



**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 320-35150-1**

*Naval Air Warfare Center Warminster
Warminster, Pennsylvania*

August 2019

N62269_001166
WARMINSTER_NAWC
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-35150-1, NAS WILLOW GROVE NAWC
WARMINSTER PA**

02/07/2018
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-35150-1

Job Description: Warminster: PFAS, NAS JRB Willow Grove

For:
Tetra Tech, Inc.
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Attention: Andy Frebowitz



Approved for release.
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2/7/2018 2:19 PM

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Table of Contents

Cover Title Page	1
Data Summaries	4
Definitions	4
Case Narrative	5
Detection Summary	6
Client Sample Results	8
Default Detection Limits	14
Surrogate Summary	15
QC Sample Results	16
QC Association	17
Chronicle	18
Certification Summary	21
Method Summary	22
Sample Summary	23
Manual Integration Summary	24
Reagent Traceability	30
COAs	44
Organic Sample Data	98
LCMS	98
Method 537 DOD	98
Method 537 DOD QC Summary	99
Method 537 DOD Sample Data	108
Standards Data	227
Method 537 DOD ICAL Data	227
Method 537 DOD CCAL Data	266
Raw QC Data	310

Table of Contents

Method 537 DOD Blank Data	310
Method 537 DOD LCS/LCSD Data	315
Method 537 DOD Run Logs	329
Method 537 DOD Prep Data	333
Shipping and Receiving Documents	348
Client Chain of Custody	349
Sample Receipt Checklist	350

Definitions/Glossary

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

TestAmerica Job ID: 320-35150-1

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.
α	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
320-35150-1

Receipt

The samples were received on 1/18/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

Receipt Exceptions

Per client request sample IDs for the following two samples were changed from what is listed on the CoC. CoC lists sample IDs ending in 241, client requested this be changed to 240. NAWC-011718-RW-240 (320-35150-14) and NAWC-011718-FRB-240 (320-35150-15)

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 320-206282.

Method(s) 537: The following sample NAWC-011718-RW-91 (320-35150-5), in preparation batch 320-206282 was observed to have a pH of 9.

Method(s) 537: Due to analyst error, the Internal Standard (IS) was added after the sample extracts were concentrated and brought to final volume. Additionally, the samples extracts prior to transferring to the instrument vials were mistakenly concentrated and brought to final volume a second time. The IS was not added again during the second process. All ISs were inconfrom showing no impact to the data. NAWC-011718-RW-278 (320-35150-1), NAWC-011718-FRB-278 (320-35150-2), NAWC-011718-RW-235 (320-35150-3), NAWC-011718-FRB-235 (320-35150-4), NAWC-011718-RW-91 (320-35150-5), NAWC-011718-FRB-91 (320-35150-6), NAWC-011718-RW-228 (320-35150-7), NAWC-011718-FRB-228 (320-35150-8), NAWC-011718-RW-237 (320-35150-9), NAWC-011718-FRB-237 (320-35150-10), NAWC-011718-RW-244 (320-35150-11), NAWC-011718-FRB-244 (320-35150-12), NAWC-011718-DUP-21 (320-35150-13), NAWC-011718-RW-240 (320-35150-14), NAWC-011718-FRB-240 (320-35150-15), NAWC-011718-RW-249 (320-35150-16) and NAWC-011718-FRB-249 (320-35150-17)

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: 320-35150-1

Client Sample ID: NAWC-011718-RW-278

Lab Sample ID: 320-35150-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21		20	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.8	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-011718-FRB-278

Lab Sample ID: 320-35150-2

No Detections.

Client Sample ID: NAWC-011718-RW-235

Lab Sample ID: 320-35150-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.1	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-011718-FRB-235

Lab Sample ID: 320-35150-4

No Detections.

Client Sample ID: NAWC-011718-RW-91

Lab Sample ID: 320-35150-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	19	J	20	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.9	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.6	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-011718-FRB-91

Lab Sample ID: 320-35150-6

No Detections.

Client Sample ID: NAWC-011718-RW-228

Lab Sample ID: 320-35150-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	16	J M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	29		20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		10	1.9	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	53	J	90	16	ng/L	1		537	Total/NA

Client Sample ID: NAWC-011718-FRB-228

Lab Sample ID: 320-35150-8

No Detections.

Client Sample ID: NAWC-011718-RW-237

Lab Sample ID: 320-35150-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	13	J M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7	J	10	1.9	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-FRB-237

Lab Sample ID: 320-35150-10

No Detections.

Client Sample ID: NAWC-011718-RW-244

Lab Sample ID: 320-35150-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	19	J M	40	6.8	ng/L	1			537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L	1			537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.9	J	30	5.5	ng/L	1			537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1	J	10	1.9	ng/L	1			537	Total/NA

Client Sample ID: NAWC-011718-FRB-244

Lab Sample ID: 320-35150-12

No Detections.

Client Sample ID: NAWC-011718-DUP-21

Lab Sample ID: 320-35150-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L	1			537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	1.9	ng/L	1			537	Total/NA

Client Sample ID: NAWC-011718-RW-240

Lab Sample ID: 320-35150-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.4	J M	39	6.7	ng/L	1			537	Total/NA
Perfluorooctanoic acid (PFOA)	9.3	J	20	2.7	ng/L	1			537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	29	5.4	ng/L	1			537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7	J	9.8	1.9	ng/L	1			537	Total/NA

Client Sample ID: NAWC-011718-FRB-240

Lab Sample ID: 320-35150-15

No Detections.

Client Sample ID: NAWC-011718-RW-249

Lab Sample ID: 320-35150-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil	Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	12	J	20	2.7	ng/L	1			537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8	J	9.8	1.9	ng/L	1			537	Total/NA

Client Sample ID: NAWC-011718-FRB-249

Lab Sample ID: 320-35150-17

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-RW-278

Date Collected: 01/17/18 08:10

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	20	J M	39	6.7	ng/L	—	01/31/18 07:27	02/06/18 03:43	1
Perfluorooctanoic acid (PFOA)	21		20	2.7	ng/L		01/31/18 07:27	02/06/18 03:43	1
Perfluorononanoic acid (PFNA)	20	U	24	7.8	ng/L		01/31/18 07:27	02/06/18 03:43	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		01/31/18 07:27	02/06/18 03:43	1
Perfluoroheptanoic acid (PFHpA)	7.8	J	9.8	1.9	ng/L		01/31/18 07:27	02/06/18 03:43	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		01/31/18 07:27	02/06/18 03:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130				01/31/18 07:27	02/06/18 03:43	1
13C2 PFDA	102		70 - 130				01/31/18 07:27	02/06/18 03:43	1

Client Sample ID: NAWC-011718-FRB-278

Date Collected: 01/17/18 08:05

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-2

Matrix: Water

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	—	01/31/18 07:27	02/06/18 03:47	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		01/31/18 07:27	02/06/18 03:47	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		01/31/18 07:27	02/06/18 03:47	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/31/18 07:27	02/06/18 03:47	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		01/31/18 07:27	02/06/18 03:47	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		01/31/18 07:27	02/06/18 03:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130				01/31/18 07:27	02/06/18 03:47	1
13C2 PFDA	96		70 - 130				01/31/18 07:27	02/06/18 03:47	1

Client Sample ID: NAWC-011718-RW-235

Date Collected: 01/17/18 09:10

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	11	J M	40	6.9	ng/L	—	01/31/18 07:27	02/06/18 03:52	1
Perfluorooctanoic acid (PFOA)	13	J	20	2.8	ng/L		01/31/18 07:27	02/06/18 03:52	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/31/18 07:27	02/06/18 03:52	1
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	5.6	ng/L		01/31/18 07:27	02/06/18 03:52	1
Perfluoroheptanoic acid (PFHpA)	6.1	J	10	1.9	ng/L		01/31/18 07:27	02/06/18 03:52	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/31/18 07:27	02/06/18 03:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130				01/31/18 07:27	02/06/18 03:52	1
13C2 PFDA	95		70 - 130				01/31/18 07:27	02/06/18 03:52	1

Client Sample Results

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-FRB-235

Lab Sample ID: 320-35150-4

Date Collected: 01/17/18 09:05

Matrix: Water

Date Received: 01/18/18 10:20

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		01/31/18 07:27	02/06/18 03:57	1
Perfluorooctanoic acid (PFOA)	8.2	U	21	2.9	ng/L		01/31/18 07:27	02/06/18 03:57	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		01/31/18 07:27	02/06/18 03:57	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/31/18 07:27	02/06/18 03:57	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	2.0	ng/L		01/31/18 07:27	02/06/18 03:57	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/31/18 07:27	02/06/18 03:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	01/31/18 07:27	02/06/18 03:57	1
13C2 PFDA	101		70 - 130	01/31/18 07:27	02/06/18 03:57	1

Client Sample ID: NAWC-011718-RW-91

Lab Sample ID: 320-35150-5

Date Collected: 01/17/18 10:10

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	20	J M	41	7.0	ng/L		01/31/18 07:27	02/06/18 04:01	1
Perfluorooctanoic acid (PFOA)	19	J	20	2.9	ng/L		01/31/18 07:27	02/06/18 04:01	1
Perfluorononanoic acid (PFNA)	20	U M	25	8.2	ng/L		01/31/18 07:27	02/06/18 04:01	1
Perfluorohexanesulfonic acid (PFHxS)	5.9	J	31	5.6	ng/L		01/31/18 07:27	02/06/18 04:01	1
Perfluoroheptanoic acid (PFHpA)	6.6	J	10	1.9	ng/L		01/31/18 07:27	02/06/18 04:01	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/31/18 07:27	02/06/18 04:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130	01/31/18 07:27	02/06/18 04:01	1
13C2 PFDA	99		70 - 130	01/31/18 07:27	02/06/18 04:01	1

Client Sample ID: NAWC-011718-FRB-91

Lab Sample ID: 320-35150-6

Date Collected: 01/17/18 10:05

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.7	ng/L		01/31/18 07:27	02/06/18 04:06	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:06	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		01/31/18 07:27	02/06/18 04:06	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		01/31/18 07:27	02/06/18 04:06	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		01/31/18 07:27	02/06/18 04:06	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		01/31/18 07:27	02/06/18 04:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/31/18 07:27	02/06/18 04:06	1
13C2 PFDA	99		70 - 130	01/31/18 07:27	02/06/18 04:06	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-RW-228

Lab Sample ID: 320-35150-7

Date Collected: 01/17/18 13:40

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	J M	40	6.8	ng/L	-	01/31/18 07:27	02/06/18 04:11	1
Perfluorooctanoic acid (PFOA)	29		20	2.8	ng/L		01/31/18 07:27	02/06/18 04:11	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/31/18 07:27	02/06/18 04:11	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/31/18 07:27	02/06/18 04:11	1
Perfluoroheptanoic acid (PFHpA)	11		10	1.9	ng/L		01/31/18 07:27	02/06/18 04:11	1
Perfluorobutanesulfonic acid (PFBS)	53	J	90	16	ng/L		01/31/18 07:27	02/06/18 04:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	01/31/18 07:27	02/06/18 04:11	1
13C2 PFDA	101		70 - 130	01/31/18 07:27	02/06/18 04:11	1

Client Sample ID: NAWC-011718-FRB-228

Lab Sample ID: 320-35150-8

Date Collected: 01/17/18 13:35

Matrix: Water

Date Received: 01/18/18 10:20

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	-	01/31/18 07:27	02/06/18 04:25	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:25	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/31/18 07:27	02/06/18 04:25	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/31/18 07:27	02/06/18 04:25	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/31/18 07:27	02/06/18 04:25	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		01/31/18 07:27	02/06/18 04:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		70 - 130	01/31/18 07:27	02/06/18 04:25	1
13C2 PFDA	93		70 - 130	01/31/18 07:27	02/06/18 04:25	1

Client Sample ID: NAWC-011718-RW-237

Lab Sample ID: 320-35150-9

Date Collected: 01/17/18 14:10

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	13	J M	40	6.8	ng/L	-	01/31/18 07:27	02/06/18 04:29	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:29	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/31/18 07:27	02/06/18 04:29	1
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	5.5	ng/L		01/31/18 07:27	02/06/18 04:29	1
Perfluoroheptanoic acid (PFHpA)	3.7	J	10	1.9	ng/L		01/31/18 07:27	02/06/18 04:29	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/31/18 07:27	02/06/18 04:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/31/18 07:27	02/06/18 04:29	1
13C2 PFDA	99		70 - 130	01/31/18 07:27	02/06/18 04:29	1

Client Sample Results

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-FRB-237

Lab Sample ID: 320-35150-10

Date Collected: 01/17/18 14:05

Matrix: Water

Date Received: 01/18/18 10:20

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		01/31/18 07:27	02/06/18 04:34	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:34	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/31/18 07:27	02/06/18 04:34	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/31/18 07:27	02/06/18 04:34	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/31/18 07:27	02/06/18 04:34	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/31/18 07:27	02/06/18 04:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	01/31/18 07:27	02/06/18 04:34	1
13C2 PFDA	97		70 - 130	01/31/18 07:27	02/06/18 04:34	1

Client Sample ID: NAWC-011718-RW-244

Lab Sample ID: 320-35150-11

Date Collected: 01/17/18 14:40

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	19	J M	40	6.8	ng/L		01/31/18 07:27	02/06/18 04:39	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:39	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/31/18 07:27	02/06/18 04:39	1
Perfluorohexanesulfonic acid (PFHxS)	7.9	J	30	5.5	ng/L		01/31/18 07:27	02/06/18 04:39	1
Perfluoroheptanoic acid (PFHpA)	4.1	J	10	1.9	ng/L		01/31/18 07:27	02/06/18 04:39	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/31/18 07:27	02/06/18 04:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	82		70 - 130	01/31/18 07:27	02/06/18 04:39	1
13C2 PFDA	92		70 - 130	01/31/18 07:27	02/06/18 04:39	1

Client Sample ID: NAWC-011718-FRB-244

Lab Sample ID: 320-35150-12

Date Collected: 01/17/18 14:35

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		01/31/18 07:27	02/06/18 04:43	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:43	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/31/18 07:27	02/06/18 04:43	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/31/18 07:27	02/06/18 04:43	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/31/18 07:27	02/06/18 04:43	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/31/18 07:27	02/06/18 04:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/31/18 07:27	02/06/18 04:43	1
13C2 PFDA	95		70 - 130	01/31/18 07:27	02/06/18 04:43	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-DUP-21

Lab Sample ID: 320-35150-13

Date Collected: 01/17/18 07:00

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U M	40	6.8	ng/L		01/31/18 07:27	02/06/18 04:48	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:48	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		01/31/18 07:27	02/06/18 04:48	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/31/18 07:27	02/06/18 04:48	1
Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	1.9	ng/L		01/31/18 07:27	02/06/18 04:48	1
Perfluorobutanesulfonic acid (PFBS)	36	U M	89	16	ng/L		01/31/18 07:27	02/06/18 04:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	85		70 - 130	01/31/18 07:27	02/06/18 04:48	1
13C2 PFDA	94		70 - 130	01/31/18 07:27	02/06/18 04:48	1

Client Sample ID: NAWC-011718-RW-240

Lab Sample ID: 320-35150-14

Date Collected: 01/17/18 16:40

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	9.4	J M	39	6.7	ng/L		01/31/18 07:27	02/06/18 04:53	1
Perfluorooctanoic acid (PFOA)	9.3	J	20	2.7	ng/L		01/31/18 07:27	02/06/18 04:53	1
Perfluorononanoic acid (PFNA)	20	U	24	7.8	ng/L		01/31/18 07:27	02/06/18 04:53	1
Perfluorohexanesulfonic acid (PFHxS)	6.3	J	29	5.4	ng/L		01/31/18 07:27	02/06/18 04:53	1
Perfluoroheptanoic acid (PFHpA)	3.7	J	9.8	1.9	ng/L		01/31/18 07:27	02/06/18 04:53	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		01/31/18 07:27	02/06/18 04:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	88		70 - 130	01/31/18 07:27	02/06/18 04:53	1
13C2 PFDA	93		70 - 130	01/31/18 07:27	02/06/18 04:53	1

Client Sample ID: NAWC-011718-FRB-240

Lab Sample ID: 320-35150-15

Date Collected: 01/17/18 16:35

Matrix: Water

Date Received: 01/18/18 10:20

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		01/31/18 07:27	02/06/18 04:57	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		01/31/18 07:27	02/06/18 04:57	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		01/31/18 07:27	02/06/18 04:57	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		01/31/18 07:27	02/06/18 04:57	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		01/31/18 07:27	02/06/18 04:57	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		01/31/18 07:27	02/06/18 04:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130	01/31/18 07:27	02/06/18 04:57	1
13C2 PFDA	101		70 - 130	01/31/18 07:27	02/06/18 04:57	1

Client Sample Results

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-RW-249

Lab Sample ID: 320-35150-16

Date Collected: 01/17/18 10:40

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U M	39	6.7	ng/L		01/31/18 07:27	02/06/18 05:02	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.7	ng/L		01/31/18 07:27	02/06/18 05:02	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		01/31/18 07:27	02/06/18 05:02	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		01/31/18 07:27	02/06/18 05:02	1
Perfluoroheptanoic acid (PFHpA)	5.8	J	9.8	1.9	ng/L		01/31/18 07:27	02/06/18 05:02	1
Perfluorobutanesulfonic acid (PFBS)	35	U M	88	16	ng/L		01/31/18 07:27	02/06/18 05:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	01/31/18 07:27	02/06/18 05:02	1
13C2 PFDA	100		70 - 130	01/31/18 07:27	02/06/18 05:02	1

Client Sample ID: NAWC-011718-FRB-249

Lab Sample ID: 320-35150-17

Date Collected: 01/17/18 10:35

Matrix: Water

Date Received: 01/18/18 10:20

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	17	U	41	7.0	ng/L		01/31/18 07:27	02/06/18 05:07	1
Perfluorooctanoic acid (PFOA)	8.3	U	21	2.9	ng/L		01/31/18 07:27	02/06/18 05:07	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/31/18 07:27	02/06/18 05:07	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/31/18 07:27	02/06/18 05:07	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	2.0	ng/L		01/31/18 07:27	02/06/18 05:07	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		01/31/18 07:27	02/06/18 05:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130	01/31/18 07:27	02/06/18 05:07	1
13C2 PFDA	102		70 - 130	01/31/18 07:27	02/06/18 05:07	1

Default Detection Limits

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-35150-1

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

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

Prep: 537

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

Surrogate Summary

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

TestAmerica Job ID: 320-35150-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		PFHxA (70-130)	PFDA (70-130)
320-35150-1	NAWC-011718-RW-278	94	102
320-35150-2	NAWC-011718-FRB-278	97	96
320-35150-3	NAWC-011718-RW-235	86	95
320-35150-4	NAWC-011718-FRB-235	99	101
320-35150-5	NAWC-011718-RW-91	97	99
320-35150-6	NAWC-011718-FRB-91	94	99
320-35150-7	NAWC-011718-RW-228	95	101
320-35150-8	NAWC-011718-FRB-228	90	93
320-35150-9	NAWC-011718-RW-237	94	99
320-35150-10	NAWC-011718-FRB-237	95	97
320-35150-11	NAWC-011718-RW-244	82	92
320-35150-12	NAWC-011718-FRB-244	94	95
320-35150-13	NAWC-011718-DUP-21	85	94
320-35150-14	NAWC-011718-RW-240	88	93
320-35150-15	NAWC-011718-FRB-240	101	101
320-35150-16	NAWC-011718-RW-249	96	100
320-35150-17	NAWC-011718-FRB-249	97	102
LLCS 320-206282/2-A	Lab Control Sample	91	99
LLCSD 320-206282/3-A	Lab Control Sample Dup	93	97
MB 320-206282/1-A	Method Blank	94	106

Surrogate Legend

PFHxA = 13C2 PFHxA

PFDA = 13C2 PFDA

QC Sample Results

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

TestAmerica Job ID: 320-35150-1

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

Lab Sample ID: MB 320-206282/1-A

Matrix: Water

Analysis Batch: 207066

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 206282

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L	-	01/31/18 07:27	02/06/18 03:29	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L	-	01/31/18 07:27	02/06/18 03:29	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L	-	01/31/18 07:27	02/06/18 03:29	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L	-	01/31/18 07:27	02/06/18 03:29	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L	-	01/31/18 07:27	02/06/18 03:29	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L	-	01/31/18 07:27	02/06/18 03:29	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/31/18 07:27	02/06/18 03:29	1
13C2 PFDA	106		70 - 130	01/31/18 07:27	02/06/18 03:29	1

Lab Sample ID: LLCS 320-206282/2-A

Matrix: Water

Analysis Batch: 207066

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 206282

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	40.0	38.4	J M	ng/L	-	96	50 - 150
Perfluorooctanoic acid (PFOA)	20.0	18.8	J	ng/L	-	94	50 - 150
Perfluorononanoic acid (PFNA)	20.0	18.2	J	ng/L	-	91	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.0	30.9		ng/L	-	103	50 - 150
Perfluoroheptanoic acid (PFHpA)	10.0	9.97	J	ng/L	-	100	50 - 150
Perfluorobutanesulfonic acid (PFBS)	90.0	87.5	J	ng/L	-	97	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	91		70 - 130
13C2 PFDA	99		70 - 130

Lab Sample ID: LLCSD 320-206282/3-A

Matrix: Water

Analysis Batch: 207066

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 206282

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	40.0	38.0	J M	ng/L	-	95	50 - 150	1	50
Perfluorooctanoic acid (PFOA)	20.0	19.9	J	ng/L	-	99	50 - 150	6	50
Perfluorononanoic acid (PFNA)	20.0	17.4	J	ng/L	-	87	50 - 150	4	50
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.6		ng/L	-	105	50 - 150	2	50
Perfluoroheptanoic acid (PFHpA)	10.0	10.4		ng/L	-	104	50 - 150	5	50
Perfluorobutanesulfonic acid (PFBS)	90.0	94.2		ng/L	-	105	50 - 150	7	50

Surrogate	LLCSD %Recovery	LLCSD Qualifier	Limits
13C2 PFHxA	93		70 - 130
13C2 PFDA	97		70 - 130

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-35150-1

LCMS

Prep Batch: 206282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35150-1	NAWC-011718-RW-278	Total/NA	Water	537	
320-35150-2	NAWC-011718-FRB-278	Total/NA	Water	537	
320-35150-3	NAWC-011718-RW-235	Total/NA	Water	537	
320-35150-4	NAWC-011718-FRB-235	Total/NA	Water	537	
320-35150-5	NAWC-011718-RW-91	Total/NA	Water	537	
320-35150-6	NAWC-011718-FRB-91	Total/NA	Water	537	
320-35150-7	NAWC-011718-RW-228	Total/NA	Water	537	
320-35150-8	NAWC-011718-FRB-228	Total/NA	Water	537	
320-35150-9	NAWC-011718-RW-237	Total/NA	Water	537	
320-35150-10	NAWC-011718-FRB-237	Total/NA	Water	537	
320-35150-11	NAWC-011718-RW-244	Total/NA	Water	537	
320-35150-12	NAWC-011718-FRB-244	Total/NA	Water	537	
320-35150-13	NAWC-011718-DUP-21	Total/NA	Water	537	
320-35150-14	NAWC-011718-RW-240	Total/NA	Water	537	
320-35150-15	NAWC-011718-FRB-240	Total/NA	Water	537	
320-35150-16	NAWC-011718-RW-249	Total/NA	Water	537	
320-35150-17	NAWC-011718-FRB-249	Total/NA	Water	537	
MB 320-206282/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-206282/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-206282/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 207066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35150-1	NAWC-011718-RW-278	Total/NA	Water	537	206282
320-35150-2	NAWC-011718-FRB-278	Total/NA	Water	537	206282
320-35150-3	NAWC-011718-RW-235	Total/NA	Water	537	206282
320-35150-4	NAWC-011718-FRB-235	Total/NA	Water	537	206282
320-35150-5	NAWC-011718-RW-91	Total/NA	Water	537	206282
320-35150-6	NAWC-011718-FRB-91	Total/NA	Water	537	206282
320-35150-7	NAWC-011718-RW-228	Total/NA	Water	537	206282
MB 320-206282/1-A	Method Blank	Total/NA	Water	537	206282
LLCS 320-206282/2-A	Lab Control Sample	Total/NA	Water	537	206282
LLCSD 320-206282/3-A	Lab Control Sample Dup	Total/NA	Water	537	206282

Analysis Batch: 207068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35150-8	NAWC-011718-FRB-228	Total/NA	Water	537	206282
320-35150-9	NAWC-011718-RW-237	Total/NA	Water	537	206282
320-35150-10	NAWC-011718-FRB-237	Total/NA	Water	537	206282
320-35150-11	NAWC-011718-RW-244	Total/NA	Water	537	206282
320-35150-12	NAWC-011718-FRB-244	Total/NA	Water	537	206282
320-35150-13	NAWC-011718-DUP-21	Total/NA	Water	537	206282
320-35150-14	NAWC-011718-RW-240	Total/NA	Water	537	206282
320-35150-15	NAWC-011718-FRB-240	Total/NA	Water	537	206282
320-35150-16	NAWC-011718-RW-249	Total/NA	Water	537	206282
320-35150-17	NAWC-011718-FRB-249	Total/NA	Water	537	206282

Lab Chronicle

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-RW-278

Date Collected: 01/17/18 08:10

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 03:43	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-278

Date Collected: 01/17/18 08:05

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 03:47	JRB	TAL SAC

Client Sample ID: NAWC-011718-RW-235

Date Collected: 01/17/18 09:10

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 03:52	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-235

Date Collected: 01/17/18 09:05

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 03:57	JRB	TAL SAC

Client Sample ID: NAWC-011718-RW-91

Date Collected: 01/17/18 10:10

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 04:01	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-91

Date Collected: 01/17/18 10:05

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 04:06	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-RW-228

Date Collected: 01/17/18 13:40

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207066	02/06/18 04:11	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-228

Date Collected: 01/17/18 13:35

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:25	JRB	TAL SAC

Client Sample ID: NAWC-011718-RW-237

Date Collected: 01/17/18 14:10

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:29	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-237

Date Collected: 01/17/18 14:05

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:34	JRB	TAL SAC

Client Sample ID: NAWC-011718-RW-244

Date Collected: 01/17/18 14:40

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:39	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-244

Date Collected: 01/17/18 14:35

Date Received: 01/18/18 10:20

Lab Sample ID: 320-35150-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:43	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-35150-1

Client Sample ID: NAWC-011718-DUP-21

Lab Sample ID: 320-35150-13

Date Collected: 01/17/18 07:00

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:48	JRB	TAL SAC

Client Sample ID: NAWC-011718-RW-240

Lab Sample ID: 320-35150-14

Date Collected: 01/17/18 16:40

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:53	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-240

Lab Sample ID: 320-35150-15

Date Collected: 01/17/18 16:35

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 04:57	JRB	TAL SAC

Client Sample ID: NAWC-011718-RW-249

Lab Sample ID: 320-35150-16

Date Collected: 01/17/18 10:40

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 05:02	JRB	TAL SAC

Client Sample ID: NAWC-011718-FRB-249

Lab Sample ID: 320-35150-17

Date Collected: 01/17/18 10:35

Matrix: Water

Date Received: 01/18/18 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			206282	01/31/18 07:27	SK	TAL SAC
Total/NA	Analysis	537		1	207068	02/06/18 05:07	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: 320-35150-1

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

Laboratory: TestAmerica Sacramento

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

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

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

TestAmerica Sacramento

Method Summary

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

TestAmerica Job ID: 320-35150-1

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

Protocol References:
EPA = US Environmental Protection Agency

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

Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-35150-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35150-1	NAWC-011718-RW-278	Water	01/17/18 08:10	01/18/18 10:20
320-35150-2	NAWC-011718-FRB-278	Water	01/17/18 08:05	01/18/18 10:20
320-35150-3	NAWC-011718-RW-235	Water	01/17/18 09:10	01/18/18 10:20
320-35150-4	NAWC-011718-FRB-235	Water	01/17/18 09:05	01/18/18 10:20
320-35150-5	NAWC-011718-RW-91	Water	01/17/18 10:10	01/18/18 10:20
320-35150-6	NAWC-011718-FRB-91	Water	01/17/18 10:05	01/18/18 10:20
320-35150-7	NAWC-011718-RW-228	Water	01/17/18 13:40	01/18/18 10:20
320-35150-8	NAWC-011718-FRB-228	Water	01/17/18 13:35	01/18/18 10:20
320-35150-9	NAWC-011718-RW-237	Water	01/17/18 14:10	01/18/18 10:20
320-35150-10	NAWC-011718-FRB-237	Water	01/17/18 14:05	01/18/18 10:20
320-35150-11	NAWC-011718-RW-244	Water	01/17/18 14:40	01/18/18 10:20
320-35150-12	NAWC-011718-FRB-244	Water	01/17/18 14:35	01/18/18 10:20
320-35150-13	NAWC-011718-DUP-21	Water	01/17/18 07:00	01/18/18 10:20
320-35150-14	NAWC-011718-RW-240	Water	01/17/18 16:40	01/18/18 10:20
320-35150-15	NAWC-011718-FRB-240	Water	01/17/18 16:35	01/18/18 10:20
320-35150-16	NAWC-011718-RW-249	Water	01/17/18 10:40	01/18/18 10:20
320-35150-17	NAWC-011718-FRB-249	Water	01/17/18 10:35	01/18/18 10:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 192908Lab 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.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 206939Lab Sample ID: CCVL 320-206939/1 Client Sample ID: _____Date Analyzed: 02/05/18 11:37 Lab File ID: 2018.02.05_537A_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	User Assigned	roycea	02/05/18 12:15

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207066Lab Sample ID: CCV 320-207066/1 CCVIS Client Sample ID: _____Date Analyzed: 02/06/18 03:19 Lab File ID: 2018.02.05_537B_022.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:22

Lab Sample ID: LLCS 320-206282/2-A Client Sample ID: _____Date Analyzed: 02/06/18 03:33 Lab File ID: 2018.02.05_537B_025.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	User Assigned	barnettj	02/06/18 14:24

Lab Sample ID: LLCSD 320-206282/3-A Client Sample ID: _____Date Analyzed: 02/06/18 03:38 Lab File ID: 2018.02.05_537B_026.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	User Assigned	barnettj	02/06/18 14:24

Lab Sample ID: 320-35150-1 Client Sample ID: NAWC-011718-RW-278Date Analyzed: 02/06/18 03:43 Lab File ID: 2018.02.05_537B_027.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:21

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207066Lab Sample ID: 320-35150-3 Client Sample ID: NAWC-011718-RW-235Date Analyzed: 02/06/18 03:52 Lab File ID: 2018.02.05_537B_029.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:25

Lab Sample ID: 320-35150-5 Client Sample ID: NAWC-011718-RW-91Date Analyzed: 02/06/18 04:01 Lab File ID: 2018.02.05_537B_031.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:26
Perfluorononanoic acid (PFNA)	2.07	Missed Peak	barnettj	02/06/18 14:26

Lab Sample ID: 320-35150-7 Client Sample ID: NAWC-011718-RW-228Date Analyzed: 02/06/18 04:11 Lab File ID: 2018.02.05_537B_033.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/06/18 14:27

Lab Sample ID: CCV 320-207066/13 CCVIS Client Sample ID: _____Date Analyzed: 02/06/18 04:15 Lab File ID: 2018.02.05_537B_034.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:23

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207068Lab Sample ID: CCV 320-207068/13 CCVIS Client Sample ID: _____Date Analyzed: 02/06/18 04:15 Lab File ID: 2018.02.05_537B_034.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:23

Lab Sample ID: 320-35150-9 Client Sample ID: NAWC-011718-RW-237Date Analyzed: 02/06/18 04:29 Lab File ID: 2018.02.05_537B_037.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/06/18 14:28

Lab Sample ID: 320-35150-11 Client Sample ID: NAWC-011718-RW-244Date Analyzed: 02/06/18 04:39 Lab File ID: 2018.02.05_537B_039.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:56

Lab Sample ID: 320-35150-13 Client Sample ID: NAWC-011718-DUP-21Date Analyzed: 02/06/18 04:48 Lab File ID: 2018.02.05_537B_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.37	Missed Peak	barnettj	02/06/18 14:58
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/06/18 14:58
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 14:58

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207068Lab Sample ID: 320-35150-14 Client Sample ID: NAWC-011718-RW-240Date Analyzed: 02/06/18 04:53 Lab File ID: 2018.02.05_537B_042.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/06/18 14:59

Lab Sample ID: 320-35150-16 Client Sample ID: NAWC-011718-RW-249Date Analyzed: 02/06/18 05:02 Lab File ID: 2018.02.05_537B_044.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.37	Missed Peak	barnettj	02/06/18 15:01
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/06/18 15:00
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/06/18 15:00

Lab Sample ID: CCV 320-207068/25 CCVIS Client Sample ID: _____Date Analyzed: 02/06/18 05:11 Lab File ID: 2018.02.05_537B_046.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/06/18 14:23

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
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
..LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	28.68 ng/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00019	180 uL	13C4 PFOS	0.1 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2-PFOA	50 ug/mL
..LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LC537ICIM_00019	20 uL	13C2 PFDA	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916					13C2 PFHxA	10 ng/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416					Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
..LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537-PFHxA2_00011	0.061 mL	Perfluorohexanesulfonic acid (PFHxS)	20.0761 ng/mL
...LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			LC537-PFHxS2_00008	0.122 mL	Perfluorononanoic acid (PFNA)	20.1272 ng/mL
..LC537-PFHxA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
...LC537_PFHxA2_00002	06/13/22	Afla Aesar, Lot 10200390			LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	19.698 ng/mL
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537_PFBS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	50.0597 ug/mL
...LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	4.99806 ug/mL
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537_PFHxA2_00002	0.0635 g	Perfluorohexanesulfonic acid (PFHxS)	10.038 ug/mL
..LC537-PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	10.0636 ug/mL
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537_PFHxS2_00002	0.0475 g	Perfluorooctanoic acid (PFOA)	10.2421 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	9.849 ug/mL
...LC537_PFOA2_00002							Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.998 g/g
							Perfluorohexanesulfonic acid (PFHxS)	2048.39 ug/mL
							Perfluorononanoic acid (PFNA)	1 g/g
							Perfluorooctanoic acid (PFOA)	2056.98 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.9094 g/g
							Perfluorobutanesulfonic acid (PFBS)	1996.74 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.996 g/g
							Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..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
..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
					LC537-MSP_00029	60 uL	13C4 PFOS	28.68 ng/mL
							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					
..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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFBs_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBs)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFDA	50 ug/mL
							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
					LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 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	Perfluorobutanesulfonic acid (PFBs)	90 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00013	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFDA	50 ug/mL
LC537-L2_00021	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	320 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22264 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66884 ng/mL
							Perfluorononanoic acid (PFNA)	4.44587 ng/mL
							Perfluorooctanoic acid (PFOA)	4.469 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.92684 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
							Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
							Perfluorononanoic acid (PFNA)	20.0048 ug/mL
							Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
...LC537-PFOS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
							Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
							Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
							Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537-PFNA_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	0.99 g/g
....LC537-PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537-PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	0.999 g/g
....LC537-PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537-PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
...LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFDA	50 ug/mL
....LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00023	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	180 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
					LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 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
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
							Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							Perfluorononanoic acid (PFNA)	20.002 ug/mL
							Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537-PFOS_00008	400 uL	Perfluorobutanesulfonic acid (PFBS)	40.0066 ug/mL
							Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							Perfluorononanoic acid (PFNA)	20.002 ug/mL
							Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFB_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFB_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHxA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHxA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHxA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00024	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
..LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L3_00024	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00094 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0049 ng/mL
							Perfluorononanoic acid (PFNA)	10.0032 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0553 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0854 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
..LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHxA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHpa_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpa_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpa_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L4_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 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
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
							Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00024	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	540 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0037 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0101 ng/mL
							Perfluorononanoic acid (PFNA)	30.0053 ng/mL
							Perfluorooctanoic acid (PFOA)	30.0251 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0146 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL		
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL		
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g		
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL		
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g		
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL		
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g		
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL		
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g		
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL		
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL		
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL		
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL		
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL		
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL		
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL		
LC537-L5_00025	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C4 PFOS	28.68 ng/mL
					LCMPFOS_00021	180 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
LC537-L5_00025	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	2160 uL	13C4 PFOS	47.8 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0028 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0147 ng/mL
							Perfluorononanoic acid (PFNA)	30.0096 ng/mL
							Perfluorooctanoic acid (PFOA)	30.1658 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.2562 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537 PFNA 00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA 00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA 00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA 00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA 00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA 00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(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
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 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
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
							Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							Perfluorononanoic acid (PFNA)	20.002 ug/mL
							Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
							Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00013	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
LC537-LSP_00026	02/10/18	08/10/17	Methanol, Lot 090285	20000 uL	LC537SPIM_00023	50 uL	Perfluorobutane Sulfonate	225 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	225 ng/mL
							Perfluoroheptanoic acid (PFHpA)	25.0041 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	75.0109 ng/mL
							Perfluorononanoic acid (PFNA)	50.0049 ng/mL
							Perfluorooctanoic acid (PFOA)	50.0378 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	100.016 ng/mL
.LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutane Sulfonate	90 ug/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537_PFBs_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
...LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00053	05/27/18	11/27/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFB_00002

4/1/15 SPV

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3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Nonafluorobutane-1-sulfonic acid - 97%

Product Number:

562629

Batch Number:

MKBP8842V

Brand:

ALDRICH

CAS Number:

375-73-5

MDL Number:

MFCD01320794

Formula:

C₄HF₉O₃S

Formula Weight:

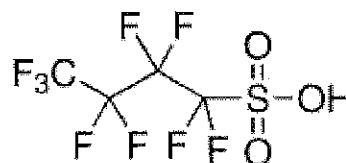
300.10 g/mol

Storage Temperature:

Store at 2 - 8 °C

Quality Release Date:

11 OCT 2013



PFBS

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

Jamie Gleason

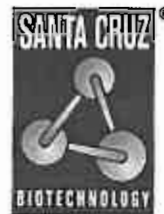
Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

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Reagent

LC537_PFB2_00002

11.6.8.17 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)	$\geq 97\%$	101.3%
Infrared Spectrum	Conforms to structure	Complies

Reagent

LC537_PFHpA_00002

Certificate of Analysis

Product Name: PERFLUOROHEPTANOIC ACID
99 %
Product Number: 342041
Batch Number: BCBM2579V
Brand: Aldrich
CAS Number: 375-85-9
Formula: $\text{CF}_3(\text{CF}_2)_5\text{CO}_2\text{H}$
Formula Weight: 364.06
Quality Release Date: 06 DEC 2013
Recommended Retest Date: OCT 2018

PFH₇A

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



Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFHpA2_00002

Certificate of analysis

r:6.13.17 SW

PFHe 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

4/1/15 std

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

Certificate of Analysis

Product Name: TRIDECAFLUOROHXANE-1-SULFONIC ACID POTASSIUM SALT
Product Number: 50929
Batch Number: BCBL3545V
Brand: Aldrich
CAS Number: 3871-99-6
Formula: $C_{13}F_{27}KO_2S$
Formula Weight: 438.20
Quality Release Date: 20 JUN 2013

PFAS-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

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

$$Purity = 90.94 \% \text{ w/m.w correction}$$

std 4/1/15

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Reagent

LC537_PFHxS2_00002

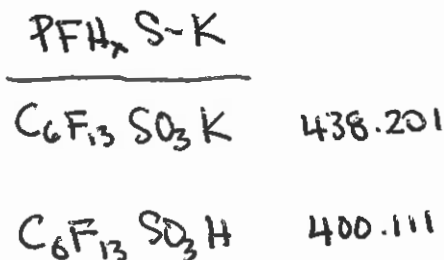


The Future is Now

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: $C_{13}F_{27}KO_2S$
 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)	$\geq 98.0\%$	100.4%



$$MW \text{ correction} = \frac{400.11}{438.201} = 0.91307 \quad \frac{PFH_2S}{\text{CAS \# 355-46-4}}$$

$$\text{Purity \% MW correction} = 90.9\%$$

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

Reagent

LC537_PFNA_00002

R: 4/1/15 SKV



Certificate of Analysis

Apr 2, 2015 (JST)

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

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

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

11.6.14.17 SKW

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Perfluorononanoic acid - 97%

Product Number:

394459

Batch Number:

MKCC0699

Brand:

ALDRICH

CAS Number:

375-95-1

MDL Number:

MFCD00039605

Formula:

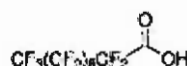
C₉H₁₇O₂

Formula Weight:

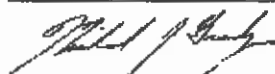
464.08 g/mol

Quality Release Date:

07 DEC 2016



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



Michael Grady, Manager
Quality Control
Milwaukee, WI US

PFNA

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Reagent

LC537_PFOA_00003

C: 11/30/16 SKV
PFA

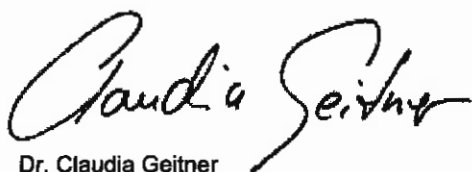
SIGMA-ALDRICH

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

Certificate of Analysis

Product Name: PENTADECAFLUOROOCTANOIC ACID
analytical standard
Product Number: 33824
Batch Number: BCBS1198V
Brand: Sigma-Aldrich
CAS Number: 335-67-1
Formula: $\text{CF}_3(\text{CF}_2)_6\text{COOH}$
Formula Weight: 414.07
Expiration Date: OCT 2023
Quality Release Date: 12 MAY 2016

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



Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFOA2_00002

Certificate of analysis

17: 6/9/17 SW

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

PFOA

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

n: 11/30/16 SV
PFOS

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CERTIFICATE OF ANALYSIS

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

Seelze, 22.04.2014/524107/14/08646

Order-No.:

Customer-No.:

Order-Code:

Quantity:

Production Date: 17.Apr.2014

Expiry Date: 17.Apr.2019

Article/Product: 33829

Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

Formula: C₈F₁₇KO₃S

CAS-No.: [2795-39-3]

Usage : PFOS

Molar mass: 538.22 g/Mole

Recomm. storage temp.: roomtemp.

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

2. Batch Analysis

Identity

Assay (LC-MS)

Date of Analysis

complying

98 %

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 aliquot 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

Certificate of Analysis

Product Name: HEPTADEC AFLUORO OCTANESULFONIC ACID TETRAETHYLAMMONIUM SALT
98 %
Product Number: 365289
Batch Number: BCBQ0108V
Brand: Aldrich
CAS Number: 56773-42-3
Formula: $\text{CF}_3(\text{CF}_2)_6\text{CF}_2\text{SO}_3\text{N}(\text{C}_2\text{H}_5)_4$
Formula Weight: 629.37
Quality Release Date: 11 JUN 2015

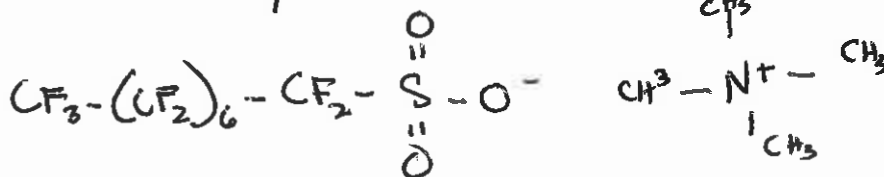
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

$$\text{Purity \& MW correction} = 77.37\%$$



$$\begin{array}{r} \text{C}_8\text{F}_{17}\text{SO}_3^+\text{H} \\ \text{C} = 12.011 \quad 96.088 \\ \text{F} = 18.998 \quad 322.966 \\ \text{S} = 32.066 \quad 32.066 \\ \text{O} = 16.000 \quad 47.947 \\ \text{H} = 1.008 \quad 1.008 \\ \text{N} = 14.007 \quad - \\ \hline 500.125 \end{array}$$

$$\begin{array}{r} \text{C}_8\text{H}_{20}\text{N} \\ 96.088 \\ - \\ - \\ 20.60 \\ 14.007 \\ \hline 130.255 \end{array}$$

Reagent

LCM2PFOA_00007



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

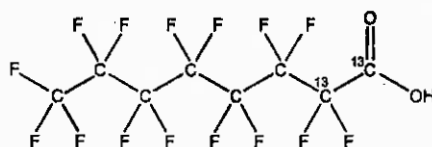
M2PFOA

LOT NUMBER:

M2PFOA0216

COMPOUND:Perfluoro-n-[1,2-¹³C₂]octanoic acid**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₆HF₁₅O₂**CONCENTRATION:**

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

416.05

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99% ¹³C(1,2-¹³C₂)**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 $x_1, x_2, \dots, x_n$ on which it depends is:

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

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 $\pm 5\%$ (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:

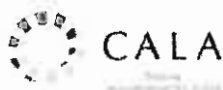
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

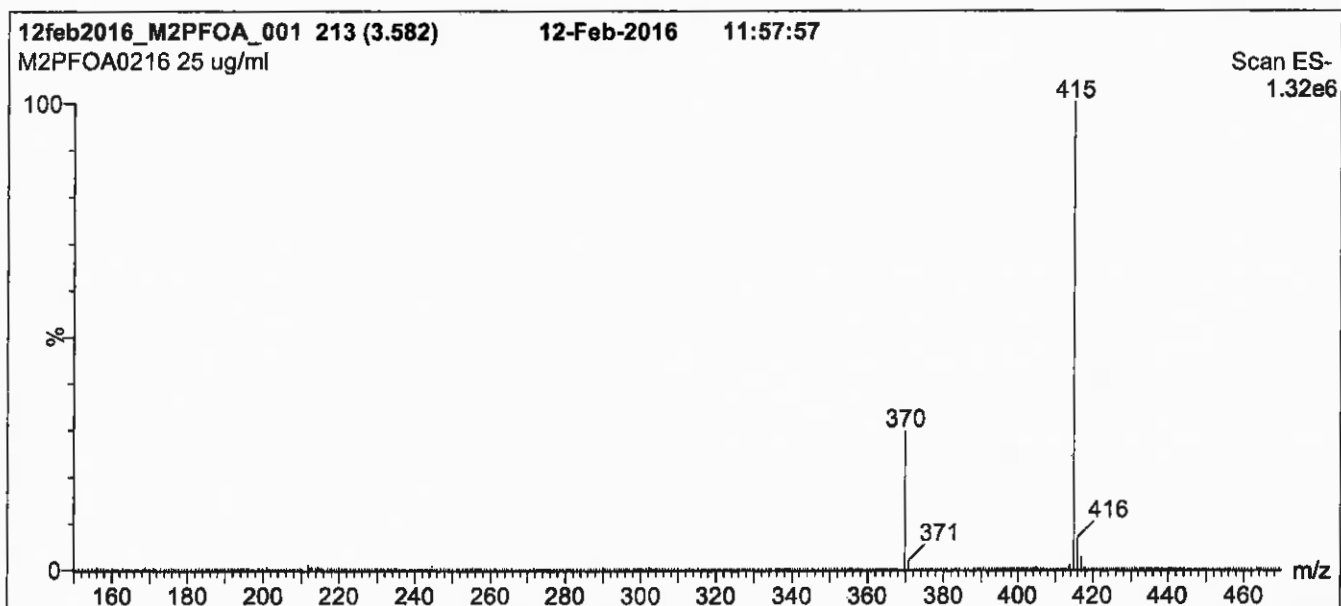
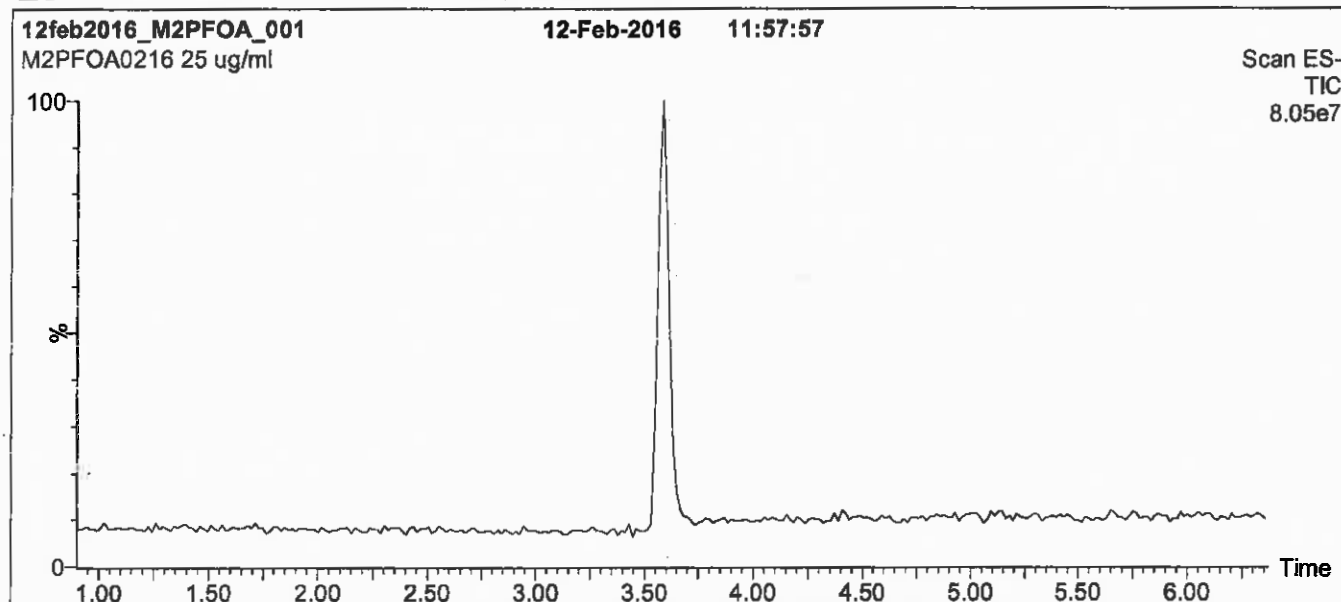
QUALITY MANAGEMENT:

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).



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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc 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 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)

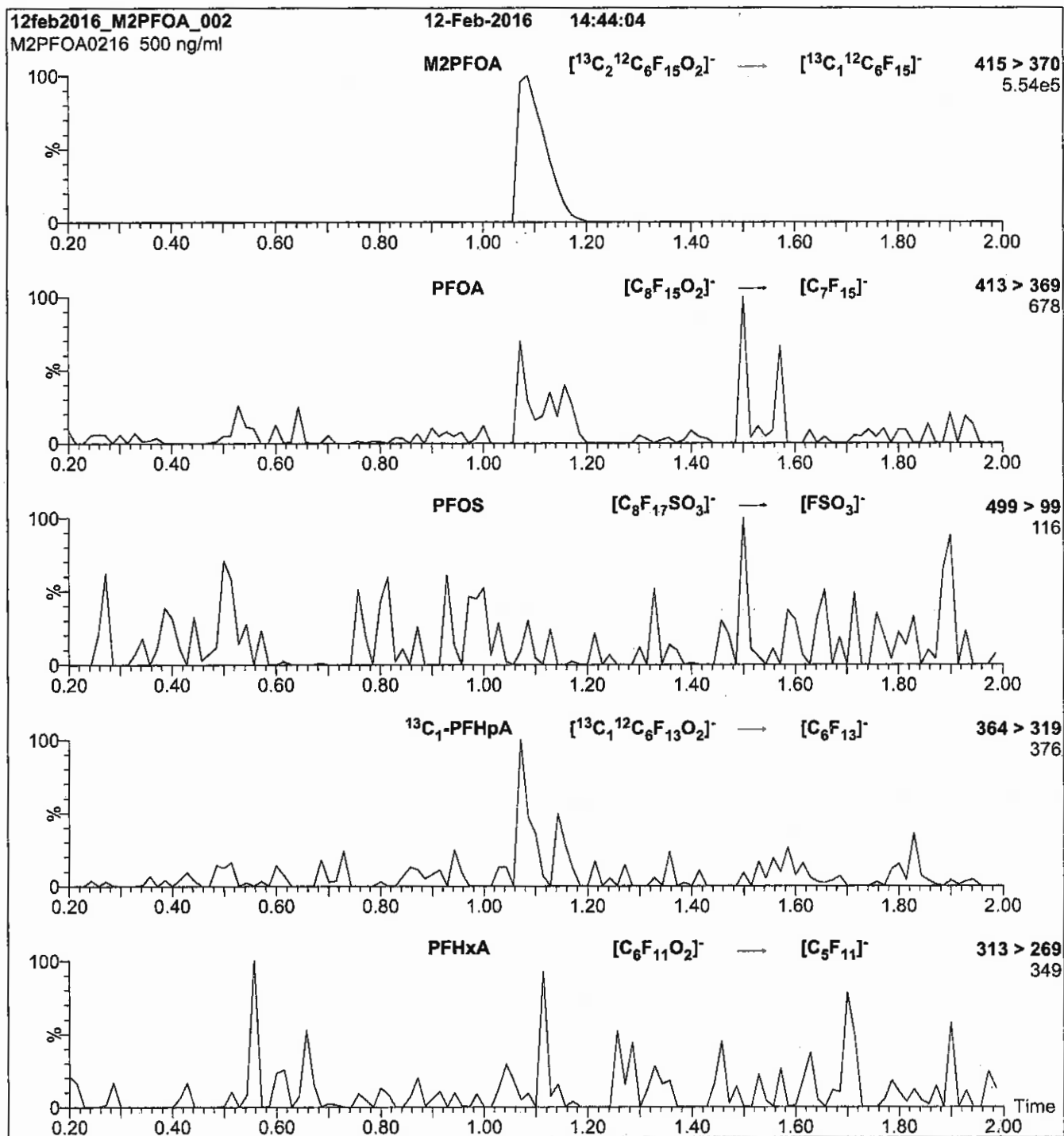
Capillary Voltage (kV) = 3.00

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 $\mu\text{l}/\text{min}$

MS Parameters

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

Reagent

LCMPFDA_00012

R: SBC 12/21/16



814255

ID: LCMFDA_00012

Exp: 09/30/21 Prod: SBC

13C2-Perfluorodecanoic acid



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFDA

COMPOUND:

Perfluoro-n-[1,2-¹³C₂]decanoic acid

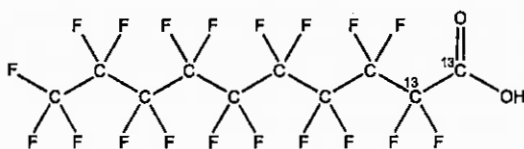
LOT NUMBER:

MPFDA0916

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₈HF₁₉O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

516.07

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

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

(1,2-¹³C₂)

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 ¹³C₁-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chritton

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

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

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EXPIRY DATE / PERIOD OF VALIDITY:

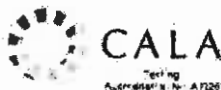
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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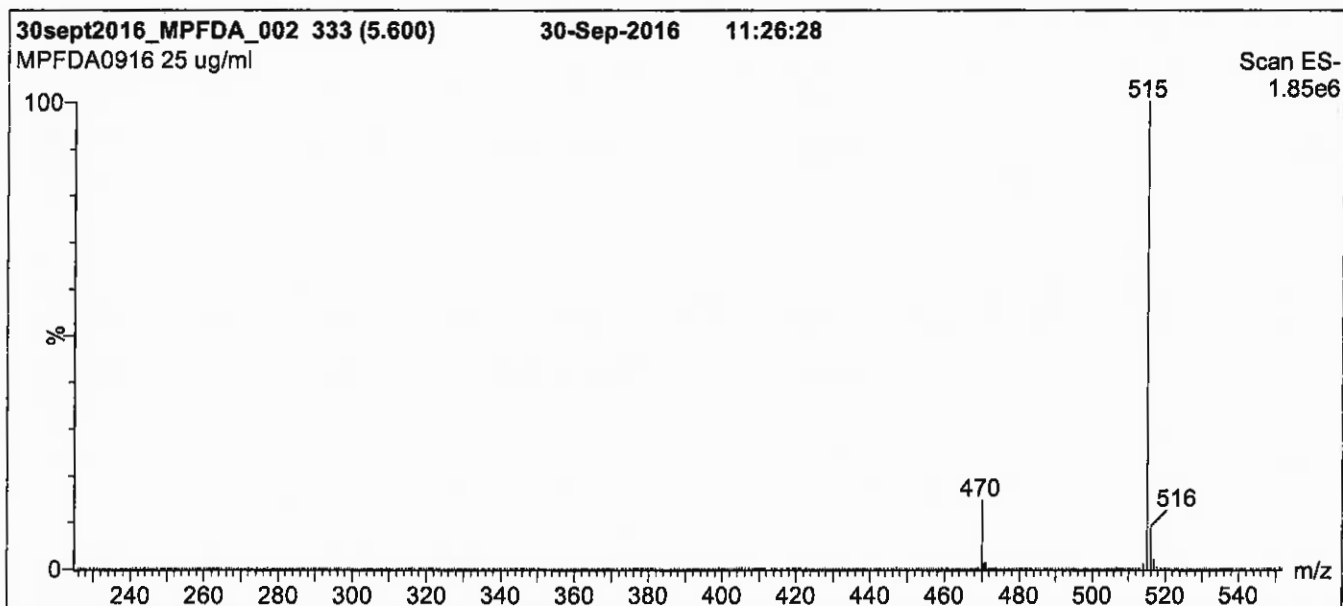
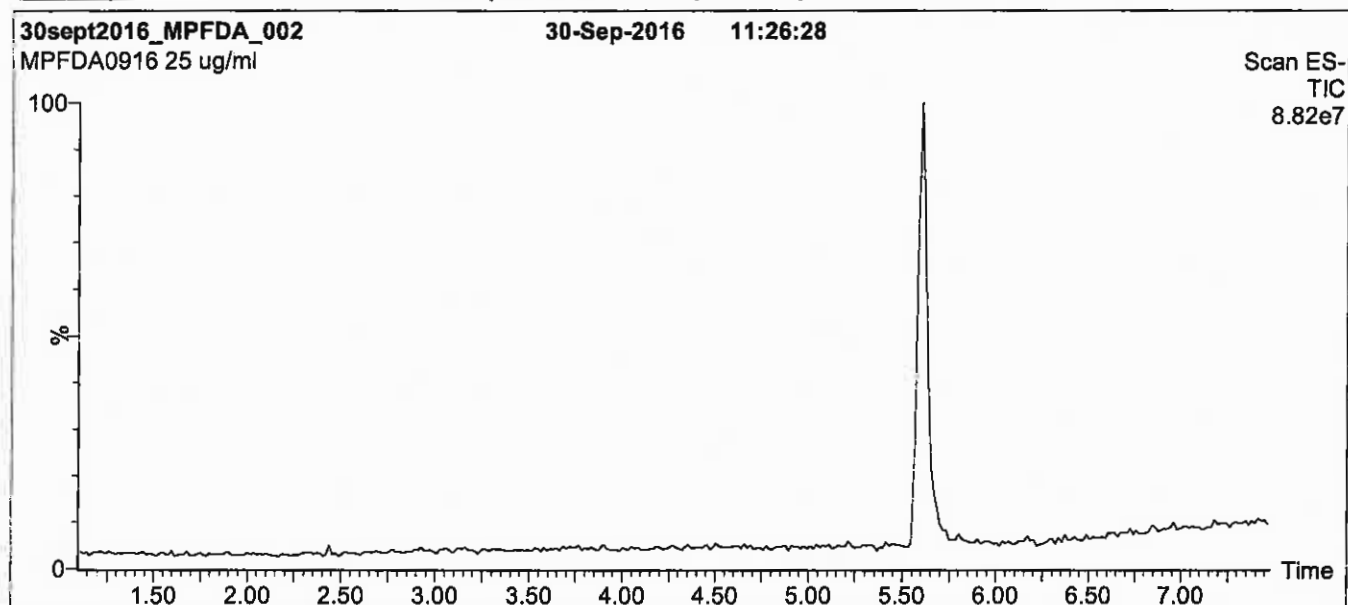
QUALITY MANAGEMENT:

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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 RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc 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

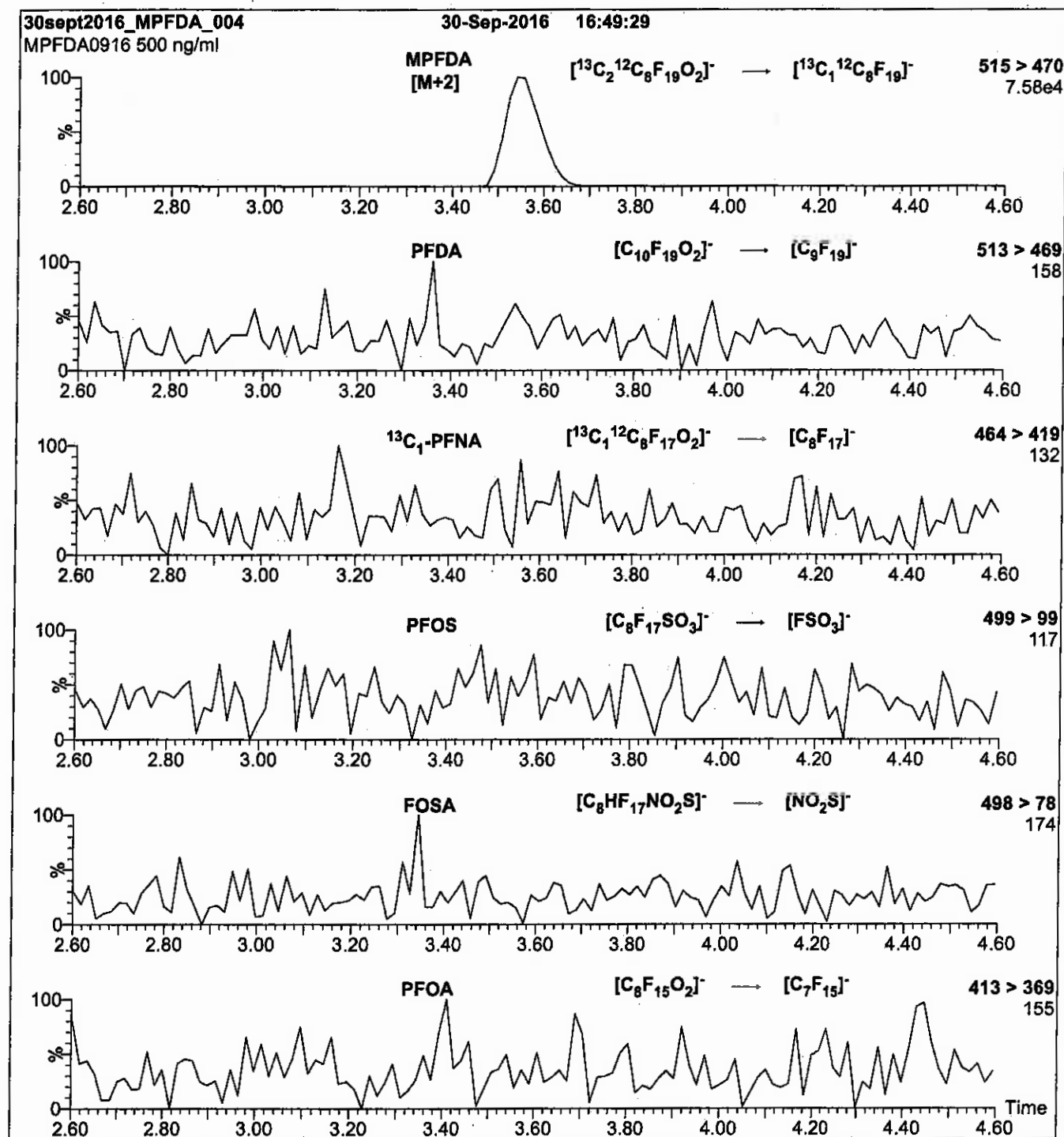
Flow: 300 μ l/min

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 μ l (500 ng/ml MPFDA)

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

Flow: 300 μ l/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 Ppdt: SBC
13C2-Perfluorohexanoic ac**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:**

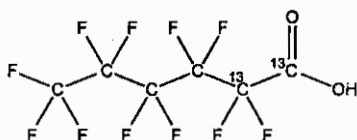
MPFHxA

LOT NUMBER:

MPFHxA0416

COMPOUND:Perfluoro-n-[1,2-¹³C₂]hexanoic acid**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₄HF₁₁O₂**CONCENTRATION:**

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

316.04

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99%¹³C**LAST TESTED:** (mm/dd/yyyy)

04/08/2016

EXPIRY DATE: (mm/dd/yyyy)

04/08/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 04/29/2016

(mm/dd/yyyy)

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

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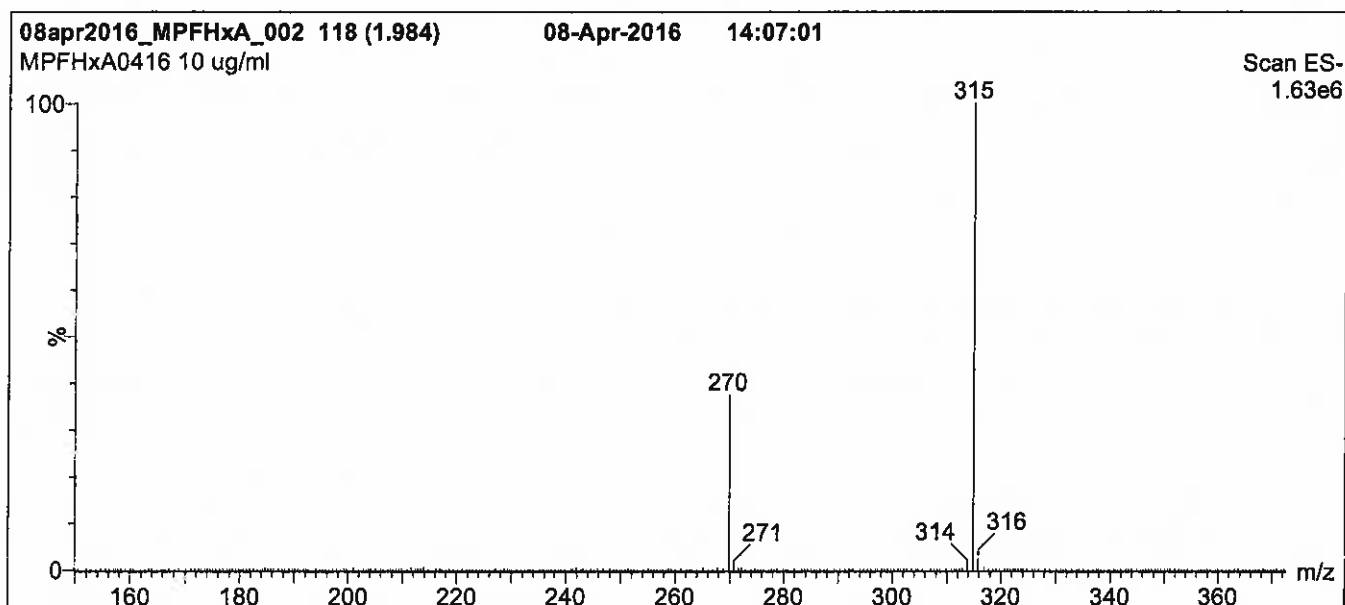
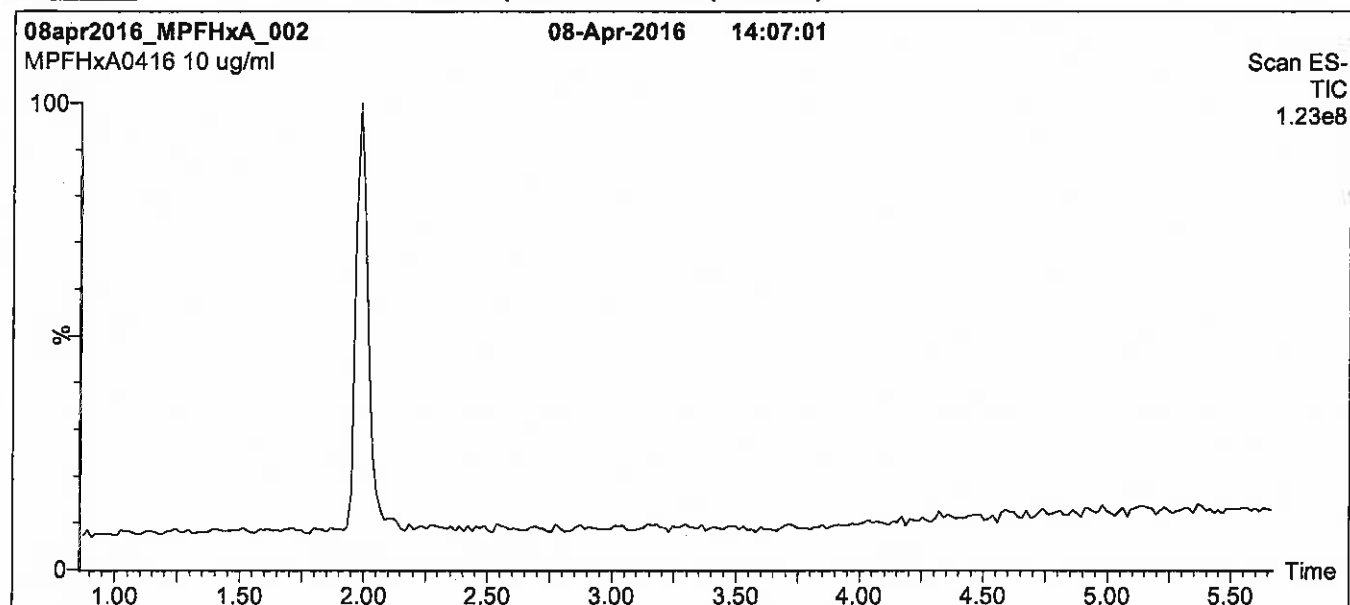
QUALITY MANAGEMENT:

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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 RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc 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

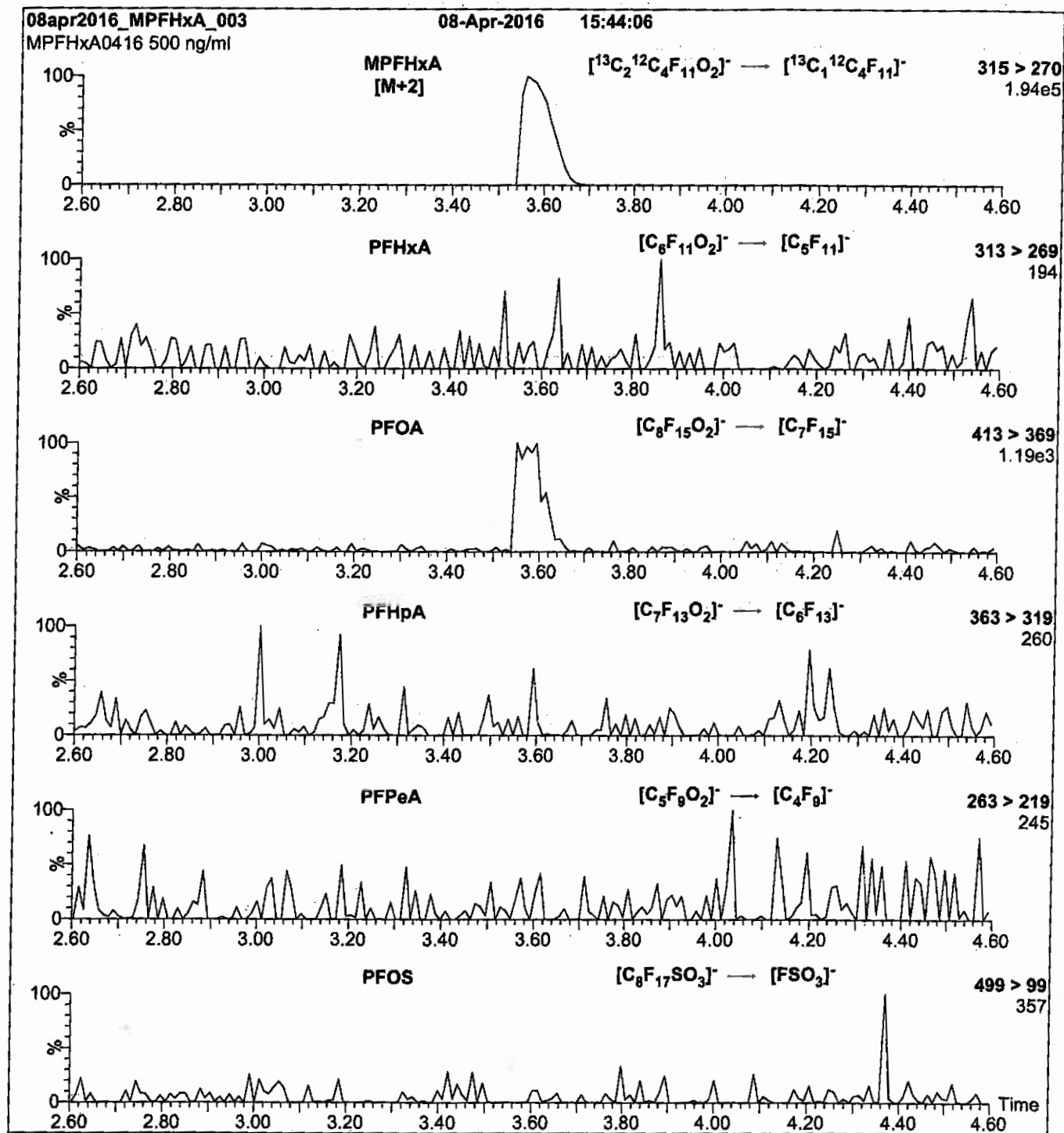
Flow: 300 μ l/min

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 $\mu\text{l}/\text{min}$

MS Parameters

Collision Gas (mbar) = $3.39\text{e-}3$
Collision Energy (eV) = 10

Reagent

LCMPFHxA_00015

17: 5/16/17 SKJ



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexanoic acid

LOT NUMBER: MPFHxA1116

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₂¹²C₄HF₁₁O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 316.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/22/2016
EXPIRY DATE: (mm/dd/yyyy) 11/22/2021

ISOTOPIC PURITY: ≥99% ¹³C
(1,2-¹³C₂)

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:

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 $x_1, x_2, \dots, x_n$ on which it depends is:

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

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 $\pm 5\%$ (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.

