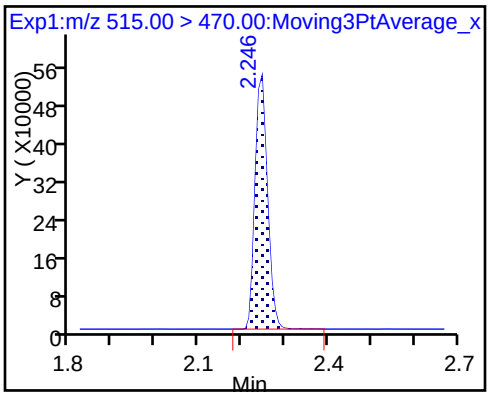
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
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.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCVL 320-204450/1 Calibration Date: 01/18/2018 08:24

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: 2018.01.18_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.126		20.7	20.0	3.5	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9508		2.26	2.22	1.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.738		6.92	6.67	3.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9470		4.55	4.45	2.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9321		8.83	8.89	-0.7	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6423		4.30	4.45	-3.3	50.0
13C2 PFHxA	Ave	1.100	1.119		10.2	10.0	1.7	30.0
13C2 PFDA	Ave	0.7652	0.7514		9.82	10.0	-1.8	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180118-53041.b\2018.01.18_537A_004.d
Lims ID: CCVL
Client ID:
Sample Type: CCVL
Inject. Date: 18-Jan-2018 08:24:13 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\20180118-53041.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 18-Jan-2018 10:28:51 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: XAWRK021

First Level Reviewer: phomsophat Date: 18-Jan-2018 10:16:11

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	1.444	-0.078	1.000	2469769	20.7		9969	
298.90 > 99.00	1.366	1.444	-0.078	1.000	1887732		1.31(0.00-0.00)	6072	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1662807	10.2		6887	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	1271010	6.92		2747	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	314171	2.26		147	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1486601	10.0		5541	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	626227	4.55		238	
413.00 > 169.00	1.813	1.914	-0.101	1.000	327597		1.91(0.00-0.00)	976	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.056	0.015	1.000	908667	8.83		159	
499.00 > 99.00	2.064	2.056	0.008	0.996	191770		4.74(0.00-0.00)	189	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.151	-0.080		3144562	28.7		8371	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.158	-0.079	1.000	424440	4.30		252	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1116956	9.82		6345	

Reagents:

LC537-L2_00020 Amount Added: 1.00 Units: mL

Report Date: 18-Jan-2018 10:28:52 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180118-53041.b\2018.01.18_537A_004.d

Injection Date: 18-Jan-2018 08:24:13 Instrument ID: A8_N

Lims ID: CCVL

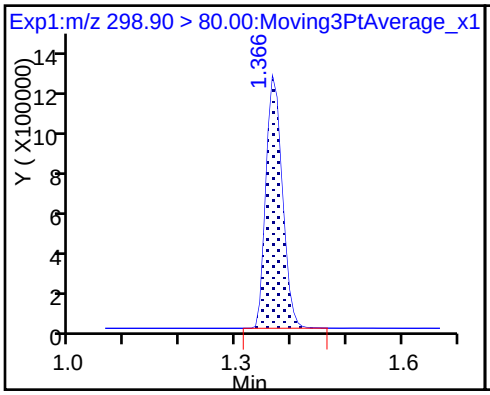
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1

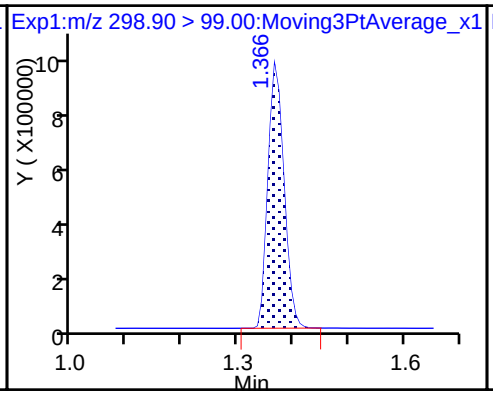
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

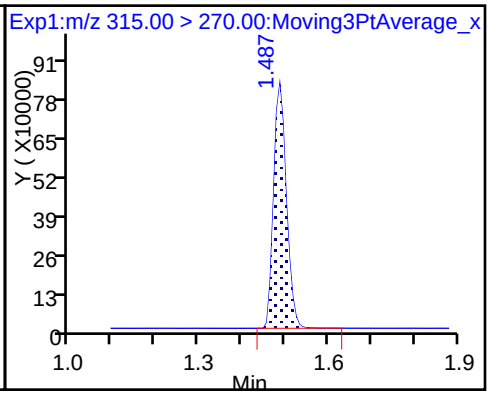
1 Perfluorobutanesulfonic acid



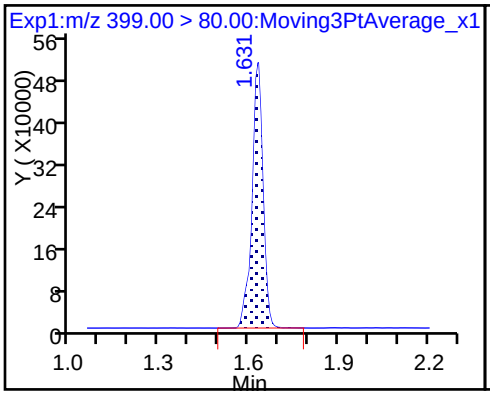
1 Perfluorobutanesulfonic acid



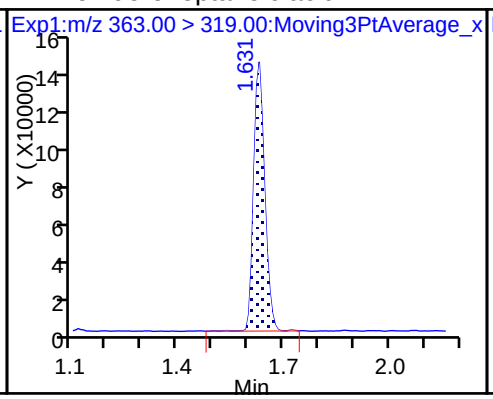
$ 2 13C2 PFHxA



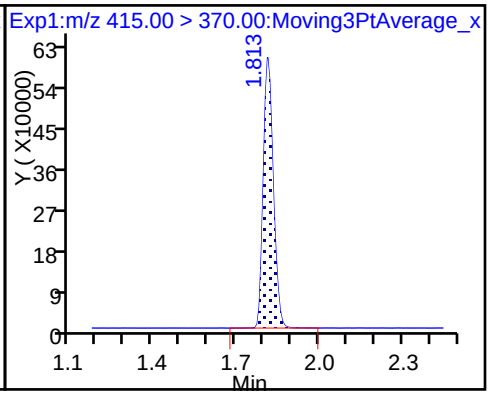
3 Perfluorohexanesulfonic acid



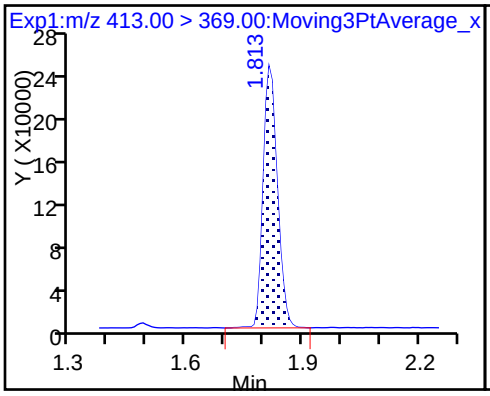
4 Perfluoroheptanoic acid



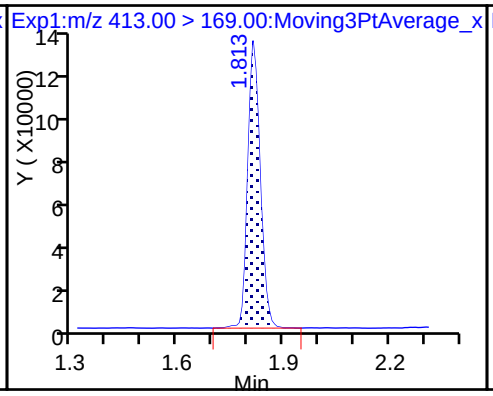
* 6 13C2-PFOA



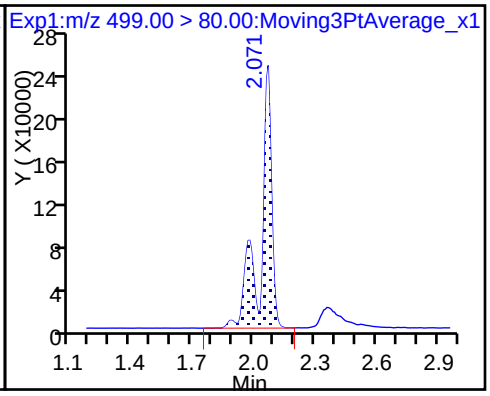
5 Perfluorooctanoic acid



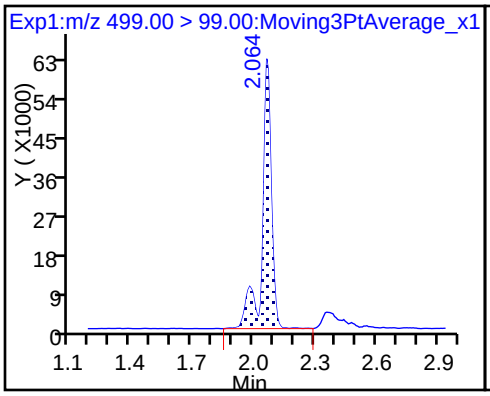
5 Perfluorooctanoic acid



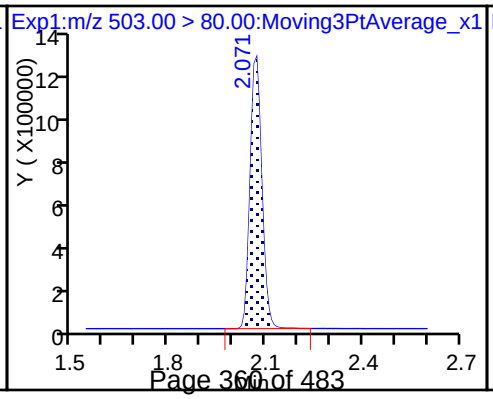
8 Perfluorooctane sulfonic acid



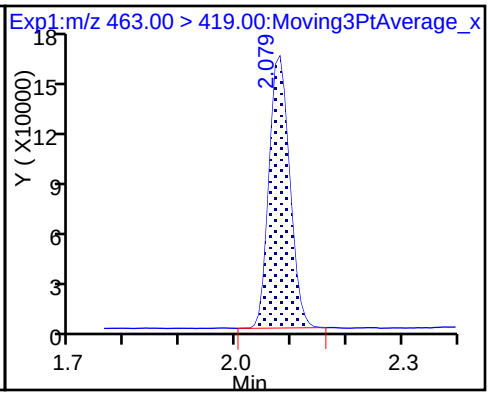
8 Perfluorooctane sulfonic acid



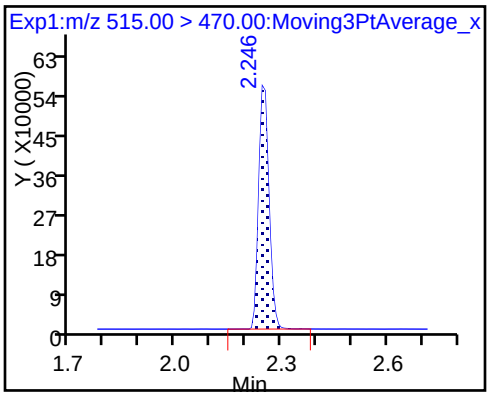
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
63
54
45
36
27
18
9
0
1.7
2.0
2.3
2.6
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204650/1 Calibration Date: 01/19/2018 07:07

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: 2018.01.18_537AA_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9524		142	135	5.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9766		15.6	15.0	4.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.725		46.4	45.0	3.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9551		31.0	30.0	3.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9681		61.9	60.0	3.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6978		31.5	30.0	5.1	30.0
13C2 PFHxA	Ave	1.100	1.180		10.7	10.0	7.2	30.0
13C2 PFDA	Ave	0.7652	0.7775		10.2	10.0	1.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_025.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 19-Jan-2018 07:07:29 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L5
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:05:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	15083962	141.8		12758	
298.90 > 99.00	1.358	1.444	-0.086	1.000	11548175		1.31(0.00-0.00)	15357	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1825314	10.7		7940	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	9109382	46.4		13800	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	2267190	15.6		705	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1547300	10.0		4884	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	4437336	31.0		709	
413.00 > 169.00	1.798	1.914	-0.116	1.000	2360049		1.88(0.00-0.00)	4490	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.048	2.041	0.007	1.000	6815284	61.9		1010	M
499.00 > 99.00	2.041	2.041	0.0	0.996	1428869		4.77(0.00-0.00)	1128	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3364289	28.7		6625	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	3239617	31.5		971	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1202961	10.2		6346	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 19-Jan-2018 14:09:41 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_025.d

Injection Date: 19-Jan-2018 07:07:29 Instrument ID: A8_N

Lims ID: CCV L5

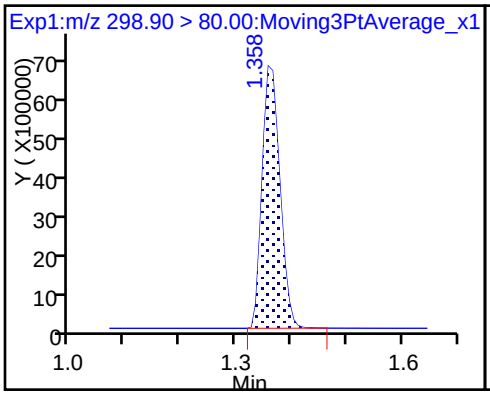
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1

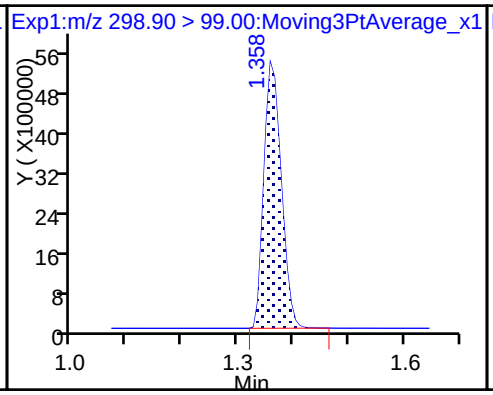
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

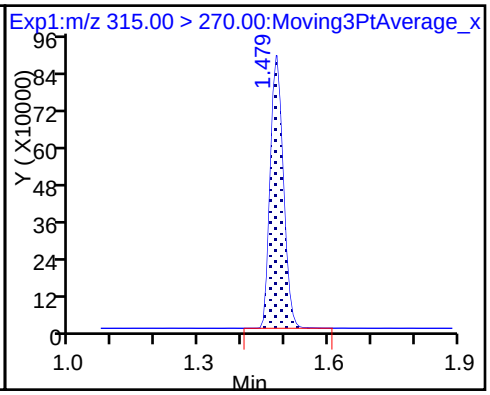
1 Perfluorobutanesulfonic acid



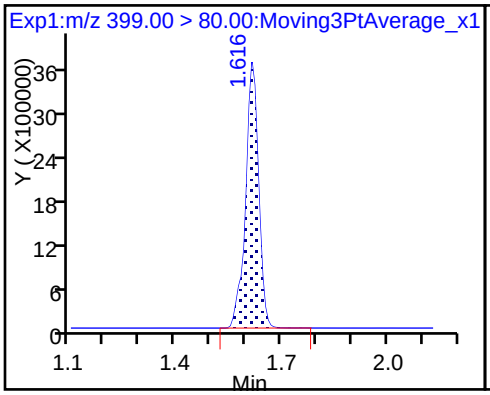
1 Perfluorobutanesulfonic acid



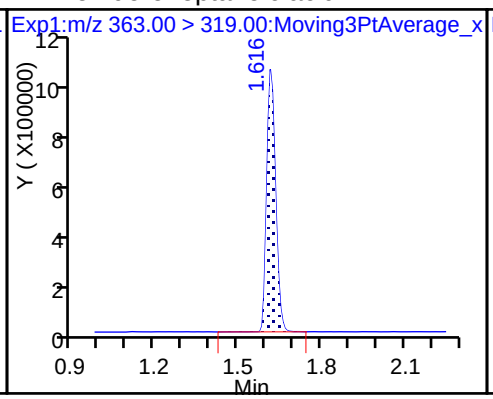
$ 2 13C2 PFHxA



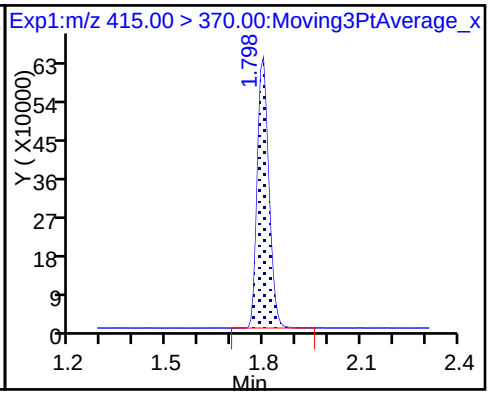
3 Perfluorohexanesulfonic acid



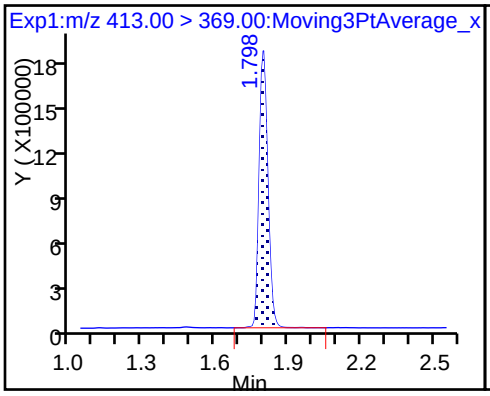
4 Perfluoroheptanoic acid



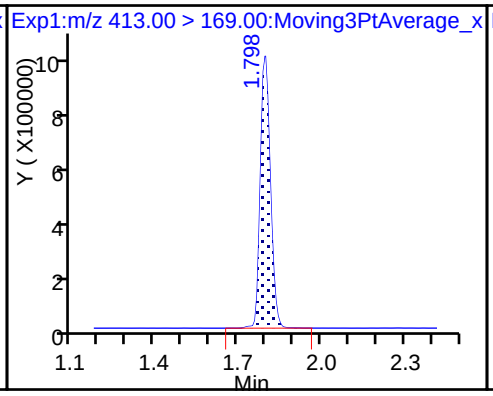
* 6 13C2-PFOA



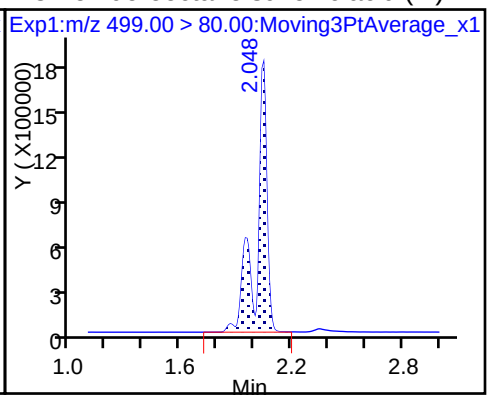
5 Perfluorooctanoic acid



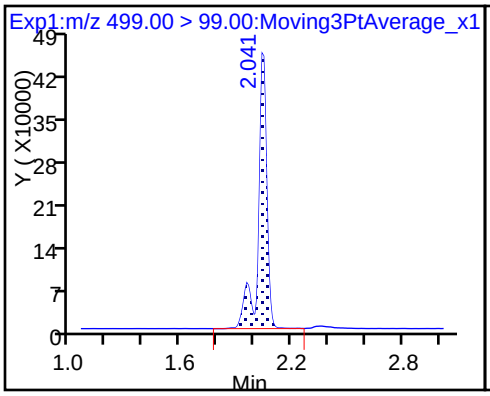
5 Perfluorooctanoic acid



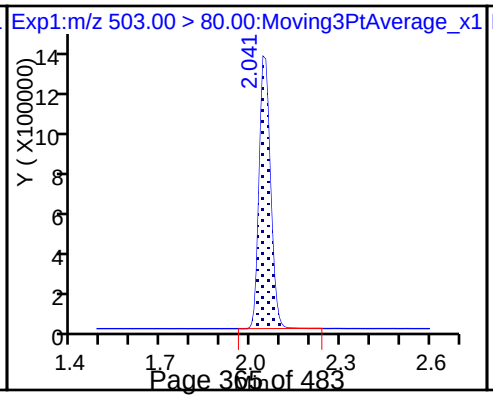
8 Perfluorooctane sulfonic acid (M)



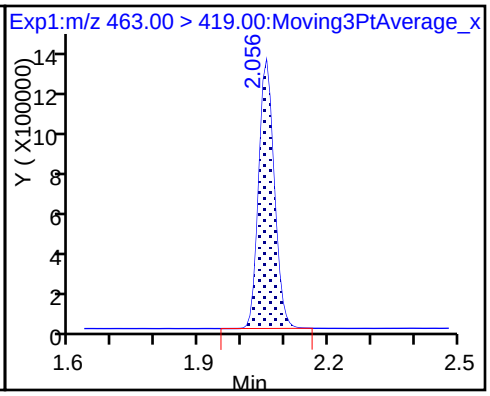
8 Perfluorooctane sulfonic acid



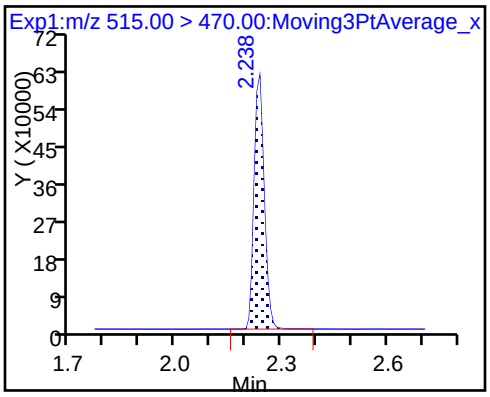
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
72
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

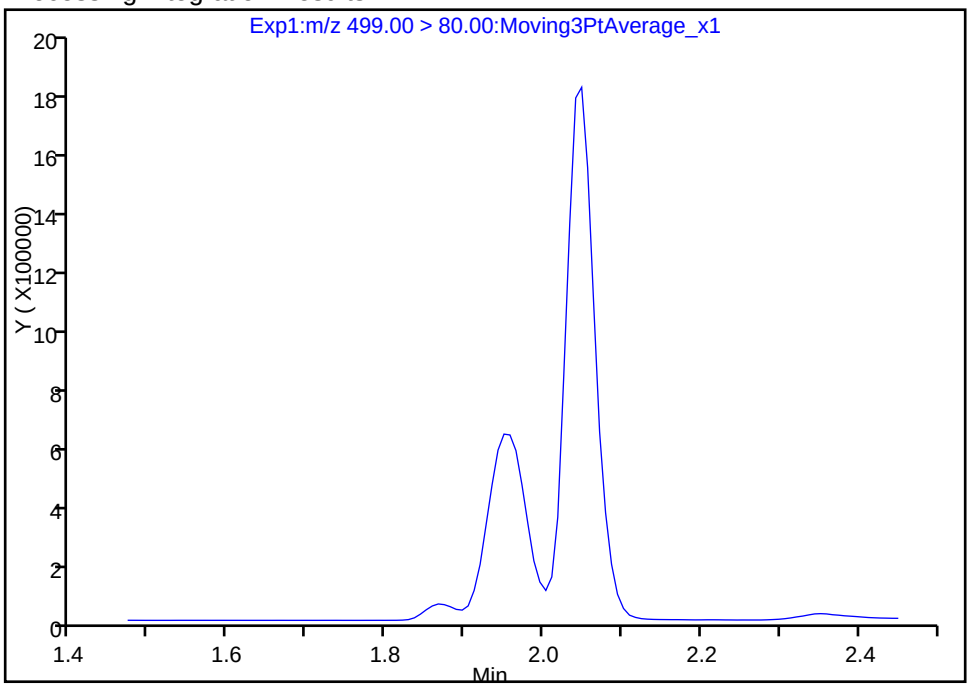
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_025.d
Injection Date: 19-Jan-2018 07:07:29 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

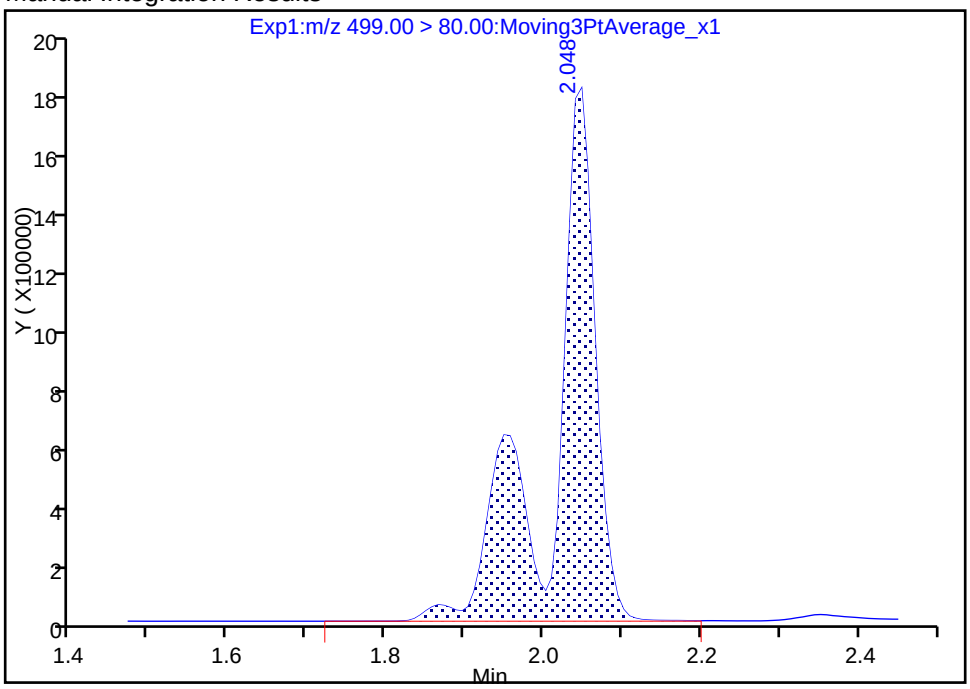
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 6815284
Amount: 61.876814
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:05:32
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

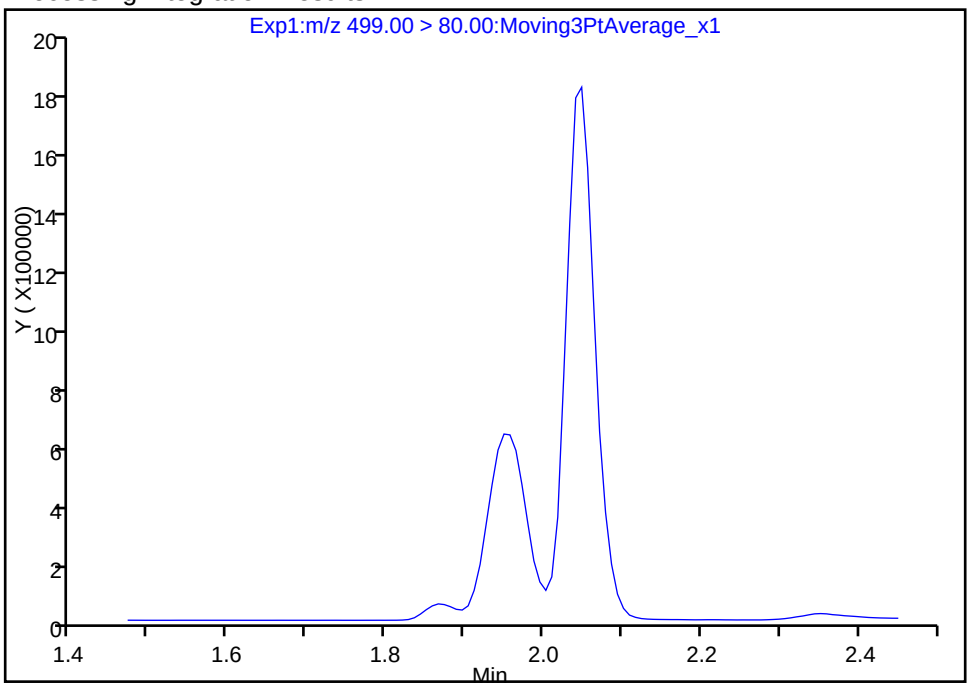
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_025.d
Injection Date: 19-Jan-2018 07:07:29 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

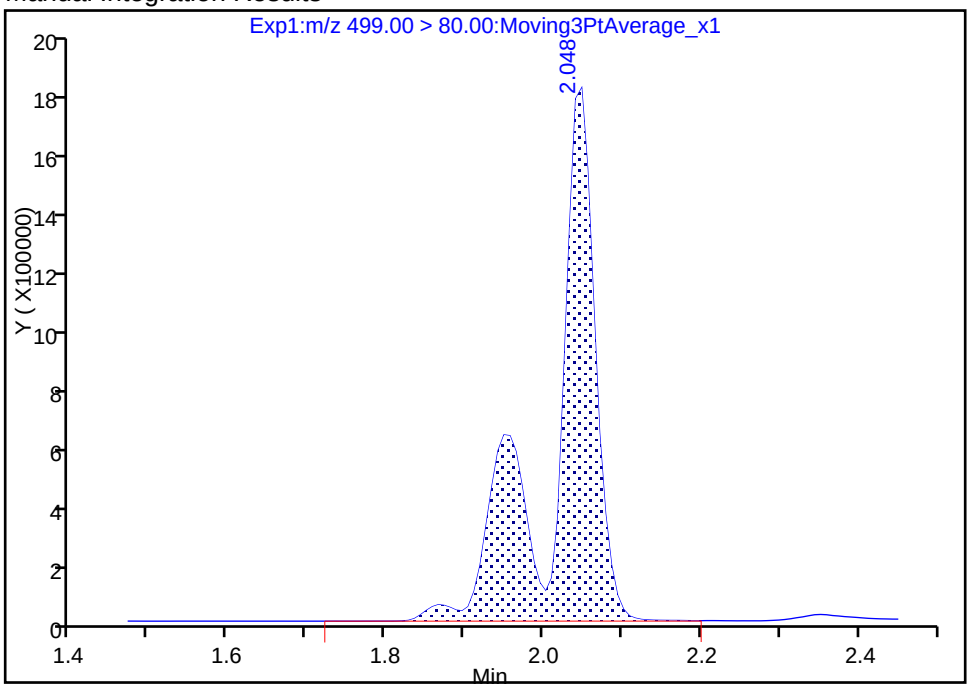
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 6815284
Amount: 61.876814
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:05:36
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204650/13 Calibration Date: 01/19/2018 08:03

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: 2018.01.18_537AA_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.143		49.2	45.0	9.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9378		5.01	5.00	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.835		16.4	15.0	9.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9198		9.94	10.0	-0.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9540		20.3	20.0	1.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6490		9.77	10.0	-2.3	30.0
13C2 PFHxA	Ave	1.100	1.122		10.2	10.0	1.9	30.0
13C2 PFDA	Ave	0.7652	0.7480		9.77	10.0	-2.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204651/13 Calibration Date: 01/19/2018 08:03

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: 2018.01.18_537AA_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.143		49.2	45.0	9.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9378		5.01	5.00	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.835		16.4	15.0	9.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9198		9.94	10.0	-0.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9540		20.3	20.0	1.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6490		9.77	10.0	-2.3	30.0
13C2 PFHxA	Ave	1.100	1.122		10.2	10.0	1.9	30.0
13C2 PFDA	Ave	0.7652	0.7480		9.77	10.0	-2.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_037.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 19-Jan-2018 08:03:34 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	5964908	49.2		8783	
298.90 > 99.00	1.358	1.444	-0.086	0.994	4362492		1.37(0.00-0.00)	11519	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1797263	10.2		8942	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	3191129	16.4		8606	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	751611	5.01		235	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1602486	10.0		6677	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	1475185	9.94		218	
413.00 > 169.00	1.798	1.914	-0.116	1.000	788473		1.87(0.00-0.00)	2377	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.041	0.007	1.000	2212601	20.3		364	
499.00 > 99.00	2.041	2.041	0.0	0.996	468206		4.73(0.00-0.00)	426	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3325198	28.7		6953	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	1040203	9.77		286	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1198574	9.77		6699	

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_037.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 19-Jan-2018 08:03:34 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: CCV L3
Misc. Info.: Plate: 1 Rack: 1
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:48 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:07:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	5964908	49.2		8783	
298.90 > 99.00	1.358	1.444	-0.086	0.994	4362492		1.37(0.00-0.00)	11519	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1797263	10.2		8942	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	3191129	16.4		8606	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	751611	5.01		235	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1602486	10.0		6677	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	1475185	9.94		218	
413.00 > 169.00	1.798	1.914	-0.116	1.000	788473		1.87(0.00-0.00)	2377	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.041	0.007	1.000	2212601	20.3		364	
499.00 > 99.00	2.041	2.041	0.0	0.996	468206		4.73(0.00-0.00)	426	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3325198	28.7		6953	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	1040203	9.77		286	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1198574	9.77		6699	

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 19-Jan-2018 14:09:48 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_037.d

Injection Date: 19-Jan-2018 08:03:34 Instrument ID: A8_N

Lims ID: CCV L3

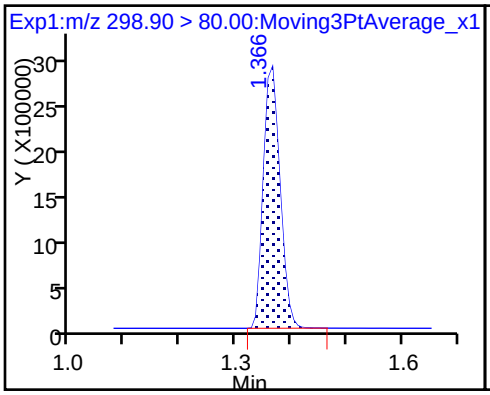
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13

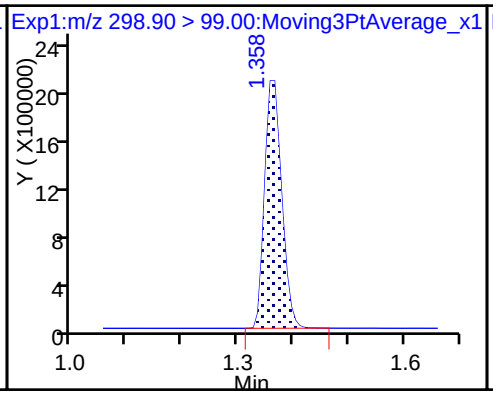
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

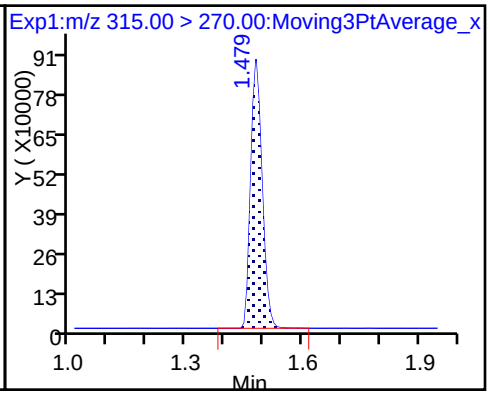
1 Perfluorobutanesulfonic acid



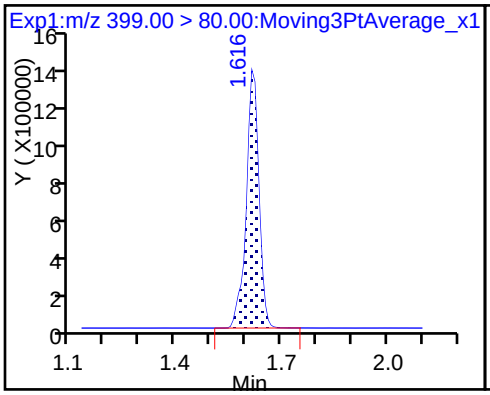
1 Perfluorobutanesulfonic acid



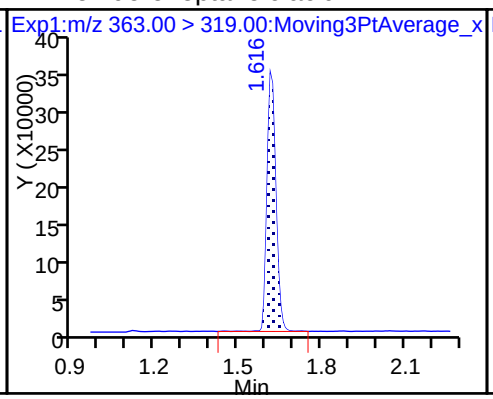
$ 2 13C2 PFHxA



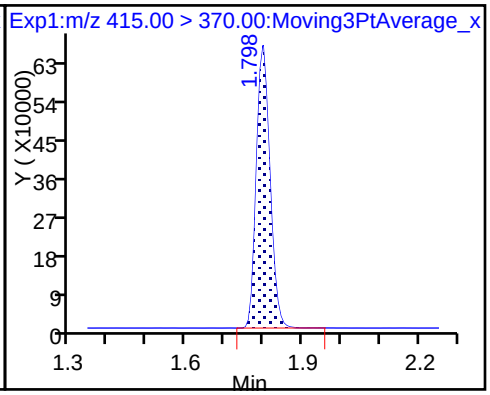
3 Perfluorohexanesulfonic acid



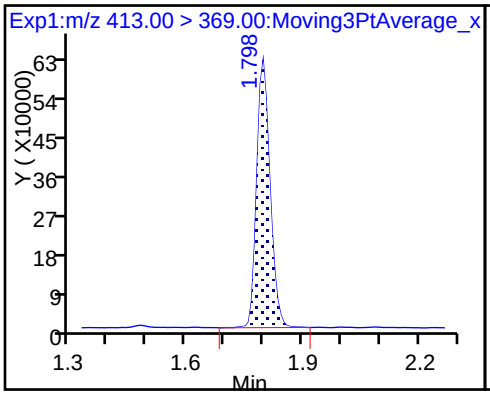
4 Perfluoroheptanoic acid



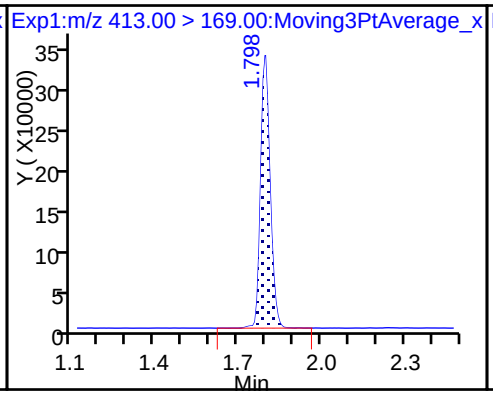
* 6 13C2-PFOA



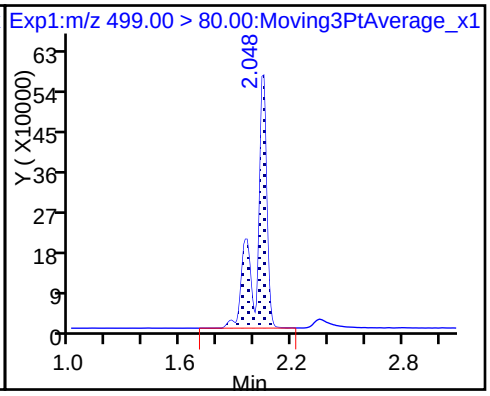
5 Perfluorooctanoic acid



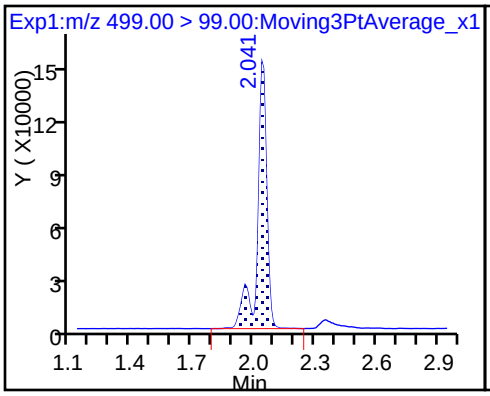
5 Perfluorooctanoic acid



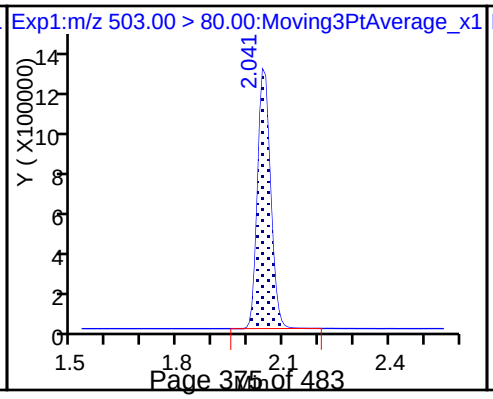
8 Perfluorooctane sulfonic acid



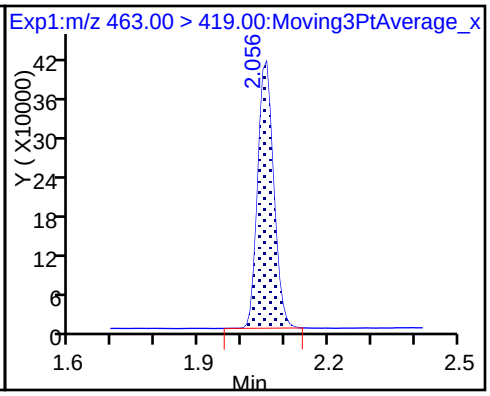
8 Perfluorooctane sulfonic acid



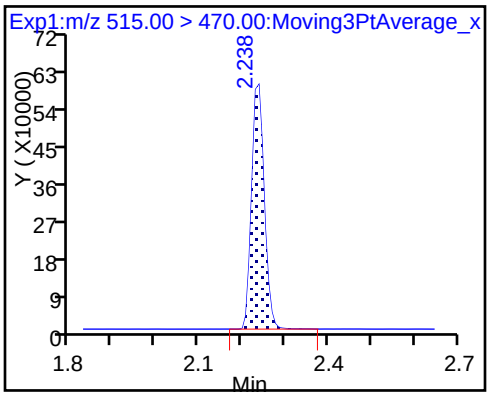
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
72
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

Report Date: 19-Jan-2018 14:09:48 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_037.d

Injection Date: 19-Jan-2018 08:03:34 Instrument ID: A8_N

Lims ID: CCV L3

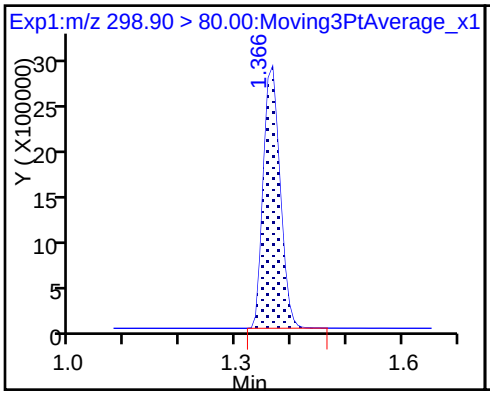
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13

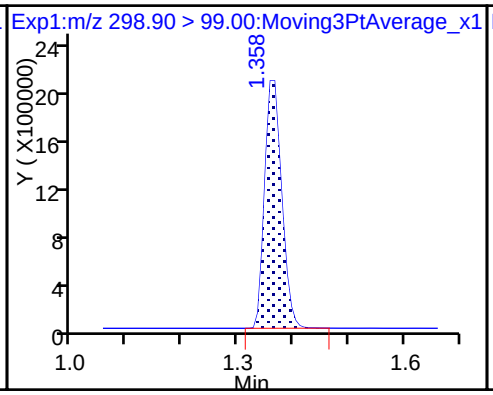
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