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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:

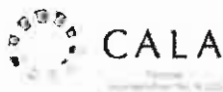
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LIMITED WARRANTY:

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.

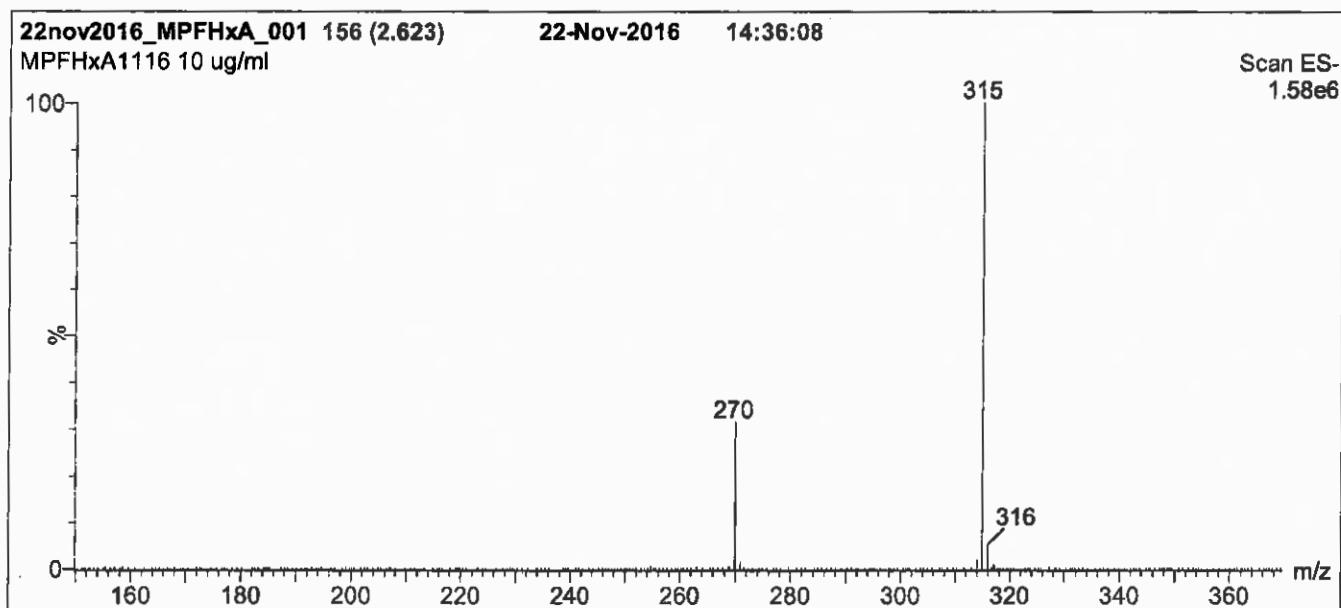
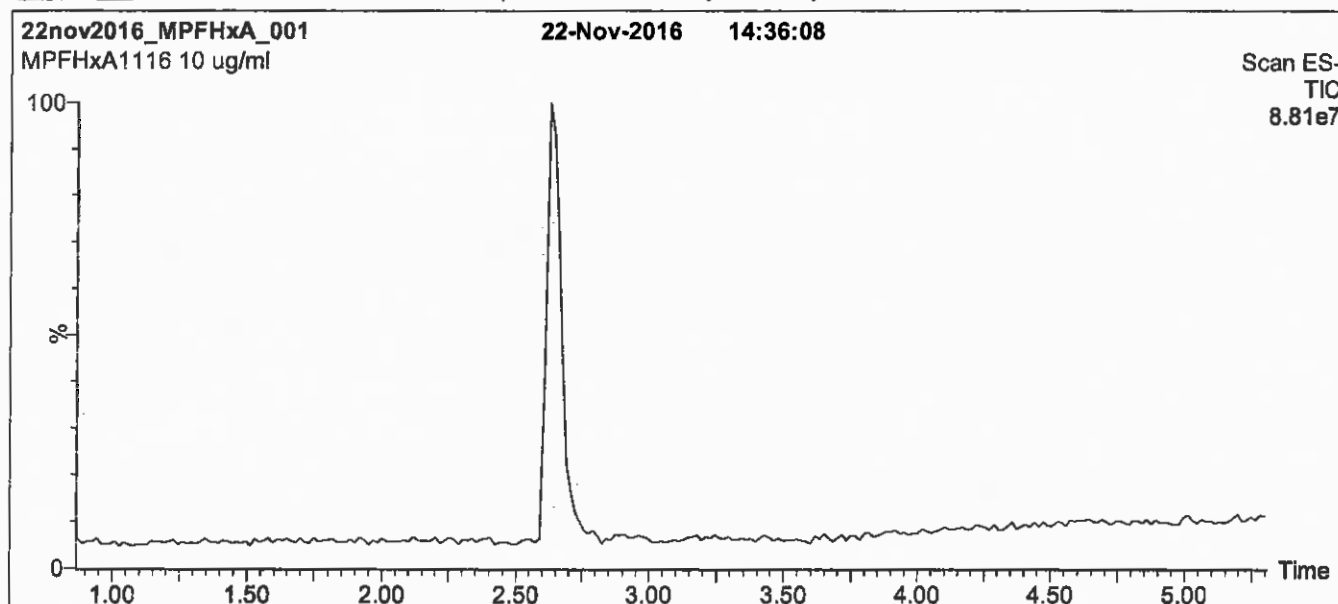
QUALITY MANAGEMENT:

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).



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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

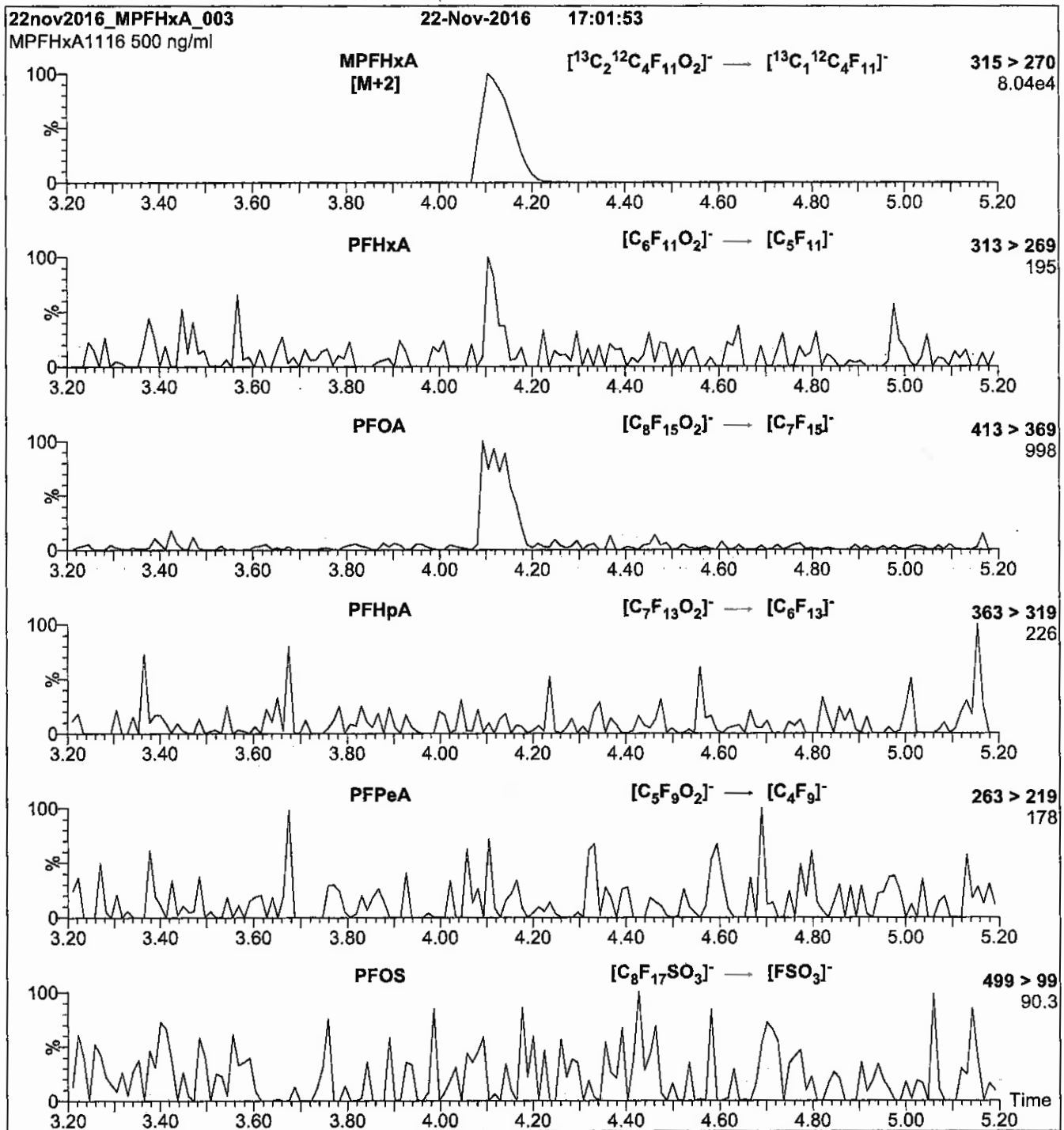
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions over 0.5 min.
Time: 10 min

Flow: 300 μ l/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 $\mu\text{l}/\text{min}$

MS Parameters

Collision Gas (mbar) = $3.46\text{e-}3$
Collision Energy (eV) = 10

Reagent

LCMPFOS_00019

R: SBC 12/21/16



814253

ID: LCMFOS_00019

Exp: 08/03/21 Pipd: SBC

13C4-Perfluorooctanesulfo

WELLINGTON
LABORATORIESCERTIFICATE OF ANALYSIS
DOCUMENTATION**PRODUCT CODE:**

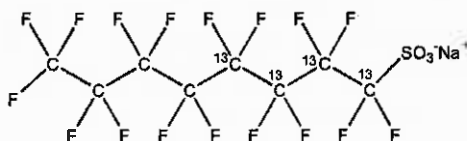
MPFOS

LOT NUMBER:

MPFOS0816

COMPOUND:Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₄¹²C₄F₁₇SO₃Na**CONCENTRATION:**

50.0 ± 2.5 µg/ml (Na salt)

47.8 ± 2.4 µg/ml (MPFOS anion)

MOLECULAR WEIGHT:

526.08

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99% ¹³C**LAST TESTED:** (mm/dd/yyyy)

08/03/2016

(1,2,3,4-¹³C₄)**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-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/05/2016

(mm/dd/yyyy)

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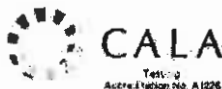
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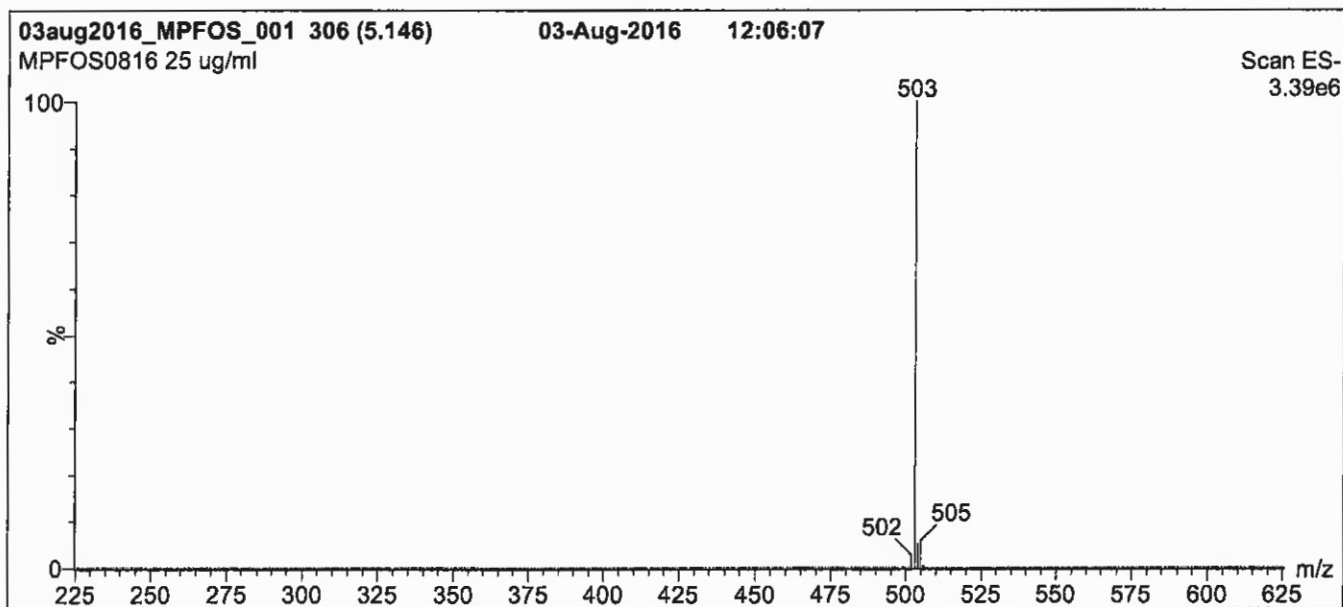
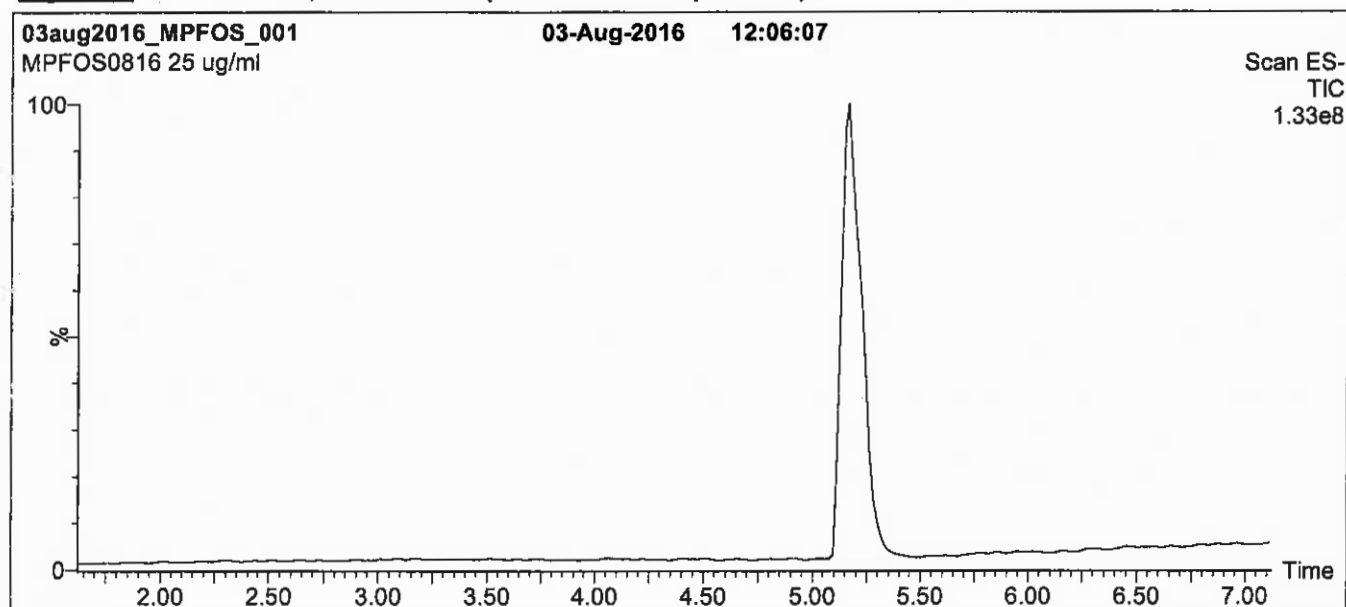
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Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc 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

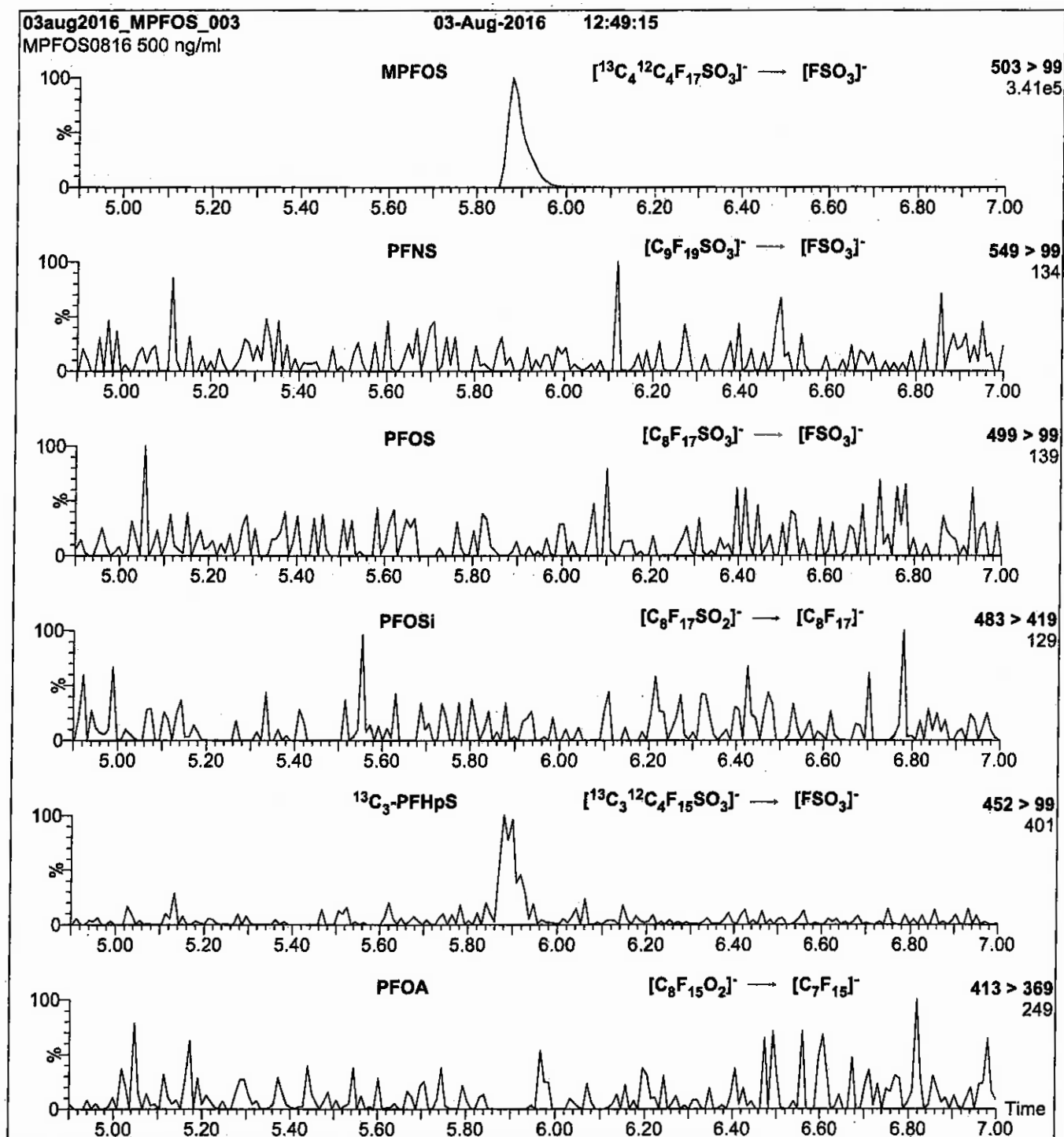
Flow: 300 μ l/min

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 $\mu\text{l}/\text{min}$

MS Parameters

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

Reagent

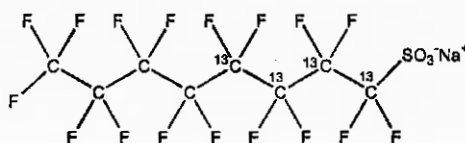
LCMPFOS_00021



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1216
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 526.08
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
 47.8 ± 2.4 µg/ml (MPFOS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/12/2016 (1,2,3,4-¹³C₄)
EXPIRY DATE: (mm/dd/yyyy) 12/12/2021
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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.
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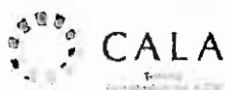
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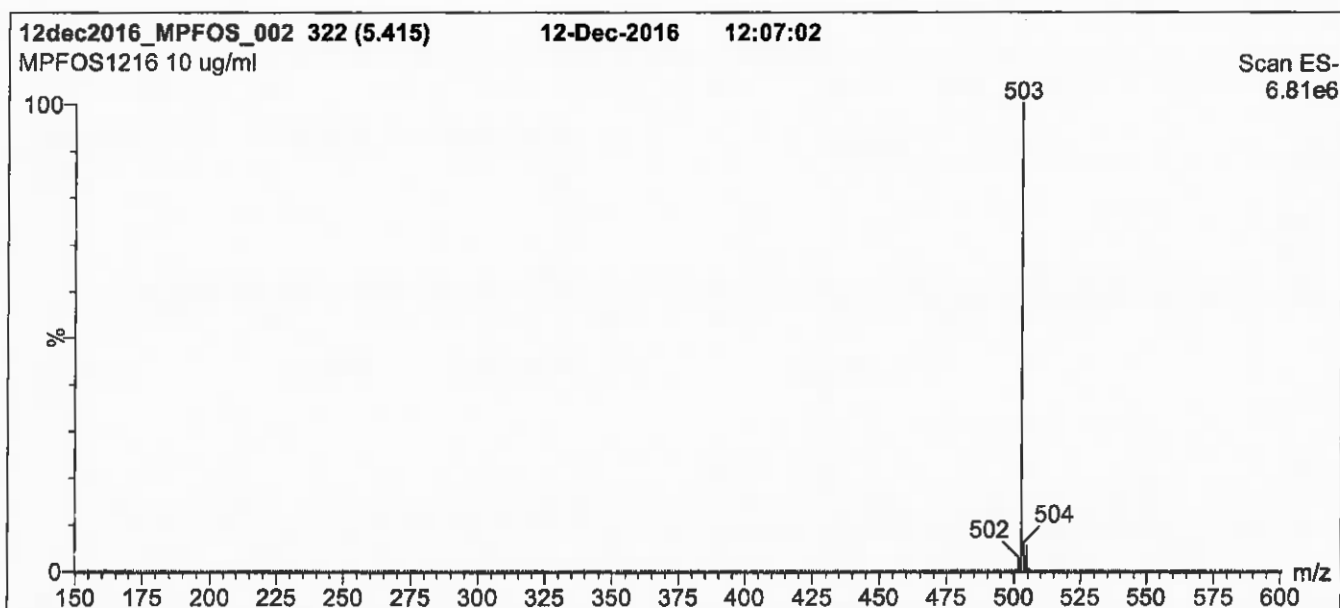
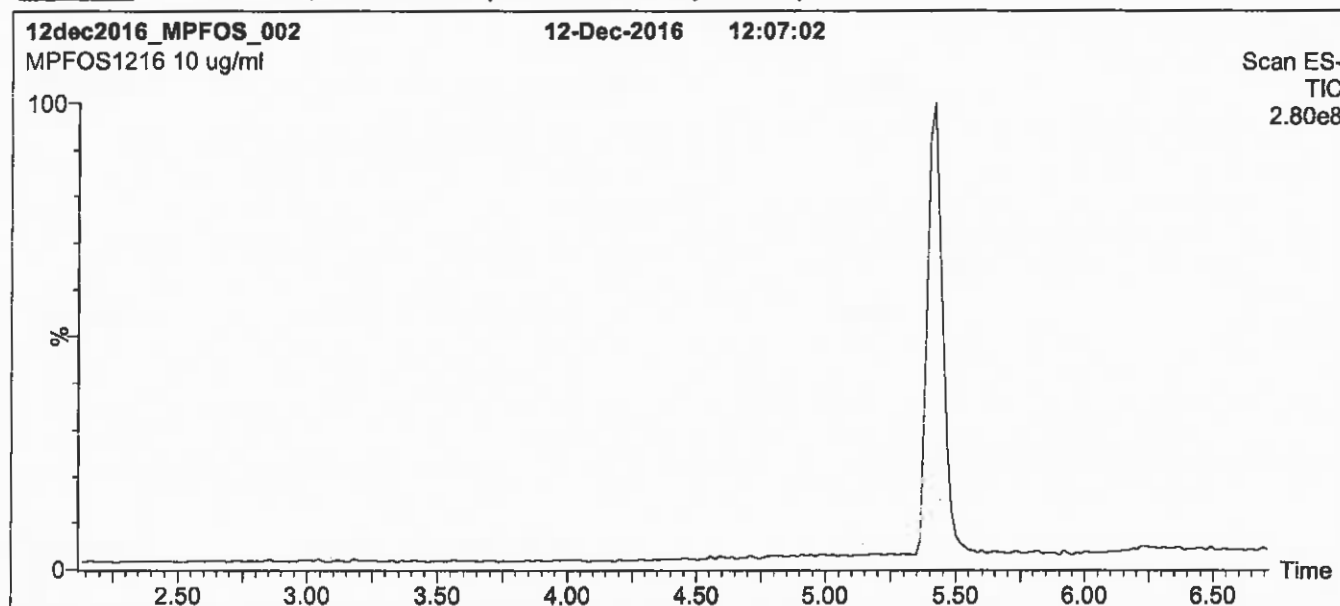
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MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc 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 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)

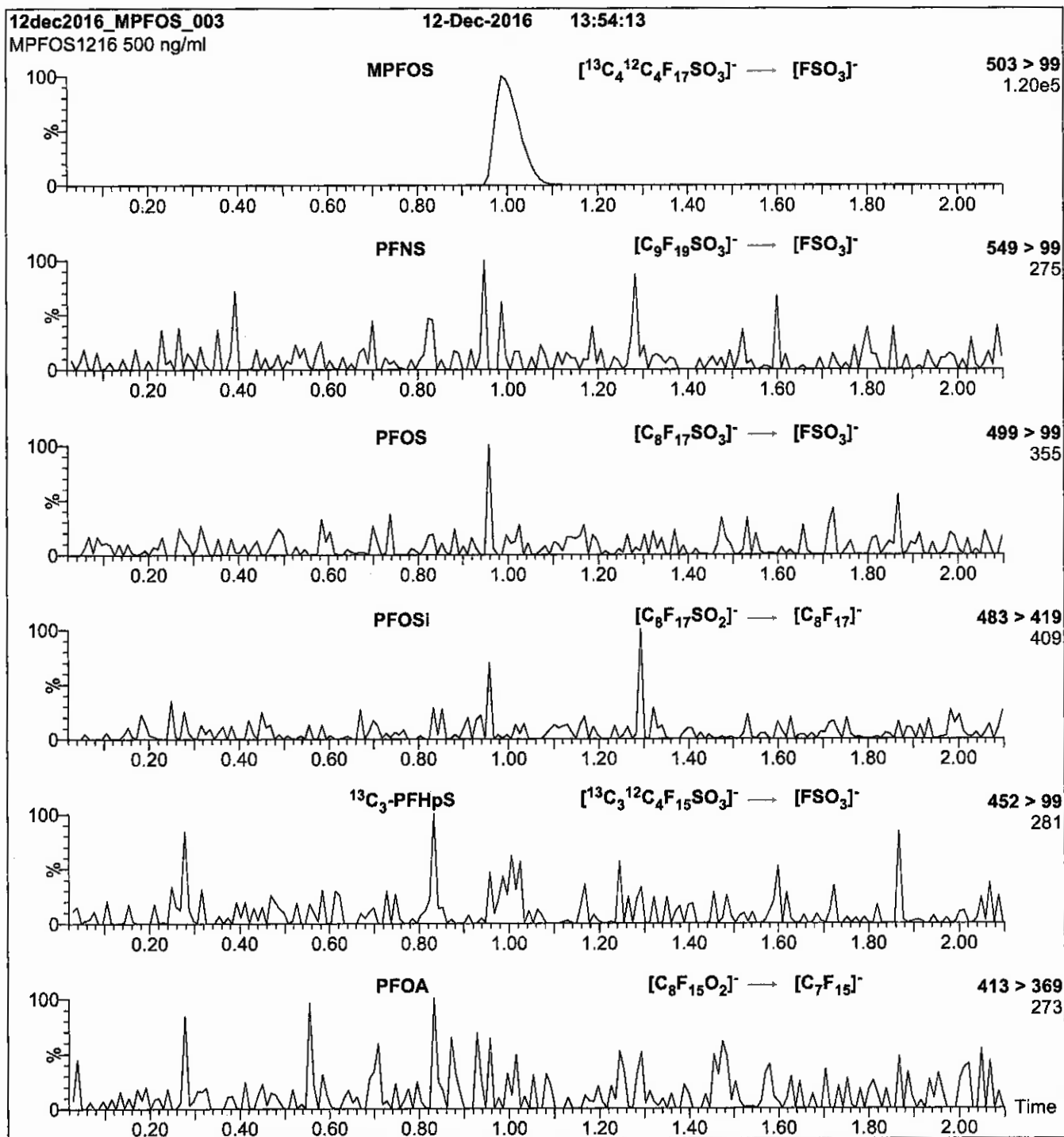
Capillary Voltage (kV) = 3.00

Cone Voltage (V) = 60.00

Cone Gas Flow (l/hr) = 50

Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

Flow: 300 $\mu\text{l}/\text{min}$

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.: 320-35150-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-011718-RW-278	320-35150-1	94	102
NAWC-011718-FRB-278	320-35150-2	97	96
NAWC-011718-RW-235	320-35150-3	86	95
NAWC-011718-FRB-235	320-35150-4	99	101
NAWC-011718-RW-91	320-35150-5	97	99
NAWC-011718-FRB-91	320-35150-6	94	99
NAWC-011718-RW-228	320-35150-7	95	101
NAWC-011718-FRB-228	320-35150-8	90	93
NAWC-011718-RW-237	320-35150-9	94	99
NAWC-011718-FRB-237	320-35150-10	95	97
NAWC-011718-RW-244	320-35150-11	82	92
NAWC-011718-FRB-244	320-35150-12	94	95
NAWC-011718-DUP-21	320-35150-13	85	94
NAWC-011718-RW-240	320-35150-14	88	93
NAWC-011718-FRB-240	320-35150-15	101	101
NAWC-011718-RW-249	320-35150-16	96	100
NAWC-011718-FRB-249	320-35150-17	97	102
	MB 320-206282/1-A	94	106
	LLCS 320-206282/2-A	91	99
	LLCSD 320-206282/3-A	93	97

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.02.05_537B_025.d
 Lab ID: LLCS 320-206282/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	38.4 J	96	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	18.8 J	94	50-150	
Perfluorononanoic acid (PFNA)	20.0	18.2 J	91	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	30.9	103	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	9.97 J	100	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	87.5 J	97	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.02.05_537B_026.d
 Lab ID: LLCSD 320-206282/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.0	38.0 J	95	1	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	19.9 J	99	6	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	17.4 J	87	4	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.6	105	2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	10.4	104	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	94.2	105	7	50	50-150	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab File ID: 2018.02.05_537B_024.d Lab Sample ID: MB 320-206282/1-A
 Matrix: Water Date Extracted: 01/31/2018 07:27
 Instrument ID: A8_N Date Analyzed: 02/06/2018 03:29
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-206282/2-A	2018.02.05_537B_025.d	02/06/2018 03:33
	LLCSD 320-206282/3-A	2018.02.05_537B_026.d	02/06/2018 03:38
NAWC-011718-RW-278	320-35150-1	2018.02.05_537B_027.d	02/06/2018 03:43
NAWC-011718-FRB-278	320-35150-2	2018.02.05_537B_028.d	02/06/2018 03:47
NAWC-011718-RW-235	320-35150-3	2018.02.05_537B_029.d	02/06/2018 03:52
NAWC-011718-FRB-235	320-35150-4	2018.02.05_537B_030.d	02/06/2018 03:57
NAWC-011718-RW-91	320-35150-5	2018.02.05_537B_031.d	02/06/2018 04:01
NAWC-011718-FRB-91	320-35150-6	2018.02.05_537B_032.d	02/06/2018 04:06
NAWC-011718-RW-228	320-35150-7	2018.02.05_537B_033.d	02/06/2018 04:11
NAWC-011718-FRB-228	320-35150-8	2018.02.05_537B_036.d	02/06/2018 04:25
NAWC-011718-RW-237	320-35150-9	2018.02.05_537B_037.d	02/06/2018 04:29
NAWC-011718-FRB-237	320-35150-10	2018.02.05_537B_038.d	02/06/2018 04:34
NAWC-011718-RW-244	320-35150-11	2018.02.05_537B_039.d	02/06/2018 04:39
NAWC-011718-FRB-244	320-35150-12	2018.02.05_537B_040.d	02/06/2018 04:43
NAWC-011718-DUP-21	320-35150-13	2018.02.05_537B_041.d	02/06/2018 04:48
NAWC-011718-RW-240	320-35150-14	2018.02.05_537B_042.d	02/06/2018 04:53
NAWC-011718-FRB-240	320-35150-15	2018.02.05_537B_043.d	02/06/2018 04:57
NAWC-011718-RW-249	320-35150-16	2018.02.05_537B_044.d	02/06/2018 05:02
NAWC-011718-FRB-249	320-35150-17	2018.02.05_537B_045.d	02/06/2018 05:07

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192908/11		1586829	1.91	3305852	2.15		
ICV 320-192908/13		1512045	1.90	3433628	2.14		
CCV 320-207066/1 CCVIS		1260866	1.81	2846644	2.06		
MB 320-206282/1-A		1590401	1.81	3298203	2.06		
LLCS 320-206282/2-A		1673441	1.81	3462485	2.06		
LLCSD 320-206282/3-A		1695147	1.81	3462268	2.06		
320-35150-1	NAWC-011718-RW-278	1595642	1.81	3650305	2.06		
320-35150-2	NAWC-011718-FRB-278	1672340	1.81	3489833	2.06		
320-35150-3	NAWC-011718-RW-235	1753544	1.81	3611847	2.05		
320-35150-4	NAWC-011718-FRB-235	1567003	1.81	3601955	2.06		
320-35150-5	NAWC-011718-RW-91	1631984	1.81	3483217	2.06		
320-35150-6	NAWC-011718-FRB-91	1684554	1.81	3494467	2.06		
320-35150-7	NAWC-011718-RW-228	1608076	1.81	3499608	2.05		
CCV 320-207066/13 CCVIS		1333970	1.81	3011017	2.06		
CCV 320-207068/13 CCVIS		1333970	1.81	3011017	2.06		
320-35150-8	NAWC-011718-FRB-228	1639446	1.81	3457689	2.06		
320-35150-9	NAWC-011718-RW-237	1661892	1.80	3437859	2.05		
320-35150-10	NAWC-011718-FRB-237	1627067	1.80	3461102	2.05		
320-35150-11	NAWC-011718-RW-244	1805674	1.81	3652524	2.06		
320-35150-12	NAWC-011718-FRB-244	1700175	1.81	3588726	2.06		
320-35150-13	NAWC-011718-DUP-21	1746441	1.81	3473807	2.06		
320-35150-14	NAWC-011718-RW-240	1784061	1.80	3684979	2.05		
320-35150-15	NAWC-011718-FRB-240	1630433	1.81	3480691	2.06		
320-35150-16	NAWC-011718-RW-249	1680169	1.81	3580581	2.06		
320-35150-17	NAWC-011718-FRB-249	1593118	1.80	3519233	2.05		
CCV 320-207068/25 CCVIS		1366090	1.80	3041172	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207066/1 Date Analyzed: 02/06/2018 03:19
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_022 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS		AREA #		RT #
		AREA #	RT #	AREA #	RT #			
12/24 HOUR STD		1260866	1.81	2846644	2.06			
UPPER LIMIT		1765212	2.31	3985302	2.56			
LOWER LIMIT		882606	1.31	1992651	1.56			
LAB SAMPLE ID	CLIENT SAMPLE ID							
MB 320-206282/1-A		1590401	1.81	3298203	2.06			
LLCS 320-206282/2-A		1673441	1.81	3462485	2.06			
LLCSD 320-206282/3-A		1695147	1.81	3462268	2.06			
320-35150-1	NAWC-011718-RW-278	1595642	1.81	3650305	2.06			
320-35150-2	NAWC-011718-FRB-278	1672340	1.81	3489833	2.06			
320-35150-3	NAWC-011718-RW-235	1753544	1.81	3611847	2.05			
320-35150-4	NAWC-011718-FRB-235	1567003	1.81	3601955	2.06			
320-35150-5	NAWC-011718-RW-91	1631984	1.81	3483217	2.06			
320-35150-6	NAWC-011718-FRB-91	1684554	1.81	3494467	2.06			
320-35150-7	NAWC-011718-RW-228	1608076	1.81	3499608	2.05			

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207066/13 Date Analyzed: 02/06/2018 04:15
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1333970	1.81	3011017	2.06		
UPPER LIMIT		1867558	2.31	4215424	2.56		
LOWER LIMIT		933779	1.31	2107712	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206282/1-A		1590401	1.81	3298203	2.06		
LLCS 320-206282/2-A		1673441	1.81	3462485	2.06		
LLCSD 320-206282/3-A		1695147	1.81	3462268	2.06		
320-35150-1	NAWC-011718-RW-278	1595642	1.81	3650305	2.06		
320-35150-2	NAWC-011718-FRB-278	1672340	1.81	3489833	2.06		
320-35150-3	NAWC-011718-RW-235	1753544	1.81	3611847	2.05		
320-35150-4	NAWC-011718-FRB-235	1567003	1.81	3601955	2.06		
320-35150-5	NAWC-011718-RW-91	1631984	1.81	3483217	2.06		
320-35150-6	NAWC-011718-FRB-91	1684554	1.81	3494467	2.06		
320-35150-7	NAWC-011718-RW-228	1608076	1.81	3499608	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207068/13 Date Analyzed: 02/06/2018 04:15
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1333970	1.81	3011017	2.06		
UPPER LIMIT		1867558	2.31	4215424	2.56		
LOWER LIMIT		933779	1.31	2107712	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35150-8	NAWC-011718-FRB-228	1639446	1.81	3457689	2.06		
320-35150-9	NAWC-011718-RW-237	1661892	1.80	3437859	2.05		
320-35150-10	NAWC-011718-FRB-237	1627067	1.80	3461102	2.05		
320-35150-11	NAWC-011718-RW-244	1805674	1.81	3652524	2.06		
320-35150-12	NAWC-011718-FRB-244	1700175	1.81	3588726	2.06		
320-35150-13	NAWC-011718-DUP-21	1746441	1.81	3473807	2.06		
320-35150-14	NAWC-011718-RW-240	1784061	1.80	3684979	2.05		
320-35150-15	NAWC-011718-FRB-240	1630433	1.81	3480691	2.06		
320-35150-16	NAWC-011718-RW-249	1680169	1.81	3580581	2.06		
320-35150-17	NAWC-011718-FRB-249	1593118	1.80	3519233	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207068/25 Date Analyzed: 02/06/2018 05:11
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_046 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1366090	1.80	3041172	2.05		
UPPER LIMIT		1912526	2.30	4257641	2.55		
LOWER LIMIT		956263	1.30	2128820	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35150-8	NAWC-011718-FRB-228	1639446	1.81	3457689	2.06		
320-35150-9	NAWC-011718-RW-237	1661892	1.80	3437859	2.05		
320-35150-10	NAWC-011718-FRB-237	1627067	1.80	3461102	2.05		
320-35150-11	NAWC-011718-RW-244	1805674	1.81	3652524	2.06		
320-35150-12	NAWC-011718-FRB-244	1700175	1.81	3588726	2.06		
320-35150-13	NAWC-011718-DUP-21	1746441	1.81	3473807	2.06		
320-35150-14	NAWC-011718-RW-240	1784061	1.80	3684979	2.05		
320-35150-15	NAWC-011718-FRB-240	1630433	1.81	3480691	2.06		
320-35150-16	NAWC-011718-RW-249	1680169	1.81	3580581	2.06		
320-35150-17	NAWC-011718-FRB-249	1593118	1.80	3519233	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-278</u>	Lab Sample ID: <u>320-35150-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_027.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 08:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>255 (mL)</u>	Date Analyzed: <u>02/06/2018 03:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	21		20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.8	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_027.d
 Lims ID: 320-35150-A-1-A
 Client ID: NAWC-011718-RW-278
 Sample Type: Client
 Inject. Date: 06-Feb-2018 03:43:05 ALS Bottle#: 15 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:21:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	185313	1.30		176	
298.90 > 99.00	1.373	1.373	0.0	1.000	144012		1.29(0.00-0.00)	303	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	1646647	9.38		7142	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	161082	0.7560		87.2	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	298315	2.00		48.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1595642	10.0		5796	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	796459	5.39		90.8	
413.00 > 169.00	1.813	1.813	0.0	1.000	474082		1.68(0.00-0.00)	981	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	610493	5.11		198	Ma
499.00 > 99.00	2.056	2.048	0.008	1.000	111615		5.47(0.00-0.00)	156	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3650305	28.7		3261	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.071	-0.007	1.000	66634	0.6288		7.9	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1245928	10.2		7996	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_027.d

Injection Date: 06-Feb-2018 03:43:05

Instrument ID: A8_N

Lims ID: 320-35150-A-1-A

Lab Sample ID: 320-35150-1

Client ID: NAWC-011718-RW-278

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

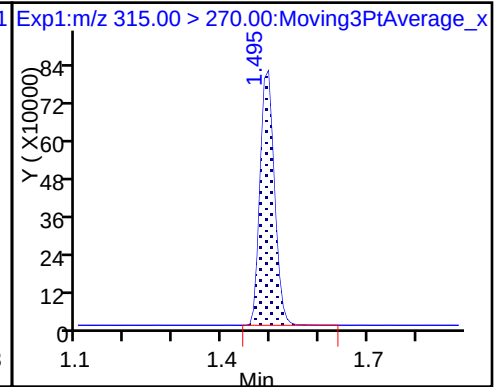
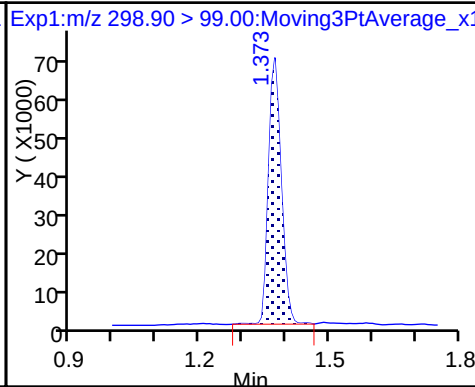
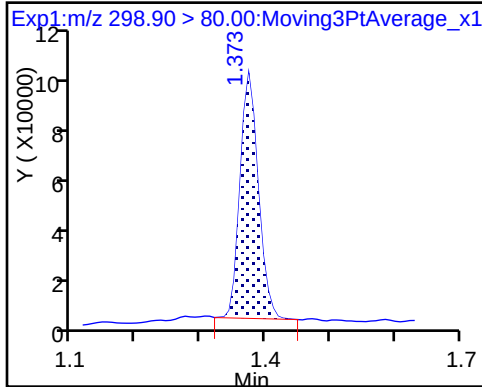
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

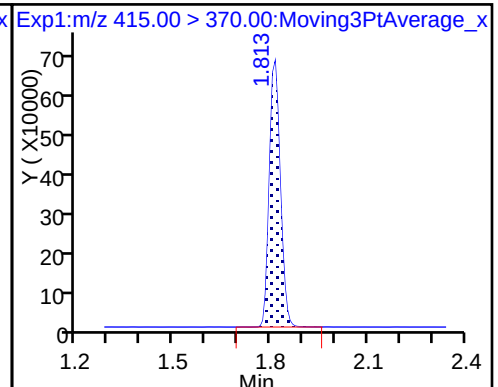
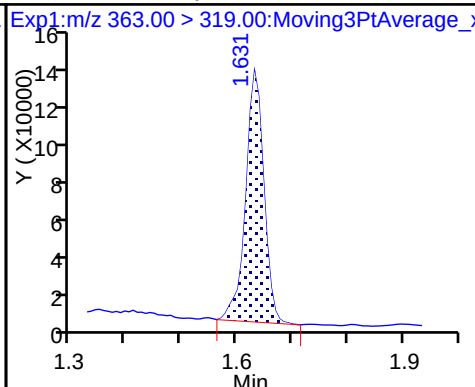
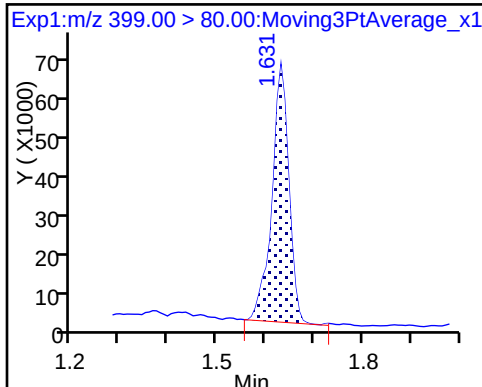
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

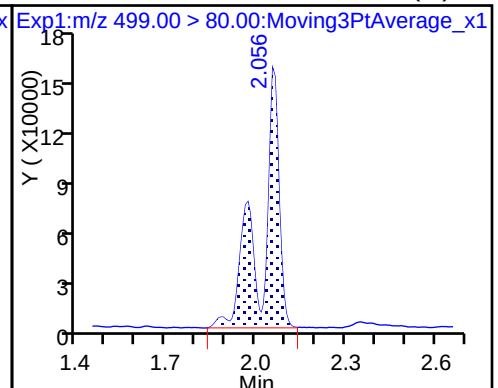
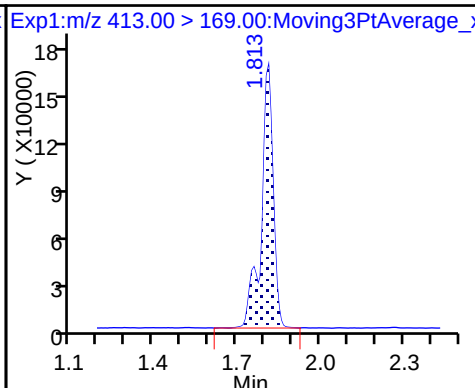
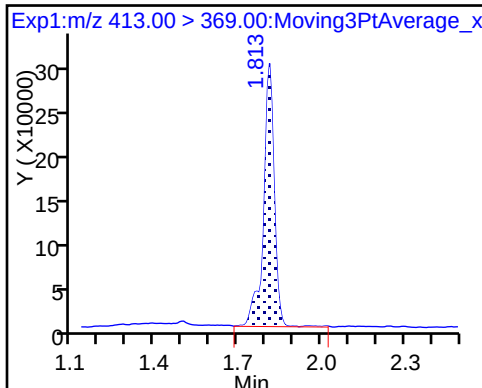
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

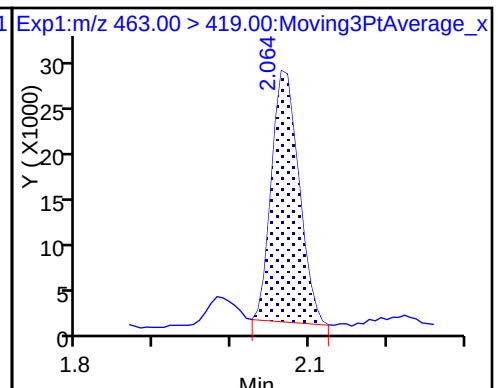
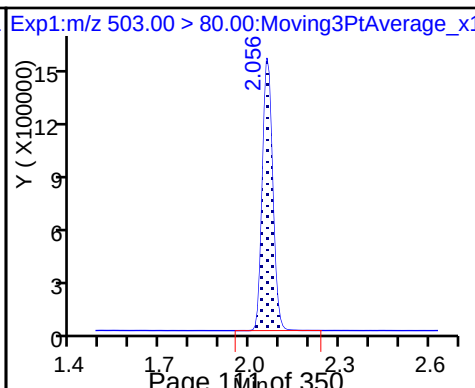
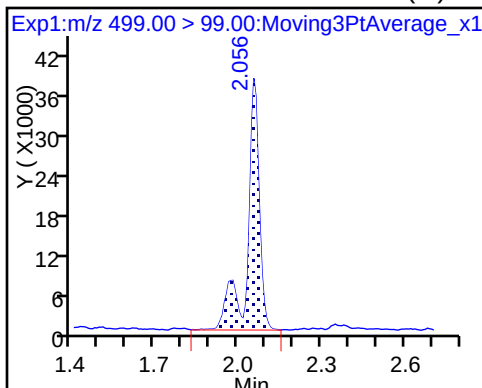
8 Perfluorooctane sulfonic acid (M)



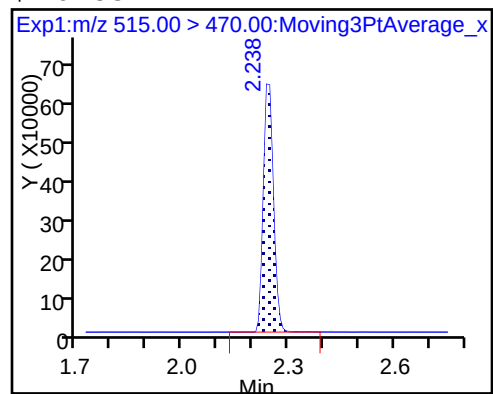
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_027.d
Lims ID: 320-35150-A-1-A
Client ID: NAWC-011718-RW-278
Sample Type: Client
Inject. Date: 06-Feb-2018 03:43:05 ALS Bottle#: 15 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:21:45

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.38	93.79
\$ 10 13C2 PFDA	10.0	10.2	102.04

TestAmerica Sacramento

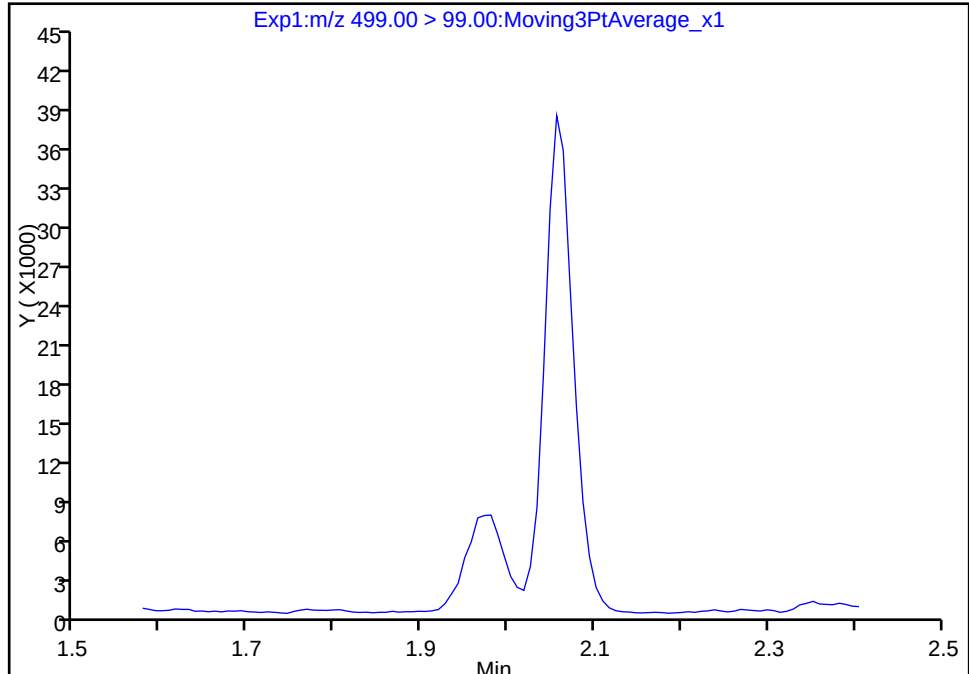
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Injection Date:	06-Feb-2018 03:43:05	Instrument ID:	A8_N		
Lims ID:	320-35150-A-1-A	Lab Sample ID:	320-35150-1		
Client ID:	NAWC-011718-RW-278				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	15	Worklist Smp#:	6
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

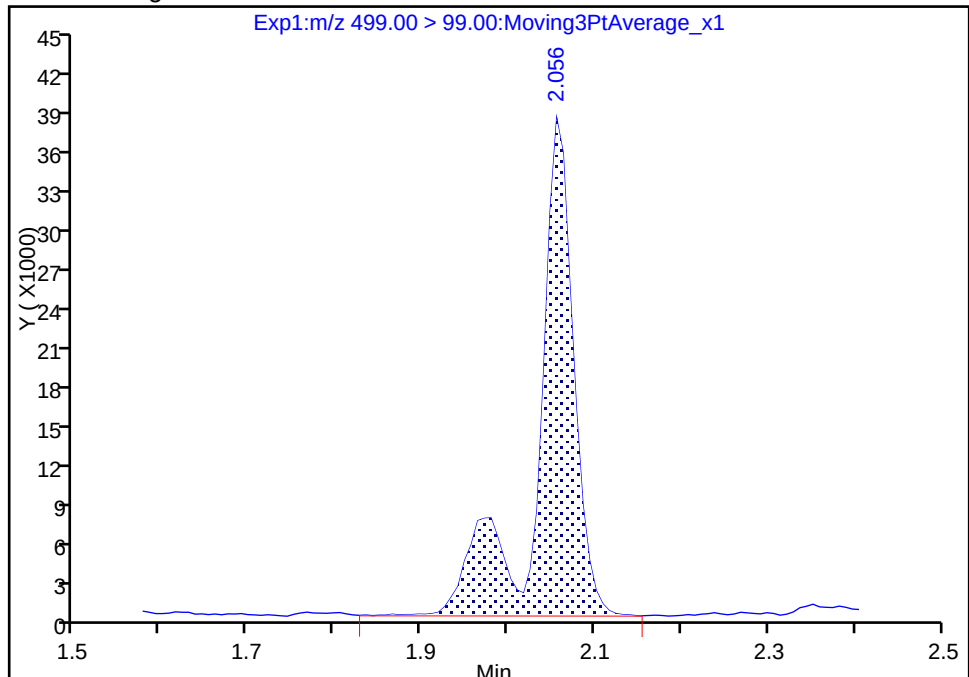
Signal: 2

Not Detected
Expected RT: 2.05

Processing Integration Results

RT: 2.06
Area: 111615
Amount: 5.108446
Amount Units: ng/ml

Manual Integration Results

Reviewer: barnettj, 06-Feb-2018 14:21:26
Audit Action: Manually IntegratedAudit Reason: Assign Peak
Page 114 of 350

TestAmerica Sacramento

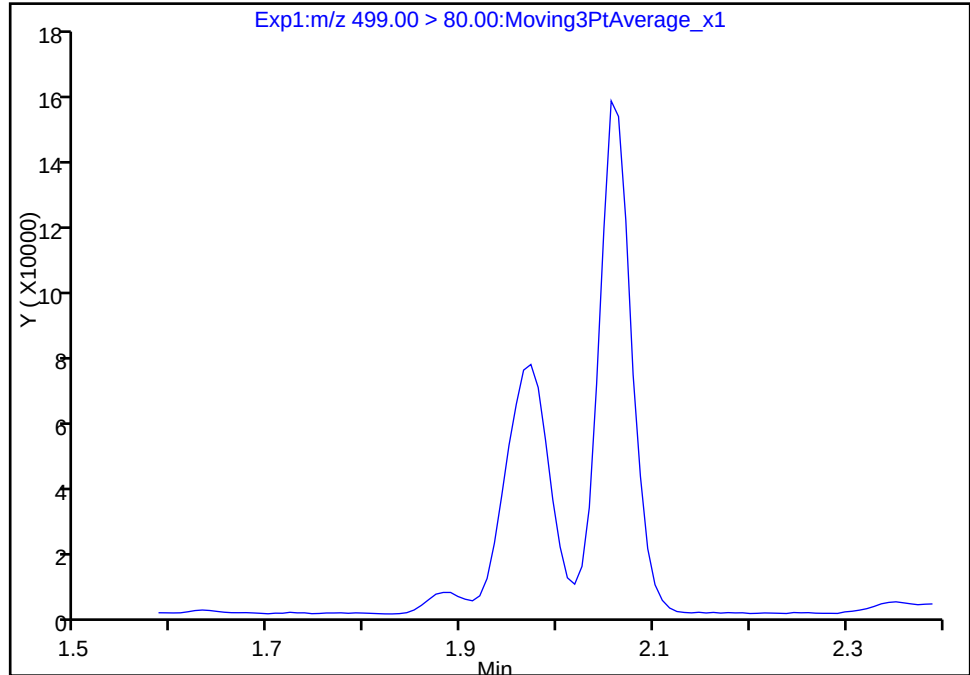
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Injection Date: 06-Feb-2018 03:43:05 Instrument ID: A8_N
Lims ID: 320-35150-A-1-A Lab Sample ID: 320-35150-1
Client ID: NAWC-011718-RW-278
Operator ID: SACINSTLCMS01 ALS Bottle#: 15 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

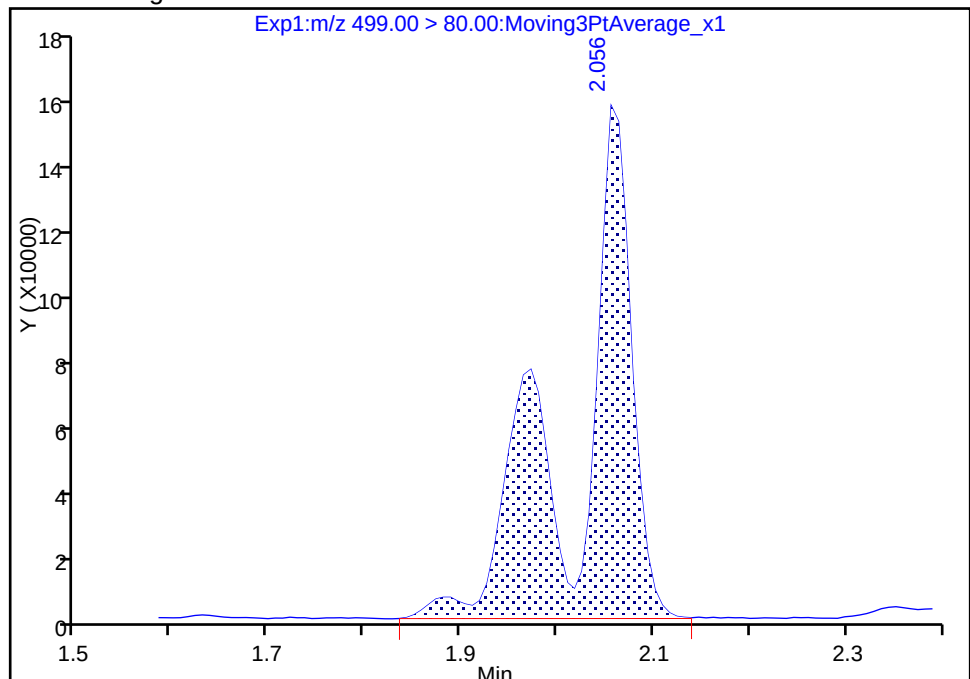
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 610493
Amount: 5.108446
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:21:26

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-278</u>	Lab Sample ID: <u>320-35150-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_028.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 08:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>252.1 (mL)</u>	Date Analyzed: <u>02/06/2018 03:47</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

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	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_028.d
 Lims ID: 320-35150-A-2-A
 Client ID: NAWC-011718-FRB-278
 Sample Type: Client
 Inject. Date: 06-Feb-2018 03:47:44 ALS Bottle#: 16 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1786174	9.71		9212	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1672340	10.0		6011	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3489833	28.7		7062	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1234476	9.65		7348	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_028.d

Injection Date: 06-Feb-2018 03:47:44

Instrument ID: A8_N

Lims ID: 320-35150-A-2-A

Lab Sample ID: 320-35150-2

Client ID: NAWC-011718-FRB-278

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

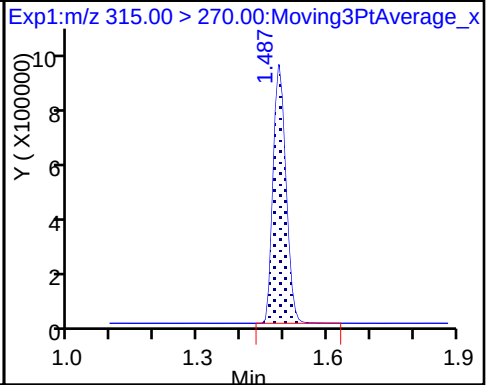
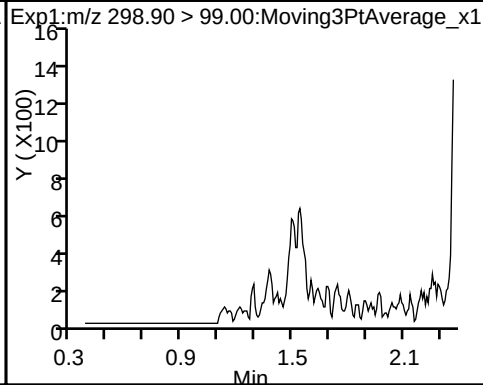
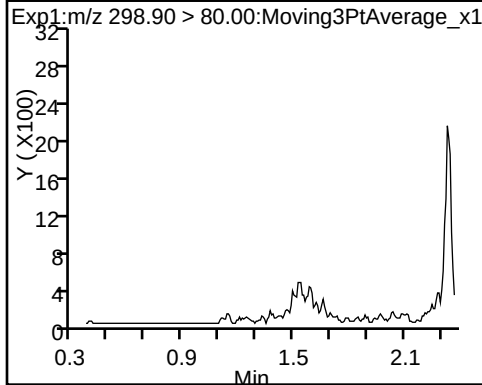
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

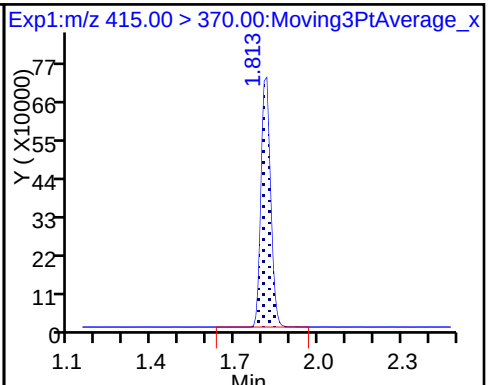
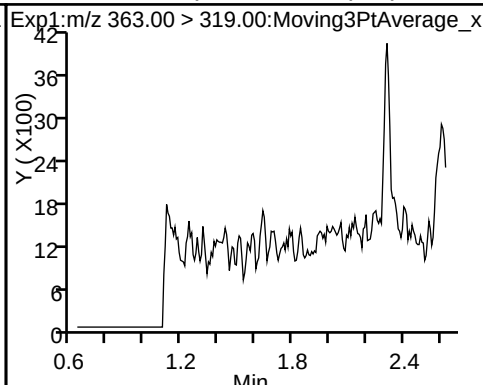
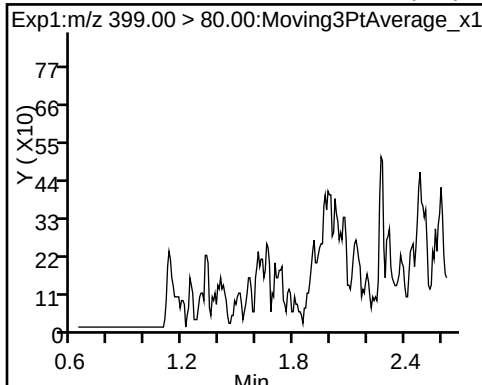
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

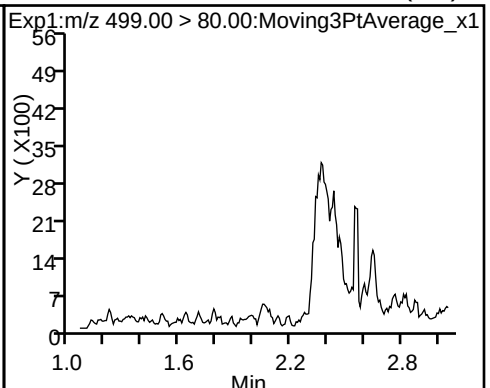
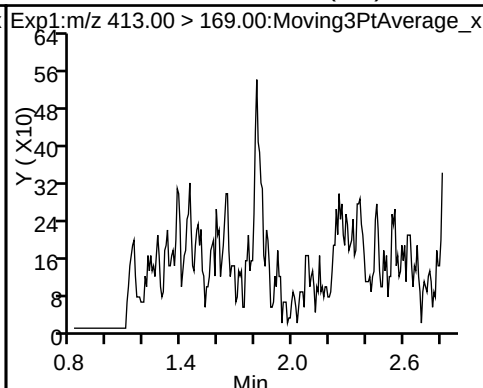
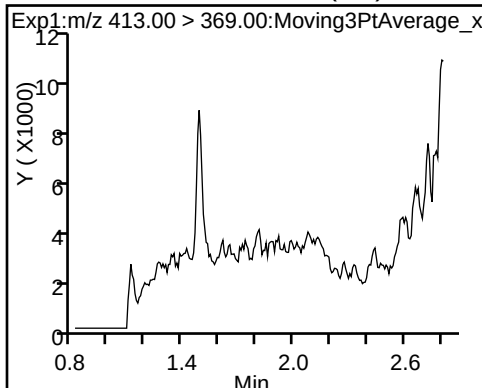
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

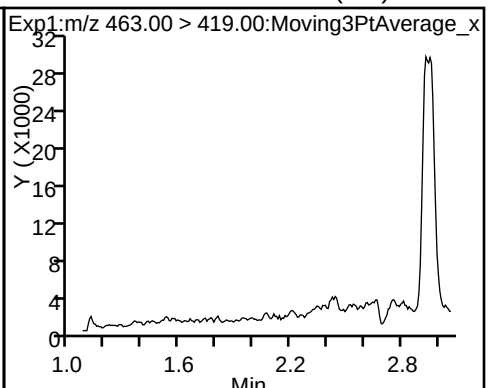
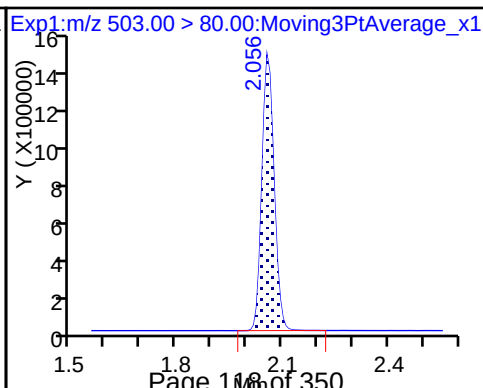
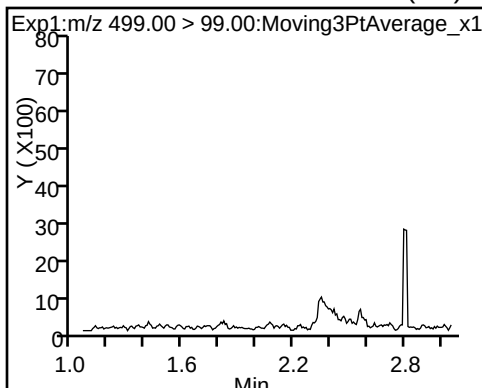
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

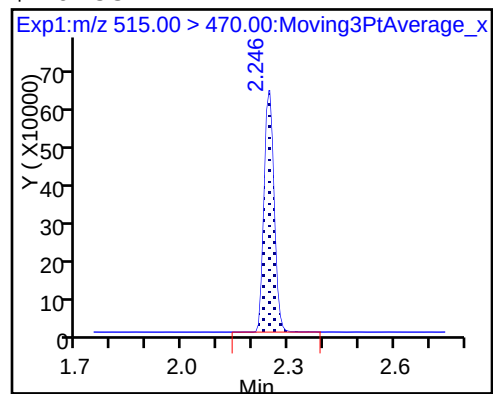


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_028.d
Lims ID: 320-35150-A-2-A
Client ID: NAWC-011718-FRB-278
Sample Type: Client
Inject. Date: 06-Feb-2018 03:47:44 ALS Bottle#: 16 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.71	97.07
\$ 10 13C2 PFDA	10.0	9.65	96.47

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-235</u>	Lab Sample ID: <u>320-35150-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 09:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>247(mL)</u>	Date Analyzed: <u>02/06/2018 03:52</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	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	86		70-130
STL00996	13C2 PFDA	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_029.d
 Lims ID: 320-35150-A-3-A
 Client ID: NAWC-011718-RW-235
 Sample Type: Client
 Inject. Date: 06-Feb-2018 03:52:26 ALS Bottle#: 17 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:25:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	163205	1.16		170	
298.90 > 99.00	1.366	1.373	-0.007	1.000	122319		1.33(0.00-0.00)	257	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.495	-0.016	1.000	1660150	8.60		7263	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	328170	1.56		220	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	249223	1.52		53.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1753544	10.0		6598	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	508417	3.13		67.7	
413.00 > 169.00	1.806	1.813	-0.007	1.000	315989		1.61(0.00-0.00)	814	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	331542	2.80		107	Ma
499.00 > 99.00	2.048	2.048	0.0	0.996	59979		5.53(0.00-0.00)	87.3	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.064	-0.016		3611847	28.7		4254	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.071	-0.007	1.000	46564	0.3998		6.6	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1275453	9.51		9149	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_029.d

Injection Date: 06-Feb-2018 03:52:26

Instrument ID: A8_N

Lims ID: 320-35150-A-3-A

Lab Sample ID: 320-35150-3

Client ID: NAWC-011718-RW-235

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

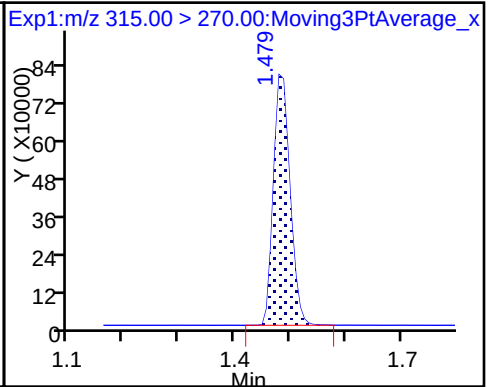
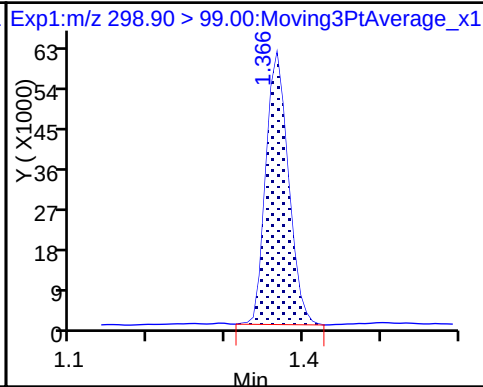
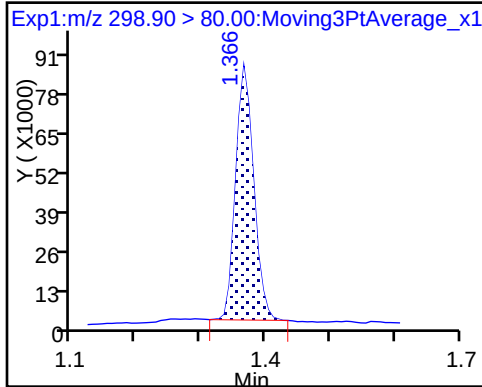
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

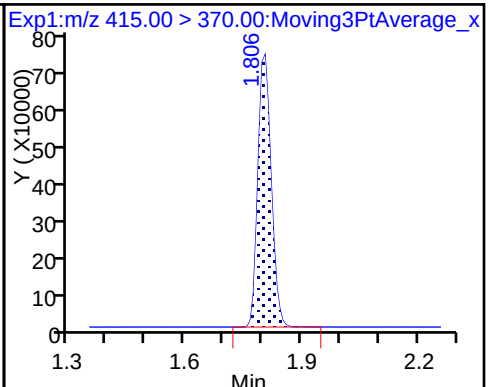
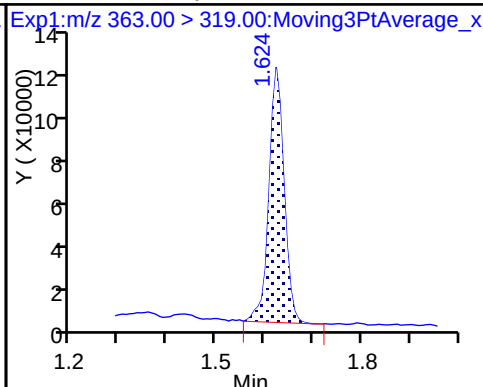
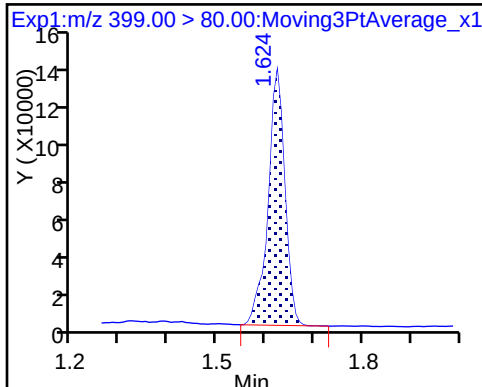
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

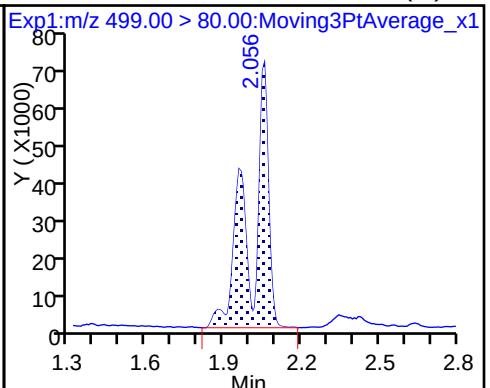
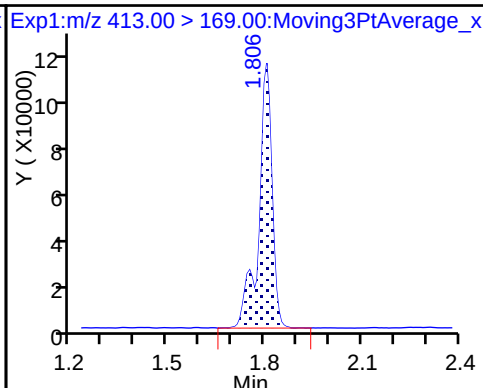
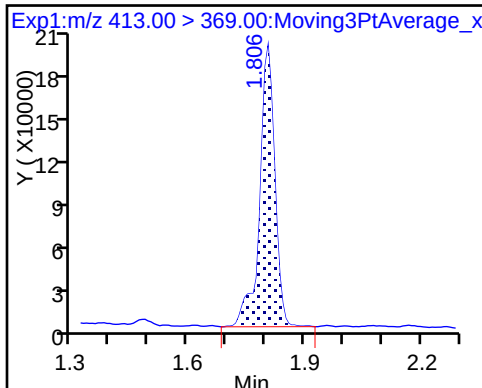
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

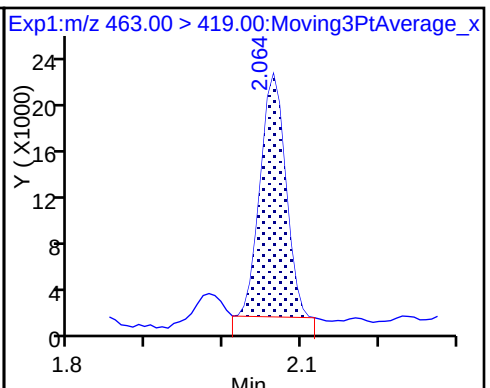
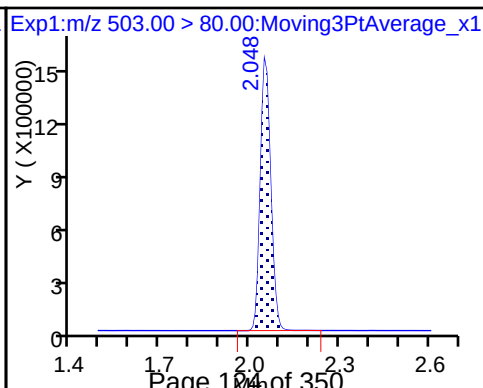
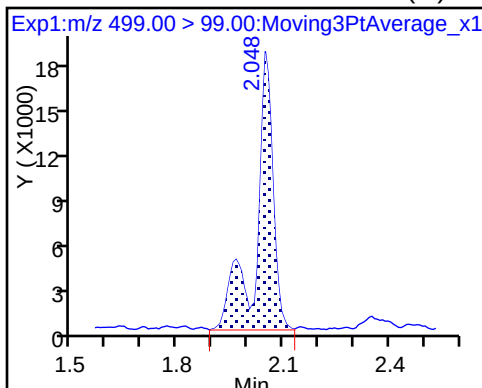
8 Perfluorooctane sulfonic acid (M)



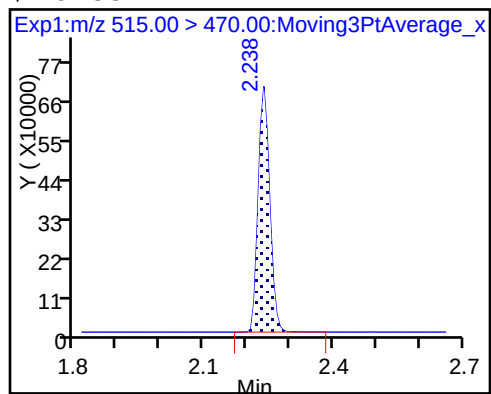
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_029.d
Lims ID: 320-35150-A-3-A
Client ID: NAWC-011718-RW-235
Sample Type: Client
Inject. Date: 06-Feb-2018 03:52:26 ALS Bottle#: 17 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:25:53

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.60	86.04
\$ 10 13C2 PFDA	10.0	9.51	95.05

TestAmerica Sacramento

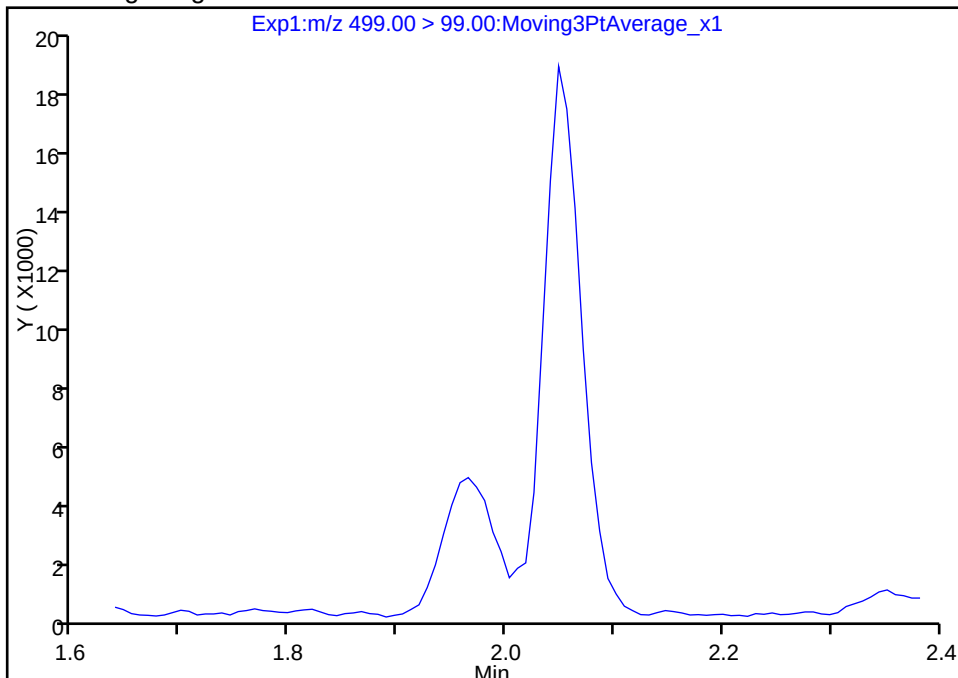
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_029.d				
Injection Date:	06-Feb-2018 03:52:26	Instrument ID:	A8_N		
Lims ID:	320-35150-A-3-A	Lab Sample ID:	320-35150-3		
Client ID:	NAWC-011718-RW-235				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	17	Worklist Smp#:	8
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

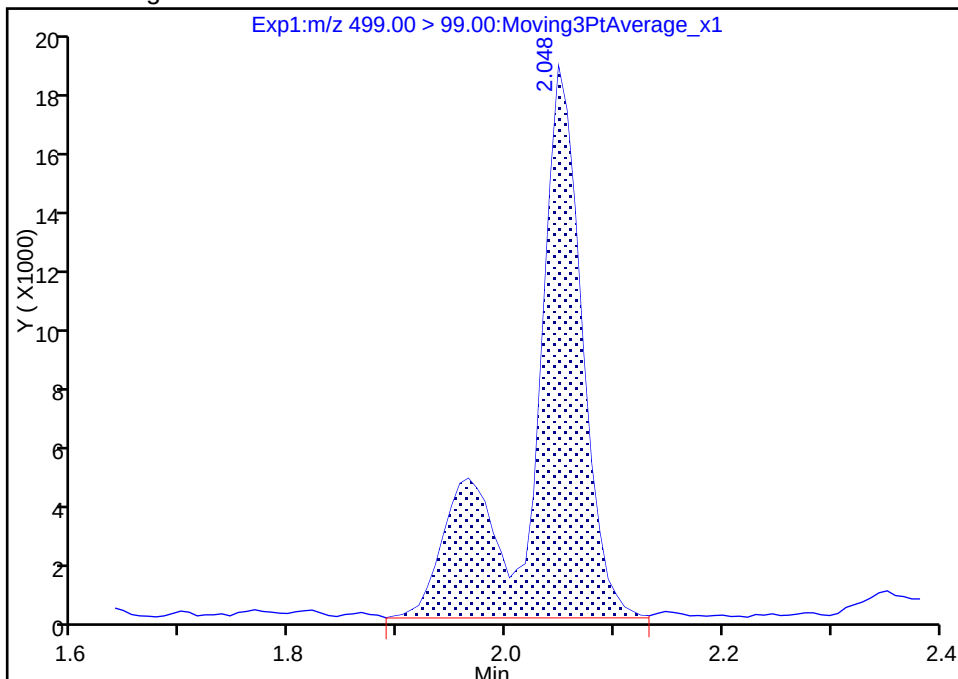
Signal: 2

Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.05
Area: 59979
Amount: 2.803797
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:25:37

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

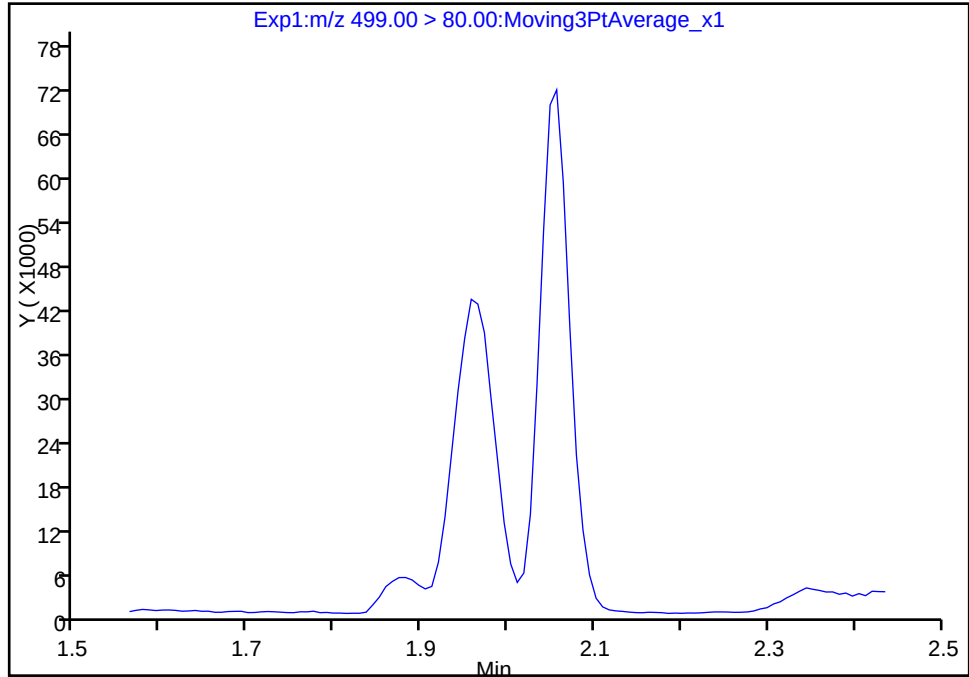
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_029.d
Injection Date: 06-Feb-2018 03:52:26 Instrument ID: A8_N
Lims ID: 320-35150-A-3-A Lab Sample ID: 320-35150-3
Client ID: NAWC-011718-RW-235
Operator ID: SACINSTLCMS01 ALS Bottle#: 17 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

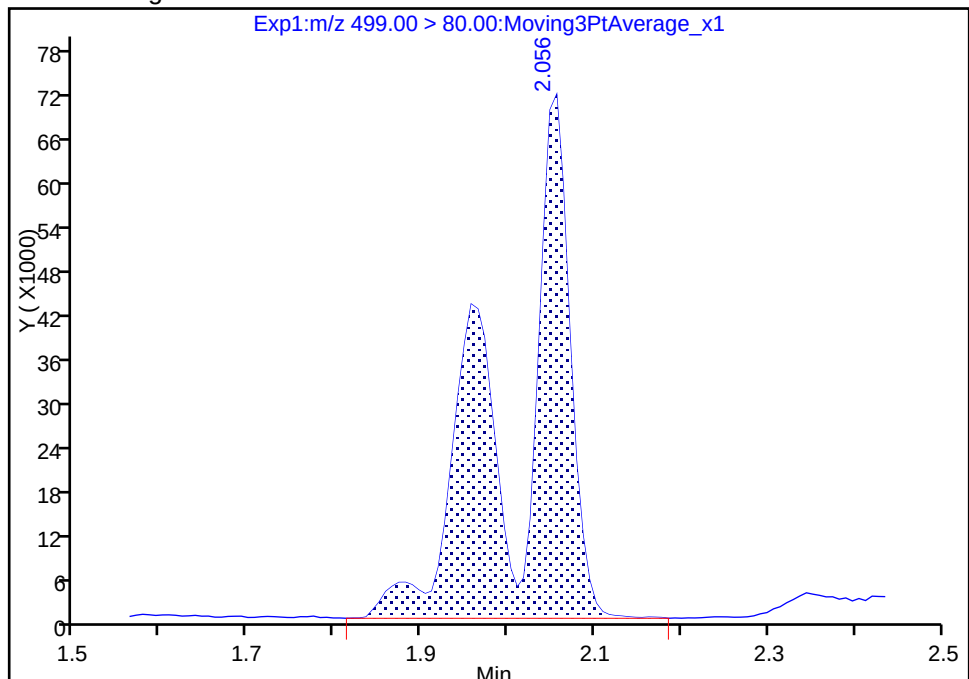
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 331542
Amount: 2.803797
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:25:37

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-235</u>	Lab Sample ID: <u>320-35150-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_030.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 09:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>242.6(mL)</u>	Date Analyzed: <u>02/06/2018 03:57</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

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	99		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_030.d
 Lims ID: 320-35150-A-4-A
 Client ID: NAWC-011718-FRB-235
 Sample Type: Client
 Inject. Date: 06-Feb-2018 03:57:06 ALS Bottle#: 18 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1713331	9.94		8654	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1567003	10.0		5352	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3601955	28.7		7322	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1211320	10.1		7647	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_030.d

Injection Date: 06-Feb-2018 03:57:06

Instrument ID: A8_N

Lims ID: 320-35150-A-4-A

Lab Sample ID: 320-35150-4

Client ID: NAWC-011718-FRB-235

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

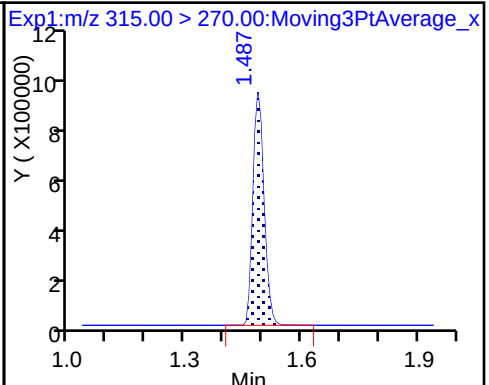
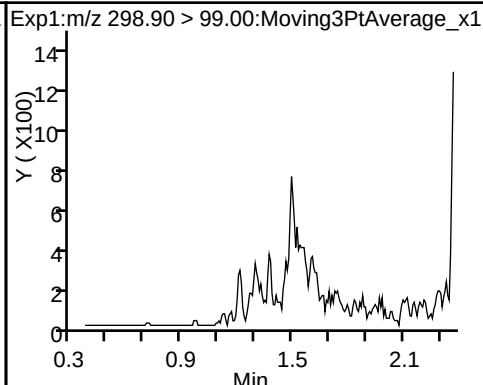
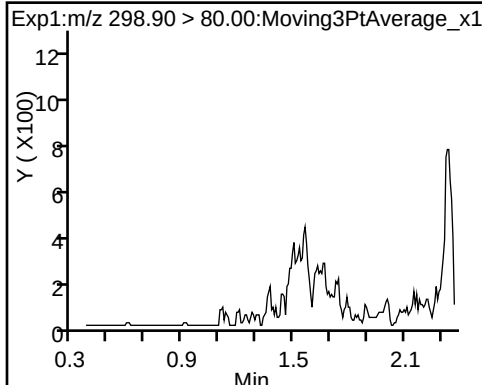
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

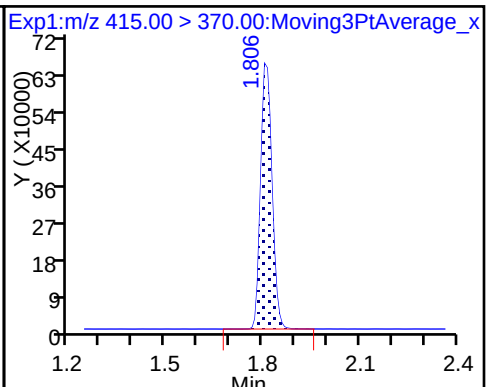
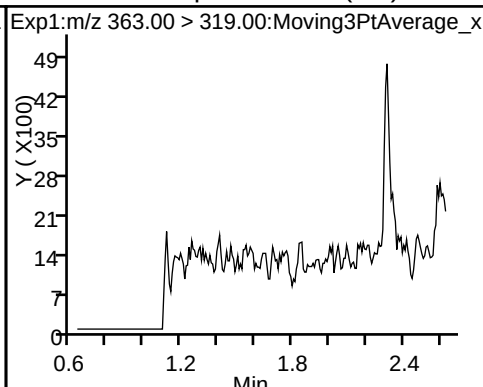
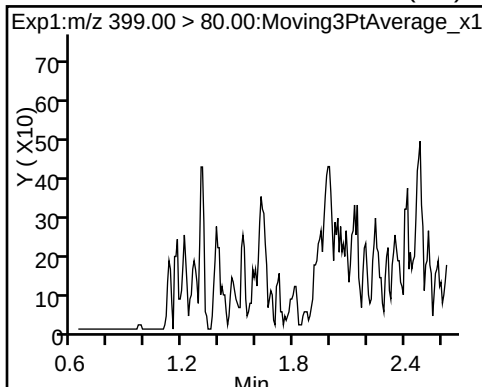
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

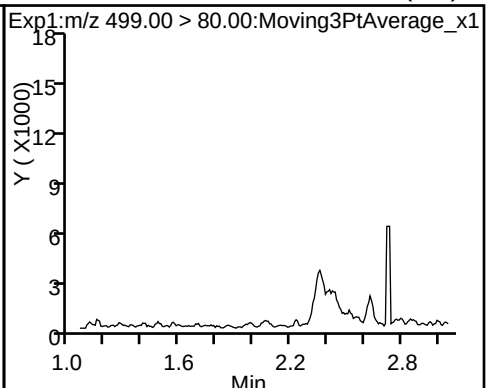
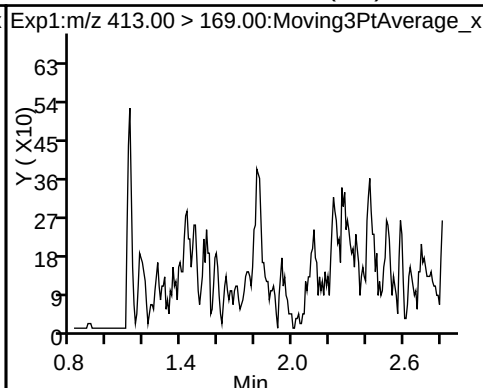
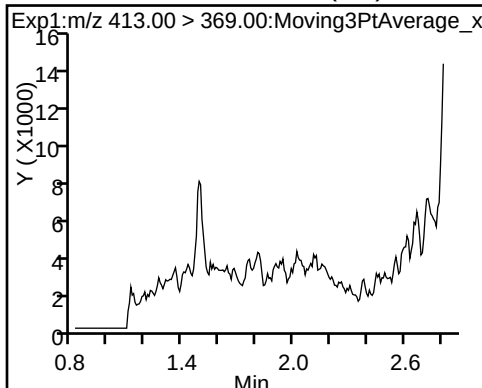
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

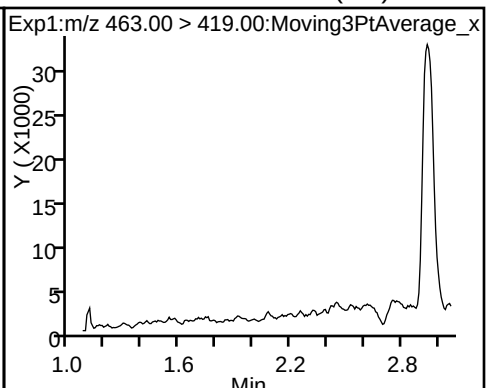
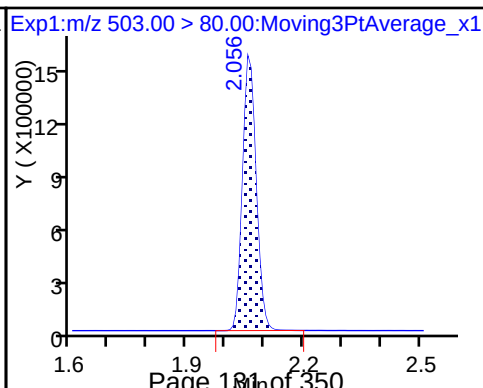
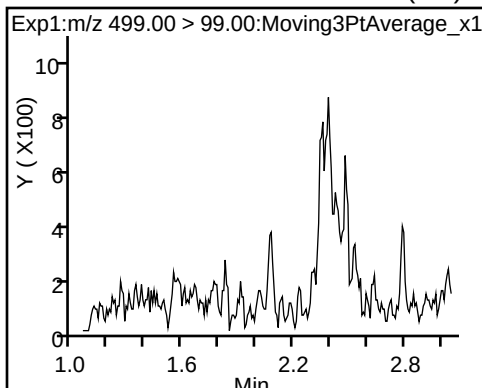
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

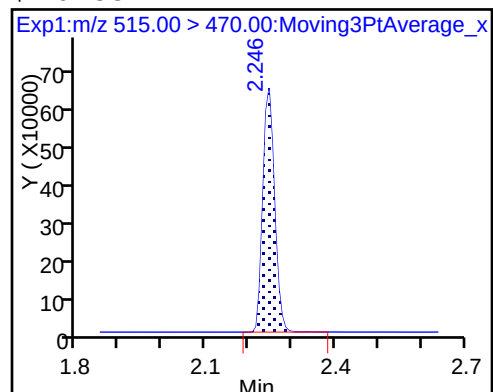


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_030.d
Lims ID: 320-35150-A-4-A
Client ID: NAWC-011718-FRB-235
Sample Type: Client
Inject. Date: 06-Feb-2018 03:57:06 ALS Bottle#: 18 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.94	99.37
\$ 10 13C2 PFDA	10.0	10.1	101.02

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-91</u>	Lab Sample ID: <u>320-35150-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_031.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>244.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:01</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	19	J	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	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	97		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_031.d
 Lims ID: 320-35150-A-5-A
 Client ID: NAWC-011718-RW-91
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:01:46 ALS Bottle#: 19 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:27:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	208959	1.54		344	
298.90 > 99.00	1.373	1.373	0.0	1.000	155116		1.35(0.00-0.00)	332	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	1749964	9.75		7995	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	292545	1.44		311	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	247336	1.62		66.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1631984	10.0		6189	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	707727	4.68		99.7	
413.00 > 169.00	1.813	1.813	0.0	1.000	420248		1.68(0.00-0.00)	1121	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.048	0.016	1.000	549449	4.82		163	Ma
499.00 > 99.00	2.064	2.048	0.016	1.000	91594		6.00(0.00-0.00)	138	M
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		3483217	28.7		5698	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.071	0.0	1.000	56058	0.5172		7.1	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1237250	9.91		7984	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_031.d

Injection Date: 06-Feb-2018 04:01:46

Instrument ID: A8_N

Lims ID: 320-35150-A-5-A

Lab Sample ID: 320-35150-5

Client ID: NAWC-011718-RW-91

Operator ID: SACINSTLCMS01

ALS Bottle#: 19

Worklist Smp#: 10

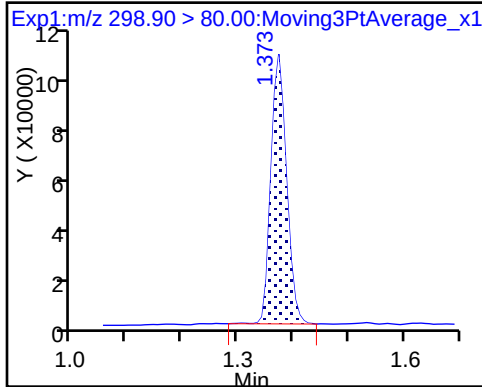
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

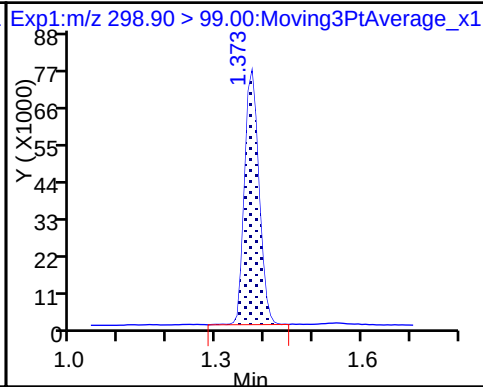
Method: 537_A8_N

Limit Group: LC 537 ICAL

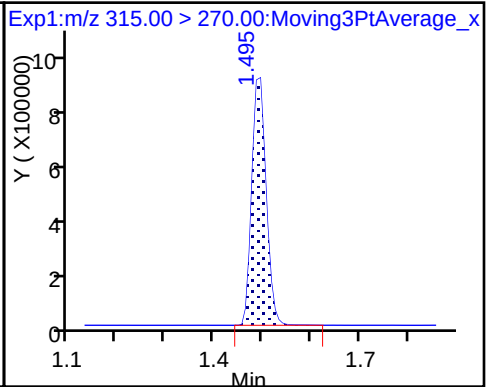
1 Perfluorobutanesulfonic acid



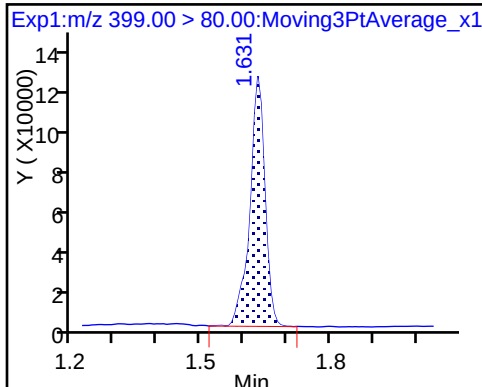
1 Perfluorobutanesulfonic acid



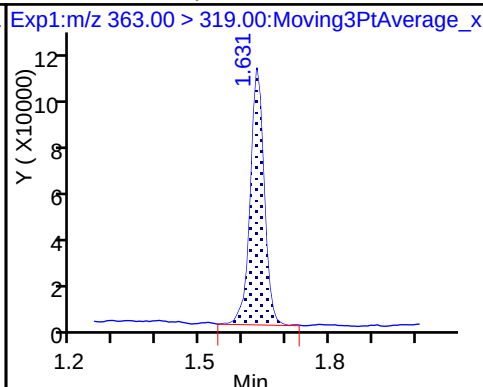
\$ 2 13C2 PFHxA



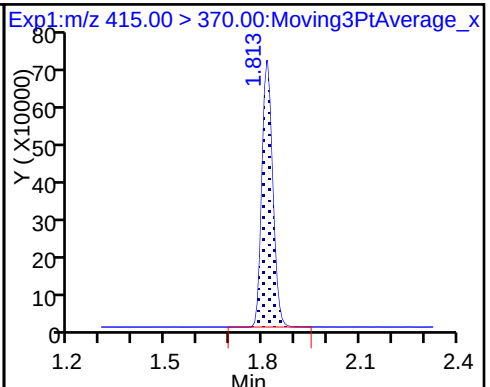
3 Perfluorohexanesulfonic acid



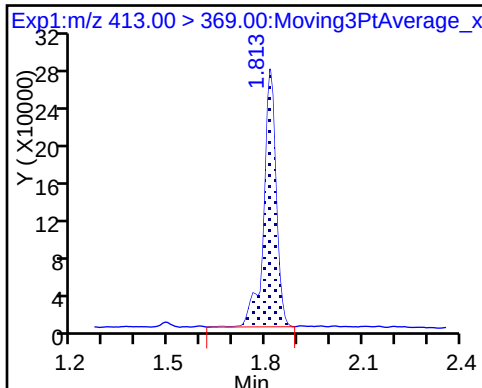
4 Perfluoroheptanoic acid



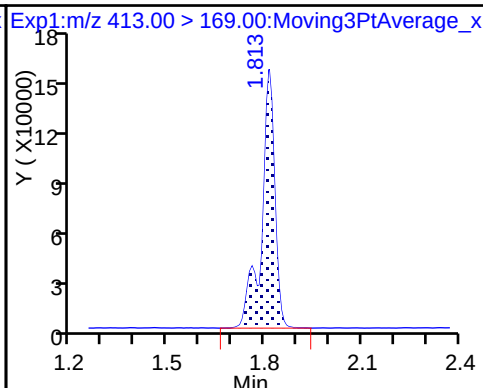
* 6 13C2-PFOA



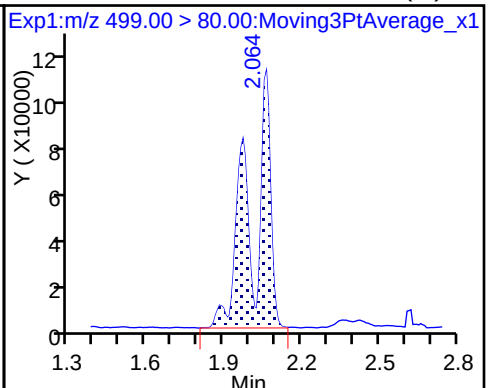
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

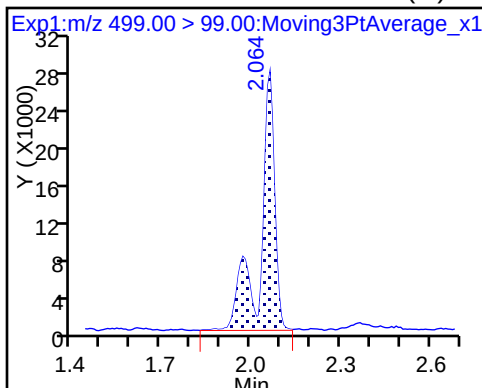


8 Perfluorooctane sulfonic acid (M)

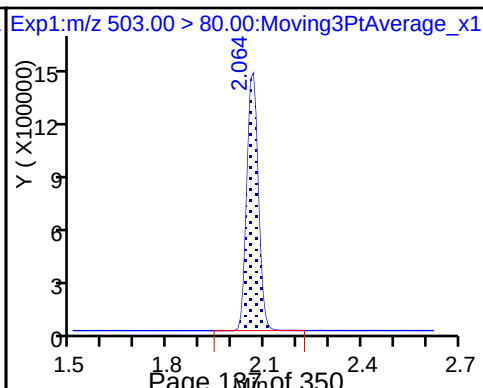


8 Perfluorooctane sulfonic acid (M)

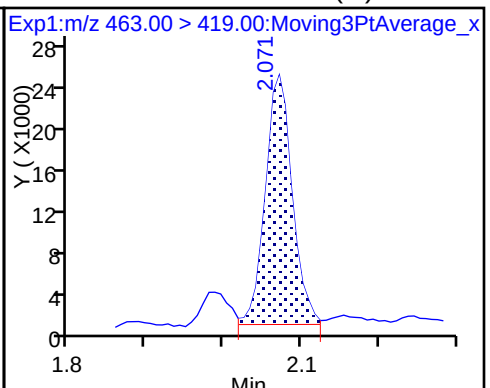
* 7 13C4 PFOS



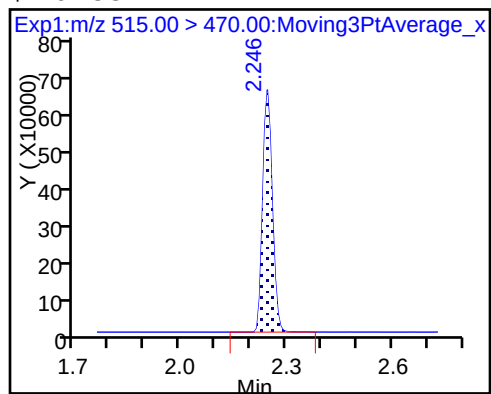
9 Perfluorononanoic acid (M)



9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_031.d
Lims ID: 320-35150-A-5-A
Client ID: NAWC-011718-RW-91
Sample Type: Client
Inject. Date: 06-Feb-2018 04:01:46 ALS Bottle#: 19 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:27:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.75	97.46
\$ 10 13C2 PFDA	10.0	9.91	99.08

TestAmerica Sacramento

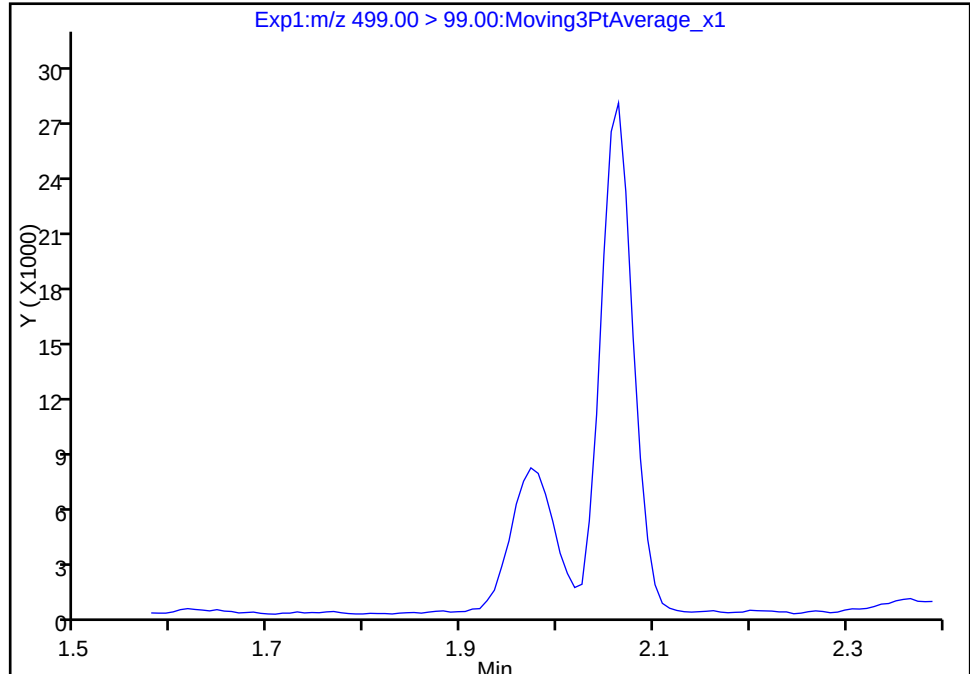
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Injection Date:	06-Feb-2018 04:01:46	Instrument ID:	A8_N		
Lims ID:	320-35150-A-5-A	Lab Sample ID:	320-35150-5		
Client ID:	NAWC-011718-RW-91				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	10
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

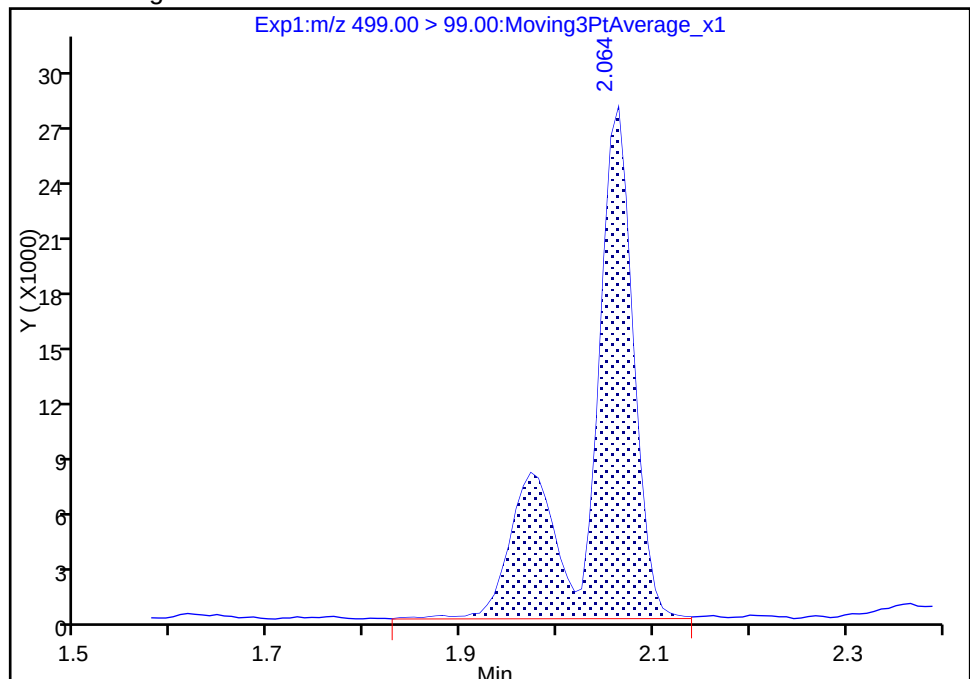
Signal: 2

Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.06
Area: 91594
Amount: 4.818192
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:26:25
Audit Action: Manually IntegratedAudit Reason: Assign Peak
Page 140 of 350

TestAmerica Sacramento

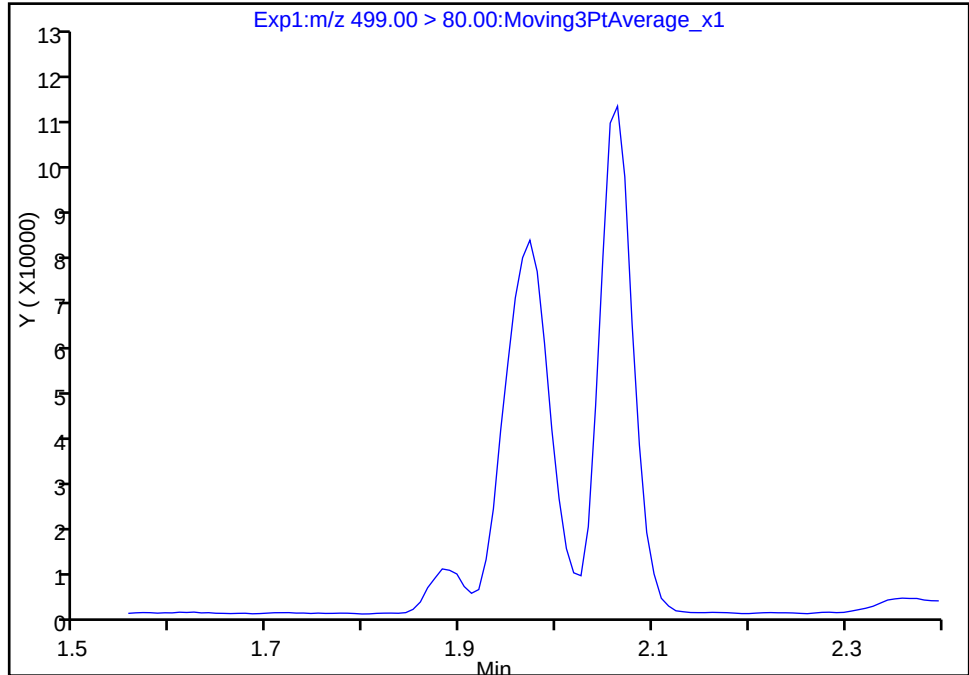
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_031.d
Injection Date: 06-Feb-2018 04:01:46 Instrument ID: A8_N
Lims ID: 320-35150-A-5-A Lab Sample ID: 320-35150-5
Client ID: NAWC-011718-RW-91
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. 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

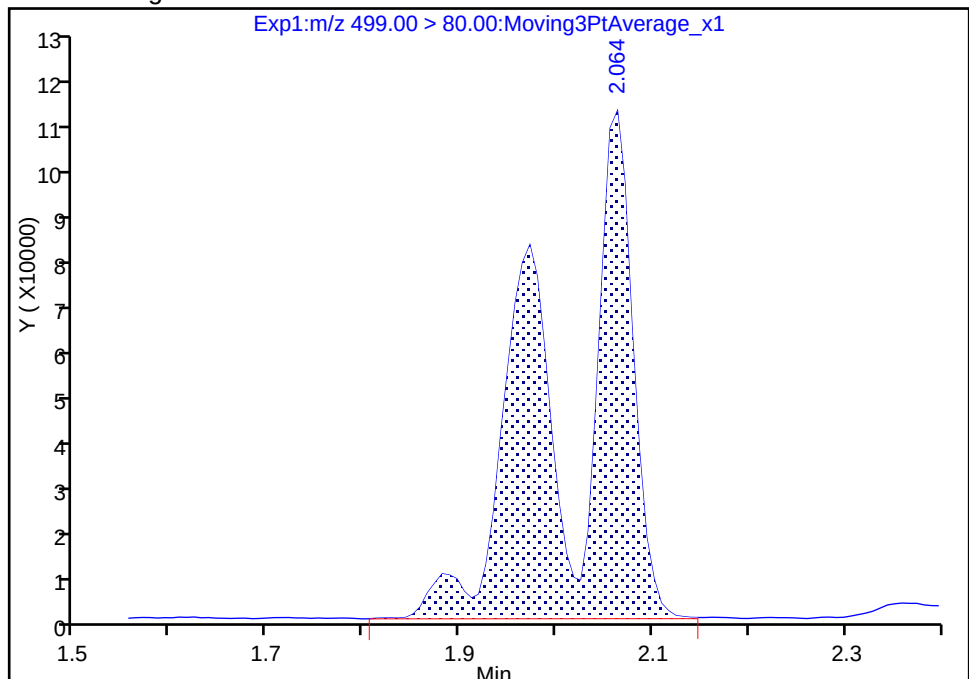
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 549449
Amount: 4.818192
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:26:25

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

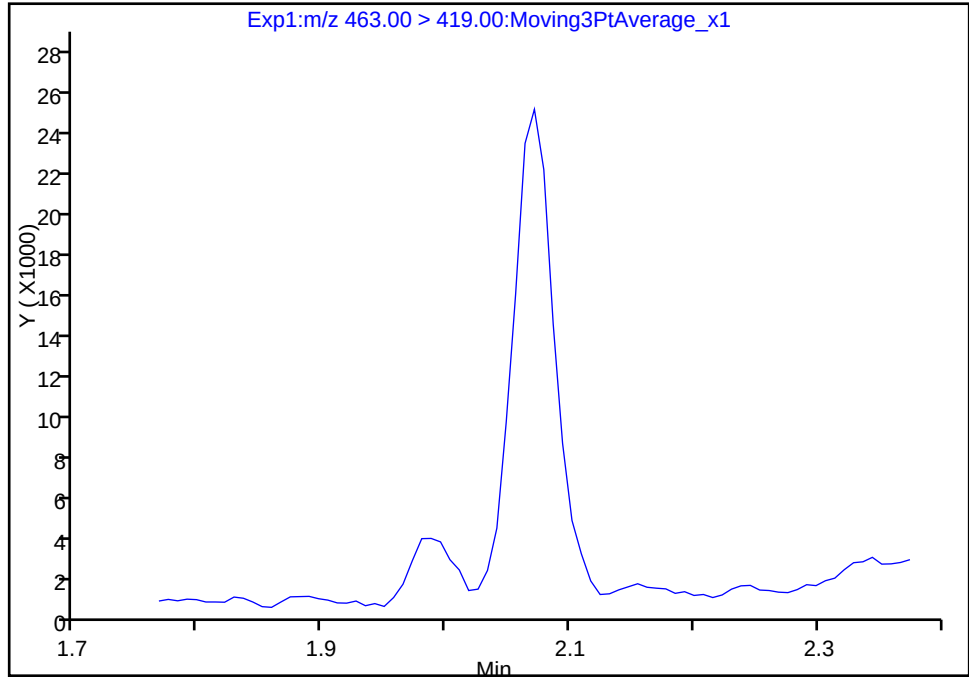
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_031.d				
Injection Date:	06-Feb-2018 04:01:46	Instrument ID:	A8_N		
Lims ID:	320-35150-A-5-A	Lab Sample ID:	320-35150-5		
Client ID:	NAWC-011718-RW-91				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	10
Injection 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

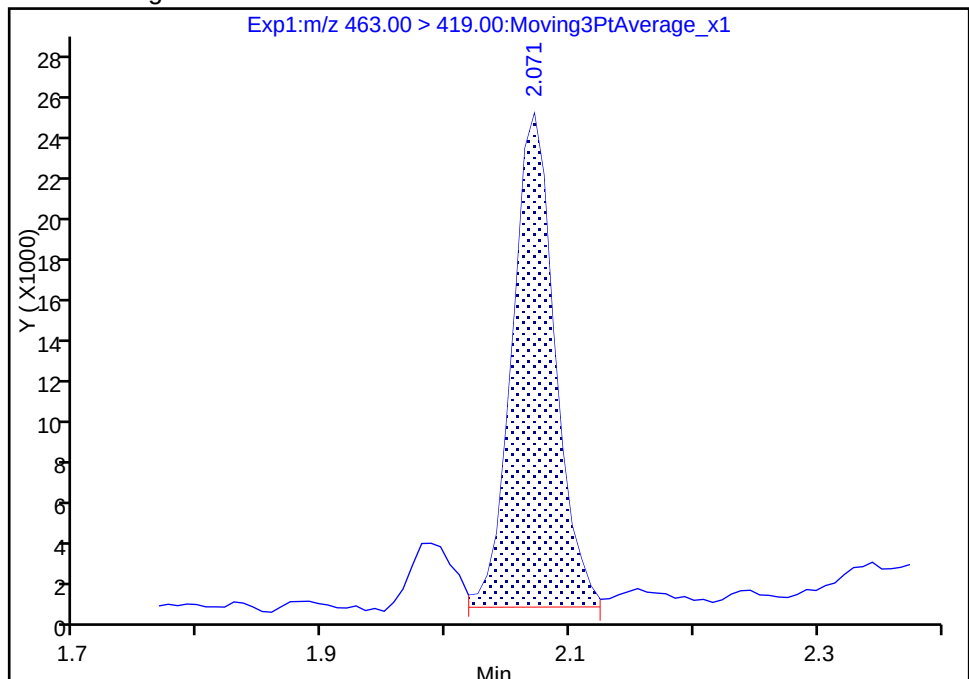
Signal: 1

Not Detected
Expected RT: 2.07

Processing Integration Results



Manual Integration Results



RT: 2.07
Area: 56058
Amount: 0.517188
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:26:40
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-91</u>	Lab Sample ID: <u>320-35150-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_032.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>254.4 (mL)</u>	Date Analyzed: <u>02/06/2018 04:06</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_032.d
 Lims ID: 320-35150-A-6-A
 Client ID: NAWC-011718-FRB-91
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:06:26 ALS Bottle#: 20 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1750898	9.45		9135	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1684554	10.0		7017	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3494467	28.7		6971	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1279475	9.93		8598	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_032.d