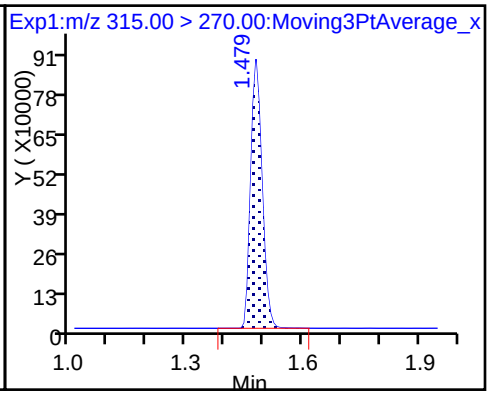
1 Perfluorobutanesulfonic acid



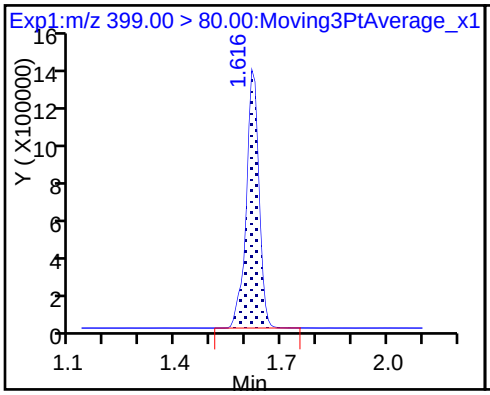
1 Perfluorobutanesulfonic acid



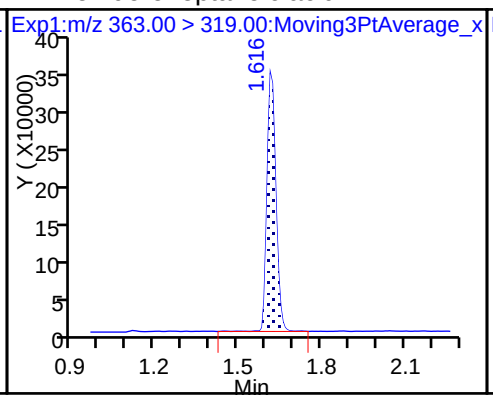
$ 2 13C2 PFHxA



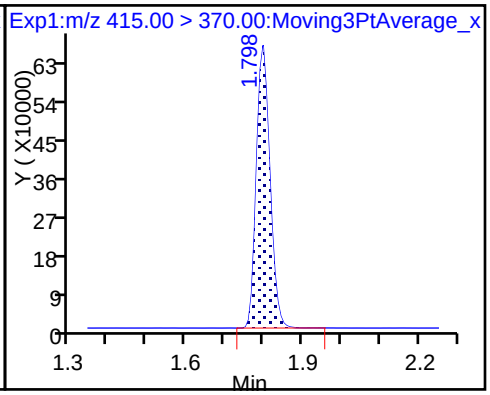
3 Perfluorohexanesulfonic acid



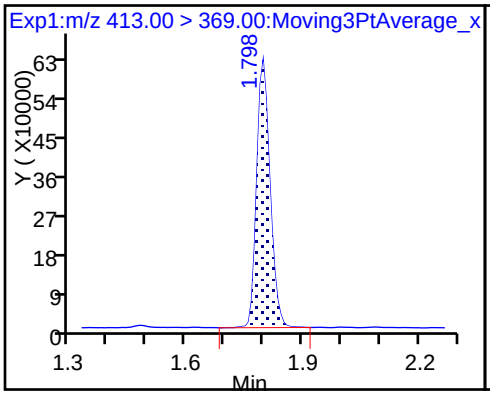
4 Perfluoroheptanoic acid



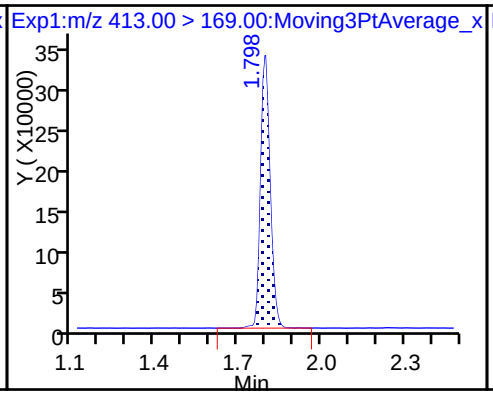
* 6 13C2-PFOA



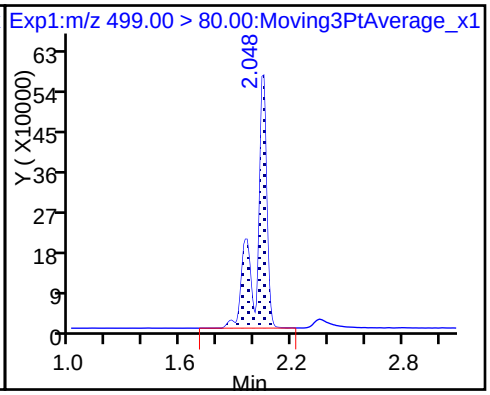
5 Perfluorooctanoic acid



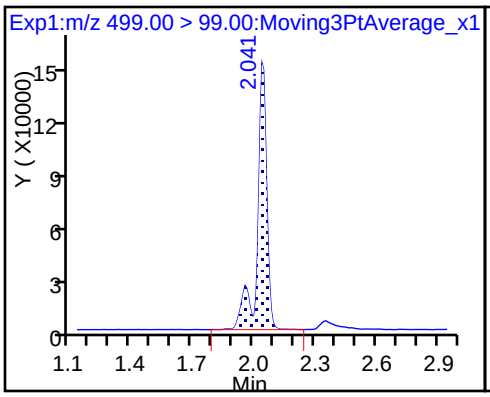
5 Perfluorooctanoic acid



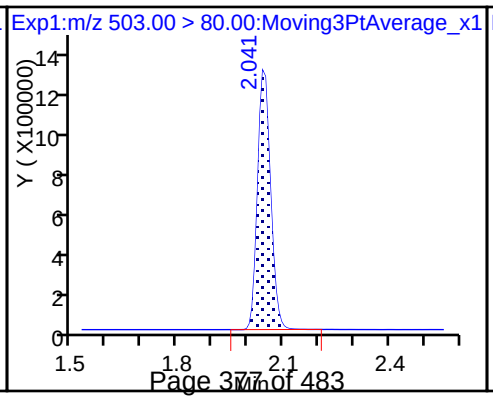
8 Perfluorooctane sulfonic acid



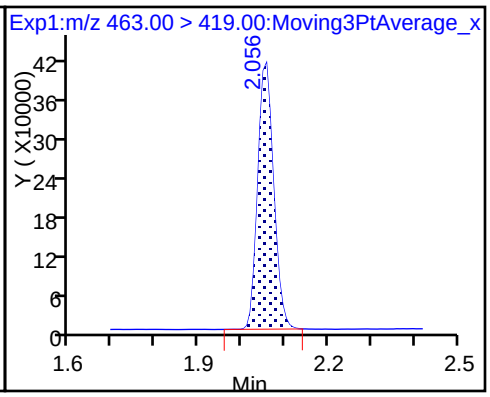
8 Perfluorooctane sulfonic acid



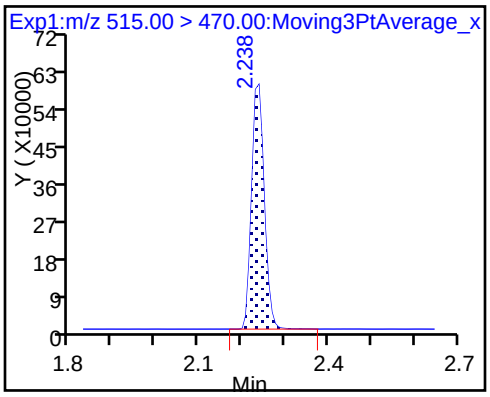
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
72
63
54
45
36
27
18
9
0
1.8
2.1
2.4
2.7
Min

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204651/25 Calibration Date: 01/19/2018 08:59

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: 2018.01.18_537AA_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8605		125	135	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9580		15.3	15.0	2.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.614		43.4	45.0	-3.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9454		30.7	30.0	2.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9329		59.6	60.0	-0.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6796		30.7	30.0	2.3	30.0
13C2 PFHxA	Ave	1.100	1.174		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.7652	0.7892		10.3	10.0	3.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204654/25 Calibration Date: 01/19/2018 08:59

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: 2018.01.18_537AA_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8605		125	135	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9580		15.3	15.0	2.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.614		43.4	45.0	-3.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9454		30.7	30.0	2.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9329		59.6	60.0	-0.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6796		30.7	30.0	2.3	30.0
13C2 PFHxA	Ave	1.100	1.174		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.7652	0.7892		10.3	10.0	3.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 19-Jan-2018 08:59:39 ALS Bottle#: 5 Worklist Smp#: 25
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\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:55 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-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	1.444	-0.078	1.000	14610581	124.6		13240	
298.90 > 99.00	1.366	1.444	-0.078	1.000	11592497		1.26(0.00-0.00)	17015	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1847103	10.7		8281	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	9133948	43.4		14933	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2261129	15.3		705	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1573197	10.0		5730	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	4465500	30.7		714	
413.00 > 169.00	1.798	1.914	-0.116	1.000	2407810		1.85(0.00-0.00)	6207	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.048	2.041	0.007	1.000	7041579	59.6		1125	M
499.00 > 99.00	2.048	2.041	0.007	1.000	1462203		4.82(0.00-0.00)	1176	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3606926	28.7		7332	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	3208103	30.7		897	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1241554	10.3		6633	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d
Lims ID: CCV L5
Client ID:
Sample Type: CCVIS
Inject. Date: 19-Jan-2018 08:59:39 ALS Bottle#: 5 Worklist Smp#: 25
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\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:55 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-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	1.444	-0.078	1.000	14610581	124.6		13240	
298.90 > 99.00	1.366	1.444	-0.078	1.000	11592497		1.26(0.00-0.00)	17015	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1847103	10.7		8281	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	9133948	43.4		14933	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2261129	15.3		705	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1573197	10.0		5730	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	4465500	30.7		714	
413.00 > 169.00	1.798	1.914	-0.116	1.000	2407810		1.85(0.00-0.00)	6207	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.048	2.041	0.007	1.000	7041579	59.6		1125	M
499.00 > 99.00	2.048	2.041	0.007	1.000	1462203		4.82(0.00-0.00)	1176	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3606926	28.7		7332	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	3208103	30.7		897	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1241554	10.3		6633	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024 Amount Added: 1.00 Units: mL

Report Date: 19-Jan-2018 14:09:55 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d

Injection Date: 19-Jan-2018 08:59:39 Instrument ID: A8_N

Lims ID: CCV L5

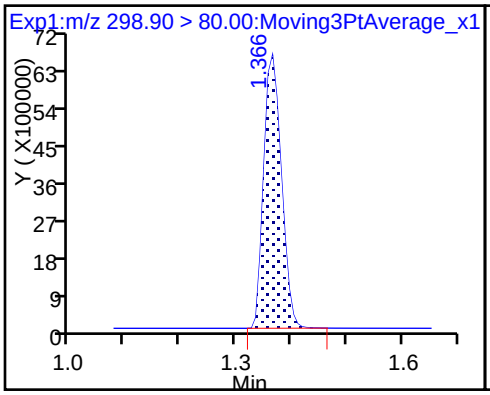
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25

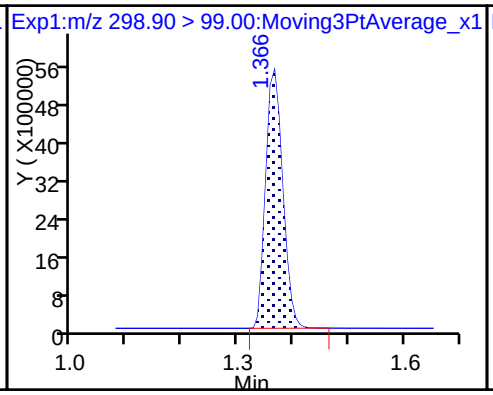
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

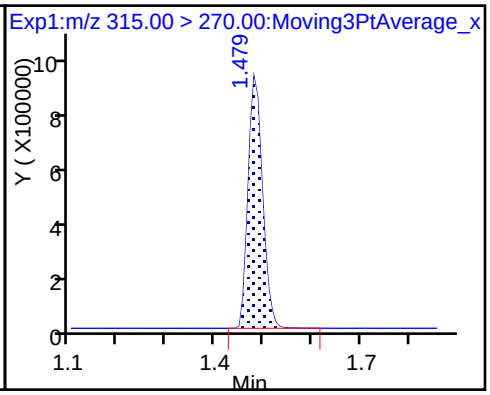
1 Perfluorobutanesulfonic acid



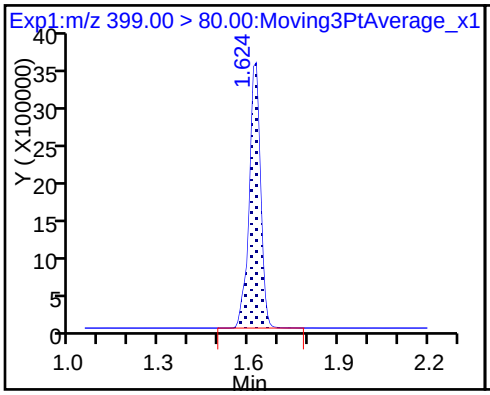
1 Perfluorobutanesulfonic acid



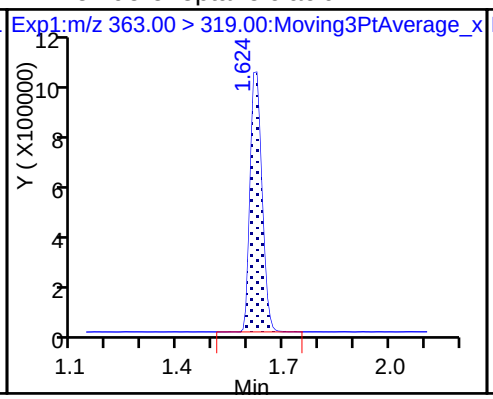
$ 2 13C2 PFHxA



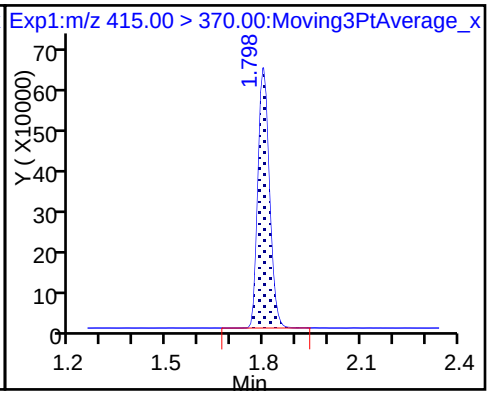
3 Perfluorohexanesulfonic acid



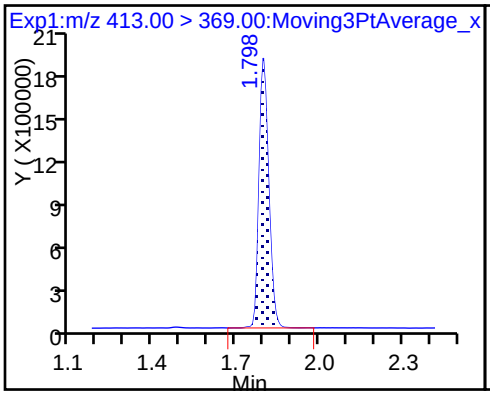
4 Perfluoroheptanoic acid



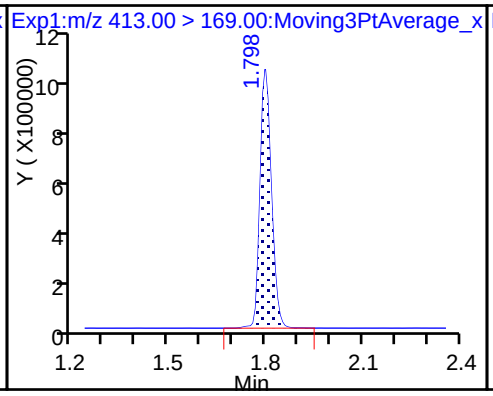
* 6 13C2-PFOA



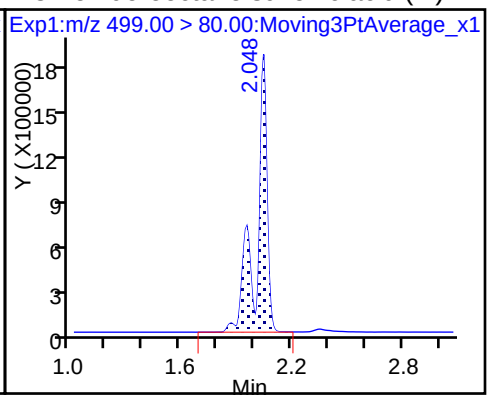
5 Perfluorooctanoic acid



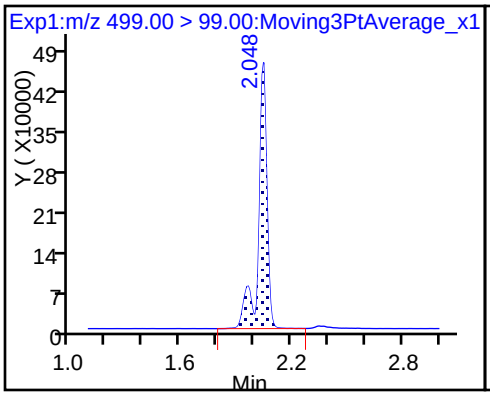
5 Perfluorooctanoic acid



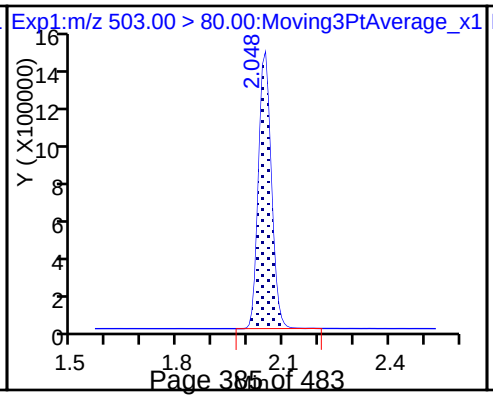
8 Perfluorooctane sulfonic acid (M)



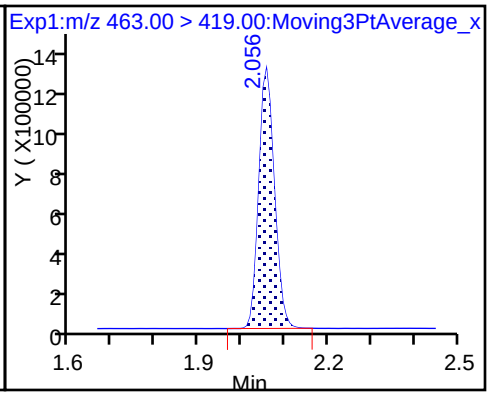
8 Perfluorooctane sulfonic acid



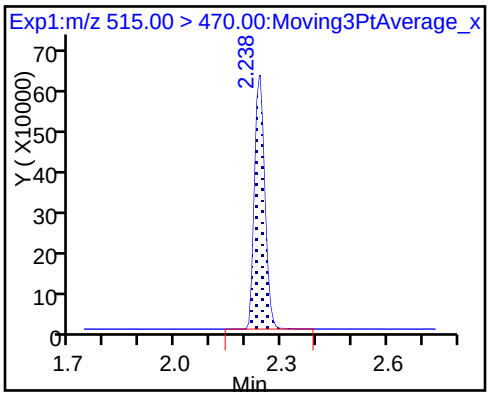
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

Report Date: 19-Jan-2018 14:09:55 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d

Injection Date: 19-Jan-2018 08:59:39 Instrument ID: A8_N

Lims ID: CCV L5

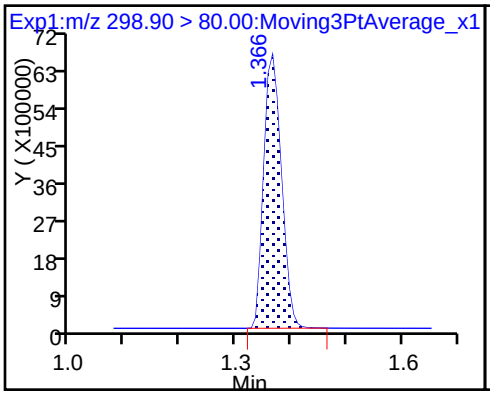
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25

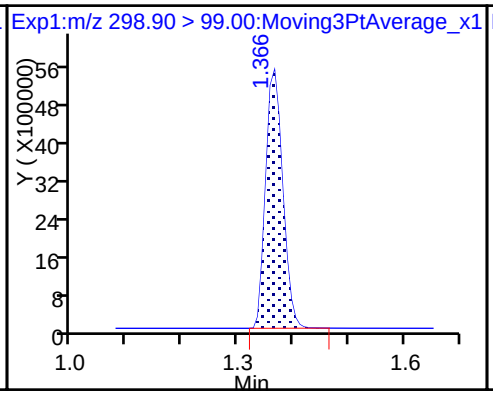
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

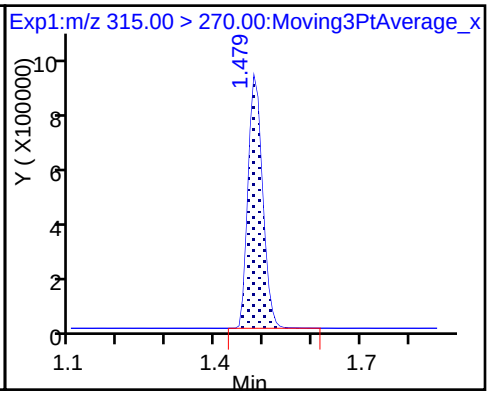
1 Perfluorobutanesulfonic acid



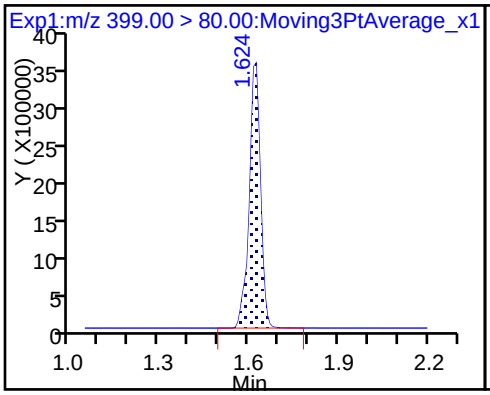
1 Perfluorobutanesulfonic acid



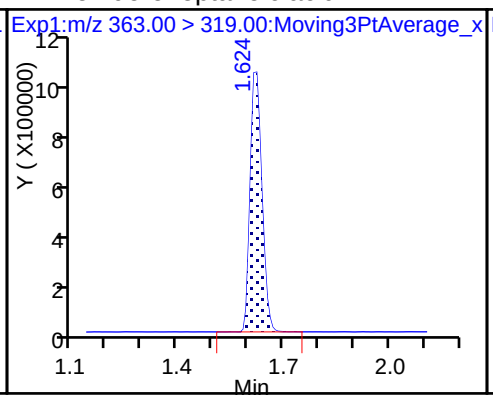
$ 2 13C2 PFHxA



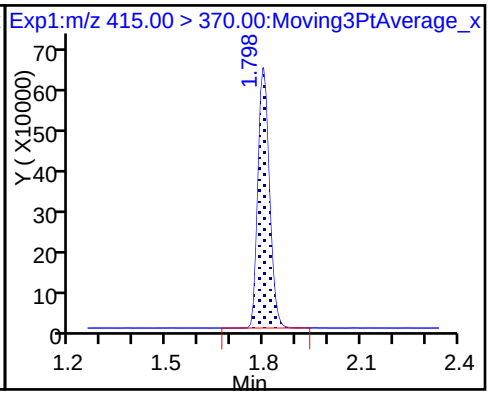
3 Perfluorohexanesulfonic acid



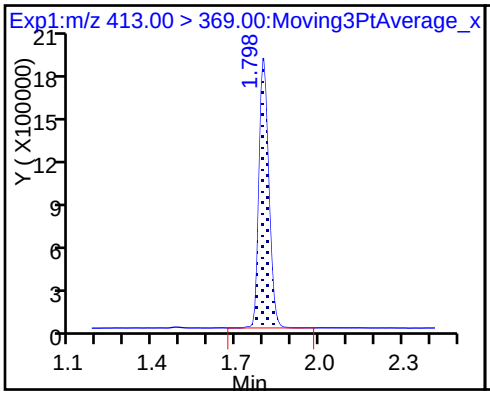
4 Perfluoroheptanoic acid



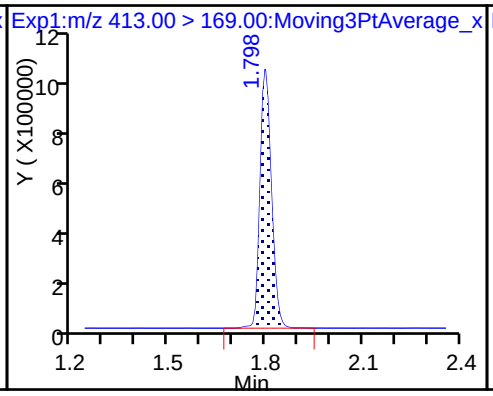
* 6 13C2-PFOA



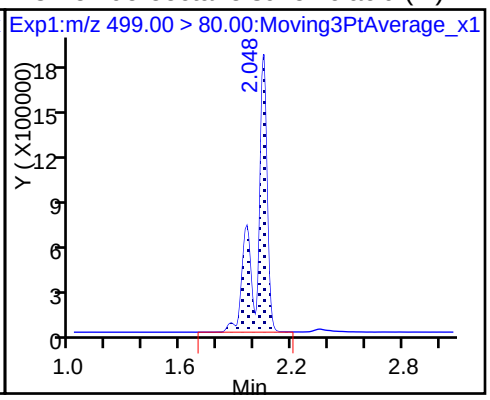
5 Perfluorooctanoic acid



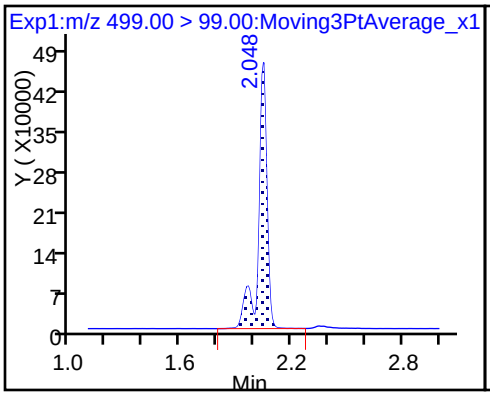
5 Perfluorooctanoic acid



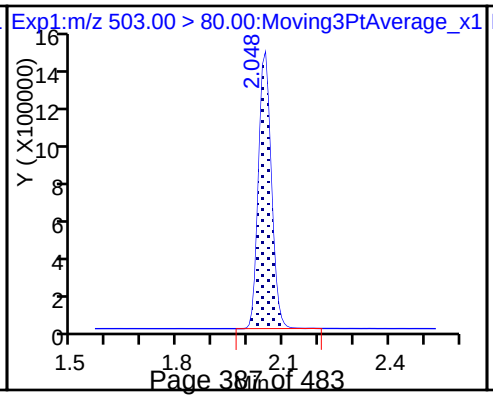
8 Perfluorooctane sulfonic acid (M)



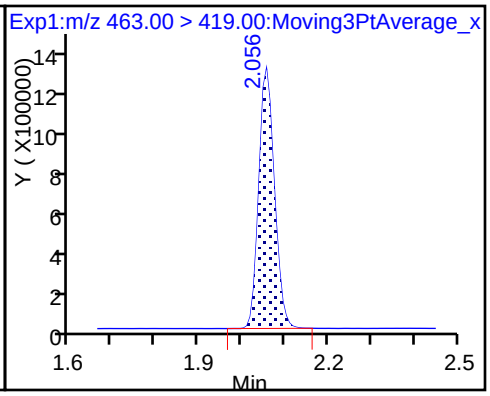
8 Perfluorooctane sulfonic acid



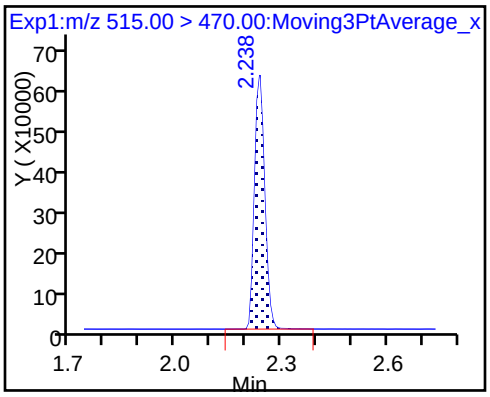
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
Y (X10000)
70
60
50
40
30
20
10
0
1.7
2.0
2.3
2.6
Min

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

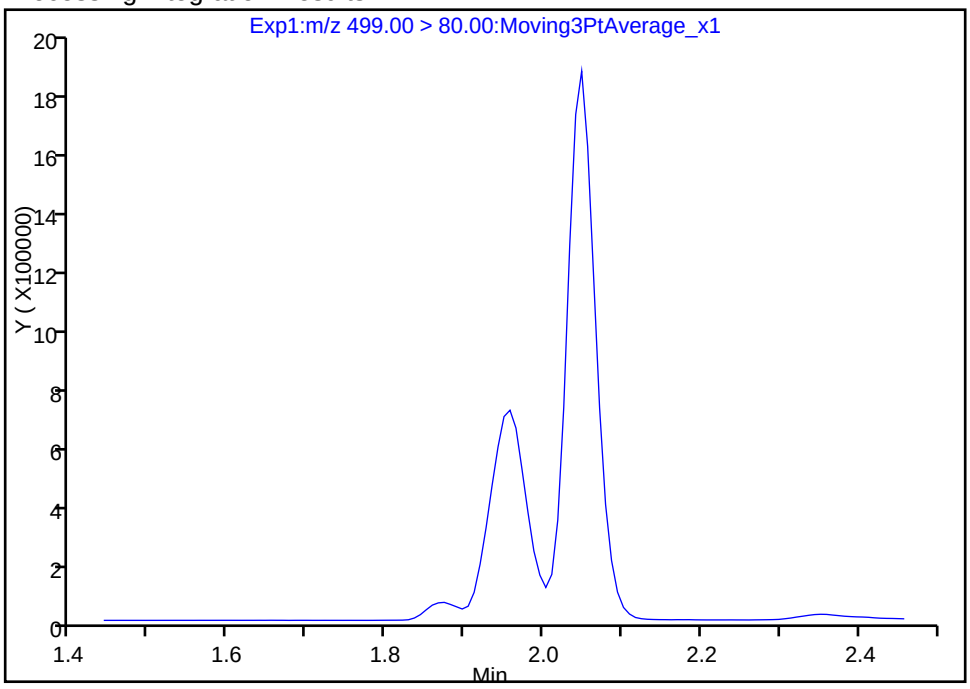
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d
Injection Date: 19-Jan-2018 08:59:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

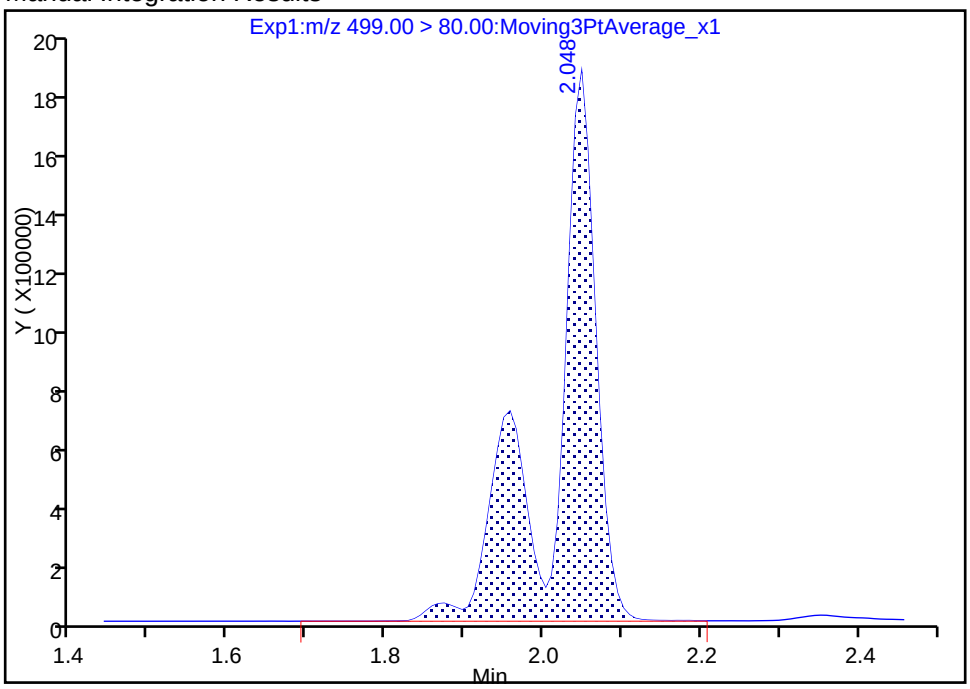
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 7041579
Amount: 59.630728
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:08:53
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

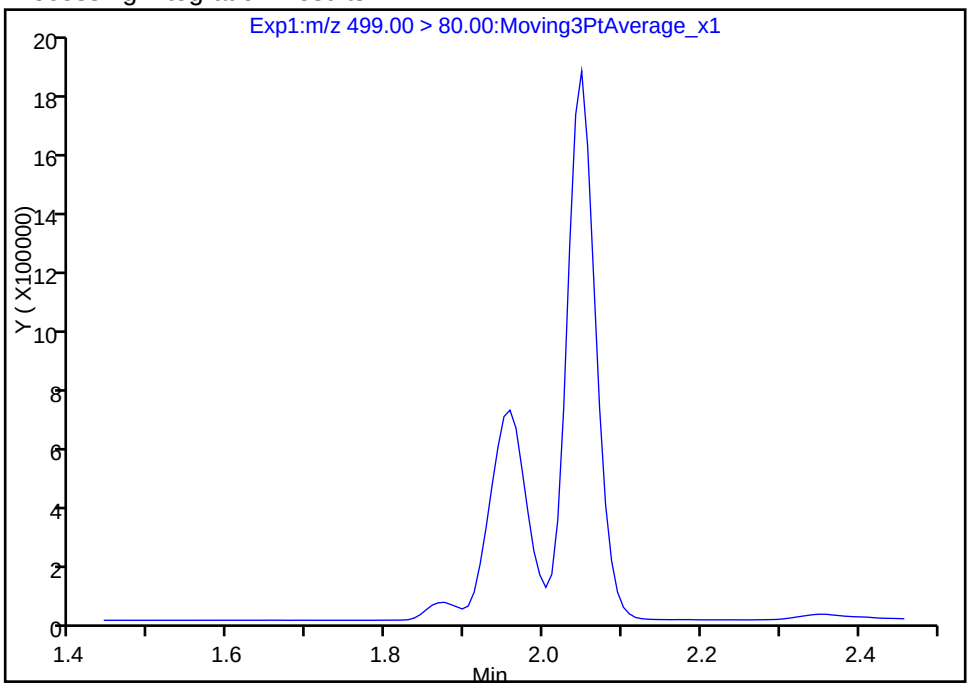
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d
Injection Date: 19-Jan-2018 08:59:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

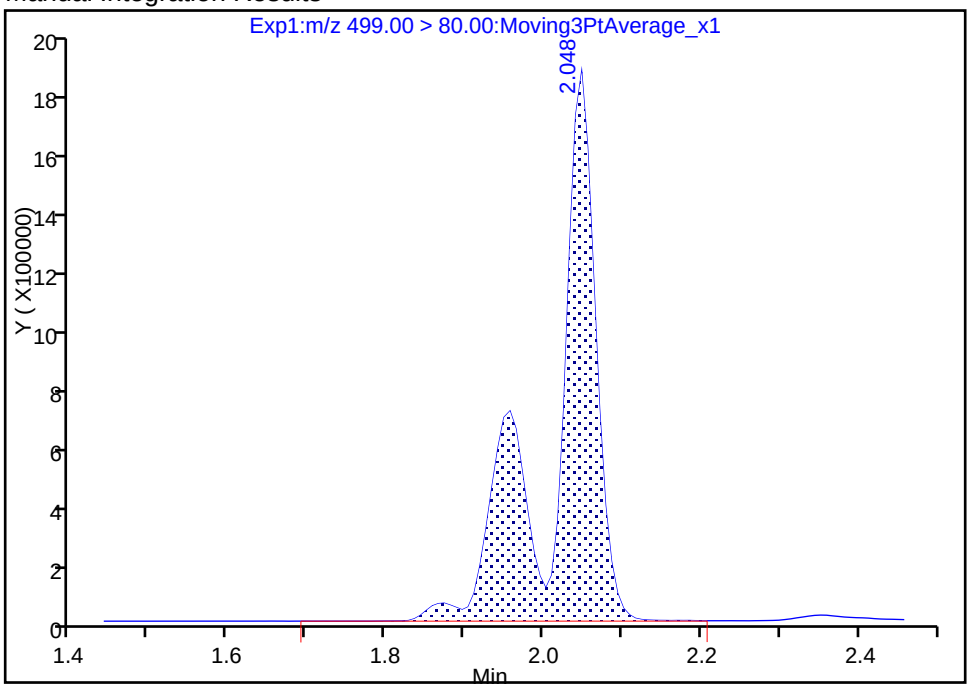
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 7041579
Amount: 59.630728
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:08:57
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

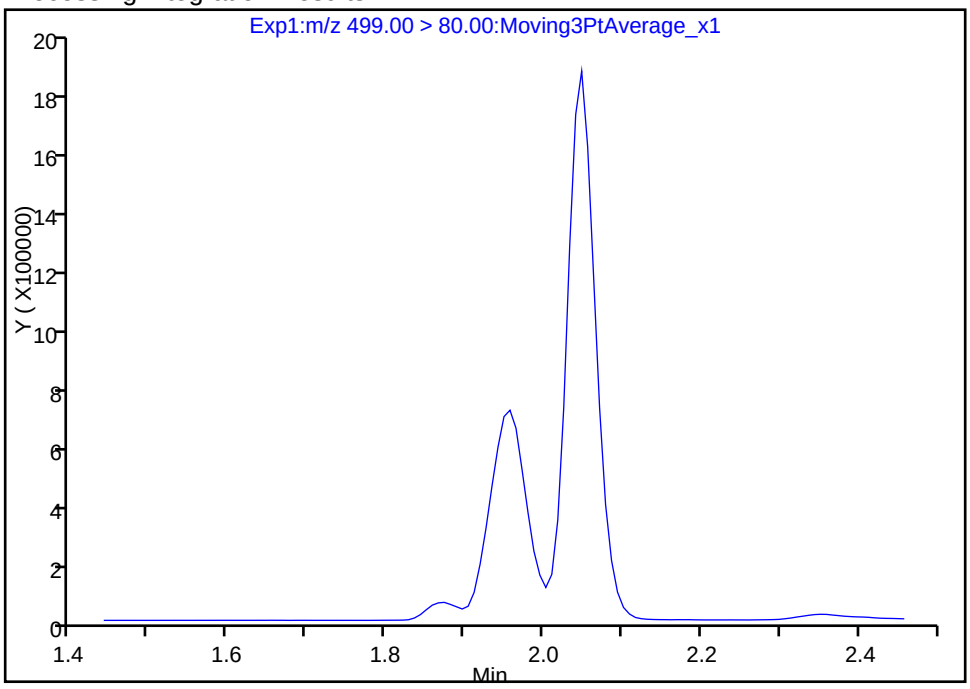
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d
Injection Date: 19-Jan-2018 08:59:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

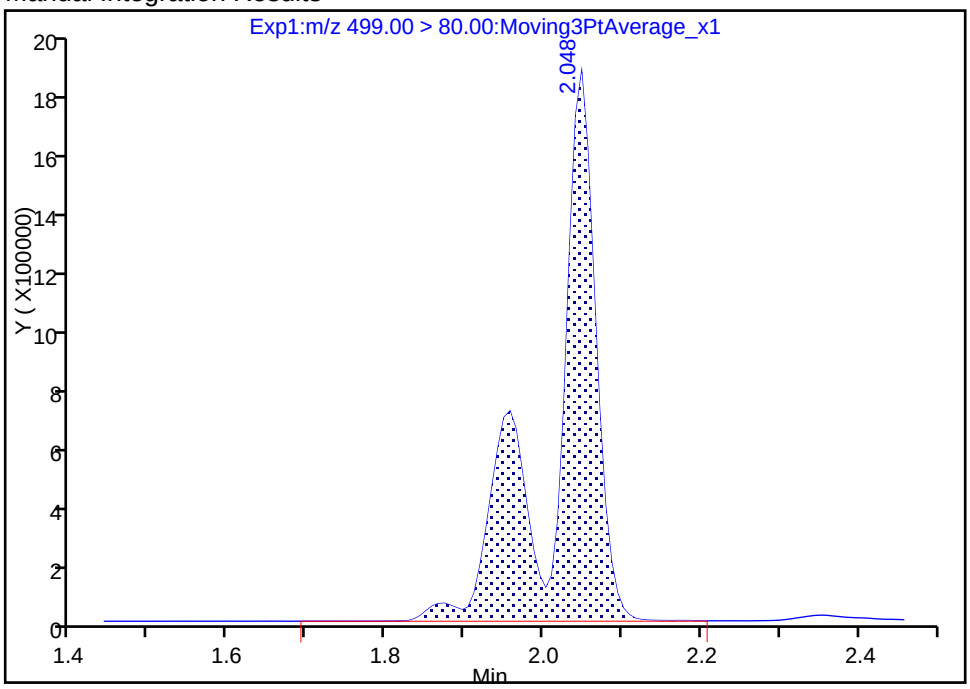
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 7041579
Amount: 59.630728
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:08:53
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

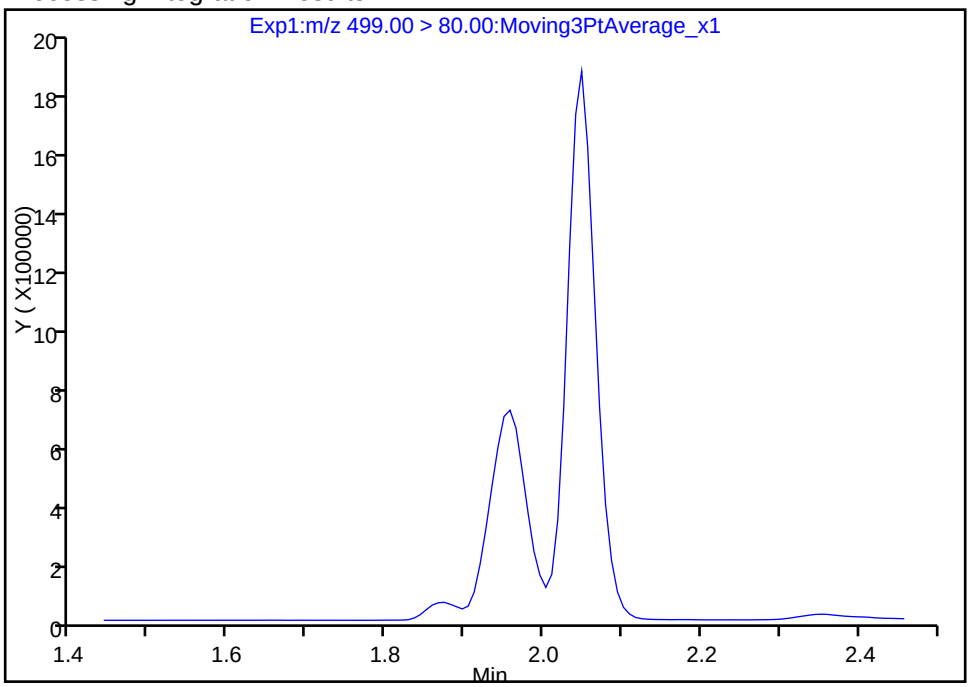
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_049.d
Injection Date: 19-Jan-2018 08:59:39 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

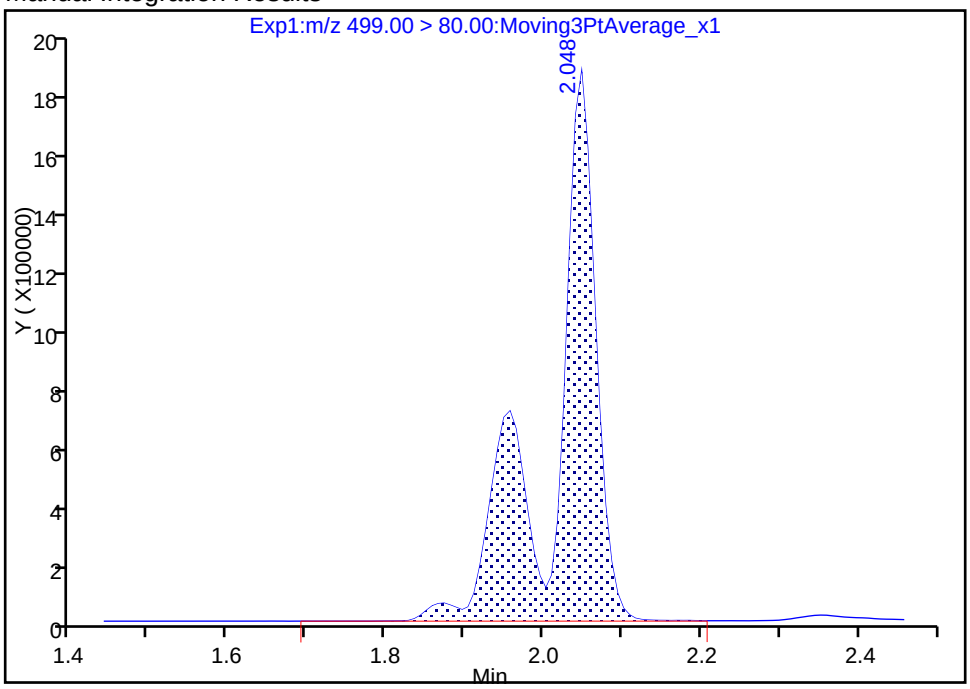
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 7041579
Amount: 59.630728
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:08:57
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204654/29 Calibration Date: 01/19/2018 09:18