Injection Date: 06-Feb-2018 04:06:26

Instrument ID: A8_N

Lims ID: 320-35150-A-6-A

Lab Sample ID: 320-35150-6

Client ID: NAWC-011718-FRB-91

Operator ID: SACINSTLCMS01

ALS Bottle#: 20

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

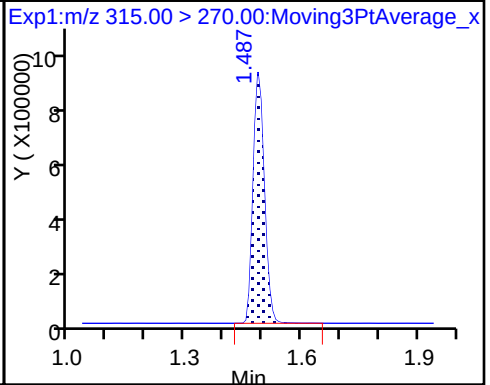
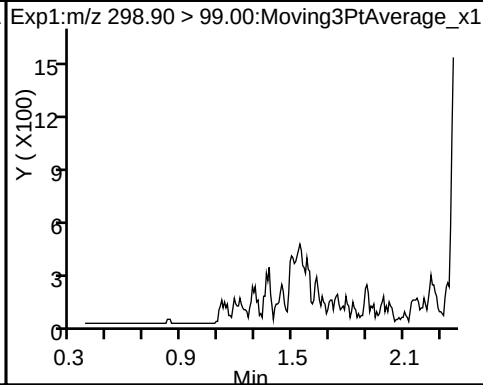
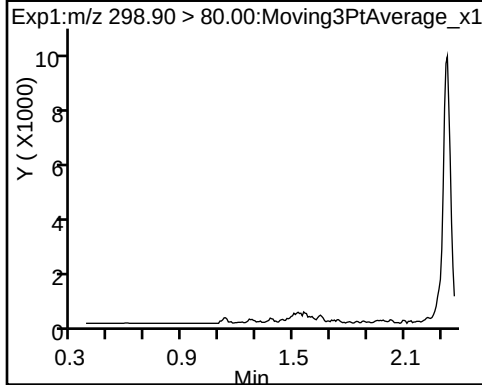
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

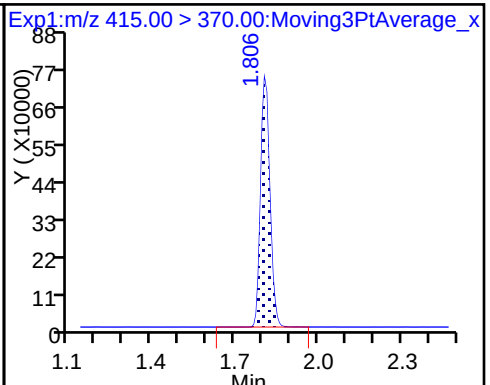
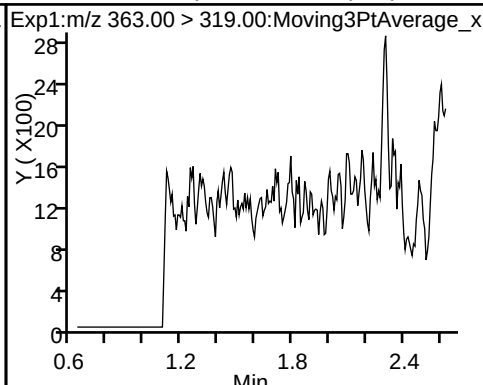
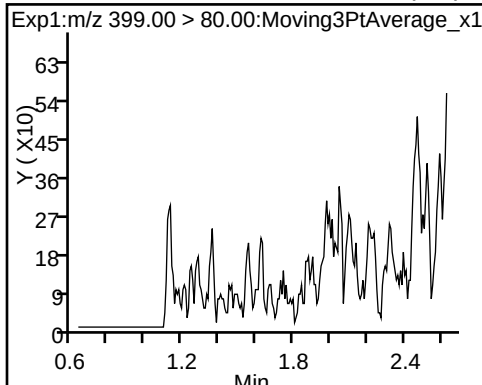
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

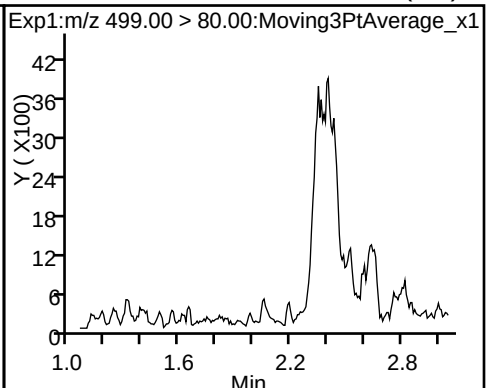
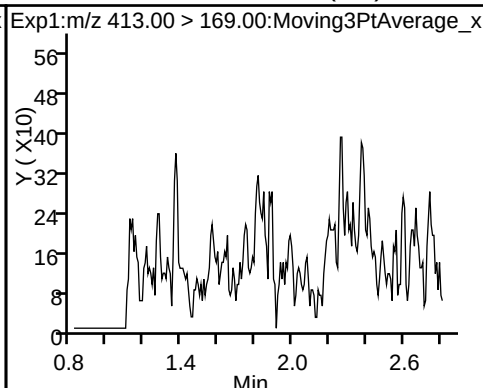
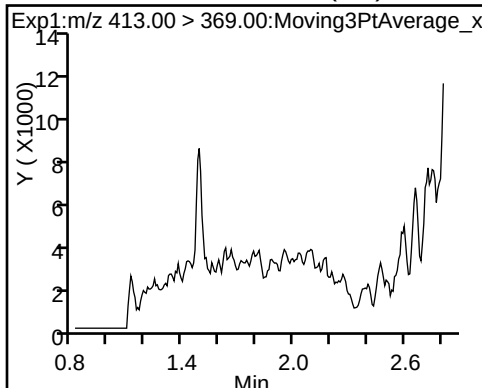
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

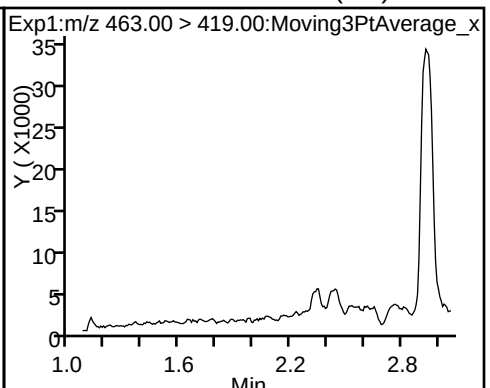
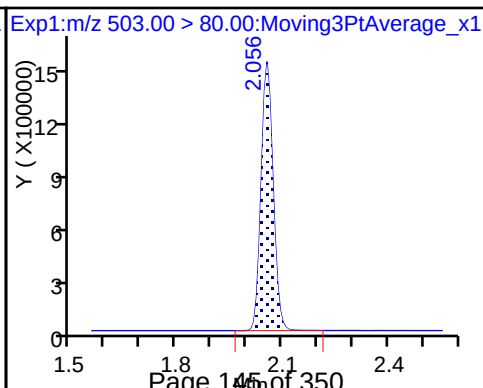
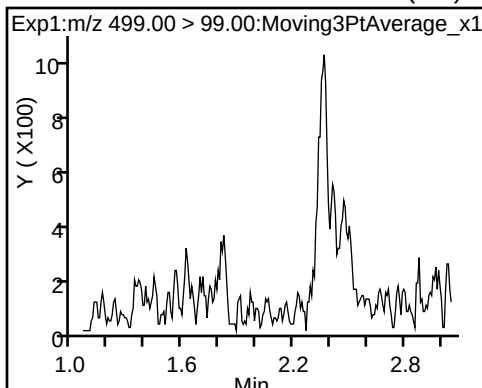
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

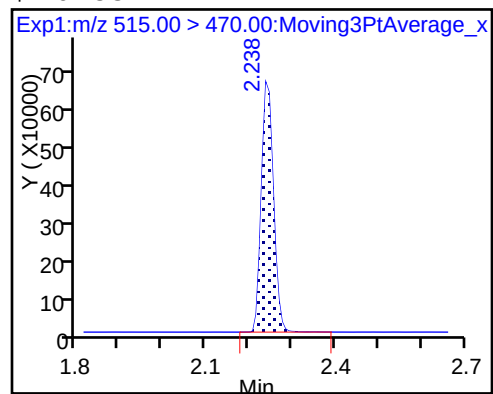


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_032.d
Lims ID: 320-35150-A-6-A
Client ID: NAWC-011718-FRB-91
Sample Type: Client
Inject. Date: 06-Feb-2018 04:06:26 ALS Bottle#: 20 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.45	94.46
\$ 10 13C2 PFDA	10.0	9.93	99.26

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-228 Lab Sample ID: 320-35150-7
 Matrix: Water Lab File ID: 2018.02.05_537B_033.d
 Analysis Method: 537 Date Collected: 01/17/2018 13:40
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250.1(mL) Date Analyzed: 02/06/2018 04:11
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	29		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)	11		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	53	J	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\20180206-53721.b\2018.02.05_537B_033.d
 Lims ID: 320-35150-A-7-A
 Client ID: NAWC-011718-RW-228
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:11:06 ALS Bottle#: 21 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:27:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	1786415	13.3		1313	
298.90 > 99.00	1.366	1.373	-0.007	1.000	1237876		1.44(0.00-0.00)	2604	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1689113	9.55		7828	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	144344	0.7066		59.3	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	421401	2.80		66.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1608076	10.0		5162	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	1067706	7.17		116	
413.00 > 169.00	1.806	1.813	-0.007	1.000	611303		1.75(0.00-0.00)	1412	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.048	0.0	1.000	471011	4.11		113	Ma
499.00 > 99.00	2.048	2.048	0.0	1.000	87979		5.35(0.00-0.00)	119	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.064	-0.016		3499608	28.7		2816	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.071	-0.015	1.000	98784	0.9249		13.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1241389	10.1		8650	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_033.d

Injection Date: 06-Feb-2018 04:11:06

Instrument ID: A8_N

Lims ID: 320-35150-A-7-A

Lab Sample ID: 320-35150-7

Client ID: NAWC-011718-RW-228

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

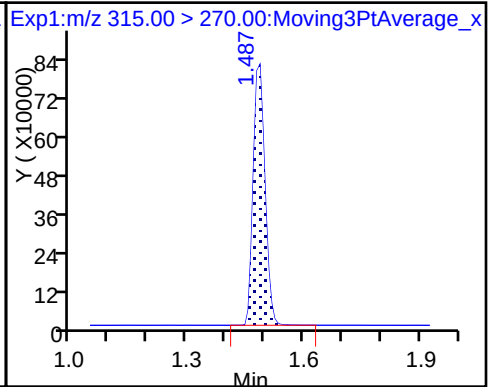
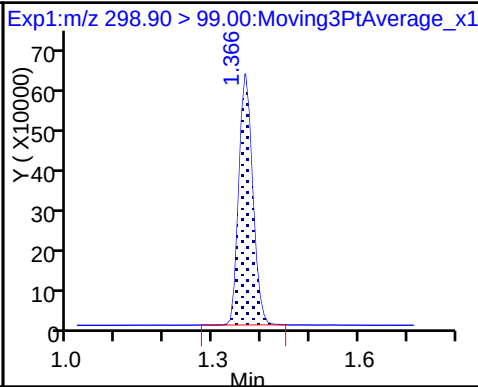
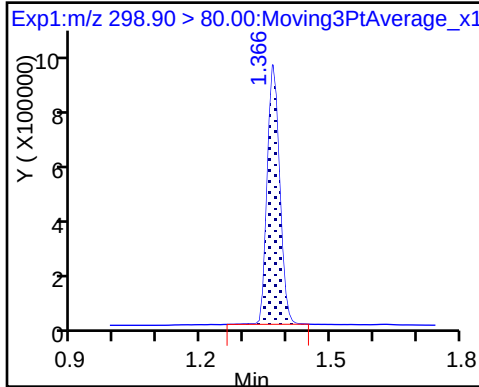
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

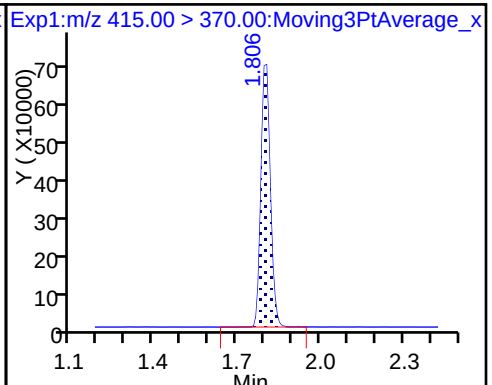
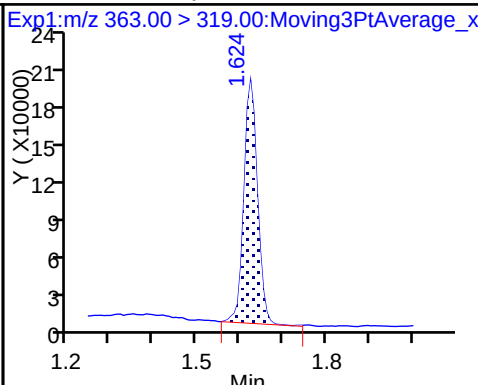
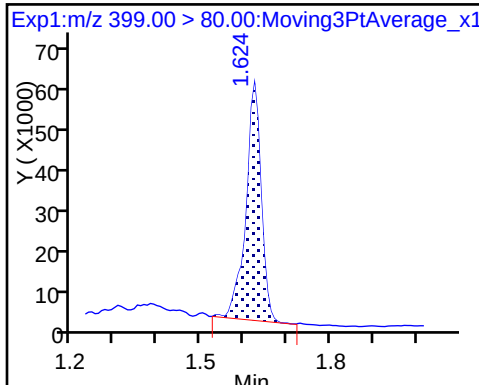
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

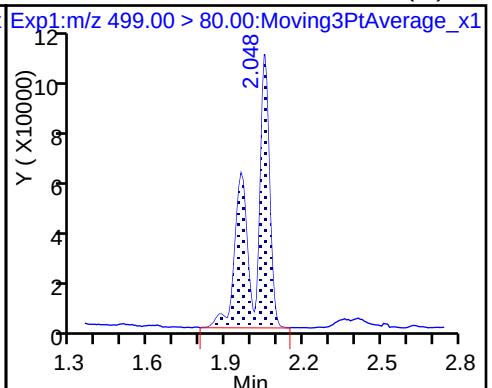
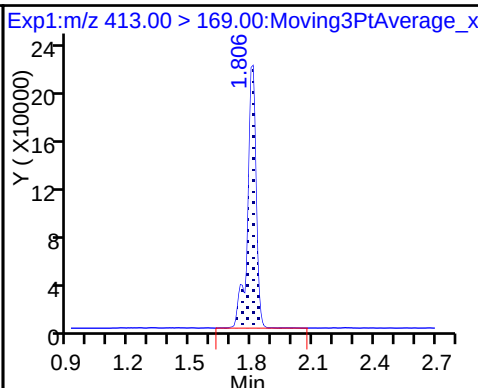
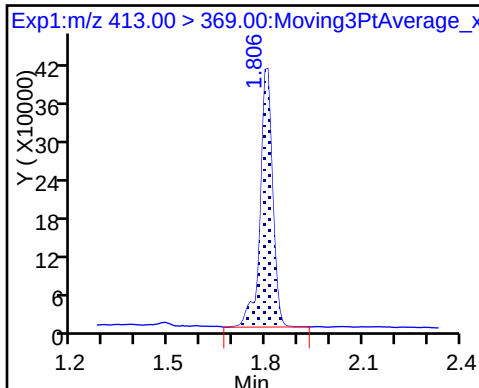
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

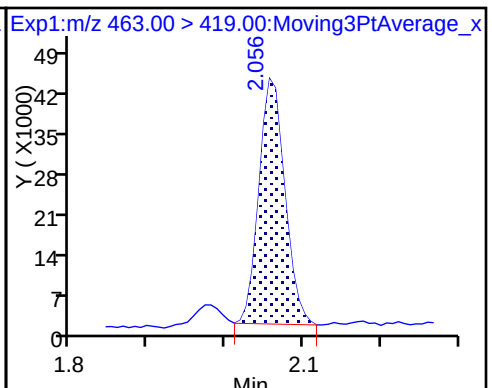
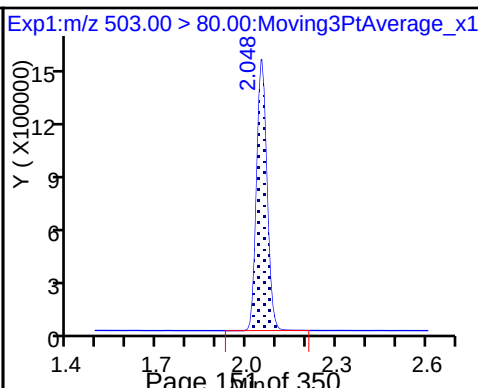
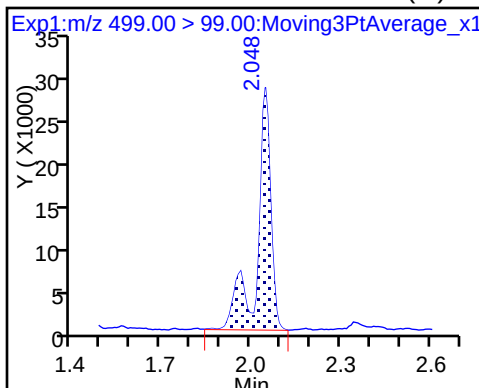
8 Perfluorooctane sulfonic acid (M)



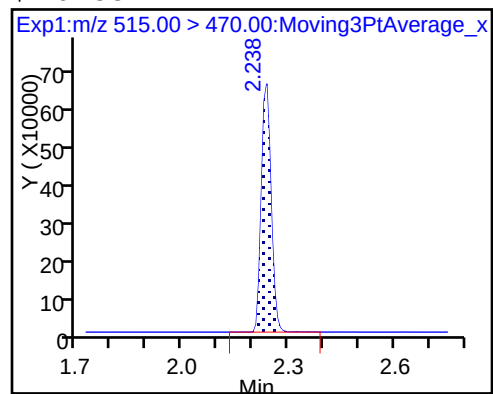
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_033.d
Lims ID: 320-35150-A-7-A
Client ID: NAWC-011718-RW-228
Sample Type: Client
Inject. Date: 06-Feb-2018 04:11:06 ALS Bottle#: 21 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:27:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.55	95.47
\$ 10 13C2 PFDA	10.0	10.1	100.88

TestAmerica Sacramento

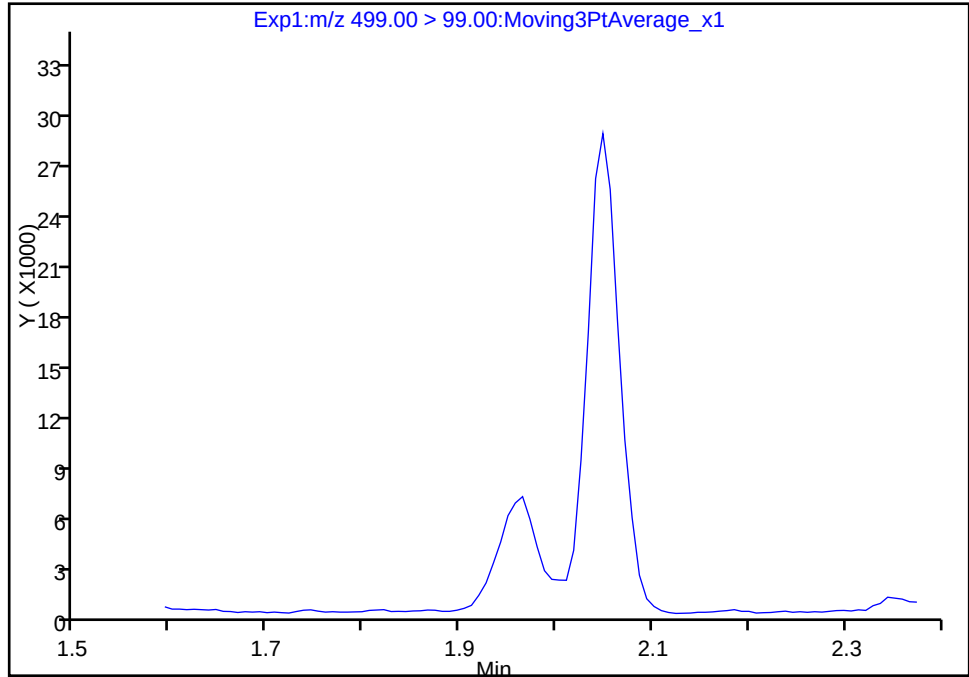
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Injection Date:	06-Feb-2018 04:11:06	Instrument ID:	A8_N		
Lims ID:	320-35150-A-7-A	Lab Sample ID:	320-35150-7		
Client ID:	NAWC-011718-RW-228				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	21	Worklist Smp#:	12
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

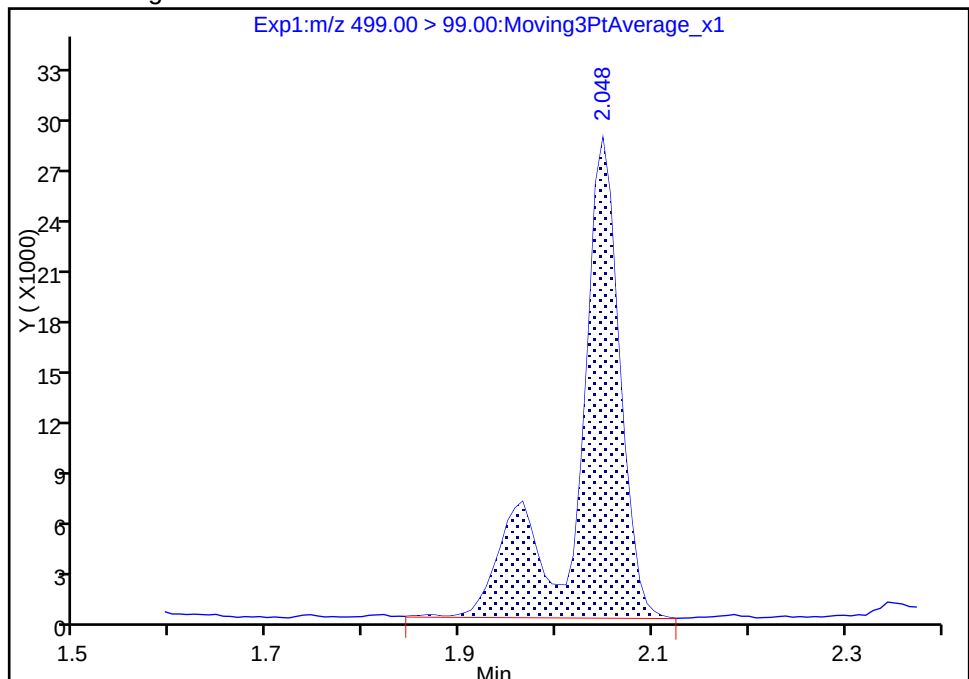
Signal: 2

Not Detected
Expected RT: 2.05

Processing Integration Results

RT: 2.05
Area: 87979
Amount: 4.111014
Amount Units: ng/ml

Manual Integration Results

Reviewer: barnettj, 06-Feb-2018 14:27:30
Audit Action: Manually IntegratedAudit Reason: Assign Peak
Page 154 of 350

TestAmerica Sacramento

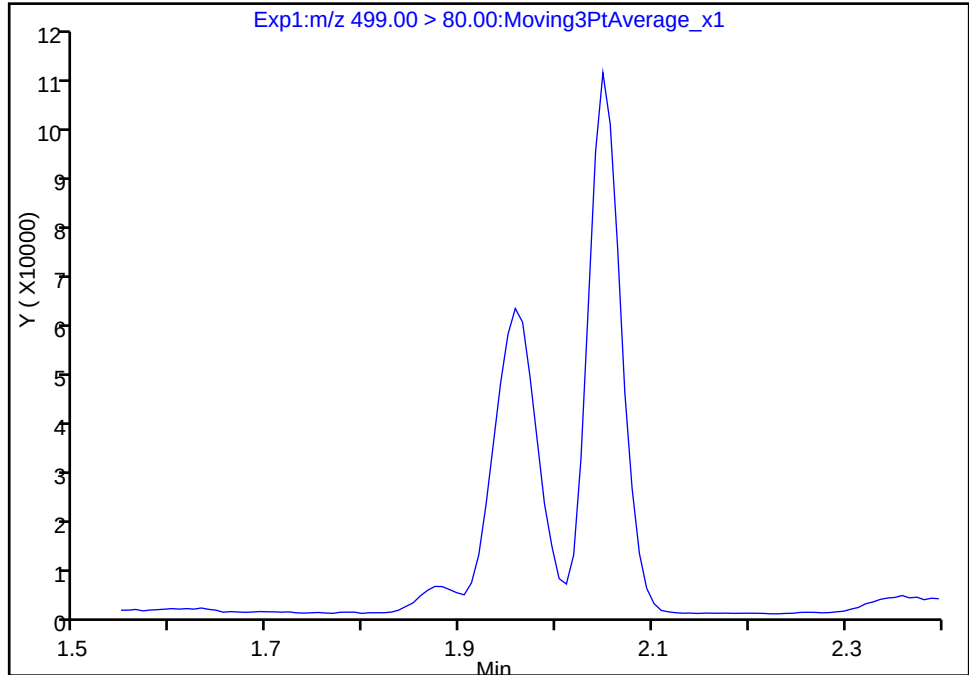
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_033.d
Injection Date: 06-Feb-2018 04:11:06 Instrument ID: A8_N
Lims ID: 320-35150-A-7-A Lab Sample ID: 320-35150-7
Client ID: NAWC-011718-RW-228
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

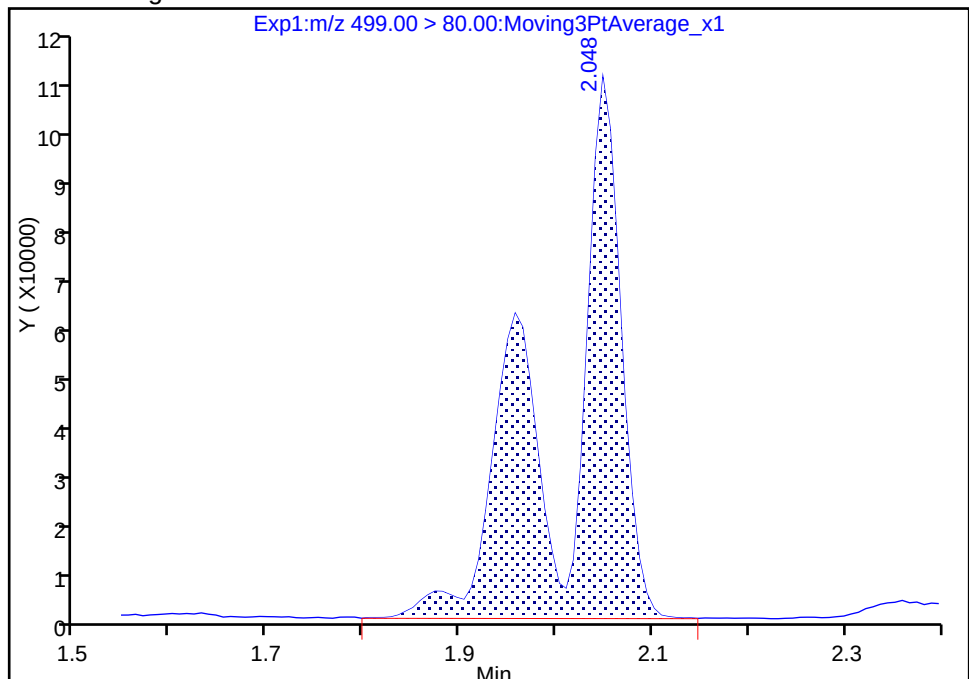
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 471011
Amount: 4.111014
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:27:30

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-228</u>	Lab Sample ID: <u>320-35150-8</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_036.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 13:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>246(mL)</u>	Date Analyzed: <u>02/06/2018 04:25</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	90		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_036.d
 Lims ID: 320-35150-A-8-A
 Client ID: NAWC-011718-FRB-228
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:25:04 ALS Bottle#: 22 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1632322	9.05		9250	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1639446	10.0		5739	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3457689	28.7		7979	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1169672	9.32		7427	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_036.d

Injection Date: 06-Feb-2018 04:25:04

Instrument ID: A8_N

Lims ID: 320-35150-A-8-A

Lab Sample ID: 320-35150-8

Client ID: NAWC-011718-FRB-228

Operator ID: SACINSTLCMS01

ALS Bottle#: 22

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

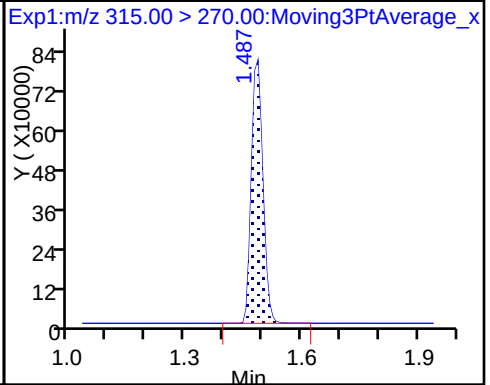
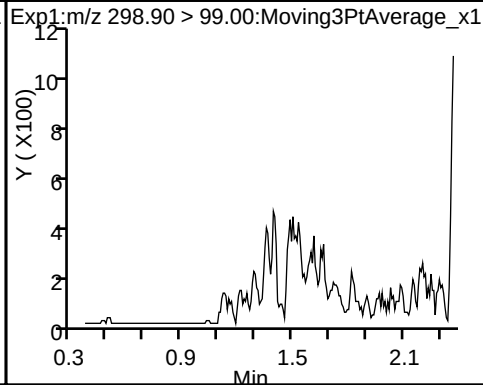
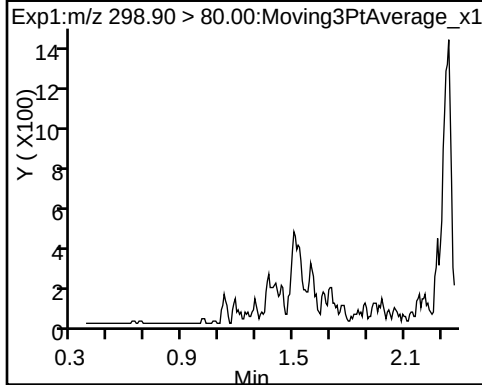
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

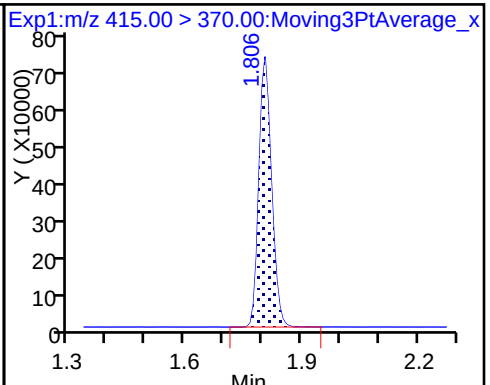
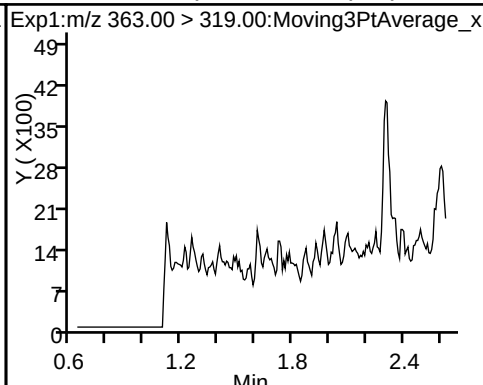
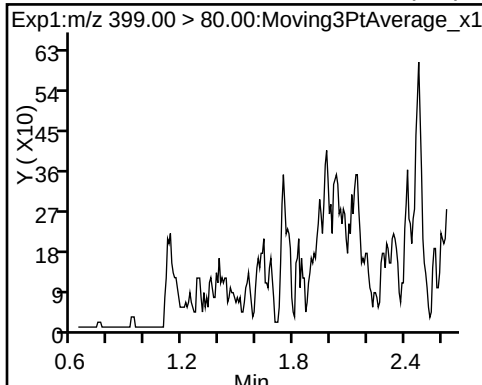
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

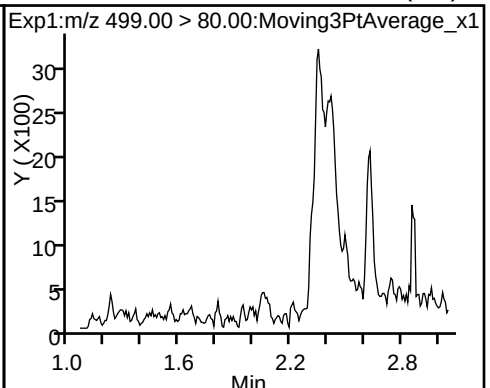
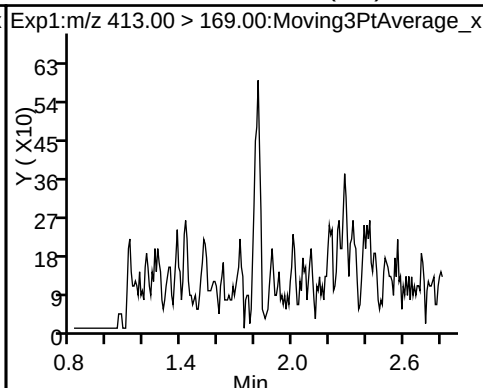
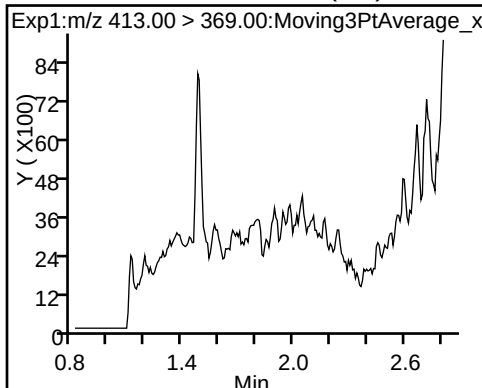
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

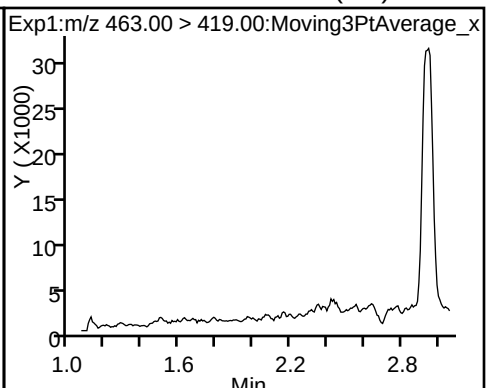
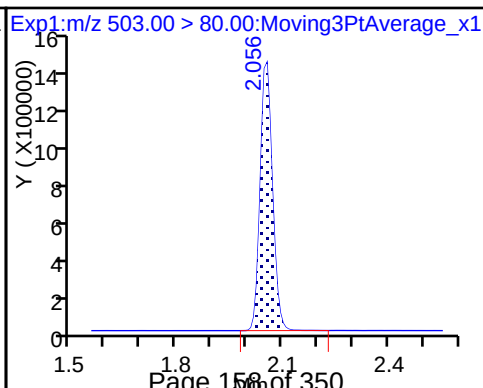
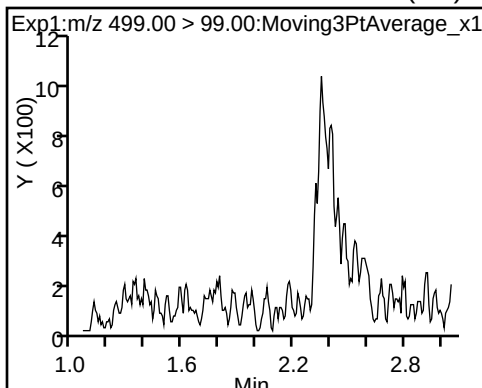
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

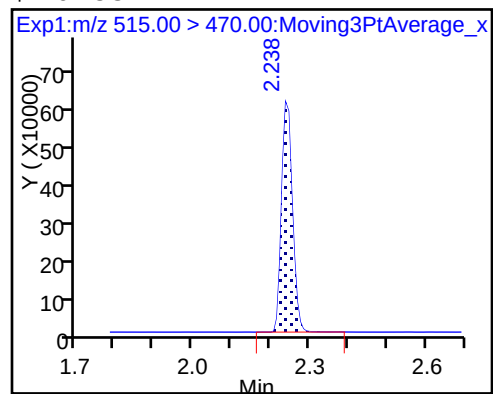


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_036.d
Lims ID: 320-35150-A-8-A
Client ID: NAWC-011718-FRB-228
Sample Type: Client
Inject. Date: 06-Feb-2018 04:25:04 ALS Bottle#: 22 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.05	90.49
\$ 10 13C2 PFDA	10.0	9.32	93.24

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-237 Lab Sample ID: 320-35150-9
 Matrix: Water Lab File ID: 2018.02.05_537B_037.d
 Analysis Method: 537 Date Collected: 01/17/2018 14:10
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 249.6(mL) Date Analyzed: 02/06/2018 04:29
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	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	94		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_037.d
 Lims ID: 320-35150-A-9-A
 Client ID: NAWC-011718-RW-237
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:29:45 ALS Bottle#: 23 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:28:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	146538	1.09		219	
298.90 > 99.00	1.366	1.373	-0.007	1.000	109960		1.33(0.00-0.00)	212	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1711901	9.36		9782	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	313368	1.56		332	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	143860	0.9239		35.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1661892	10.0		6517	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	479316	3.12		66.2	
413.00 > 169.00	1.798	1.813	-0.015	0.996	284294		1.69(0.00-0.00)	780	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.048	0.0	1.000	353156	3.14		141	Ma
499.00 > 99.00	2.048	2.048	0.0	1.000	60961		5.79(0.00-0.00)	98.0	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3437859	28.7		5572	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1255358	9.87		9077	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_037.d

Injection Date: 06-Feb-2018 04:29:45

Instrument ID: A8_N

Lims ID: 320-35150-A-9-A

Lab Sample ID: 320-35150-9

Client ID: NAWC-011718-RW-237

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

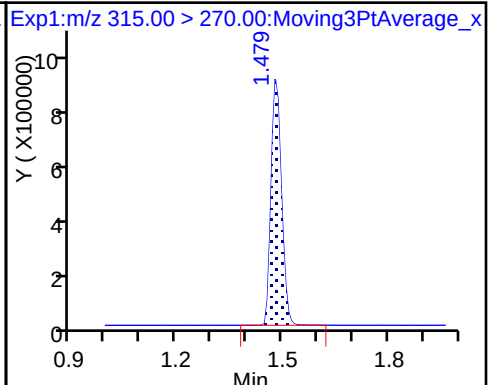
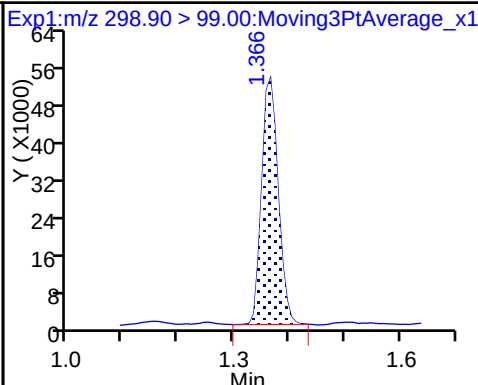
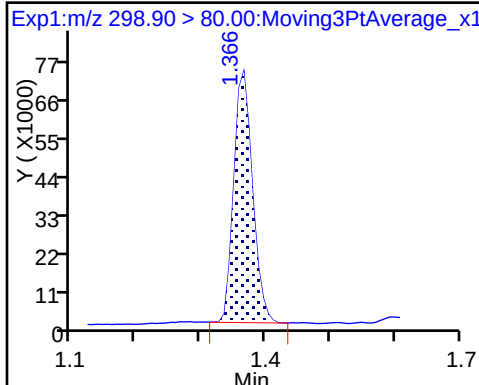
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

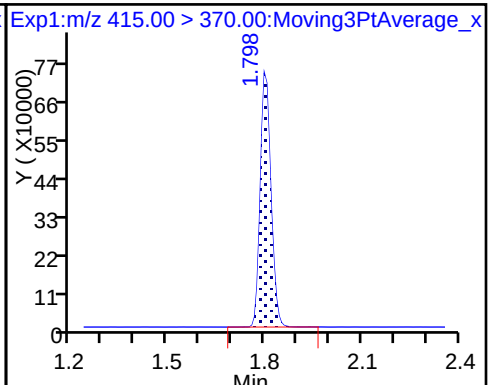
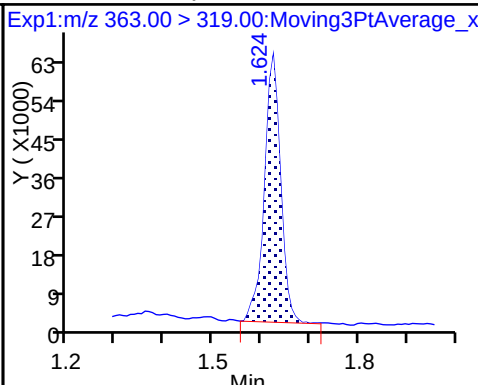
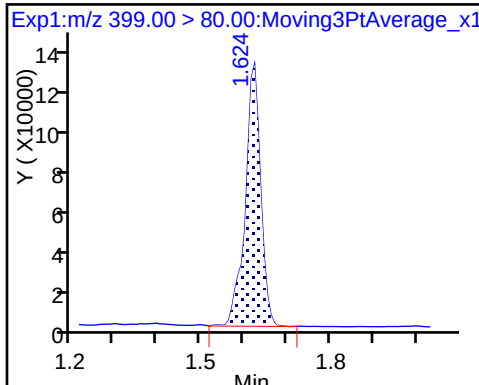
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

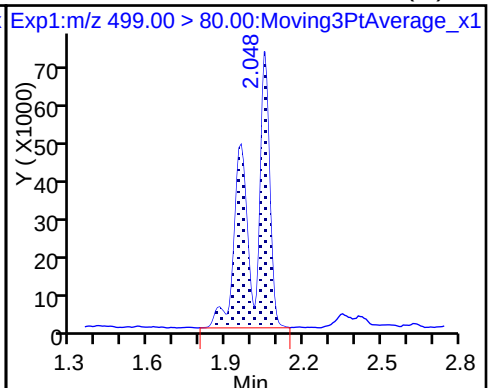
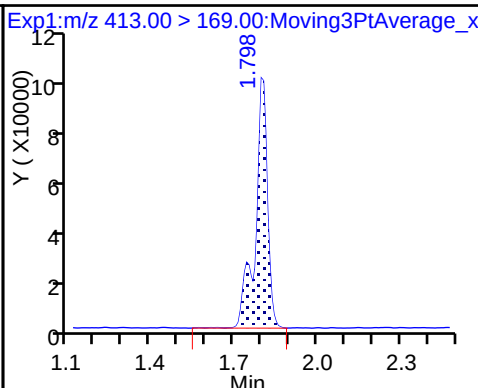
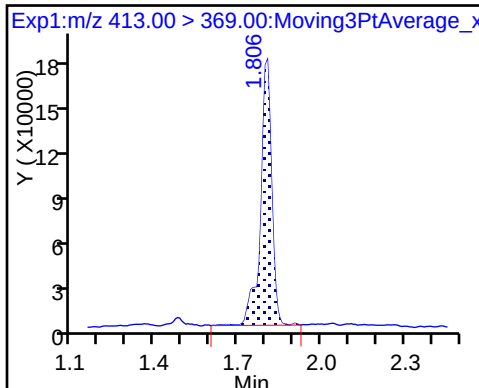
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

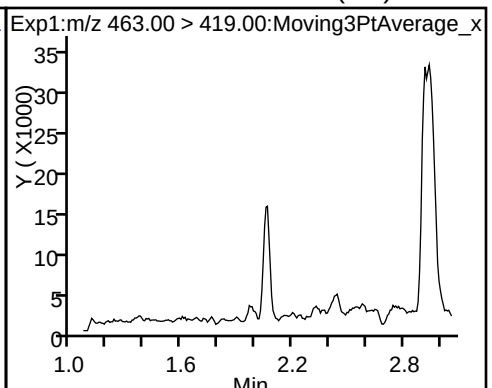
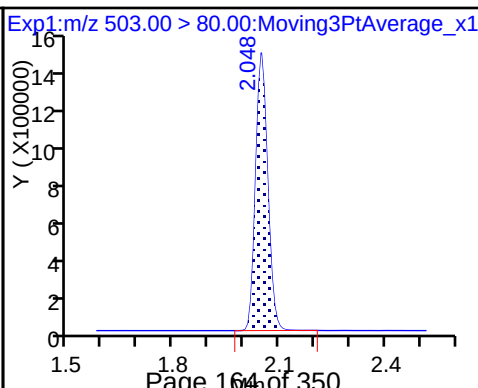
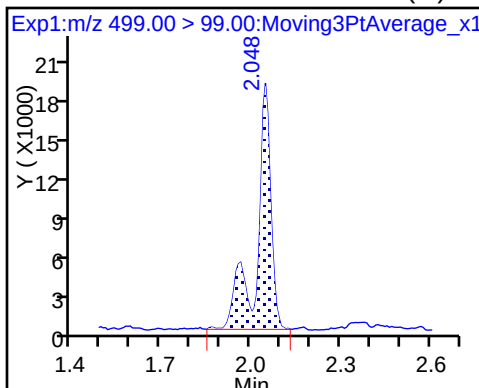
8 Perfluorooctane sulfonic acid (M)



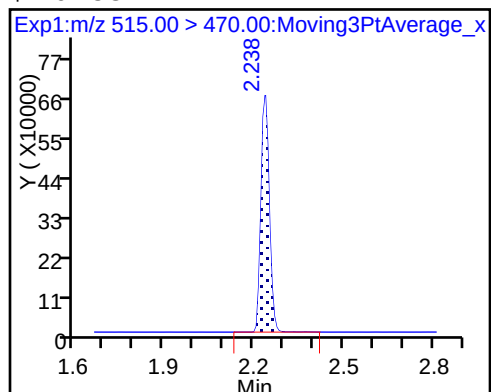
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_037.d
Lims ID: 320-35150-A-9-A
Client ID: NAWC-011718-RW-237
Sample Type: Client
Inject. Date: 06-Feb-2018 04:29:45 ALS Bottle#: 23 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:28:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.36	93.62
\$ 10 13C2 PFDA	10.0	9.87	98.72

TestAmerica Sacramento

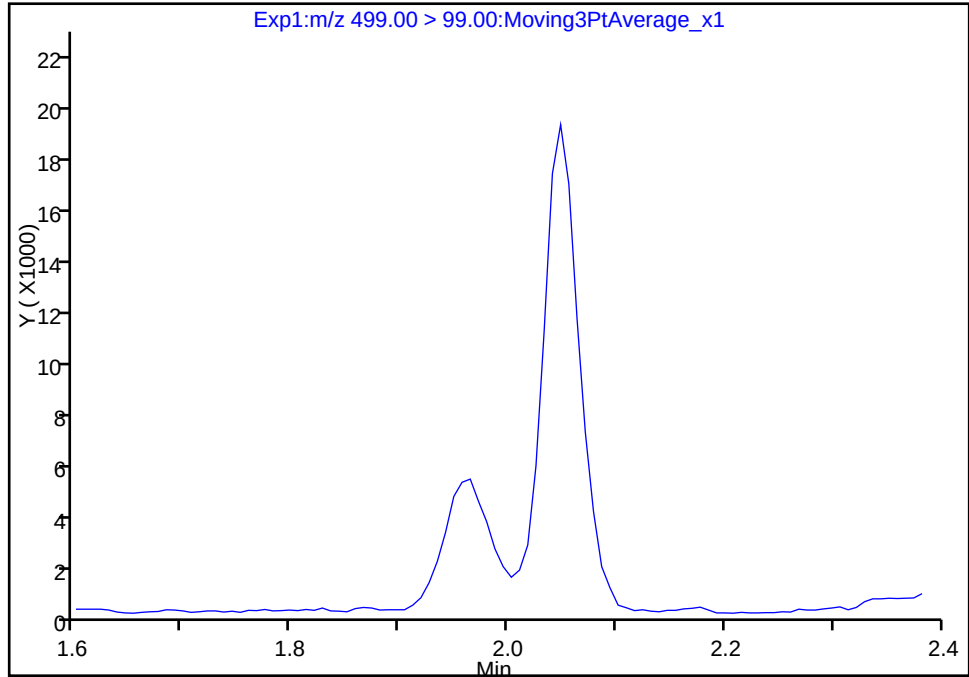
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_037.d
Injection Date: 06-Feb-2018 04:29:45 Instrument ID: A8_N
Lims ID: 320-35150-A-9-A Lab Sample ID: 320-35150-9
Client ID: NAWC-011718-RW-237
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

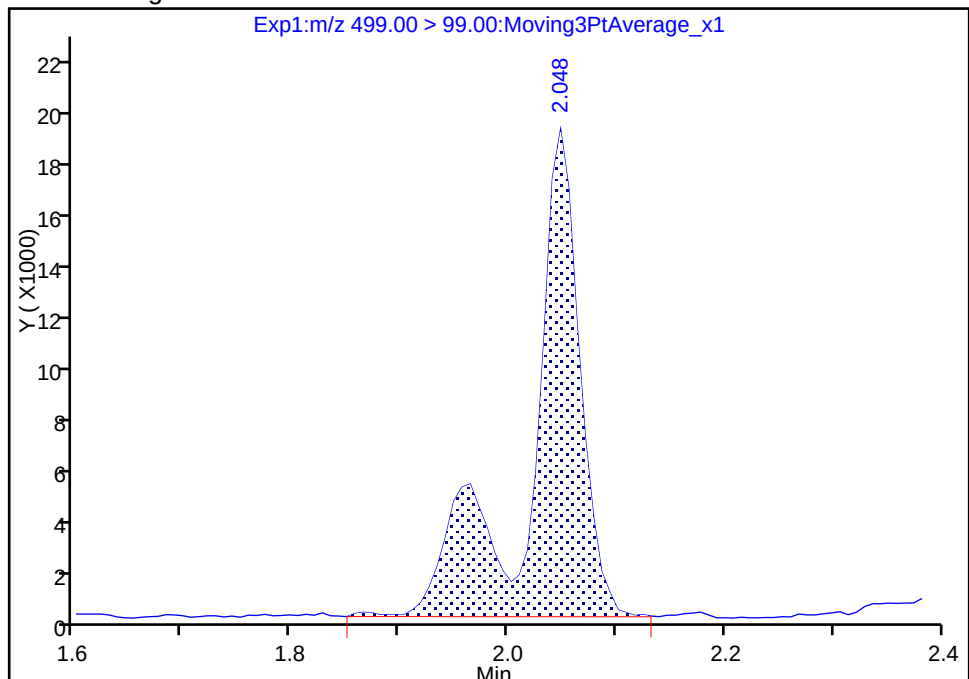
Not Detected
Expected RT: 2.05

Processing Integration Results



RT: 2.05
Area: 60961
Amount: 3.137732
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:28:20
Audit Action: Manually Integrated

Audit Reason: Assign Peak
Page 167 of 350

TestAmerica Sacramento

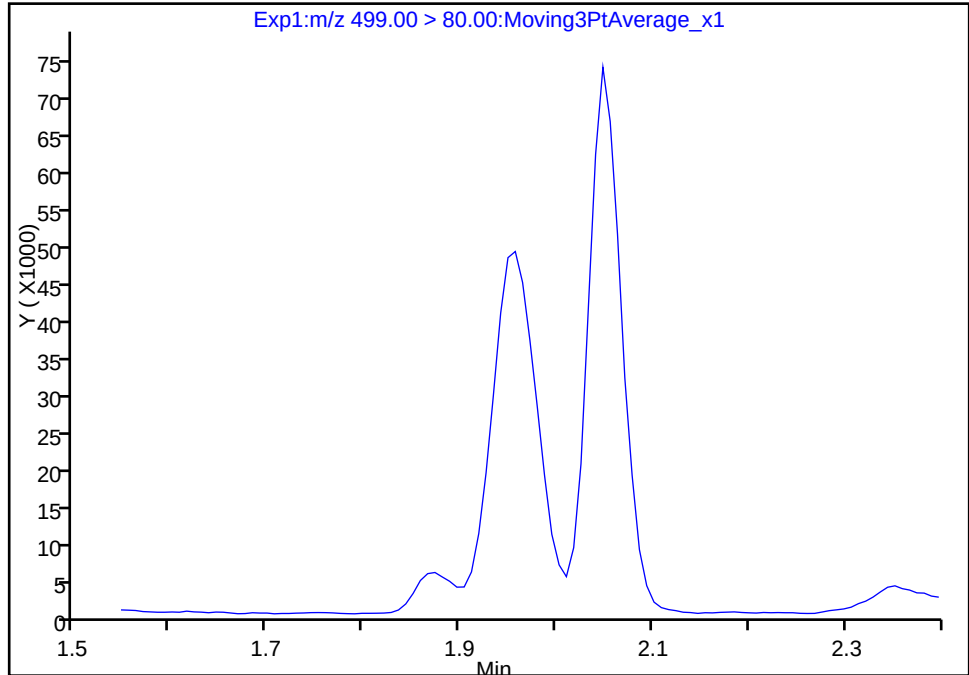
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_037.d
Injection Date: 06-Feb-2018 04:29:45 Instrument ID: A8_N
Lims ID: 320-35150-A-9-A Lab Sample ID: 320-35150-9
Client ID: NAWC-011718-RW-237
Operator ID: SACINSTLCMS01 ALS Bottle#: 23 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

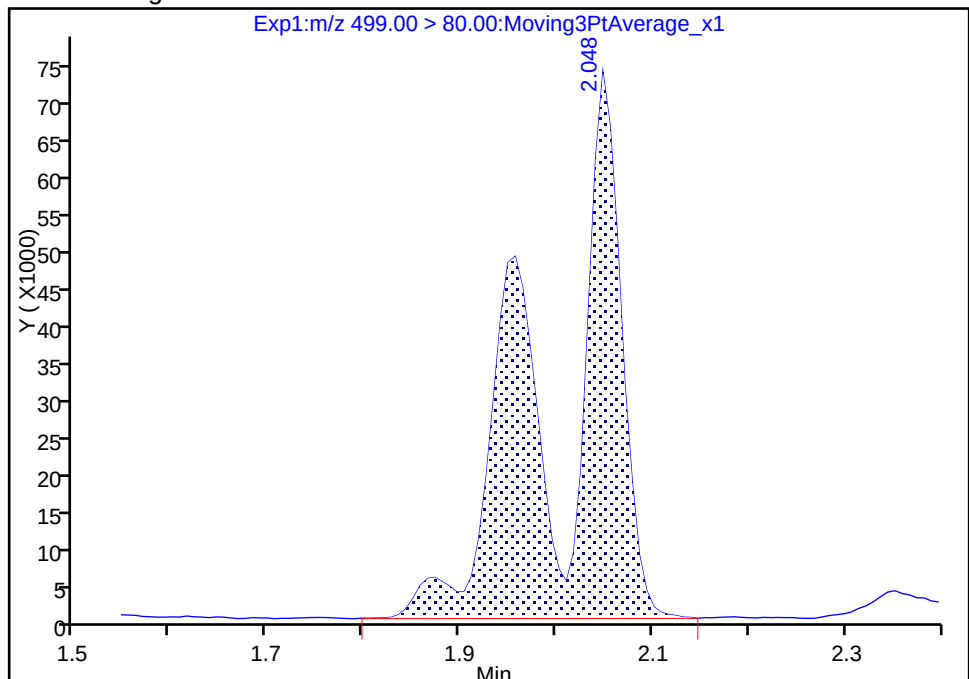
Signal: 1

Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.05
Area: 353156
Amount: 3.137732
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:28:20

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-237</u>	Lab Sample ID: <u>320-35150-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_038.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 14:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>251(mL)</u>	Date Analyzed: <u>02/06/2018 04:34</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_038.d
 Lims ID: 320-35150-A-10-A
 Client ID: NAWC-011718-FRB-237
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:34:26 ALS Bottle#: 24 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1703207	9.51		8774	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1627067	10.0		5581	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3461102	28.7		7066	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1202373	9.66		7592	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_038.d

Injection Date: 06-Feb-2018 04:34:26

Instrument ID: A8_N

Lims ID: 320-35150-A-10-A

Lab Sample ID: 320-35150-10

Client ID: NAWC-011718-FRB-237

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

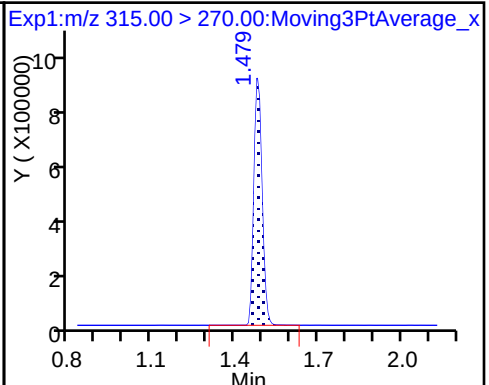
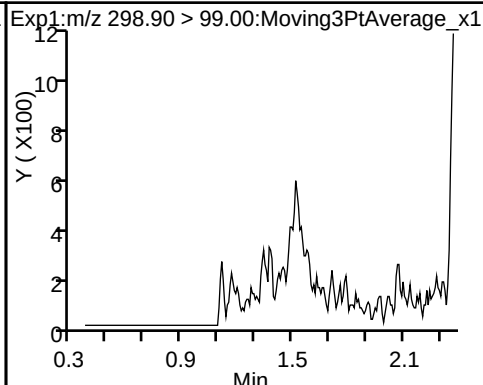
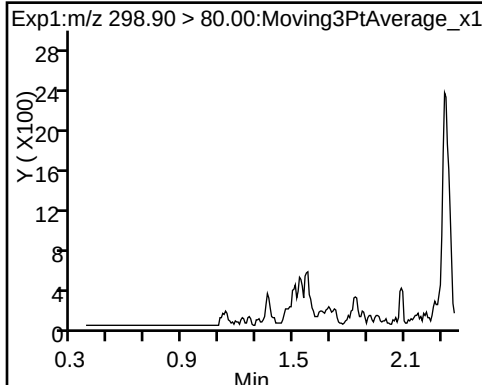
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

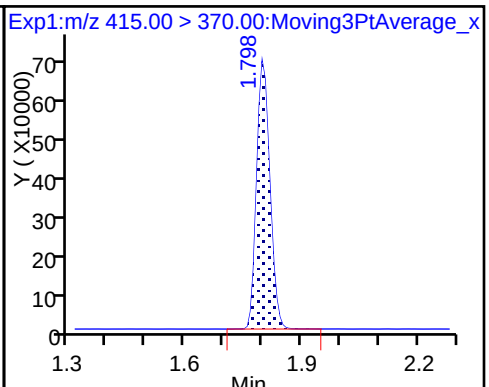
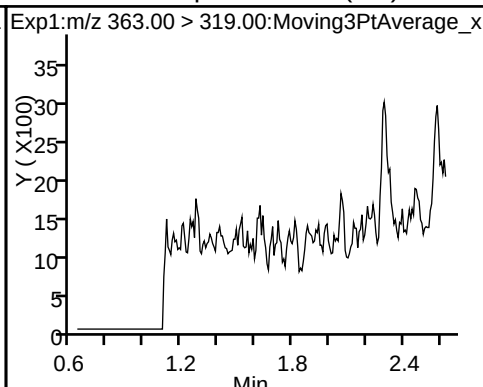
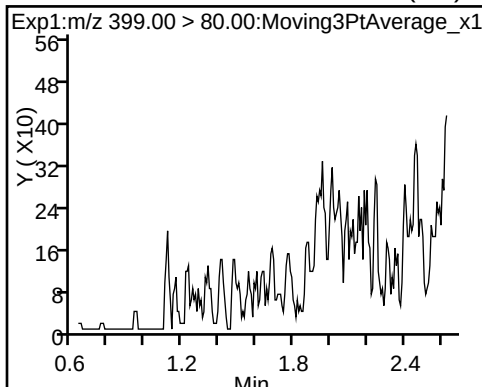
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

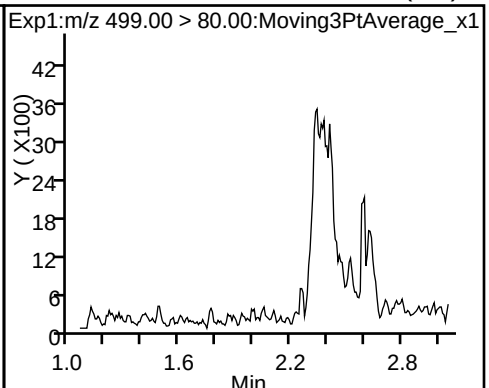
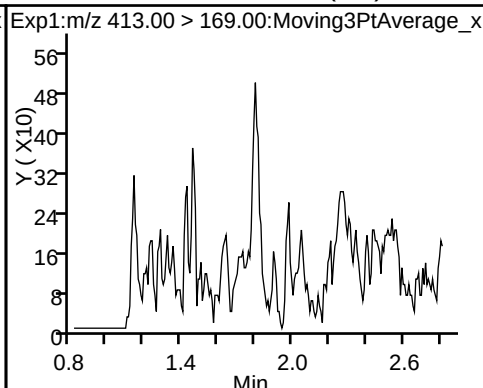
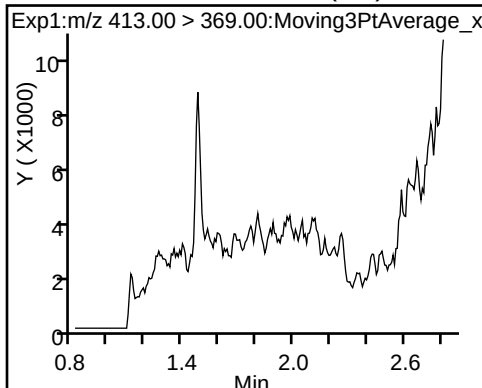
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

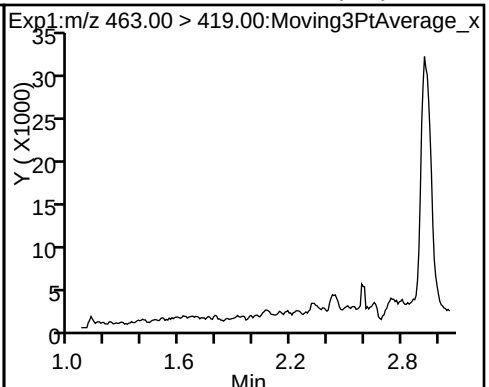
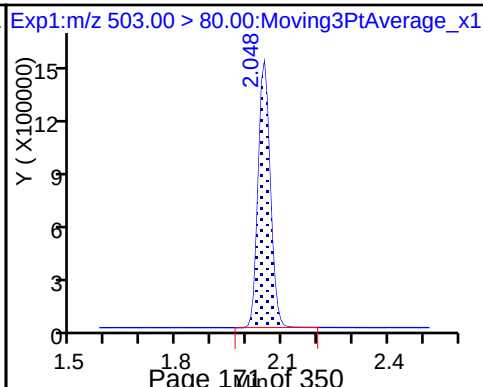
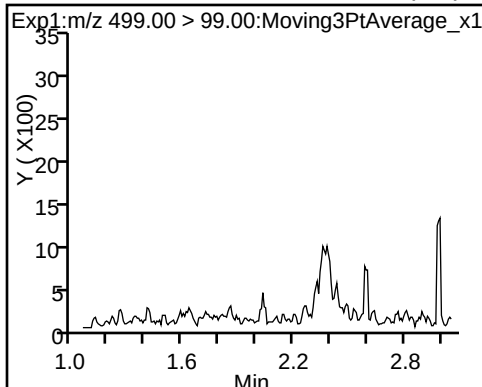
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