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: 2018.01.18_537AA_053.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.077		46.1	45.0	2.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9361		5.00	5.00	-0.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		15.1	15.0	0.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9185		9.93	10.0	-0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9130		19.5	20.0	-2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6308		9.50	10.0	-5.0	30.0
13C2 PFHxA	Ave	1.100	1.165		10.6	10.0	5.9	30.0
13C2 PFDA	Ave	0.7652	0.7780		10.2	10.0	1.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_053.d
Lims ID: CCV L3
Client ID:
Sample Type: CCVIS
Inject. Date: 19-Jan-2018 09:18:20 ALS Bottle#: 3 Worklist Smp#: 29
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\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:58 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:09:37

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	1.444	-0.086	1.000	5931231	46.1		8742	
298.90 > 99.00	1.358	1.444	-0.086	1.000	4397261		1.35(0.00-0.00)	11135	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1877601	10.6		9171	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	3098845	15.1		7587	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	754676	5.00		230	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1611950	10.0		6415	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.914	-0.123	1.000	1481863	9.93		228	
413.00 > 169.00	1.791	1.914	-0.123	1.000	772846		1.92(0.00-0.00)	2402	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.041	0.0	1.000	2235508	19.5		399	
499.00 > 99.00	2.033	2.041	-0.008	0.996	458820		4.87(0.00-0.00)	441	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3510319	28.7		7107	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.158	-0.110	1.000	1016912	9.50		279	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1254112	10.2		6696	

Reagents:

LC537-L3_00023 Amount Added: 1.00 Units: mL

Report Date: 19-Jan-2018 14:09:58 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_053.d

Injection Date: 19-Jan-2018 09:18:20 Instrument ID: A8_N

Lims ID: CCV L3

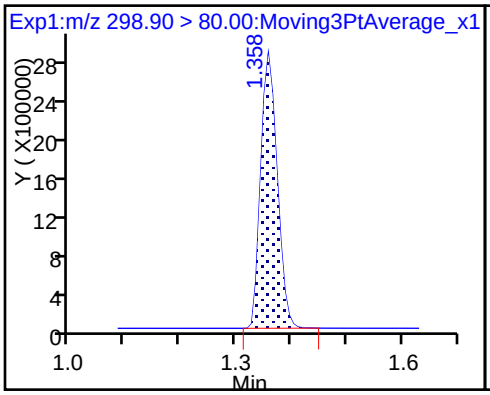
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 29

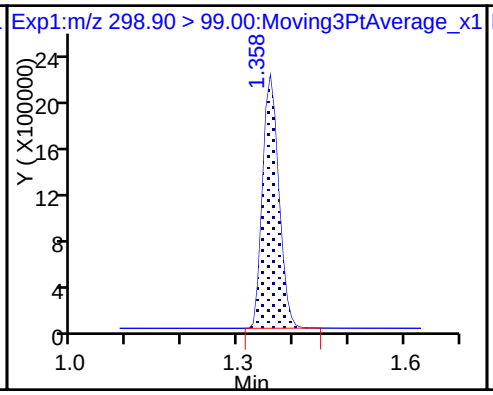
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

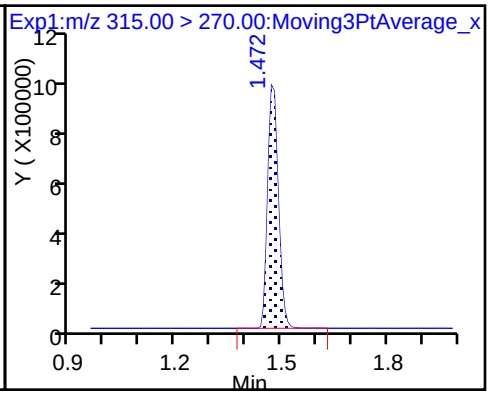
1 Perfluorobutanesulfonic acid



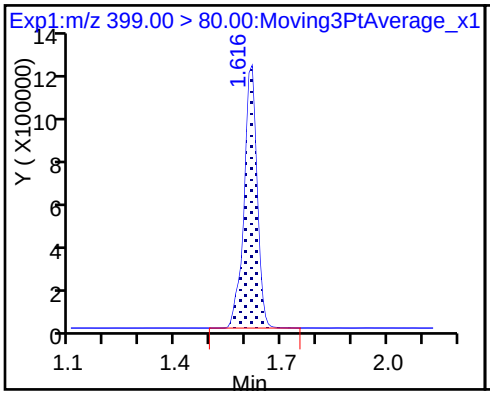
1 Perfluorobutanesulfonic acid



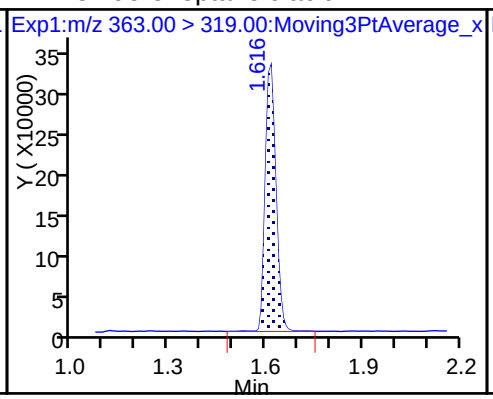
$ 2 13C2 PFHxA



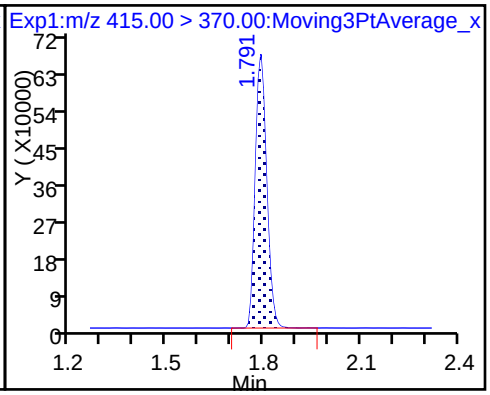
3 Perfluorohexanesulfonic acid



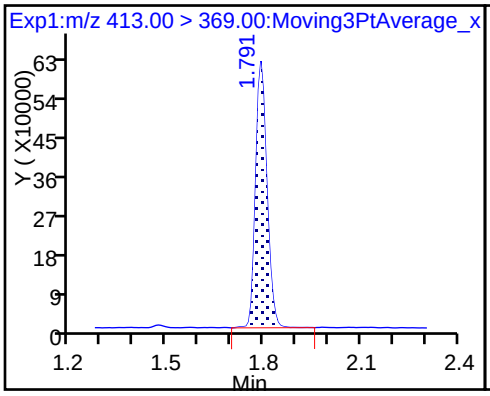
4 Perfluoroheptanoic acid



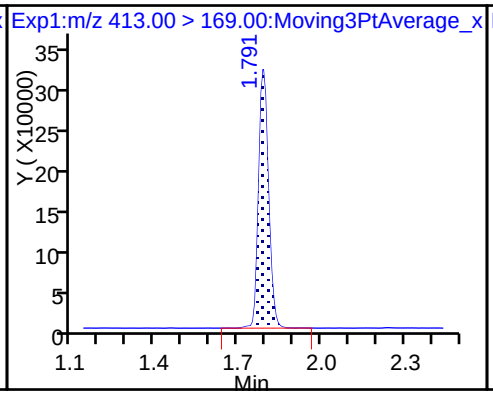
* 6 13C2-PFOA



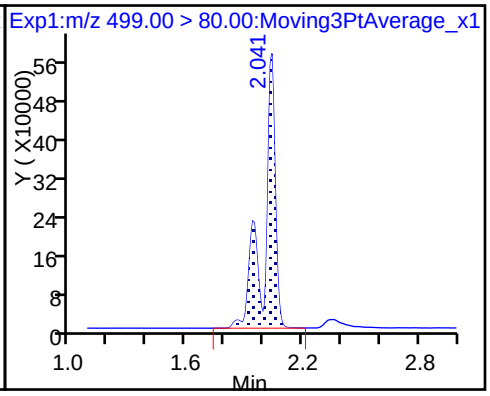
5 Perfluorooctanoic acid



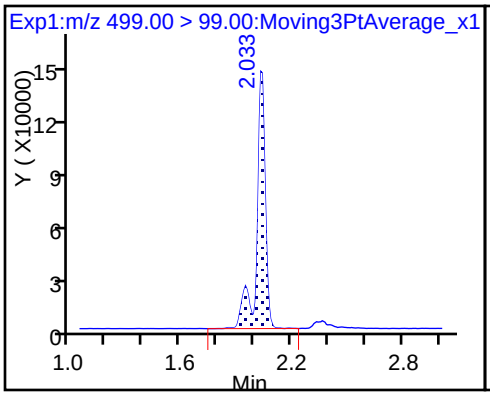
5 Perfluorooctanoic acid



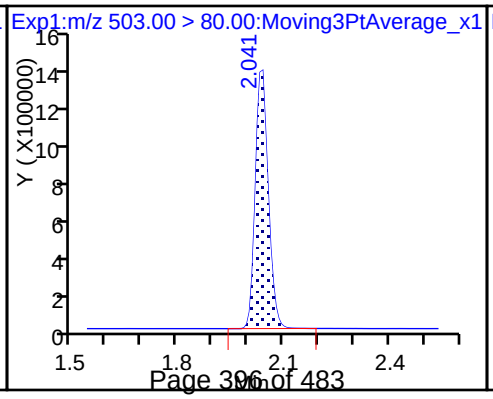
8 Perfluorooctane sulfonic acid



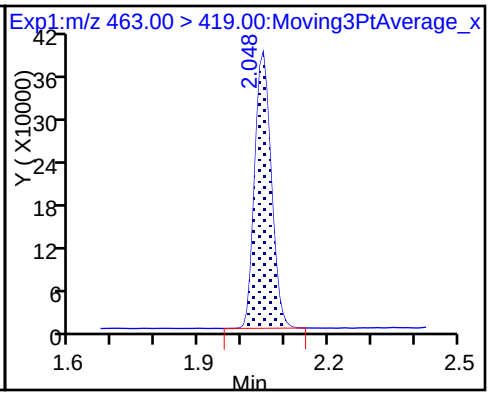
8 Perfluorooctane sulfonic acid



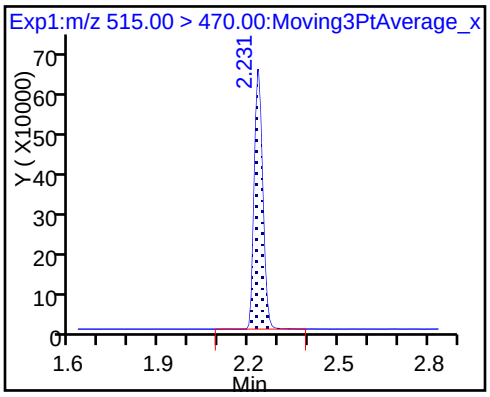
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
Y (X10000)
70
60
50
40
30
20
10
0
1.6
1.9
2.2
2.5
2.8
Min

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: MB 320-203312/1-A

Matrix: Water | Lab File ID: 2018.01.12_537A_007.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 250(mL) | Date Analyzed: 01/12/2018 17:35

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	84		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_007.d
Lims ID: MB 320-203312/1-A
Client ID:
Sample Type: MB
Inject. Date: 12-Jan-2018 17:35:17 ALS Bottle#: 14 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-203312/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

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	1.573	-0.094	1.000	1535156	9.21		9830	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1514209	10.0		7768	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3179488	28.7		8600	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	978888	8.45		7414	

Report Date: 15-Jan-2018 13:47:10 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_007.d

Injection Date: 12-Jan-2018 17:35:17 Instrument ID: A8_N

Lims ID: MB 320-203312/1-A

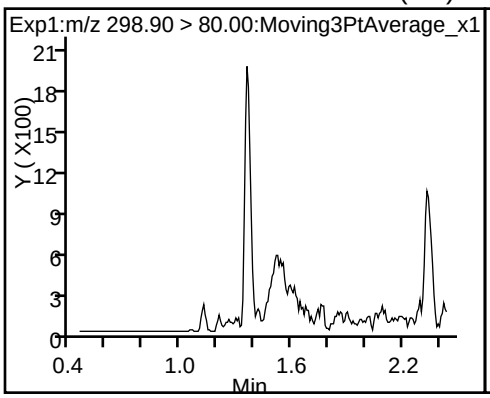
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 26

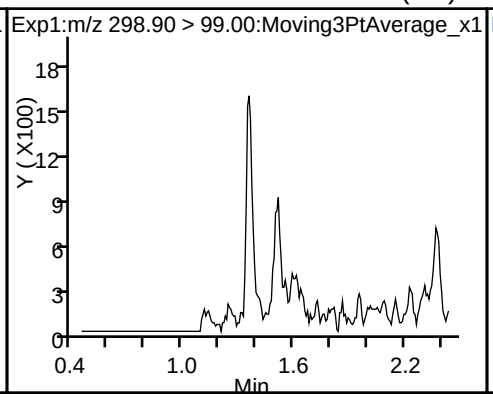
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

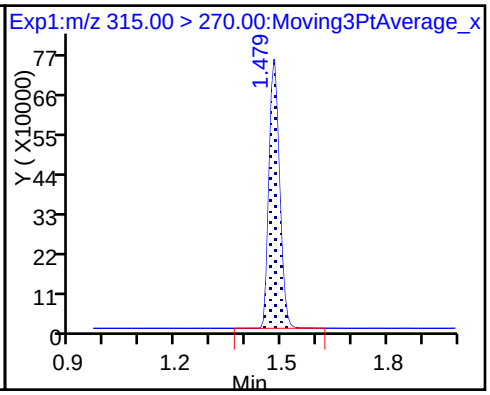
1 Perfluorobutanesulfonic acid (ND)



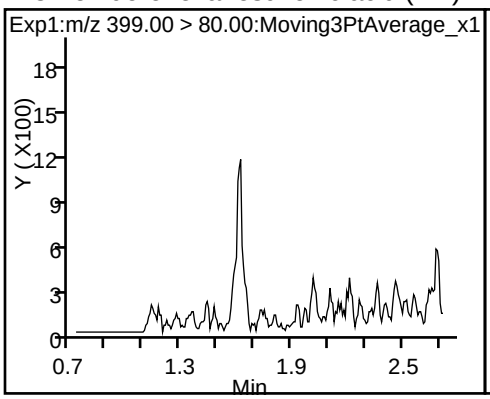
1 Perfluorobutanesulfonic acid (ND)



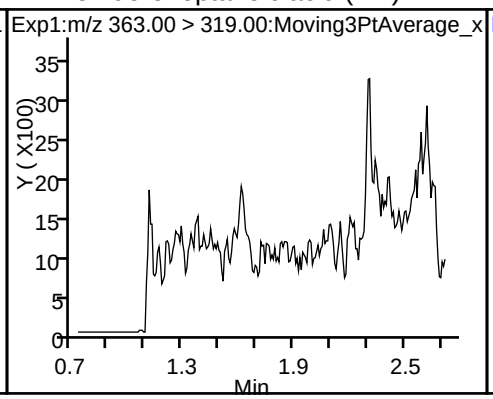
$ 2 13C2 PFHxA



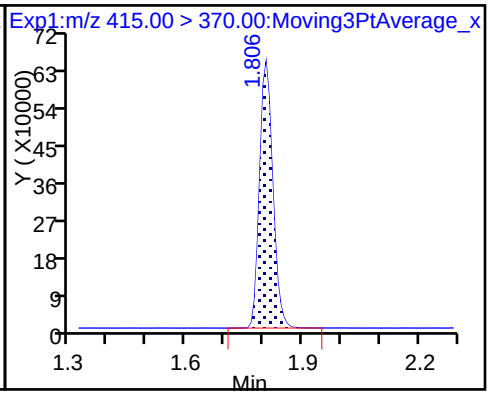
3 Perfluorohexanesulfonic acid (ND)



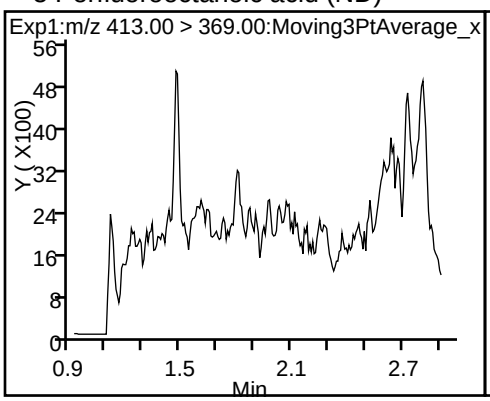
4 Perfluoroheptanoic acid (ND)



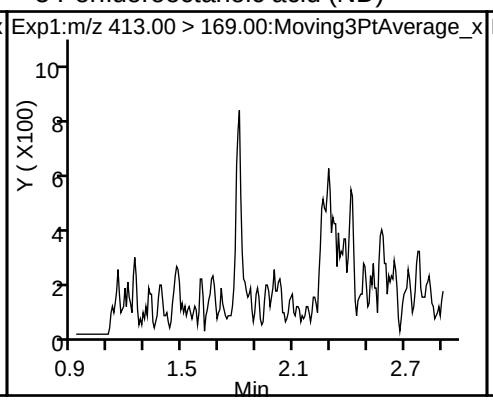
* 6 13C2-PFOA



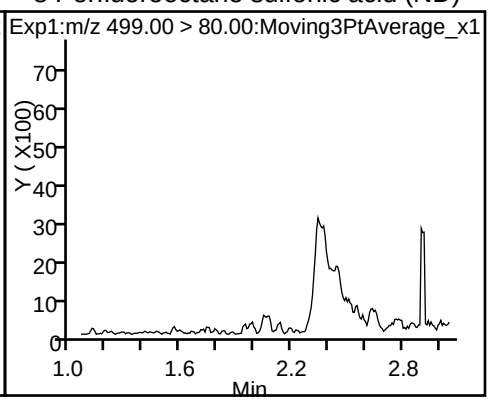
5 Perfluorooctanoic acid (ND)



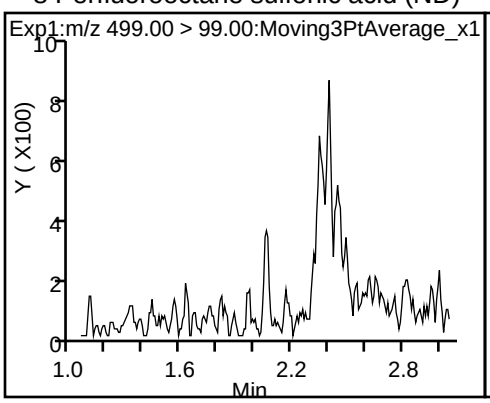
5 Perfluorooctanoic acid (ND)



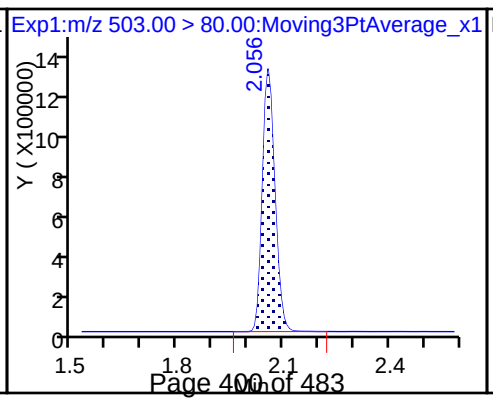
8 Perfluorooctane sulfonic acid (ND)



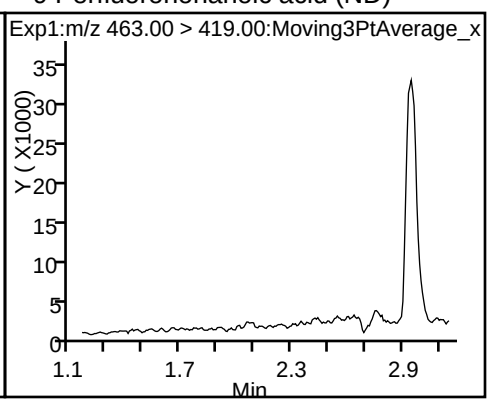
8 Perfluorooctane sulfonic acid (ND)



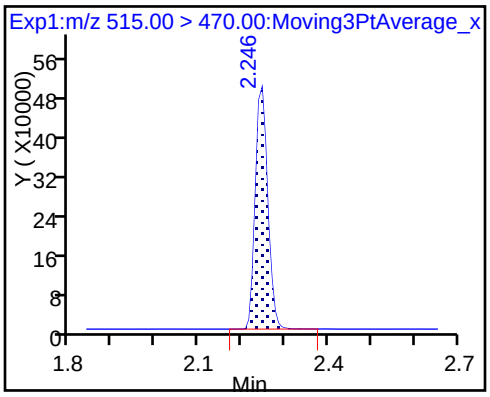
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
Y (X10000)
56
48
40
32
24
16
8
0
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_007.d				
Lims ID:	MB 320-203312/1-A				
Client ID:					
Sample Type:	MB				
Inject. Date:	12-Jan-2018 17:35:17	ALS Bottle#:	14	Worklist Smp#:	26
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Sample Info:	mb 320-203312/1-a				
Misc. Info.:	Plate: 1 Rack: 2				
Operator ID:	SACINSTLCMS01	Instrument ID:	A8_N		
Method:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m				
Limit Group:	LC 537 ICAL				
Last Update:	15-Jan-2018 13:47:05	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:	XAWRK028				

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.21	92.14
$ 10 13C2 PFDA	10.0	8.45	84.48

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: MB 320-203874/1-A

Matrix: Water | Lab File ID: 2018.01.18_537AA_027.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 07:16

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

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

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

Analysis Batch No.: 204650 | 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	95		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_027.d
Lims ID: MB 320-203874/1-A
Client ID:
Sample Type: MB
Inject. Date: 19-Jan-2018 07:16:50 ALS Bottle#: 17 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-203874/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

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	1.573	-0.094	1.000	1607918	9.53		9459	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1533627	10.0		5988	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3369760	28.7		7372	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1188293	10.1		7196	

Report Date: 19-Jan-2018 14:09:42 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_027.d

Injection Date: 19-Jan-2018 07:16:50 Instrument ID: A8_N

Lims ID: MB 320-203874/1-A

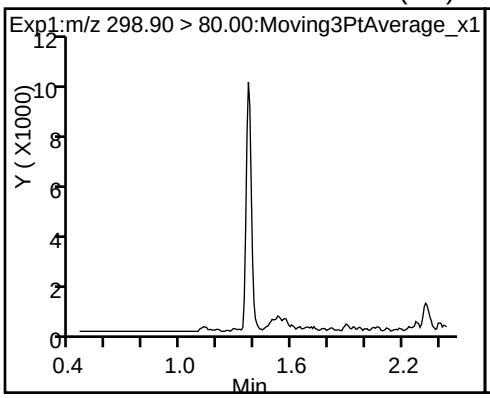
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 3

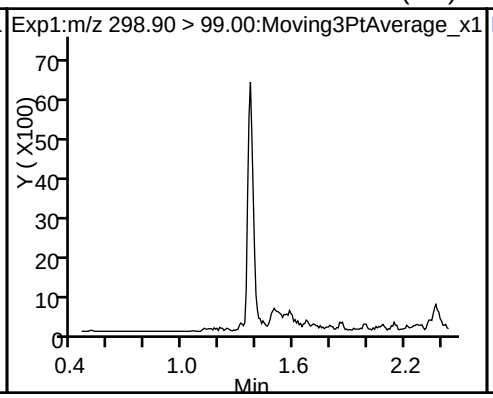
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

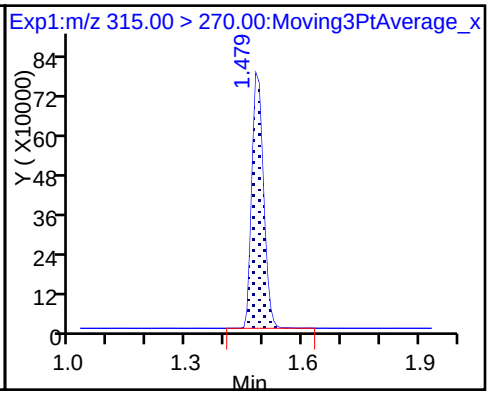
1 Perfluorobutanesulfonic acid (ND)



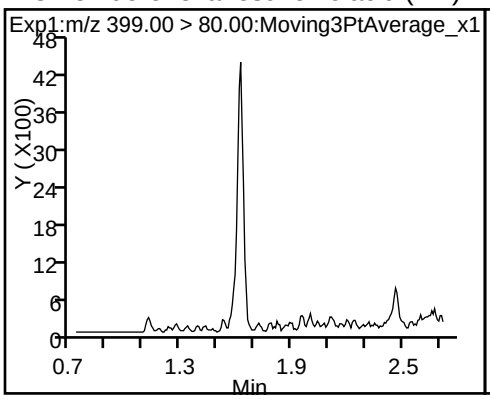
1 Perfluorobutanesulfonic acid (ND)



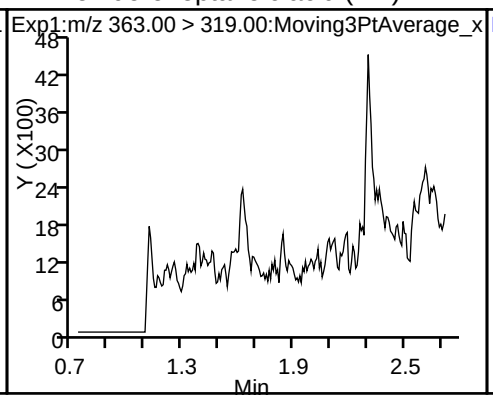
$ 2 13C2 PFHxA



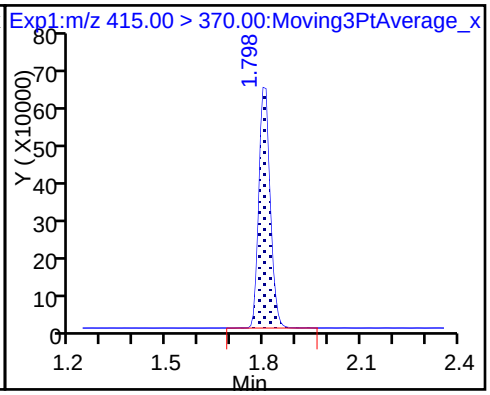
3 Perfluorohexanesulfonic acid (ND)



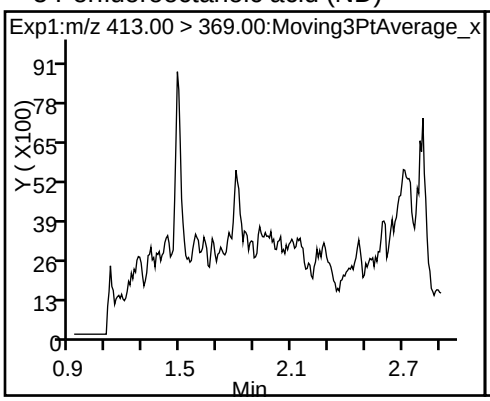
4 Perfluoroheptanoic acid (ND)



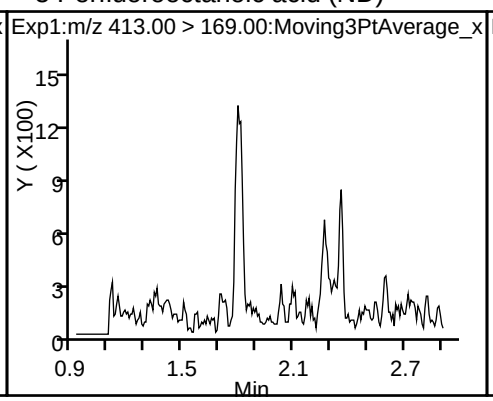
* 6 13C2-PFOA



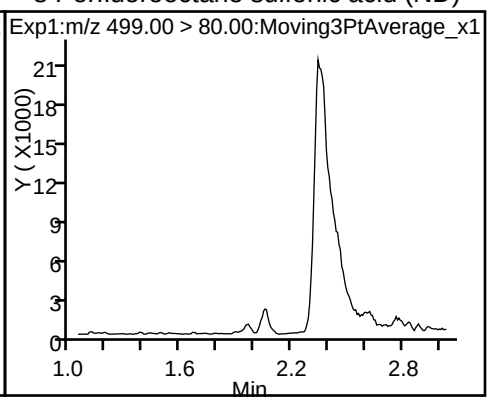
5 Perfluorooctanoic acid (ND)



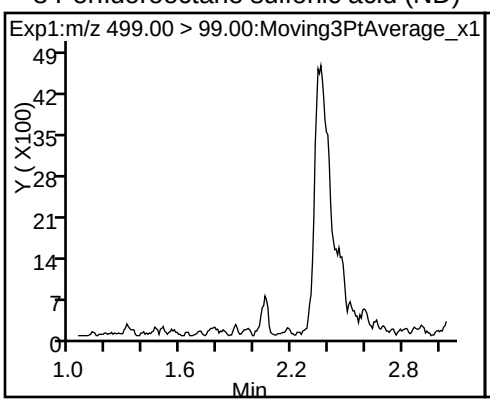
5 Perfluorooctanoic acid (ND)



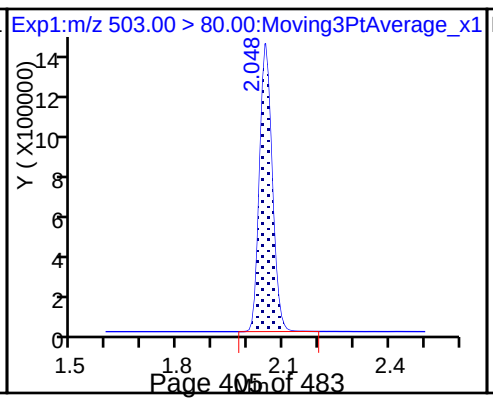
8 Perfluorooctane sulfonic acid (ND)



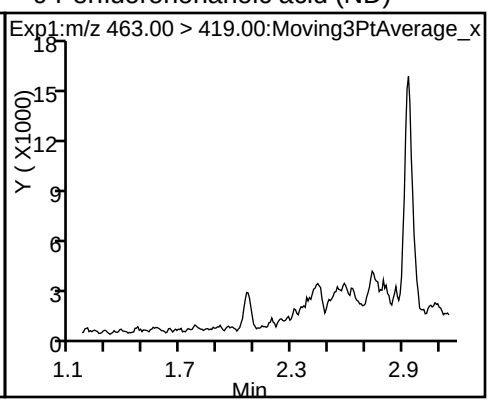
8 Perfluorooctane sulfonic acid (ND)



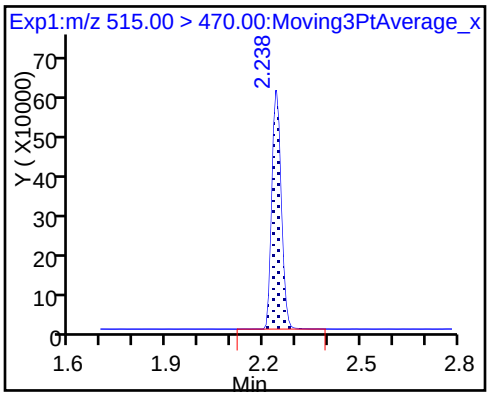
* 7 13C4 PFOS



9 Perfluorononanoic acid (ND)



$ 10 13C2 PFDA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Y (X10000)
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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\20180119-53091.b\2018.01.18_537AA_027.d
Lims ID: MB 320-203874/1-A
Client ID:
Sample Type: MB
Inject. Date: 19-Jan-2018 07:16:50 ALS Bottle#: 17 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-203874/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.53	95.29
$ 10 13C2 PFDA	10.0	10.1	101.26

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: LCS 320-203312/2-A

Matrix: Water | Lab File ID: 2018.01.12_537A_008.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 250(mL) | Date Analyzed: 01/12/2018 17:39

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	212		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	108		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	105		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	174		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	60.7		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	530		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	89		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_008.d
Lims ID: LCS 320-203312/2-A
Client ID:
Sample Type: LCS
Inject. Date: 12-Jan-2018 17:39:59 ALS Bottle#: 15 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-203312/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:29:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	13661048	132.6		14874	
298.90 > 99.00	1.358	1.444	-0.086	1.000	10152377		1.35(0.00-0.00)	13629	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1563582	9.66		8863	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	8165197	43.6		14078	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	2091887	15.2		748	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1470940	10.0		6065	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	3690588	27.1		722	
413.00 > 169.00	1.798	1.914	-0.116	1.000	2031853		1.82(0.00-0.00)	4776	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	5561300	52.9		6584	
499.00 > 99.00	2.048	2.056	-0.008	0.996	1142954		4.87(0.00-0.00)	2809	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3210272	28.7		7095	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	2563235	26.2		385	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1006548	8.94		6410	

Report Date: 15-Jan-2018 13:47:11 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_008.d

Injection Date: 12-Jan-2018 17:39:59 Instrument ID: A8_N

Lims ID: LCS 320-203312/2-A

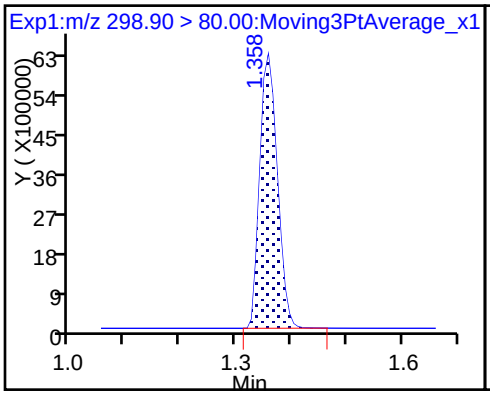
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 27

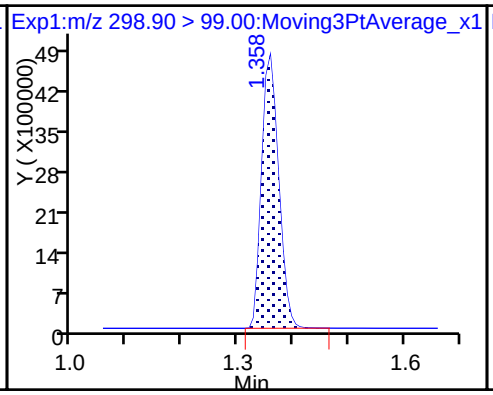
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

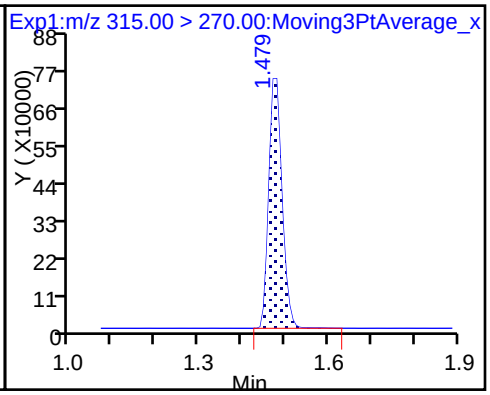
1 Perfluorobutanesulfonic acid



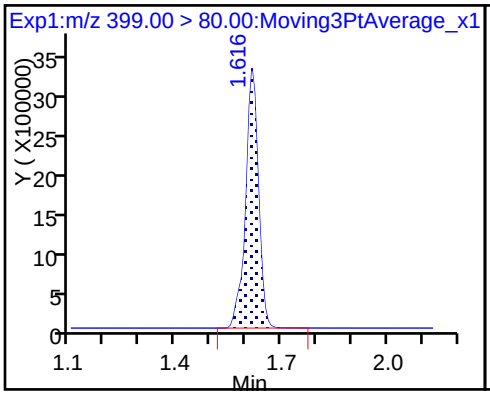
1 Perfluorobutanesulfonic acid



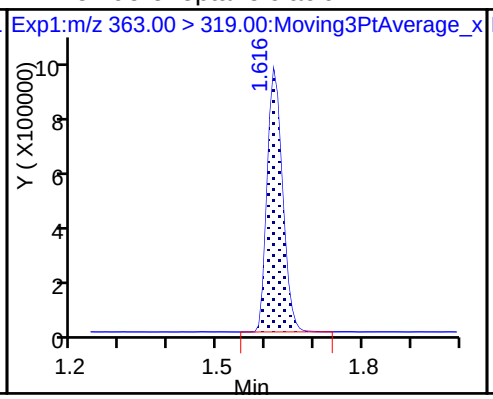
$ 2 13C2 PFHxA



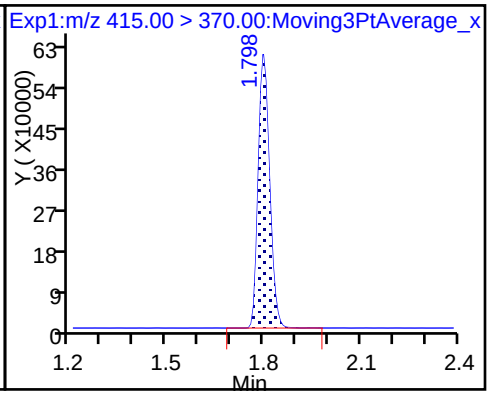
3 Perfluorohexanesulfonic acid



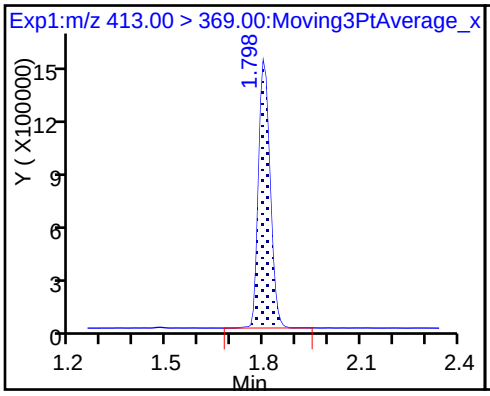
4 Perfluoroheptanoic acid



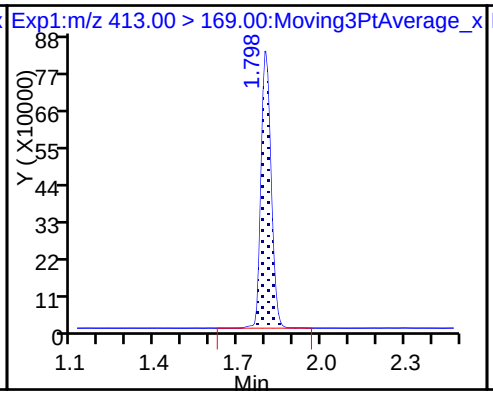
* 6 13C2-PFOA



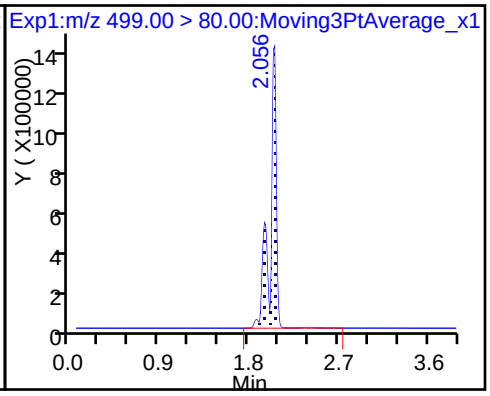
5 Perfluorooctanoic acid



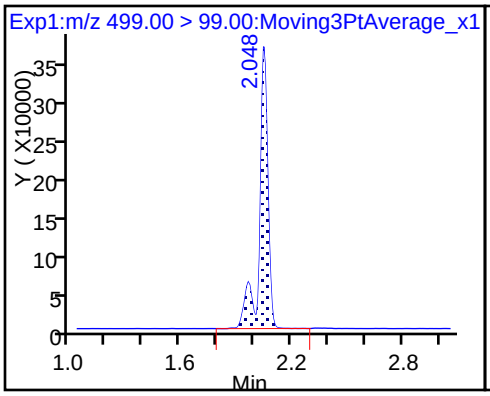
5 Perfluorooctanoic acid



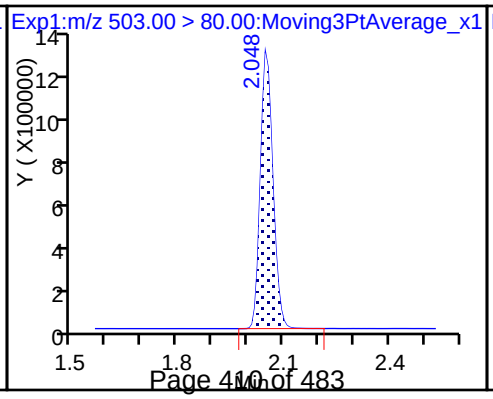
8 Perfluorooctane sulfonic acid



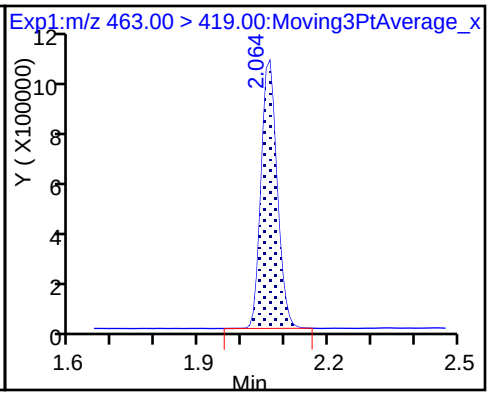
8 Perfluorooctane sulfonic acid



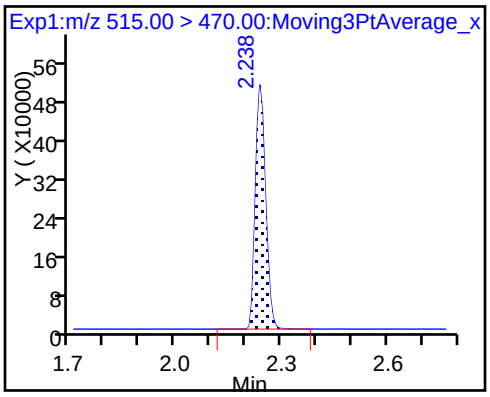
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA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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\20180114-52849.b\2018.01.12_537A_008.d
Lims ID: LCS 320-203312/2-A
Client ID:
Sample Type: LCS
Inject. Date: 12-Jan-2018 17:39:59 ALS Bottle#: 15 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-203312/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:29:40

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.66	96.61
$ 10 13C2 PFDA	10.0	8.94	89.43

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: LCS 320-203874/2-A

Matrix: Water | Lab File ID: 2018.01.18_537AA_028.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 07:21

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	221	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	107		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	103		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	176		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	58.7		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	519		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	90		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_028.d
Lims ID: LCS 320-203874/2-A
Client ID:
Sample Type: LCS
Inject. Date: 19-Jan-2018 07:21:31 ALS Bottle#: 18 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-203874/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	13991770	129.8		14391	
298.90 > 99.00	1.358	1.444	-0.086	1.000	11005016		1.27(0.00-0.00)	15756	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.573	-0.101	1.000	1643723	9.28		8388	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	8571278	43.9		14834	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	2213153	14.7		703	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.913	-0.122		1610627	10.0		6035	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.791	1.914	-0.123	1.000	3980967	26.7		599	
413.00 > 169.00	1.791	1.914	-0.123	1.000	2147919		1.85(0.00-0.00)	5010	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.041	2.041	0.0	1.000	6055965	55.4		921	M
499.00 > 99.00	2.041	2.041	0.0	1.000	1245505		4.86(0.00-0.00)	1044	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.151	-0.110		3341864	28.7		7596	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.158	-0.110	1.000	2766721	25.9		609	
$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.312	-0.081	1.000	1113991	9.04		6374	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 19-Jan-2018 14:09:43 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_028.d

Injection Date: 19-Jan-2018 07:21:31 Instrument ID: A8_N

Lims ID: LCS 320-203874/2-A

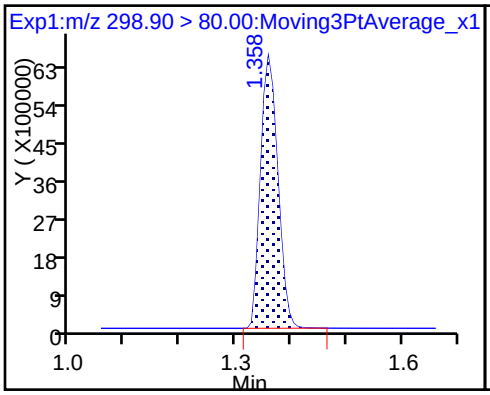
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 4