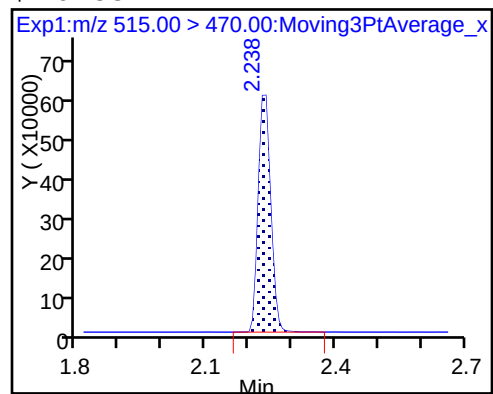


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_038.d
Lims ID: 320-35150-A-10-A
Client ID: NAWC-011718-FRB-237
Sample Type: Client
Inject. Date: 06-Feb-2018 04:34:26 ALS Bottle#: 24 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.51	95.14
\$ 10 13C2 PFDA	10.0	9.66	96.57

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-244 Lab Sample ID: 320-35150-11
 Matrix: Water Lab File ID: 2018.02.05_537B_039.d
 Analysis Method: 537 Date Collected: 01/17/2018 14:40
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250.9(mL) Date Analyzed: 02/06/2018 04:39
 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.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_039.d
 Lims ID: 320-35150-A-11-A
 Client ID: NAWC-011718-RW-244
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:39:05 ALS Bottle#: 25 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:37:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	205405	1.44		170	
298.90 > 99.00	1.366	1.373	-0.007	1.000	157852		1.30(0.00-0.00)	341	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1635211	8.23		8126	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	420821	1.97		227	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	174655	1.03		28.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1805674	10.0		6859	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	519957	3.11		57.7	
413.00 > 169.00	1.806	1.813	-0.007	1.000	306836		1.69(0.00-0.00)	735	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	573261	4.79		158	Ma
499.00 > 99.00	2.048	2.048	0.0	0.996	107408		5.34(0.00-0.00)	145	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3652524	28.7		3178	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	43080	0.3592		5.4	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1266538	9.17		8048	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_039.d

Injection Date: 06-Feb-2018 04:39:05

Instrument ID: A8_N

Lims ID: 320-35150-A-11-A

Lab Sample ID: 320-35150-11

Client ID: NAWC-011718-RW-244

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

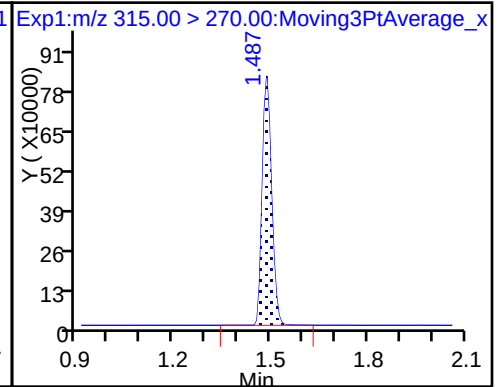
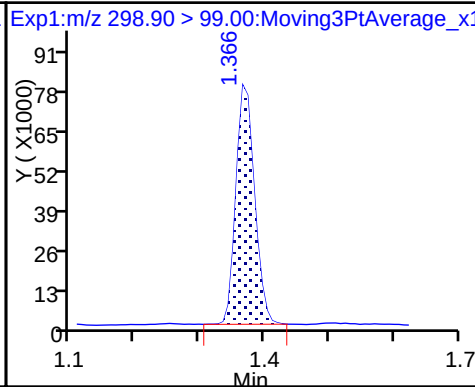
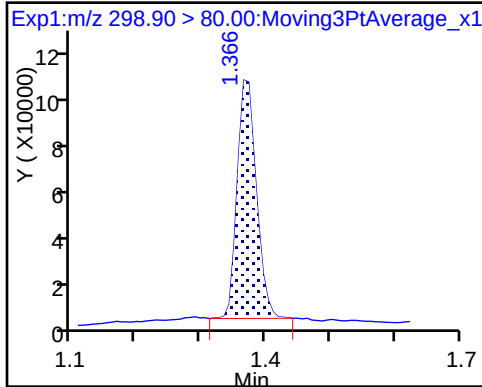
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

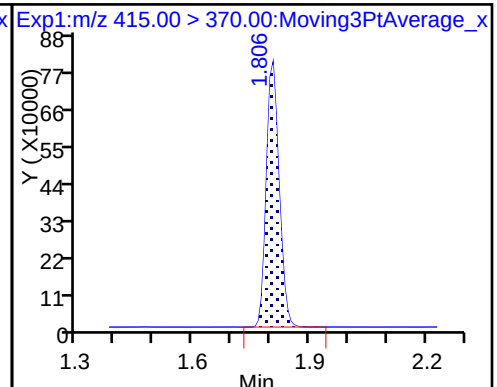
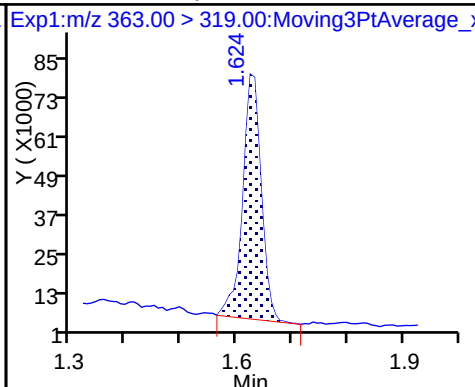
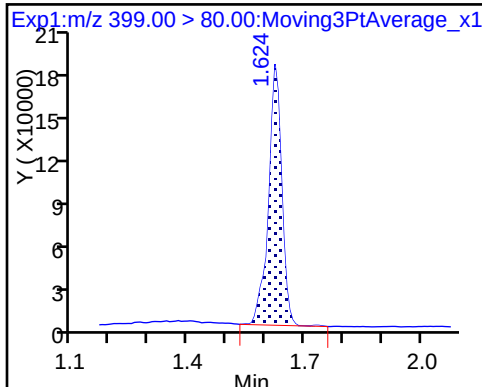
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

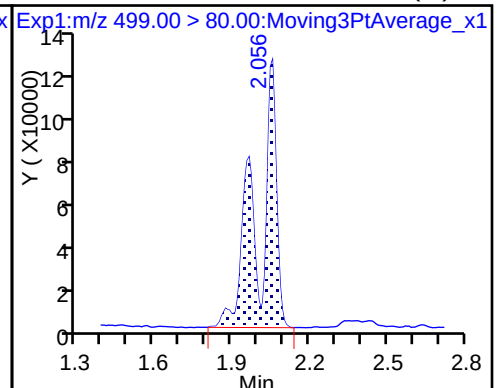
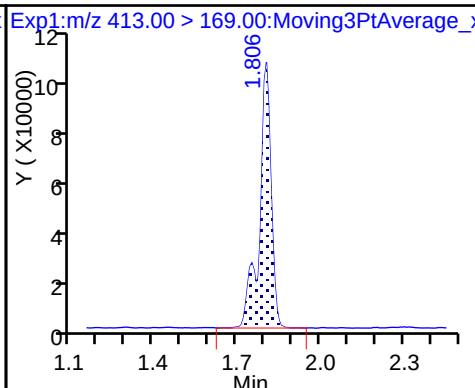
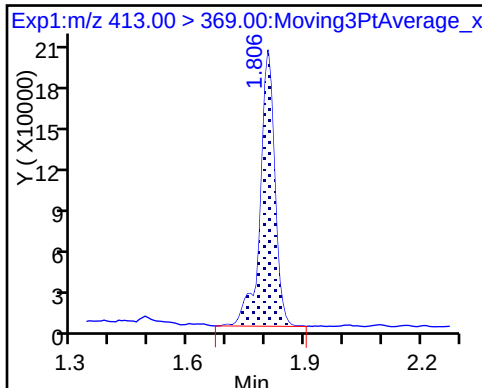
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

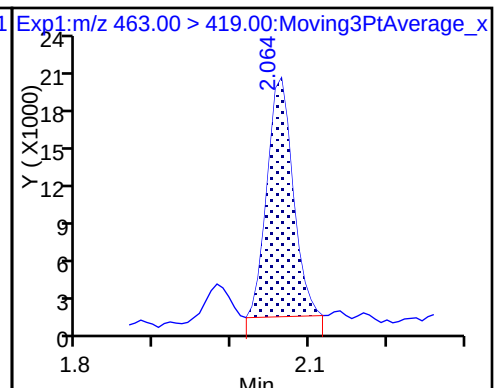
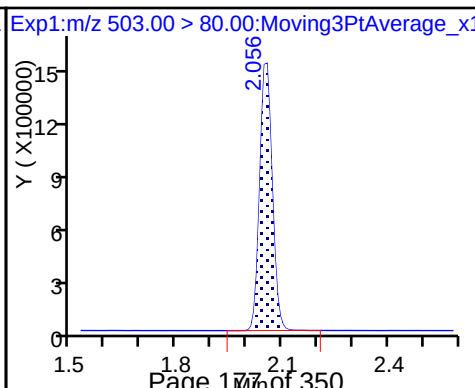
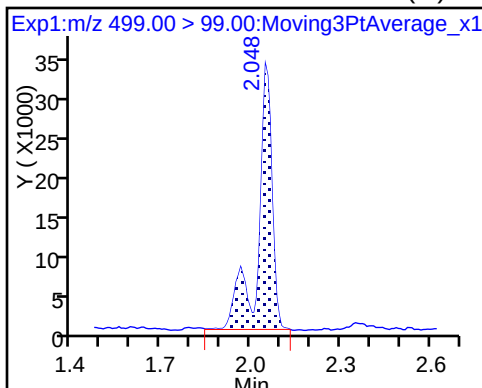
8 Perfluorooctane sulfonic acid (M)



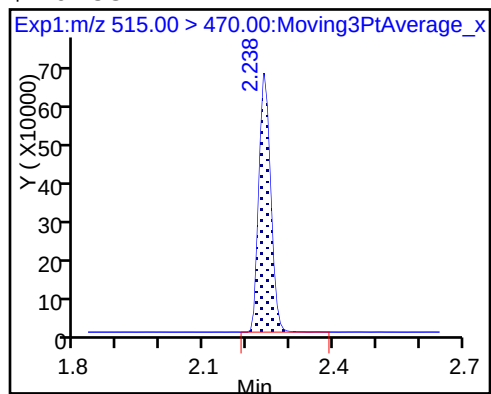
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_039.d
Lims ID: 320-35150-A-11-A
Client ID: NAWC-011718-RW-244
Sample Type: Client
Inject. Date: 06-Feb-2018 04:39:05 ALS Bottle#: 25 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:37:45

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.23	82.31
\$ 10 13C2 PFDA	10.0	9.17	91.66

TestAmerica Sacramento

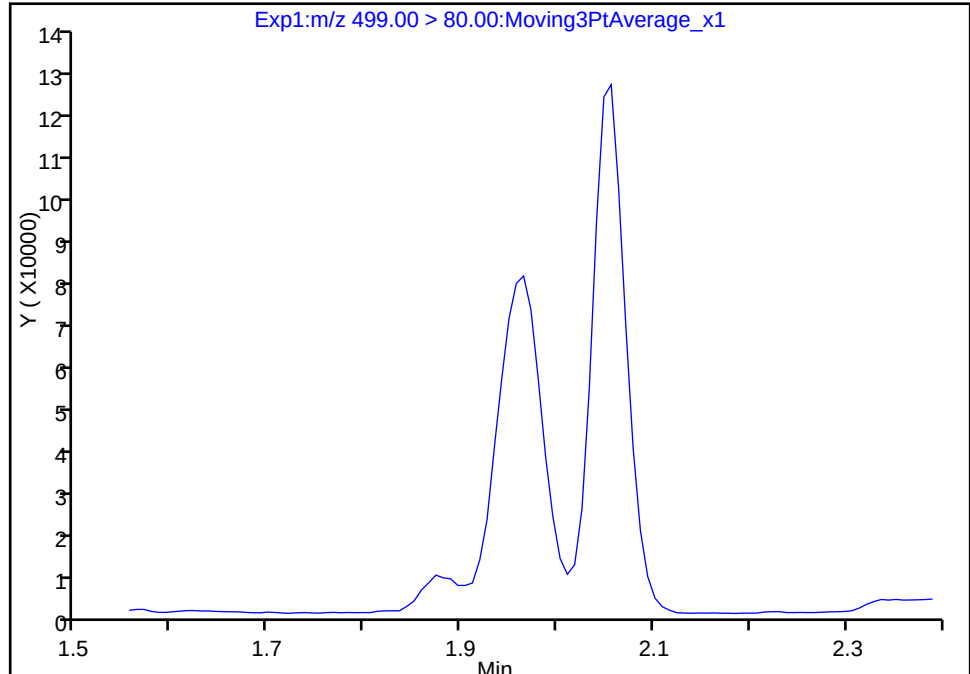
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Injection Date: 06-Feb-2018 04:39:05 Instrument ID: A8_N
Lims ID: 320-35150-A-11-A Lab Sample ID: 320-35150-11
Client ID: NAWC-011718-RW-244
Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

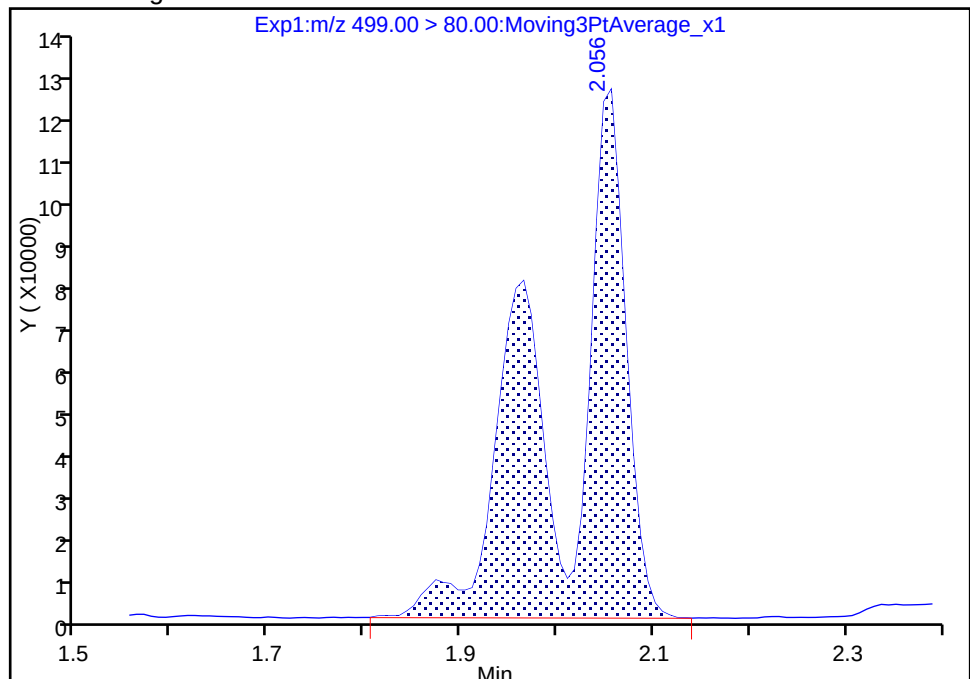
Not Detected
Expected RT: 2.05

Processing Integration Results



RT: 2.06
Area: 573261
Amount: 4.793984
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:56:15
Audit Action: Manually Integrated

Audit Reason: Assign Peak
Page 180 of 350

TestAmerica Sacramento

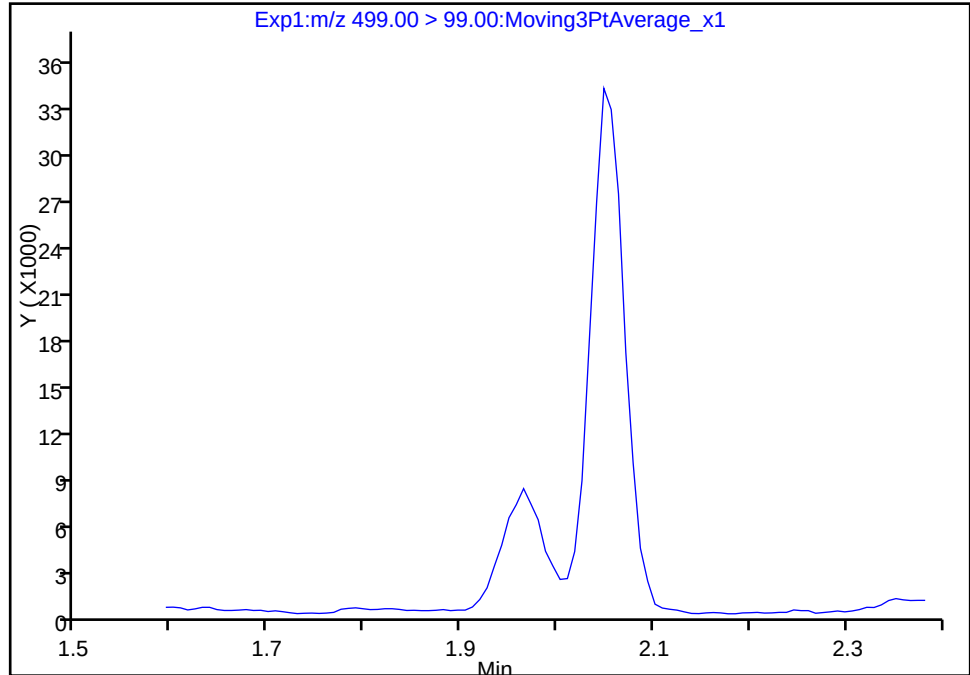
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Injection Date: 06-Feb-2018 04:39:05 Instrument ID: A8_N
Lims ID: 320-35150-A-11-A Lab Sample ID: 320-35150-11
Client ID: NAWC-011718-RW-244
Operator ID: SACINSTLCMS01 ALS Bottle#: 25 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

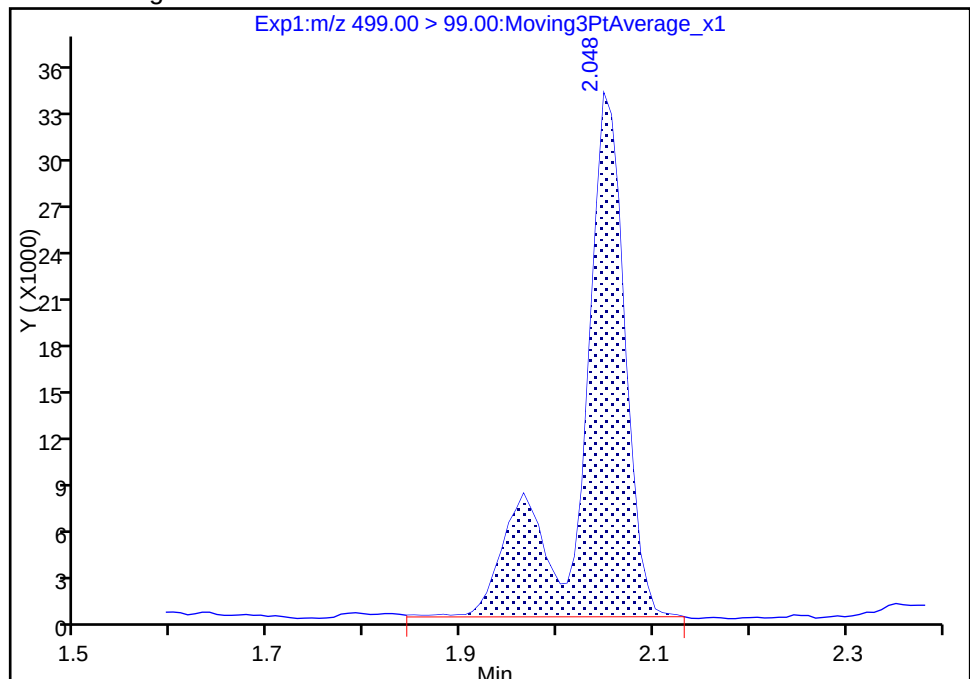
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 107408
Amount: 4.793984
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:56:31

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-244</u>	Lab Sample ID: <u>320-35150-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_040.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 14:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>247.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_040.d
 Lims ID: 320-35150-A-12-A
 Client ID: NAWC-011718-FRB-244
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:43:46 ALS Bottle#: 26 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-12-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1750971	9.36		8587	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.806	0.007		1700175	10.0		5860	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3588726	28.7		7586	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.238	0.008	1.000	1230197	9.46		7625	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_040.d

Injection Date: 06-Feb-2018 04:43:46

Instrument ID: A8_N

Lims ID: 320-35150-A-12-A

Lab Sample ID: 320-35150-12

Client ID: NAWC-011718-FRB-244

Operator ID: SACINSTLCMS01

ALS Bottle#: 26

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

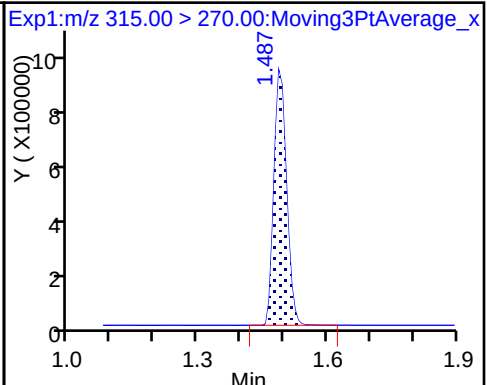
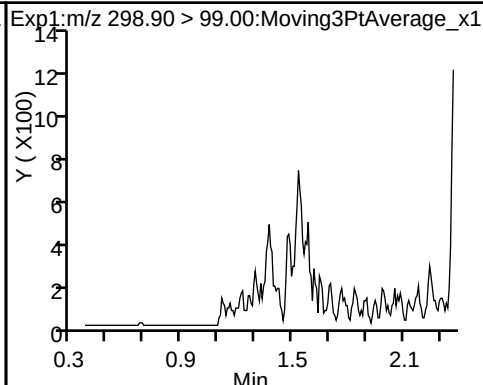
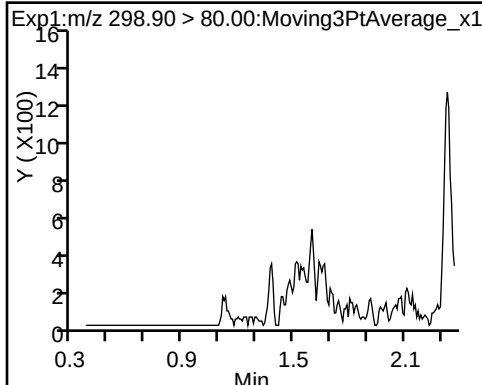
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

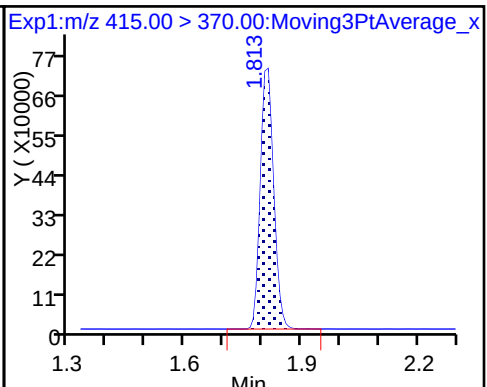
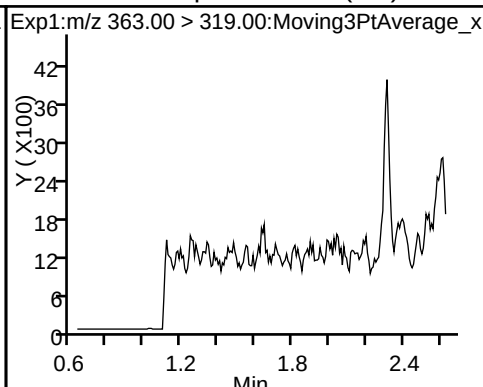
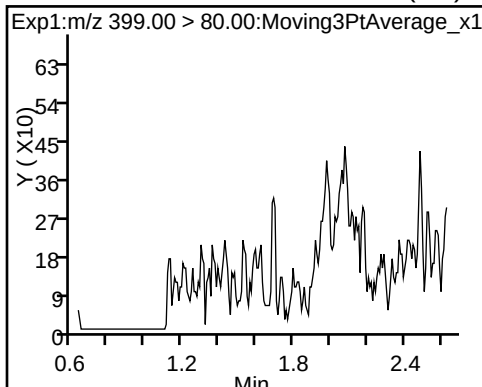
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

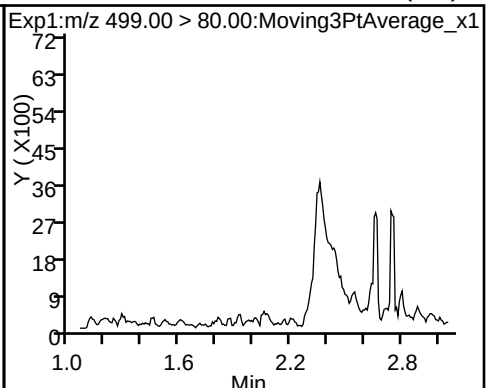
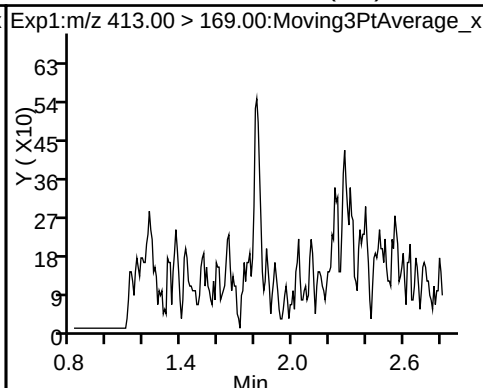
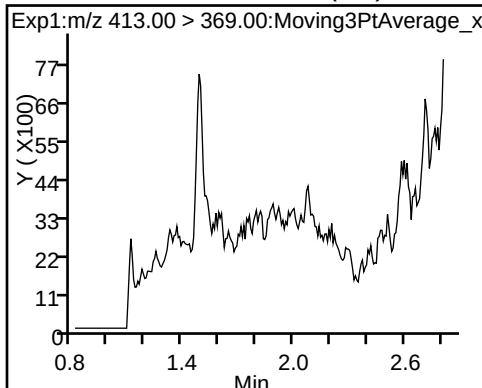
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

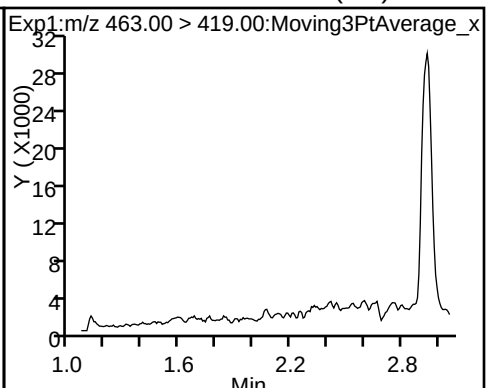
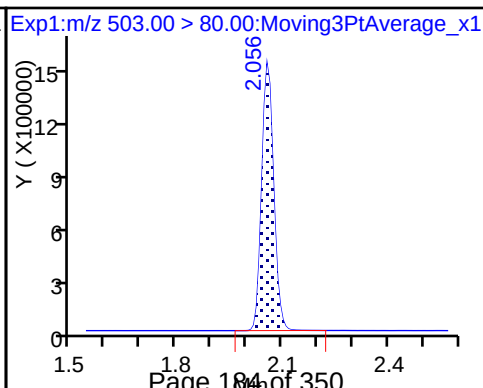
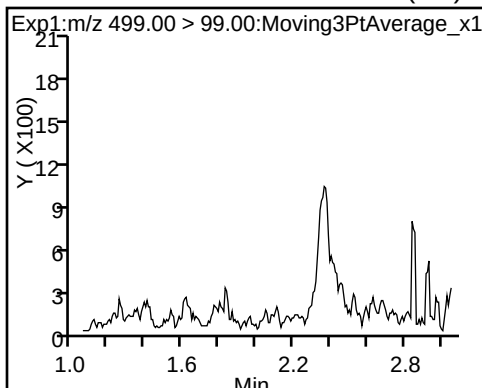
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

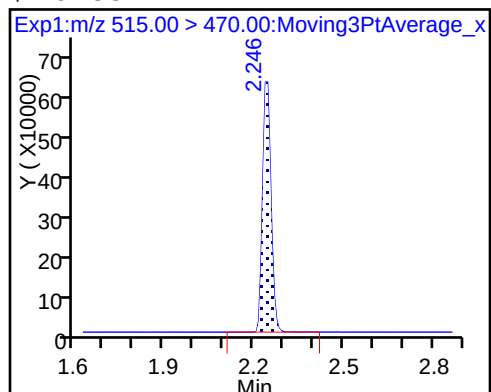


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_040.d
Lims ID: 320-35150-A-12-A
Client ID: NAWC-011718-FRB-244
Sample Type: Client
Inject. Date: 06-Feb-2018 04:43:46 ALS Bottle#: 26 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.36	93.60
\$ 10 13C2 PFDA	10.0	9.46	94.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-DUP-21 Lab Sample ID: 320-35150-13
 Matrix: Water Lab File ID: 2018.02.05_537B_041.d
 Analysis Method: 537 Date Collected: 01/17/2018 07:00
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 251.6(mL) Date Analyzed: 02/06/2018 04:48
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U M	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	85		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d
 Lims ID: 320-35150-A-13-A
 Client ID: NAWC-011718-DUP-21
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:48:26 ALS Bottle#: 27 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-13-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:58:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									M
298.90 > 80.00	1.366	1.373	-0.007	1.000	44150	0.3258		29.2	
298.90 > 99.00	1.366	1.373	-0.007	1.000	31571		1.40(0.00-0.00)	61.9	M
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1634326	8.51		8113	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	170639	0.8415		84.1	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	230684	1.41		44.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1746441	10.0		6827	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	496458	3.07		65.0	
413.00 > 169.00	1.806	1.813	-0.007	1.000	278180		1.78(0.00-0.00)	742	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.056	2.048	0.008	1.000	150843	1.33		34.2	M
499.00 > 99.00	2.056	2.048	0.008	1.000	28696		5.26(0.00-0.00)	39.0	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3473807	28.7		3540	
9 Perfluorononanoic acid									M
463.00 > 419.00	2.064	2.064	0.0	1.000	43835	0.3779		6.1	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.238	0.008	1.000	1252503	9.37		9269	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d

Injection Date: 06-Feb-2018 04:48:26

Instrument ID: A8_N

Lims ID: 320-35150-A-13-A

Lab Sample ID: 320-35150-13

Client ID: NAWC-011718-DUP-21

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

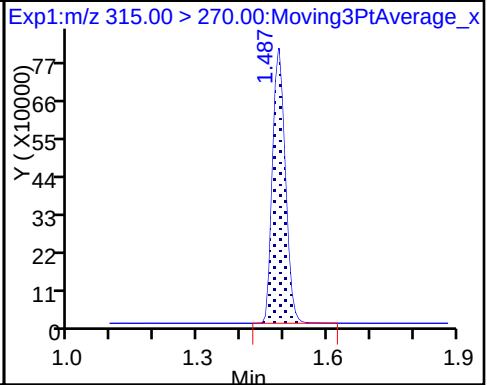
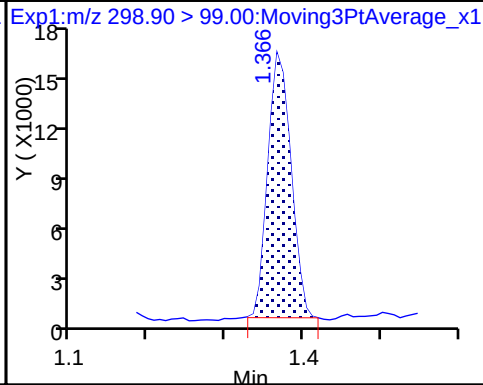
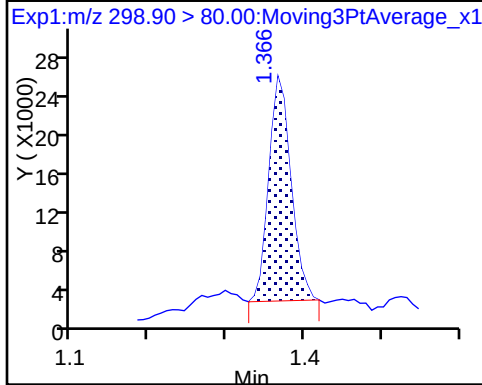
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (M)

1 Perfluorobutanesulfonic acid (M)

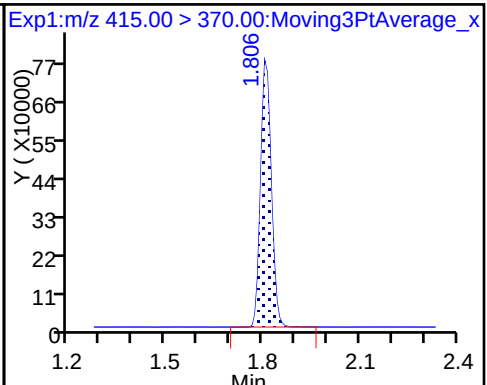
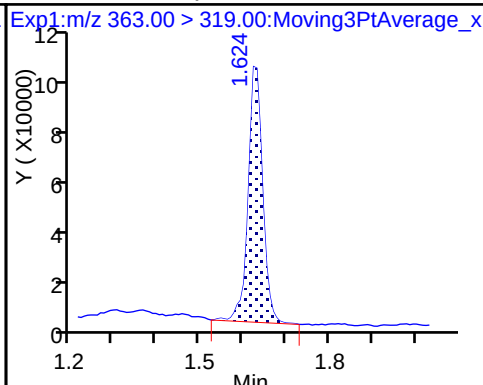
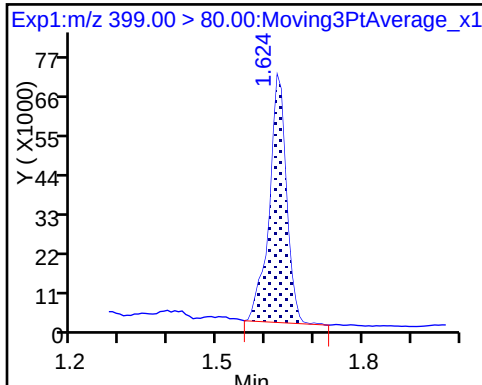
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

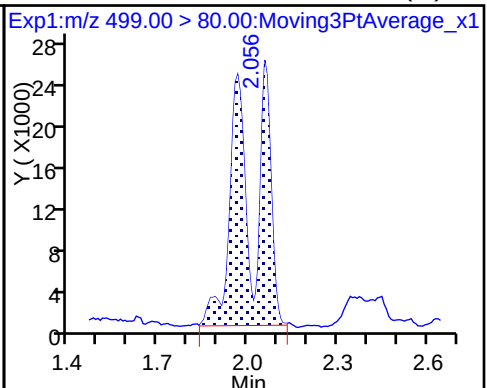
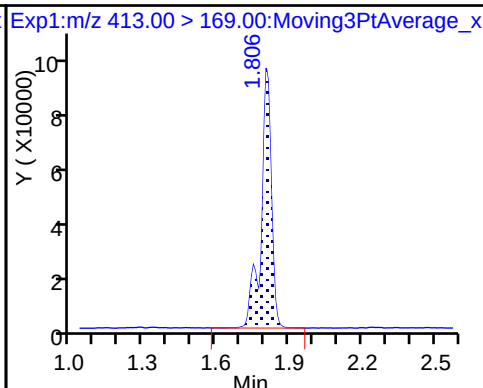
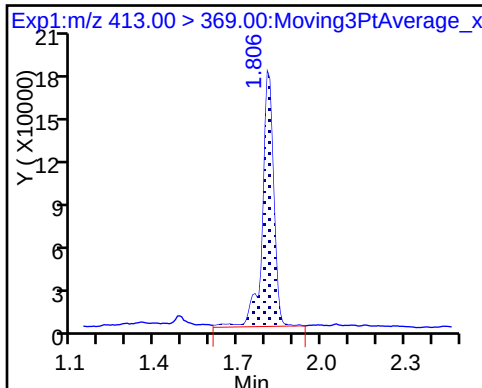
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

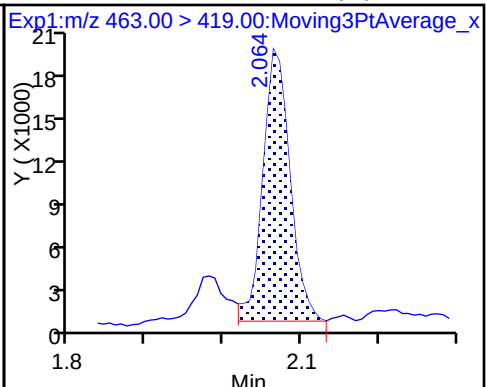
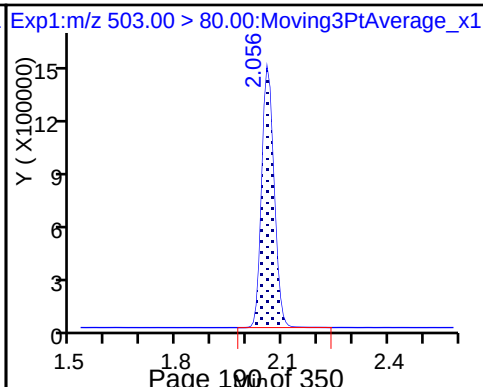
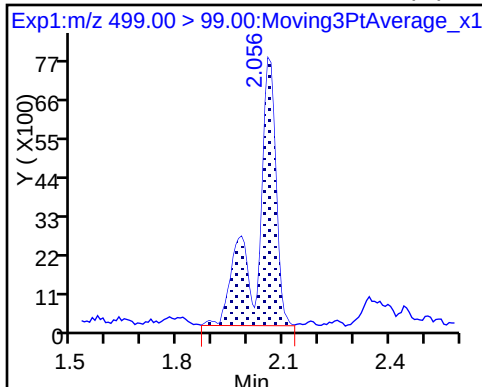
8 Perfluorooctane sulfonic acid (M)



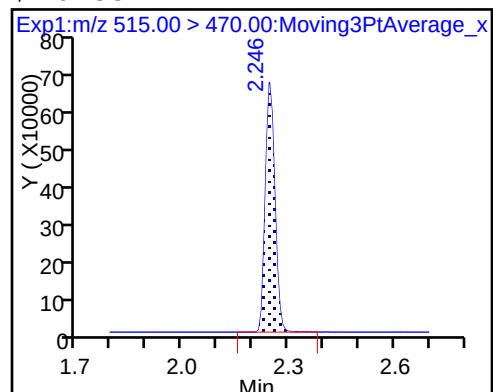
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d
Lims ID: 320-35150-A-13-A
Client ID: NAWC-011718-DUP-21
Sample Type: Client
Inject. Date: 06-Feb-2018 04:48:26 ALS Bottle#: 27 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:58:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.51	85.05
\$ 10 13C2 PFDA	10.0	9.37	93.72

TestAmerica Sacramento

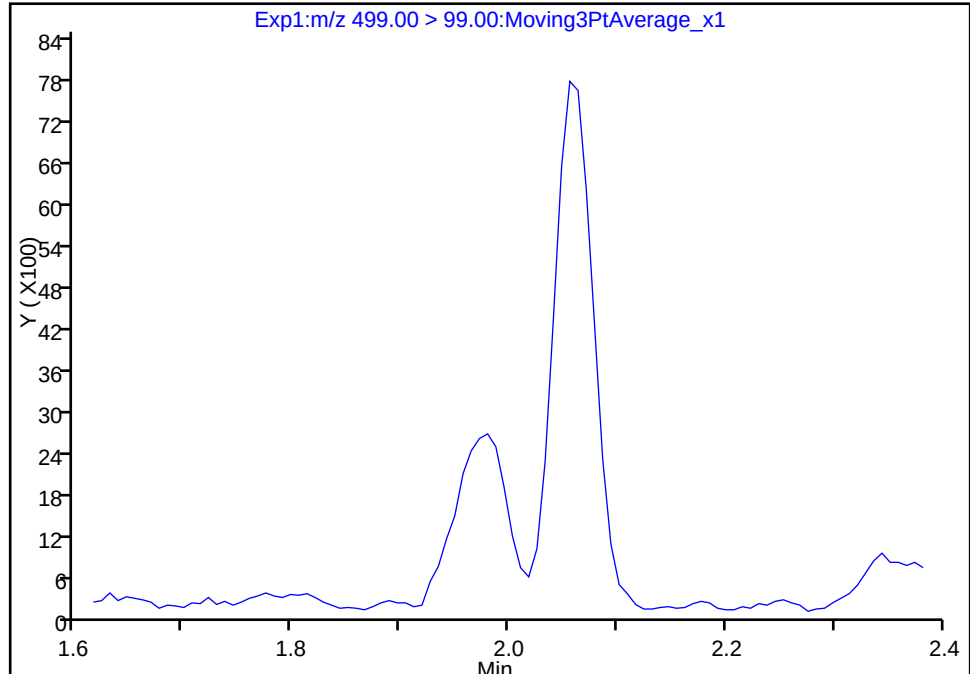
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d				
Injection Date:	06-Feb-2018 04:48:26	Instrument ID:	A8_N		
Lims ID:	320-35150-A-13-A	Lab Sample ID:	320-35150-13		
Client ID:	NAWC-011718-DUP-21				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	20
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

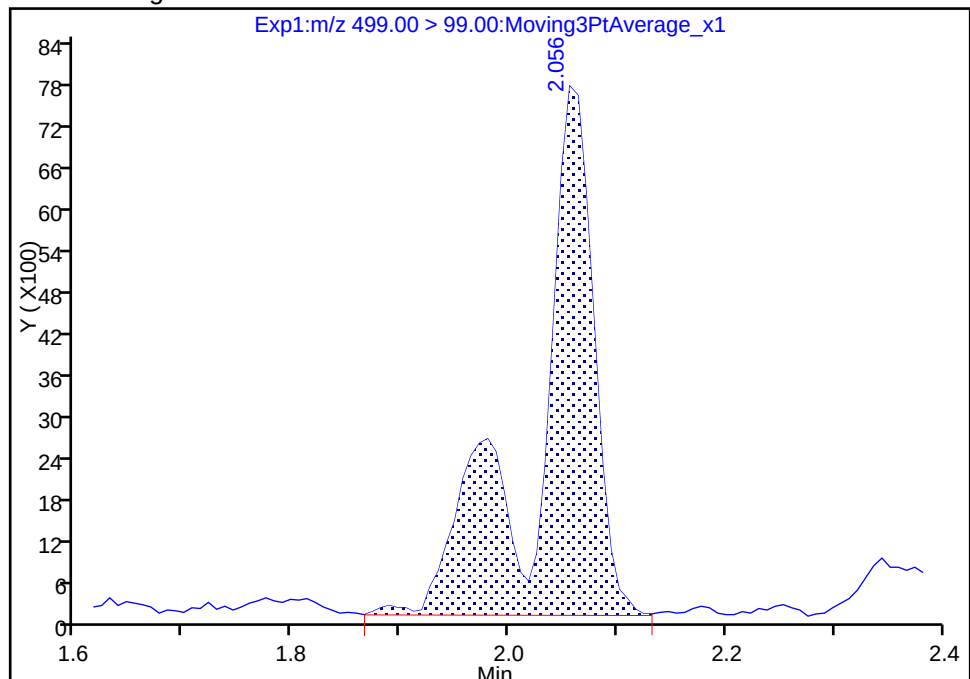
Signal: 2

Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.06
Area: 28696
Amount: 1.326346
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:58:05
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

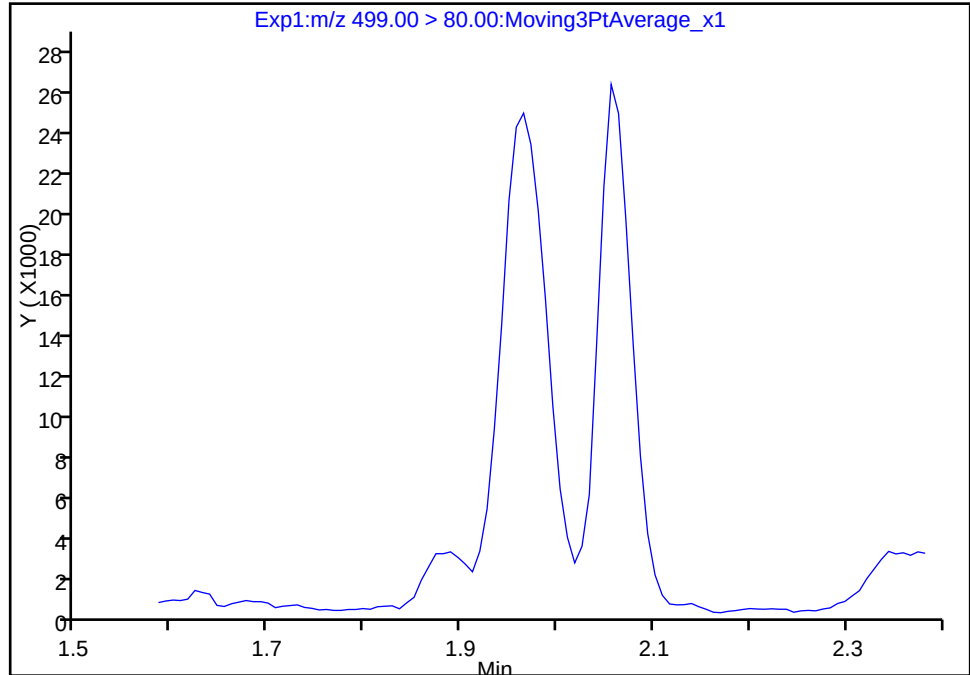
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d
Injection Date: 06-Feb-2018 04:48:26 Instrument ID: A8_N
Lims ID: 320-35150-A-13-A Lab Sample ID: 320-35150-13
Client ID: NAWC-011718-DUP-21
Operator ID: SACINSTLCMS01 ALS Bottle#: 27 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

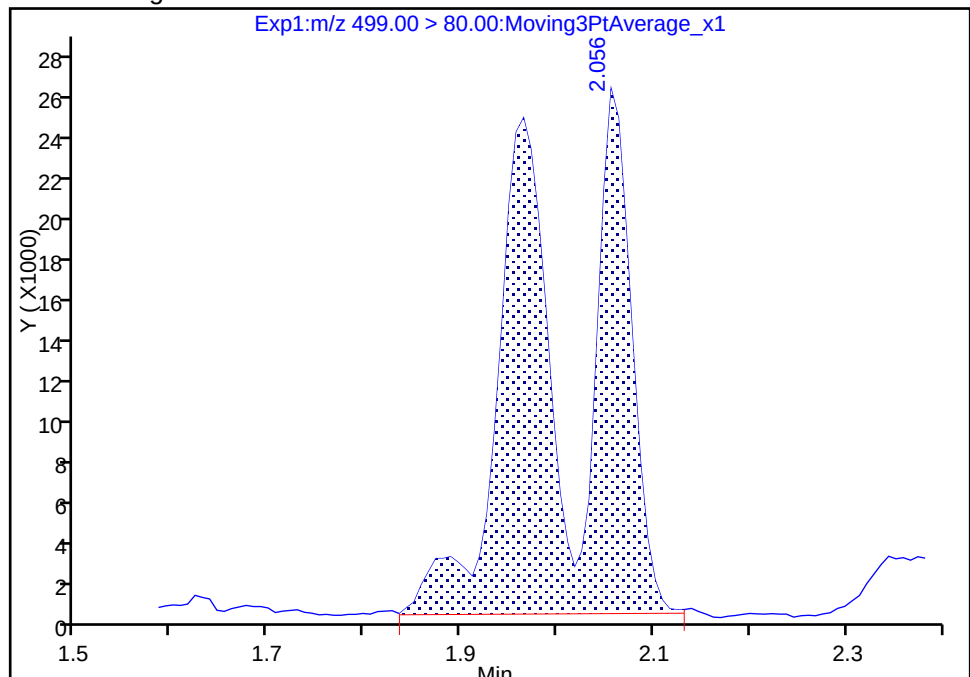
Signal: 1

Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.06
Area: 150843
Amount: 1.326346
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:58:05

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

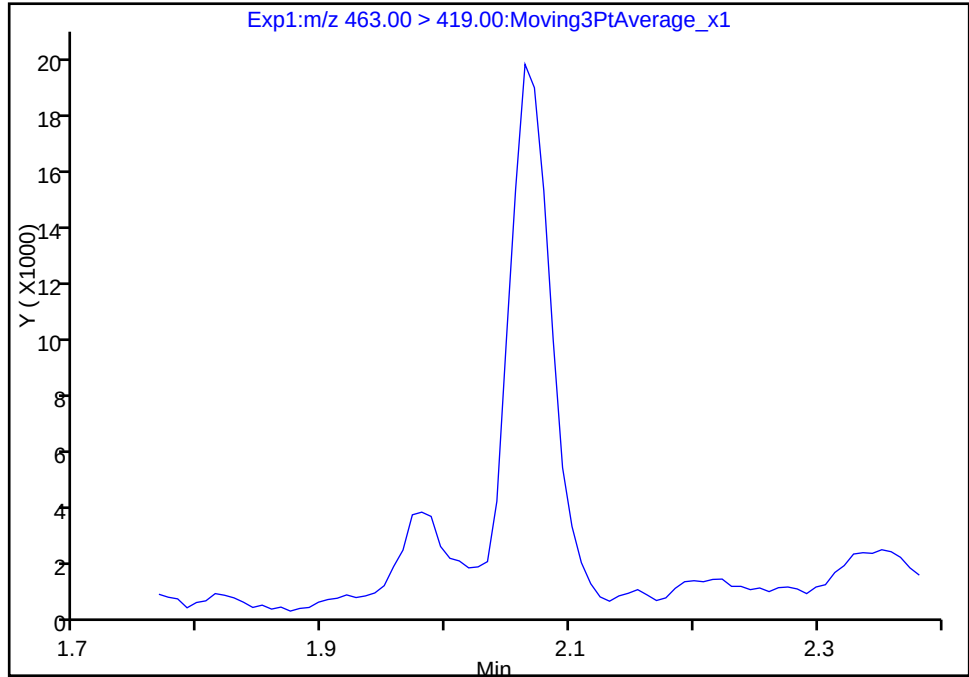
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d				
Injection Date:	06-Feb-2018 04:48:26	Instrument ID:	A8_N		
Lims ID:	320-35150-A-13-A	Lab Sample ID:	320-35150-13		
Client ID:	NAWC-011718-DUP-21				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	20
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

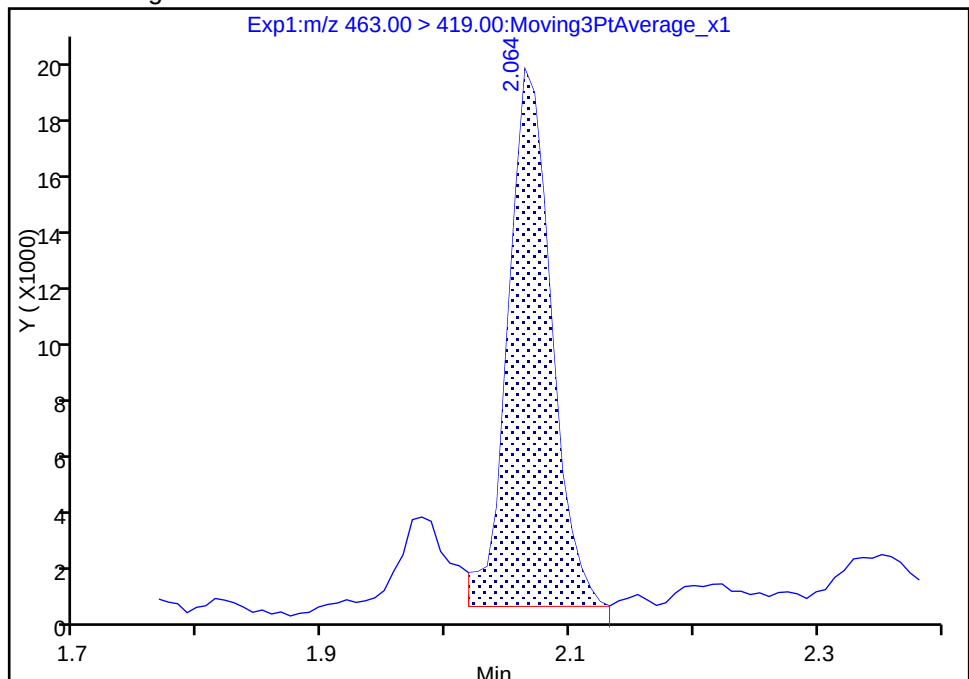
Signal: 1

Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results



RT: 2.06
Area: 43835
Amount: 0.377915
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:58:23

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

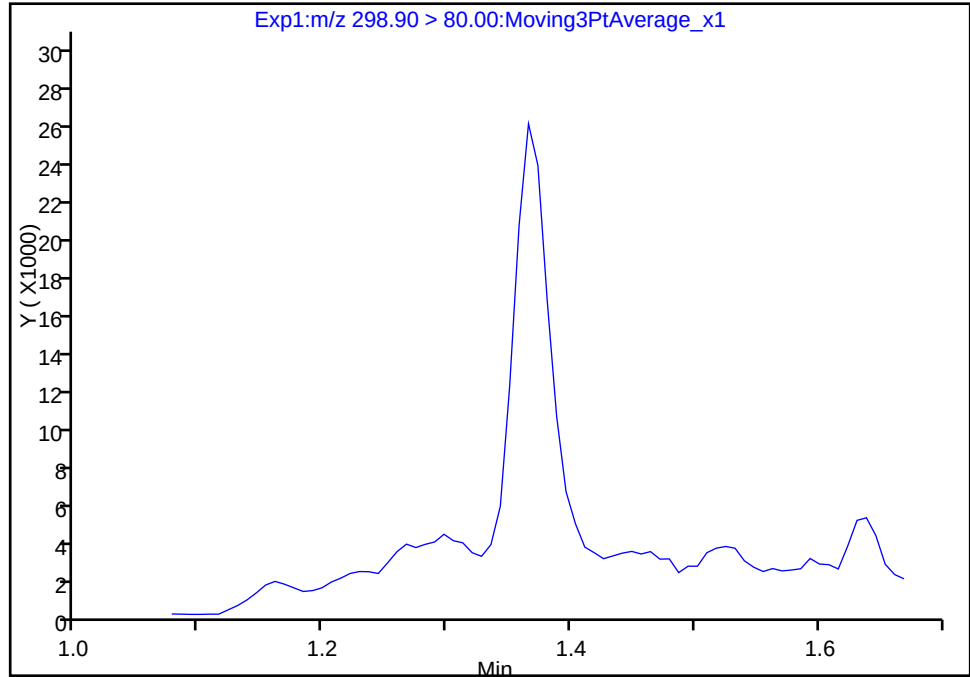
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d
Injection Date: 06-Feb-2018 04:48:26 Instrument ID: A8_N
Lims ID: 320-35150-A-13-A Lab Sample ID: 320-35150-13
Client ID: NAWC-011718-DUP-21
Operator ID: SACINSTLCMS01 ALS Bottle#: 27 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

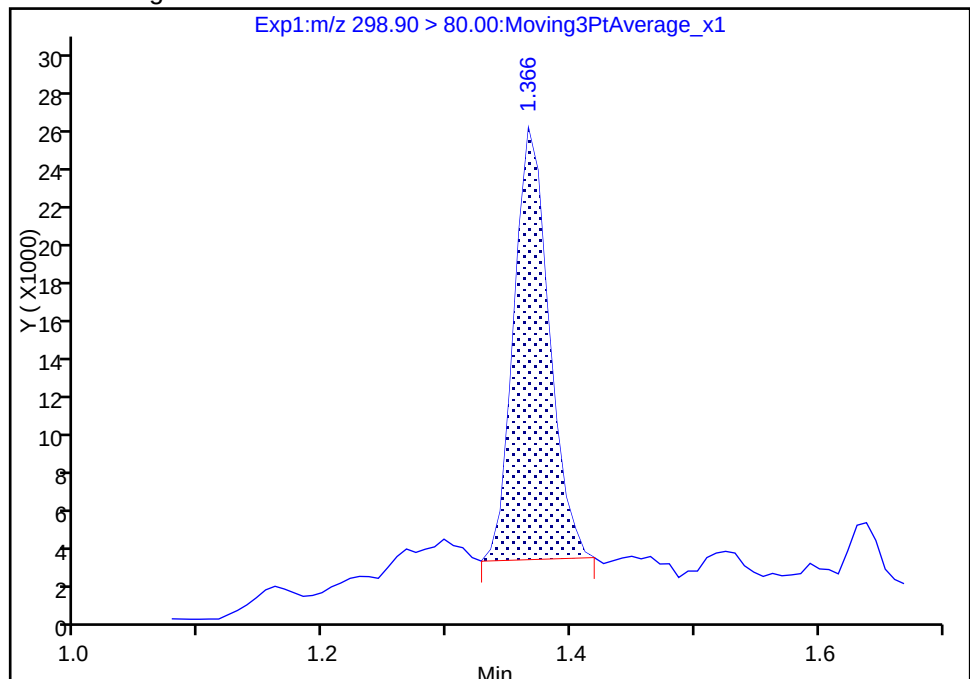
Not Detected
Expected RT: 1.37

Processing Integration Results



RT: 1.37
Area: 44150
Amount: 0.325797
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:58:31
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

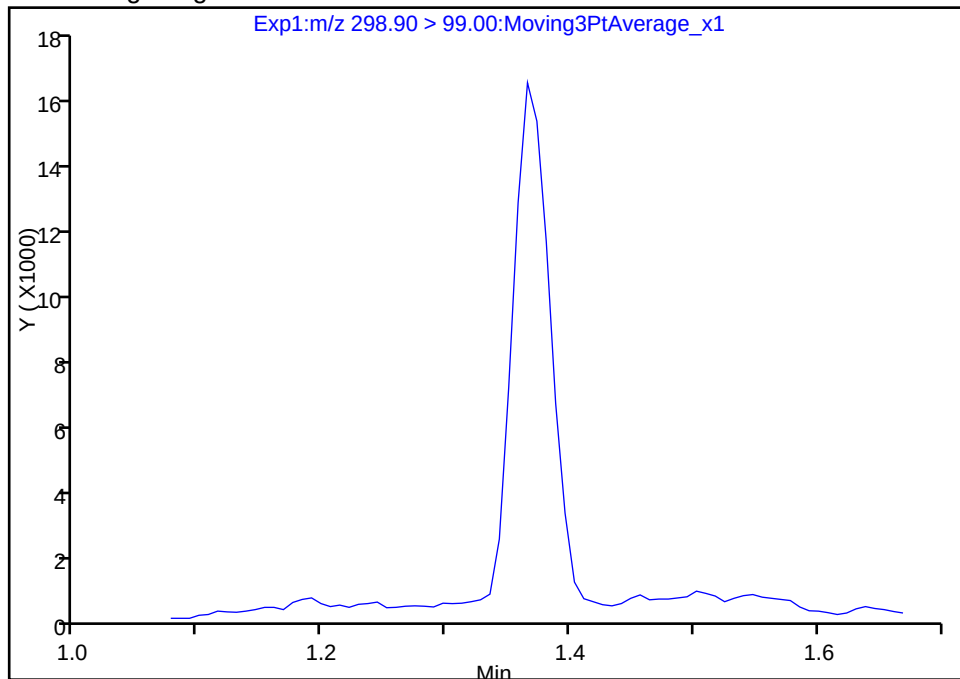
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_041.d
Injection Date: 06-Feb-2018 04:48:26 Instrument ID: A8_N
Lims ID: 320-35150-A-13-A Lab Sample ID: 320-35150-13
Client ID: NAWC-011718-DUP-21
Operator ID: SACINSTLCMS01 ALS Bottle#: 27 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

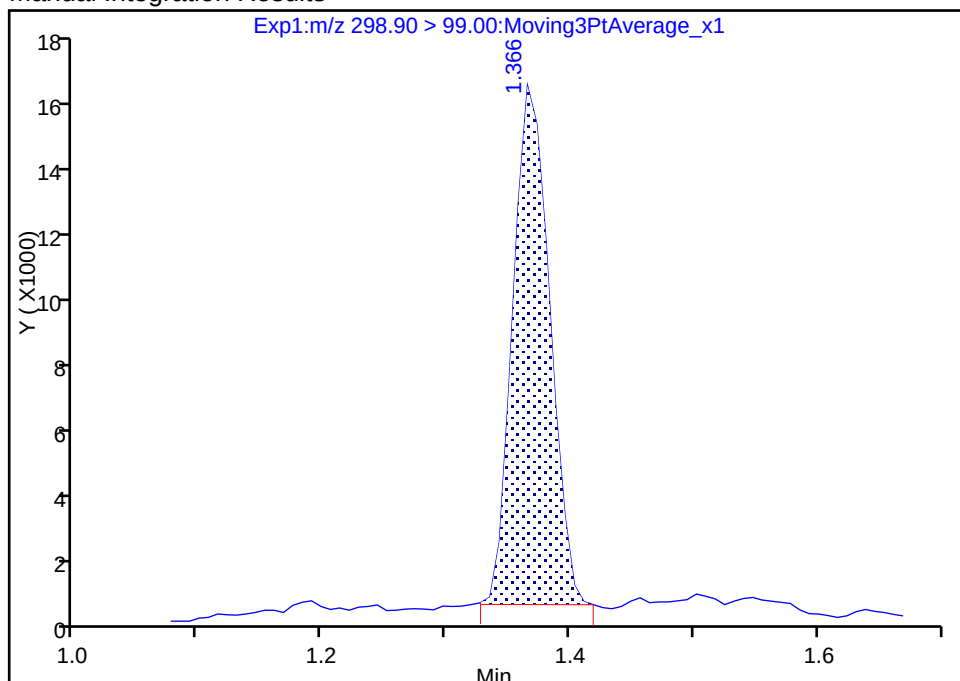
Not Detected
Expected RT: 1.37

Processing Integration Results



Manual Integration Results

RT: 1.37
Area: 31571
Amount: 0.325797
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:58:38

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-240</u>	Lab Sample ID: <u>320-35150-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_042.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 16:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>255.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:53</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.4	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	9.3	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_042.d
 Lims ID: 320-35150-A-14-B
 Client ID: NAWC-011718-RW-240
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:53:05 ALS Bottle#: 28 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-14-b
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 15:00:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	119132	0.8293		147	
298.90 > 99.00	1.366	1.373	-0.007	1.000	91373		1.30(0.00-0.00)	213	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1724966	8.79		8509	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	345035	1.60		322	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	159866	0.9564		40.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1784061	10.0		6736	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	393694	2.38		55.8	
413.00 > 169.00	1.798	1.813	-0.015	0.996	247958		1.59(0.00-0.00)	611	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.048	0.0	1.000	290606	2.41		35.1	Ma
499.00 > 99.00	2.048	2.048	0.0	1.000	50537		5.75(0.00-0.00)	49.7	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3684979	28.7		5637	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1263703	9.26		8411	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_042.d