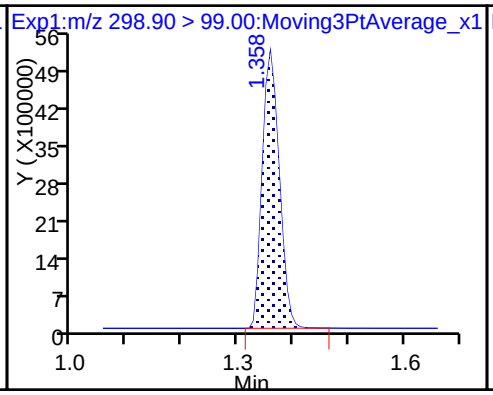
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

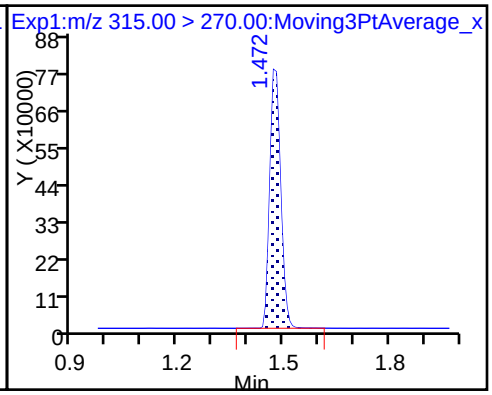
1 Perfluorobutanesulfonic acid



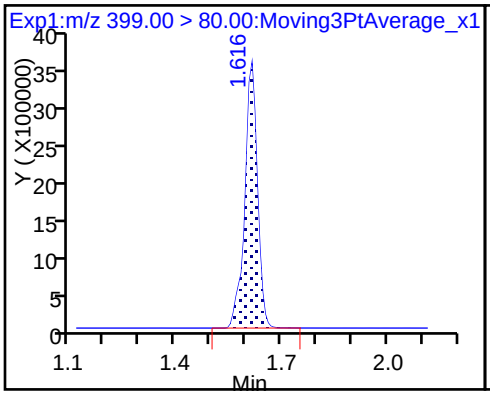
1 Perfluorobutanesulfonic acid



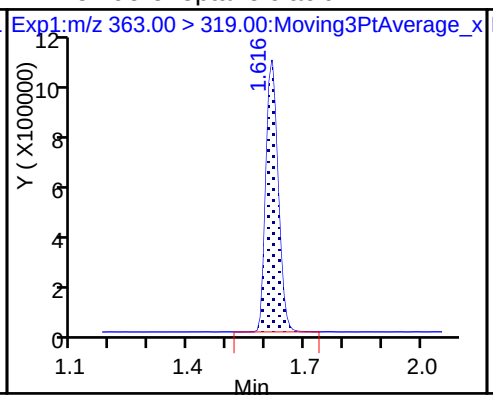
$ 2 13C2 PFHxA



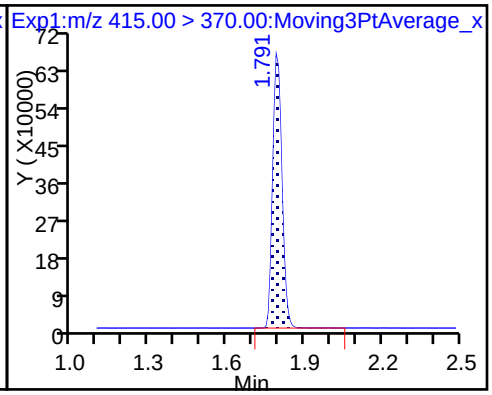
3 Perfluorohexanesulfonic acid



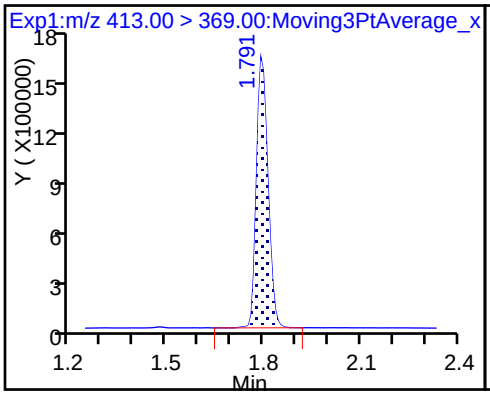
4 Perfluoroheptanoic acid



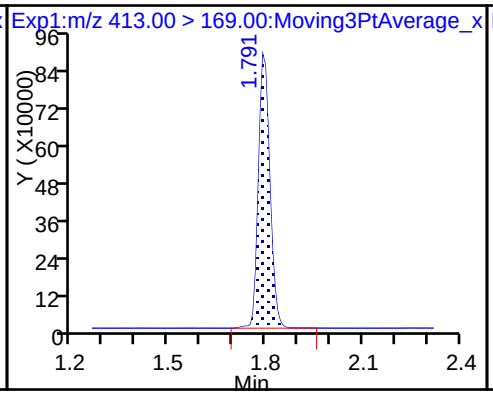
* 6 13C2-PFOA



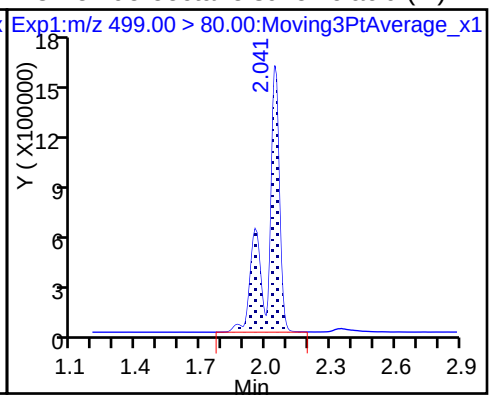
5 Perfluorooctanoic acid



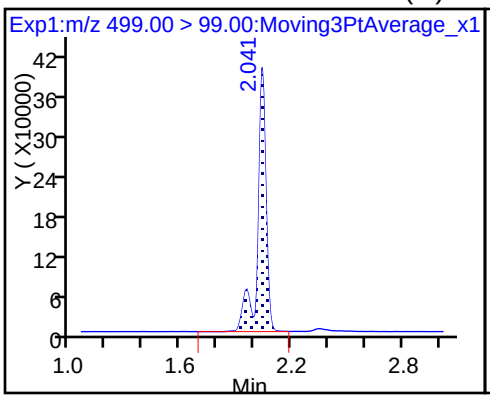
5 Perfluorooctanoic acid



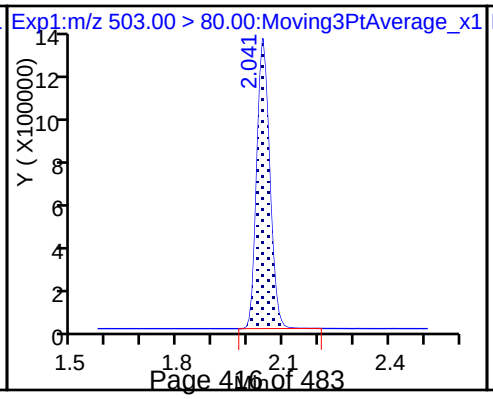
8 Perfluorooctane sulfonic acid (M)



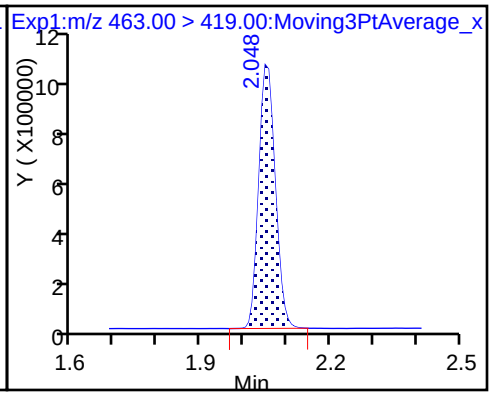
8 Perfluorooctane sulfonic acid (M)



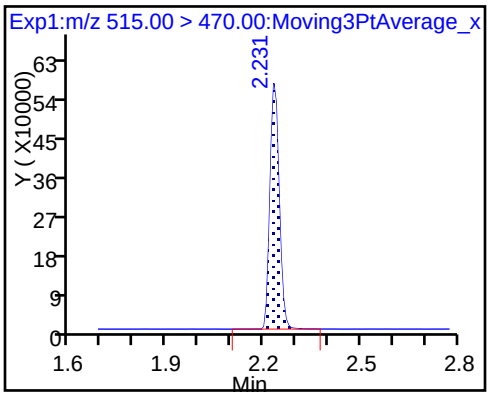
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.231
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\20180119-53091.b\2018.01.18_537AA_028.d
Lims ID: LCS 320-203874/2-A
Client ID:
Sample Type: LCS
Inject. Date: 19-Jan-2018 07:21:31 ALS Bottle#: 18 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-203874/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:00

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.28	92.75
$ 10 13C2 PFDA	10.0	9.04	90.39

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

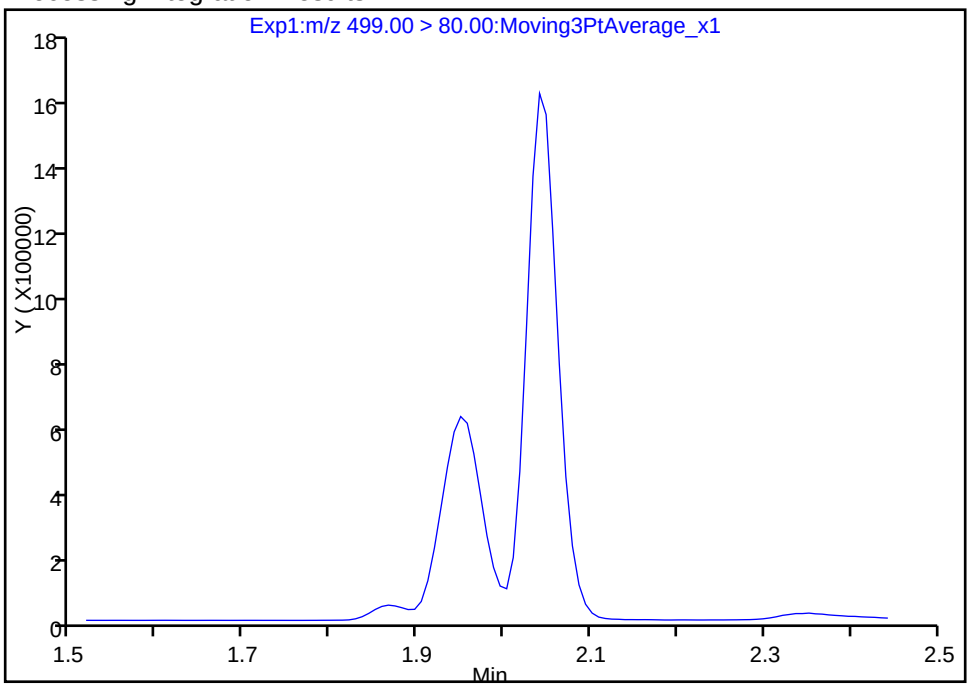
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_028.d
Injection Date: 19-Jan-2018 07:21:31 Instrument ID: A8_N
Lims ID: LCS 320-203874/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

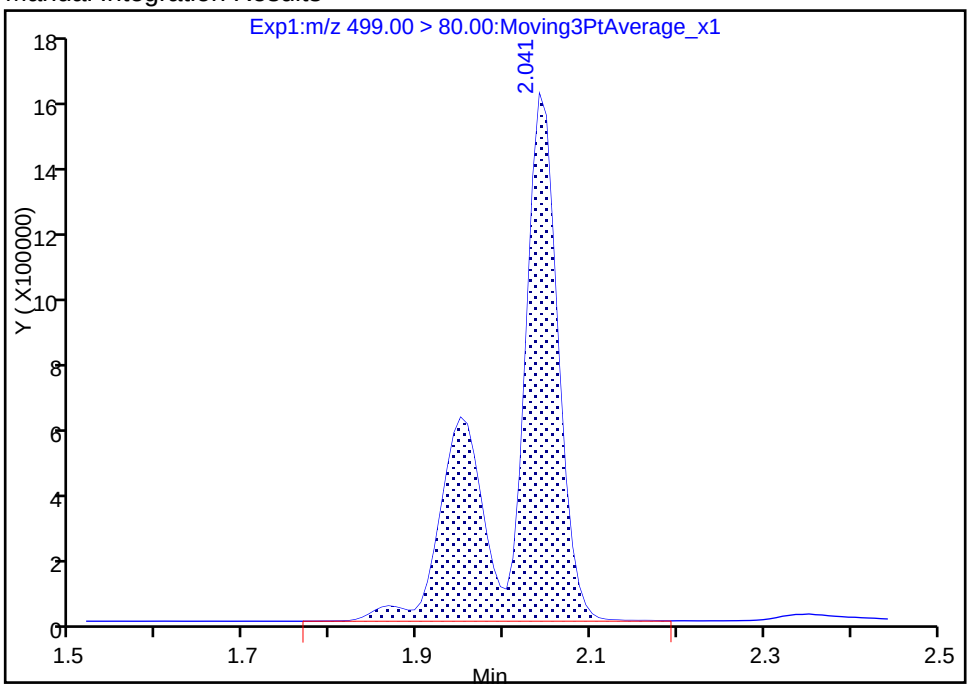
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 6055965
Amount: 55.351815
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:05:47
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

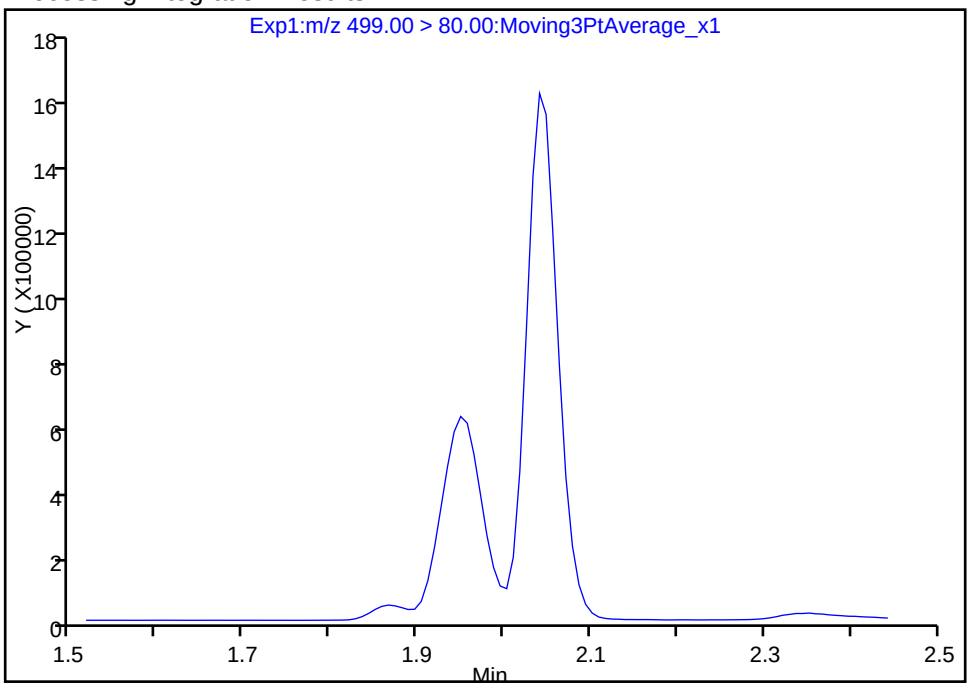
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_028.d
Injection Date: 19-Jan-2018 07:21:31 Instrument ID: A8_N
Lims ID: LCS 320-203874/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

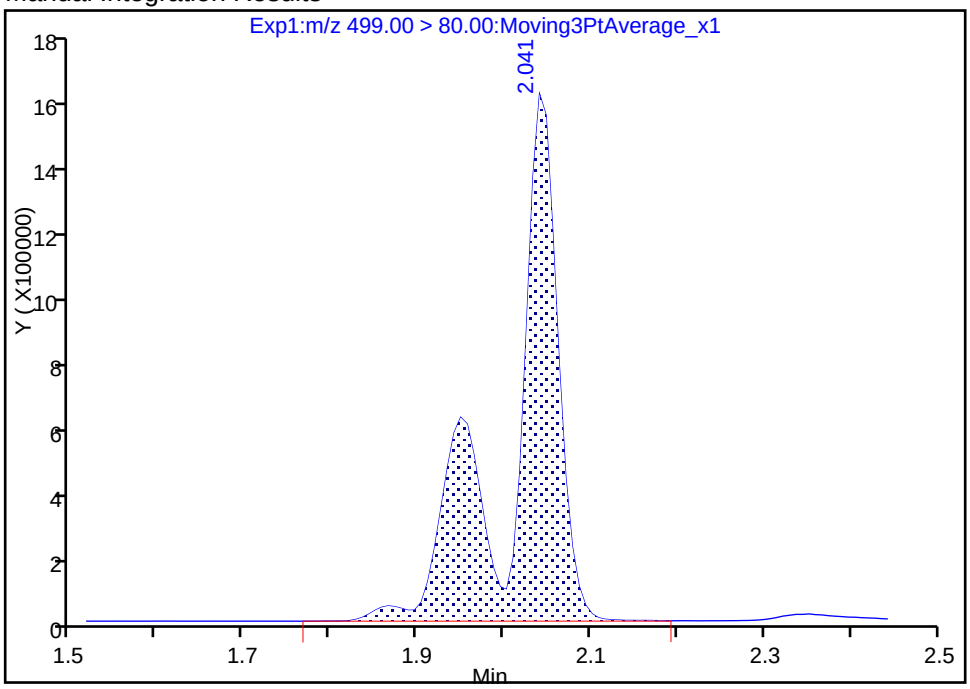
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 6055965
Amount: 55.351815
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:05:52
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

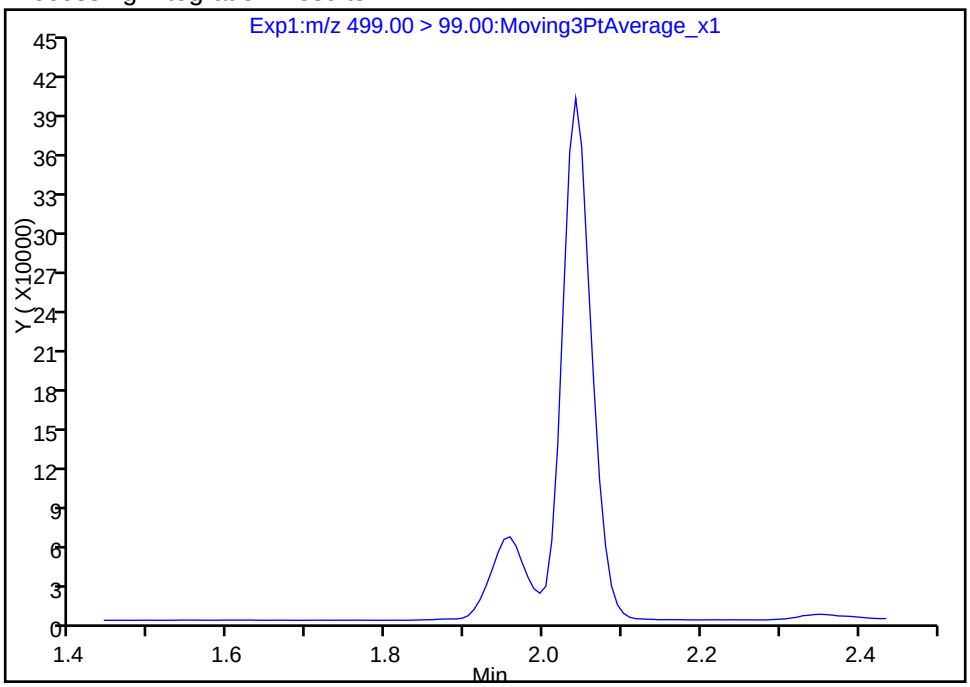
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_028.d
Injection Date: 19-Jan-2018 07:21:31 Instrument ID: A8_N
Lims ID: LCS 320-203874/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

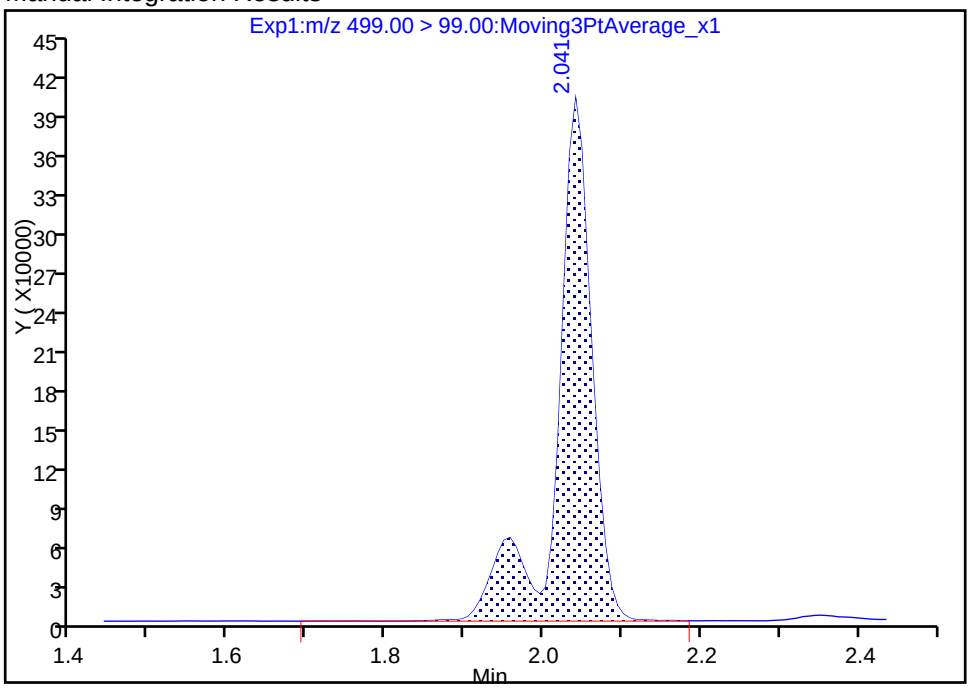
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 1245505
Amount: 55.351815
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:05:53
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: LCSD 320-203874/3-A

Matrix: Water | Lab File ID: 2018.01.18_537AA_029.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 07:26

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	225	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	115		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	114		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	178		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	59.4		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	517		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_029.d
Lims ID: LCSD 320-203874/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 19-Jan-2018 07:26:10 ALS Bottle#: 19 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-203874/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	14372299	129.2		13473	
298.90 > 99.00	1.358	1.444	-0.086	1.000	11116666		1.29(0.00-0.00)	13776	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1651601	9.36		10252	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	8939970	44.4		14162	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.725	-0.109	1.000	2232521	14.9		747	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.913	-0.115		1603492	10.0		6056	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.914	-0.116	1.000	4265369	28.7		617	
413.00 > 169.00	1.798	1.914	-0.116	1.000	2276346		1.87(0.00-0.00)	5591	
8 Perfluorooctane sulfonic acid									M
499.00 > 80.00	2.048	2.041	0.007	1.000	6338193	56.2		1006	M
499.00 > 99.00	2.041	2.041	0.0	0.996	1321905		4.79(0.00-0.00)	1156	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.151	-0.103		3446900	28.7		6992	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.158	-0.102	1.000	3033251	28.5		611	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1200487	9.78		7016	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 19-Jan-2018 14:09:43 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_029.d

Injection Date: 19-Jan-2018 07:26:10 Instrument ID: A8_N

Lims ID: LCSD 320-203874/3-A

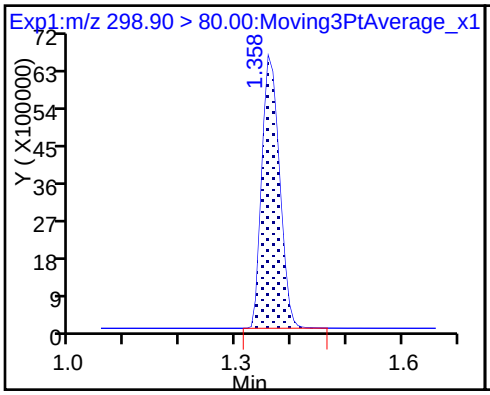
Client ID:

Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 5

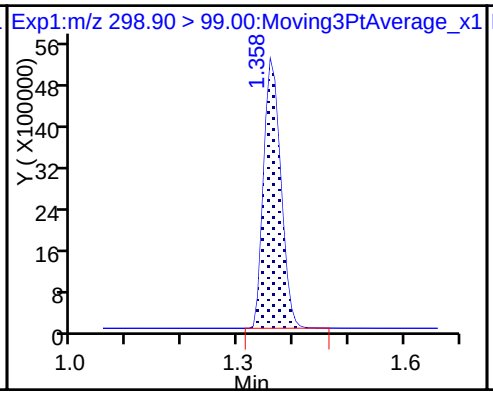
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

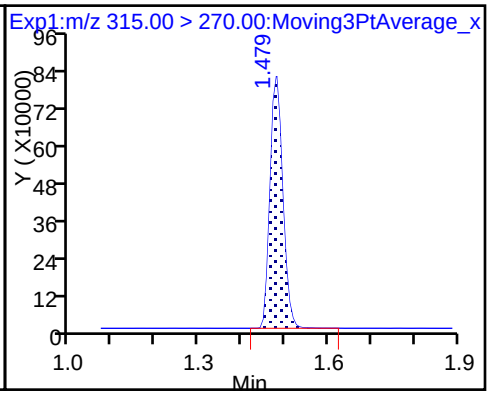
1 Perfluorobutanesulfonic acid



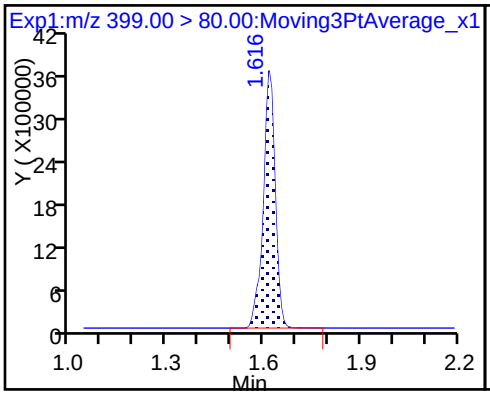
1 Perfluorobutanesulfonic acid



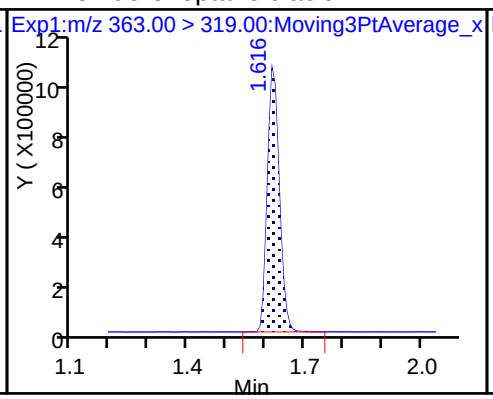
$ 2 13C2 PFHxA



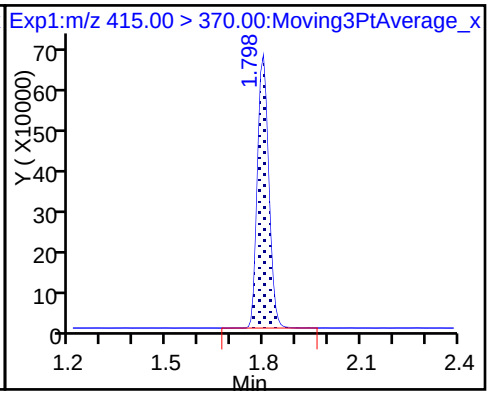
3 Perfluorohexanesulfonic acid



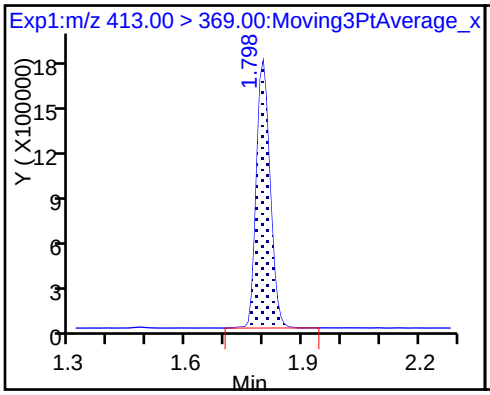
4 Perfluoroheptanoic acid



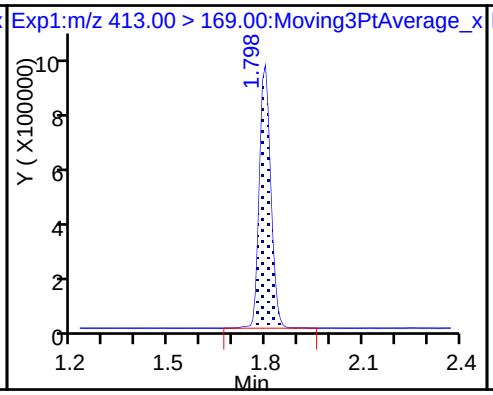
* 6 13C2-PFOA



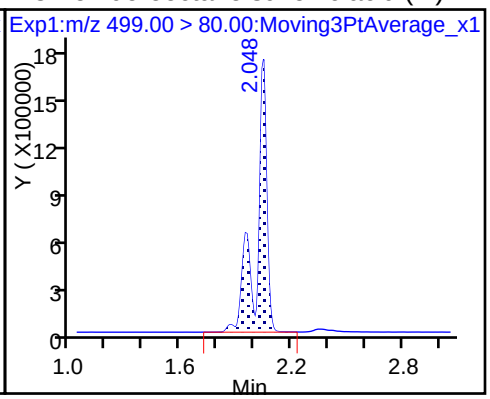
5 Perfluorooctanoic acid



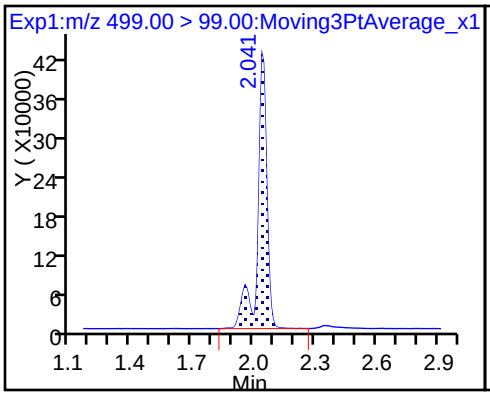
5 Perfluorooctanoic acid



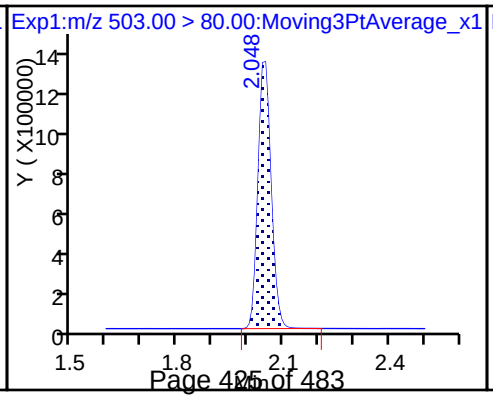
8 Perfluorooctane sulfonic acid (M)



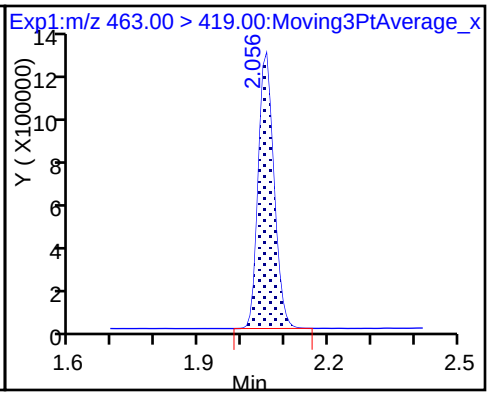
8 Perfluorooctane sulfonic acid



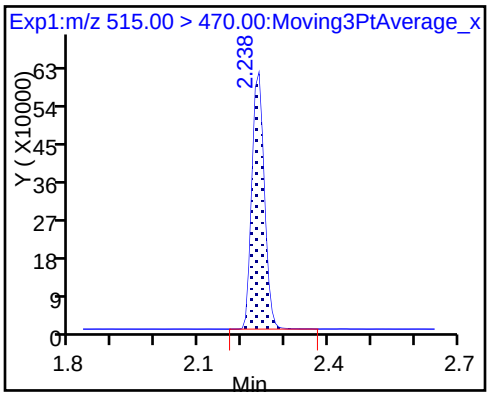
* 7 13C4 PFOS



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
1.8
2.1
2.4
2.7
Min

TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_029.d
Lims ID: LCSD 320-203874/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 19-Jan-2018 07:26:10 ALS Bottle#: 19 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-203874/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 19-Jan-2018 14:09:41 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: XAWRK023

First Level Reviewer: westendorfc Date: 19-Jan-2018 14:06:15

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.36	93.61
$ 10 13C2 PFDA	10.0	9.78	97.84

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

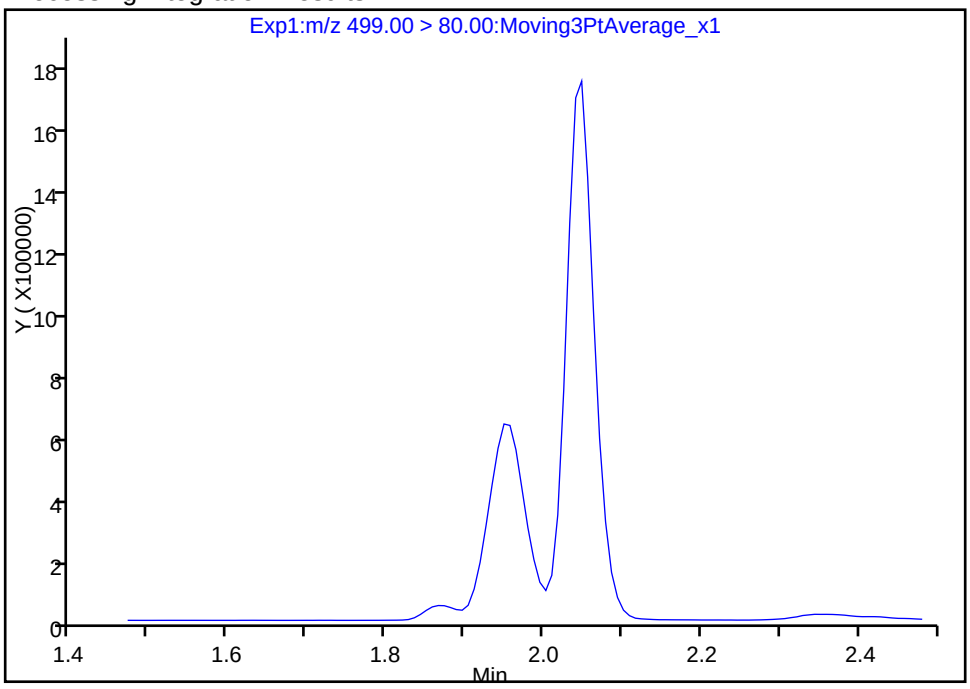
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_029.d				
Injection Date:	19-Jan-2018 07:26:10	Instrument ID:	A8_N		
Lims ID:	LCSD 320-203874/3-A				
Client ID:					
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

Signal: 1

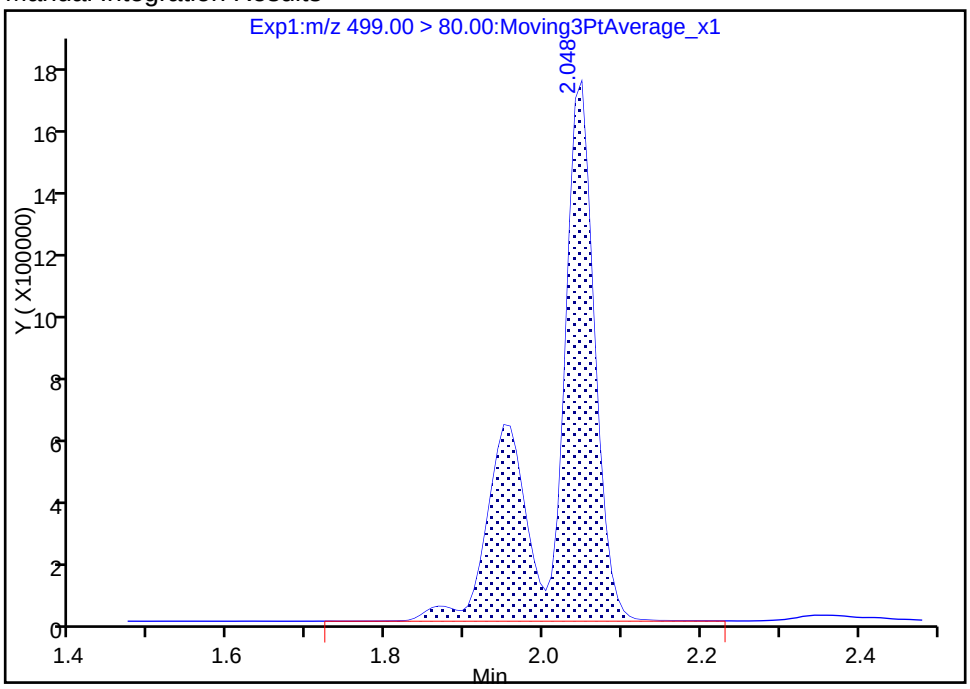
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 6338193
Amount: 56.166073
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:06:08
Audit Action: Assigned Compound ID Audit Reason: Split Peak

Manual Integration/User Assign Peak Report

TestAmerica Sacramento

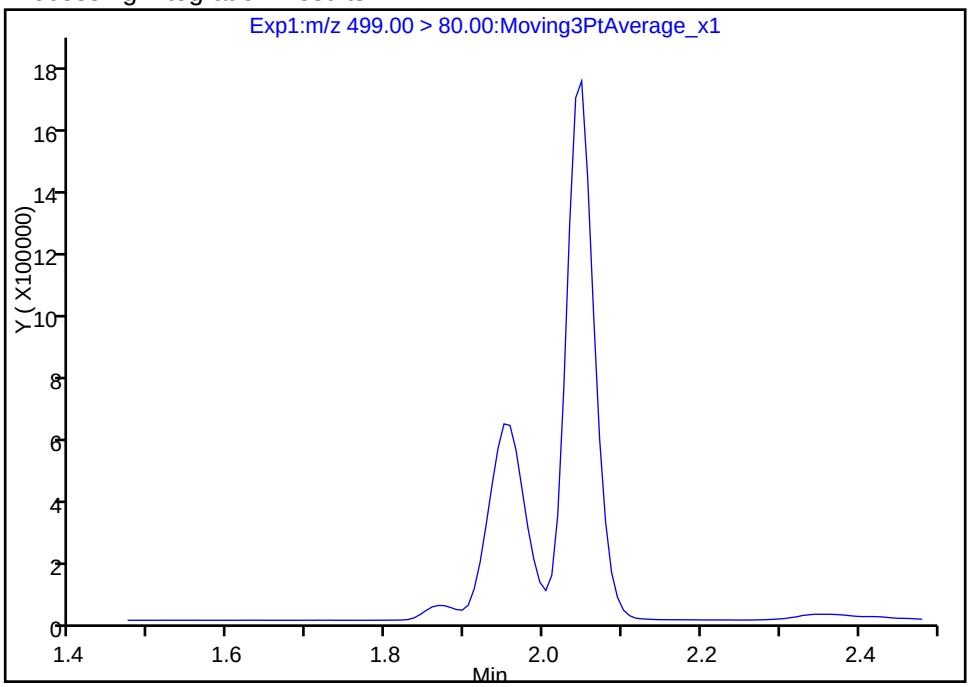
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b\2018.01.18_537AA_029.d
Injection Date: 19-Jan-2018 07:26:10 Instrument ID: A8_N
Lims ID: LCSD 320-203874/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

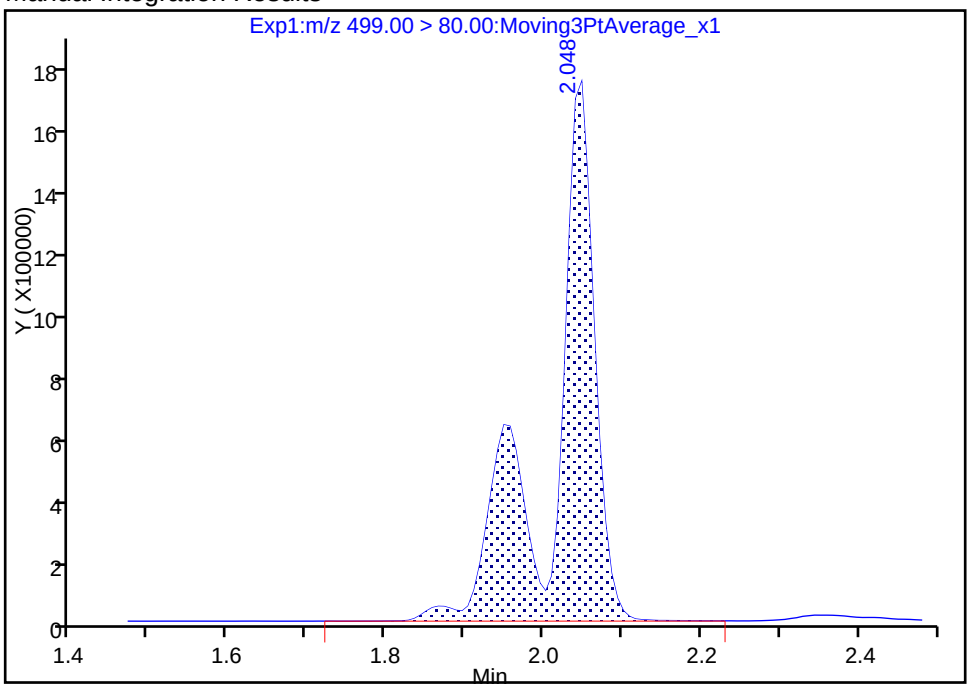
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 6338193
Amount: 56.166073
Amount Units: ng/ml



Reviewer: westendorfc, 19-Jan-2018 14:06:11
Audit Action: Split an Integrated Peak Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-275 MS | Lab Sample ID: 320-34835-1 MS

Matrix: Water | Lab File ID: 2018.01.12_537A_010.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 252.6(mL) | Date Analyzed: 01/12/2018 17:49

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	241		40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	121		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	108		24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	181		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	58.4		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	536		89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	90		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_010.d
Lims ID: 320-34835-A-1-B MS
Client ID: NAWC-010318-RW-275
Sample Type: MS
Inject. Date: 12-Jan-2018 17:49:19 ALS Bottle#: 17 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-1-b ms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:30:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	13995210	135.4		8715	
298.90 > 99.00	1.358	1.444	-0.086	1.000	10572968		1.32(0.00-0.00)	12906	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1569630	9.33		8524	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	8616793	45.6		3764	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2111137	14.7		389	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1528627	10.0		6980	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	4323481	30.6		609	
413.00 > 169.00	1.806	1.914	-0.108	1.000	2288747		1.89(0.00-0.00)	4412	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6438677	60.8		2513	
499.00 > 99.00	2.056	2.056	0.0	1.000	1317703		4.89(0.00-0.00)	1941	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3234823	28.7		2792	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	2771027	27.3		376	
$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1056821	9.03		7060	

Report Date: 15-Jan-2018 13:47:13 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_010.d

Injection Date: 12-Jan-2018 17:49:19 Instrument ID: A8_N

Lims ID: 320-34835-A-1-B MS

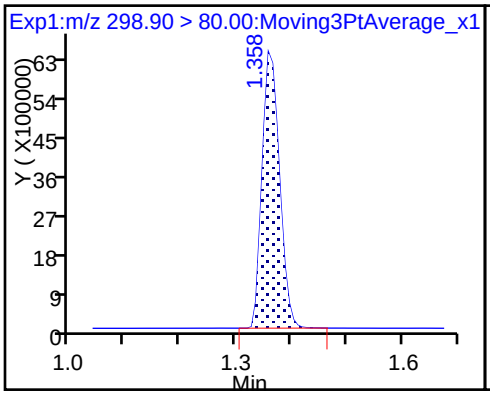
Client ID: NAWC-010318-RW-275

Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 29

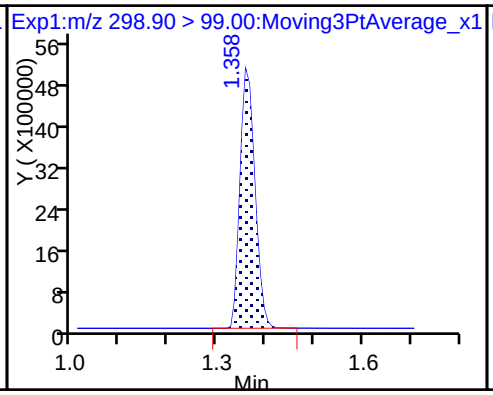
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