Injection Date: 06-Feb-2018 04:53:05

Instrument ID: A8_N

Lims ID: 320-35150-A-14-B

Lab Sample ID: 320-35150-14

Client ID: NAWC-011718-RW-240

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

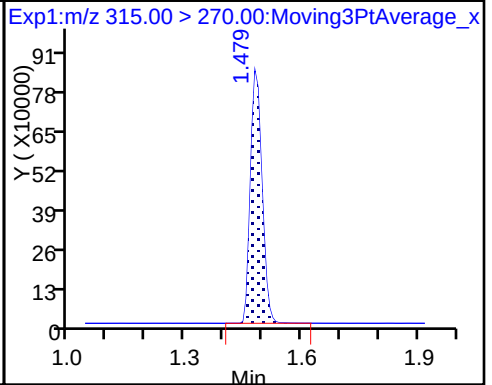
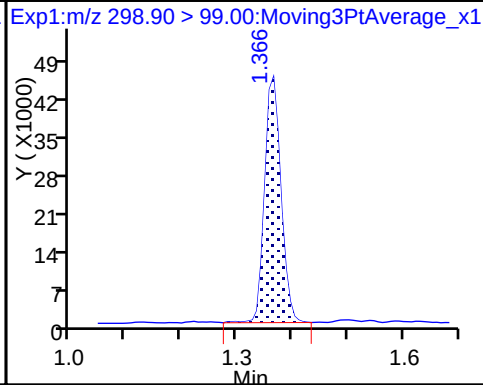
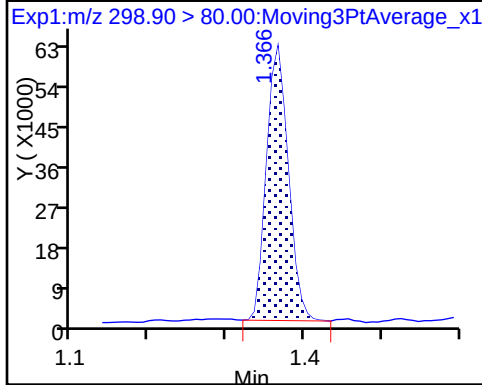
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

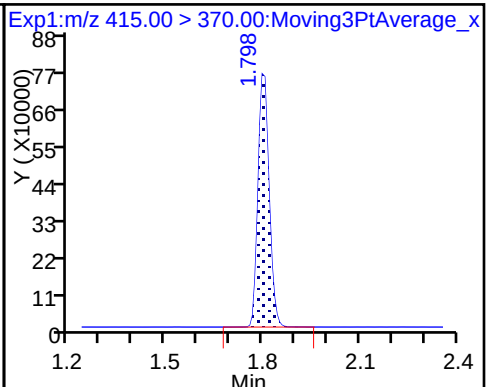
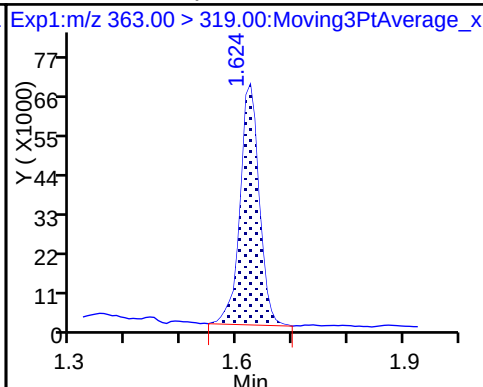
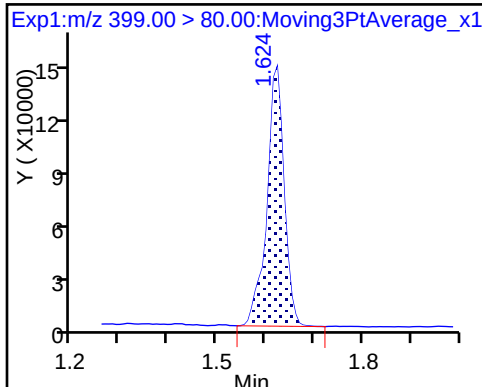
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

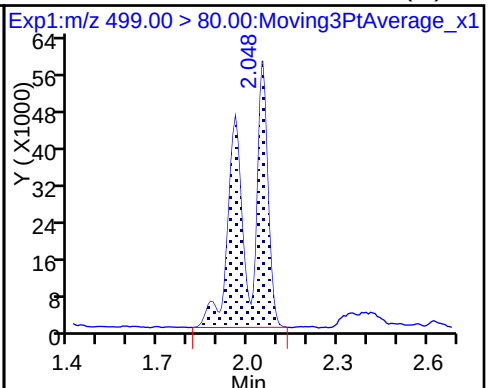
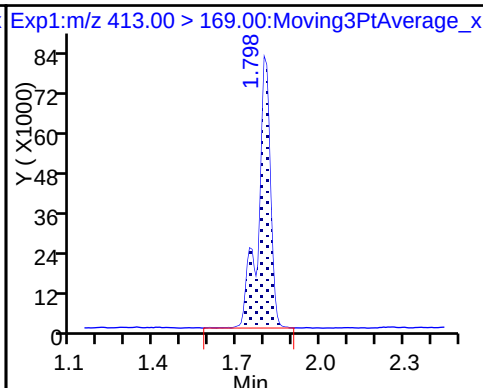
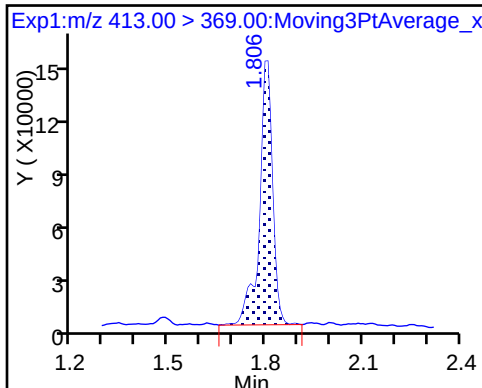
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

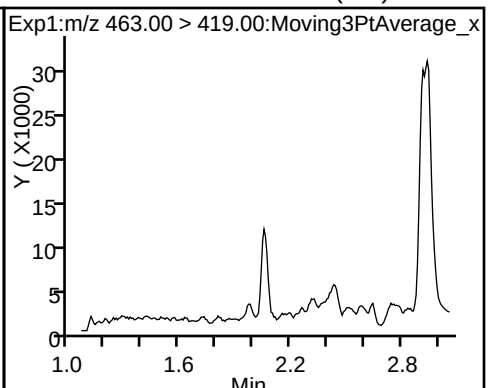
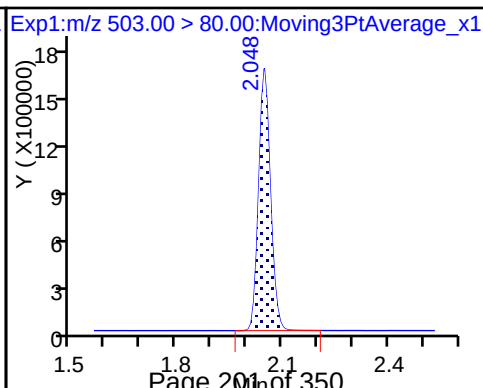
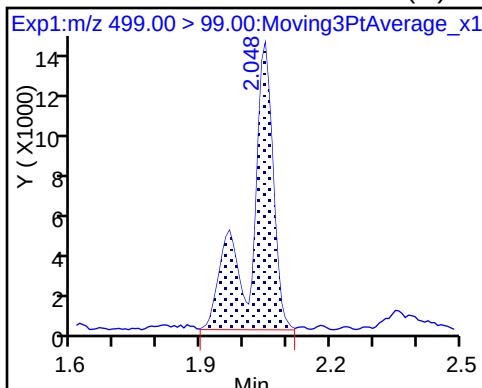
8 Perfluorooctane sulfonic acid (M)



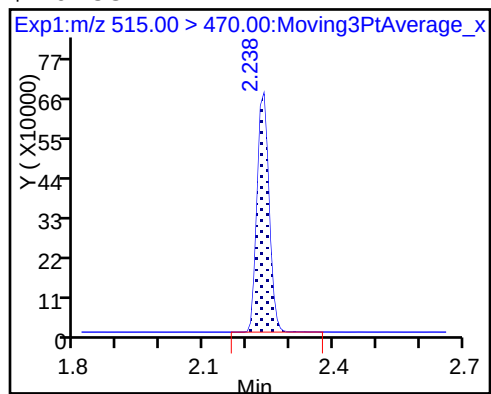
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_042.d
Lims ID: 320-35150-A-14-B
Client ID: NAWC-011718-RW-240
Sample Type: Client
Inject. Date: 06-Feb-2018 04:53:05 ALS Bottle#: 28 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-14-b
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 15:00:10

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.79	87.87
\$ 10 13C2 PFDA	10.0	9.26	92.57

TestAmerica Sacramento

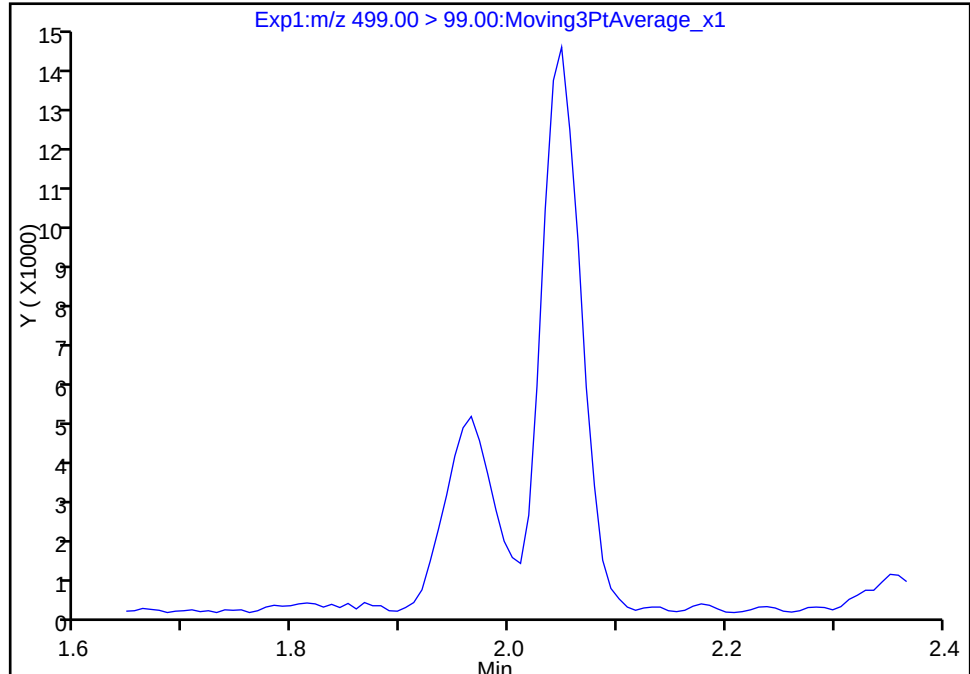
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_042.d				
Injection Date:	06-Feb-2018 04:53:05	Instrument ID:	A8_N		
Lims ID:	320-35150-A-14-B	Lab Sample ID:	320-35150-14		
Client ID:	NAWC-011718-RW-240				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	28	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

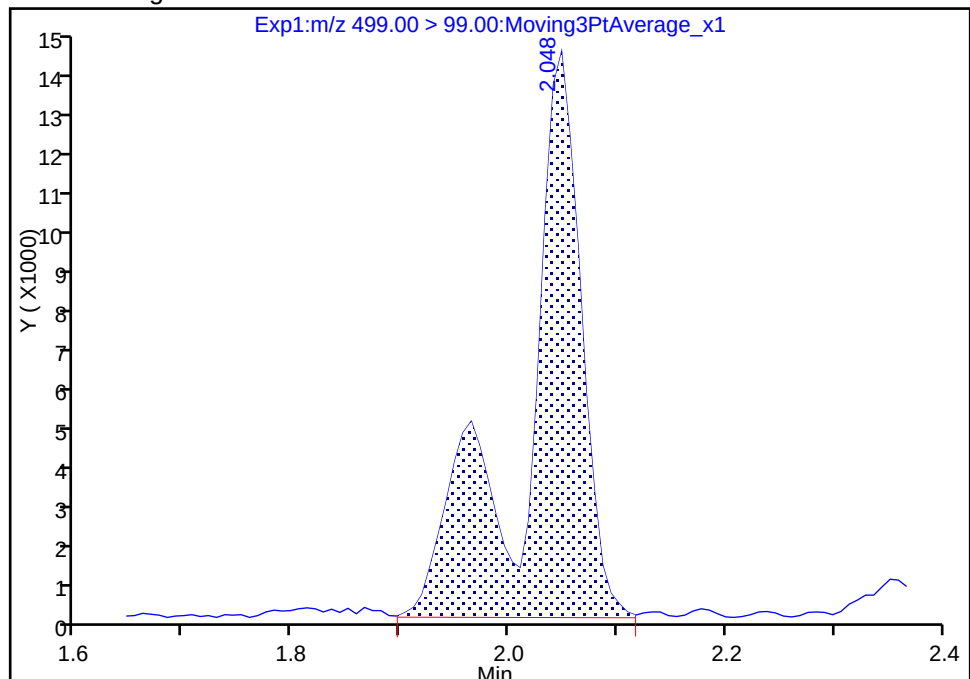
Signal: 2

Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 50537
Amount: 2.408834
Amount Units: ng/mlReviewer: barnettj, 06-Feb-2018 14:59:50
Audit Action: Manually IntegratedAudit Reason: Assign Peak
Page 204 of 350

TestAmerica Sacramento

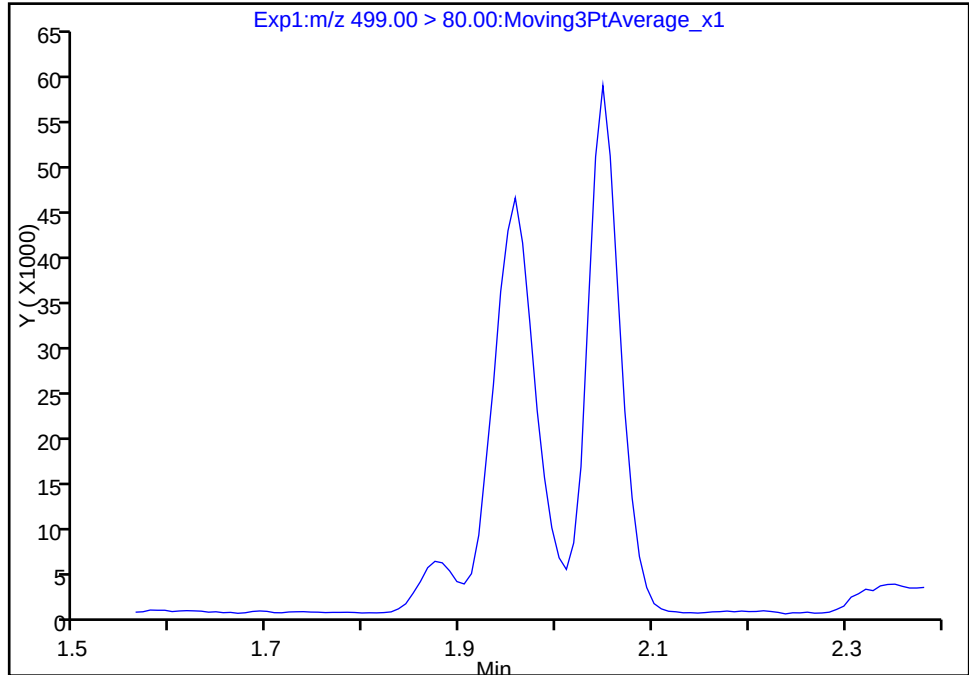
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Injection Date: 06-Feb-2018 04:53:05 Instrument ID: A8_N
Lims ID: 320-35150-A-14-B Lab Sample ID: 320-35150-14
Client ID: NAWC-011718-RW-240
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

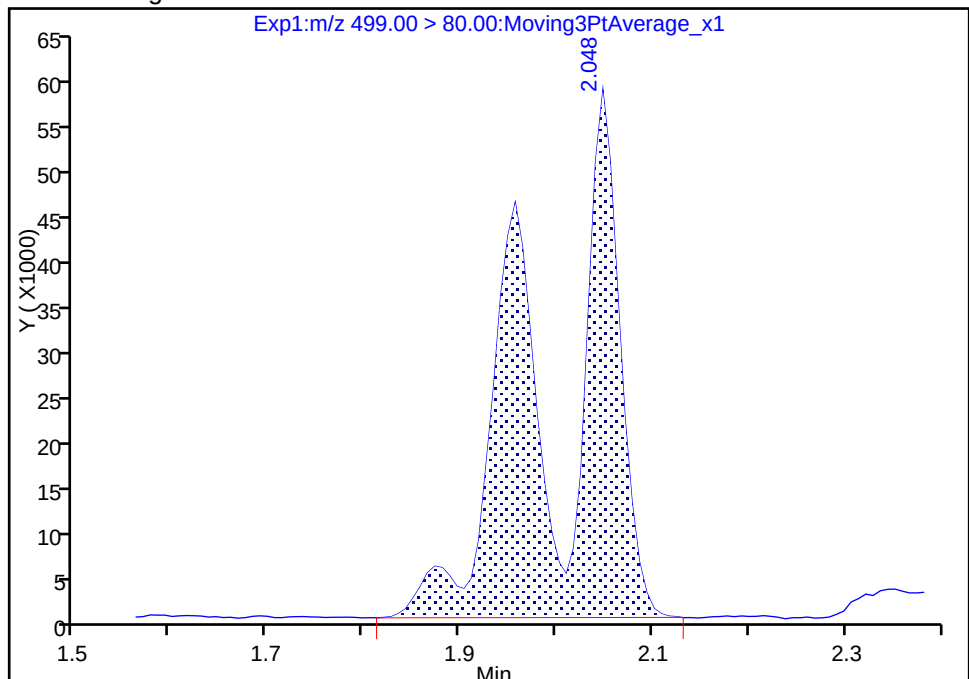
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 290606
Amount: 2.408834
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:59:50

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-240</u>	Lab Sample ID: <u>320-35150-15</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_043.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 16:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>252.3 (mL)</u>	Date Analyzed: <u>02/06/2018 04:57</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	101		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_043.d
 Lims ID: 320-35150-A-15-A
 Client ID: NAWC-011718-FRB-240
 Sample Type: Client
 Inject. Date: 06-Feb-2018 04:57:45 ALS Bottle#: 29 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-15-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1808456	10.1		10497	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1630433	10.0		6162	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3480691	28.7		7299	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1260758	10.1		8025	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_043.d

Injection Date: 06-Feb-2018 04:57:45

Instrument ID: A8_N

Lims ID: 320-35150-A-15-A

Lab Sample ID: 320-35150-15

Client ID: NAWC-011718-FRB-240

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

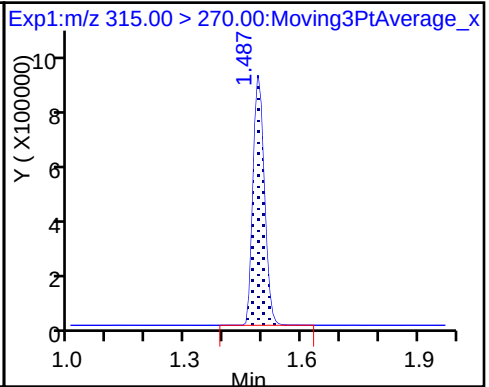
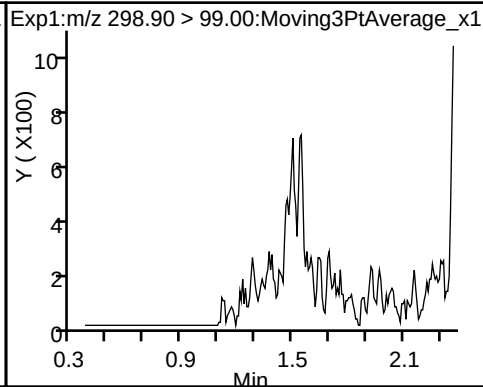
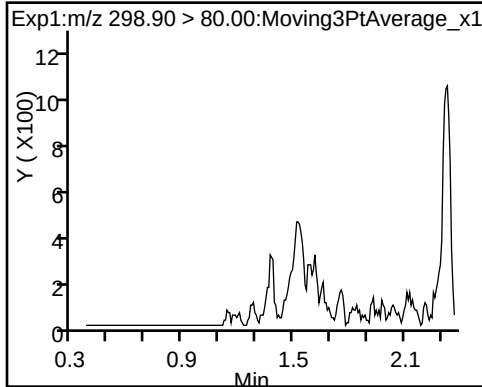
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

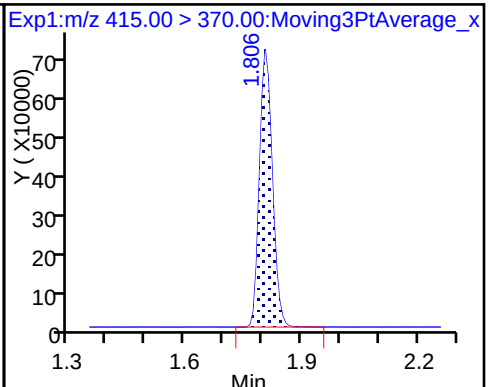
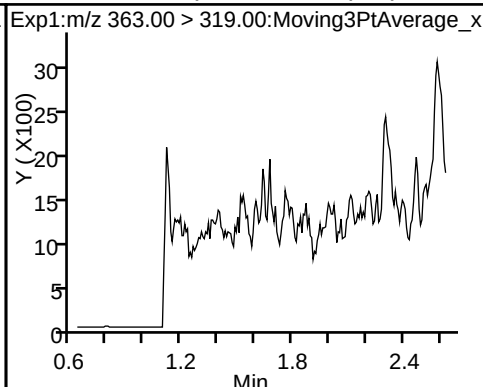
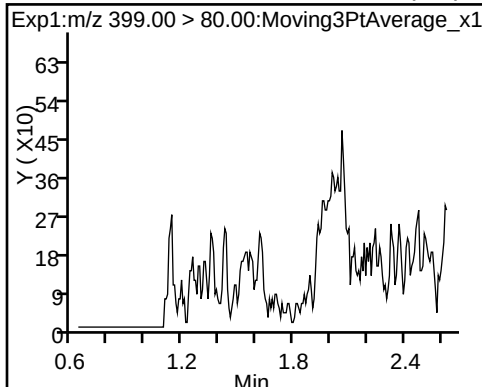
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

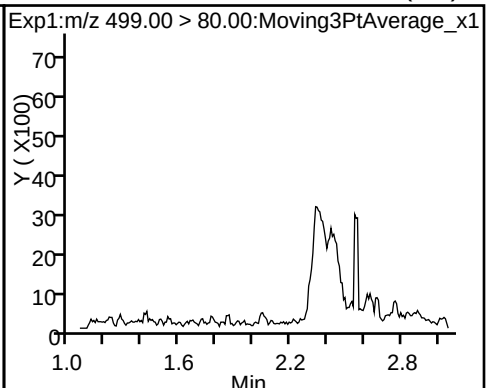
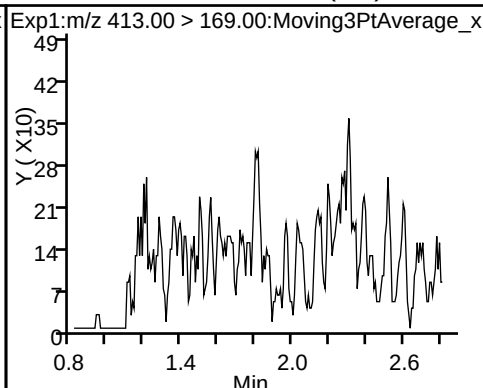
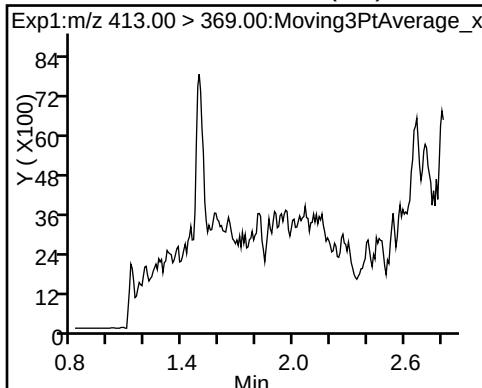
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

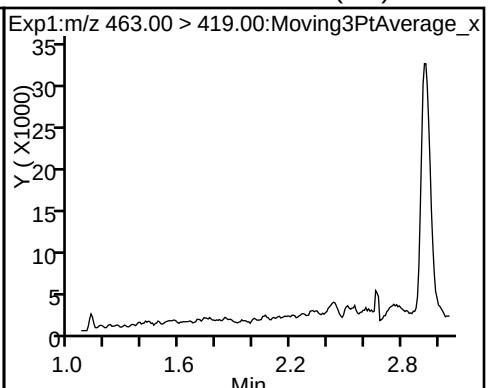
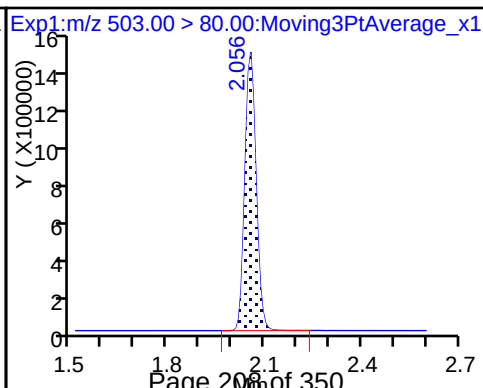
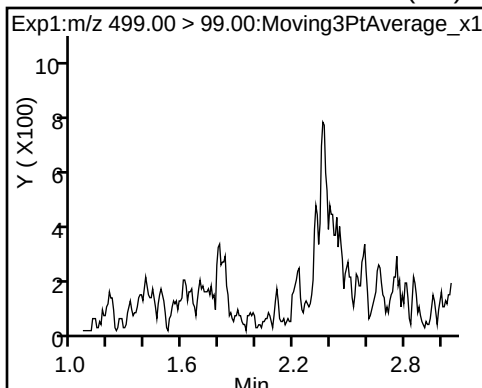
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

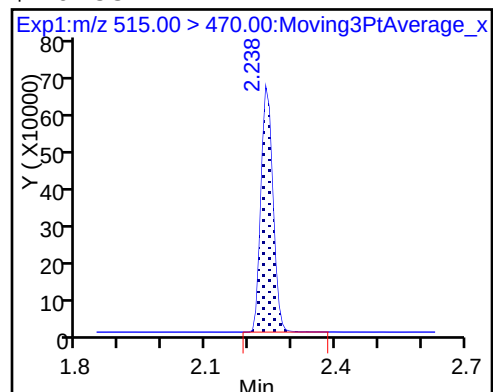


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_043.d
Lims ID: 320-35150-A-15-A
Client ID: NAWC-011718-FRB-240
Sample Type: Client
Inject. Date: 06-Feb-2018 04:57:45 ALS Bottle#: 29 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	100.81
\$ 10 13C2 PFDA	10.0	10.1	101.05

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Client Sample ID: NAWC-011718-RW-249 Lab Sample ID: 320-35150-16

Matrix: Water Lab File ID: 2018.02.05_537B_044.d

Analysis Method: 537 Date Collected: 01/17/2018 10:40

Extraction Method: 537 Date Extracted: 01/31/2018 07:27

Sample wt/vol: 254.7(mL) Date Analyzed: 02/06/2018 05:02

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

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

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

Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U M	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d
 Lims ID: 320-35150-A-16-A
 Client ID: NAWC-011718-RW-249
 Sample Type: Client
 Inject. Date: 06-Feb-2018 05:02:26 ALS Bottle#: 30 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-16-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 15:01:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	37978	0.2719		24.2	M
298.90 > 99.00	1.366	1.373	-0.007	1.000	31842		1.19(0.00-0.00)	65.6	M
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1769123	9.57		8273	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	173286	0.8291		81.3	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	231125	1.47		44.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1680169	10.0		6595	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	481653	3.10		60.1	
413.00 > 169.00	1.806	1.813	-0.007	1.000	285562		1.69(0.00-0.00)	758	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	150391	1.28		39.2	Ma
499.00 > 99.00	2.056	2.048	0.008	1.000	27423		5.48(0.00-0.00)	39.8	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3580581	28.7		3617	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	44295	0.3969		5.4	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.238	0.008	1.000	1284582	10.0		9127	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d

Injection Date: 06-Feb-2018 05:02:26

Instrument ID: A8_N

Lims ID: 320-35150-A-16-A

Lab Sample ID: 320-35150-16

Client ID: NAWC-011718-RW-249

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

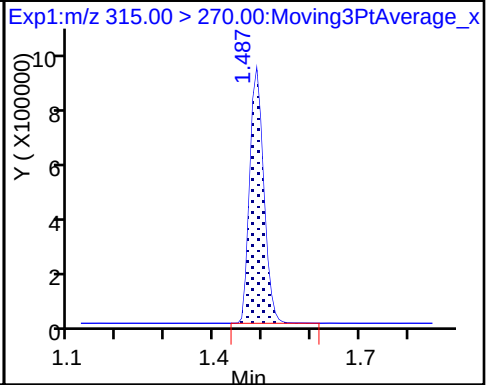
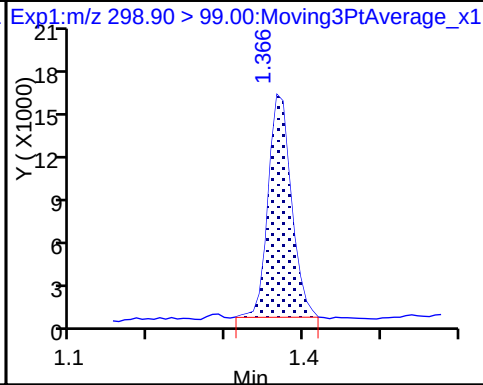
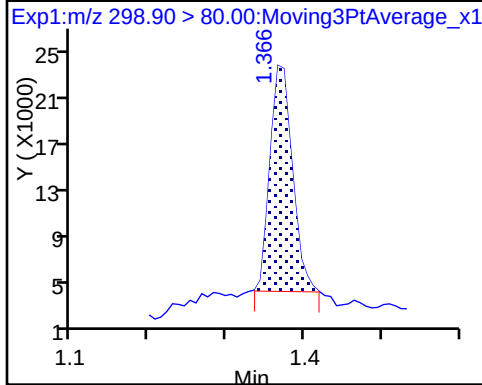
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (M)

1 Perfluorobutanesulfonic acid (M)

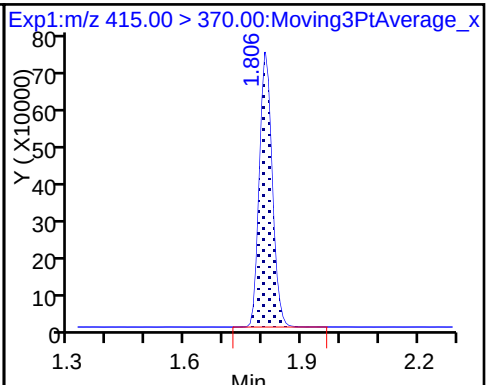
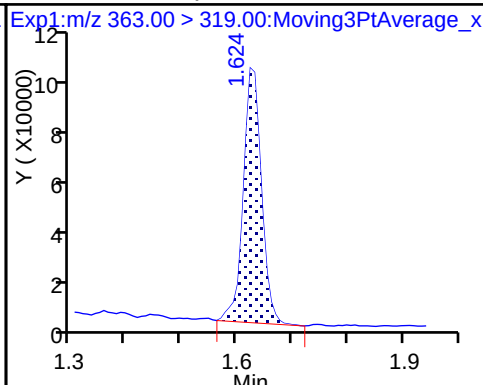
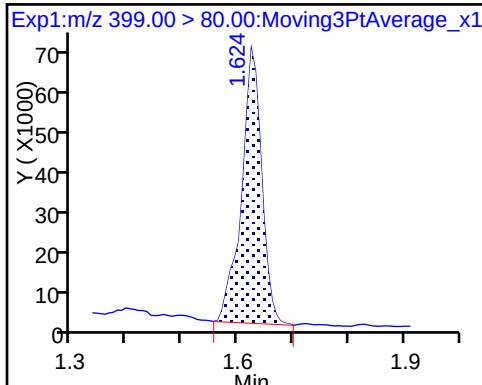
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

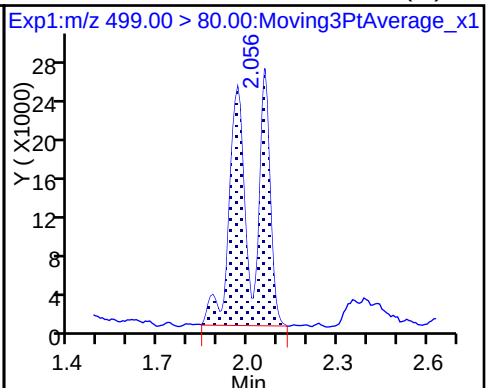
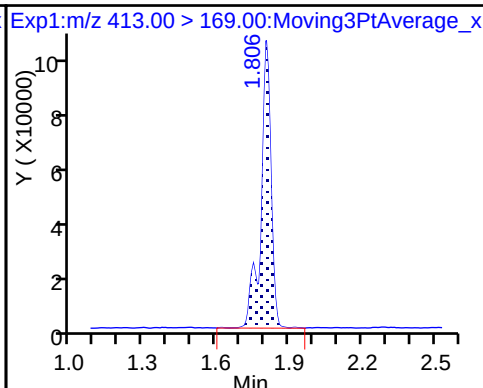
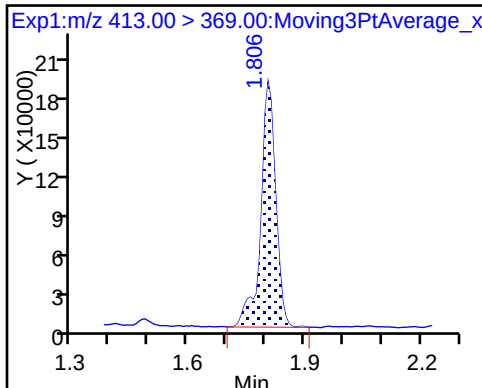
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

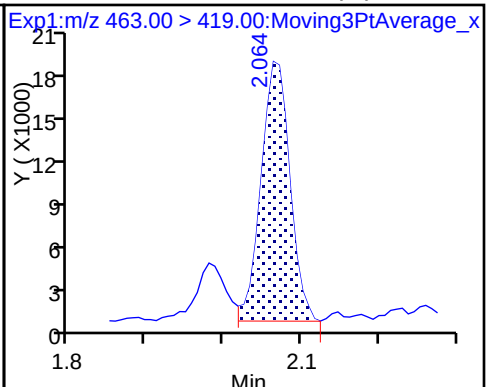
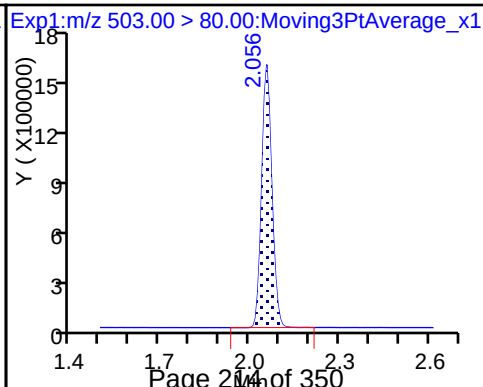
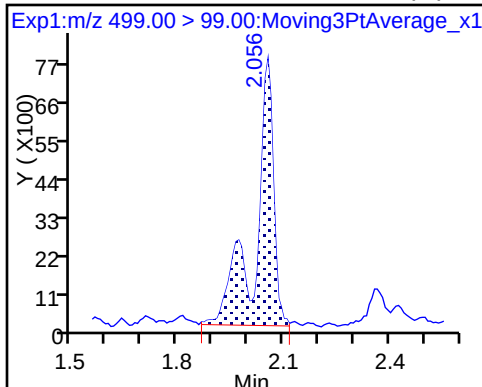
8 Perfluorooctane sulfonic acid (M)



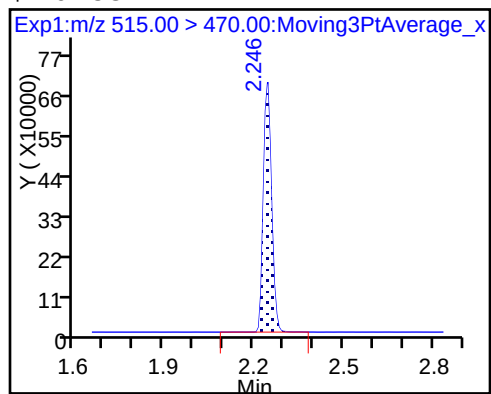
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d
Lims ID: 320-35150-A-16-A
Client ID: NAWC-011718-RW-249
Sample Type: Client
Inject. Date: 06-Feb-2018 05:02:26 ALS Bottle#: 30 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-16-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 15:01:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.57	95.70
\$ 10 13C2 PFDA	10.0	10.0	99.92

TestAmerica Sacramento

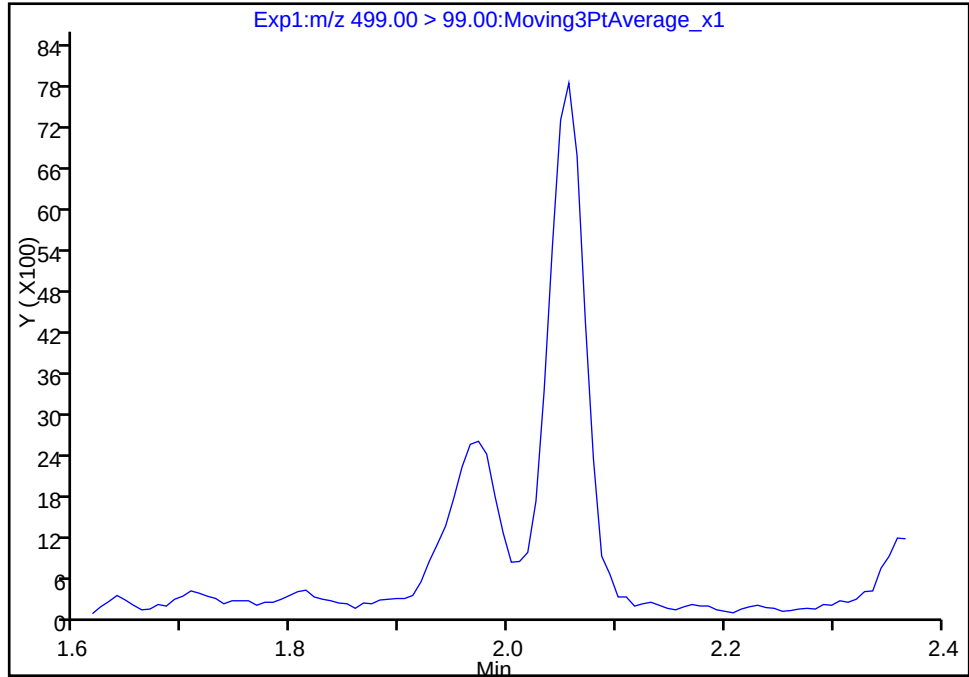
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d
Injection Date: 06-Feb-2018 05:02:26 Instrument ID: A8_N
Lims ID: 320-35150-A-16-A Lab Sample ID: 320-35150-16
Client ID: NAWC-011718-RW-249
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. 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

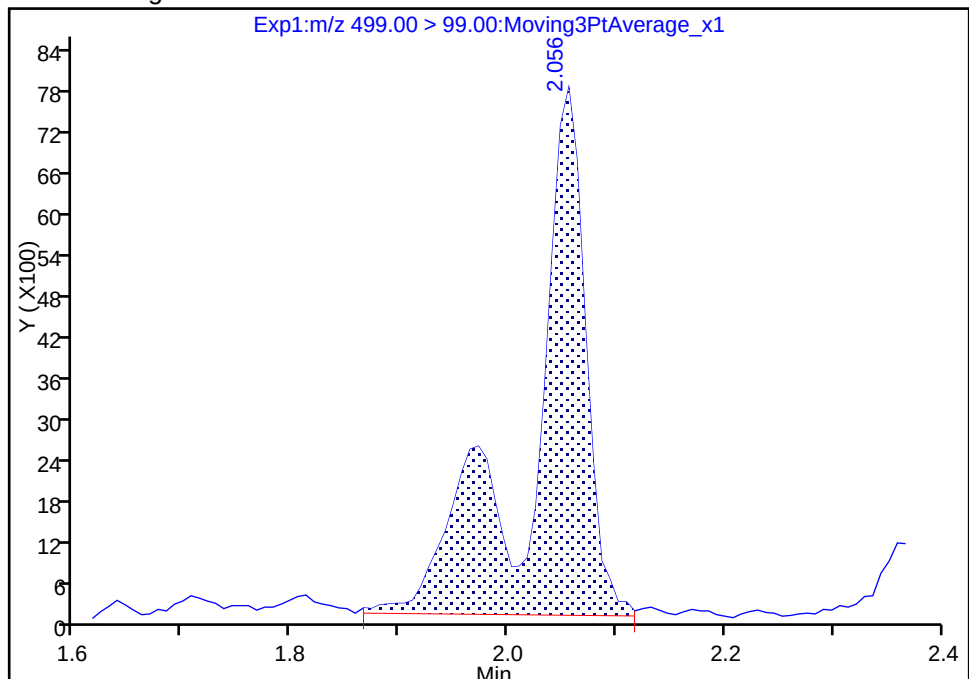
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 27423
Amount: 1.282938
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 15:00:40

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

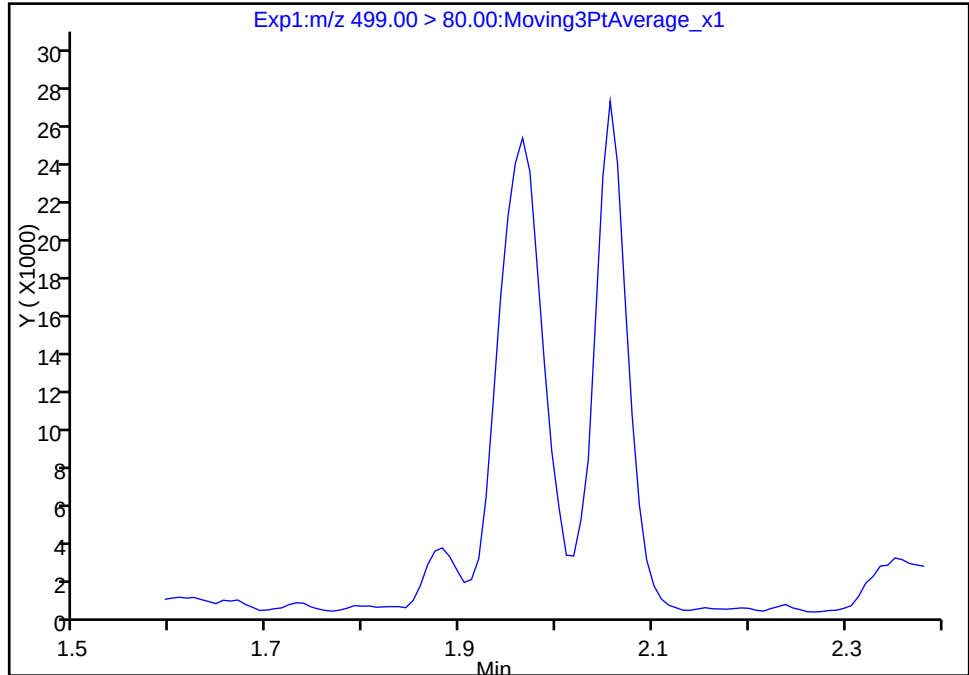
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d
Injection Date: 06-Feb-2018 05:02:26 Instrument ID: A8_N
Lims ID: 320-35150-A-16-A Lab Sample ID: 320-35150-16
Client ID: NAWC-011718-RW-249
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. 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

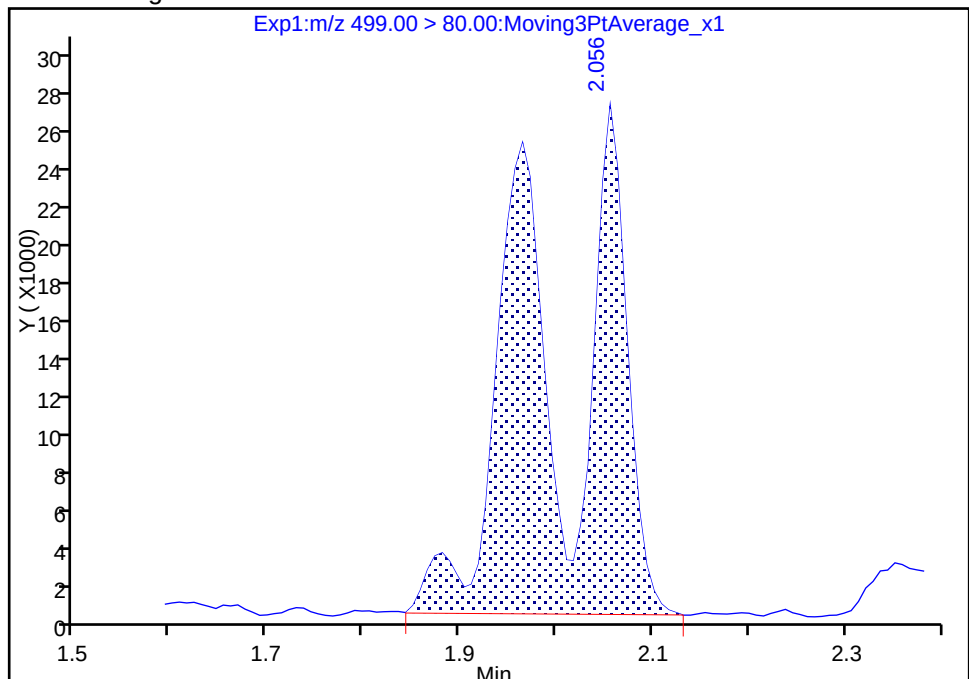
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 150391
Amount: 1.282938
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 15:00:40

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

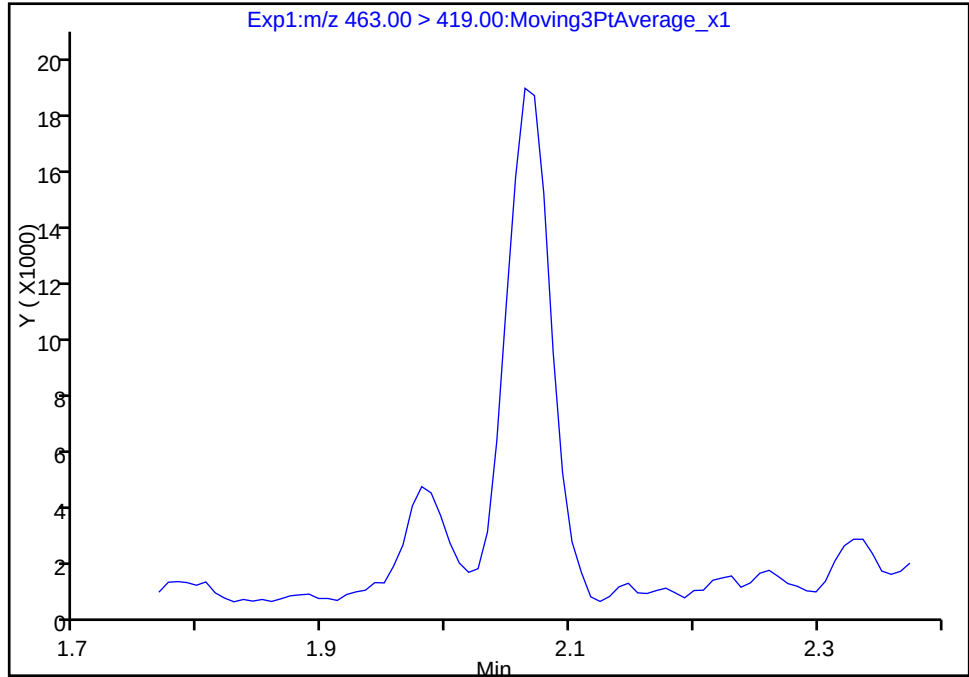
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d				
Injection Date:	06-Feb-2018 05:02:26	Instrument ID:	A8_N		
Lims ID:	320-35150-A-16-A	Lab Sample ID:	320-35150-16		
Client ID:	NAWC-011718-RW-249				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

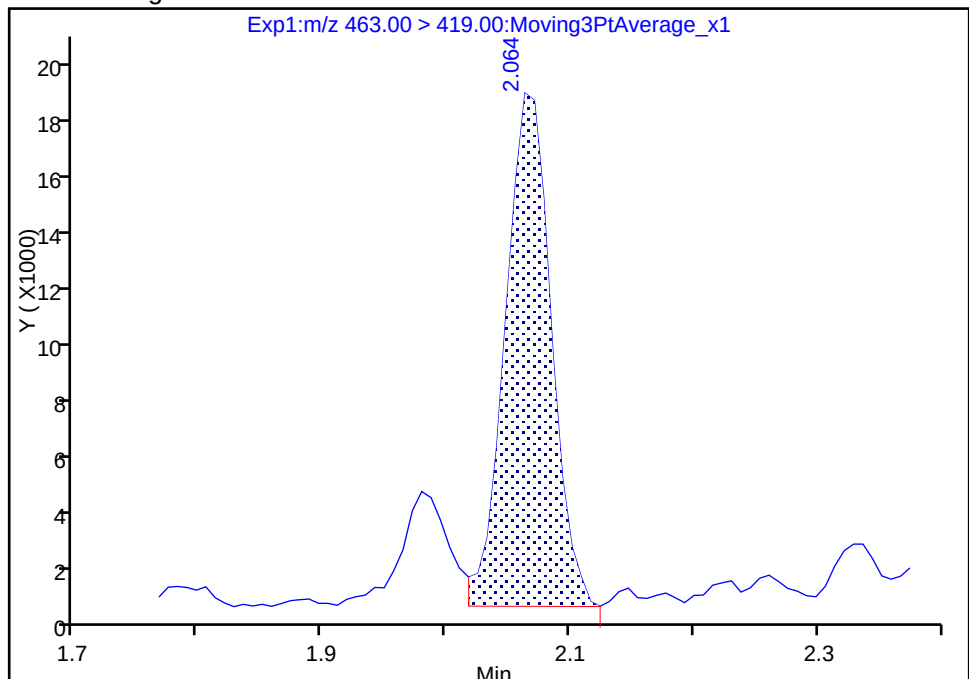
Signal: 1

Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results



RT: 2.06
Area: 44295
Amount: 0.396943
Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 15:00:57

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

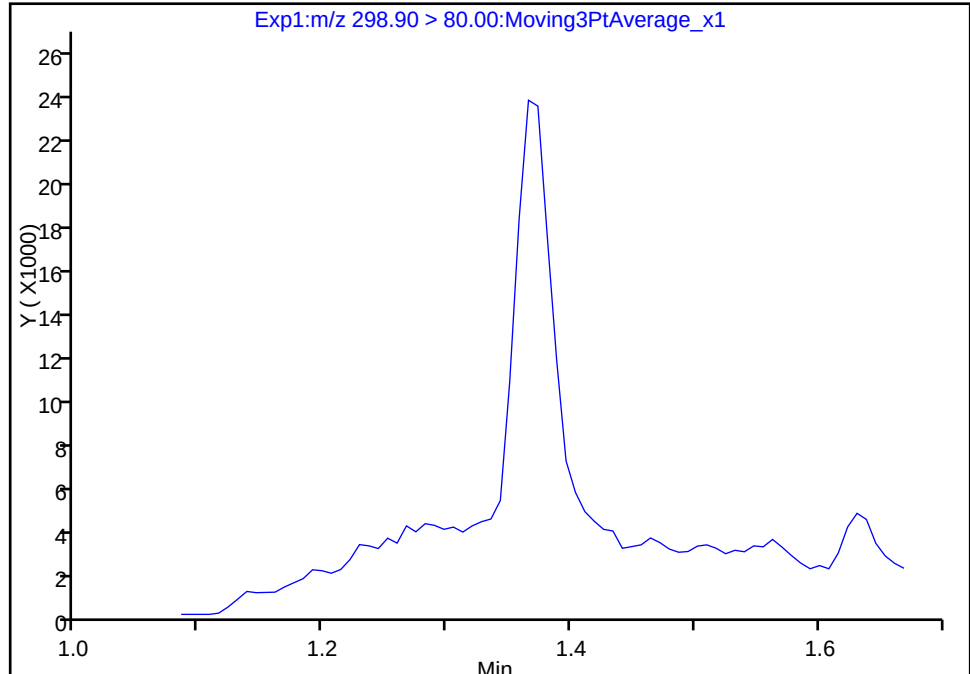
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d				
Injection Date:	06-Feb-2018 05:02:26	Instrument ID:	A8_N		
Lims ID:	320-35150-A-16-A	Lab Sample ID:	320-35150-16		
Client ID:	NAWC-011718-RW-249				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	23
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

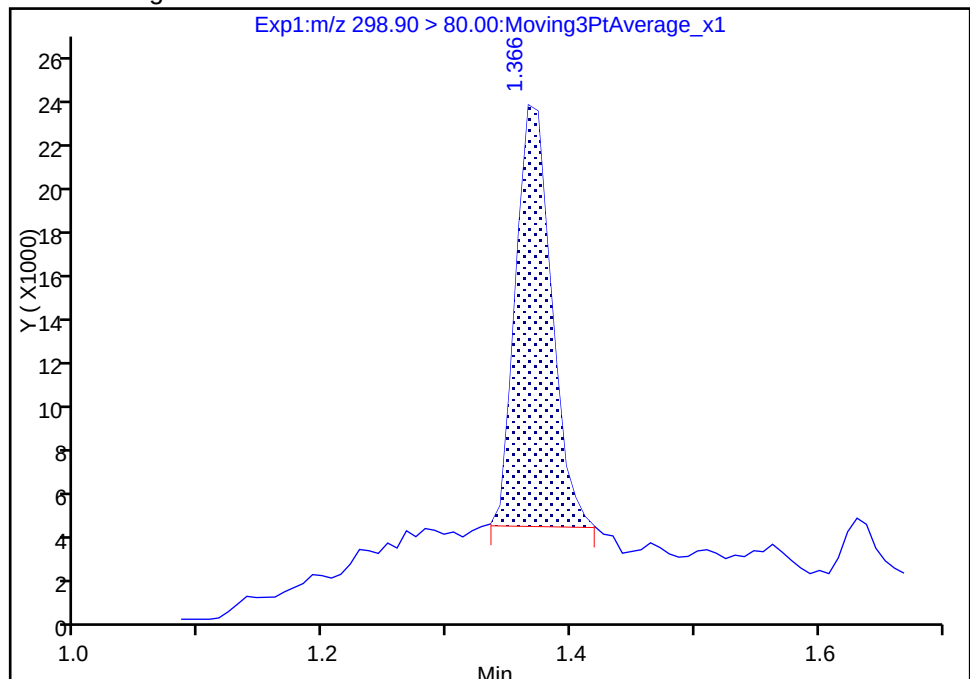
Signal: 1

Not Detected
Expected RT: 1.37

Processing Integration Results

RT: 1.37
Area: 37978
Amount: 0.271875
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 15:01:05

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

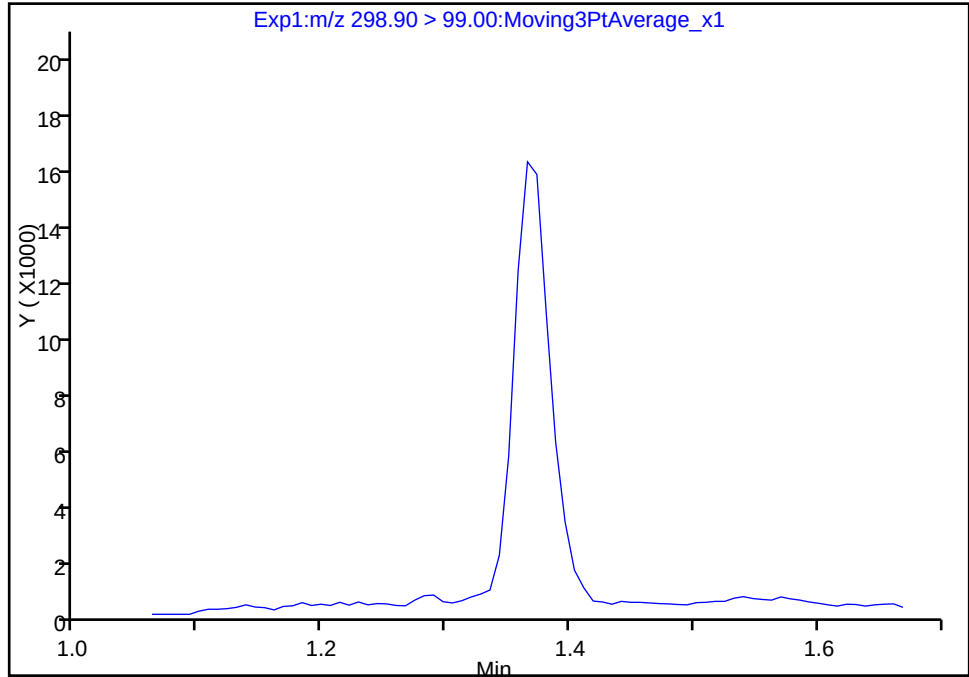
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_044.d
Injection Date: 06-Feb-2018 05:02:26 Instrument ID: A8_N
Lims ID: 320-35150-A-16-A Lab Sample ID: 320-35150-16
Client ID: NAWC-011718-RW-249
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

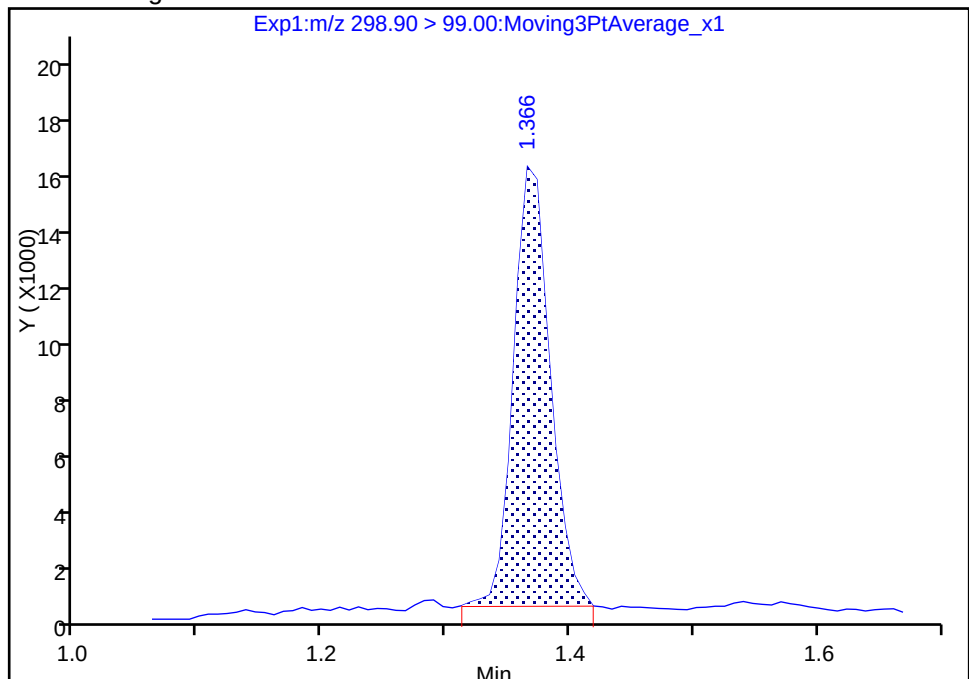
Not Detected
Expected RT: 1.37

Processing Integration Results



Manual Integration Results

RT: 1.37
Area: 31842
Amount: 0.271875
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 15:01:20

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-249 Lab Sample ID: 320-35150-17
 Matrix: Water Lab File ID: 2018.02.05_537B_045.d
 Analysis Method: 537 Date Collected: 01/17/2018 10:35
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 241.4 (mL) Date Analyzed: 02/06/2018 05:07
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	41	17	7.0
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)	4.1	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	97		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_045.d
 Lims ID: 320-35150-A-17-B
 Client ID: NAWC-011718-FRB-249
 Sample Type: Client
 Inject. Date: 06-Feb-2018 05:07:07 ALS Bottle#: 31 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35150-a-17-b
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1698708	9.69		8808	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1593118	10.0		6486	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.056	-0.008		3519233	28.7		7936	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1247696	10.2		8945	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_045.d

Injection Date: 06-Feb-2018 05:07:07

Instrument ID: A8_N

Lims ID: 320-35150-A-17-B

Lab Sample ID: 320-35150-17

Client ID: NAWC-011718-FRB-249

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

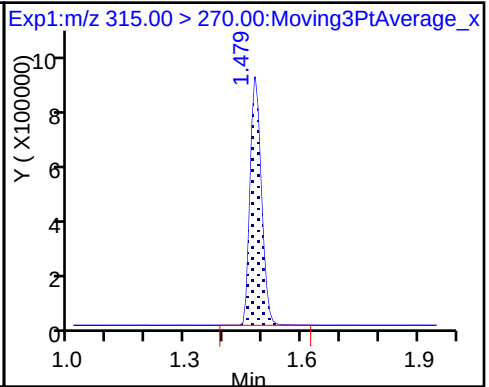
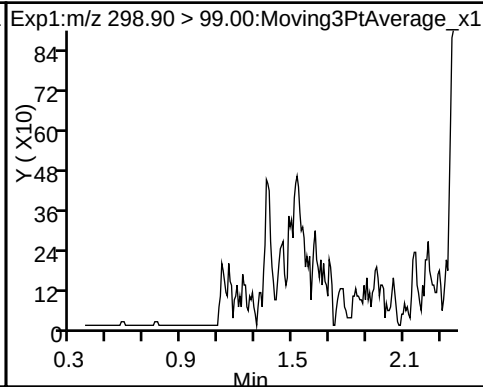
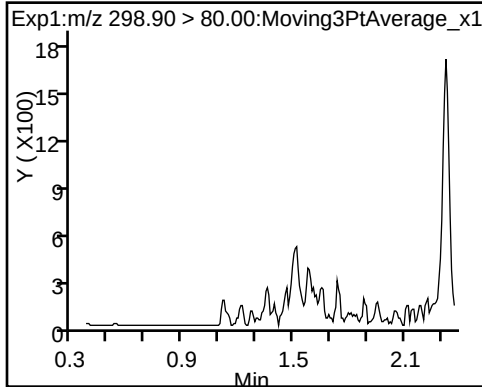
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

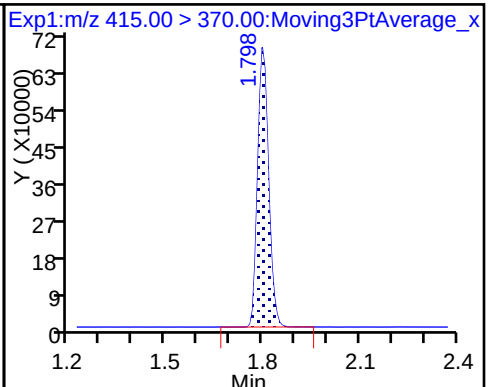
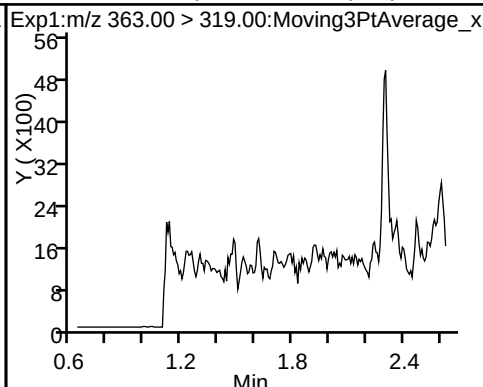
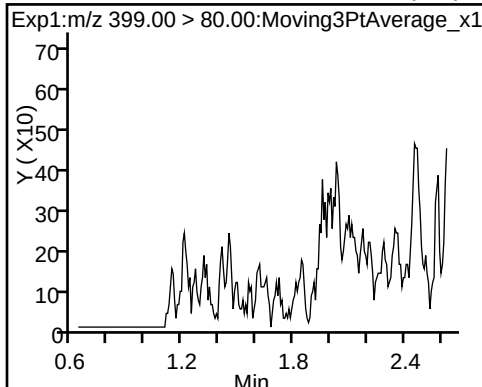
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