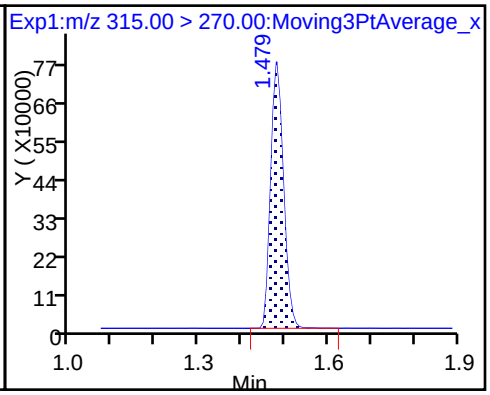
1 Perfluorobutanesulfonic acid



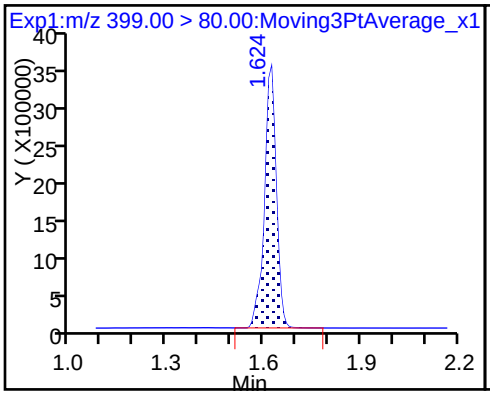
1 Perfluorobutanesulfonic acid



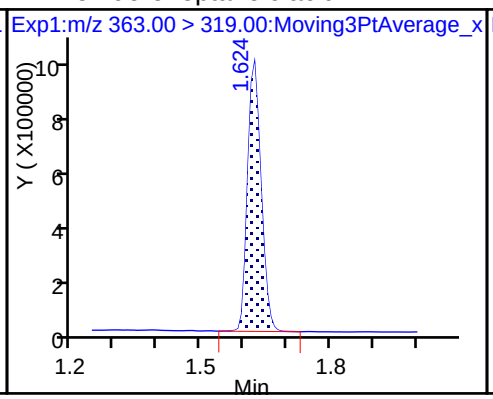
$ 2 13C2 PFHxA



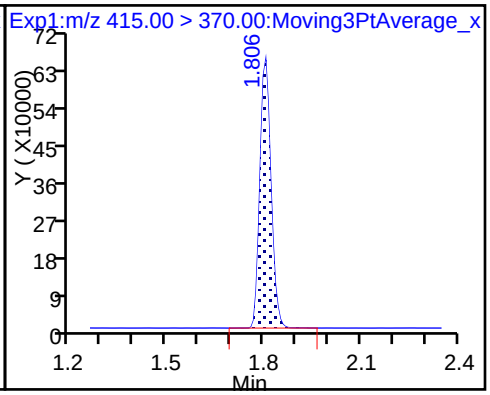
3 Perfluorohexanesulfonic acid



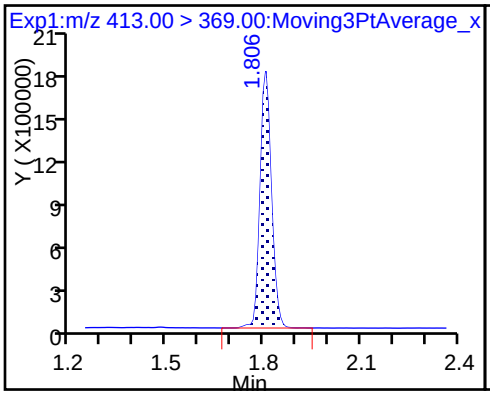
4 Perfluoroheptanoic acid



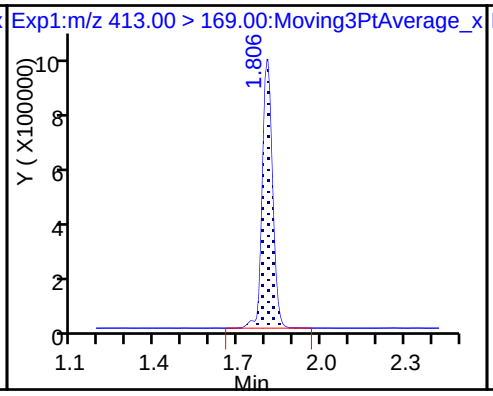
* 6 13C2-PFOA



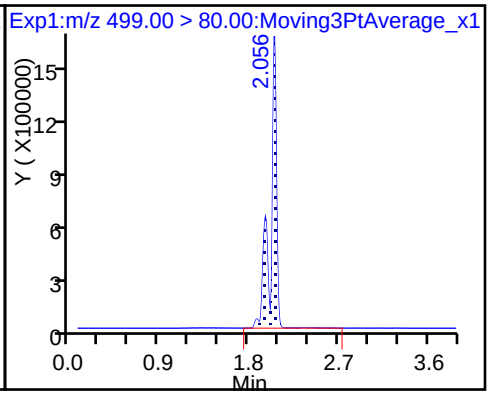
5 Perfluorooctanoic acid



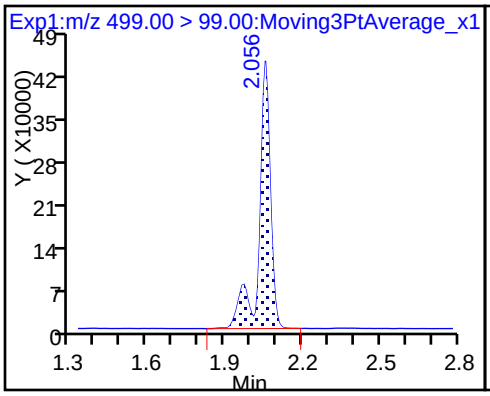
5 Perfluorooctanoic acid



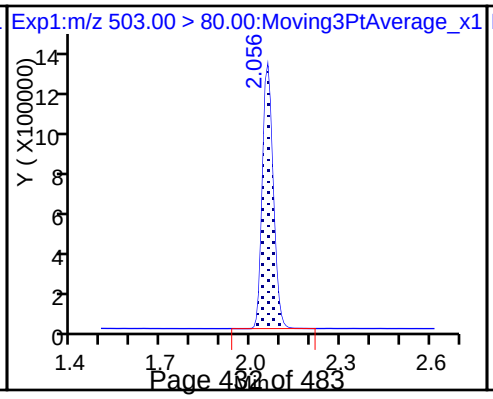
8 Perfluorooctane sulfonic acid



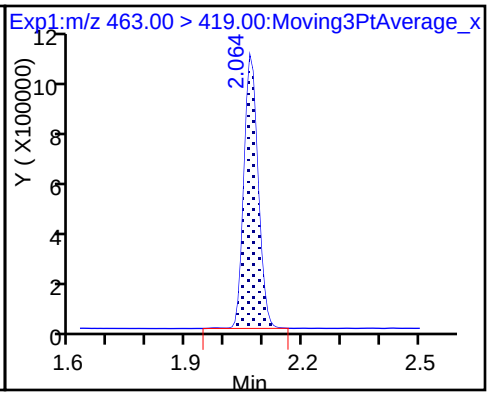
8 Perfluorooctane sulfonic acid



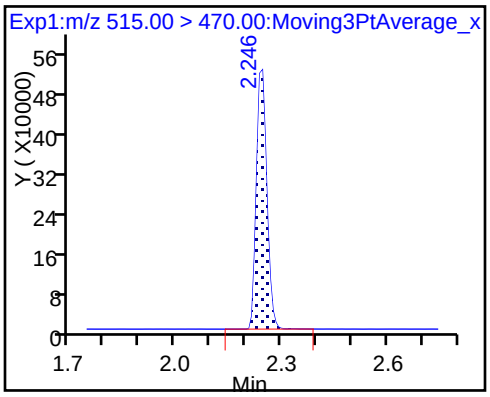
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.246
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\20180114-52849.b\2018.01.12_537A_010.d
Lims ID: 320-34835-A-1-B MS
Client ID: NAWC-010318-RW-275
Sample Type: MS
Inject. Date: 12-Jan-2018 17:49:19 ALS Bottle#: 17 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-1-b ms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:47:05 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: XAWRK028

First Level Reviewer: westendorfc Date: 15-Jan-2018 09:30:23

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.33	93.32
$ 10 13C2 PFDA	10.0	9.03	90.35

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-275 MSD | Lab Sample ID: 320-34835-1 MSD

Matrix: Water | Lab File ID: 2018.01.12_537A_011.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 240(mL) | Date Analyzed: 01/12/2018 17:53

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	263		42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	130	M	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	112		25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	191		31	13	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	65.0		10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	578		94	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_011.d
Lims ID: 320-34835-A-1-C MSD
Client ID: NAWC-010318-RW-275
Sample Type: MSD
Inject. Date: 12-Jan-2018 17:53:59 ALS Bottle#: 18 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-1-c msd
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:53:54 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: XAWRK028

First Level Reviewer: barnettj Date: 15-Jan-2018 13:53:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.444	-0.086	1.000	14129389	138.8		8826	
298.90 > 99.00	1.358	1.444	-0.086	1.000	10874833		1.30(0.00-0.00)	13146	
$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1595488	9.40		8549	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.725	-0.109	1.000	8588107	45.9		3824	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2254878	15.6		416	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1543137	10.0		6991	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.806	1.914	-0.108	1.000	4467155	31.3		619	M
413.00 > 169.00	1.806	1.914	-0.108	1.000	2392004		1.87(0.00-0.00)	4929	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	6624098	63.2		2708	
499.00 > 99.00	2.056	2.056	0.0	1.000	1341479		4.94(0.00-0.00)	2182	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3203051	28.7		2821	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.158	-0.094	1.000	2757304	26.9		403	
$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.312	-0.074	1.000	1075811	9.11		7342	

QC Flag Legend

Review Flags

M - Manually Integrated

Report Date: 15-Jan-2018 13:53:59 Chrom Revision: 2.2 08-Dec-2017 11:41:26

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_011.d

Injection Date: 12-Jan-2018 17:53:59 Instrument ID: A8_N

Lims ID: 320-34835-A-1-C MSD

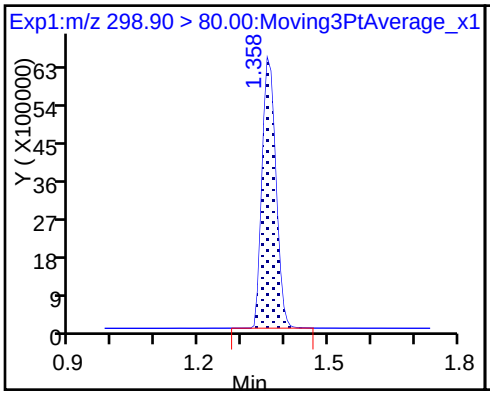
Client ID: NAWC-010318-RW-275

Operator ID: SACINSTLCMS01 ALS Bottle#: 18 Worklist Smp#: 30

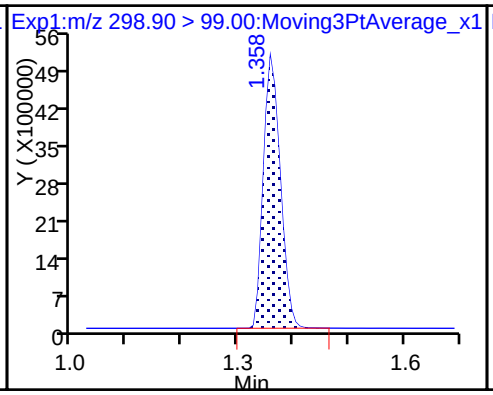
Injection Vol: 2.0 ul Dil. Factor: 1.0000

Method: 537_A8_N Limit Group: LC 537 ICAL

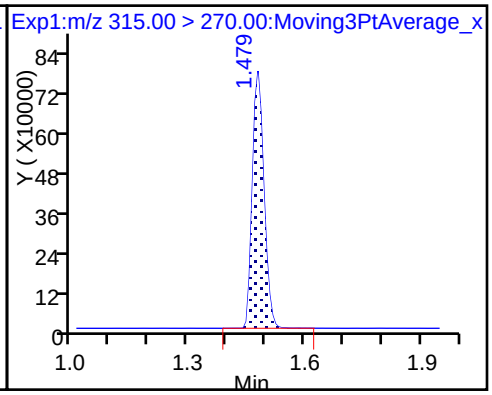
1 Perfluorobutanesulfonic acid



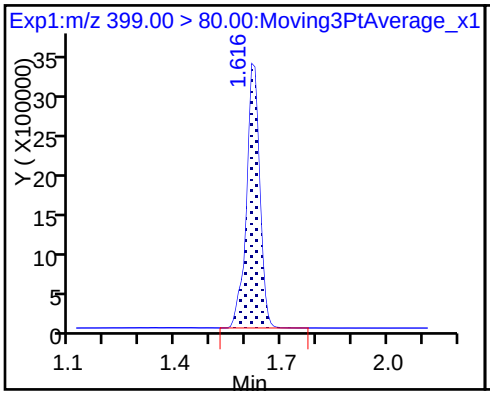
1 Perfluorobutanesulfonic acid



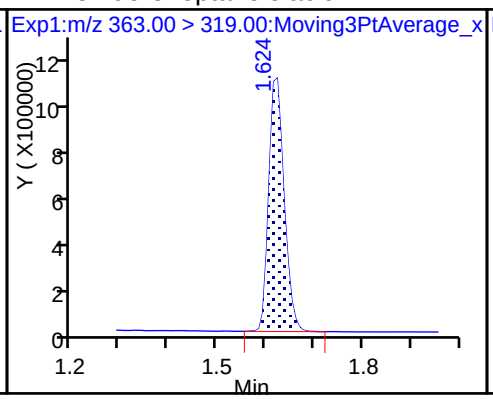
$ 2 13C2 PFHxA



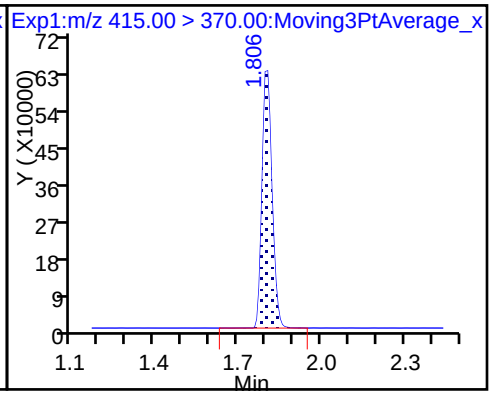
3 Perfluorohexanesulfonic acid



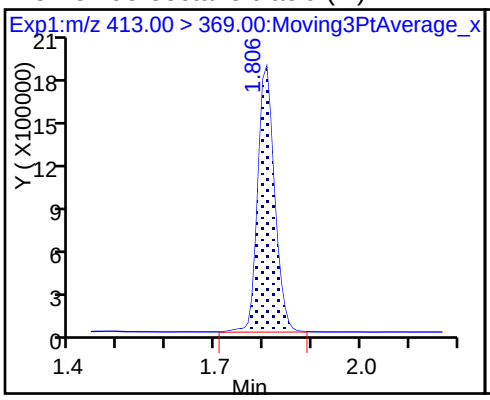
4 Perfluoroheptanoic acid



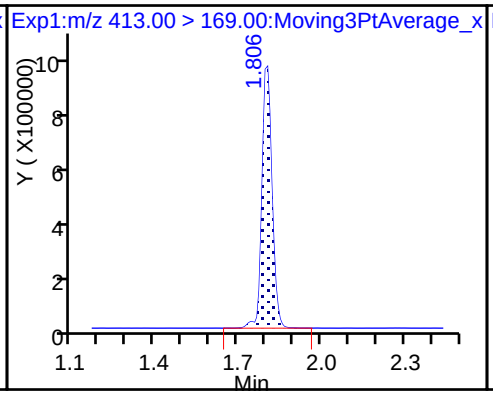
* 6 13C2-PFOA



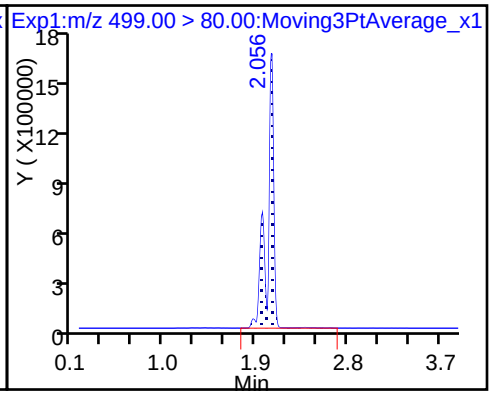
5 Perfluorooctanoic acid (M)



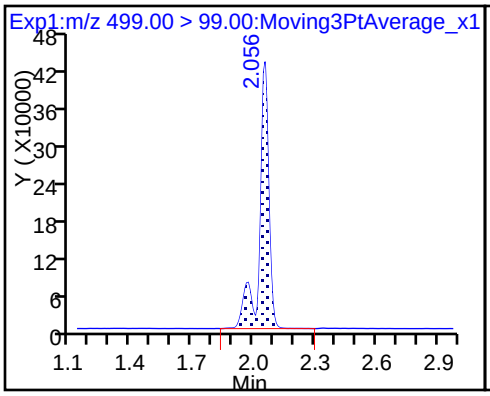
5 Perfluorooctanoic acid



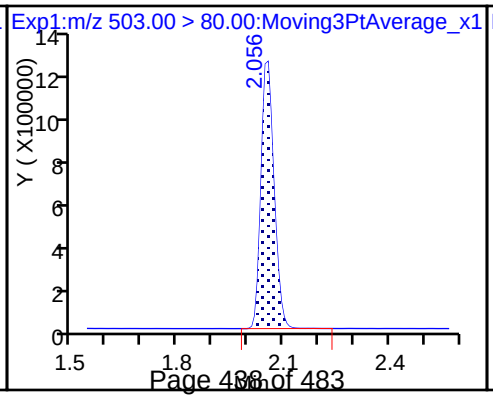
8 Perfluorooctane sulfonic acid



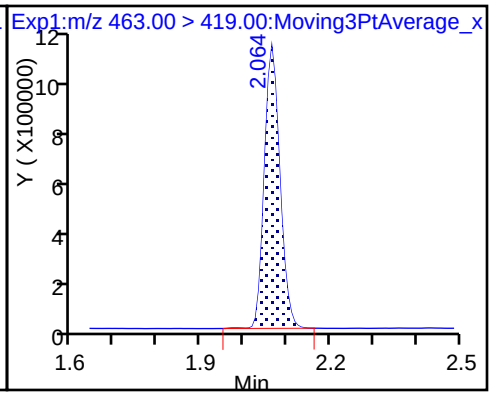
8 Perfluorooctane sulfonic acid



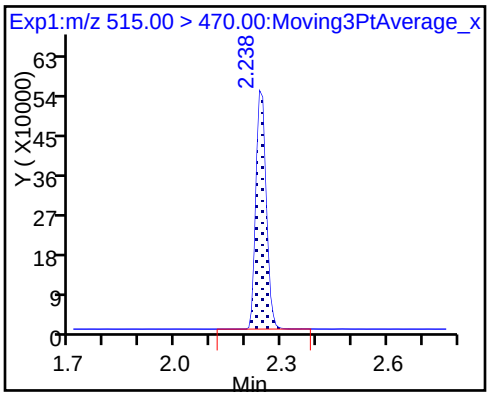
* 7 13C4 PFOS



9 Perfluorononanoic acid



$ 10 13C2 PFDA


Exp1:m/z 515.00 > 470.00:Moving3PtAverage_x
2.238
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\20180114-52849.b\2018.01.12_537A_011.d
Lims ID: 320-34835-A-1-C MSD
Client ID: NAWC-010318-RW-275
Sample Type: MSD
Inject. Date: 12-Jan-2018 17:53:59 ALS Bottle#: 18 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-34835-a-1-c msd
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N

Method: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 15-Jan-2018 13:53:54 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: XAWRK028

First Level Reviewer: barnettj Date: 15-Jan-2018 13:53:54

Compound	Amount Added	Amount Recovered	% Rec.
$ 2 13C2 PFHxA	10.0	9.40	93.97
$ 10 13C2 PFDA	10.0	9.11	91.11

TestAmerica Sacramento

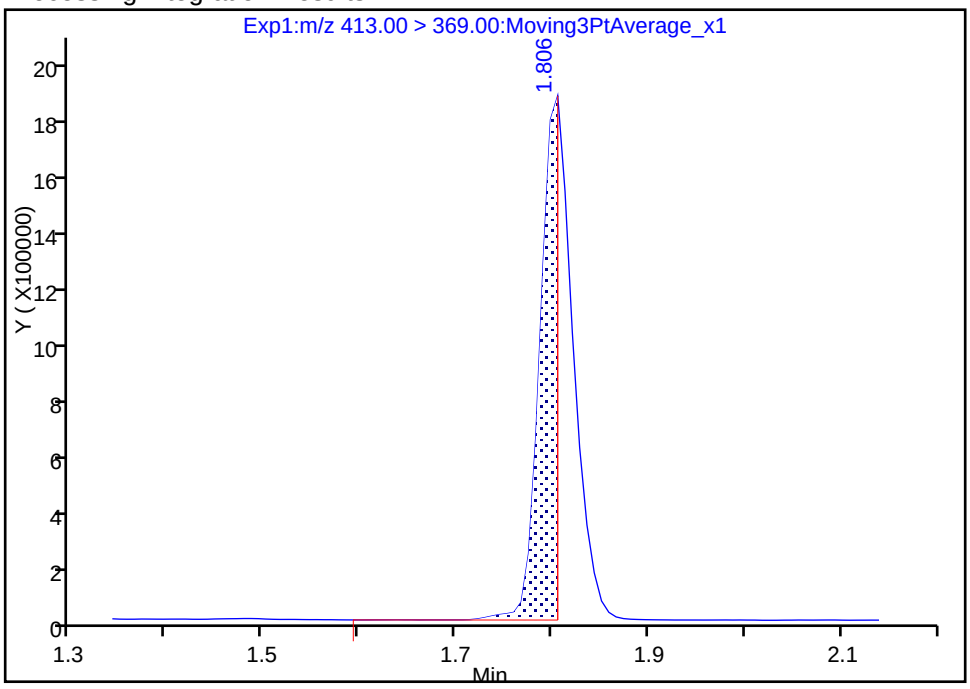
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b\2018.01.12_537A_011.d				
Injection Date:	12-Jan-2018 17:53:59	Instrument ID:	A8_N		
Lims ID:	320-34835-A-1-C MSD				
Client ID:	NAWC-010318-RW-275				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	18	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

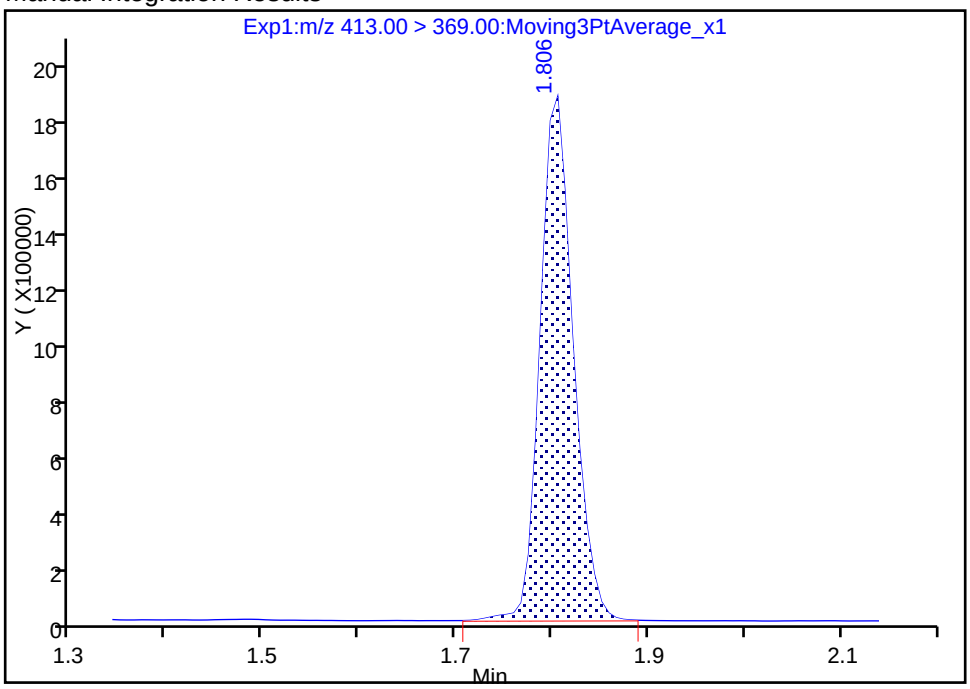
Processing Integration Results

RT: 1.81
Area: 2302515
Amount: 16.117610
Amount Units: ng/ml



Manual Integration Results

RT: 1.81
Area: 4467155
Amount: 31.270096
Amount Units: ng/ml



Reviewer: barnettj, 15-Jan-2018 13:53:47
Audit Action: Manually Integrated Audit Reason: Incomplete Integration

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/12/2018 15:29

Analysis Batch Number: 203796 End Date: 01/12/2018 16:01

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-203796/1		01/12/2018 15:29	1	2018.01.12_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-203796/2 CCVIS		01/12/2018 15:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:57	1		GeminiC18 3x100 3(mm)
CCV 320-203796/8 CCVIS		01/12/2018 16:01	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/12/2018 17:16

Analysis Batch Number: 203801 End Date: 01/12/2018 18:22

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-203801/24 CCVIS		01/12/2018 17:16	1	2018.01.12_537A 045.d	GeminiC18 3x100 3(mm)
MB 320-203312/1-A		01/12/2018 17:35	1	2018.01.12_537A 007.d	GeminiC18 3x100 3(mm)
LCS 320-203312/2-A		01/12/2018 17:39	1	2018.01.12_537A 008.d	GeminiC18 3x100 3(mm)
320-34835-1		01/12/2018 17:44	1	2018.01.12_537A 009.d	GeminiC18 3x100 3(mm)
320-34835-1 MS		01/12/2018 17:49	1	2018.01.12_537A 010.d	GeminiC18 3x100 3(mm)
320-34835-1 MSD		01/12/2018 17:53	1	2018.01.12_537A 011.d	GeminiC18 3x100 3(mm)
320-34835-2		01/12/2018 17:58	1	2018.01.12_537A 012.d	GeminiC18 3x100 3(mm)
320-34835-3		01/12/2018 18:03	1	2018.01.12_537A 013.d	GeminiC18 3x100 3(mm)
320-34835-4		01/12/2018 18:08	1	2018.01.12_537A 014.d	GeminiC18 3x100 3(mm)
320-34835-5		01/12/2018 18:12	1	2018.01.12_537A 015.d	GeminiC18 3x100 3(mm)
320-34835-6		01/12/2018 18:17	1	2018.01.12_537A 016.d	GeminiC18 3x100 3(mm)
CCV 320-203801/36 CCVIS		01/12/2018 18:22	1	2018.01.12_537A 017.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/12/2018 18:22

Analysis Batch Number: 203803 End Date: 01/12/2018 18:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-203803/36 CCVIS		01/12/2018 18:22	1	2018.01.12_537A 017.d	GeminiC18 3x100 3(mm)
320-34835-7		01/12/2018 18:31	1	2018.01.12_537A 019.d	GeminiC18 3x100 3(mm)
320-34835-8		01/12/2018 18:36	1	2018.01.12_537A 020.d	GeminiC18 3x100 3(mm)
CCV 320-203803/40 CCVIS		01/12/2018 18:40	1	2018.01.12_537A 021.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/18/2018 08:24

Analysis Batch Number: 204450 End Date: 01/18/2018 09:25

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-204450/1		01/18/2018 08:24	1	2018.01.18_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-204450/2 CCVIS		01/18/2018 08:28	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:38	5		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:56	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:06	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:10	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:15	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:20	1		GeminiC18 3x100 3(mm)
CCV 320-204450/14 CCVIS		01/18/2018 09:25	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/19/2018 07:07

Analysis Batch Number: 204650 End Date: 01/19/2018 08:03

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204650/1 CCVIS		01/19/2018 07:07	1	2018.01.18_537A A 025.d	GeminiC18 3x100 3(mm)
MB 320-203874/1-A		01/19/2018 07:16	1	2018.01.18_537A A 027.d	GeminiC18 3x100 3(mm)
LCS 320-203874/2-A		01/19/2018 07:21	1	2018.01.18_537A A 028.d	GeminiC18 3x100 3(mm)
LCSD 320-203874/3-A		01/19/2018 07:26	1	2018.01.18_537A A 029.d	GeminiC18 3x100 3(mm)
320-34835-9		01/19/2018 07:30	1	2018.01.18_537A A 030.d	GeminiC18 3x100 3(mm)
320-34835-10		01/19/2018 07:35	1	2018.01.18_537A A 031.d	GeminiC18 3x100 3(mm)
320-34835-11		01/19/2018 07:40	1	2018.01.18_537A A 032.d	GeminiC18 3x100 3(mm)
320-34835-12		01/19/2018 07:44	1	2018.01.18_537A A 033.d	GeminiC18 3x100 3(mm)
320-34835-13		01/19/2018 07:49	1	2018.01.18_537A A 034.d	GeminiC18 3x100 3(mm)
320-34835-14		01/19/2018 07:54	1	2018.01.18_537A A 035.d	GeminiC18 3x100 3(mm)
320-34835-15		01/19/2018 07:58	1	2018.01.18_537A A 036.d	GeminiC18 3x100 3(mm)
CCV 320-204650/13 CCVIS		01/19/2018 08:03	1	2018.01.18_537A A 037.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/19/2018 08:03

Analysis Batch Number: 204651 End Date: 01/19/2018 08:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204651/13 CCVIS		01/19/2018 08:03	1	2018.01.18_537A A 037.d	GeminiC18 3x100 3(mm)
320-34835-16		01/19/2018 08:12	1	2018.01.18_537A A 039.d	GeminiC18 3x100 3(mm)
320-34835-17		01/19/2018 08:17	1	2018.01.18_537A A 040.d	GeminiC18 3x100 3(mm)
320-34835-18		01/19/2018 08:22	1	2018.01.18_537A A 041.d	GeminiC18 3x100 3(mm)
320-34835-19		01/19/2018 08:26	1	2018.01.18_537A A 042.d	GeminiC18 3x100 3(mm)
320-34835-20		01/19/2018 08:31	1	2018.01.18_537A A 043.d	GeminiC18 3x100 3(mm)
320-34835-21		01/19/2018 08:36	1	2018.01.18_537A A 044.d	GeminiC18 3x100 3(mm)
320-34835-22		01/19/2018 08:40	1	2018.01.18_537A A 045.d	GeminiC18 3x100 3(mm)
320-34835-23		01/19/2018 08:45	1	2018.01.18_537A A 046.d	GeminiC18 3x100 3(mm)
320-34835-24		01/19/2018 08:50	1	2018.01.18_537A A 047.d	GeminiC18 3x100 3(mm)
320-34835-25		01/19/2018 08:55	1	2018.01.18_537A A 048.d	GeminiC18 3x100 3(mm)
CCV 320-204651/25 CCVIS		01/19/2018 08:59	1	2018.01.18_537A A 049.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/19/2018 08:59

Analysis Batch Number: 204654 End Date: 01/19/2018 09:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204654/25 CCVIS		01/19/2018 08:59	1	2018.01.18_537A A 049.d	GeminiC18 3x100 3(mm)
320-34835-26		01/19/2018 09:08	1	2018.01.18_537A A 051.d	GeminiC18 3x100 3(mm)
320-34835-27		01/19/2018 09:13	1	2018.01.18_537A A 052.d	GeminiC18 3x100 3(mm)
CCV 320-204654/29 CCVIS		01/19/2018 09:18	1	2018.01.18_537A A 053.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203312 Batch Start Date: 01/10/18 08:12 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/11/18 13:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-203312/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-203312/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-34835-A-1	NAWC-010318-RW-275	537, 537	T	269.47 g	27.83 g	241.6 mL	1.00 mL	7 SU	
320-34835-A-1 MS	NAWC-010318-RW-275	537, 537	T	280.34 g	27.72 g	252.6 mL	1.00 mL	7 SU	100 uL
320-34835-A-1 MSD	NAWC-010318-RW-275	537, 537	T	267.80 g	27.84 g	240 mL	1.00 mL	7 SU	100 uL
320-34835-A-2	NAWC-010318-FRB-275	537, 537	T	280.16 g	27.55 g	252.6 mL	1.00 mL	7 SU	
320-34835-A-3	NAWC-010318-RW-304	537, 537	T	259.23 g	27.83 g	231.4 mL	1.00 mL	7 SU	
320-34835-A-4	NAWC-010318-FRB-304	537, 537	T	277.97 g	27.71 g	250.3 mL	1.00 mL	7 SU	
320-34835-A-5	NAWC-010318-RW-154	537, 537	T	272.71 g	27.86 g	244.9 mL	1.00 mL	7 SU	
320-34835-A-6	NAWC-010318-FRB-154	537, 537	T	272.79 g	27.99 g	244.8 mL	1.00 mL	7 SU	
320-34835-A-7	NAWC-010318-RW-276	537, 537	T	263.76 g	27.93 g	235.8 mL	1.00 mL	7 SU	
320-34835-A-8	NAWC-010318-FRB-276	537, 537	T	270.37 g	27.54 g	242.8 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00056	LC537-SU 00054	AnalysisComment			
MB 320-203312/1		537, 537		100 uL	100 uL	ch nd			
LCS 320-203312/2		537, 537		100 uL	100 uL	ch nd			
320-34835-A-1	NAWC-010318-RW-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-1 MS	NAWC-010318-RW-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-1 MSD	NAWC-010318-RW-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-2	NAWC-010318-FRB-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-3	NAWC-010318-RW-304	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-4	NAWC-010318-FRB-304	537, 537	T	100 uL	100 uL	ch nd			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203312 Batch Start Date: 01/10/18 08:12 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/11/18 13:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00056	LC537-SU 00054	AnalysisComment			
320-34835-A-5	NAWC-010318-RW-154	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-6	NAWC-010318-FRB-154	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-7	NAWC-010318-RW-276	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-8	NAWC-010318-FRB-276	537, 537	T	100 uL	100 uL	ch nd			

Batch Notes	
Analyst ID - Aliquot Step	CCB
Batch Comment	CLIENTS LABELS CHECKED CCB 1-11-18
Analyst ID - Concentration	NIGHTS/CCB
Analyst ID - Final Volume Step	CCB
Internal Standard ID#	1099356
Manifold ID	4
Methanol ID	1127836
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	HJA
SPE Cartridge ID	6369499-03
Trizma ID	SLBR4303V
Reagent Water ID	1/4/18

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.: 320-34835-1

SDG No.: WE04

Batch Number: 203874 Batch Start Date: 01/15/18 08:55 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/17/18 10:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-203874/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-203874/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LCSD 320-203874/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-34835-A-9	NAWC-010318-RW-261	537, 537	T	264.78 g	27.66 g	237.1 mL	1.00 mL	7 SU	
320-34835-A-10	NAWC-010318-FRB-261	537, 537	T	277.41 g	27.35 g	250.1 mL	1.00 mL	7 SU	
320-34835-A-11	NAWC-010318-RW-10	537, 537	T	276.42 g	28.54 g	247.9 mL	1.00 mL	7 SU	
320-34835-A-12	NAWC-010318-FRB-10	537, 537	T	283.27 g	27.44 g	255.8 mL	1.00 mL	7 SU	
320-34835-A-13	WGNA-010318-RW-0443	537, 537	T	279.06 g	27.55 g	251.5 mL	1.00 mL	7 SU	
320-34835-A-14	WGNA-010318-FRB-0443	537, 537	T	272.74 g	27.53 g	245.2 mL	1.00 mL	7 SU	
320-34835-A-15	WGNA-010318-RW-3493	537, 537	T	279.06 g	27.77 g	251.3 mL	1.00 mL	7 SU	
320-34835-A-16	WGNA-010318-FRB-3493	537, 537	T	268.29 g	27.54 g	240.8 mL	1.00 mL	7 SU	
320-34835-A-17	WGNA-010318-DUP-15	537, 537	T	277.78 g	27.81 g	250 mL	1.00 mL	7 SU	
320-34835-A-18	WGNA-010318-RW-0500	537, 537	T	274.88 g	27.44 g	247.4 mL	1.00 mL	7 SU	
320-34835-A-19	WGNA-010318-FRB-0500	537, 537	T	283.88 g	27.60 g	256.3 mL	1.00 mL	7 SU	
320-34835-A-20	NAWC-010318-RW-145	537, 537	T	281.25 g	27.87 g	253.4 mL	1.00 mL	7 SU	
320-34835-A-21	NAWC-010318-FRB-145	537, 537	T	273.78 g	27.29 g	246.5 mL	1.00 mL	7 SU	
320-34835-A-22	NAWC-010318-RW-60	537, 537	T	277.10 g	27.63 g	249.5 mL	1.00 mL	7 SU	
320-34835-A-23	NAWC-010318-FRB-60	537, 537	T	275.77 g	27.29 g	248.5 mL	1.00 mL	7 SU	
320-34835-A-24	NAWC-010318-RW-106	537, 537	T	278.45 g	29.37 g	249.1 mL	1.00 mL	7 SU	
320-34835-A-25	NAWC-010318-FRB-106	537, 537	T	268.55 g	27.75 g	240.8 mL	1.00 mL	7 SU	
320-34835-A-26	NAWC-010318-RW-289	537, 537	T	278.35 g	28.01 g	250.3 mL	1.00 mL	7 SU	
320-34835-A-27	NAWC-010318-FRB-289	537, 537	T	277.82 g	27.54 g	250.3 mL	1.00 mL	7 SU	

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203874 Batch Start Date: 01/15/18 08:55 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/17/18 10:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00056	LC537-SU 00054	AnalysisComment			
MB 320-203874/1		537, 537		100 uL	100 uL	ch nd			
LCS 320-203874/2		537, 537		100 uL	100 uL	ch nd			
LCSD 320-203874/3		537, 537		100 uL	100 uL	ch nd			
320-34835-A-9	NAWC-010318-RW-261	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-10	NAWC-010318-FRB-261	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-11	NAWC-010318-RW-10	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-12	NAWC-010318-FRB-10	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-13	WGNA-010318-RW-0443	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-14	WGNA-010318-FRB-0443	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-15	WGNA-010318-RW-3493	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-16	WGNA-010318-FRB-3493	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-17	WGNA-010318-DUP-15	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-18	WGNA-010318-RW-0500	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-19	WGNA-010318-FRB-0500	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-20	NAWC-010318-RW-145	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-21	NAWC-010318-FRB-145	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-22	NAWC-010318-RW-60	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-23	NAWC-010318-FRB-60	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-24	NAWC-010318-RW-106	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-25	NAWC-010318-FRB-106	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-26	NAWC-010318-RW-289	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-27	NAWC-010318-FRB-289	537, 537	T	100 uL	100 uL	ch nd			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203874 Batch Start Date: 01/15/18 08:55 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/17/18 10:25

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Label ID's checked: TWL 1-12-18
Analyst ID - Concentration	nights
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1099356
Manifold ID	4, 3
Methanol ID	1118719
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	HJA
SPE Cartridge ID	6369499-03
Trizma ID	SLBR4303V
Reagent Water ID	1/4/18

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

A8

Job No: 34835 Instrument ID & Date: 1-12-18 ICAL Batch: 192908
Extraction Batch: 203312 Worklist #: 52849 TALS Batch: 203801, 203803

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 1-15-18 2nd Level Reviewer / Date: 1/16/18

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: 12JAN2018_537A Worklist Number: 52849
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 203795	LC 537 ICAL Raw Batch: 203796
# 1 CCVL	# 1 CCVL	# 1 CCVL
# 2 CCV L3	# 2 CCV L3	# 2 CCV L3
# 3 RB	# 3 RB	# 3 RB
# 4 MB 320-203939/1-A		# 4 MB 320-203939/1-A
# 5 LLCS 320-203939/2-A		# 5 LLCS 320-203939/2-A
# 6 LLCSD 320-203939/3-A		# 6 LLCSD 320-203939/3-A
# 7 320-34512-B-1-A		# 7 320-34512-B-1-A
# 8 CCV L5	# 8 CCV L5	# 8 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 203797	LC 537 CS ICAL Raw Batch: 203798
# 8 CCV L5	# 8 CCV L5	# 8 CCV L5
# 9 RB	# 9 RB	# 9 RB
#10 MB 320-203413/1-A		#10 MB 320-203413/1-A
#11 LLCS 320-203413/2-A		#11 LLCS 320-203413/2-A
#12 320-34943-A-1-A		#12 320-34943-A-1-A
#13 320-34943-A-2-A		#13 320-34943-A-2-A
#14 320-34943-A-3-A		#14 320-34943-A-3-A
#15 320-34943-A-4-A		#15 320-34943-A-4-A
#16 320-34943-A-4-B MS		#16 320-34943-A-4-B MS
#17 320-34943-A-4-C MSD		#17 320-34943-A-4-C MSD
#18 320-34943-A-5-A		#18 320-34943-A-5-A
#19 320-34943-A-6-A		#19 320-34943-A-6-A
#20 CCV L3	#20 CCV L3	#20 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 203799	LC 537 CS ICAL Raw Batch: 203800
#20 CCV L3	#20 CCV L3	#20 CCV L3
#21 RB	#21 RB	#21 RB
#22 320-34943-A-7-A		#22 320-34943-A-7-A
#23 320-34943-A-8-A		#23 320-34943-A-8-A
#24 CCV L5	#24 CCV L5	#24 CCV L5

QC Batch: 4	LC 537 ICAL Raw Batch: 203801	LC 537 CS ICAL Raw Batch: 203802
#24 CCV L5	#24 CCV L5	#24 CCV L5
#25 RB	#25 RB	#25 RB
#26 MB 320-203312/1-A	#26 MB 320-203312/1-A	
#27 LCS 320-203312/2-A	#27 LCS 320-203312/2-A	
#28 320-34835-A-1-A	#28 320-34835-A-1-A	
#29 320-34835-A-1-B MS	#29 320-34835-A-1-B MS	
#30 320-34835-A-1-C MSD	#30 320-34835-A-1-C MSD	
#31 320-34835-A-2-A	#31 320-34835-A-2-A	
#32 320-34835-A-3-A	#32 320-34835-A-3-A	
#33 320-34835-A-4-A	#33 320-34835-A-4-A	
#34 320-34835-A-5-A	#34 320-34835-A-5-A	
#35 320-34835-A-6-A	#35 320-34835-A-6-A	
#36 CCV L3	#36 CCV L3	#36 CCV L3

CCVL in AB 203796

QC Batch: 5	LC 537 ICAL Raw Batch: 203803	LC 537 CS ICAL Raw Batch: 203804
#36 CCV L3	#36 CCV L3	#36 CCV L3
#37 RB	#37 RB	#37 RB
#38 320-34835-A-7-A	#38 320-34835-A-7-A	
#39 320-34835-A-8-A	#39 320-34835-A-8-A	
#40 CCV L5	#40 CCV L5	#40 CCV L5
#41 RB	#41 RB	#41 RB

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 12JAN2018_537A Worklist Num: 52849
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180114-52849.b
Anaylysis Type: SemiVOA Creator: Phomsopha, Thep
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	320-0052849-001	CCVL	12-Jan-2018 15:29:17	2018.01.12_537A_004.d	2	1.0		sv
CCV L3	320-0052849-002	CCVIS	12-Jan-2018 15:33:58	2018.01.12_537A_023.d	3	1.0		sv
RB	320-0052849-003	RB	12-Jan-2018 15:38:37	2018.01.12_537A_024.d	8	1.0		sv
MB 320-203939/1-A	320-0052849-004	MB	12-Jan-2018 15:43:17	2018.01.12_537A_025.d	26	1.0		sv
LLCS 320-203939/2-A	320-0052849-005	LLCS	12-Jan-2018 15:47:57	2018.01.12_537A_026.d	27	1.0		sv
LLCSD 320-203939/3-A	320-0052849-006	LLCSD	12-Jan-2018 15:52:36	2018.01.12_537A_027.d	28	1.0		sv
320-34512-B-1-A	320-0052849-007	Client	12-Jan-2018 15:57:17	2018.01.12_537A_028.d	29	1.0	12-19-17 LEACHATE	sv
CCV L5	320-0052849-008	CCVIS	12-Jan-2018 16:01:58	2018.01.12_537A_029.d	5	1.0		sv
RB	320-0052849-009	RB	12-Jan-2018 16:06:37	2018.01.12_537A_030.d	8	1.0		sv
MB 320-203413/1-A	320-0052849-010	MB	12-Jan-2018 16:11:17	2018.01.12_537A_031.d	30	1.0		sv
LLCS 320-203413/2-A	320-0052849-011	LLCS	12-Jan-2018 16:15:57	2018.01.12_537A_032.d	31	1.0		sv
320-34943-A-1-A	320-0052849-012	Client	12-Jan-2018 16:20:37	2018.01.12_537A_033.d	32	1.0	GC010818-LHWA-BED1E-L	sv
320-34943-A-2-A	320-0052849-013	Client	12-Jan-2018 16:25:16	2018.01.12_537A_034.d	33	1.0	GC010818-LHWA-BED2E-L	sv
320-34943-A-3-A	320-0052849-014	Client	12-Jan-2018 16:29:56	2018.01.12_537A_035.d	34	1.0	GC010818-LHWA-BED2E-L	sv
320-34943-A-4-A	320-0052849-015	Client	12-Jan-2018 16:34:37	2018.01.12_537A_036.d	35	1.0	GC010818-LHWA-BED1W-I	sv
320-34943-A-4-B MS	320-0052849-016	MS	12-Jan-2018 16:39:18	2018.01.12_537A_037.d	36	1.0	GC010818-LHWA-BED1W-I	sv
320-34943-A-4-C MSD	320-0052849-017	MSD	12-Jan-2018 16:43:57	2018.01.12_537A_038.d	37	1.0	GC010818-LHWA-BED1W-I	sv
320-34943-A-5-A	320-0052849-018	Client	12-Jan-2018 16:48:38	2018.01.12_537A_039.d	38	1.0	GC010818-LHWA-BED2W-I	sv
320-34943-A-6-A	320-0052849-019	Client	12-Jan-2018 16:53:17	2018.01.12_537A_040.d	39	1.0	GC010818-LHWA-PT	sv
CCV L3	320-0052849-020	CCVIS	12-Jan-2018 16:57:58	2018.01.12_537A_041.d	3	1.0		sv
RB	320-0052849-021	RB	12-Jan-2018 17:02:37	2018.01.12_537A_042.d	8	1.0		sv
320-34943-A-7-A	320-0052849-022	Client	12-Jan-2018 17:07:16	2018.01.12_537A_043.d	40	1.0	GC010818-LHWA-AT-CON TANK	sv
320-34943-A-8-A	320-0052849-023	Client	12-Jan-2018 17:11:57	2018.01.12_537A_044.d	41	1.0	FRB-LH-010818	sv
CCV L5	320-0052849-024	CCVIS	12-Jan-2018 17:16:36	2018.01.12_537A_045.d	5	1.0		sv
RB	320-0052849-025	RB	12-Jan-2018 17:21:17	2018.01.12_537A_046.d	8	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
MB 320-203312/1-A	320-0052849-026	MB	12-Jan-2018 17:35:17	2018.01.12_537A_007.d	14	1.0		sv
LCS 320-203312/2-A	320-0052849-027	LCS	12-Jan-2018 17:39:59	2018.01.12_537A_008.d	15	1.0		sv
320-34835-A-1-A	320-0052849-028	Client	12-Jan-2018 17:44:39	2018.01.12_537A_009.d	16	1.0	NAWC-010318-RW-275	sv
320-34835-A-1-B MS	320-0052849-029	MS	12-Jan-2018 17:49:19	2018.01.12_537A_010.d	17	1.0	NAWC-010318-RW-275	sv
320-34835-A-1-C MSD	320-0052849-030	MSD	12-Jan-2018 17:53:59	2018.01.12_537A_011.d	18	1.0	NAWC-010318-RW-275	sv
320-34835-A-2-A	320-0052849-031	Client	12-Jan-2018 17:58:39	2018.01.12_537A_012.d	19	1.0	NAWC-010318-FRB-275	sv
320-34835-A-3-A	320-0052849-032	Client	12-Jan-2018 18:03:20	2018.01.12_537A_013.d	20	1.0	NAWC-010318-RW-304	sv
320-34835-A-4-A	320-0052849-033	Client	12-Jan-2018 18:08:00	2018.01.12_537A_014.d	21	1.0	NAWC-010318-FRB-304	sv
320-34835-A-5-A	320-0052849-034	Client	12-Jan-2018 18:12:39	2018.01.12_537A_015.d	22	1.0	NAWC-010318-RW-154	sv
320-34835-A-6-A	320-0052849-035	Client	12-Jan-2018 18:17:19	2018.01.12_537A_016.d	23	1.0	NAWC-010318-FRB-154	sv
CCV L3	320-0052849-036	CCVIS	12-Jan-2018 18:22:00	2018.01.12_537A_017.d	3	1.0		sv
RB	320-0052849-037	RB	12-Jan-2018 18:26:40	2018.01.12_537A_018.d	8	1.0		sv
320-34835-A-7-A	320-0052849-038	Client	12-Jan-2018 18:31:20	2018.01.12_537A_019.d	24	1.0	NAWC-010318-RW-276	sv
320-34835-A-8-A	320-0052849-039	Client	12-Jan-2018 18:36:00	2018.01.12_537A_020.d	25	1.0	NAWC-010318-FRB-276	sv
CCV L5	320-0052849-040	CCVIS	12-Jan-2018 18:40:41	2018.01.12_537A_021.d	5	1.0		sv
RB	320-0052849-041	RB	12-Jan-2018 18:45:22	2018.01.12_537A_022.d	8	1.0		sv

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AS 1/12/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203312 Analyst: Branscum, Cassie Batch Open: 1/10/2018 8:12:00AM

Method Code: 320-537_Prep-320 Batch End: 1/11/2018 1:45:00PM

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~320-203312/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
				1.00 mL								
2	LCS~320-203312/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
				1.00 mL								
3	320-34835-A-1 (537_DOD5)	WE04 (320-34835-1)	269.47 g	241.6 mL	7			1/8/18	16_Days	4	ch nd	
			27.83 g	1.00 mL								
	320-34835-A-1~MS (537_DOD5)	WE04 (320-34835-1)	280.34 g	252.6 mL	7			1/8/18	16_Days	4	ch nd	
			27.72 g	1.00 mL								
	320-34835-A-1~MSD (537_DOD5)	WE04 (320-34835-1)	267.80 g	240 mL	7			1/8/18	16_Days	4	ch nd	
			27.84 g	1.00 mL								
6	320-34835-A-2 (537_DOD5)	WE04 (320-34835-1)	280.16 g	252.6 mL	7			1/8/18	16_Days	4	ch nd	
			27.55 g	1.00 mL								
7	320-34835-A-3 (537_DOD5)	WE04 (320-34835-1)	259.23 g	231.4 mL	7			1/8/18	16_Days	4	ch nd	
			27.83 g	1.00 mL								
8	320-34835-A-4 (537_DOD5)	WE04 (320-34835-1)	277.97 g	250.3 mL	7			1/8/18	16_Days	4	ch nd	
			27.71 g	1.00 mL								
9	320-34835-A-5 (537_DOD5)	WE04 (320-34835-1)	272.71 g	244.9 mL	7			1/8/18	16_Days	4	ch nd	
			27.86 g	1.00 mL								
10	320-34835-A-6 (537_DOD5)	WE04 (320-34835-1)	272.79 g	244.8 mL	7			1/8/18	16_Days	4	ch nd	
			27.99 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203312 Analyst: Branscum, Cassie Batch Open: 1/10/2018 8:12:00AM

Method Code: 320-537_Prep-320 Batch End: 1/11/2018 1:45:00PM

11	320-34835-A-7 (537_DOD5)	WE04 (320-34835-1)	263.76 g 27.93 g	235.8 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
12	320-34835-A-8 (537_DOD5)	WE04 (320-34835-1)	270.37 g 27.54 g	242.8 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203312
Analyst: Branscum, Cassie
Batch Open: 1/10/2018 8:12:00AM

Method Code: 320-537_Prep-320
Batch End: 1/11/2018 1:45:00PM

Batch Notes

Manifold ID	4
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge ID	6369499-03
Methanol ID	1127836
Reagent Water ID	1/4/18
Internal Standard ID#	1099356
Pipette ID	H14930F
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	HJA
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - Concentration	NIGHTS/CCB
Analyst ID - Aliquot Step	CCB
Analyst ID - Final Volume Step	CCB
Batch Comment	CLIENTS LABELS CHECKED CCB 1-11-18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203312 Analyst: Branscum, Cassie Batch Open: 1/10/2018 8:12:00AM

Method Code: 320-537_Prep-320 Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203312 Analyst: Branscum, Cassie Batch Open: 1/10/2018 8:12:00AM

Method Code: 320-537_Prep-320 Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-203312/1	LC537-SU_00054	100 uL	1.00 mL	CeS 1-10-18	JNS 1/10/18
LCS 320-203312/2	LC537-HSP_00023	100 uL	1.00 mL		
LCS 320-203312/2	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-1	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-1 MS	LC537-HSP_00023	100 uL	1.00 mL		
320-34835-A-1 MS	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-1 MSD	LC537-HSP_00023	100 uL	1.00 mL		
320-34835-A-1 MSD	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-2	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-3	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-4	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-5	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-6	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-7	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-8	LC537-SU_00054	100 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203312 Analyst: Branscum, Cassie Batch Open: 1/10/2018 8:12:00AM

Method Code: 320-537_Prep-320 Batch End:

Other Reagents:

Reagent	Amount/Units	Lot#:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento
Preparation Data Review Checklist

Preparation Batch Number(s) 320-202312 Test 537 - Prep

Earliest Holding Time 1-17-18

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	NA	NA
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	NA	NA
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: CES Date: 1-11-18

2nd Level Reviewer: VPM Date: 1/11/18

Comments:

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Sacramento

Method 537 CCV/Data Review Checklist

A8

Job No: 34835 Instrument ID & Date: 1-19-18 ICAL Batch: 192908

Extraction Batch: 203874 Worklist #: 53091 TALS Batch: 204650, 204651, 204654

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 1-22-18 2nd Level Reviewer / Date: 1/22/2018

NCM # and Comments: _____

TestAmerica
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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: 18JAN2018_537C Worklist Number: 53091
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 204650
# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB
# 3 MB 320-203874/1-A	# 3 MB 320-203874/1-A
# 4 LCS 320-203874/2-A	# 4 LCS 320-203874/2-A
# 5 LCSD 320-203874/3-A	# 5 LCSD 320-203874/3-A
# 6 320-34835-A-9-A	# 6 320-34835-A-9-A
# 7 320-34835-A-10-A	# 7 320-34835-A-10-A
# 8 320-34835-A-11-A	# 8 320-34835-A-11-A
# 9 320-34835-A-12-A	# 9 320-34835-A-12-A
#10 320-34835-A-13-A	#10 320-34835-A-13-A
#11 320-34835-A-14-A	#11 320-34835-A-14-A
#12 320-34835-A-15-A	#12 320-34835-A-15-A
#13 CCV L3	#13 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 204651
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB
#15 320-34835-A-16-A	#15 320-34835-A-16-A
#16 320-34835-A-17-A	#16 320-34835-A-17-A
#17 320-34835-A-18-A	#17 320-34835-A-18-A
#18 320-34835-A-19-A	#18 320-34835-A-19-A
#19 320-34835-A-20-A	#19 320-34835-A-20-A
#20 320-34835-A-21-A	#20 320-34835-A-21-A
#21 320-34835-A-22-A	#21 320-34835-A-22-A
#22 320-34835-A-23-A	#22 320-34835-A-23-A
#23 320-34835-A-24-A	#23 320-34835-A-24-A
#24 320-34835-A-25-A	#24 320-34835-A-25-A
#25 CCV L5	#25 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 204654
#25 CCV L5	#25 CCV L5
#26 RB	#26 RB
#27 320-34835-A-26-A	#27 320-34835-A-26-A
#28 320-34835-A-27-A	#28 320-34835-A-27-A
#29 CCV L3	#29 CCV L3
#30 RB	#30 RB

CCVL in AB 204450

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 18JAN2018_537C Worklist Num: 53091
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180119-53091.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 L5	320-0053091-001	CCVIS	19-Jan-2018 07:07:29	2018.01.18_537AA_025.d	5	1.0		sv
RB	320-0053091-002	RB	19-Jan-2018 07:12:10	2018.01.18_537AA_026.d	8	1.0		sv
MB 320-203874/1-A	320-0053091-003	MB	19-Jan-2018 07:16:50	2018.01.18_537AA_027.d	17	1.0		sv
LCS 320-203874/2-A	320-0053091-004	LCS	19-Jan-2018 07:21:31	2018.01.18_537AA_028.d	18	1.0		sv
LCSD 320-203874/3-A	320-0053091-005	LCSD	19-Jan-2018 07:26:10	2018.01.18_537AA_029.d	19	1.0		sv
320-34835-A-9-A	320-0053091-006	Client	19-Jan-2018 07:30:51	2018.01.18_537AA_030.d	20	1.0	NAWC-010318-RW-261	sv
320-34835-A-10-A	320-0053091-007	Client	19-Jan-2018 07:35:31	2018.01.18_537AA_031.d	21	1.0	NAWC-010318-FRB-261	sv
320-34835-A-11-A	320-0053091-008	Client	19-Jan-2018 07:40:12	2018.01.18_537AA_032.d	22	1.0	NAWC-010318-RW-10	sv
320-34835-A-12-A	320-0053091-009	Client	19-Jan-2018 07:44:53	2018.01.18_537AA_033.d	23	1.0	NAWC-010318-FRB-10	sv
320-34835-A-13-A	320-0053091-010	Client	19-Jan-2018 07:49:34	2018.01.18_537AA_034.d	24	1.0	WGNA-010318-RW-0443	sv
320-34835-A-14-A	320-0053091-011	Client	19-Jan-2018 07:54:14	2018.01.18_537AA_035.d	25	1.0	WGNA-010318-FRB-0443	sv
320-34835-A-15-A	320-0053091-012	Client	19-Jan-2018 07:58:54	2018.01.18_537AA_036.d	26	1.0	WGNA-010318-RW-3493	sv
CCV L3	320-0053091-013	CCVIS	19-Jan-2018 08:03:34	2018.01.18_537AA_037.d	3	1.0		sv
RB	320-0053091-014	RB	19-Jan-2018 08:08:15	2018.01.18_537AA_038.d	8	1.0		sv
320-34835-A-16-A	320-0053091-015	Client	19-Jan-2018 08:12:56	2018.01.18_537AA_039.d	27	1.0	WGNA-010318-FRB-3493	sv
320-34835-A-17-A	320-0053091-016	Client	19-Jan-2018 08:17:35	2018.01.18_537AA_040.d	28	1.0	WGNA-010318-DUP-15	sv
320-34835-A-18-A	320-0053091-017	Client	19-Jan-2018 08:22:16	2018.01.18_537AA_041.d	29	1.0	WGNA-010318-RW-0500	sv
320-34835-A-19-A	320-0053091-018	Client	19-Jan-2018 08:26:56	2018.01.18_537AA_042.d	30	1.0	WGNA-010318-FRB-0500	sv
320-34835-A-20-A	320-0053091-019	Client	19-Jan-2018 08:31:37	2018.01.18_537AA_043.d	31	1.0	NAWC-010318-RW-145	sv
320-34835-A-21-A	320-0053091-020	Client	19-Jan-2018 08:36:19	2018.01.18_537AA_044.d	32	1.0	NAWC-010318-FRB-145	sv
320-34835-A-22-A	320-0053091-021	Client	19-Jan-2018 08:40:59	2018.01.18_537AA_045.d	33	1.0	NAWC-010318-RW-60	sv
320-34835-A-23-A	320-0053091-022	Client	19-Jan-2018 08:45:39	2018.01.18_537AA_046.d	34	1.0	NAWC-010318-FRB-60	sv
320-34835-A-24-A	320-0053091-023	Client	19-Jan-2018 08:50:19	2018.01.18_537AA_047.d	35	1.0	NAWC-010318-RW-106	sv
320-34835-A-25-A	320-0053091-024	Client	19-Jan-2018 08:55:00	2018.01.18_537AA_048.d	36	1.0	NAWC-010318-FRB-106	sv
CCV L5	320-0053091-025	CCVIS	19-Jan-2018 08:59:39	2018.01.18_537AA_049.d	5	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0053091-026	RB	19-Jan-2018 09:04:19	2018.01.18_537AA_050.d	8	1.0		sv
320-34835-A-26-A	320-0053091-027	Client	19-Jan-2018 09:08:59	2018.01.18_537AA_051.d	37	1.0	NAWC-010318-RW-289	sv
320-34835-A-27-A	320-0053091-028	Client	19-Jan-2018 09:13:40	2018.01.18_537AA_052.d	38	1.0	NAWC-010318-FRB-289	sv
CCV L3	320-0053091-029	CCVIS	19-Jan-2018 09:18:20	2018.01.18_537AA_053.d	3	1.0		sv
RB	320-0053091-030	RB	19-Jan-2018 09:23:00	2018.01.18_537AA_054.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 18JAN2018_537A Worklist Num: 53041
Instrument: A8_N Method: 537_A8_N
Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180118-53041.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	320-0053041-001	CCVL	18-Jan-2018 08:24:13	2018.01.18_537A_004.d	2	1.0		sv
CCV L5	320-0053041-002	CCVIS	18-Jan-2018 08:28:53	2018.01.18_537A_005.d	5	1.0		sv
RB	320-0053041-003	RB	18-Jan-2018 08:33:33	2018.01.18_537A_006.d	8	1.0		sv
320-34981-A-5-A	320-0053041-004	Client	18-Jan-2018 08:38:12	2018.01.18_537A_007.d	1	5.0	WS-070	sv
MB 320-203985/1-A	320-0053041-005	MB	18-Jan-2018 08:42:52	2018.01.18_537A_008.d	2	1.0		sv
LLCS 320-203985/2-A	320-0053041-006	LLCS	18-Jan-2018 08:47:32	2018.01.18_537A_009.d	3	1.0		sv
320-35044-A-1-A	320-0053041-007	Client	18-Jan-2018 08:52:13	2018.01.18_537A_010.d	4	1.0	WS-078	sv
320-35044-A-2-A	320-0053041-008	Client	18-Jan-2018 08:56:55	2018.01.18_537A_011.d	5	1.0	WS-079	sv
320-35044-A-3-A	320-0053041-009	Client	18-Jan-2018 09:01:37	2018.01.18_537A_012.d	6	1.0	WS-080	sv
320-35044-A-4-A	320-0053041-010	Client	18-Jan-2018 09:06:17	2018.01.18_537A_013.d	7	1.0	WS-053	sv
320-35044-A-5-A	320-0053041-011	Client	18-Jan-2018 09:10:58	2018.01.18_537A_014.d	8	1.0	WS-081	sv
320-35044-A-6-A	320-0053041-012	Client	18-Jan-2018 09:15:38	2018.01.18_537A_015.d	9	1.0	WS-048	sv
320-35044-A-7-A	320-0053041-013	Client	18-Jan-2018 09:20:18	2018.01.18_537A_016.d	10	1.0	WS-082	sv
CCV L3	320-0053041-014	CCVIS	18-Jan-2018 09:25:00	2018.01.18_537A_017.d	3	1.0		sv
RB	320-0053041-015	RB	18-Jan-2018 09:29:40	2018.01.18_537A_018.d	8	1.0		sv
320-35044-A-8-A	320-0053041-016	Client	18-Jan-2018 09:34:19	2018.01.18_537A_019.d	11	1.0	WS-083	sv
320-35044-A-8-B LMS	320-0053041-017	LMS	18-Jan-2018 09:39:01	2018.01.18_537A_020.d	12	1.0		sv
320-35044-A-8-C LMSD	320-0053041-018	LMSD	18-Jan-2018 09:43:42	2018.01.18_537A_021.d	13	1.0		sv
320-35044-A-9-A	320-0053041-019	Client	18-Jan-2018 09:48:23	2018.01.18_537A_022.d	14	1.0	WS-084	sv
320-35044-A-10-A	320-0053041-020	Client	18-Jan-2018 09:53:03	2018.01.18_537A_023.d	15	1.0	DUP-12	sv
320-35044-A-11-A	320-0053041-021	Client	18-Jan-2018 09:57:43	2018.01.18_537A_024.d	16	1.0	Field Blank-01-11-2018	sv
CCV L5	320-0053041-022	CCVIS	18-Jan-2018 10:02:25	2018.01.18_537A_025.d	5	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

52 DB 1/18/18

Batch Number: 320-203874 Analyst: Branscum, Cassie Batch Open: 1/15/2018 8:55:00AM

Method Code: 320-537_Prep-320 Batch End: 1/17/2018 10:25:00AM

Extraction of Perfluorinated Alkyl Acids

Due 1/25

	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-320-203874/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	MB 320-203874/1-A
				1.00 mL								
2	LCS-320-203874/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	LCS 320-203874/2-A
				1.00 mL								
3	LCSD-320-203874/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	LCSD 320-203874/3-A
				1.00 mL								
4	320-34835-A-9 (537_DOD5)	WE04 (320-34835-1)	264.78 g	237.1 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-9-A
			27.66 g	1.00 mL								
5	320-34835-A-10 (537_DOD5)	WE04 (320-34835-1)	277.41 g	250.1 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-10-A
			27.35 g	1.00 mL								
6	320-34835-A-11 (537_DOD5)	WE04 (320-34835-1)	276.42 g	247.9 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-11-A
			28.54 g	1.00 mL								
7	320-34835-A-12 (537_DOD5)	WE04 (320-34835-1)	283.27 g	255.8 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-12-A
			27.44 g	1.00 mL								
8	320-34835-A-13 (537_DOD5)	WE04 (320-34835-1)	279.06 g	251.5 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-13-A
			27.55 g	1.00 mL								
9	320-34835-A-14 (537_DOD5)	WE04 (320-34835-1)	272.74 g	245.2 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-14-A
			27.53 g	1.00 mL								
10	320-34835-A-15 (537_DOD5)	WE04 (320-34835-1)	279.06 g	251.3 mL	7			1/8/18	16_Days	4	ch nd	320-34835-A-15-A
			27.77 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203874 Analyst: Branscum, Cassie Batch Open: 1/15/2018 8:55:00AM

Method Code: 320-537_Prep-320 Batch End: 1/17/2018 10:25:00AM

11	320-34835-A-16 (537_DOD5)	WE04 (320-34835-1)	268.29 g 27.54 g	240.8 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
12	320-34835-A-17 (537_DOD5)	WE04 (320-34835-1)	277.78 g 27.81 g	250 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
13	320-34835-A-18 (537_DOD5)	WE04 (320-34835-1)	274.88 g 27.44 g	247.4 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
14	320-34835-A-19 (537_DOD5)	WE04 (320-34835-1)	283.88 g 27.60 g	256.3 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
15	320-34835-A-20 (537_DOD5)	WE04 (320-34835-1)	281.25 g 27.87 g	253.4 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
16	320-34835-A-21 (537_DOD5)	WE04 (320-34835-1)	273.78 g 27.29 g	246.5 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
17	320-34835-A-22 (537_DOD5)	WE04 (320-34835-1)	277.10 g 27.63 g	249.5 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
18	320-34835-A-23 (537_DOD5)	WE04 (320-34835-1)	275.77 g 27.29 g	248.5 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
19	320-34835-A-24 (537_DOD5)	WE04 (320-34835-1)	278.45 g 29.37 g	249.1 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
20	320-34835-A-25 (537_DOD5)	WE04 (320-34835-1)	268.55 g 27.75 g	240.8 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
21	320-34835-A-26 (537_DOD5)	WE04 (320-34835-1)	278.35 g 28.01 g	250.3 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	
22	320-34835-A-27 (537_DOD5)	WE04 (320-34835-1)	277.82 g 27.54 g	250.3 mL 1.00 mL	7			1/8/18	16_Days	4	ch nd	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203874 Analyst: Branscum, Cassie Batch Open: 1/15/2018 8:55:00AM

Method Code: 320-537_Prep-320 Batch End: 1/17/2018 10:25:00AM

Batch Notes

Manifold ID	4, 3
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge ID	6369499-03
Methanol ID	1118719
Reagent Water ID	1/4/18
Internal Standard ID#	1099356
Pipette ID	H14930F
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	HJA
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - Concentration	nights
Analyst ID - Aliquot Step	SKD
Analyst ID - Final Volume Step	KMK
Batch Comment	Label ID's checked: TWL 1-12-18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203874
Analyst: Branscum, Cassie
Batch Open: 1/15/2018 8:55:00AM

Method Code: 320-537_Prep-320
Batch End: 1/17/18 10:25 AM

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203874
Analyst: Branscum, Cassie
Batch Open: 1/15/2018 8:55:00AM
Method Code: 320-537_Prep-320
Batch End: 1/17/18 10:25 AM

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-203874/1	LC537-SU_00054	100 uL	1.00 mL	CD 1-15-18	HJA 1-15-18
LCS 320-203874/2	LC537-HSP_00023	100 uL	1.00 mL		
LCS 320-203874/2	LC537-SU_00054	100 uL	1.00 mL		
LCSD 320-203874/3	LC537-HSP_00023	100 uL	1.00 mL		
LCSD 320-203874/3	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-9	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-10	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-11	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-12	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-13	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-14	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-15	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-16	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-17	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-18	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-19	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-20	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-21	LC537-SU_00054	100 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-203874 Analyst: Branscum, Cassie Batch Open: 1/15/2018 8:55:00AM

Method Code: 320-537_Prep-320 Batch End: 1/17/18 10:25 Am

320-34835-A-22	LC537-SU_00054	100 uL	1.00 mL	1-15-18	NJA 1-15-18
320-34835-A-23	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-24	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-25	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-26	LC537-SU_00054	100 uL	1.00 mL		
320-34835-A-27	LC537-SU_00054	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) 320-203874 Test 537_Prep

Earliest Holding Time 1-17-18

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	✓	✓
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	~~NA~~ ✓	✓
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: CB Date: 1-17-18

2nd Level Reviewer: VPM Date: 1/17/18

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 ENV
TestAmerica L

320-34835 Chain of Custody

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Andy Prebowitz	Site Contact: Mary Kay Bond	Date: 1/3/2018	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-010318-RW-275	1/3/2018	08:10	G	DW	6	N	Y	Y	MS/MSD
NAWC-010318-FRB-275	1/3/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-304	1/3/2018	08:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-304	1/3/2018	08:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-154	1/3/2018	09:10	G	DW	2	N	N	Y	
NAWC-010318-FRB-154	1/3/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-276	1/3/2018	09:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-276	1/3/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-261	1/3/2018	10:05	G	DW	2	N	N	Y	
NAWC-010318-FRB-261	1/3/2018	10:10	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-10	1/3/2018	10:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-10	1/3/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-010318-RW-0443	1/3/2018	11:10	G	DW	2	N	N	Y	
WGNA-010318-FRB-0443	1/3/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-010318-RW-3493	1/3/2018	11:40	G	DW	2	N	N	Y	
WGNA-010318-FRB-3493	1/3/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-010318-DUP-15	1/3/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
WGNA-010318-RW-0500	1/3/2018	12:40	G	DW	2	N	N	Y	
WGNA-010318-FRB-0500	1/3/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-145	1/3/2018	13:10	G	DW	2	N	N	Y	
NAWC-010318-FRB-145	1/3/2018	13:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-60	1/3/2018	13:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-60	1/3/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-106	1/3/2018	15:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-106	1/3/2018	15:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-289	1/3/2018	16:10	G	DW	2	N	N	Y	
NAWC-010318-FRB-289	1/3/2018	16:05	G	DW	2	N	N	Y	Field Reagent Blank

Lable NAWC-010318-FRB-261
Lable NAWC-010318-RW-261 *

Lable WGNA-010318-RW-0500 *

1/2

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☐ Archive for Months

Fed Ex Tracking:
FED EX 7711 3470 1097

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 3.5 2.9 Corr'd: | Therm ID No.: AK2

	Company	Date/Time		Company	Date/Time
Relinquished by: Mary K Bond	Tetra Tech	1/3/2018 1800	Received by:	TA - Sac	1/4/18 1005
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

C:\Users\Chris.Sinisi\Desktop\COC 20180103

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-34835-1
SDG Number: WE04

Login Number: 34835
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.	False	IDs on containers do not match the COC. Logged in per COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","25","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","241.6","1.00","17",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","13","ng/L","J","2.9","DL","","TRG","","","21","LOQ","YES","-99","","241.6","1.00","8.3",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","8.0","ng/L","J","5.7","DL","","TRG","","","31","LOQ","YES","-99","","241.6","1.00","12",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","241.6","1.00","37",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.6","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES","-99","","241.6","1.00","4.1",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","241.6","1.00","21",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","STL00993","13C2 PFHxA","34","ng/L","","-99","DL","","SURR","83","","-99","LOQ","YES","41.4","","241.6","1.00","0",""
"NAWC-010318-RW-275","537","RES","320-34835-1","TALSAC","STL00996","13C2 PFDA","34","ng/L","","-99","DL","","SURR","83","","-99","LOQ","YES","41.4","","241.6","1.00","0",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.1","1.00","16",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.1","1.00","8.0",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.1","1.00","12",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.1","1.00","36",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.1","1.00","4.0",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.1","1.00","20",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","STL00993","13C2 PFHxA","36","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","40.0","","250.1","1.00","0",""
"NAWC-010318-FRB-261","537","RES","320-34835-10","TALSAC","STL00996","13C2 PFDA","35","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","40.0","","250.1","1.00","0",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","34","ng/L","J","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.9","1.00","16",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","25","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.9","1.00","8.1",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","19","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","247.9","1.00","12",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.9","1.00","36",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","7.0","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.9","1.00","4.0",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.9","1.00","20",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","STL00993","13C2 PFHxA","37","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.3","","247.9","1.00","0",""
"NAWC-010318-RW-10","537","RES","320-34835-11","TALSAC","STL00996","13C2 PFDA","37","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.3","","247.9","1.00","0",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","255.8","1.00","16",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","255.8","1.00","7.8",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","255.8","1.00","12",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","255.8","1.00","35",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","255.8","1.00","3.9",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","255.8","1.00","20",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","39.1","","255.8","1.00","0",""
"NAWC-010318-FRB-10","537","RES","320-34835-12","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","39.1","","255.8","1.00","0",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","31","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.5","1.00","16",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","24","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.5","1.00","8.0",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.5","1.00","12",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","17","ng/L","J","16","DL","","TRG","","","89","LOQ","YES","-99","","251.5","1.00","36",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","10","ng/L","","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.5","1.00","4.0",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","251.5","1.00","20",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","39.8","","251.5","1.00","0",""
"WGNA-010318-RW-0443","537","RES","320-34835-13","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","39.8","","251.5","1.00","0",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.2","1.00","16",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.2","1.00","8.2",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.2","1.00","12",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.2","1.00","37",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.2","1.00","4.1",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.2","DL","","TRG","","","24","LOQ","YES","-99","","245.2","1.00","20",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","40.8","","245.2","1.00","0",""
"WGNA-010318-FRB-0443","537","RES","320-34835-14","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","40.8","","245.2","1.00","0",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","33","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.3","1.00","16",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.3","1.00","8.0",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","16","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.3","1.00","12",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","251.3","1.00","36",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.4","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.3","1.00","4.0",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","251.3","1.00","20",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","88","","-99","LOQ","YES","39.8","","251.3","1.00","0",""
"WGNA-010318-RW-3493","537","RES","320-34835-15","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","39.8","","251.3","1.00","0",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","17","ng/L","U","7.1","DL","","TRG","","","42","LOQ","YES","-99","","240.8","1.00","17",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.3","ng/L","U","2.9","DL","","TRG","","","21","LOQ","YES","-99","","240.8","1.00","8.3",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES","-99","","240.8","1.00","12",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","240.8","1.00","37",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.2","ng/L","U","2.0","DL","","TRG","","","10","LOQ","YES","-99","","240.8","1.00","4.2",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","240.8","1.00","21",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","41.5","","240.8","1.00","0",""
"WGNA-010318-FRB-3493","537","RES","320-34835-16","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","41.5","","240.8","1.00","0",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","32","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","20","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","17","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.6","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURR","83","","-99","LOQ","YES","40.0","","250","1.00","0",""
"WGNA-010318-DUP-15","537","RES","320-34835-17","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.0","","250","1.00","0",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","23","ng/L","J","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.4","1.00","16",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","25","ng/L","M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.4","1.00","8.1",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.8","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.4","1.00","12",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.4","1.00","36",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.9","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.4","1.00","4.0",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.4","1.00","20",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.4","","247.4","1.00","0",""
"WGNA-010318-RW-0500","537","RES","320-34835-18","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.4","","247.4","1.00","0",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","256.3","1.00","16",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","256.3","1.00","7.8",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","256.3","1.00","12",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","256.3","1.00","35",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","256.3","1.00","3.9",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","256.3","1.00","20",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","39.0","","256.3","1.00","0",""
"WGNA-010318-FRB-0500","537","RES","320-34835-19","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","39.0","","256.3","1.00","0",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","241","ng/L","","6.7","DL","","SPK","98","","40","LOQ","YES","220","NAWC-010318-RW-
275","252.6","1.00","16",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","121","ng/L","","2.8","DL","","SPK","98","","20","LOQ","YES","110","NAWC-010318-RW-
275","252.6","1.00","7.9",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","181","ng/L","","5.4","DL","","SPK","105","","30","LOQ","YES","165","NAWC-010318-RW-
275","252.6","1.00","12",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","536","ng/L","","16","DL","","SPK","108","","89","LOQ","YES","495","NAWC-010318-RW-
275","252.6","1.00","36",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","58.4","ng/L","","1.9","DL","","SPK","98","","9.9","LOQ","YES","55.0","NAWC-010318-RW-
275","252.6","1.00","4.0",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","108","ng/L","","7.9","DL","","SPK","98","","24","LOQ","YES","110","NAWC-010318-RW-
275","252.6","1.00","20",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","STL00993","13C2
PFHxA","36.9","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","39.6","NAWC-010318-RW-
275","252.6","1.00","0",""
"NAWC-010318-RW-275MS","537","RES","320-34835-1MS","TALSAC","STL00996","13C2
PFDA","35.8","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","39.6","NAWC-010318-RW-
275","252.6","1.00","0",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","263","ng/L","","7.1","DL","","SPK","103","9","42","LOQ","YES","232","NAWC-010318-RW-
275","240","1.00","17",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","130","ng/L","M","2.9","DL","","SPK","101","7","21","LOQ","YES","116","NAWC-010318-RW-
275","240","1.00","8.3",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","191","ng/L","","5.7","DL","","SPK","106","6","31","LOQ","YES","174","NAWC-010318-RW-
275","240","1.00","13",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","375-73-5","Perfluorobutanesulfonic
acid (PFBS)","578","ng/L","","17","DL","","SPK","111","8","94","LOQ","YES","521","NAWC-010318-RW-
275","240","1.00","38",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","65.0","ng/L","","2.0","DL","","SPK","104","11","10","LOQ","YES","57.9","NAWC-010318-RW-
275","240","1.00","4.2",""

"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","112","ng/L","","8.3","DL","","SPK","97","4","25","LOQ","YES","116","NAWC-010318-RW-275","240","1.00","21",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","STL00993","13C2 PFHxA","39.2","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","41.7","NAWC-010318-RW-275","240","1.00","0",""
"NAWC-010318-RW-275MSD","537","RES","320-34835-1MSD","TALSAC","STL00996","13C2 PFDA","38.0","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","41.7","NAWC-010318-RW-275","240","1.00","0",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.7","DL","","TRG","","","40","LOQ","YES","-99","","252.6","1.00","16",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","252.6","1.00","7.9",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES","-99","","252.6","1.00","12",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","252.6","1.00","36",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","252.6","1.00","4.0",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","252.6","1.00","20",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","STL00993","13C2 PFHxA","36","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","39.6","","252.6","1.00","0",""
"NAWC-010318-FRB-275","537","RES","320-34835-2","TALSAC","STL00996","13C2 PFDA","35","ng/L","","-99","DL","","SURR","88","","-99","LOQ","YES","39.6","","252.6","1.00","0",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","21","ng/L","J","6.7","DL","","TRG","","","39","LOQ","YES","-99","","253.4","1.00","16",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","23","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.4","1.00","7.9",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","8.2","ng/L","J","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.4","1.00","12",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.4","1.00","36",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","6.6","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253.4","1.00","3.9",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.4","1.00","20",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","STL00993","13C2 PFHxA","35","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","39.5","","253.4","1.00","0",""
"NAWC-010318-RW-145","537","RES","320-34835-20","TALSAC","STL00996","13C2 PFDA","39","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","39.5","","253.4","1.00","0",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.5","1.00","16",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.5","1.00","8.1",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.5","1.00","12",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.5","1.00","37",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.5","1.00","4.1",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.5","1.00","20",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","STL00993","13C2

PFHxA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.6","","246.5","1.00","0",""
"NAWC-010318-FRB-145","537","RES","320-34835-21","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.6","","246.5","1.00","0",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","29","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.5","1.00","16",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","19","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.5","1.00","8.0",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.5","1.00","12",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.5","1.00","36",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.8","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.5","1.00","4.0",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.5","1.00","20",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.1","","249.5","1.00","0",""
"NAWC-010318-RW-60","537","RES","320-34835-22","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","40.1","","249.5","1.00","0",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","248.5","1.00","16",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","248.5","1.00","8.0",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","248.5","1.00","12",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","248.5","1.00","36",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","248.5","1.00","4.0",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","248.5","1.00","20",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.2","","248.5","1.00","0",""
"NAWC-010318-FRB-60","537","RES","320-34835-23","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","40.2","","248.5","1.00","0",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","21","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.1","1.00","16",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","23","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.1","1.00","8.0",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","9.6","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.1","1.00","12",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.1","1.00","36",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","8.8","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.1","1.00","4.0",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.1","1.00","20",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","40.1","","249.1","1.00","0",""
"NAWC-010318-RW-106","537","RES","320-34835-24","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.1","","249.1","1.00","0",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","17","ng/L","U","7.1","DL","","TRG","","","42","LOQ","YES","-99","","240.8","1.00","17",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","335-67-1","Perfluorooctanoic acid

(PFOA)","8.3","ng/L","U","2.9","DL","","TRG","","","21","LOQ","YES","-99","","240.8","1.00","8.3",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES","-99","","240.8","1.00","12",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","240.8","1.00","37",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.2","ng/L","U","2.0","DL","","TRG","","","10","LOQ","YES","-99","","240.8","1.00","4.2",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","240.8","1.00","21",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","41.5","","240.8","1.00","0",""
"NAWC-010318-FRB-106","537","RES","320-34835-25","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","41.5","","240.8","1.00","0",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","14","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.3","1.00","16",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","10","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.3","1.00","8.0",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","5.6","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.3","1.00","12",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.3","1.00","36",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.2","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.3","1.00","4.0",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.3","1.00","20",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.0","","250.3","1.00","0",""
"NAWC-010318-RW-289","537","RES","320-34835-26","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.0","","250.3","1.00","0",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.3","1.00","16",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.3","1.00","8.0",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.3","1.00","12",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.3","1.00","36",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.3","1.00","4.0",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.3","1.00","20",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","40.0","","250.3","1.00","0",""
"NAWC-010318-FRB-289","537","RES","320-34835-27","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.0","","250.3","1.00","0",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","23","ng/L","J M","7.3","DL","","TRG","","","43","LOQ","YES","-99","","231.4","1.00","17",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","17","ng/L","J","3.0","DL","","TRG","","","22","LOQ","YES","-99","","231.4","1.00","8.6",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","9.8","ng/L","J","5.9","DL","","TRG","","","32","LOQ","YES","-99","","231.4","1.00","13",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","39","ng/L","U","17","DL","","TRG","","","97","LOQ","YES","-99","","231.4","1.00","39",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","375-85-9","Perfluoroheptanoic acid

(PFHpA)","4.9","ng/L","J","2.1","DL","","TRG","","","11","LOQ","YES","-99","","231.4","1.00","4.3",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","22","ng/L","U M","8.6","DL","","TRG","","","26","LOQ","YES","-99","","231.4","1.00","22",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","43.2","","231.4","1.00","0",""
"NAWC-010318-RW-304","537","RES","320-34835-3","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","85","","-99","LOQ","YES","43.2","","231.4","1.00","0",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.3","1.00","16",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.3","1.00","8.0",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.3","1.00","12",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.3","1.00","36",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.3","1.00","4.0",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.3","1.00","20",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","40.0","","250.3","1.00","0",""
"NAWC-010318-FRB-304","537","RES","320-34835-4","TALSAC","STL00996","13C2
PFDA","35","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","40.0","","250.3","1.00","0",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","20","ng/L","J","6.9","DL","","TRG","","","41","LOQ","YES","-99","","244.9","1.00","16",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","28","ng/L","","2.9","DL","","TRG","","","20","LOQ","YES","-99","","244.9","1.00","8.2",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","244.9","1.00","12",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","244.9","1.00","37",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","8.8","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","244.9","1.00","4.1",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","8.2","DL","","TRG","","","24","LOQ","YES","-99","","244.9","1.00","20",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","40.8","","244.9","1.00","0",""
"NAWC-010318-RW-154","537","RES","320-34835-5","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","88","","-99","LOQ","YES","40.8","","244.9","1.00","0",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","244.8","1.00","16",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","244.8","1.00","8.2",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","244.8","1.00","12",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","244.8","1.00","37",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","244.8","1.00","4.1",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES","-99","","244.8","1.00","20",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","STL00993","13C2
PFHxA","42","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.8","","244.8","1.00","0",""
"NAWC-010318-FRB-154","537","RES","320-34835-6","TALSAC","STL00996","13C2

PFDA","40","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","40.8","","244.8","1.00","0",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","26","ng/L","J M","7.2","DL","","TRG","","","42","LOQ","YES","-99","","235.8","1.00","17",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","","3.0","DL","","TRG","","","21","LOQ","YES","-99","","235.8","1.00","8.5",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","J","5.8","DL","","TRG","","","32","LOQ","YES","-99","","235.8","1.00","13",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","38","ng/L","U","17","DL","","TRG","","","95","LOQ","YES","-99","","235.8","1.00","38",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","8.3","ng/L","J","2.0","DL","","TRG","","","11","LOQ","YES","-99","","235.8","1.00","4.2",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.5","DL","","TRG","","","25","LOQ","YES","-99","","235.8","1.00","21",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","42.4","","235.8","1.00","0",""
"NAWC-010318-RW-276","537","RES","320-34835-7","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","86","","-99","LOQ","YES","42.4","","235.8","1.00","0",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","7.0","DL","","TRG","","","41","LOQ","YES","-99","","242.8","1.00","16",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","21","LOQ","YES","-99","","242.8","1.00","8.2",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES","-99","","242.8","1.00","12",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","242.8","1.00","37",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","2.0","DL","","TRG","","","10","LOQ","YES","-99","","242.8","1.00","4.1",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES","-99","","242.8","1.00","21",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","41.2","","242.8","1.00","0",""
"NAWC-010318-FRB-276","537","RES","320-34835-8","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","41.2","","242.8","1.00","0",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","J","7.2","DL","","TRG","","","42","LOQ","YES","-99","","237.1","1.00","17",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","14","ng/L","J","3.0","DL","","TRG","","","21","LOQ","YES","-99","","237.1","1.00","8.4",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.6","ng/L","J","5.8","DL","","TRG","","","32","LOQ","YES","-99","","237.1","1.00","13",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","38","ng/L","U","17","DL","","TRG","","","95","LOQ","YES","-99","","237.1","1.00","38",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.3","ng/L","J","2.0","DL","","TRG","","","11","LOQ","YES","-99","","237.1","1.00","4.2",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U M","8.4","DL","","TRG","","","25","LOQ","YES","-99","","237.1","1.00","21",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","42.2","","237.1","1.00","0",""
"NAWC-010318-RW-261","537","RES","320-34835-9","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","42.2","","237.1","1.00","0",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","212","ng/L","","6.8","DL","","SPK","95","","40","LOQ","YES","222","","250","1.00","16",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","108","ng/L","","2.8","DL","","SPK","97","","20","LOQ","YES","111","","250","1.00","8.0",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","174","ng/L","","5.5","DL","","SPK","105","","30","LOQ","YES","167","","250","1.00","12",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","530","ng/L","","16","DL","","SPK","106","","90","LOQ","YES","500","","250","1.00","36",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","60.7","ng/L","","1.9","DL","","SPK","109","","10","LOQ","YES","55.6","","250","1.00","4.0",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","105","ng/L","","8.0","DL","","SPK","94","","24","LOQ","YES","111","","250","1.00","20",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","STL00993","13C2
PFHxA","38.6","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-203312/2-A","537","RES","LCS 320-203312/2-A","TALSAC","STL00996","13C2
PFDA","35.8","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","221","ng/L","M","6.8","DL","","SPK","100","","40","LOQ","YES","222","","250","1.00","16",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","107","ng/L","","2.8","DL","","SPK","96","","20","LOQ","YES","111","","250","1.00","8.0",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","176","ng/L","","5.5","DL","","SPK","105","","30","LOQ","YES","167","","250","1.00","12",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","519","ng/L","","16","DL","","SPK","104","","90","LOQ","YES","500","","250","1.00","36",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","58.7","ng/L","","1.9","DL","","SPK","106","","10","LOQ","YES","55.6","","250","1.00","4.0",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","103","ng/L","","8.0","DL","","SPK","93","","24","LOQ","YES","111","","250","1.00","20",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","STL00993","13C2
PFHxA","37.1","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-203874/2-A","537","RES","LCS 320-203874/2-A","TALSAC","STL00996","13C2
PFDA","36.2","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","225","ng/L","M","6.8","DL","","SPK","101","1","40","LOQ","YES","222","LCS 320-203874/2-
A","250","1.00","16",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","115","ng/L","","2.8","DL","","SPK","103","7","20","LOQ","YES","111","LCS 320-203874/2-
A","250","1.00","8.0",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","178","ng/L","","5.5","DL","","SPK","107","1","30","LOQ","YES","167","LCS 320-203874/2-
A","250","1.00","12",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","517","ng/L","","16","DL","","SPK","103","1","90","LOQ","YES","500","LCS 320-203874/2-
A","250","1.00","36",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","59.4","ng/L","","1.9","DL","","SPK","107","1","10","LOQ","YES","55.6","LCS 320-203874/2-
A","250","1.00","4.0",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","114","ng/L","","8.0","DL","","SPK","103","10","24","LOQ","YES","111","LCS 320-203874/2-
A","250","1.00","20",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","STL00993","13C2
PFHxA","37.4","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.0","LCS 320-203874/2-
A","250","1.00","0",""
"LCSD 320-203874/3-A","537","RES","LCSD 320-203874/3-A","TALSAC","STL00996","13C2
PFDA","39.1","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","40.0","LCS 320-203874/2-
A","250","1.00","0",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","335-67-1","Perfluorooctanoic acid