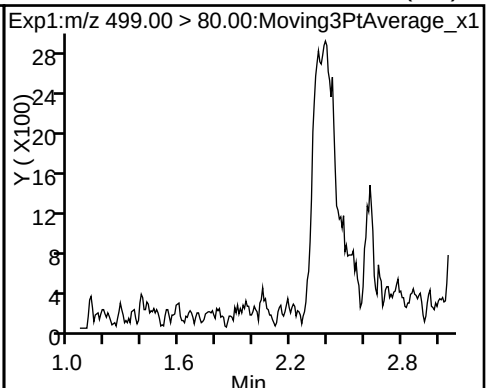
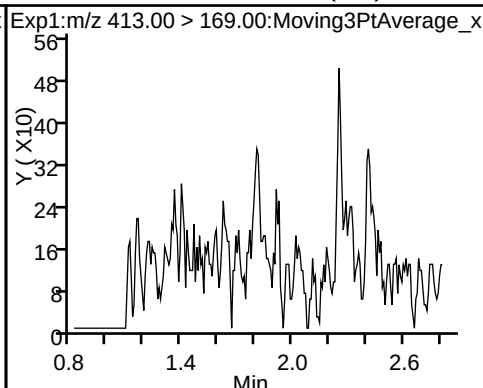
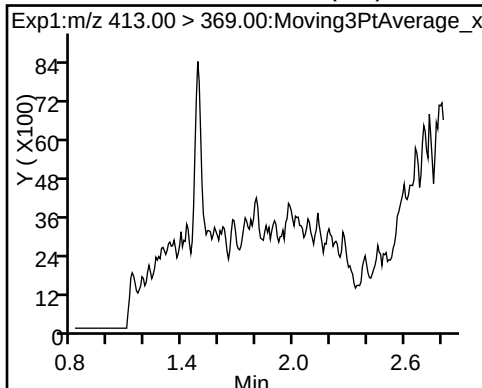
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

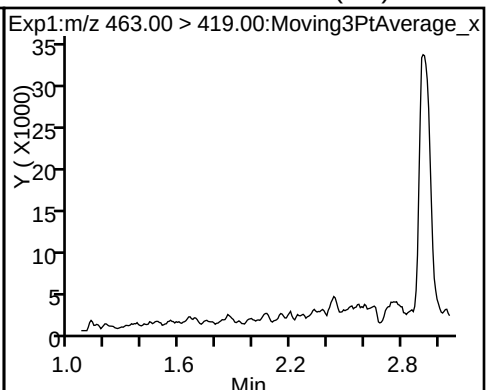
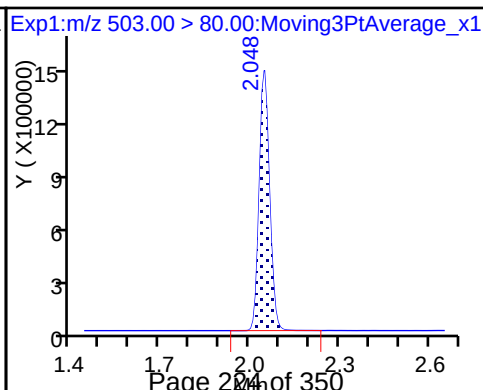
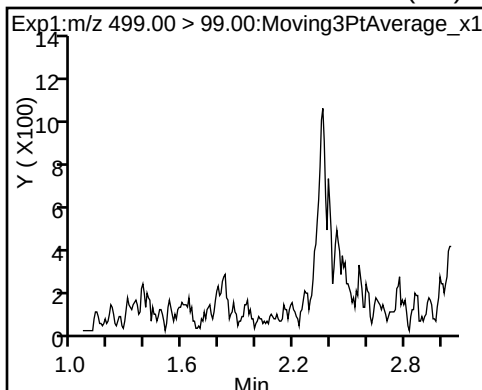
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

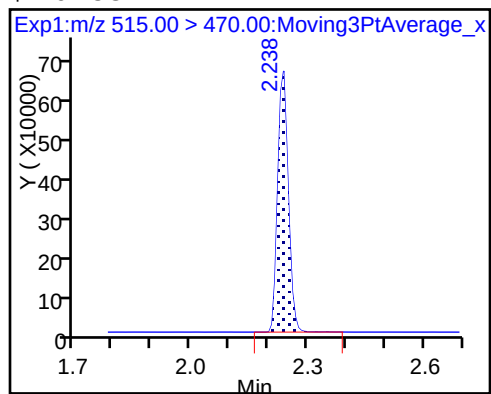


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_045.d
Lims ID: 320-35150-A-17-B
Client ID: NAWC-011718-FRB-249
Sample Type: Client
Inject. Date: 06-Feb-2018 05:07:07 ALS Bottle#: 31 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-35150-a-17-b
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.69	96.91
\$ 10 13C2 PFDA	10.0	10.2	102.35

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

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.0397 0.8468	1.0767	1.0898	0.9577	0.9303	QuaF		1.1193	-0.001498						0.9990		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9433 0.9848	0.9187	0.9551	0.9185	0.9011	Ave		0.9369				3.2		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6459 1.6841	1.6355	1.7405	1.6631	1.6755	Ave		1.6741				2.2		30.0			
Perfluorooctanoic acid (PFOA)	0.9757 0.9799	0.8919	0.9000	0.8953	0.9117	Ave		0.9258				4.4		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8958 0.9902	0.9213	0.9281	0.9268	0.9715	Ave		0.9389				3.7		30.0			
Perfluorononanoic acid (PFNA)	0.6610 0.7042	0.6285	0.6624	0.6810	0.6478	Ave		0.6642				3.9		30.0			
13C2 PFHxA	1.0891 1.1664	1.0526	1.1042	1.1123	1.0772	Ave		1.1003				3.5		30.0			
13C2 PFDA	0.7748 0.8159	0.7295	0.7569	0.7811	0.7330	Ave		0.7652				4.3		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1076553 16699152	2591121	5461974	10142530	14011858	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	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)	13PF OA	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)	13PF OA	Ave	201053 4019666	453612	1020851	2106479	3023088	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1655691 1664260	1708988	1701491	1719911	1675220	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	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.: 320-35150-1 Analy Batch No.: 192908

SDG No.: _____

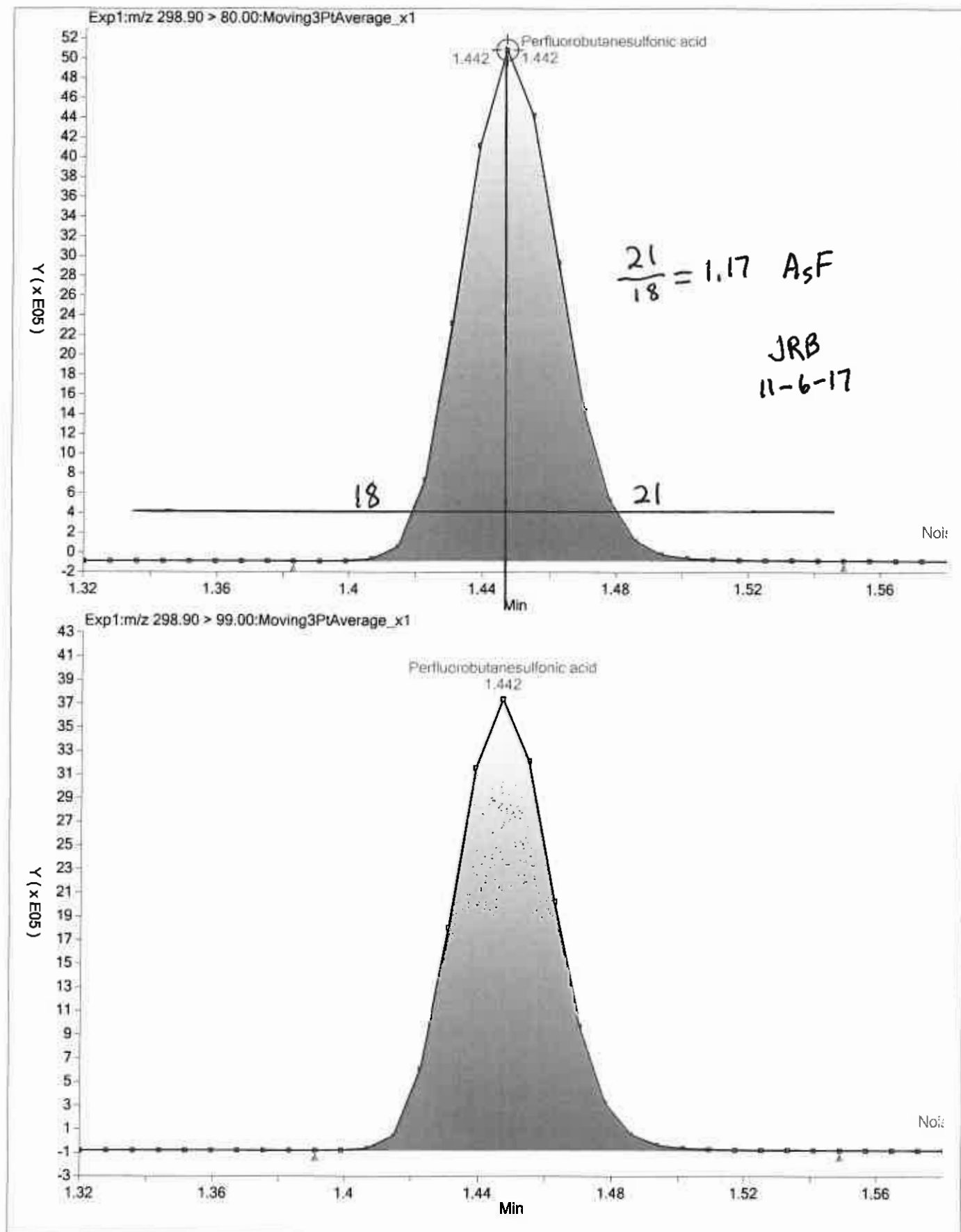
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

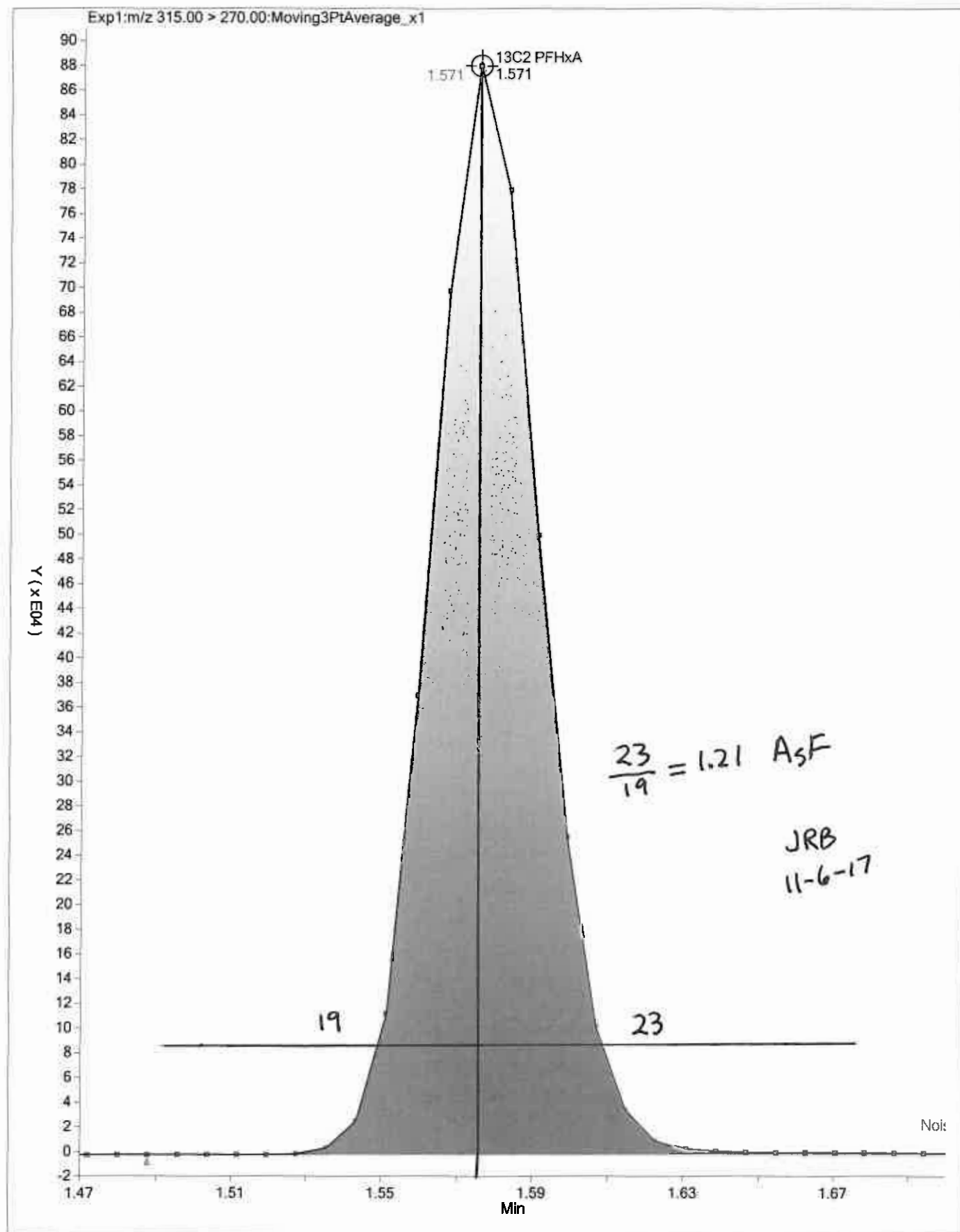
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30





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 ICAI

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			1485386 51.9	3471256 55.5
# 2 RB	03-Nov-2017 13:28:38			1511056 52.8	3340239 53.4
# 3 RB	03-Nov-2017 13:33:19			1483949 51.8	3285228 52.5
IS Std					
# 4 IC L1	03-Nov-2017 13:37:59	1.58 98.98	2.31 101.30	1520258> 100.0*	3298877> 100.0*
# 5 IC L2	03-Nov-2017 13:42:39	1.58 95.66	2.31 95.33	1623614> 106.8*	3450592> 104.6*
# 6 IC L3	03-Nov-2017 13:47:20	1.57 100.40	2.31 98.91	1540946> 101.4*	3194016> 96.8*
# 7 IC L4	03-Nov-2017 13:52:00	1.57 101.10	2.31 102.10	1546307> 101.7*	3374600> 102.3*
# 8 IC L5	03-Nov-2017 13:56:41	1.57 97.90	2.31 95.80	1555174> 102.3*	3199479> 97.0*
# 9 IC L6	03-Nov-2017 14:01:24	1.57 106.00	2.31 106.60	1426806> 93.9*	3141787> 95.2*
IS Std				1540946 1.91	3194016 2.15
#10 RB	03-Nov-2017 14:06:04			1395383 90.6	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	1586829 102.6	3305852 98.0
IS Std				1586829 1.91	3305852 2.15
#12 RB	03-Nov-2017 14:15:23			1415042 89.2	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	1512045 97.8	3433628 101.7
IS Std				1395100 1.91	3254950 2.15
#14 RB	03-Nov-2017 14:24:44			1395100 100.0	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									
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

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

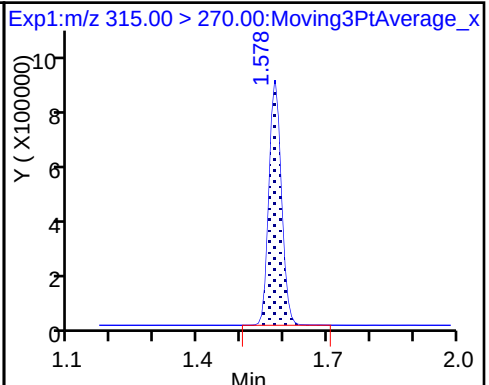
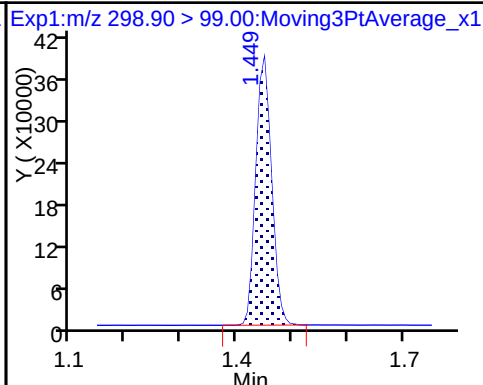
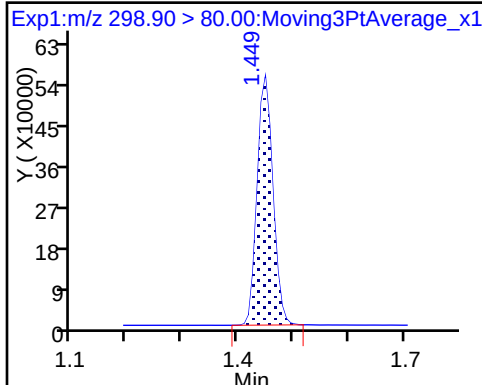
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

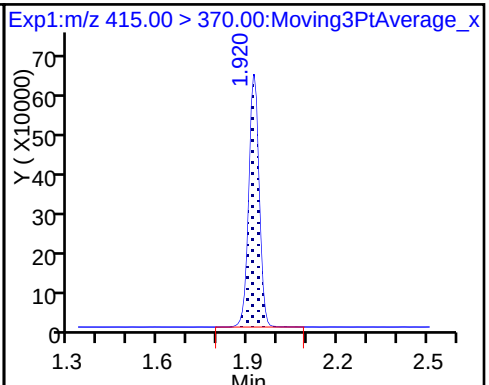
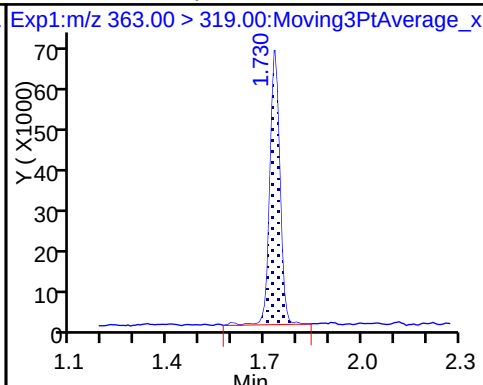
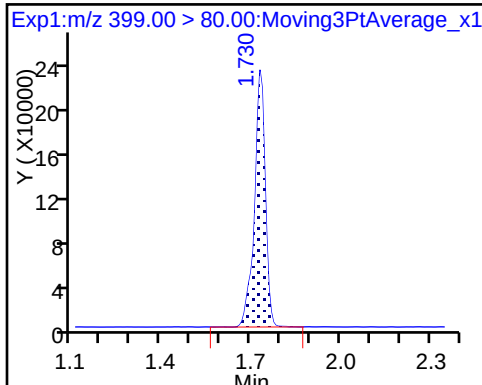
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

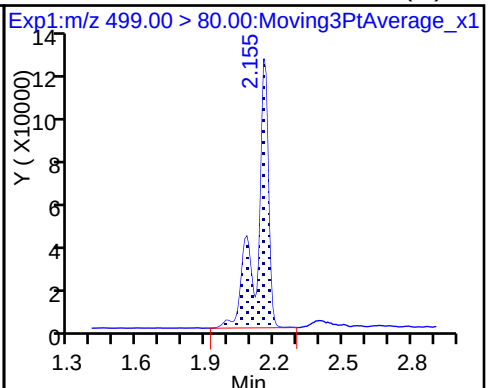
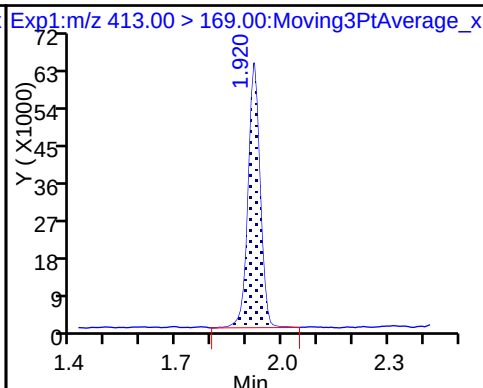
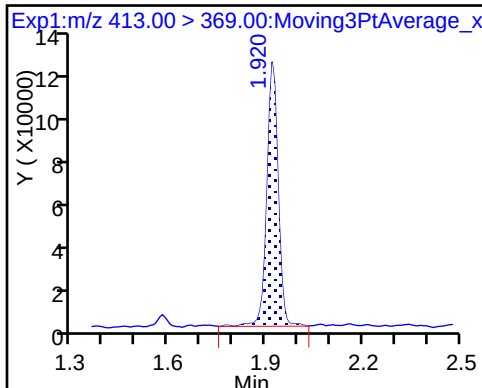
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

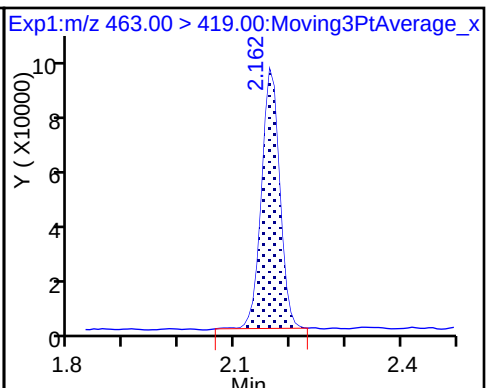
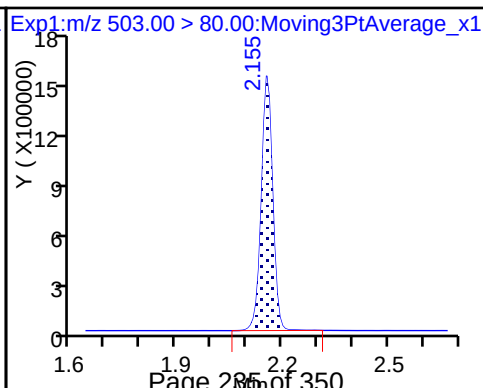
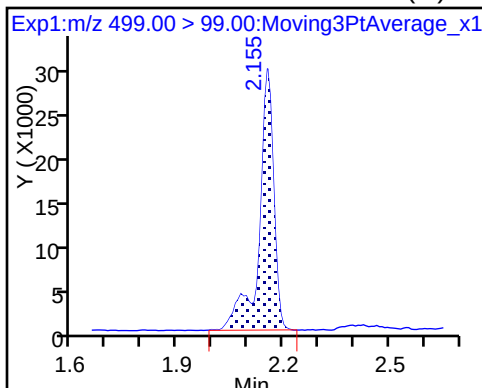
8 Perfluorooctane sulfonic acid (M)



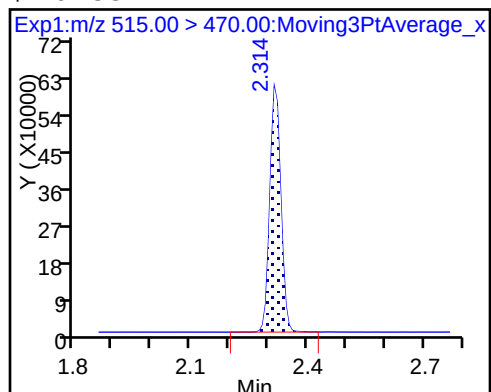
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

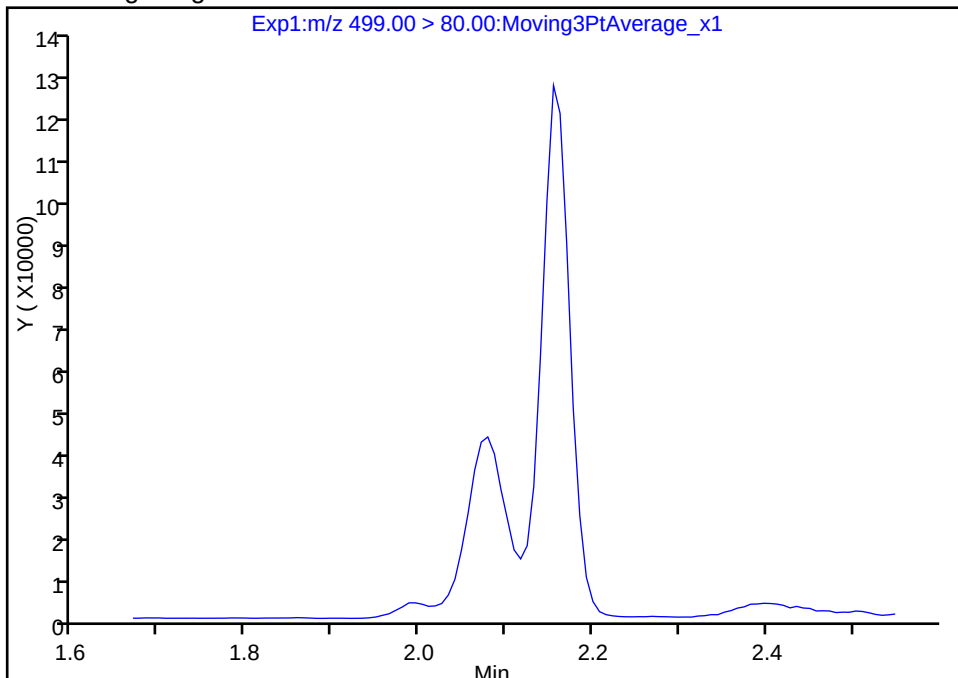
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

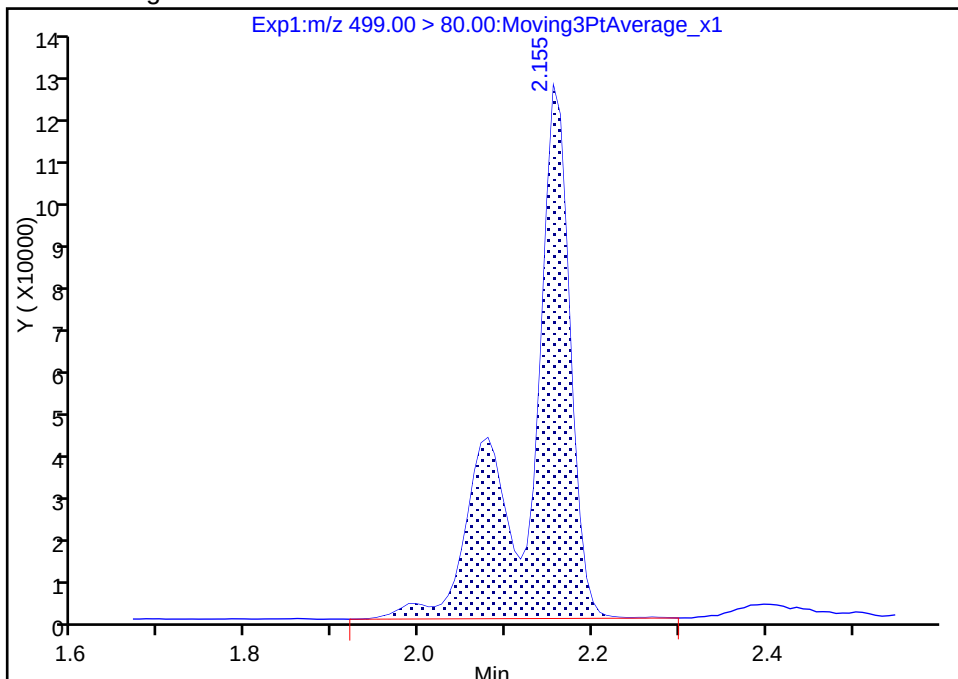
Not Detected
Expected RT: 2.15

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

TestAmerica Sacramento

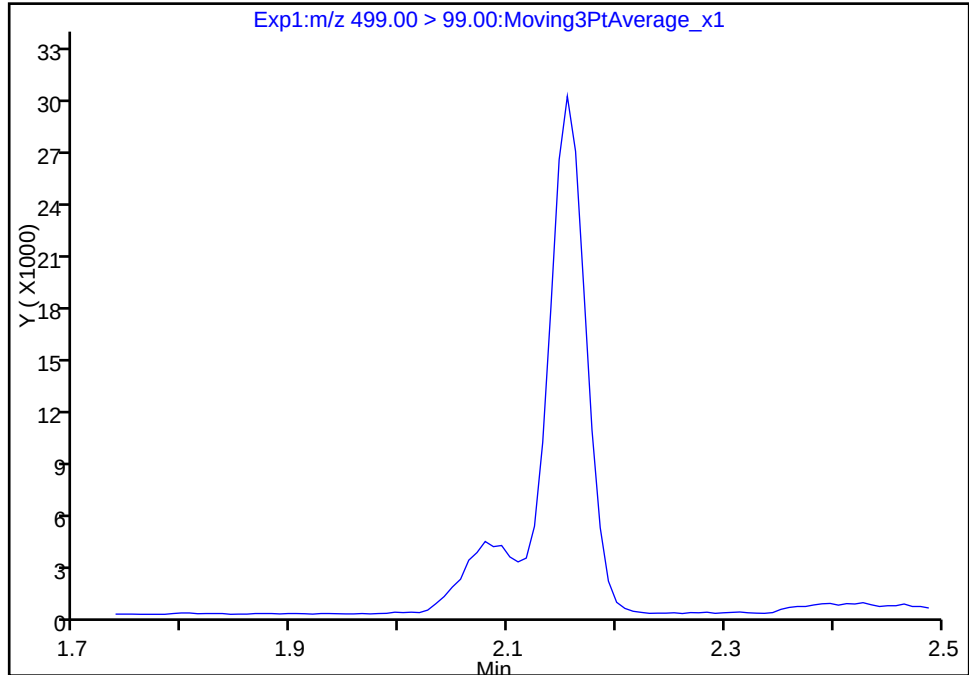
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

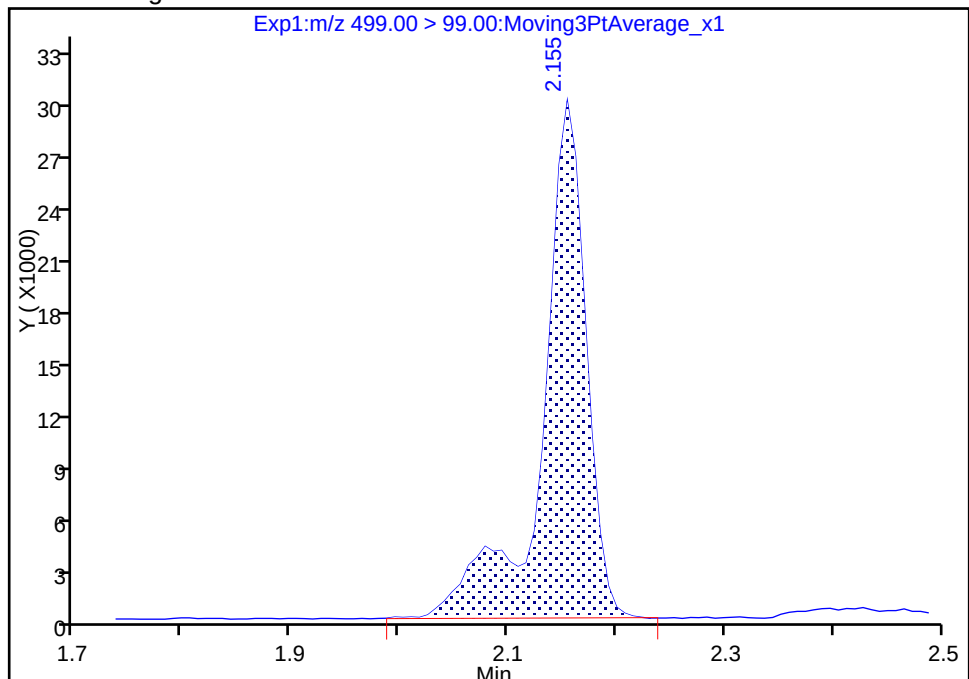
Not Detected
Expected RT: 2.15

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

TestAmerica Sacramento

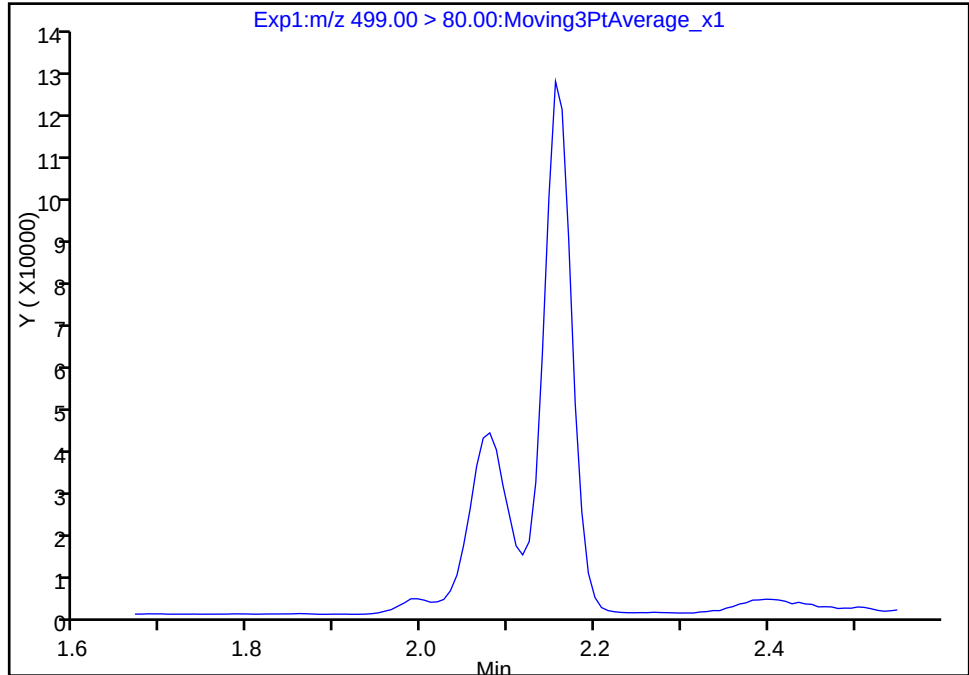
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

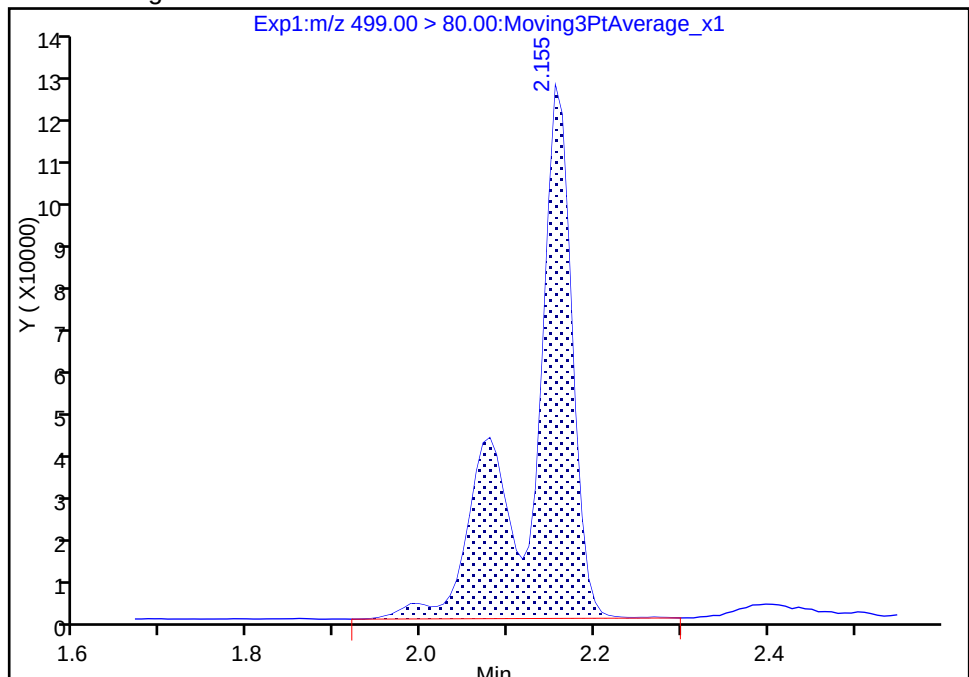
Not Detected
Expected RT: 2.15

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									
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

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

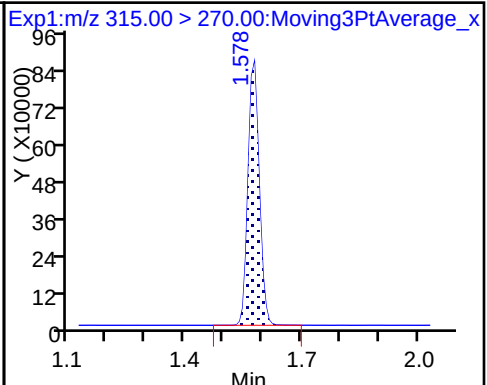
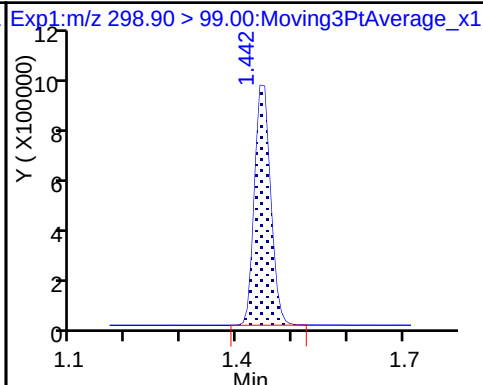
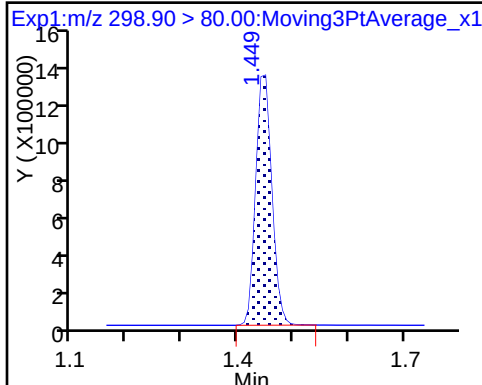
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

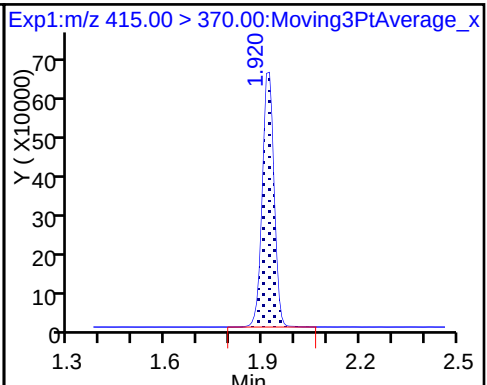
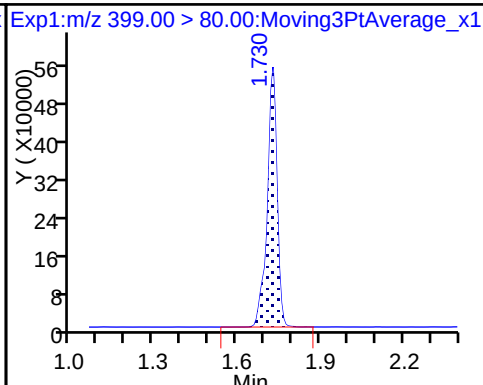
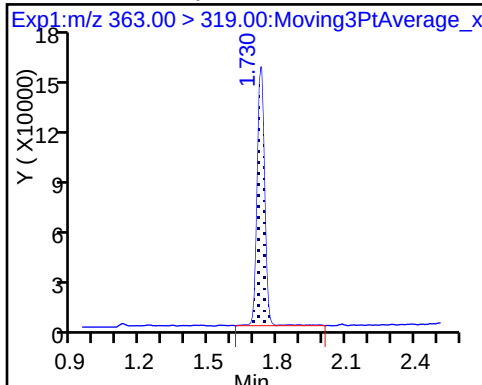
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

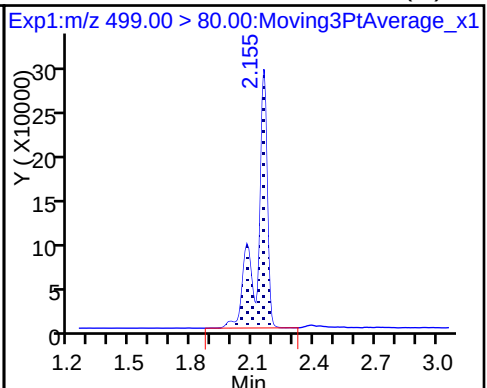
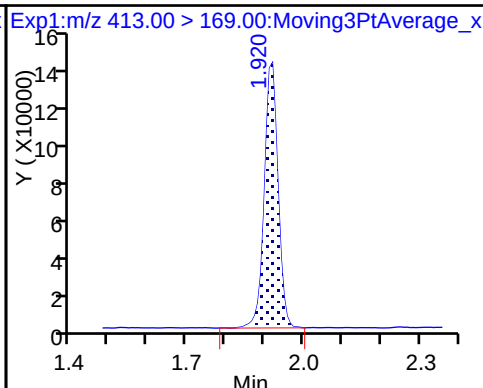
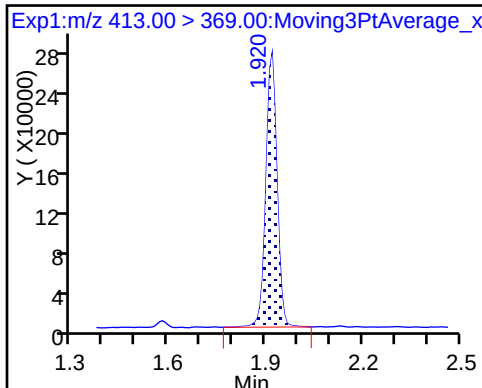
* 6 13C2-PFOA



5 Perfluorooctanoic acid

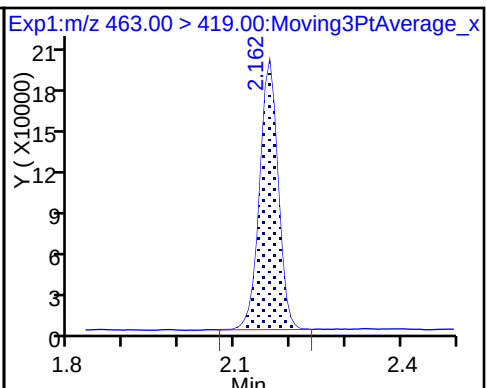
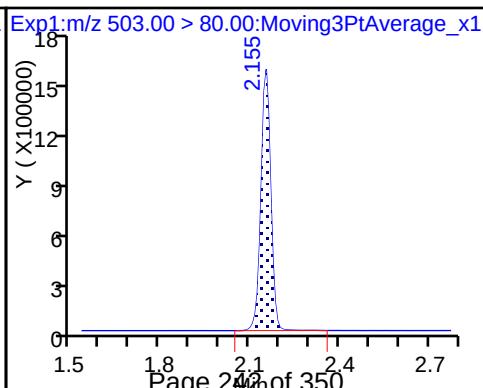
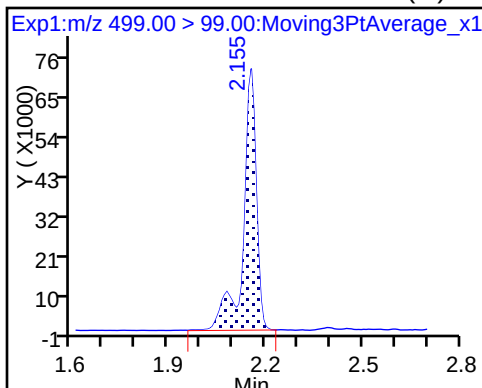
5 Perfluorooctanoic acid

8 Perfluorooctane sulfonic acid (M)

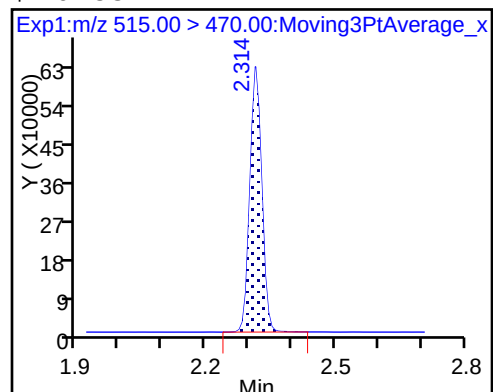


8 Perfluorooctane sulfonic acid (M) * 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

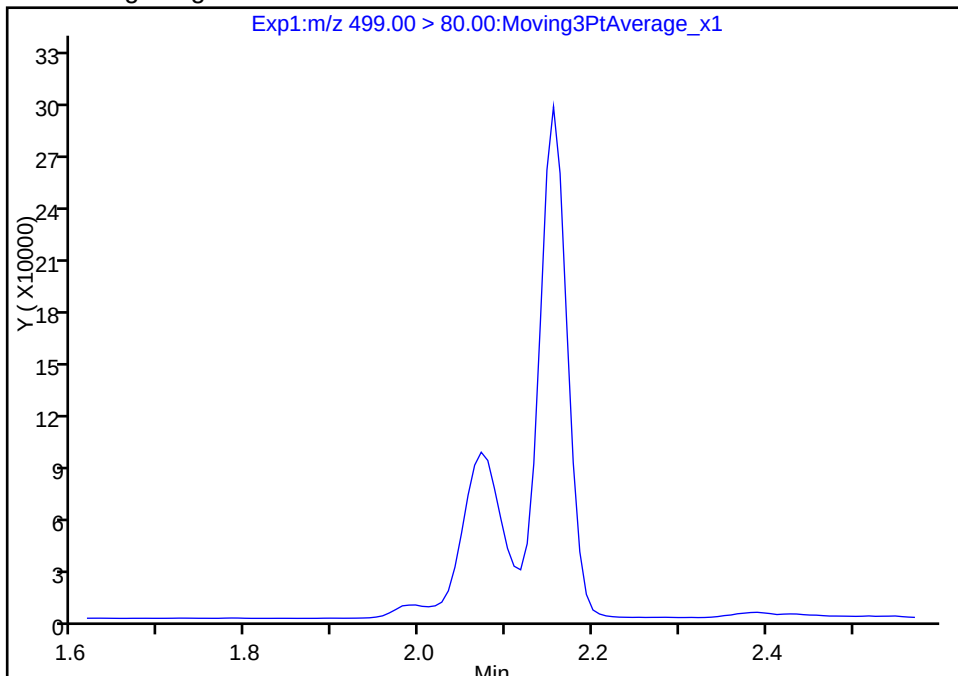
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

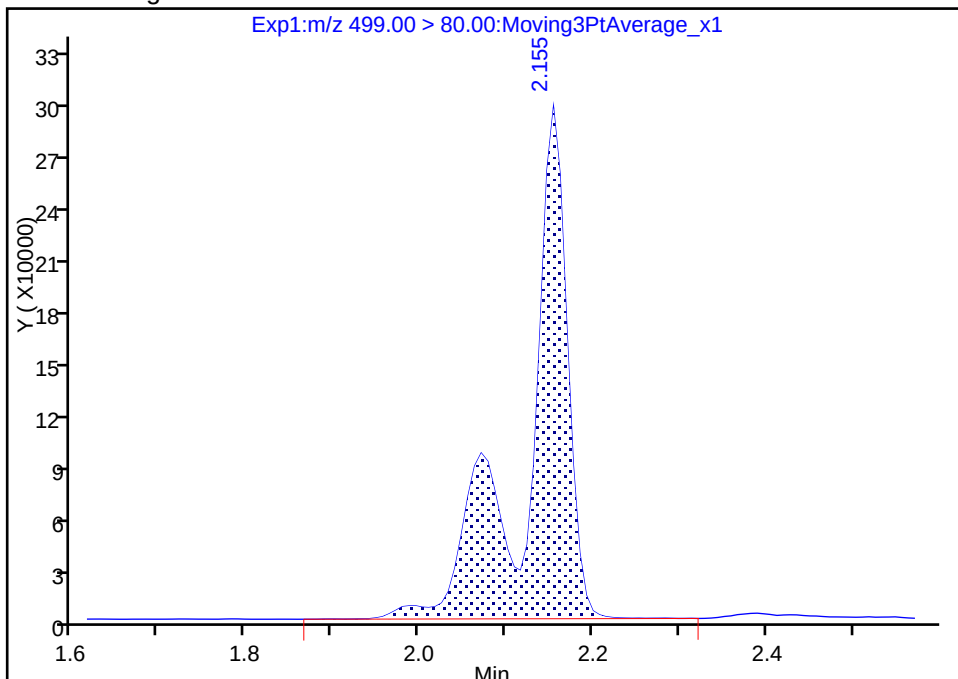
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 985487
Amount: 8.723576
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 06-Nov-2017 07:18:13

Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento

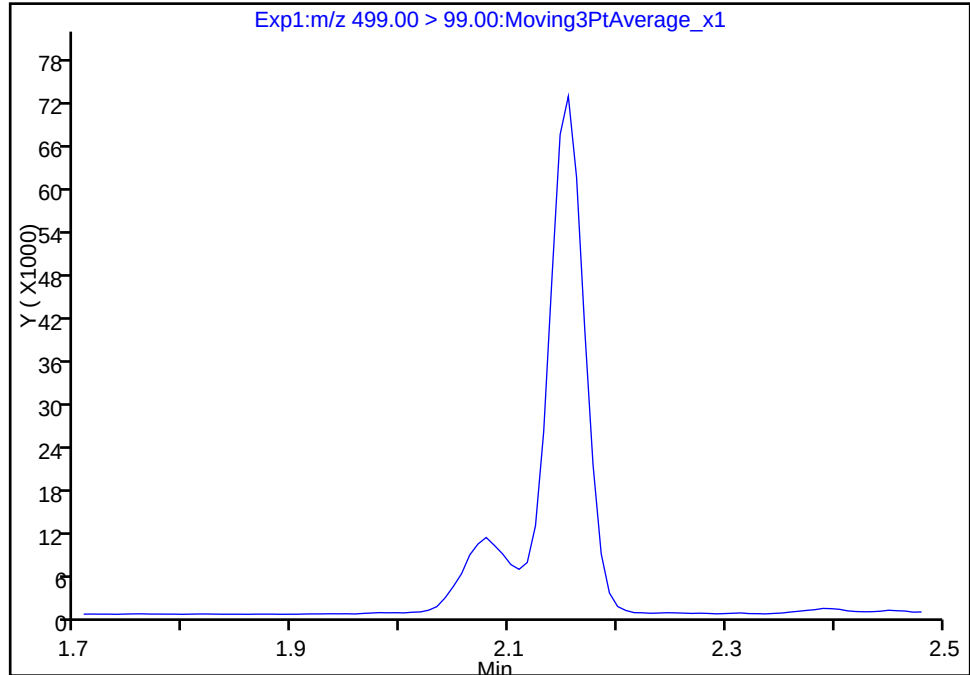
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

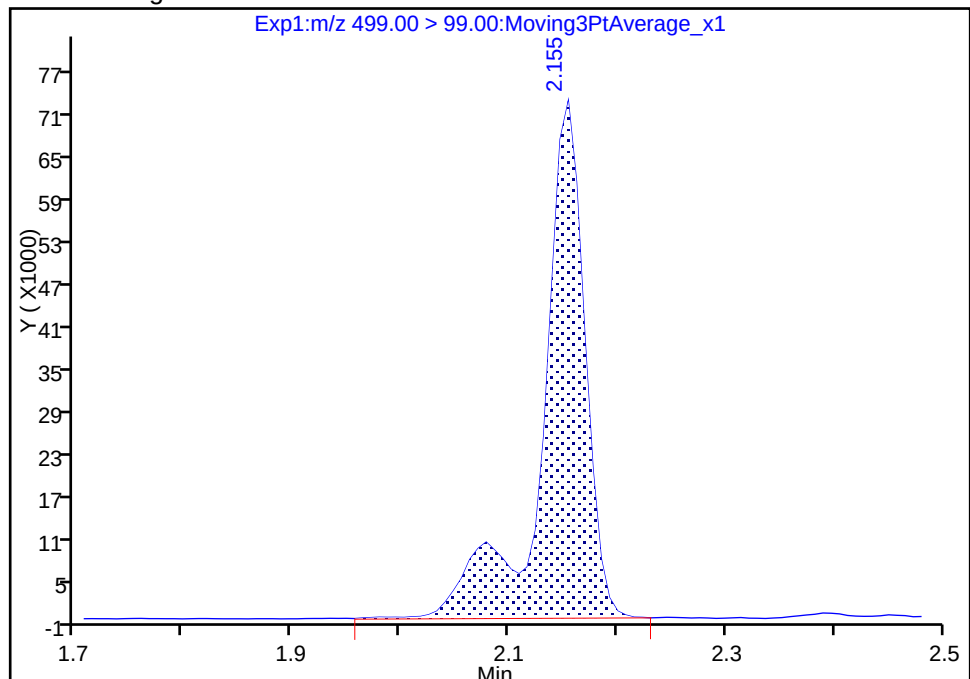
Not Detected
Expected RT: 2.15

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

TestAmerica Sacramento

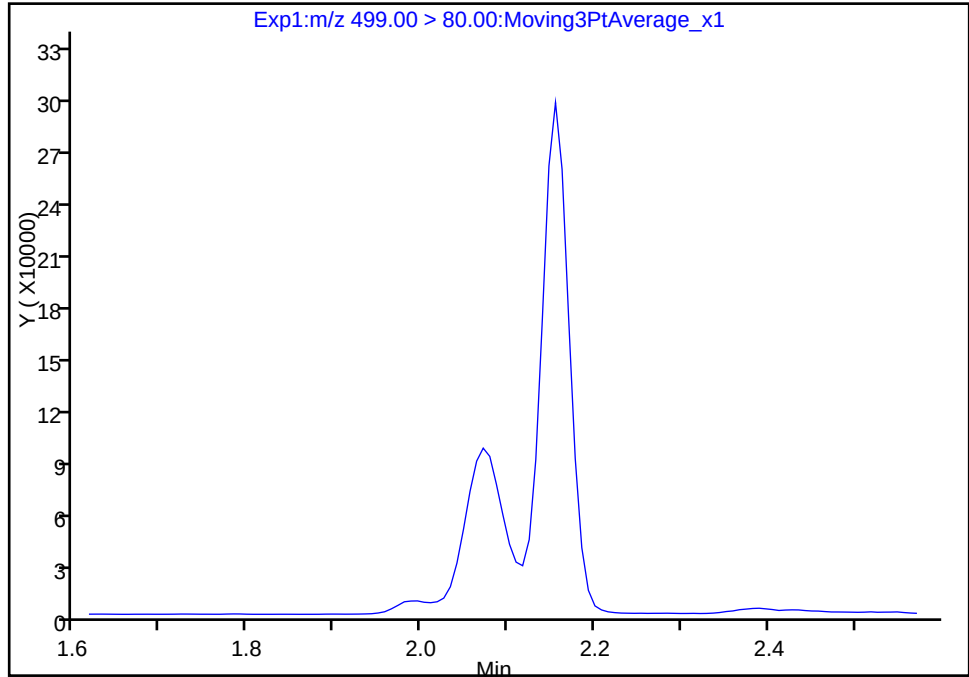
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

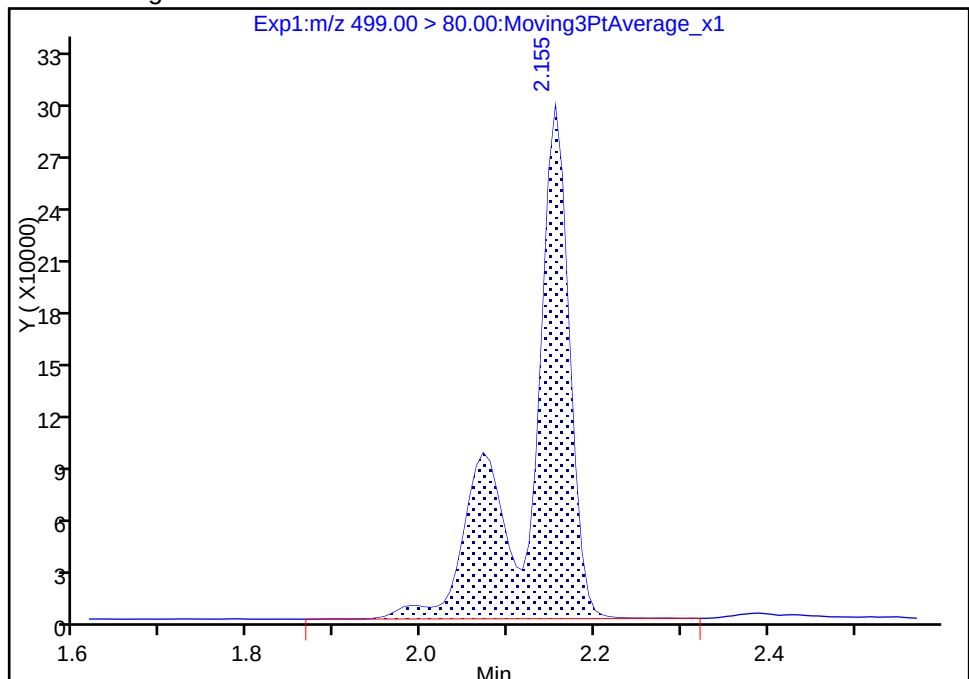
Not Detected
Expected RT: 2.15

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

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

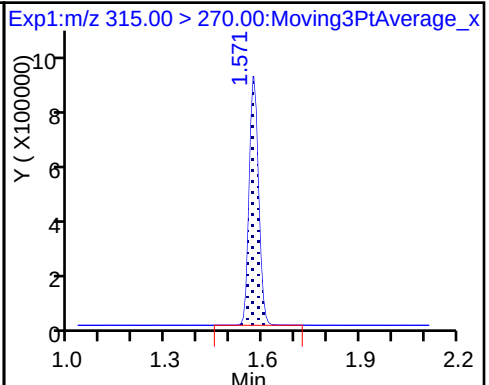
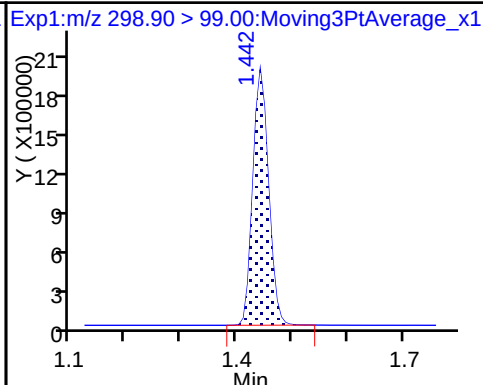
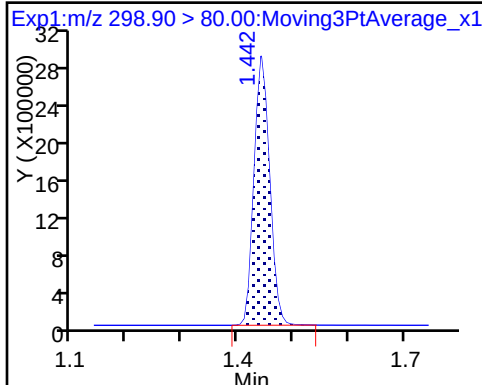
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

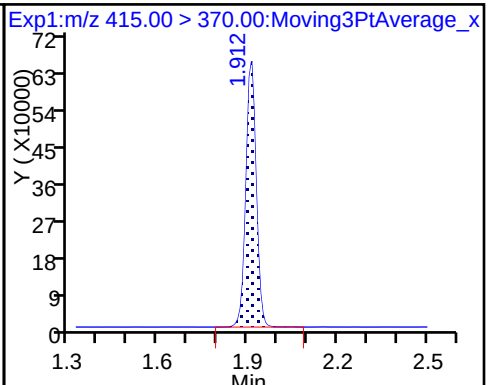
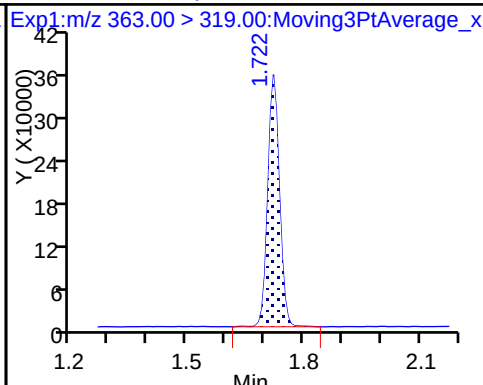
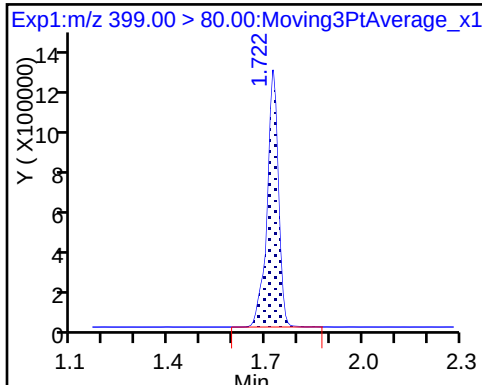
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

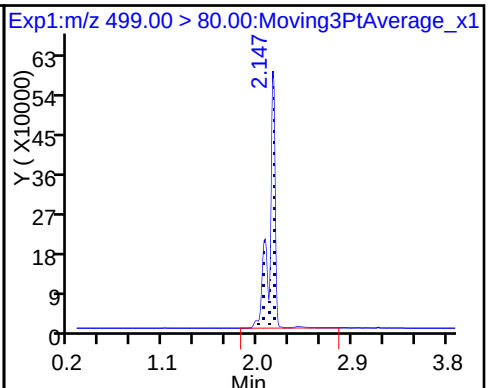
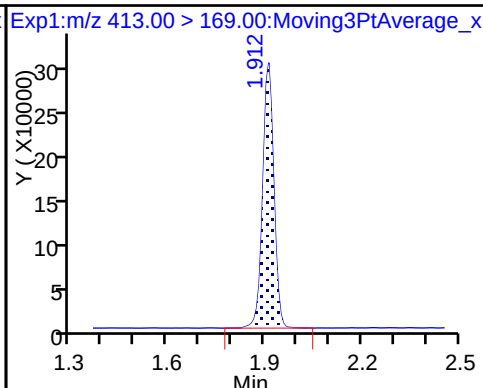
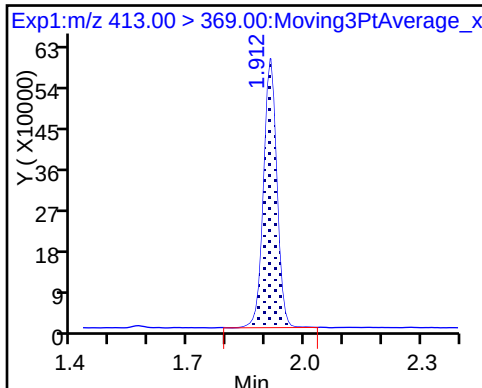
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

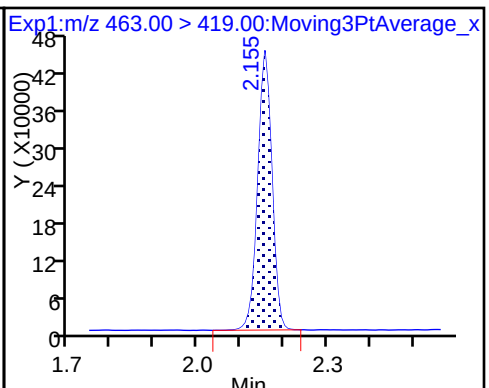
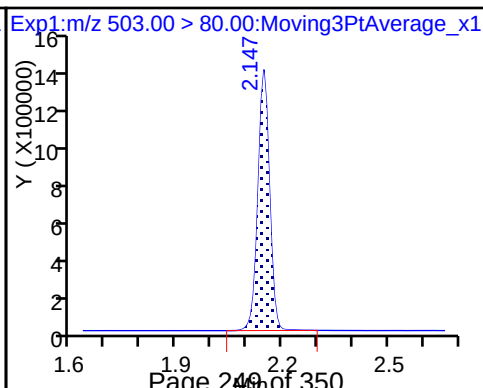
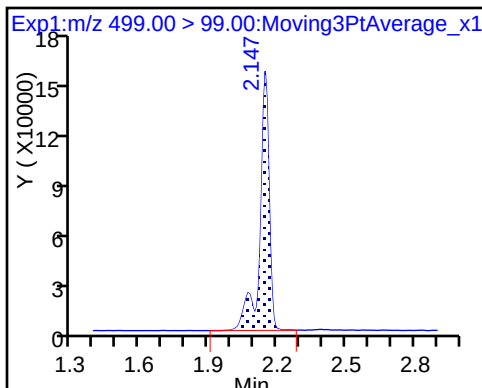
8 Perfluorooctane sulfonic acid



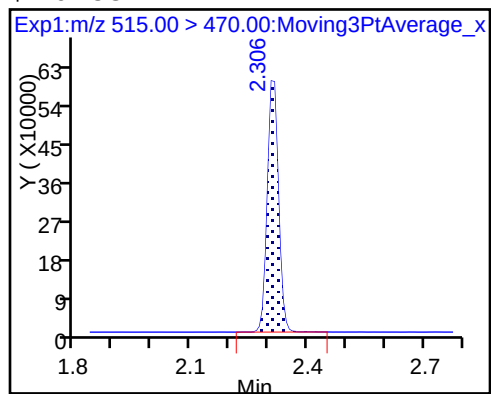
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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									
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