(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","STL00993","13C2
PFHxA","36.9","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-203312/1-A","537","RES","MB 320-203312/1-A","TALSAC","STL00996","13C2
PFDA","33.8","ng/L","","-99","DL","","SURR","84","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","STL00993","13C2
PFHxA","38.1","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-203874/1-A","537","RES","MB 320-203874/1-A","TALSAC","STL00996","13C2
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1","NM","","3.5","537","METHOD","RES","01/10/2018 08:12","01/12/2018
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10","FB","","3.5","537","METHOD","RES","01/15/2018 08:55","01/19/2018
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204650","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-RW-10","01/03/2018 10:40","AQ","320-34835-
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07:40","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
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204650","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","WGNA-010318-RW-0443","01/03/2018 11:10","AQ","320-34835-
13","NM","","3.5","537","METHOD","RES","01/15/2018 08:55","01/19/2018
07:49","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
204650","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
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204650","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","WGNA-010318-RW-3493","01/03/2018 11:40","AQ","320-34835-

15","NM","","3.5","537","METHOD","RES","01/15/2018 08:55","01/19/2018
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204650","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","WGNA-010318-FRB-3493","01/03/2018 11:35","AQ","320-34835-
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204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","WGNA-010318-DUP-15","01/03/2018 07:00","AQ","320-34835-
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08:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","WGNA-010318-RW-0500","01/03/2018 12:40","AQ","320-34835-
18","NM","","3.5","537","METHOD","RES","01/15/2018 08:55","01/19/2018
08:22","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","WGNA-010318-FRB-0500","01/03/2018 12:35","AQ","320-34835-
19","FB","","3.5","537","METHOD","RES","01/15/2018 08:55","01/19/2018
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204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-RW-275MS","01/03/2018 08:10","AQ","320-34835-
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203801","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-RW-275MSD","01/03/2018 08:10","AQ","320-34835-
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203801","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-FRB-275","01/03/2018 08:05","AQ","320-34835-
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"Unknown","Unknown","NAWC-010318-RW-145","01/03/2018 13:10","AQ","320-34835-
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08:31","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-FRB-145","01/03/2018 13:05","AQ","320-34835-
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204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-RW-60","01/03/2018 13:40","AQ","320-34835-
22","NM","","3.5","537","METHOD","RES","01/15/2018 08:55","01/19/2018
08:40","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-FRB-60","01/03/2018 13:35","AQ","320-34835-
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204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-RW-106","01/03/2018 15:40","AQ","320-34835-
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08:50","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
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204651","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
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203801","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
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203801","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-RW-154","01/03/2018 09:10","AQ","320-34835-
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203801","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-FRB-154","01/03/2018 09:05","AQ","320-34835-
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18:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203312","320-203312","NA","320-
203801","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
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7","NM","","3.5","537","METHOD","RES","01/10/2018 08:12","01/12/2018
18:31","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203312","320-203312","NA","320-
203803","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
"Unknown","Unknown","NAWC-010318-FRB-276","01/03/2018 09:35","AQ","320-34835-
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203803","320-34835-1","01/04/2018 10:05","01/22/2018 15:19",""
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07:30","TALSAC","COA","WET","NA","1","NA","NA","","100","320-203874","320-203874","NA","320-
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A","LCSD","","-99","537","METHOD","RES","01/15/2018 08:55","01/19/2018
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A","MB","","-99","537","METHOD","RES","01/10/2018 08:12","01/12/2018
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TETRA TECH

INTERNAL CORRESPONDENCE

TO: **A. FREBOWITZ** **DATE:** **JANUARY 31, 2018**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)**
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-34835-1

SAMPLES: 13/Field Reagent Blank (FRB)

NAWC-010318-FRB-10	NAWC-010318-FRB-106
NAWC-010318-FRB-145	NAWC-010318-FRB-154
NAWC-010318-FRB-261	NAWC-010318-FRB-275
NAWC-010318-FRB-276	NAWC-010318-FRB-289
NAWC-010318-FRB-304	NAWC-010318-FRB-60
WGNA-010318-FRB-0443	WGNA-010318-FRB-0500
WGNA-010318-FRB-3493	

14/Drinking Water

NAWC-010318-RW-10	NAWC-010318-RW-106
NAWC-010318-RW-145	NAWC-010318-RW-154
NAWC-010318-RW-261	NAWC-010318-RW-275
NAWC-010318-RW-276	NAWC-010318-RW-289
NAWC-010318-RW-304	NAWC-010318-RW-60
WGNA-010318-DUP-15	WGNA-010318-RW-0443
WGNA-010318-RW-0500	WGNA-010318-RW-3493

Overview

The sample set for NAS JRB Willow Grove, SDG 320-34835-1, consisted of fourteen (14) drinking water samples and thirteen (13) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). One (1) field duplicate sample pair (WGNA-010318-RW-3493 / WGNA-010318-DUP-15) was included in this SDG.

The samples were collected by Tetra Tech on January 3, 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, initial/continuing calibrations, laboratory method/FRBs, surrogate spike recoveries, laboratory control sample / laboratory control sample duplicate results, matrix spike / matrix spike duplicate recoveries, internal standard areas and recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

None.

Minor

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

Notes

It was noted by the laboratory that the following sample bottle labels did not match the chain of custody: NAWC-010318-RW-261, NAWC-010318-FRB-261 and WGNA-010318-FRB-0500. The laboratory labeled the samples according to the chain of custody.

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

Sample	Associated FRB
NAWC-010318-RW-10	NAWC-010318-FRB-10
NAWC-010318-RW-106	NAWC-010318-FRB-106
NAWC-010318-RW-145	NAWC-010318-FRB-145
NAWC-010318-RW-154	NAWC-010318-FRB-154
NAWC-010318-RW-261	NAWC-010318-FRB-261
NAWC-010318-RW-275	NAWC-010318-FRB-275
NAWC-010318-RW-276	NAWC-010318-FRB-276
NAWC-010318-RW-289	NAWC-010318-FRB-289
NAWC-010318-RW-304	NAWC-010318-FRB-304
NAWC-010318-RW-60	NAWC-010318-FRB-60
WGNA-010318-DUP-15	WGNA-010318-FRB-3493
WGNA-010318-RW-0443	WGNA-010318-FRB-0443
WGNA-010318-RW-0500	WGNA-010318-FRB-0500
WGNA-010318-RW-3493	WGNA-010318-FRB-3493

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

Executive Summary

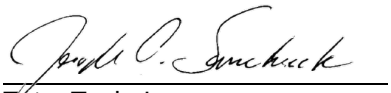
Laboratory Performance: No issues.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”, (September 2009) and the US EPA National Functional Guidelines for Organic Data Review (January 2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

Terri L Solomon

Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator



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-010318-FRB-10			NAWC-010318-FRB-106			NAWC-010318-FRB-145			NAWC-010318-FRB-154		
SDG: 320-34835-1	LAB_ID	320-34835-12			320-34835-25			320-34835-21			320-34835-6		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018			1/3/2018		
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		7.8	U		8.3	U		8.1	U		8.2	U	
PERFLUOROBUTANESULFONIC ACID		35	U		37	U		37	U		37	U	
PERFLUOROHEPTANOIC ACID		3.9	U		4.2	U		4.1	U		4.1	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		21	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		17	U		16	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-010318-FRB-261			NAWC-010318-FRB-275			NAWC-010318-FRB-276			NAWC-010318-FRB-289		
SDG: 320-34835-1	LAB_ID	320-34835-10			320-34835-2			320-34835-8			320-34835-27		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018			1/3/2018		
MEDIA: WATER	QC_TYPE	FB			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		8	U		7.9	U		8.2	U		8	U	
PERFLUOROBUTANESULFONIC ACID		36	U		36	U		37	U		36	U	
PERFLUOROHEPTANOIC ACID		4	U		4	U		4.1	U		4	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		21	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		16	U		16	U	

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-010318-FRB-304			NAWC-010318-FRB-60			NAWC-010318-RW-10			NAWC-010318-RW-106		
SDG: 320-34835-1	LAB_ID	320-34835-4			320-34835-23			320-34835-11			320-34835-24		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018			1/3/2018		
MEDIA: WATER	QC_TYPE	FB			FB			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		8	U		8	U		25			23		
PERFLUOROBUTANESULFONIC ACID		36	U		36	U		36	U		36	U	
PERFLUOROHEPTANOIC ACID		4	U		4	U		7	J	P	8.8	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		19	J	P	9.6	J	P
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		34	J	P	21	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-010318-RW-145			NAWC-010318-RW-154			NAWC-010318-RW-261			NAWC-010318-RW-275		
SDG: 320-34835-1	LAB_ID	320-34835-20			320-34835-5			320-34835-9			320-34835-1		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018			1/3/2018		
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		23			28			14	J	P	13	J	P
PERFLUOROBUTANESULFONIC ACID		36	U		37	U		38	U		37	U	
PERFLUOROHEPTANOIC ACID		6.6	J	P	8.8	J	P	4.3	J	P	4.6	J	P
PERFLUOROHEXANESULFONIC ACID		8.2	J	P	12	U		7.6	J	P	8	J	P
PERFLUORONONANOIC ACID		20	U		20	U		21	U		21	U	
PERFLUOROOCTANE SULFONIC ACID		21	J	P	20	J	P	15	J	P	25	J	P

PROJ_NO: 08005-WE04	NSAMPLE	NAWC-010318-RW-276			NAWC-010318-RW-289			NAWC-010318-RW-304			NAWC-010318-RW-60		
SDG: 320-34835-1	LAB_ID	320-34835-7			320-34835-26			320-34835-3			320-34835-22		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018			1/3/2018		
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		21			10	J	P	17	J	P	19	J	P
PERFLUOROBUTANESULFONIC ACID		38	U		36	U		39	U		36	U	
PERFLUOROHEPTANOIC ACID		8.3	J	P	3.2	J	P	4.9	J	P	4.8	J	P
PERFLUOROHEXANESULFONIC ACID		12	J	P	5.6	J	P	9.8	J	P	11	J	P
PERFLUORONONANOIC ACID		21	U		20	U		22	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		26	J	P	14	J	P	23	J	P	29	J	P

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-010318-DUP-15			WGNA-010318-FRB-0443			WGNA-010318-FRB-0500			WGNA-010318-FRB-3493		
SDG: 320-34835-1	LAB_ID	320-34835-17			320-34835-14			320-34835-19			320-34835-16		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018			1/3/2018		
MEDIA: WATER	QC_TYPE	FD			FB			FB			FD		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	WGNA-010318-RW-3493											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		20			8.2	U		7.8	U		8.3	U	
PERFLUOROBUTANESULFONIC ACID		36	U		37	U		35	U		37	U	
PERFLUOROHEPTANOIC ACID		6.6	J	P	4.1	U		3.9	U		4.2	U	
PERFLUOROHEXANESULFONIC ACID		17	J	P	12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		20	U		21	U	
PERFLUOROOCTANE SULFONIC ACID		32	J	P	16	U		16	U		17	U	

PROJ_NO: 08005-WE04	NSAMPLE	WGNA-010318-RW-0443			WGNA-010318-RW-0500			WGNA-010318-RW-3493		
SDG: 320-34835-1	LAB_ID	320-34835-13			320-34835-18			320-34835-15		
FRACTION: PFAS	SAMP_DATE	1/3/2018			1/3/2018			1/3/2018		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		24			25			21		
PERFLUOROBUTANESULFONIC ACID		17	J	P	36	U		36	U	
PERFLUOROHEPTANOIC ACID		10			6.9	J	P	6.4	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		7.8	J	P	16	J	P
PERFLUORONONANOIC ACID		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		31	J	P	23	J	P	33	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-275 | Lab Sample ID: 320-34835-1

Matrix: Water | Lab File ID: 2018.01.12_537A_009.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 241.6(mL) | Date Analyzed: 01/12/2018 17:44

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J ~~M~~	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	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	83		70-130
STL00996	13C2 PFDA	83		70-130

Dani L Salemon
01/31/2018

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-275 | Lab Sample ID: 320-34835-2

Matrix: Water | Lab File ID: 2018.01.12_537A_012.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:05

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 252.6(mL) | Date Analyzed: 01/12/2018 17:58

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

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

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

Analysis Batch No.: 203801 | 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	91		70-130
STL00996	13C2 PFDA	88		70-130

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Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-304 | Lab Sample ID: 320-34835-3

Matrix: Water | Lab File ID: 2018.01.12_537A_013.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:40

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 231.4(mL) | Date Analyzed: 01/12/2018 18:03

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J ~~M~~	43	17	7.3
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	22	8.6	3.0
375-95-1	Perfluorononanoic acid (PFNA)	22	U ~~M~~	26	22	8.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.8	J	32	13	5.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	11	4.3	2.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	39	U	97	39	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	85		70-130

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Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-304 | Lab Sample ID: 320-34835-4

Matrix: Water | Lab File ID: 2018.01.12_537A_014.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:35

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/12/2018 18:08

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

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

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

Analysis Batch No.: 203801 | 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	89		70-130
STL00996	13C2 PFDA	87		70-130

Toni L Salomon
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-154 | Lab Sample ID: 320-34835-5

Matrix: Water | Lab File ID: 2018.01.12_537A_015.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 244.9(mL) | Date Analyzed: 01/12/2018 18:12

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	28		20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.8	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	86		70-130
STL00996	13C2 PFDA	88		70-130

Dawn L Salemen
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-154 | Lab Sample ID: 320-34835-6

Matrix: Water | Lab File ID: 2018.01.12_537A_016.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:05

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 244.8(mL) | Date Analyzed: 01/12/2018 18:17

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	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	102		70-130
STL00996	13C2 PFDA	98		70-130

Toni L Salomon
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-276 | Lab Sample ID: 320-34835-7

Matrix: Water | Lab File ID: 2018.01.12_537A_019.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:40

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 235.8(mL) | Date Analyzed: 01/12/2018 18:31

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

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

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

Analysis Batch No.: 203803 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J ~~M~~	42	17	7.2
335-67-1	Perfluorooctanoic acid (PFOA)	21		21	8.5	3.0
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	32	13	5.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.3	J	11	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	95	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	86		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-276 | Lab Sample ID: 320-34835-8

Matrix: Water | Lab File ID: 2018.01.12_537A_020.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:35

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 242.8(mL) | Date Analyzed: 01/12/2018 18:36

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

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

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

Analysis Batch No.: 203803 | 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	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	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	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	94		70-130
STL00996	13C2 PFDA	92		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-261 | Lab Sample ID: 320-34835-9

Matrix: Water | Lab File ID: 2018.01.18_537AA_030.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 237.1(mL) | Date Analyzed: 01/19/2018 07:30

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J	42	17	7.2
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	21	8.4	3.0
375-95-1	Perfluorononanoic acid (PFNA)	21	U ~~M~~	25	21	8.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.6	J	32	13	5.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	11	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	95	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	98		70-130

Toni L Salomon
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-261 | Lab Sample ID: 320-34835-10

Matrix: Water | Lab File ID: 2018.01.18_537AA_031.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.1(mL) | Date Analyzed: 01/19/2018 07:35

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

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

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

Analysis Batch No.: 204650 | 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	90		70-130
STL00996	13C2 PFDA	87		70-130

Toni L Salomon
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-10 | Lab Sample ID: 320-34835-11

Matrix: Water | Lab File ID: 2018.01.18_537AA_032.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 247.9(mL) | Date Analyzed: 01/19/2018 07:40

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	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	92		70-130
STL00996	13C2 PFDA	92		70-130

Dawn L Seleman
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-10 | Lab Sample ID: 320-34835-12

Matrix: Water | Lab File ID: 2018.01.18_537AA_033.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 255.8(mL) | Date Analyzed: 01/19/2018 07:44

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	100		70-130

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Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-0443 | Lab Sample ID: 320-34835-13

Matrix: Water | Lab File ID: 2018.01.18_537AA_034.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 251.5(mL) | Date Analyzed: 01/19/2018 07:49

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	24		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)	10		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	17	J	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	101		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-0443 | Lab Sample ID: 320-34835-14

Matrix: Water | Lab File ID: 2018.01.18_537AA_035.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 245.2(mL) | Date Analyzed: 01/19/2018 07:54

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	101		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-3493 | Lab Sample ID: 320-34835-15

Matrix: Water | Lab File ID: 2018.01.18_537AA_036.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 251.3(mL) | Date Analyzed: 01/19/2018 07:58

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.4	J	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	88		70-130
STL00996	13C2 PFDA	96		70-130

01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-3493 | Lab Sample ID: 320-34835-16

Matrix: Water | Lab File ID: 2018.01.18_537AA_039.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 240.8(mL) | Date Analyzed: 01/19/2018 08:12

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	8.3	U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	U	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	98		70-130

01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-DUP-15 | Lab Sample ID: 320-34835-17

Matrix: Water | Lab File ID: 2018.01.18_537AA_040.d

Analysis Method: 537 | Date Collected: 01/03/2018 07:00

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 08:17

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	17	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	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	83		70-130
STL00996	13C2 PFDA	91		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-0500 | Lab Sample ID: 320-34835-18

Matrix: Water | Lab File ID: 2018.01.18_537AA_041.d

Analysis Method: 537 | Date Collected: 01/03/2018 12:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 247.4(mL) | Date Analyzed: 01/19/2018 08:22

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25	~~M~~	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.9	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	94		70-130
STL00996	13C2 PFDA	92		70-130

Toni L Salomon

01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-0500 | Lab Sample ID: 320-34835-19

Matrix: Water | Lab File ID: 2018.01.18_537AA_042.d

Analysis Method: 537 | Date Collected: 01/03/2018 12:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 256.3(mL) | Date Analyzed: 01/19/2018 08:26

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	93		70-130

Toni L Salomon
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-145 | Lab Sample ID: 320-34835-20

Matrix: Water | Lab File ID: 2018.01.18_537AA_043.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 253.4(mL) | Date Analyzed: 01/19/2018 08:31

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.2	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	98		70-130

Toni L Salomon

01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-145 | Lab Sample ID: 320-34835-21

Matrix: Water | Lab File ID: 2018.01.18_537AA_044.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 246.5(mL) | Date Analyzed: 01/19/2018 08:36

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-60 | Lab Sample ID: 320-34835-22

Matrix: Water | Lab File ID: 2018.01.18_537AA_045.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 249.5(mL) | Date Analyzed: 01/19/2018 08:40

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	19	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	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	92		70-130
STL00996	13C2 PFDA	98		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-60 | Lab Sample ID: 320-34835-23

Matrix: Water | Lab File ID: 2018.01.18_537AA_046.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 248.5(mL) | Date Analyzed: 01/19/2018 08:45

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

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

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

Analysis Batch No.: 204651 | 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	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	89		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-106 | Lab Sample ID: 320-34835-24

Matrix: Water | Lab File ID: 2018.01.18_537AA_047.d

Analysis Method: 537 | Date Collected: 01/03/2018 15:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 249.1(mL) | Date Analyzed: 01/19/2018 08:50

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.6	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.8	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	89		70-130
STL00996	13C2 PFDA	97		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-106 | Lab Sample ID: 320-34835-25

Matrix: Water | Lab File ID: 2018.01.18_537AA_048.d

Analysis Method: 537 | Date Collected: 01/03/2018 15:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 240.8(mL) | Date Analyzed: 01/19/2018 08:55

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	8.3	U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	U	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	99		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-289 | Lab Sample ID: 320-34835-26

Matrix: Water | Lab File ID: 2018.01.18_537AA_051.d

Analysis Method: 537 | Date Collected: 01/03/2018 16:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/19/2018 09:08

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

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

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

Analysis Batch No.: 204654 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	10	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U ~~M~~	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.6	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.2	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	97		70-130
STL00996	13C2 PFDA	94		70-130

Toni L Soleman
01/31/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-289 | Lab Sample ID: 320-34835-27

Matrix: Water | Lab File ID: 2018.01.18_537AA_052.d

Analysis Method: 537 | Date Collected: 01/03/2018 16:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/19/2018 09:13

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

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

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

Analysis Batch No.: 204654 | 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	91		70-130
STL00996	13C2 PFDA	97		70-130

01/31/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-275 | Lab Sample ID: 320-34835-1

Matrix: Water | Lab File ID: 2018.01.12_537A_009.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 241.6(mL) | Date Analyzed: 01/12/2018 17:44

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	4.6	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	83		70-130
STL00996	13C2 PFDA	83		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-275 | Lab Sample ID: 320-34835-2

Matrix: Water | Lab File ID: 2018.01.12_537A_012.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:05

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 252.6(mL) | Date Analyzed: 01/12/2018 17:58

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

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

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

Analysis Batch No.: 203801 | 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	91		70-130
STL00996	13C2 PFDA	88		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-304 | Lab Sample ID: 320-34835-3

Matrix: Water | Lab File ID: 2018.01.12_537A_013.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:40

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 231.4(mL) | Date Analyzed: 01/12/2018 18:03

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J M	43	17	7.3
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	22	8.6	3.0
375-95-1	Perfluorononanoic acid (PFNA)	22	U M	26	22	8.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.8	J	32	13	5.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	11	4.3	2.1
375-73-5	Perfluorobutanesulfonic acid (PFBS)	39	U	97	39	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	85		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-304 | Lab Sample ID: 320-34835-4

Matrix: Water | Lab File ID: 2018.01.12_537A_014.d

Analysis Method: 537 | Date Collected: 01/03/2018 08:35

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/12/2018 18:08

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

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

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

Analysis Batch No.: 203801 | 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	89		70-130
STL00996	13C2 PFDA	87		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-154 | Lab Sample ID: 320-34835-5

Matrix: Water | Lab File ID: 2018.01.12_537A_015.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:10

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 244.9(mL) | Date Analyzed: 01/12/2018 18:12

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	28		20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.8	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	86		70-130
STL00996	13C2 PFDA	88		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-154 | Lab Sample ID: 320-34835-6

Matrix: Water | Lab File ID: 2018.01.12_537A_016.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:05

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 244.8(mL) | Date Analyzed: 01/12/2018 18:17

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	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	102		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-276 | Lab Sample ID: 320-34835-7

Matrix: Water | Lab File ID: 2018.01.12_537A_019.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:40

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 235.8(mL) | Date Analyzed: 01/12/2018 18:31

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

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

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

Analysis Batch No.: 203803 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J M	42	17	7.2
335-67-1	Perfluorooctanoic acid (PFOA)	21		21	8.5	3.0
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	32	13	5.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.3	J	11	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	95	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	86		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-276 | Lab Sample ID: 320-34835-8

Matrix: Water | Lab File ID: 2018.01.12_537A_020.d

Analysis Method: 537 | Date Collected: 01/03/2018 09:35

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 242.8(mL) | Date Analyzed: 01/12/2018 18:36

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

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

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

Analysis Batch No.: 203803 | 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	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	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	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	94		70-130
STL00996	13C2 PFDA	92		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-261 | Lab Sample ID: 320-34835-9

Matrix: Water | Lab File ID: 2018.01.18_537AA_030.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 237.1(mL) | Date Analyzed: 01/19/2018 07:30

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J	42	17	7.2
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	21	8.4	3.0
375-95-1	Perfluorononanoic acid (PFNA)	21	U M	25	21	8.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.6	J	32	13	5.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.3	J	11	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	95	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-261 | Lab Sample ID: 320-34835-10

Matrix: Water | Lab File ID: 2018.01.18_537AA_031.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.1(mL) | Date Analyzed: 01/19/2018 07:35

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

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

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

Analysis Batch No.: 204650 | 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	90		70-130
STL00996	13C2 PFDA	87		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-10 | Lab Sample ID: 320-34835-11

Matrix: Water | Lab File ID: 2018.01.18_537AA_032.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 247.9(mL) | Date Analyzed: 01/19/2018 07:40

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	34	J	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	19	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	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	92		70-130
STL00996	13C2 PFDA	92		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-10 | Lab Sample ID: 320-34835-12

Matrix: Water | Lab File ID: 2018.01.18_537AA_033.d

Analysis Method: 537 | Date Collected: 01/03/2018 10:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 255.8(mL) | Date Analyzed: 01/19/2018 07:44

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-0443 | Lab Sample ID: 320-34835-13

Matrix: Water | Lab File ID: 2018.01.18_537AA_034.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 251.5(mL) | Date Analyzed: 01/19/2018 07:49

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	24		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)	10		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	17	J	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-0443 Lab Sample ID: 320-34835-14

Matrix: Water Lab File ID: 2018.01.18_537AA_035.d

Analysis Method: 537 Date Collected: 01/03/2018 11:05

Extraction Method: 537 Date Extracted: 01/15/2018 08:55

Sample wt/vol: 245.2(mL) Date Analyzed: 01/19/2018 07:54

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

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

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

Analysis Batch No.: 204650 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-3493 | Lab Sample ID: 320-34835-15

Matrix: Water | Lab File ID: 2018.01.18_537AA_036.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 251.3(mL) | Date Analyzed: 01/19/2018 07:58

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

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

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

Analysis Batch No.: 204650 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	33	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.4	J	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	88		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-3493 | Lab Sample ID: 320-34835-16

Matrix: Water | Lab File ID: 2018.01.18_537AA_039.d

Analysis Method: 537 | Date Collected: 01/03/2018 11:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 240.8(mL) | Date Analyzed: 01/19/2018 08:12

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	8.3	U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	U	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-DUP-15 | Lab Sample ID: 320-34835-17

Matrix: Water | Lab File ID: 2018.01.18_537AA_040.d

Analysis Method: 537 | Date Collected: 01/03/2018 07:00

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 08:17

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	17	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	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	83		70-130
STL00996	13C2 PFDA	91		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-RW-0500 | Lab Sample ID: 320-34835-18

Matrix: Water | Lab File ID: 2018.01.18_537AA_041.d

Analysis Method: 537 | Date Collected: 01/03/2018 12:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 247.4(mL) | Date Analyzed: 01/19/2018 08:22

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.9	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	94		70-130
STL00996	13C2 PFDA	92		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: WGNA-010318-FRB-0500 | Lab Sample ID: 320-34835-19

Matrix: Water | Lab File ID: 2018.01.18_537AA_042.d

Analysis Method: 537 | Date Collected: 01/03/2018 12:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 256.3(mL) | Date Analyzed: 01/19/2018 08:26

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-145 | Lab Sample ID: 320-34835-20

Matrix: Water | Lab File ID: 2018.01.18_537AA_043.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 253.4(mL) | Date Analyzed: 01/19/2018 08:31

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.2	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-145 | Lab Sample ID: 320-34835-21

Matrix: Water | Lab File ID: 2018.01.18_537AA_044.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 246.5(mL) | Date Analyzed: 01/19/2018 08:36

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-60 | Lab Sample ID: 320-34835-22

Matrix: Water | Lab File ID: 2018.01.18_537AA_045.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 249.5(mL) | Date Analyzed: 01/19/2018 08:40

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	19	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	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	92		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-60 | Lab Sample ID: 320-34835-23

Matrix: Water | Lab File ID: 2018.01.18_537AA_046.d

Analysis Method: 537 | Date Collected: 01/03/2018 13:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 248.5(mL) | Date Analyzed: 01/19/2018 08:45

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

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

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

Analysis Batch No.: 204651 | 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	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	89		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-106 | Lab Sample ID: 320-34835-24

Matrix: Water | Lab File ID: 2018.01.18_537AA_047.d

Analysis Method: 537 | Date Collected: 01/03/2018 15:40

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 249.1(mL) | Date Analyzed: 01/19/2018 08:50

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.6	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.8	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	89		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-106 | Lab Sample ID: 320-34835-25

Matrix: Water | Lab File ID: 2018.01.18_537AA_048.d

Analysis Method: 537 | Date Collected: 01/03/2018 15:35

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 240.8(mL) | Date Analyzed: 01/19/2018 08:55

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

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

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

Analysis Batch No.: 204651 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	8.3	U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	U	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-RW-289 | Lab Sample ID: 320-34835-26

Matrix: Water | Lab File ID: 2018.01.18_537AA_051.d

Analysis Method: 537 | Date Collected: 01/03/2018 16:10

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/19/2018 09:08

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

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

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

Analysis Batch No.: 204654 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	10	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.6	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.2	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	97		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: NAWC-010318-FRB-289 | Lab Sample ID: 320-34835-27

Matrix: Water | Lab File ID: 2018.01.18_537AA_052.d

Analysis Method: 537 | Date Collected: 01/03/2018 16:05

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250.3(mL) | Date Analyzed: 01/19/2018 09:13

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

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

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

Analysis Batch No.: 204654 | 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	91		70-130
STL00996	13C2 PFDA	97		70-130

Appendix C

Support Documentation

ANALYTE	ORIGINAL 010318-TW-3493	DUPLICATE DUP-15	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >5xRL	DUPLICATE SAMPLE CONC >5xRL	DIFFERENCE >2XRL
Perfluorooctanoic acid (PFOA)	21	20	20	4.88	FALSE	FALSE	FALSE	FALSE
Perfluoroheptanoic acid (PFHpA)	6.4	6.6	9.9	3.08	FALSE	FALSE	FALSE	FALSE
Perfluorohexanesulfonic acid (PFHxS)	16	17	30	6.06	FALSE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	33	32	40	3.08	FALSE	FALSE	FALSE	FALSE

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

TestAmerica

320-34835 Chain of Custody

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica L

Client Contact	Project Manager: Andy Frebowitz	Site Contact: Mary Kay Bond	Date: 1/3/2018	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-010318-RW-275	1/3/2018	08:10	G	DW	6	N	Y	Y	MS/MSD
NAWC-010318-FRB-275	1/3/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-304	1/3/2018	08:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-304	1/3/2018	08:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-154	1/3/2018	09:10	G	DW	2	N	N	Y	
NAWC-010318-FRB-154	1/3/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-276	1/3/2018	09:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-276	1/3/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-261	1/3/2018	10:05	G	DW	2	N	N	Y	
NAWC-010318-FRB-261	1/3/2018	10:10	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-10	1/3/2018	10:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-10	1/3/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-010318-RW-0443	1/3/2018	11:10	G	DW	2	N	N	Y	
WGNA-010318-FRB-0443	1/3/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-010318-RW-3493	1/3/2018	11:40	G	DW	2	N	N	Y	
WGNA-010318-FRB-3493	1/3/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-010318-DUP-15	1/3/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
WGNA-010318-RW-0500	1/3/2018	12:40	G	DW	2	N	N	Y	
WGNA-010318-FRB-0500	1/3/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-145	1/3/2018	13:10	G	DW	2	N	N	Y	
NAWC-010318-FRB-145	1/3/2018	13:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-60	1/3/2018	13:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-60	1/3/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-106	1/3/2018	15:40	G	DW	2	N	N	Y	
NAWC-010318-FRB-106	1/3/2018	15:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-010318-RW-289	1/3/2018	16:10	G	DW	2	N	N	Y	
NAWC-010318-FRB-289	1/3/2018	16:05	G	DW	2	N	N	Y	Field Reagent Blank

Lable NAWC-010318-FRB-261
Lable NAWC-010318-RW-261
Lable WGNA-010318-RW-0500

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:
FED EX 7711 3470 1097

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 3.5 2.9 Corr'd: | Therm ID No.: AK2

	Company	Date/Time		Company	Date/Time
Relinquished by: Mary K Bond	Tetra Tech	1/3/2018 1800	Received by:	TA-Sac	1/4/18 1005
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

C:\Users\Chris.Sinsi\Desktop\COC 20180103

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-34835-1
SDG Number: WE04

Login Number: 34835
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.	False	IDs on containers do not match the COC. Logged in per COC.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Narrative
320-34835-1

Receipt
The samples were received on 1/4/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.8º C and 3.5º C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): NAWC-010318-RW-261 (320-34835-9), NAWC-010318-FRB-261 (320-34835-10) and WGNA-010318-FRB-0500 (320-34835-19).
Sample #9 label ID did not match COC. Label had NAWC-010318-FRB-261, COC IS NAWC-010318-RW-261. Labeled according to COC.
Sample #10 ID did not match COC. Label had NAWC-010318-RW-261, COC IS NAWC-010319-FRB-261. Labeled according to COC.
1 of 2 from sample #19 ID did not match COC Label had WGNA-010318-RW-0500, COC is WGNA-010318-FRB-0500. Labeled according to COC.

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

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

Organic Prep
Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-203874.

Method(s) 537: The following samples: NAWC-010318-RW-106 (320-34835-24) were decanted prior to preparation due to sediment being present.

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.

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

TestAmerica Job ID: 320-34835-1
SDG: WE04

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-34835-1	NAWC-010318-RW-275	Water	01/03/18 08:10	01/04/18 10:05
320-34835-2	NAWC-010318-FRB-275	Water	01/03/18 08:05	01/04/18 10:05
320-34835-3	NAWC-010318-RW-304	Water	01/03/18 08:40	01/04/18 10:05
320-34835-4	NAWC-010318-FRB-304	Water	01/03/18 08:35	01/04/18 10:05
320-34835-5	NAWC-010318-RW-154	Water	01/03/18 09:10	01/04/18 10:05
320-34835-6	NAWC-010318-FRB-154	Water	01/03/18 09:05	01/04/18 10:05
320-34835-7	NAWC-010318-RW-276	Water	01/03/18 09:40	01/04/18 10:05
320-34835-8	NAWC-010318-FRB-276	Water	01/03/18 09:35	01/04/18 10:05
320-34835-9	NAWC-010318-RW-261	Water	01/03/18 10:05	01/04/18 10:05
320-34835-10	NAWC-010318-FRB-261	Water	01/03/18 10:10	01/04/18 10:05
320-34835-11	NAWC-010318-RW-10	Water	01/03/18 10:40	01/04/18 10:05
320-34835-12	NAWC-010318-FRB-10	Water	01/03/18 10:35	01/04/18 10:05
320-34835-13	WGNA-010318-RW-0443	Water	01/03/18 11:10	01/04/18 10:05
320-34835-14	WGNA-010318-FRB-0443	Water	01/03/18 11:05	01/04/18 10:05
320-34835-15	WGNA-010318-RW-3493	Water	01/03/18 11:40	01/04/18 10:05
320-34835-16	WGNA-010318-FRB-3493	Water	01/03/18 11:35	01/04/18 10:05
320-34835-17	WGNA-010318-DUP-15	Water	01/03/18 07:00	01/04/18 10:05
320-34835-18	WGNA-010318-RW-0500	Water	01/03/18 12:40	01/04/18 10:05
320-34835-19	WGNA-010318-FRB-0500	Water	01/03/18 12:35	01/04/18 10:05
320-34835-20	NAWC-010318-RW-145	Water	01/03/18 13:10	01/04/18 10:05
320-34835-21	NAWC-010318-FRB-145	Water	01/03/18 13:05	01/04/18 10:05
320-34835-22	NAWC-010318-RW-60	Water	01/03/18 13:40	01/04/18 10:05
320-34835-23	NAWC-010318-FRB-60	Water	01/03/18 13:35	01/04/18 10:05
320-34835-24	NAWC-010318-RW-106	Water	01/03/18 15:40	01/04/18 10:05
320-34835-25	NAWC-010318-FRB-106	Water	01/03/18 15:35	01/04/18 10:05
320-34835-26	NAWC-010318-RW-289	Water	01/03/18 16:10	01/04/18 10:05
320-34835-27	NAWC-010318-FRB-289	Water	01/03/18 16:05	01/04/18 10:05

Method Summary

Client: Tetra Tech, Inc. TestAmerica Job ID: 320-34835-1
Project/Site: Warminster: PFAS, NAS JRB Willow Grove SDG: WE04

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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-010318-RW-275	320-34835-1	83	83
NAWC-010318-FRB-275	320-34835-2	91	88
NAWC-010318-RW-304	320-34835-3	92	85
NAWC-010318-FRB-304	320-34835-4	89	87
NAWC-010318-RW-154	320-34835-5	86	88
NAWC-010318-FRB-154	320-34835-6	102	98
NAWC-010318-RW-276	320-34835-7	92	86
NAWC-010318-FRB-276	320-34835-8	94	92
NAWC-010318-RW-261	320-34835-9	90	98
NAWC-010318-FRB-261	320-34835-10	90	87
NAWC-010318-RW-10	320-34835-11	92	92
NAWC-010318-FRB-10	320-34835-12	98	100
WGNA-010318-RW-0443	320-34835-13	86	101
WGNA-010318-FRB-0443	320-34835-14	99	101
WGNA-010318-RW-3493	320-34835-15	88	96
WGNA-010318-FRB-3493	320-34835-16	96	98
WGNA-010318-DUP-15	320-34835-17	83	91
WGNA-010318-RW-0500	320-34835-18	94	92
WGNA-010318-FRB-0500	320-34835-19	95	93
NAWC-010318-RW-145	320-34835-20	90	98
NAWC-010318-FRB-145	320-34835-21	94	102
NAWC-010318-RW-60	320-34835-22	92	98
NAWC-010318-FRB-60	320-34835-23	92	89
NAWC-010318-RW-106	320-34835-24	89	97
NAWC-010318-FRB-106	320-34835-25	97	99
NAWC-010318-RW-289	320-34835-26	97	94
NAWC-010318-FRB-289	320-34835-27	91	97
	MB 320-203312/1-A	92	84

	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	MB 320-203874/1-A	95	101
	LCS 320-203312/2-A	97	89
	LCS 320-203874/2-A	93	90
	LCSD 320-203874/3-A	94	98
NAWC-010318-RW-275 MS	320-34835-1 MS	93	90
NAWC-010318-RW-275 MSD	320-34835-1 MSD	94	91

	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.12_537A_008.d

Lab ID: LCS 320-203312/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	212	95	70-130	
Perfluorooctanoic acid (PFOA)	111	108	97	70-130	
Perfluorononanoic acid (PFNA)	111	105	94	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	174	105	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	60.7	109	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	530	106	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.18_537AA_028.d

Lab ID: LCS 320-203874/2-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	221	100	70-130	M
Perfluorooctanoic acid (PFOA)	111	107	96	70-130	
Perfluorononanoic acid (PFNA)	111	103	93	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	176	105	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	58.7	106	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	519	104	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.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.18_537AA_029.d

Lab ID: LCSD 320-203874/3-A Client ID:

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	222	225	101	1	30	70-130	M
Perfluorooctanoic acid (PFOA)	111	115	103	7	30	70-130	
Perfluorononanoic acid (PFNA)	111	114	103	10	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	167	178	107	1	30	70-130	
Perfluoroheptanoic acid (PFHpA)	55.6	59.4	107	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	500	517	103	1	30	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.12_537A_010.d

Lab ID: 320-34835-1 MS Client ID: NAWC-010318-RW-275 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	220	25 J	241	98	70-130	
Perfluorooctanoic acid (PFOA)	110	13 J	121	98	70-130	
Perfluorononanoic acid (PFNA)	110	21 U	108	98	70-130	
Perfluorohexanesulfonic acid (PFHxS)	165	8.0 J	181	105	70-130	
Perfluoroheptanoic acid (PFHpA)	55.0	4.6 J	58.4	98	70-130	
Perfluorobutanesulfonic acid (PFBS)	495	37 U	536	108	70-130	

Column to be used to flag recovery and RPD values

FORM III 537

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Matrix: Water Level: Low Lab File ID: 2018.01.12_537A_011.d

Lab ID: 320-34835-1 MSD Client ID: NAWC-010318-RW-275 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS RPD	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	232	263	103	9	30	70-130	
Perfluorooctanoic acid (PFOA)	116	130	101	7	30	70-130	M
Perfluorononanoic acid (PFNA)	116	112	97	4	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	174	191	106	6	30	70-130	
Perfluoroheptanoic acid (PFHpA)	57.9	65.0	104	11	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	521	578	111	8	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.: 320-34835-1

SDG No.: WE04

Lab File ID: 2018.01.12_537A_007.d Lab Sample ID: MB 320-203312/1-A

Matrix: Water Date Extracted: 01/10/2018 08:12

Instrument ID: A8_N Date Analyzed: 01/12/2018 17:35

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-203312/2-A	2018.01.12_537A_008.d	01/12/2018 17:39
NAWC-010318-RW-275	320-34835-1	2018.01.12_537A_009.d	01/12/2018 17:44
NAWC-010318-RW-275 MS	320-34835-1 MS	2018.01.12_537A_010.d	01/12/2018 17:49
NAWC-010318-RW-275 MSD	320-34835-1 MSD	2018.01.12_537A_011.d	01/12/2018 17:53
NAWC-010318-FRB-275	320-34835-2	2018.01.12_537A_012.d	01/12/2018 17:58
NAWC-010318-RW-304	320-34835-3	2018.01.12_537A_013.d	01/12/2018 18:03
NAWC-010318-FRB-304	320-34835-4	2018.01.12_537A_014.d	01/12/2018 18:08
NAWC-010318-RW-154	320-34835-5	2018.01.12_537A_015.d	01/12/2018 18:12
NAWC-010318-FRB-154	320-34835-6	2018.01.12_537A_016.d	01/12/2018 18:17
NAWC-010318-RW-276	320-34835-7	2018.01.12_537A_019.d	01/12/2018 18:31
NAWC-010318-FRB-276	320-34835-8	2018.01.12_537A_020.d	01/12/2018 18:36

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: MB 320-203312/1-A

Matrix: Water | Lab File ID: 2018.01.12_537A_007.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/10/2018 08:12

Sample wt/vol: 250(mL) | Date Analyzed: 01/12/2018 17:35

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

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

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

Analysis Batch No.: 203801 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	84		70-130

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab File ID: 2018.01.18_537AA_027.d Lab Sample ID: MB 320-203874/1-A

Matrix: Water Date Extracted: 01/15/2018 08:55

Instrument ID: A8_N Date Analyzed: 01/19/2018 07:16

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-203874/2-A	2018.01.18_537AA_028.d	01/19/2018 07:21
	LCSD 320-203874/3-A	2018.01.18_537AA_029.d	01/19/2018 07:26
NAWC-010318-RW-261	320-34835-9	2018.01.18_537AA_030.d	01/19/2018 07:30
NAWC-010318-FRB-261	320-34835-10	2018.01.18_537AA_031.d	01/19/2018 07:35
NAWC-010318-RW-10	320-34835-11	2018.01.18_537AA_032.d	01/19/2018 07:40
NAWC-010318-FRB-10	320-34835-12	2018.01.18_537AA_033.d	01/19/2018 07:44
WGNA-010318-RW-0443	320-34835-13	2018.01.18_537AA_034.d	01/19/2018 07:49
WGNA-010318-FRB-0443	320-34835-14	2018.01.18_537AA_035.d	01/19/2018 07:54
WGNA-010318-RW-3493	320-34835-15	2018.01.18_537AA_036.d	01/19/2018 07:58
WGNA-010318-FRB-3493	320-34835-16	2018.01.18_537AA_039.d	01/19/2018 08:12
WGNA-010318-DUP-15	320-34835-17	2018.01.18_537AA_040.d	01/19/2018 08:17
WGNA-010318-RW-0500	320-34835-18	2018.01.18_537AA_041.d	01/19/2018 08:22
WGNA-010318-FRB-0500	320-34835-19	2018.01.18_537AA_042.d	01/19/2018 08:26
NAWC-010318-RW-145	320-34835-20	2018.01.18_537AA_043.d	01/19/2018 08:31
NAWC-010318-FRB-145	320-34835-21	2018.01.18_537AA_044.d	01/19/2018 08:36
NAWC-010318-RW-60	320-34835-22	2018.01.18_537AA_045.d	01/19/2018 08:40
NAWC-010318-FRB-60	320-34835-23	2018.01.18_537AA_046.d	01/19/2018 08:45
NAWC-010318-RW-106	320-34835-24	2018.01.18_537AA_047.d	01/19/2018 08:50
NAWC-010318-FRB-106	320-34835-25	2018.01.18_537AA_048.d	01/19/2018 08:55
NAWC-010318-RW-289	320-34835-26	2018.01.18_537AA_051.d	01/19/2018 09:08
NAWC-010318-FRB-289	320-34835-27	2018.01.18_537AA_052.d	01/19/2018 09:13

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento | Job No.: 320-34835-1

SDG No.: WE04

Client Sample ID: | Lab Sample ID: MB 320-203874/1-A

Matrix: Water | Lab File ID: 2018.01.18_537AA_027.d

Analysis Method: 537 | Date Collected:

Extraction Method: 537 | Date Extracted: 01/15/2018 08:55

Sample wt/vol: 250(mL) | Date Analyzed: 01/19/2018 07:16

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

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

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

Analysis Batch No.: 204650 | 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	95		70-130
STL00996	13C2 PFDA	101		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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 320-203796/1		1588932	1.82	3285434	2.08		
CCV 320-203801/24 CCVIS		1449500	1.80	3080512	2.06		
MB 320-203312/1-A		1514209	1.81	3179488	2.06		
LCS 320-203312/2-A		1470940	1.80	3210272	2.05		
320-34835-1	NAWC-010318-RW-275	1658305	1.80	3349651	2.05		
320-34835-1 MS	NAWC-010318-RW-275 MS	1528627	1.81	3234823	2.06		
320-34835-1 MSD	NAWC-010318-RW-275 MSD	1543137	1.81	3203051	2.06		
320-34835-2	NAWC-010318-FRB-275	1482490	1.80	3216746	2.05		
320-34835-3	NAWC-010318-RW-304	1480796	1.80	3199088	2.06		
320-34835-4	NAWC-010318-FRB-304	1503011	1.81	3200325	2.06		
320-34835-5	NAWC-010318-RW-154	1497753	1.80	3179545	2.05		
320-34835-6	NAWC-010318-FRB-154	1423717	1.81	3133709	2.06		
CCV 320-203801/36 CCVIS		1559037	1.81	3132099	2.06		
CCV 320-203803/36 CCVIS		1559037	1.81	3132099	2.06		
320-34835-7	NAWC-010318-RW-276	1560456	1.80	3342120	2.05		
320-34835-8	NAWC-010318-FRB-276	1503114	1.81	3043533	2.05		
CCV 320-203803/40 CCVIS		1519356	1.81	3210832	2.06		
CCVL 320-204450/1		1486601	1.81	3144562	2.07		
CCV 320-204650/1 CCVIS		1547300	1.80	3364289	2.04		
MB 320-203874/1-A		1533627	1.80	3369760	2.05		
LCS 320-203874/2-A		1610627	1.79	3341864	2.04		
LCSD 320-203874/3-A		1603492	1.80	3446900	2.05		
320-34835-9	NAWC-010318-RW-261	1615211	1.79	3396247	2.04		
320-34835-10	NAWC-010318-FRB-261	1663807	1.80	3387447	2.05		
320-34835-11	NAWC-010318-RW-10	1621192	1.80	3547464	2.05		

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.: 320-34835-1

SDG No.: WE04

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						
320-34835-12	NAWC-010318-FRB-10	1526405	1.80	3466038	2.05		
320-34835-13	WGNA-010318-RW-0443	1645502	1.80	3564384	2.05		
320-34835-14	WGNA-010318-FRB-0443	1585577	1.79	3402238	2.04		
320-34835-15	WGNA-010318-RW-3493	1682825	1.80	3560565	2.05		
CCV 320-204650/13 CCVIS		1602486	1.80	3325198	2.04		
CCV 320-204651/13 CCVIS		1602486	1.80	3325198	2.04		
320-34835-16	WGNA-010318-FRB-3493	1608441	1.80	3448304	2.05		
320-34835-17	WGNA-010318-DUP-15	1758057	1.80	3706319	2.04		
320-34835-18	WGNA-010318-RW-0500	1649193	1.79	3615644	2.04		
320-34835-19	WGNA-010318-FRB-0500	1664203	1.80	3368986	2.04		
320-34835-20	NAWC-010318-RW-145	1627358	1.79	3497964	2.03		
320-34835-21	NAWC-010318-FRB-145	1592244	1.79	3563241	2.04		
320-34835-22	NAWC-010318-RW-60	1605437	1.79	3395464	2.03		
320-34835-23	NAWC-010318-FRB-60	1608194	1.79	3630499	2.04		
320-34835-24	NAWC-010318-RW-106	1654275	1.80	3687553	2.04		
320-34835-25	NAWC-010318-FRB-106	1599562	1.79	3388397	2.04		
CCV 320-204651/25 CCVIS		1573197	1.80	3606926	2.05		
CCV 320-204654/25 CCVIS		1573197	1.80	3606926	2.05		
320-34835-26	NAWC-010318-RW-289	1568022	1.79	3485481	2.04		
320-34835-27	NAWC-010318-FRB-289	1570143	1.79	3471389	2.04		
CCV 320-204654/29 CCVIS		1611950	1.79	3510319	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.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203801/24 Date Analyzed: 01/12/2018 17:16

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

Lab File ID (Standard): 2018.01.12_537A_045 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1449500	1.80	3080512	2.06		
UPPER LIMIT		2029300	2.30	4312717	2.56		
LOWER LIMIT		1014650	1.30	2156358	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203312/1-A		1514209	1.81	3179488	2.06		
LCS 320-203312/2-A		1470940	1.80	3210272	2.05		
320-34835-1	NAWC-010318-RW-275	1658305	1.80	3349651	2.05		
320-34835-1 MS	NAWC-010318-RW-275 MS	1528627	1.81	3234823	2.06		
320-34835-1 MSD	NAWC-010318-RW-275 MSD	1543137	1.81	3203051	2.06		
320-34835-2	NAWC-010318-FRB-275	1482490	1.80	3216746	2.05		
320-34835-3	NAWC-010318-RW-304	1480796	1.80	3199088	2.06		
320-34835-4	NAWC-010318-FRB-304	1503011	1.81	3200325	2.06		
320-34835-5	NAWC-010318-RW-154	1497753	1.80	3179545	2.05		
320-34835-6	NAWC-010318-FRB-154	1423717	1.81	3133709	2.06		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203801/36 Date Analyzed: 01/12/2018 18:22

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

Lab File ID (Standard): 2018.01.12_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1559037	1.81	3132099	2.06		
UPPER LIMIT		2182652	2.31	4384939	2.56		
LOWER LIMIT		1091326	1.31	2192469	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203312/1-A		1514209	1.81	3179488	2.06		
LCS 320-203312/2-A		1470940	1.80	3210272	2.05		
320-34835-1	NAWC-010318-RW-275	1658305	1.80	3349651	2.05		
320-34835-1 MS	NAWC-010318-RW-275 MS	1528627	1.81	3234823	2.06		
320-34835-1 MSD	NAWC-010318-RW-275 MSD	1543137	1.81	3203051	2.06		
320-34835-2	NAWC-010318-FRB-275	1482490	1.80	3216746	2.05		
320-34835-3	NAWC-010318-RW-304	1480796	1.80	3199088	2.06		
320-34835-4	NAWC-010318-FRB-304	1503011	1.81	3200325	2.06		
320-34835-5	NAWC-010318-RW-154	1497753	1.80	3179545	2.05		
320-34835-6	NAWC-010318-FRB-154	1423717	1.81	3133709	2.06		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203803/36 Date Analyzed: 01/12/2018 18:22

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

Lab File ID (Standard): 2018.01.12_537A_017 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1559037	1.81	3132099	2.06		
UPPER LIMIT		2182652	2.31	4384939	2.56		
LOWER LIMIT		1091326	1.31	2192469	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-7	NAWC-010318-RW-276	1560456	1.80	3342120	2.05		
320-34835-8	NAWC-010318-FRB-276	1503114	1.81	3043533	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-203803/40 Date Analyzed: 01/12/2018 18:40

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

Lab File ID (Standard): 2018.01.12_537A_021 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1519356	1.81	3210832	2.06		
UPPER LIMIT		2127098	2.31	4495165	2.56		
LOWER LIMIT		1063549	1.31	2247582	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-7	NAWC-010318-RW-276	1560456	1.80	3342120	2.05		
320-34835-8	NAWC-010318-FRB-276	1503114	1.81	3043533	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204650/1 Date Analyzed: 01/19/2018 07:07

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

Lab File ID (Standard): 2018.01.18_537AA_02 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1547300	1.80	3364289	2.04		
UPPER LIMIT		2166220	2.30	4710005	2.54		
LOWER LIMIT		1083110	1.30	2355002	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203874/1-A		1533627	1.80	3369760	2.05		
LCS 320-203874/2-A		1610627	1.79	3341864	2.04		
LCSD 320-203874/3-A		1603492	1.80	3446900	2.05		
320-34835-9	NAWC-010318-RW-261	1615211	1.79	3396247	2.04		
320-34835-10	NAWC-010318-FRB-261	1663807	1.80	3387447	2.05		
320-34835-11	NAWC-010318-RW-10	1621192	1.80	3547464	2.05		
320-34835-12	NAWC-010318-FRB-10	1526405	1.80	3466038	2.05		
320-34835-13	WGNA-010318-RW-0443	1645502	1.80	3564384	2.05		
320-34835-14	WGNA-010318-FRB-0443	1585577	1.79	3402238	2.04		
320-34835-15	WGNA-010318-RW-3493	1682825	1.80	3560565	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204650/13 Date Analyzed: 01/19/2018 08:03

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

Lab File ID (Standard): 2018.01.18_537AA_03 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1602486	1.80	3325198	2.04		
UPPER LIMIT		2243480	2.30	4655277	2.54		
LOWER LIMIT		1121740	1.30	2327639	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-203874/1-A		1533627	1.80	3369760	2.05		
LCS 320-203874/2-A		1610627	1.79	3341864	2.04		
LCSD 320-203874/3-A		1603492	1.80	3446900	2.05		
320-34835-9	NAWC-010318-RW-261	1615211	1.79	3396247	2.04		
320-34835-10	NAWC-010318-FRB-261	1663807	1.80	3387447	2.05		
320-34835-11	NAWC-010318-RW-10	1621192	1.80	3547464	2.05		
320-34835-12	NAWC-010318-FRB-10	1526405	1.80	3466038	2.05		
320-34835-13	WGNA-010318-RW-0443	1645502	1.80	3564384	2.05		
320-34835-14	WGNA-010318-FRB-0443	1585577	1.79	3402238	2.04		
320-34835-15	WGNA-010318-RW-3493	1682825	1.80	3560565	2.05		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204651/13 Date Analyzed: 01/19/2018 08:03

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

Lab File ID (Standard): 2018.01.18_537AA_03 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1602486	1.80	3325198	2.04		
UPPER LIMIT		2243480	2.30	4655277	2.54		
LOWER LIMIT		1121740	1.30	2327639	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-16	WGNA-010318-FRB-3493	1608441	1.80	3448304	2.05		
320-34835-17	WGNA-010318-DUP-15	1758057	1.80	3706319	2.04		
320-34835-18	WGNA-010318-RW-0500	1649193	1.79	3615644	2.04		
320-34835-19	WGNA-010318-FRB-0500	1664203	1.80	3368986	2.04		
320-34835-20	NAWC-010318-RW-145	1627358	1.79	3497964	2.03		
320-34835-21	NAWC-010318-FRB-145	1592244	1.79	3563241	2.04		
320-34835-22	NAWC-010318-RW-60	1605437	1.79	3395464	2.03		
320-34835-23	NAWC-010318-FRB-60	1608194	1.79	3630499	2.04		
320-34835-24	NAWC-010318-RW-106	1654275	1.80	3687553	2.04		
320-34835-25	NAWC-010318-FRB-106	1599562	1.79	3388397	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204651/25 Date Analyzed: 01/19/2018 08:59

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

Lab File ID (Standard): 2018.01.18_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1573197	1.80	3606926	2.05		
UPPER LIMIT		2202476	2.30	5049696	2.55		
LOWER LIMIT		1101238	1.30	2524848	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-16	WGNA-010318-FRB-3493	1608441	1.80	3448304	2.05		
320-34835-17	WGNA-010318-DUP-15	1758057	1.80	3706319	2.04		
320-34835-18	WGNA-010318-RW-0500	1649193	1.79	3615644	2.04		
320-34835-19	WGNA-010318-FRB-0500	1664203	1.80	3368986	2.04		
320-34835-20	NAWC-010318-RW-145	1627358	1.79	3497964	2.03		
320-34835-21	NAWC-010318-FRB-145	1592244	1.79	3563241	2.04		
320-34835-22	NAWC-010318-RW-60	1605437	1.79	3395464	2.03		
320-34835-23	NAWC-010318-FRB-60	1608194	1.79	3630499	2.04		
320-34835-24	NAWC-010318-RW-106	1654275	1.80	3687553	2.04		
320-34835-25	NAWC-010318-FRB-106	1599562	1.79	3388397	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204654/25 Date Analyzed: 01/19/2018 08:59

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

Lab File ID (Standard): 2018.01.18_537AA_04 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1573197	1.80	3606926	2.05		
UPPER LIMIT		2202476	2.30	5049696	2.55		
LOWER LIMIT		1101238	1.30	2524848	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-26	NAWC-010318-RW-289	1568022	1.79	3485481	2.04		
320-34835-27	NAWC-010318-FRB-289	1570143	1.79	3471389	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Sample No.: CCV 320-204654/29 Date Analyzed: 01/19/2018 09:18

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

Lab File ID (Standard): 2018.01.18_537AA_05 Heated Purge: (Y/N) N

Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1611950	1.79	3510319	2.04		
UPPER LIMIT		2256730	2.29	4914447	2.54		
LOWER LIMIT		1128365	1.29	2457223	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-34835-26	NAWC-010318-RW-289	1568022	1.79	3485481	2.04		
320-34835-27	NAWC-010318-FRB-289	1570143	1.79	3471389	2.04		

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

Column used to flag values outside QC limits

FORM VIII 537

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

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1 Analy Batch No.: 192908

SDG No.: WE04

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.: 320-34835-1 Analy Batch No.: 192908

SDG No.: WE04

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.: 320-34835-1 Analy Batch No.: 192908

SDG No.: WE04

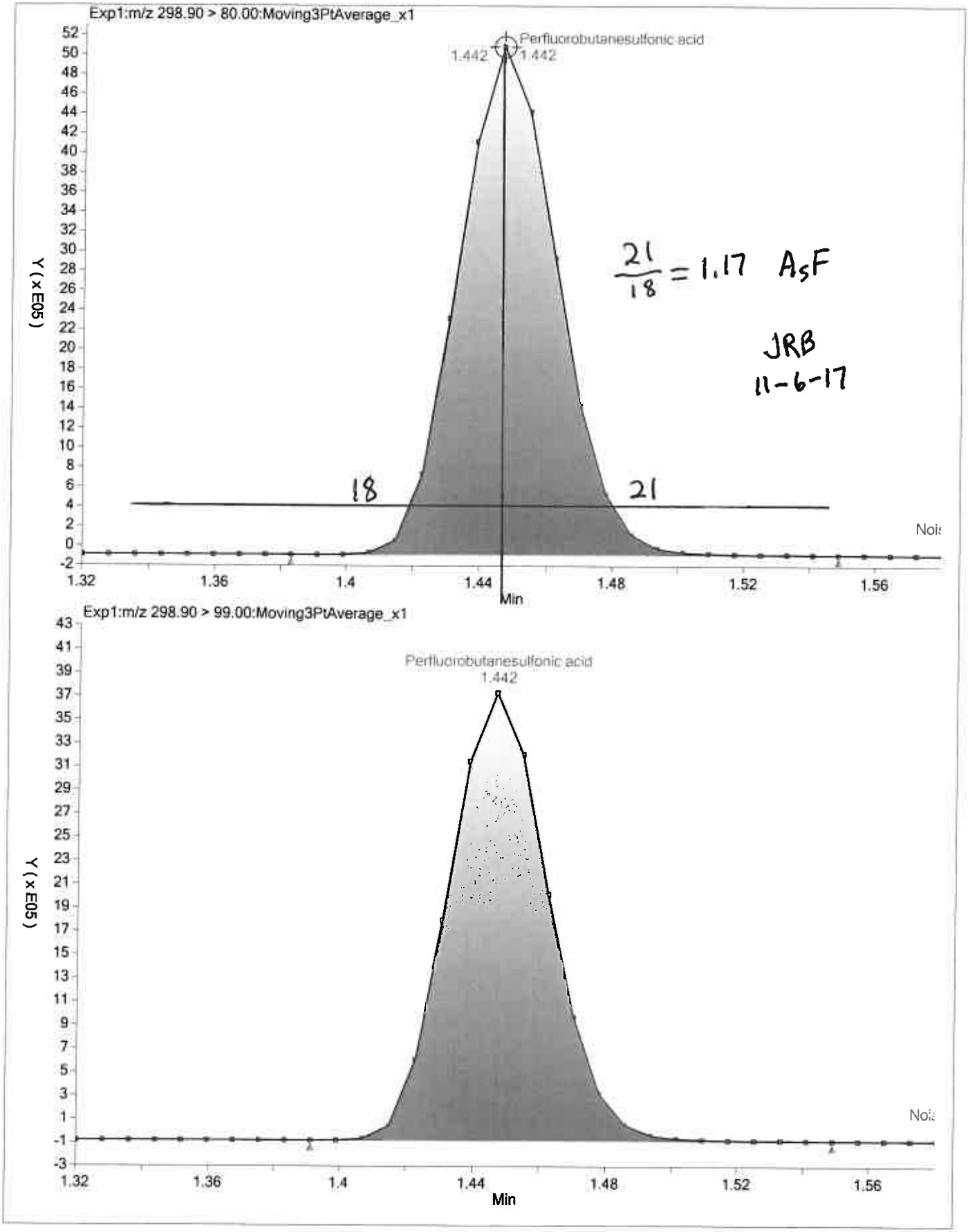
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

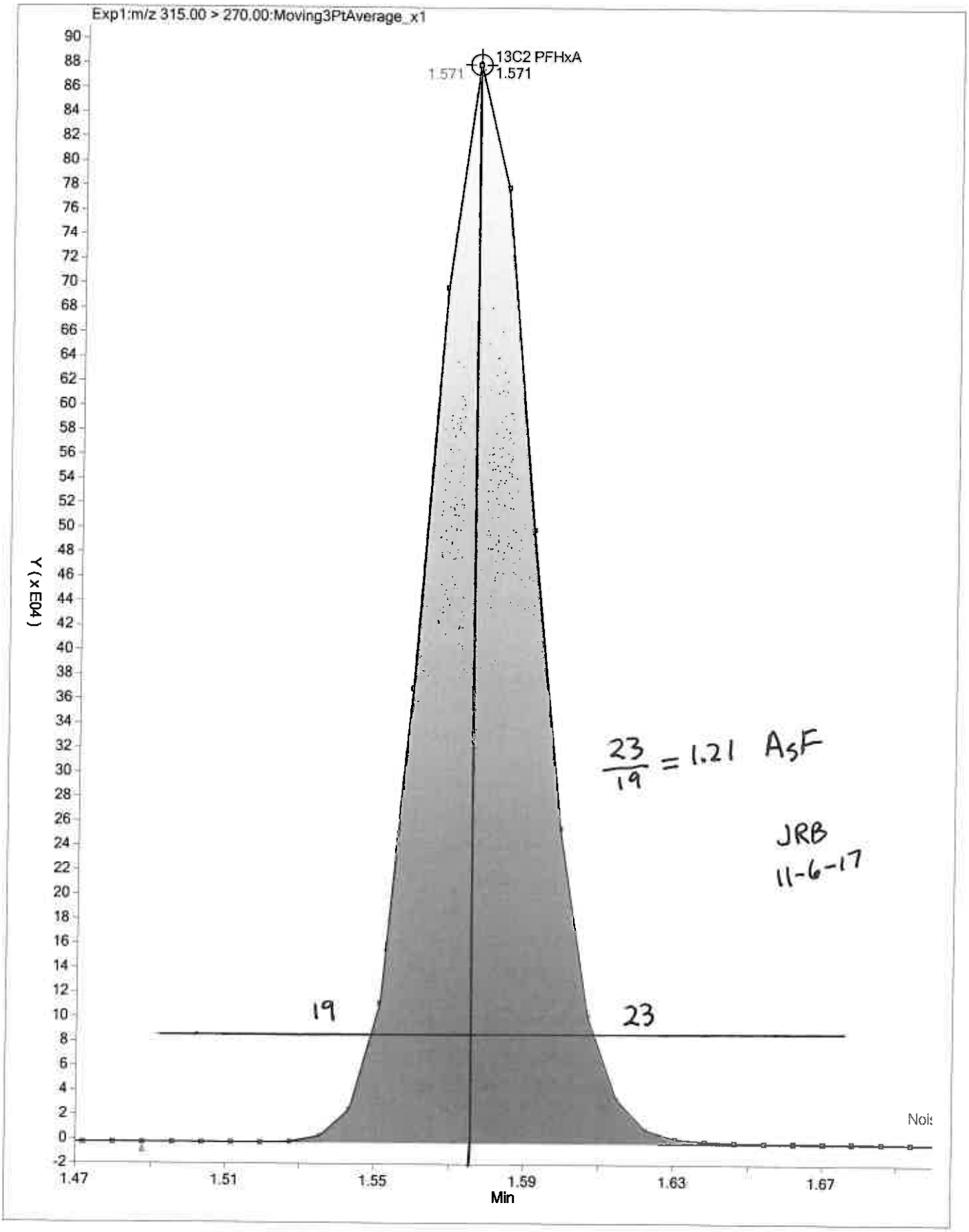
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

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.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCVL 320-203796/1 Calibration Date: 01/12/2018 15:29

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: 2018.01.12_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		1.191		21.9	20.0	9.7	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.768		7.04	6.67	5.6	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9646		2.29	2.22	2.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9106		4.38	4.45	-1.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9589		9.08	8.89	2.1	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6229		4.17	4.45	-6.2	50.0
13C2 PFHxA	Ave	1.100	1.174		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.7652	0.6987		9.13	10.0	-8.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203801/24 Calibration Date: 01/12/2018 17:16

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: 2018.01.12_537A_045.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.996		150	135	11.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.775		47.7	45.0	6.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9839		15.8	15.0	5.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9307		30.2	30.0	0.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9852		63.0	60.0	4.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6565		29.7	30.0	-1.1	30.0
13C2 PFHxA	Ave	1.100	1.178		10.7	10.0	7.1	30.0
13C2 PFDA	Ave	0.7652	0.7399		9.67	10.0	-3.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203801/36 Calibration Date: 01/12/2018 18:22

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: 2018.01.12_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		1.157		49.9	45.0	10.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9321		4.98	5.00	-0.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.845		16.5	15.0	10.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8734		9.44	10.0	-5.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9795		20.9	20.0	4.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6241		9.40	10.0	-6.0	30.0
13C2 PFHxA	Ave	1.100	1.138		10.3	10.0	3.4	30.0
13C2 PFDA	Ave	0.7652	0.7153		9.35	10.0	-6.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203803/36 Calibration Date: 01/12/2018 18:22

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: 2018.01.12_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		1.157		49.9	45.0	10.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9321		4.98	5.00	-0.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.845		16.5	15.0	10.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8734		9.44	10.0	-5.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9795		20.9	20.0	4.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6241		9.40	10.0	-6.0	30.0
13C2 PFHxA	Ave	1.100	1.138		10.3	10.0	3.4	30.0
13C2 PFDA	Ave	0.7652	0.7153		9.35	10.0	-6.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-203803/40 Calibration Date: 01/12/2018 18:40

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: 2018.01.12_537A_021.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9678		145	135	7.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9206		14.7	15.0	-1.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.715		46.1	45.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8908		28.9	30.0	-3.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9424		60.2	60.0	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6243		28.2	30.0	-6.0	30.0
13C2 PFHxA	Ave	1.100	1.144		10.4	10.0	4.0	30.0
13C2 PFDA	Ave	0.7652	0.6976		9.12	10.0	-8.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCVL 320-204450/1 Calibration Date: 01/18/2018 08:24

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: 2018.01.18_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.126		20.7	20.0	3.5	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9508		2.26	2.22	1.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.738		6.92	6.67	3.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9470		4.55	4.45	2.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9321		8.83	8.89	-0.7	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6423		4.30	4.45	-3.3	50.0
13C2 PFHxA	Ave	1.100	1.119		10.2	10.0	1.7	30.0
13C2 PFDA	Ave	0.7652	0.7514		9.82	10.0	-1.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204650/1 Calibration Date: 01/19/2018 07:07

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: 2018.01.18_537AA_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9524		142	135	5.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9766		15.6	15.0	4.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.725		46.4	45.0	3.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9551		31.0	30.0	3.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9681		61.9	60.0	3.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6978		31.5	30.0	5.1	30.0
13C2 PFHxA	Ave	1.100	1.180		10.7	10.0	7.2	30.0
13C2 PFDA	Ave	0.7652	0.7775		10.2	10.0	1.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204650/13 Calibration Date: 01/19/2018 08:03

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: 2018.01.18_537AA_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.143		49.2	45.0	9.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9378		5.01	5.00	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.835		16.4	15.0	9.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9198		9.94	10.0	-0.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9540		20.3	20.0	1.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6490		9.77	10.0	-2.3	30.0
13C2 PFHxA	Ave	1.100	1.122		10.2	10.0	1.9	30.0
13C2 PFDA	Ave	0.7652	0.7480		9.77	10.0	-2.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204651/13 Calibration Date: 01/19/2018 08:03

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: 2018.01.18_537AA_037.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.143		49.2	45.0	9.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9378		5.01	5.00	0.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.835		16.4	15.0	9.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9198		9.94	10.0	-0.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9540		20.3	20.0	1.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6490		9.77	10.0	-2.3	30.0
13C2 PFHxA	Ave	1.100	1.122		10.2	10.0	1.9	30.0
13C2 PFDA	Ave	0.7652	0.7480		9.77	10.0	-2.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204651/25 Calibration Date: 01/19/2018 08:59

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: 2018.01.18_537AA_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8605		125	135	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9580		15.3	15.0	2.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.614		43.4	45.0	-3.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9454		30.7	30.0	2.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9329		59.6	60.0	-0.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6796		30.7	30.0	2.3	30.0
13C2 PFHxA	Ave	1.100	1.174		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.7652	0.7892		10.3	10.0	3.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204654/25 Calibration Date: 01/19/2018 08:59

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: 2018.01.18_537AA_049.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8605		125	135	-7.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9580		15.3	15.0	2.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.614		43.4	45.0	-3.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9454		30.7	30.0	2.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9329		59.6	60.0	-0.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6796		30.7	30.0	2.3	30.0
13C2 PFHxA	Ave	1.100	1.174		10.7	10.0	6.7	30.0
13C2 PFDA	Ave	0.7652	0.7892		10.3	10.0	3.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Lab Sample ID: CCV 320-204654/29 Calibration Date: 01/19/2018 09:18

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: 2018.01.18_537AA_053.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.077		46.1	45.0	2.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9361		5.00	5.00	-0.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		15.1	15.0	0.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9185		9.93	10.0	-0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9130		19.5	20.0	-2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6308		9.50	10.0	-5.0	30.0
13C2 PFHxA	Ave	1.100	1.165		10.6	10.0	5.9	30.0
13C2 PFDA	Ave	0.7652	0.7780		10.2	10.0	1.7	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

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.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/12/2018 15:29

Analysis Batch Number: 203796 End Date: 01/12/2018 16:01

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-203796/1		01/12/2018 15:29	1	2018.01.12_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-203796/2 CCVIS		01/12/2018 15:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/12/2018 15:57	1		GeminiC18 3x100 3(mm)
CCV 320-203796/8 CCVIS		01/12/2018 16:01	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/12/2018 17:16

Analysis Batch Number: 203801 End Date: 01/12/2018 18:22

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-203801/24 CCVIS		01/12/2018 17:16	1	2018.01.12_537A 045.d	GeminiC18 3x100 3(mm)
MB 320-203312/1-A		01/12/2018 17:35	1	2018.01.12_537A 007.d	GeminiC18 3x100 3(mm)
LCS 320-203312/2-A		01/12/2018 17:39	1	2018.01.12_537A 008.d	GeminiC18 3x100 3(mm)
320-34835-1		01/12/2018 17:44	1	2018.01.12_537A 009.d	GeminiC18 3x100 3(mm)
320-34835-1 MS		01/12/2018 17:49	1	2018.01.12_537A 010.d	GeminiC18 3x100 3(mm)
320-34835-1 MSD		01/12/2018 17:53	1	2018.01.12_537A 011.d	GeminiC18 3x100 3(mm)
320-34835-2		01/12/2018 17:58	1	2018.01.12_537A 012.d	GeminiC18 3x100 3(mm)
320-34835-3		01/12/2018 18:03	1	2018.01.12_537A 013.d	GeminiC18 3x100 3(mm)
320-34835-4		01/12/2018 18:08	1	2018.01.12_537A 014.d	GeminiC18 3x100 3(mm)
320-34835-5		01/12/2018 18:12	1	2018.01.12_537A 015.d	GeminiC18 3x100 3(mm)
320-34835-6		01/12/2018 18:17	1	2018.01.12_537A 016.d	GeminiC18 3x100 3(mm)
CCV 320-203801/36 CCVIS		01/12/2018 18:22	1	2018.01.12_537A 017.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/12/2018 18:22

Analysis Batch Number: 203803 End Date: 01/12/2018 18:40

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-203803/36 CCVIS		01/12/2018 18:22	1	2018.01.12_537A 017.d	GeminiC18 3x100 3(mm)
320-34835-7		01/12/2018 18:31	1	2018.01.12_537A 019.d	GeminiC18 3x100 3(mm)
320-34835-8		01/12/2018 18:36	1	2018.01.12_537A 020.d	GeminiC18 3x100 3(mm)
CCV 320-203803/40 CCVIS		01/12/2018 18:40	1	2018.01.12_537A 021.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/18/2018 08:24

Analysis Batch Number: 204450 End Date: 01/18/2018 09:25

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-204450/1		01/18/2018 08:24	1	2018.01.18_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-204450/2 CCVIS		01/18/2018 08:28	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:38	5		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:42	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:47	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:52	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 08:56	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:06	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:10	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:15	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/18/2018 09:20	1		GeminiC18 3x100 3(mm)
CCV 320-204450/14 CCVIS		01/18/2018 09:25	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/19/2018 07:07

Analysis Batch Number: 204650 End Date: 01/19/2018 08:03

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204650/1 CCVIS		01/19/2018 07:07	1	2018.01.18_537A A 025.d	GeminiC18 3x100 3(mm)
MB 320-203874/1-A		01/19/2018 07:16	1	2018.01.18_537A A 027.d	GeminiC18 3x100 3(mm)
LCS 320-203874/2-A		01/19/2018 07:21	1	2018.01.18_537A A 028.d	GeminiC18 3x100 3(mm)
LCSD 320-203874/3-A		01/19/2018 07:26	1	2018.01.18_537A A 029.d	GeminiC18 3x100 3(mm)
320-34835-9		01/19/2018 07:30	1	2018.01.18_537A A 030.d	GeminiC18 3x100 3(mm)
320-34835-10		01/19/2018 07:35	1	2018.01.18_537A A 031.d	GeminiC18 3x100 3(mm)
320-34835-11		01/19/2018 07:40	1	2018.01.18_537A A 032.d	GeminiC18 3x100 3(mm)
320-34835-12		01/19/2018 07:44	1	2018.01.18_537A A 033.d	GeminiC18 3x100 3(mm)
320-34835-13		01/19/2018 07:49	1	2018.01.18_537A A 034.d	GeminiC18 3x100 3(mm)
320-34835-14		01/19/2018 07:54	1	2018.01.18_537A A 035.d	GeminiC18 3x100 3(mm)
320-34835-15		01/19/2018 07:58	1	2018.01.18_537A A 036.d	GeminiC18 3x100 3(mm)
CCV 320-204650/13 CCVIS		01/19/2018 08:03	1	2018.01.18_537A A 037.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/19/2018 08:03

Analysis Batch Number: 204651 End Date: 01/19/2018 08:59

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204651/13 CCVIS		01/19/2018 08:03	1	2018.01.18_537A A 037.d	GeminiC18 3x100 3(mm)
320-34835-16		01/19/2018 08:12	1	2018.01.18_537A A 039.d	GeminiC18 3x100 3(mm)
320-34835-17		01/19/2018 08:17	1	2018.01.18_537A A 040.d	GeminiC18 3x100 3(mm)
320-34835-18		01/19/2018 08:22	1	2018.01.18_537A A 041.d	GeminiC18 3x100 3(mm)
320-34835-19		01/19/2018 08:26	1	2018.01.18_537A A 042.d	GeminiC18 3x100 3(mm)
320-34835-20		01/19/2018 08:31	1	2018.01.18_537A A 043.d	GeminiC18 3x100 3(mm)
320-34835-21		01/19/2018 08:36	1	2018.01.18_537A A 044.d	GeminiC18 3x100 3(mm)
320-34835-22		01/19/2018 08:40	1	2018.01.18_537A A 045.d	GeminiC18 3x100 3(mm)
320-34835-23		01/19/2018 08:45	1	2018.01.18_537A A 046.d	GeminiC18 3x100 3(mm)
320-34835-24		01/19/2018 08:50	1	2018.01.18_537A A 047.d	GeminiC18 3x100 3(mm)
320-34835-25		01/19/2018 08:55	1	2018.01.18_537A A 048.d	GeminiC18 3x100 3(mm)
CCV 320-204651/25 CCVIS		01/19/2018 08:59	1	2018.01.18_537A A 049.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Instrument ID: A8_N Start Date: 01/19/2018 08:59

Analysis Batch Number: 204654 End Date: 01/19/2018 09:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204654/25 CCVIS		01/19/2018 08:59	1	2018.01.18_537A A 049.d	GeminiC18 3x100 3(mm)
320-34835-26		01/19/2018 09:08	1	2018.01.18_537A A 051.d	GeminiC18 3x100 3(mm)
320-34835-27		01/19/2018 09:13	1	2018.01.18_537A A 052.d	GeminiC18 3x100 3(mm)
CCV 320-204654/29 CCVIS		01/19/2018 09:18	1	2018.01.18_537A A 053.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203312 Batch Start Date: 01/10/18 08:12 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/11/18 13:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-203312/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-203312/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-34835-A-1	NAWC-010318-RW-275	537, 537	T	269.47 g	27.83 g	241.6 mL	1.00 mL	7 SU	
320-34835-A-1 MS	NAWC-010318-RW-275	537, 537	T	280.34 g	27.72 g	252.6 mL	1.00 mL	7 SU	100 uL
320-34835-A-1 MSD	NAWC-010318-RW-275	537, 537	T	267.80 g	27.84 g	240 mL	1.00 mL	7 SU	100 uL
320-34835-A-2	NAWC-010318-FRB-275	537, 537	T	280.16 g	27.55 g	252.6 mL	1.00 mL	7 SU	
320-34835-A-3	NAWC-010318-RW-304	537, 537	T	259.23 g	27.83 g	231.4 mL	1.00 mL	7 SU	
320-34835-A-4	NAWC-010318-FRB-304	537, 537	T	277.97 g	27.71 g	250.3 mL	1.00 mL	7 SU	
320-34835-A-5	NAWC-010318-RW-154	537, 537	T	272.71 g	27.86 g	244.9 mL	1.00 mL	7 SU	
320-34835-A-6	NAWC-010318-FRB-154	537, 537	T	272.79 g	27.99 g	244.8 mL	1.00 mL	7 SU	
320-34835-A-7	NAWC-010318-RW-276	537, 537	T	263.76 g	27.93 g	235.8 mL	1.00 mL	7 SU	
320-34835-A-8	NAWC-010318-FRB-276	537, 537	T	270.37 g	27.54 g	242.8 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00056	LC537-SU 00054	AnalysisComment			
MB 320-203312/1		537, 537		100 uL	100 uL	ch nd			
LCS 320-203312/2		537, 537		100 uL	100 uL	ch nd			
320-34835-A-1	NAWC-010318-RW-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-1 MS	NAWC-010318-RW-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-1 MSD	NAWC-010318-RW-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-2	NAWC-010318-FRB-275	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-3	NAWC-010318-RW-304	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-4	NAWC-010318-FRB-304	537, 537	T	100 uL	100 uL	ch nd			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203312 Batch Start Date: 01/10/18 08:12 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/11/18 13:45

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00056	LC537-SU 00054	AnalysisComment			
320-34835-A-5	NAWC-010318-RW-154	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-6	NAWC-010318-FRB-154	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-7	NAWC-010318-RW-276	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-8	NAWC-010318-FRB-276	537, 537	T	100 uL	100 uL	ch nd			

Batch Notes	
Analyst ID - Aliquot Step	CCB
Batch Comment	CLIENTS LABELS CHECKED CCB 1-11-18
Analyst ID - Concentration	NIGHTS/CCB
Analyst ID - Final Volume Step	CCB
Internal Standard ID#	1099356
Manifold ID	4
Methanol ID	1127836
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	HJA
SPE Cartridge ID	6369499-03
Trizma ID	SLBR4303V
Reagent Water ID	1/4/18

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.: 320-34835-1

SDG No.: WE04

Batch Number: 203874 Batch Start Date: 01/15/18 08:55 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/17/18 10:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00023
MB 320-203874/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-203874/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LCSD 320-203874/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-34835-A-9	NAWC-010318-RW-261	537, 537	T	264.78 g	27.66 g	237.1 mL	1.00 mL	7 SU	
320-34835-A-10	NAWC-010318-FRB-261	537, 537	T	277.41 g	27.35 g	250.1 mL	1.00 mL	7 SU	
320-34835-A-11	NAWC-010318-RW-10	537, 537	T	276.42 g	28.54 g	247.9 mL	1.00 mL	7 SU	
320-34835-A-12	NAWC-010318-FRB-10	537, 537	T	283.27 g	27.44 g	255.8 mL	1.00 mL	7 SU	
320-34835-A-13	WGNA-010318-RW-0443	537, 537	T	279.06 g	27.55 g	251.5 mL	1.00 mL	7 SU	
320-34835-A-14	WGNA-010318-FRB-0443	537, 537	T	272.74 g	27.53 g	245.2 mL	1.00 mL	7 SU	
320-34835-A-15	WGNA-010318-RW-3493	537, 537	T	279.06 g	27.77 g	251.3 mL	1.00 mL	7 SU	
320-34835-A-16	WGNA-010318-FRB-3493	537, 537	T	268.29 g	27.54 g	240.8 mL	1.00 mL	7 SU	
320-34835-A-17	WGNA-010318-DUP-15	537, 537	T	277.78 g	27.81 g	250 mL	1.00 mL	7 SU	
320-34835-A-18	WGNA-010318-RW-0500	537, 537	T	274.88 g	27.44 g	247.4 mL	1.00 mL	7 SU	
320-34835-A-19	WGNA-010318-FRB-0500	537, 537	T	283.88 g	27.60 g	256.3 mL	1.00 mL	7 SU	
320-34835-A-20	NAWC-010318-RW-145	537, 537	T	281.25 g	27.87 g	253.4 mL	1.00 mL	7 SU	
320-34835-A-21	NAWC-010318-FRB-145	537, 537	T	273.78 g	27.29 g	246.5 mL	1.00 mL	7 SU	
320-34835-A-22	NAWC-010318-RW-60	537, 537	T	277.10 g	27.63 g	249.5 mL	1.00 mL	7 SU	
320-34835-A-23	NAWC-010318-FRB-60	537, 537	T	275.77 g	27.29 g	248.5 mL	1.00 mL	7 SU	
320-34835-A-24	NAWC-010318-RW-106	537, 537	T	278.45 g	29.37 g	249.1 mL	1.00 mL	7 SU	
320-34835-A-25	NAWC-010318-FRB-106	537, 537	T	268.55 g	27.75 g	240.8 mL	1.00 mL	7 SU	
320-34835-A-26	NAWC-010318-RW-289	537, 537	T	278.35 g	28.01 g	250.3 mL	1.00 mL	7 SU	
320-34835-A-27	NAWC-010318-FRB-289	537, 537	T	277.82 g	27.54 g	250.3 mL	1.00 mL	7 SU	

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203874 Batch Start Date: 01/15/18 08:55 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/17/18 10:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00056	LC537-SU 00054	AnalysisComment			
MB 320-203874/1		537, 537		100 uL	100 uL	ch nd			
LCS 320-203874/2		537, 537		100 uL	100 uL	ch nd			
LCSD 320-203874/3		537, 537		100 uL	100 uL	ch nd			
320-34835-A-9	NAWC-010318-RW-261	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-10	NAWC-010318-FRB-261	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-11	NAWC-010318-RW-10	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-12	NAWC-010318-FRB-10	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-13	WGNA-010318-RW-0443	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-14	WGNA-010318-FRB-0443	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-15	WGNA-010318-RW-3493	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-16	WGNA-010318-FRB-3493	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-17	WGNA-010318-DUP-15	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-18	WGNA-010318-RW-0500	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-19	WGNA-010318-FRB-0500	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-20	NAWC-010318-RW-145	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-21	NAWC-010318-FRB-145	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-22	NAWC-010318-RW-60	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-23	NAWC-010318-FRB-60	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-24	NAWC-010318-RW-106	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-25	NAWC-010318-FRB-106	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-26	NAWC-010318-RW-289	537, 537	T	100 uL	100 uL	ch nd			
320-34835-A-27	NAWC-010318-FRB-289	537, 537	T	100 uL	100 uL	ch nd			

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34835-1

SDG No.: WE04

Batch Number: 203874 Batch Start Date: 01/15/18 08:55 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 01/17/18 10:25

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Label ID's checked: TWL 1-12-18
Analyst ID - Concentration	nights
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1099356
Manifold ID	4, 3
Methanol ID	1118719
pH Indicator ID	2517
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	HJA
SPE Cartridge ID	6369499-03
Trizma ID	SLBR4303V
Reagent Water ID	1/4/18

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.

PFAS Calibration Calculations:

Initial Calibration 11/3/2017
Instrument

PFOA

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
2	296934	1520258	10	0.97659	0.9757
4.45	644149	1623614	10	0.89155	0.8919
10	1388033	1540946	10	0.90077	0.9
20	2771271	1546307	10	0.89609	0.8953
30	4257225	1555174	10	0.91249	0.9117
40	5597122	1426806	10	0.98071	0.9799
			Average	0.92637	0.9258
			Standard Deviation	0.0411	
			RSD	0.0444	
			%RSD	4.43838	4.4

Continuing Calibration 01/12/2018 @ 15:29

PFOA

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
4.45	643613	1588932	10	0.9102	-1.679901	0.9106	-1.6

Willow Grove
SDG 320-34835-1

Sample Identification	NAWC-010318-RW-275	
Compound	PFOA	
Compound Area	489363	
Internal Standard Amount (ng)	10	
Dilution Factor	1	
Internal Standard Area	1658305	
Average RRF	0.9258	
Sample Volume(ml)	241.6	
Volume Extract (ml)	1	
Injection Volume (µl)	1	
Concentration	13.1933	ug/L

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N

WARRINGTON

WARWICK

NORTHAMPTON

IVYLAND

WARMINSTER

HAGS

NASJRB
Willow Grove

HORSHAM

HATBORO

UPPER SOUTHAMPTON

UPPER MORELAND

LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARMINSTER
- TOWNSHIP BOUNDARY

3,000 1,500 0 3,000 6,000
Feet

NAVFAC

PFC SAMPLE RESULTS MAP
FORMER NAWC WAMINSTER
MONTGOMERY COUNTY, PENNSYLVANIA

SCALE	AS NOTED
FILE	NAWC
REV	0
DATE	01/24/19
FIGURE NUMBER	FIGURE 1