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

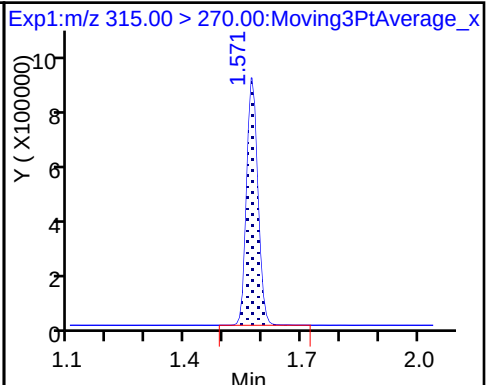
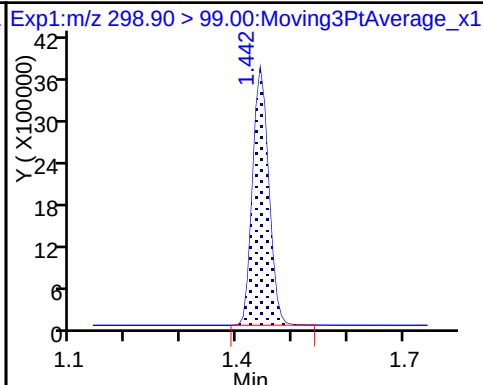
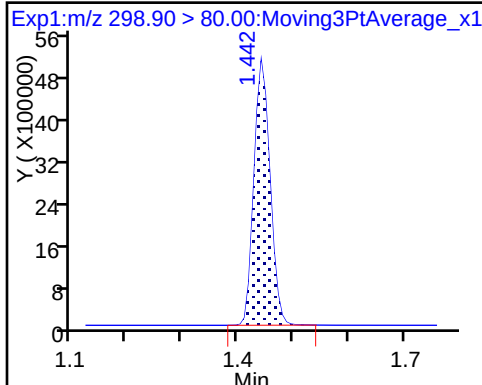
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

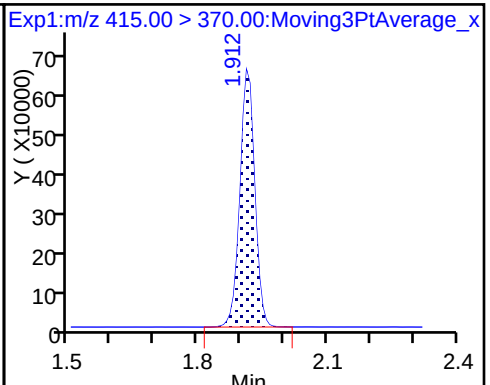
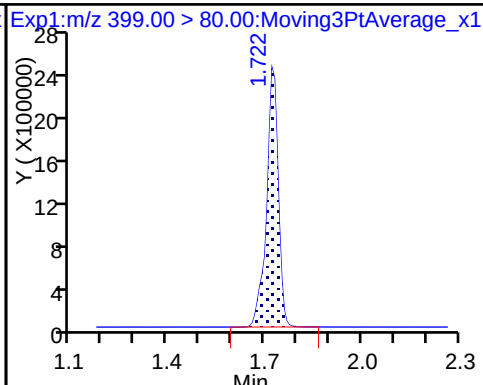
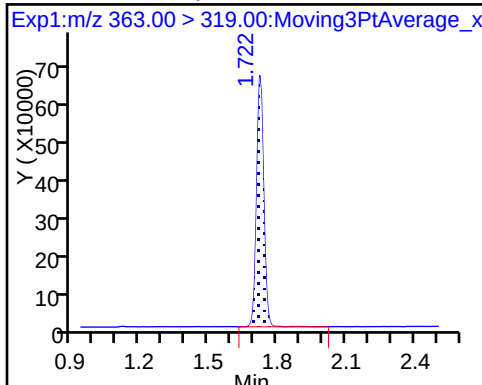
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

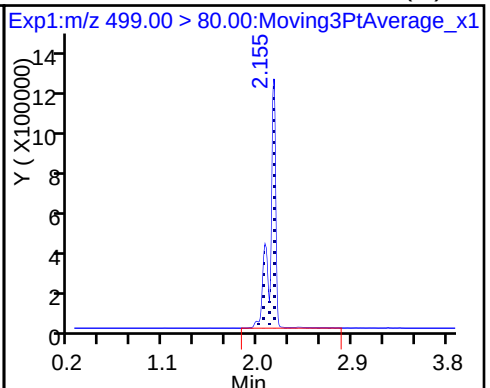
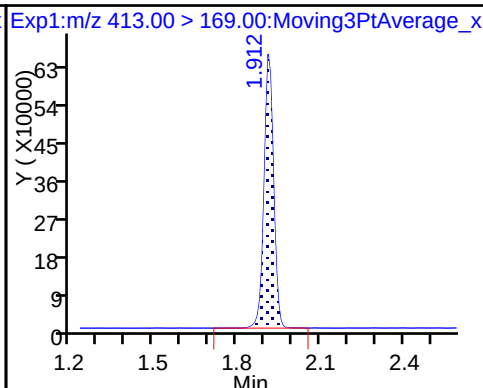
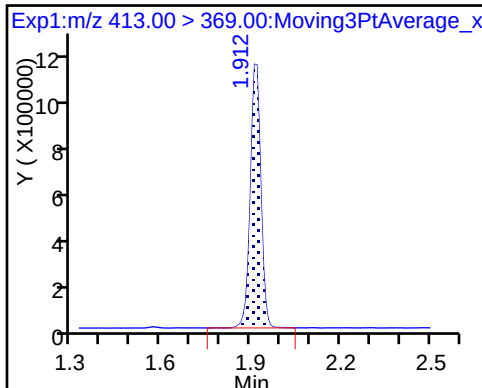
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

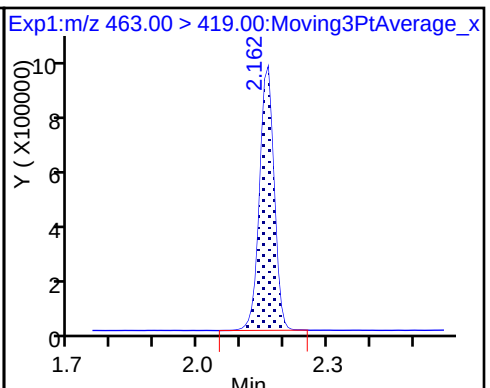
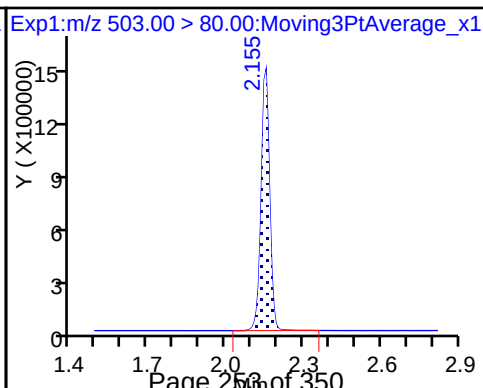
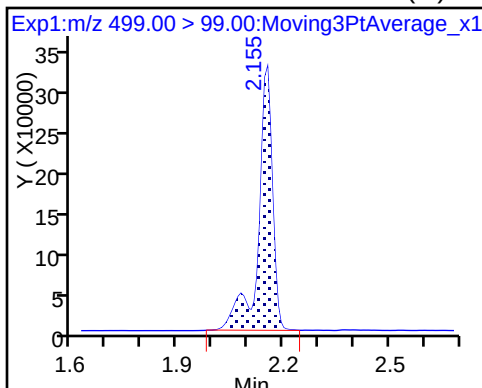
8 Perfluorooctane sulfonic acid (M)



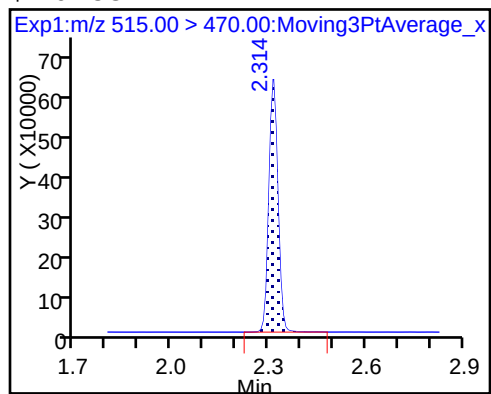
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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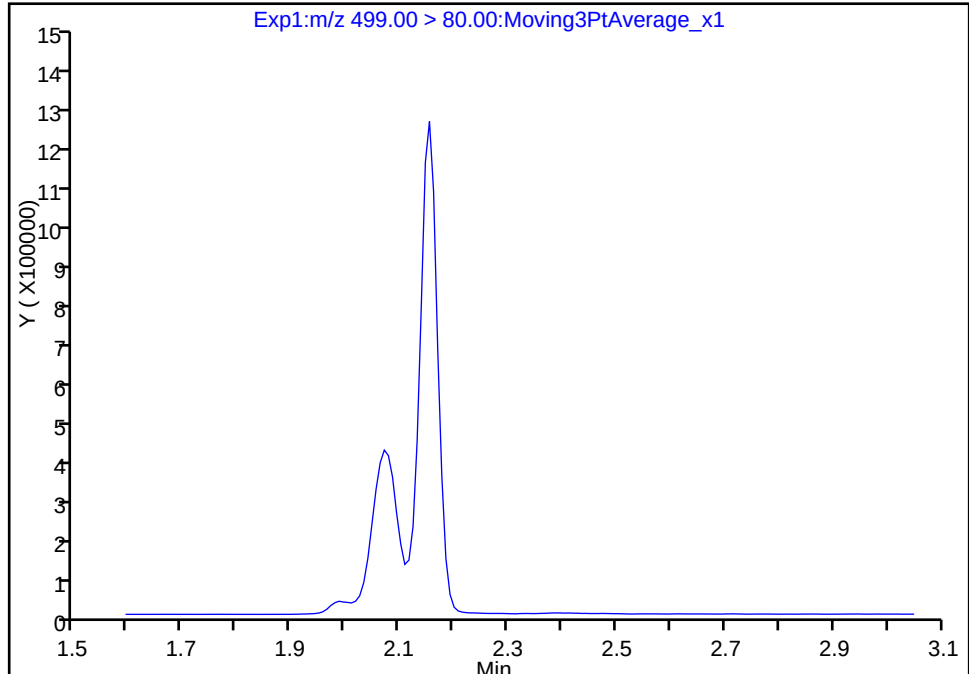
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

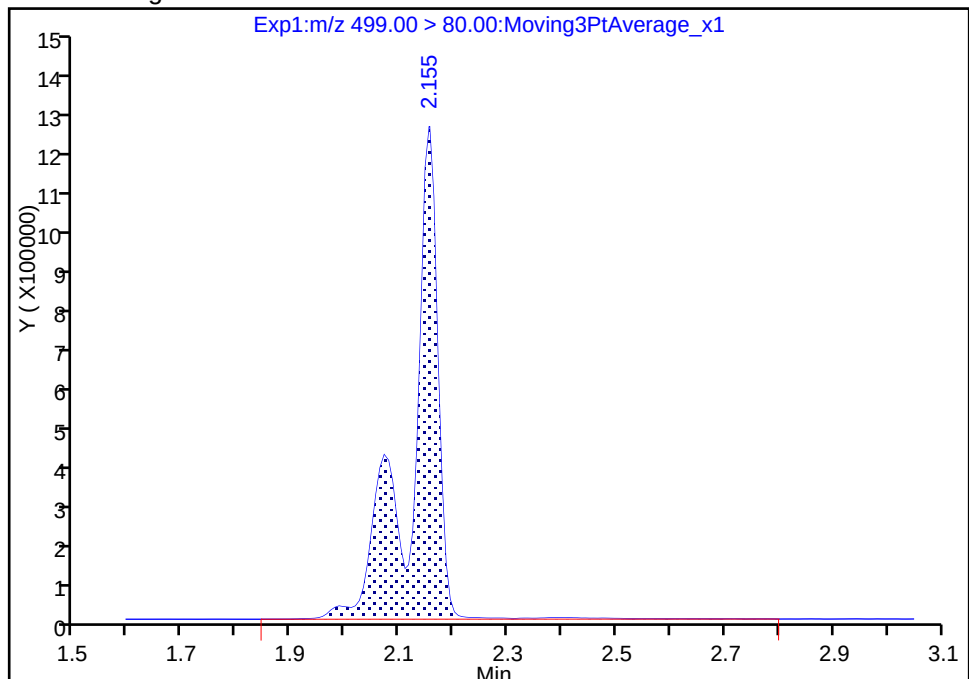
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 4363079
Amount: 39.491903
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 06-Nov-2017 07:20:12

Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento

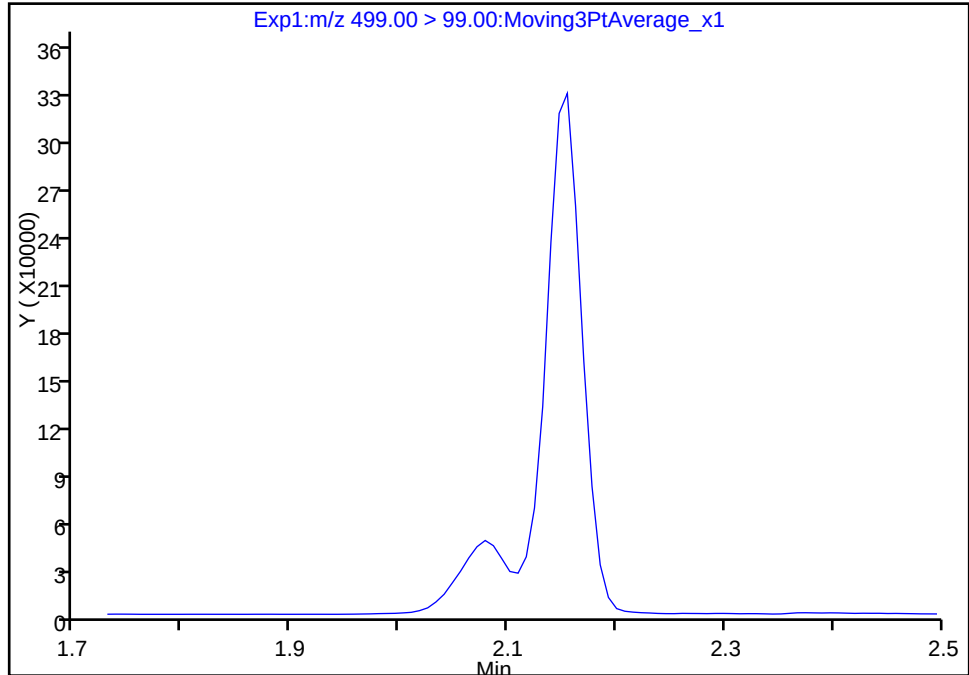
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

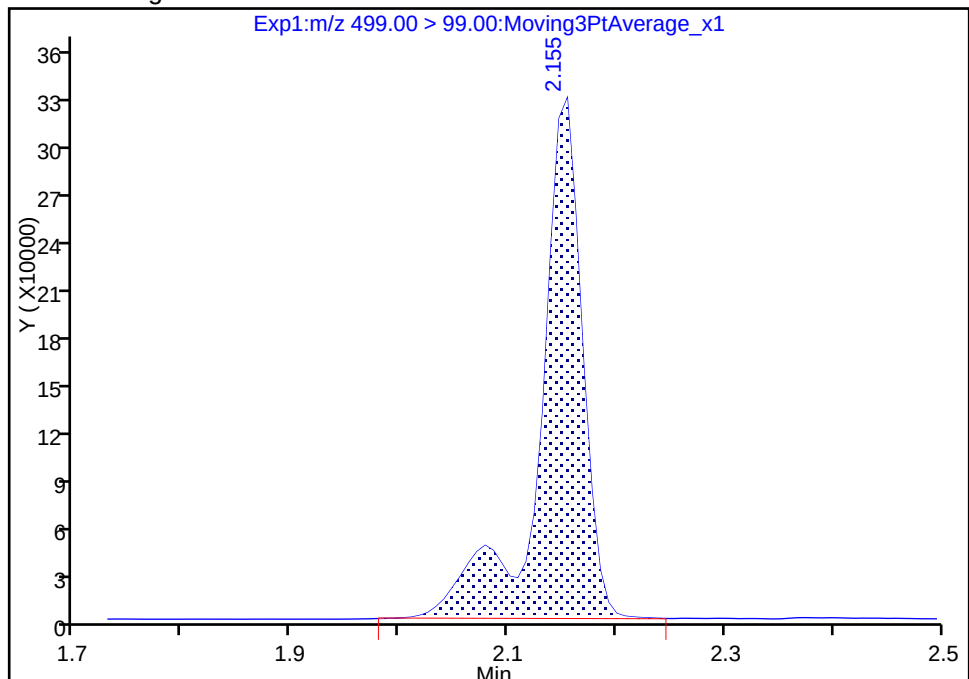
Not Detected
Expected RT: 2.15

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

TestAmerica Sacramento

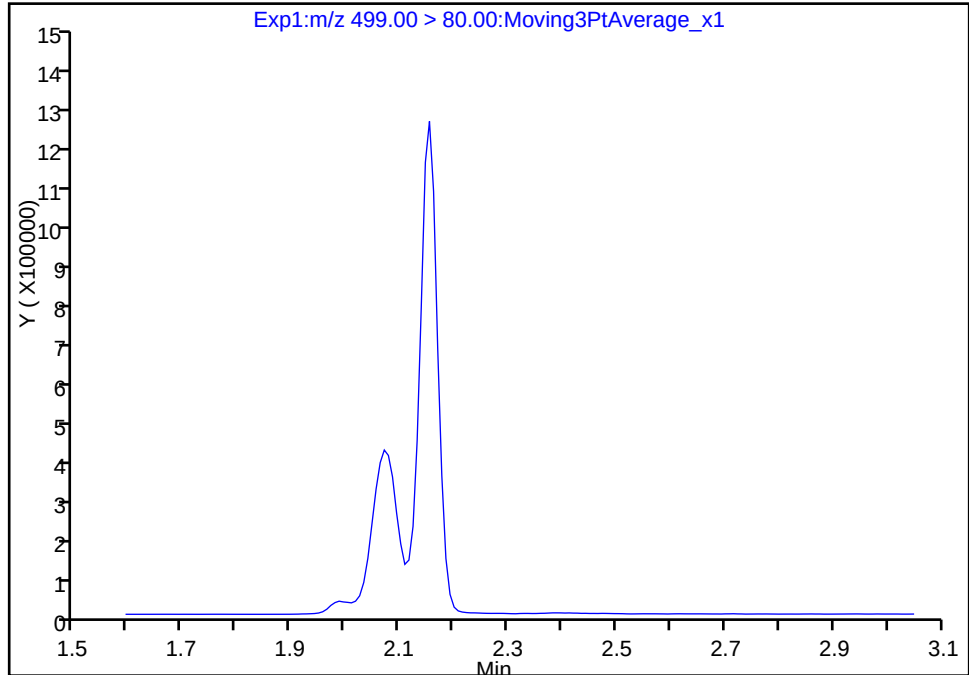
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

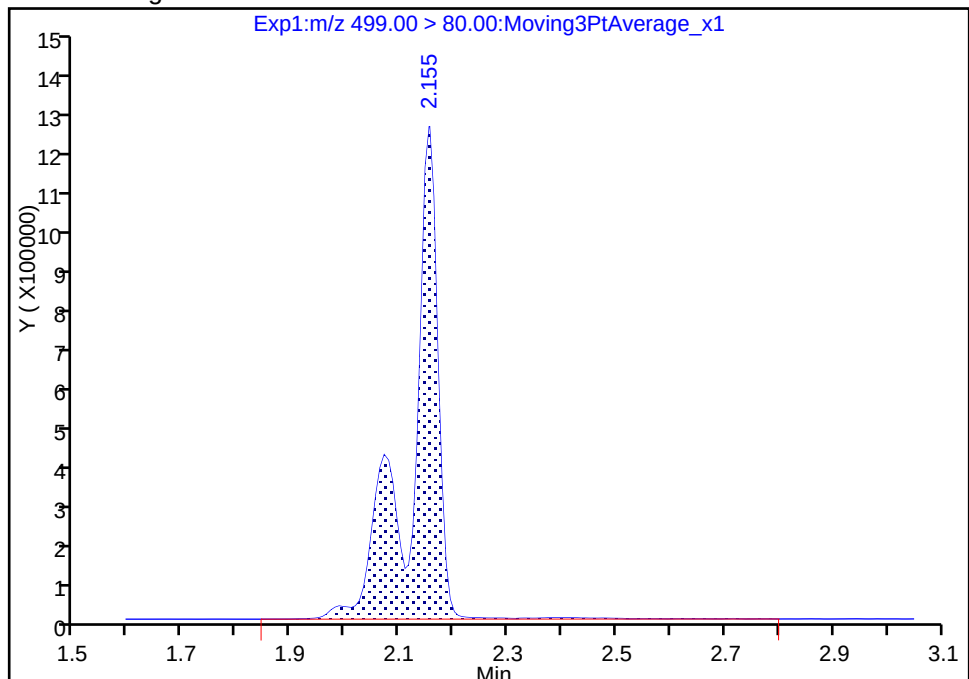
Not Detected
Expected RT: 2.15

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

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

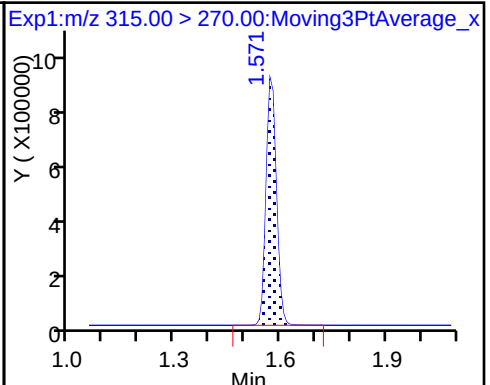
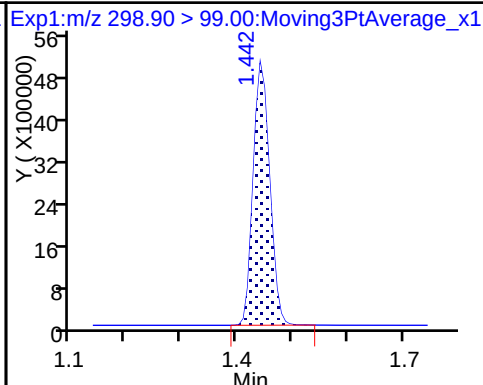
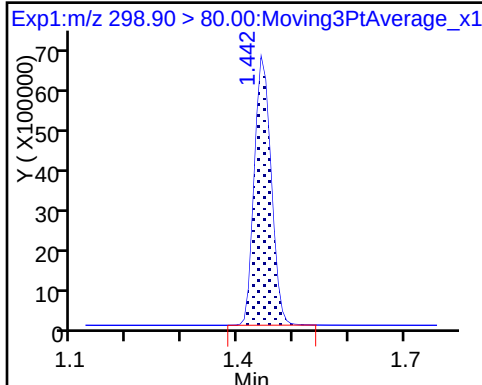
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

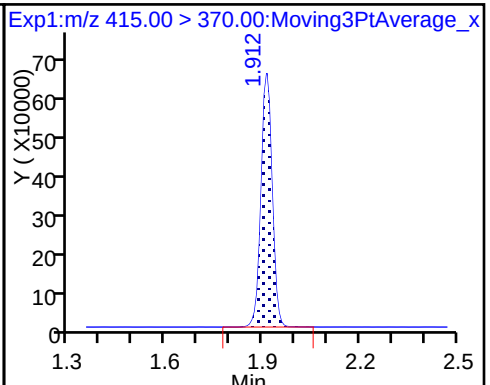
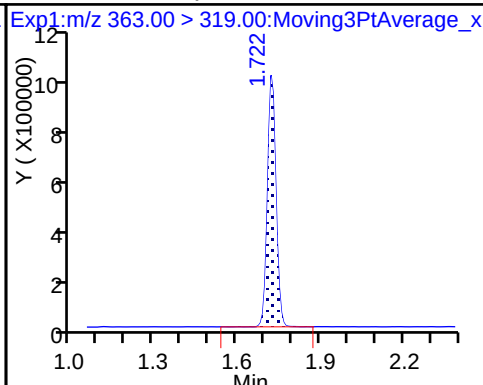
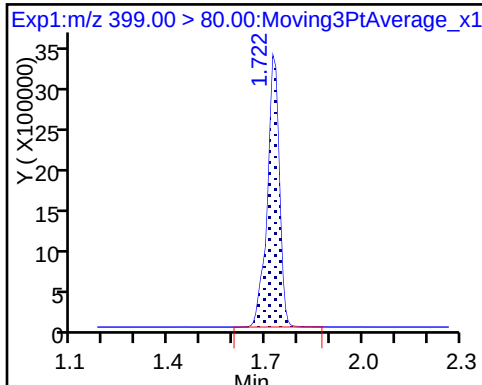
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

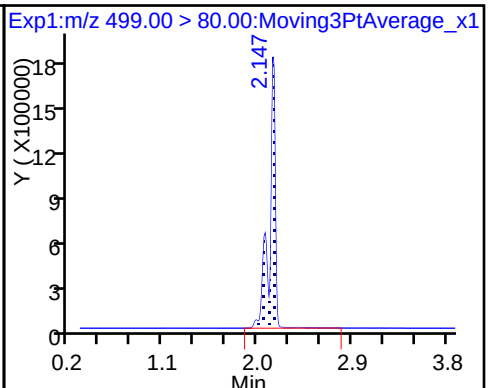
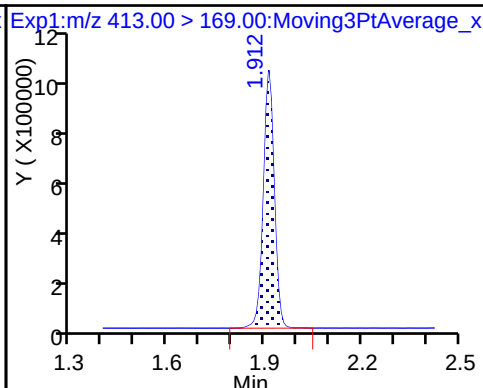
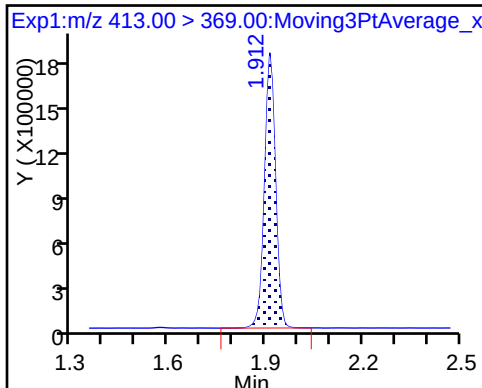
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

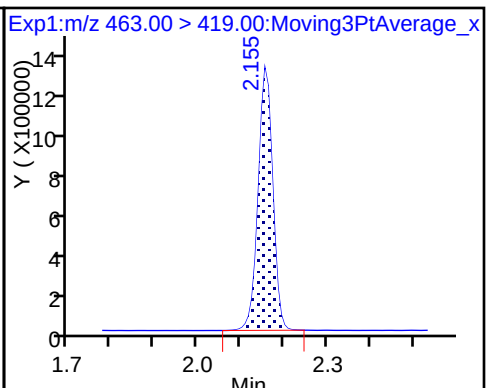
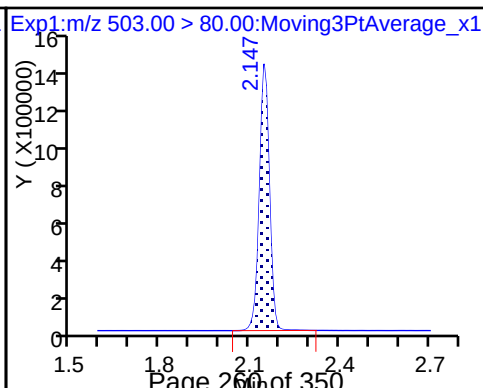
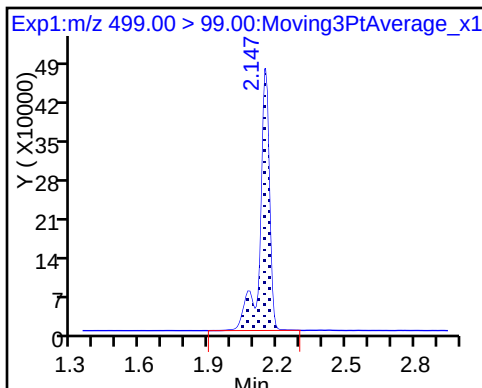
8 Perfluorooctane sulfonic acid



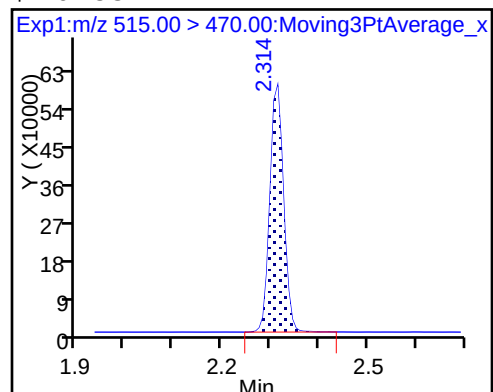
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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

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

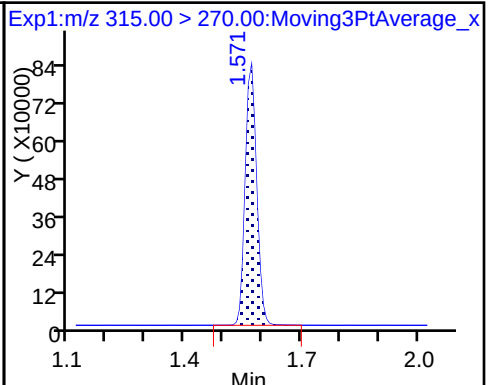
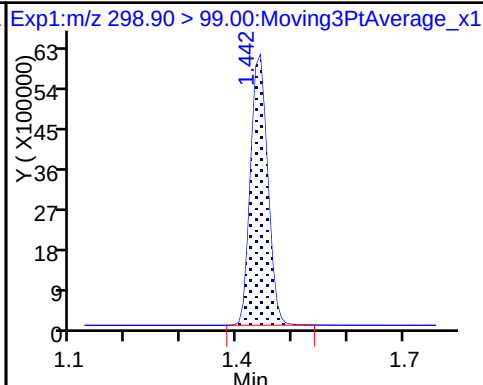
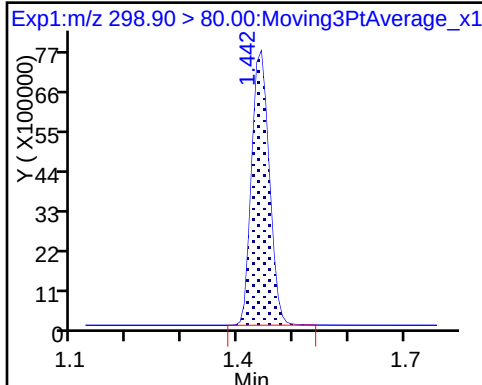
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

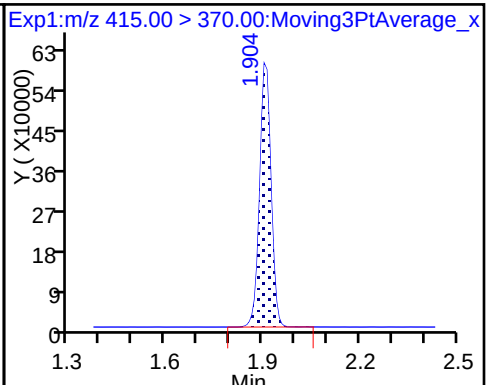
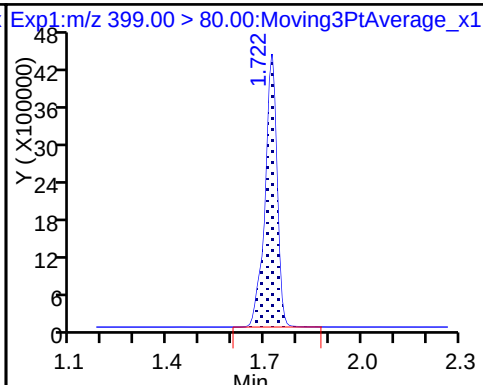
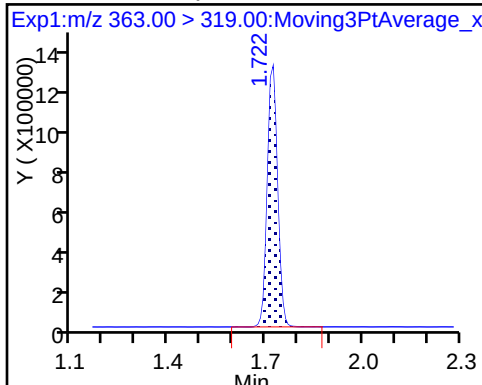
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

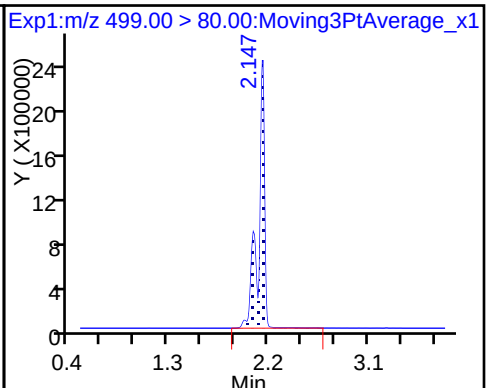
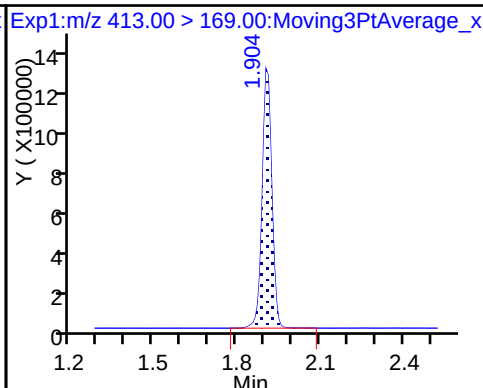
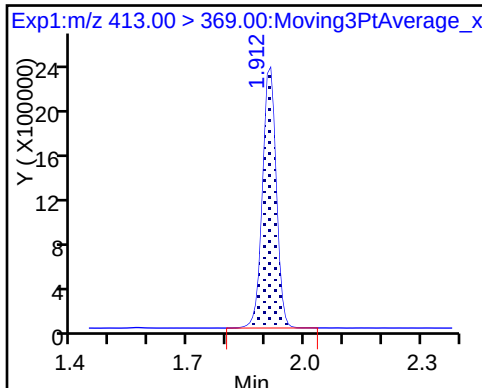
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

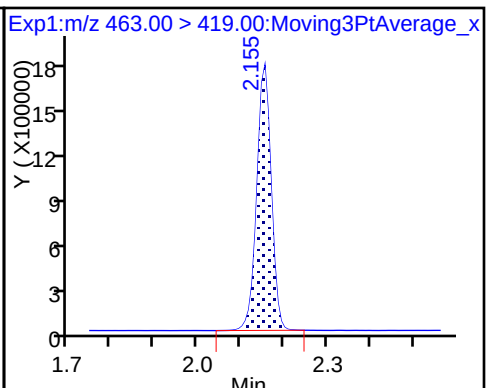
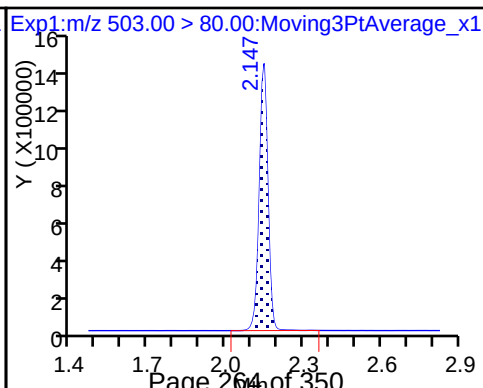
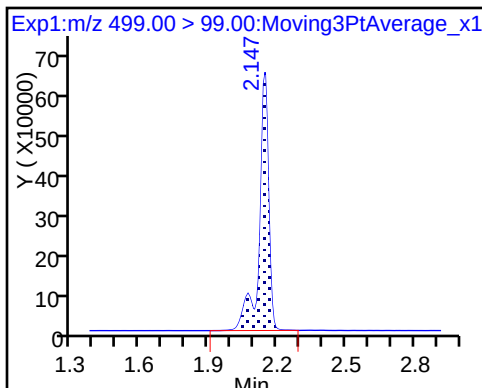
8 Perfluorooctane sulfonic acid



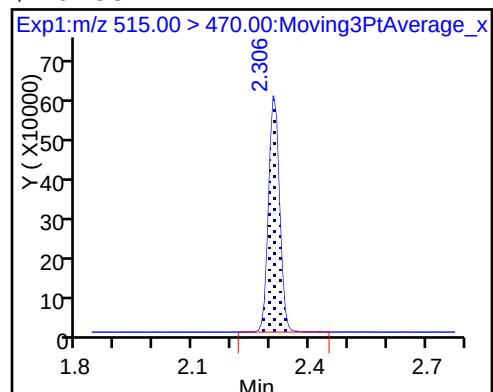
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-192908/11 Calibration Date: 11/03/2017 14:10
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.109		20.4	20.0	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9382		2.23	2.22	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		6.72	6.67	0.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8825		4.24	4.45	-4.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9176		8.69	8.89	-2.3	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6625		4.43	4.45	-0.2	50.0
13C2 PFHxA	Ave	1.100	1.068		9.70	10.0	-3.0	30.0
13C2 PFDA	Ave	0.7652	0.7460		9.75	10.0	-2.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_011.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 03-Nov-2017 14:10:44 ALS Bottle#: 2 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:39:07 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK021

First Level Reviewer: phomsophat

Date: 06-Nov-2017 07:26:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	2556738	20.4		1537	
298.90 > 99.00	1.449	1.444	0.005	1.000	1750170		1.46(0.00-0.00)	4023	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1694196	9.70		8915	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	1297654	6.72		2410	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	330927	2.23		99.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1586829	10.0		6840	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	622915	4.24		116	
413.00 > 169.00	1.912	1.914	-0.002	1.000	335080		1.86(0.00-0.00)	460	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	940397	8.69		528	
499.00 > 99.00	2.147	2.147	0.0	0.996	196397		4.79(0.00-0.00)	430	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3305852	28.7		5135	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	467323	4.43		143	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1183747	9.75		6763	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

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

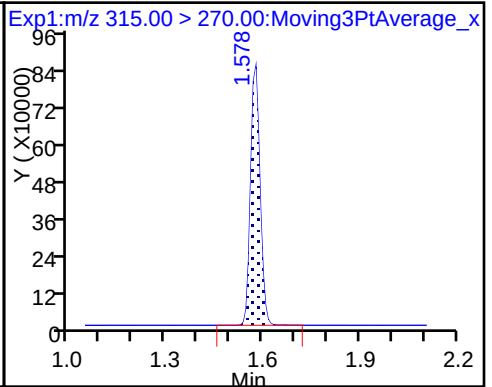
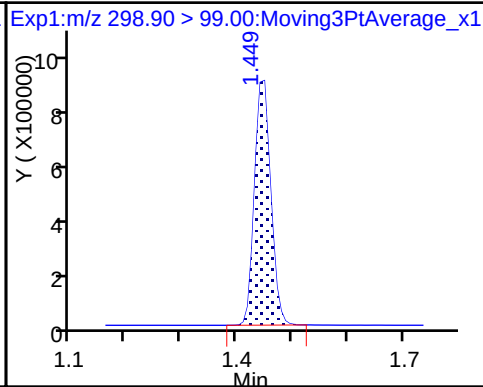
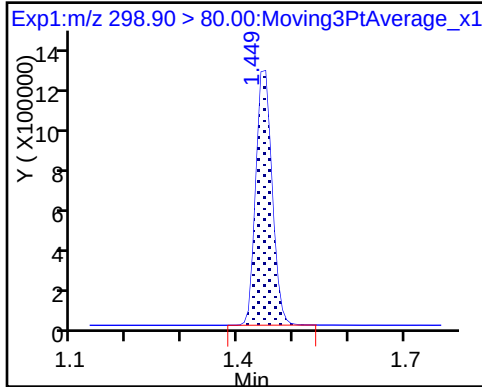
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

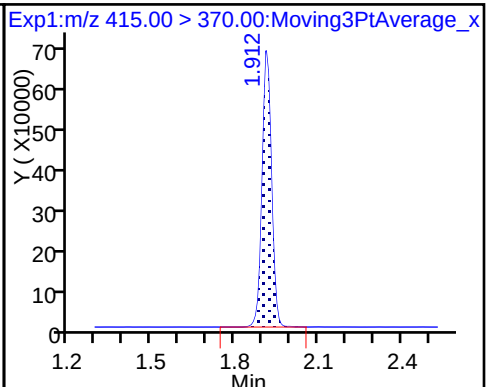
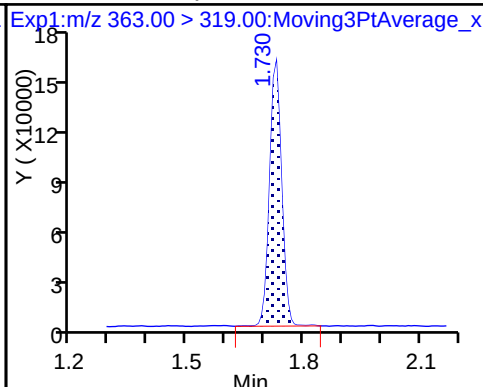
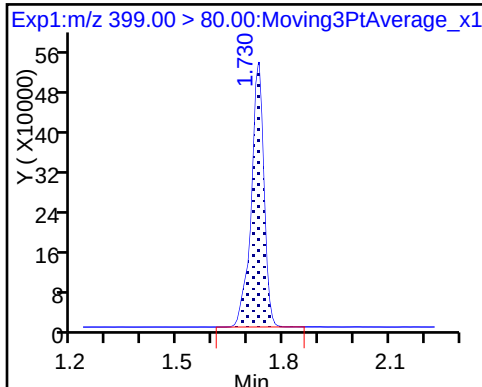
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

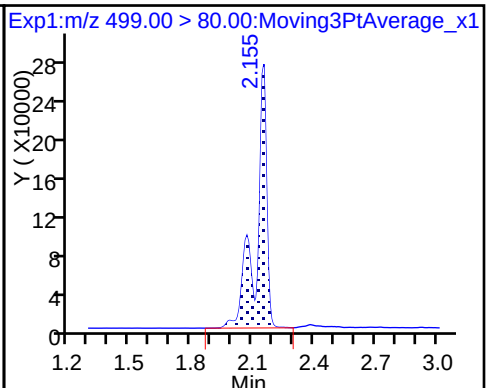
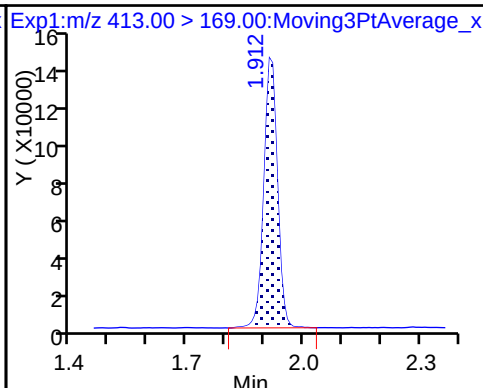
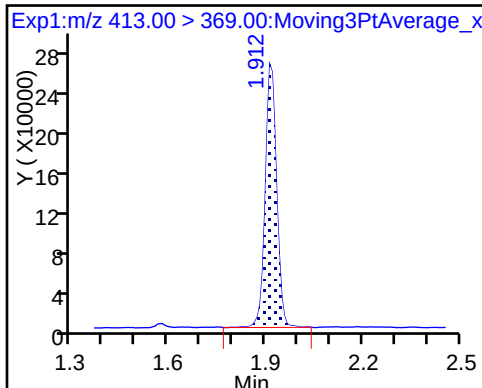
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

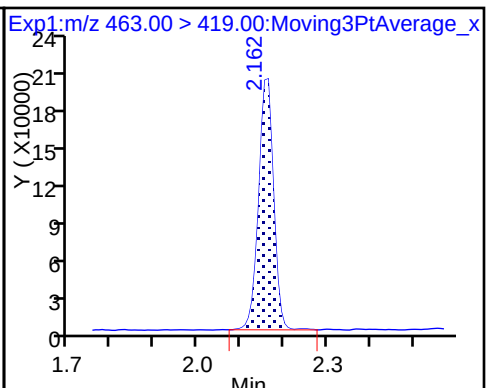
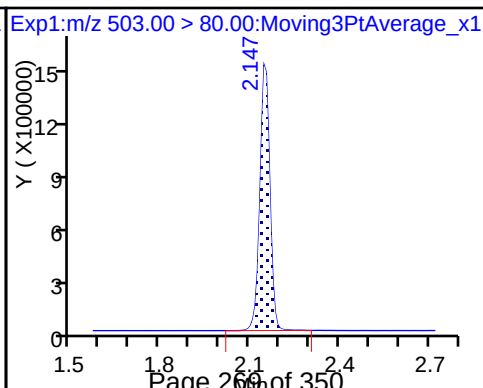
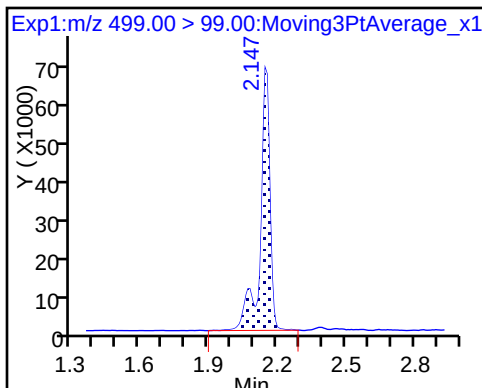
8 Perfluorooctane sulfonic acid



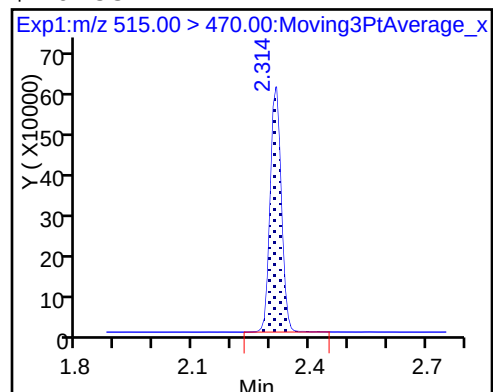
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: ICV 320-192908/13 Calibration Date: 11/03/2017 14:20
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8310		83.7	100	-16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8136		8.68	10.0	-13.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.463		17.5	20.1	-12.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.7995		17.7	20.5	-13.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8637		18.1	19.7	-8.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6428		19.5	20.1	-3.2	30.0
13C2 PFHxA	Ave	1.100	1.039		9.44	10.0	-5.6	30.0
13C2 PFDA	Ave	0.7652	0.7391		9.66	10.0	-3.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_013.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 03-Nov-2017 14:20:03 ALS Bottle#: 7 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:39:08 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK021

First Level Reviewer: phomsophat

Date: 06-Nov-2017 07:27:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	9960387	83.7		4998	
298.90 > 99.00	1.442	1.444	-0.002	1.000	7235967		1.38(0.00-0.00)	13514	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1570629	9.44		8393	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	3517469	17.5		5659	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	1229696	8.68		345	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.913	-0.009		1512045	10.0		7643	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.904	1.914	-0.010	1.000	2476221	17.7		475	
413.00 > 169.00	1.904	1.914	-0.010	1.000	1327388		1.87(0.00-0.00)	1724	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.140	2.147	-0.007	1.000	2036944	18.1		2323	
499.00 > 99.00	2.140	2.147	-0.007	1.000	389736		5.23(0.00-0.00)	830	
* 7 13C4 PFOS									
503.00 > 80.00	2.140	2.151	-0.011		3433628	28.7		5334	
9 Perfluorononanoic acid									
463.00 > 419.00	2.147	2.158	-0.011	1.000	1956116	19.5		652	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1117553	9.66		6230	

Reagents:

LC537-ICV_00028

Amount Added: 1.00

Units: mL

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

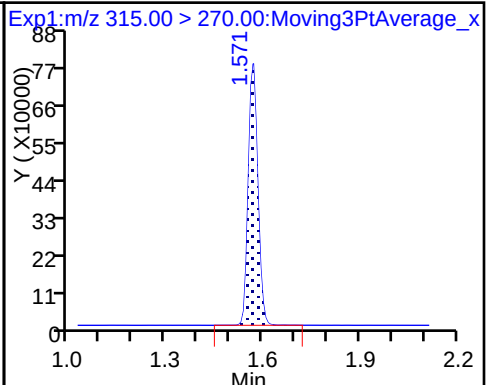
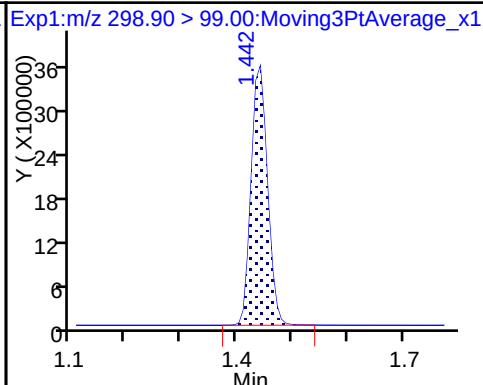
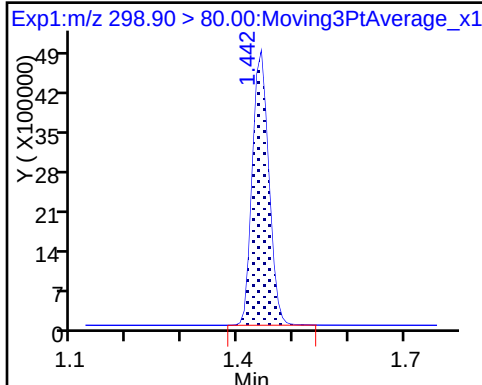
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

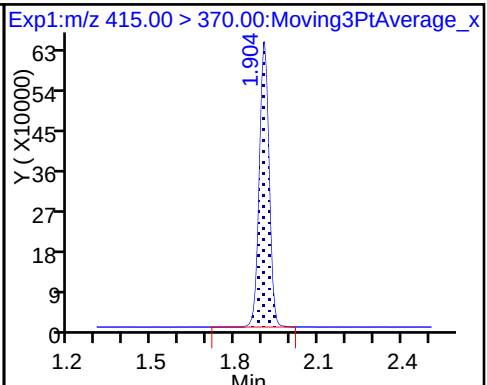
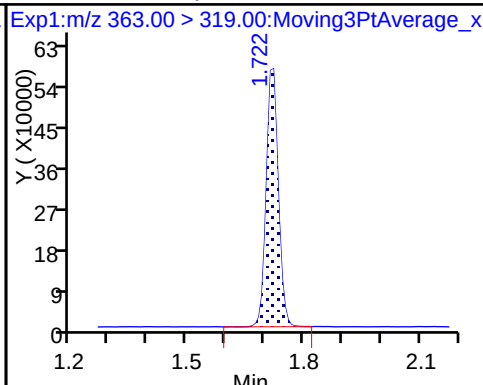
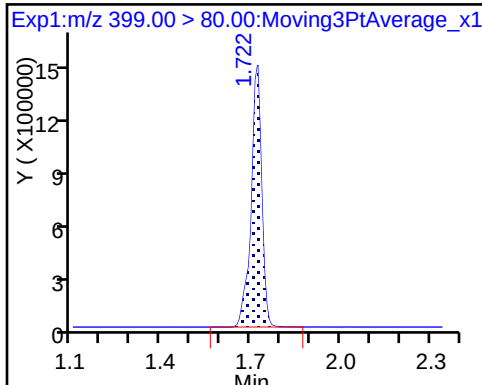
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

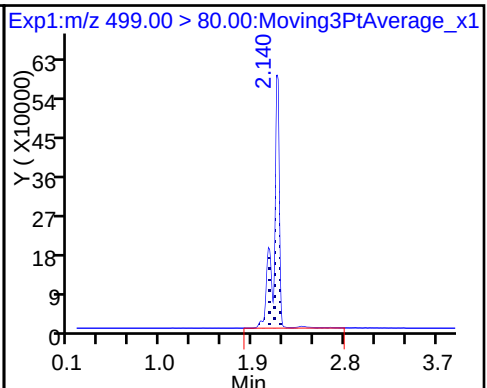
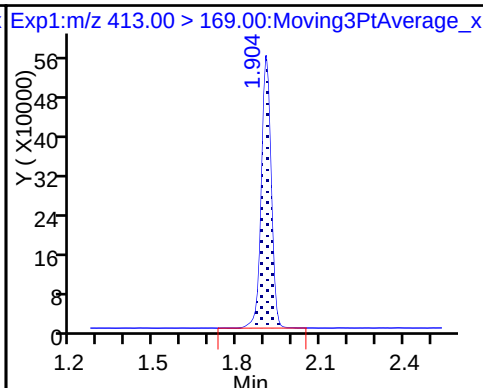
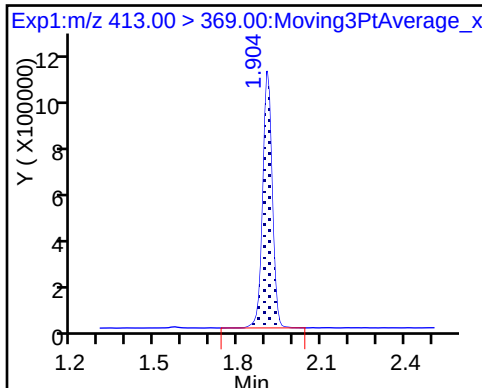
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

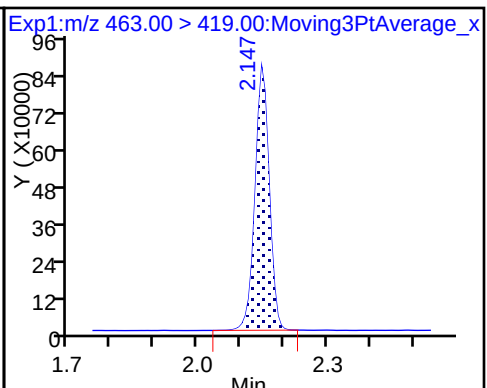
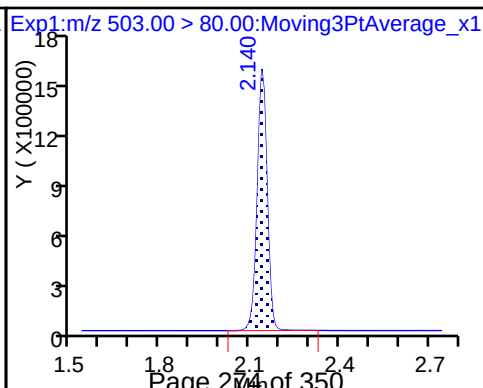
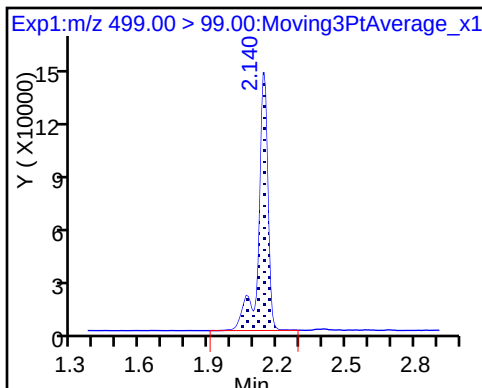
8 Perfluorooctane sulfonic acid



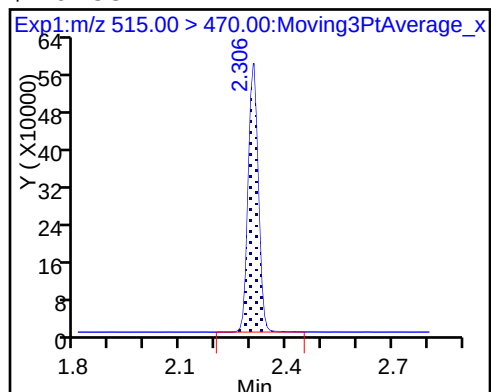
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-206939/1 Calibration Date: 02/05/2018 11:37
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.125		20.7	20.0	3.4	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9558		2.27	2.22	2.0	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.721		6.86	6.67	2.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9430		4.55	4.47	1.9	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9838		9.35	8.93	4.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6702		4.49	4.45	0.9	50.0
13C2 PFHxA	Ave	1.100	0.9444		8.58	10.0	-14.2	30.0
13C2 PFDA	Ave	0.7652	0.7213		9.43	10.0	-5.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180205-53686.b\2018.02.05_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 05-Feb-2018 11:37:45 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\20180205-53686.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Feb-2018 12:16:30 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: XAWRK004

First Level Reviewer: roycea

Date: 05-Feb-2018 12:15:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	2237452	20.7		7494	
298.90 > 99.00	1.381	1.381	0.0	1.000	1674198		1.34(0.00-0.00)	4626	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.502	0.0	1.000	1296254	8.58		5692	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.646	0.008	1.000	1140898	6.86		3177	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.646	0.008	1.000	291596	2.27		121	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.844	0.007		1372542	10.0		5603	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.844	0.007	1.000	578425	4.55		240	
413.00 > 169.00	1.851	1.844	0.007	1.000	300084		1.93(0.00-0.00)	1348	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.102	0.007		2851057	28.7		7270	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.102	0.007	1.000	873071	9.35		1347	a
499.00 > 99.00	2.109	2.102	0.007	1.000	190776		4.58(0.00-0.00)	581	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.109	0.008	1.000	408932	4.49		307	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.269	0.008	1.000	990010	9.43		6539	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180205-53686.b\2018.02.05_537A_004.d

Injection Date: 05-Feb-2018 11:37:45

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

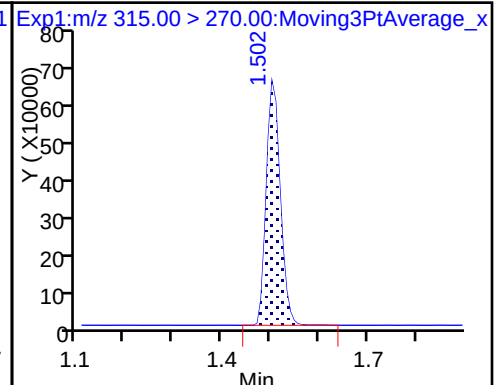
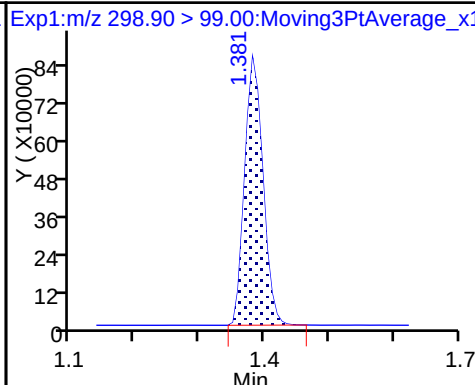
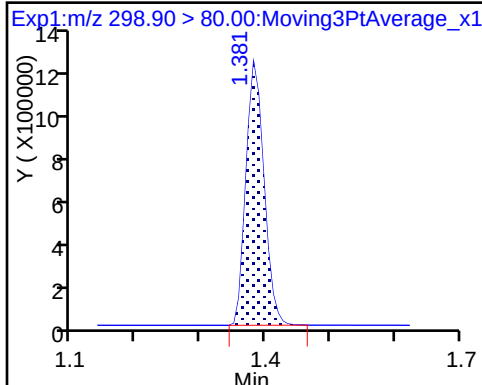
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

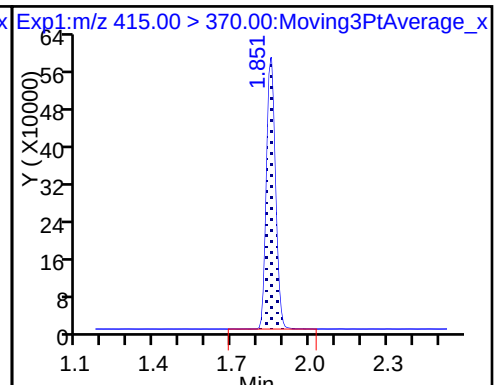
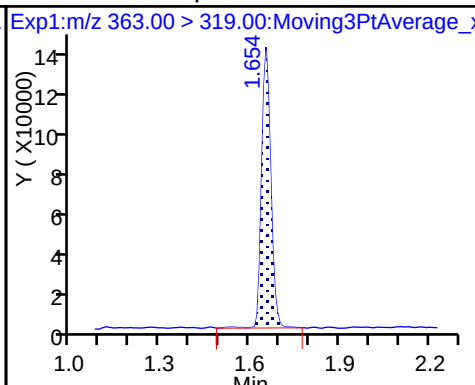
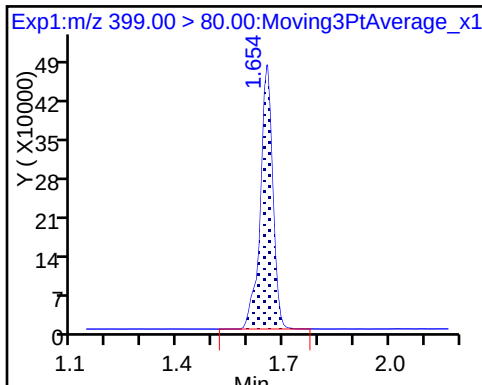
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

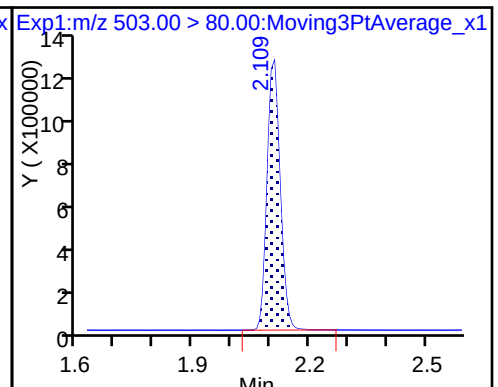
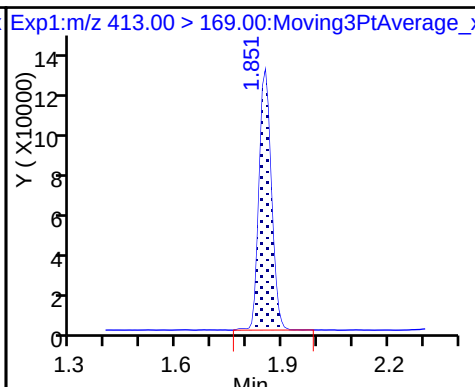
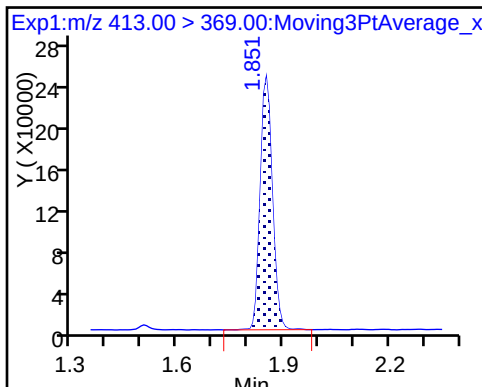
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

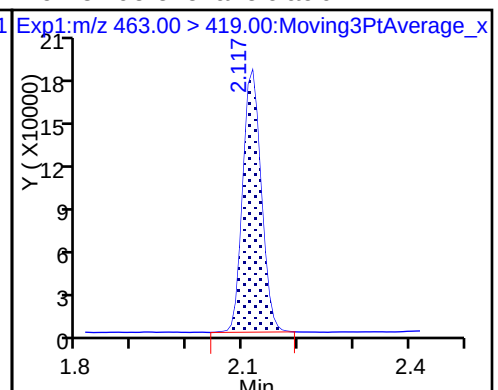
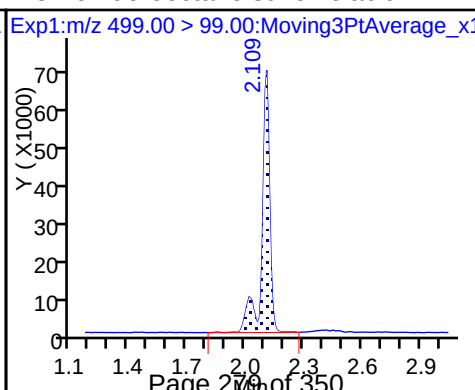
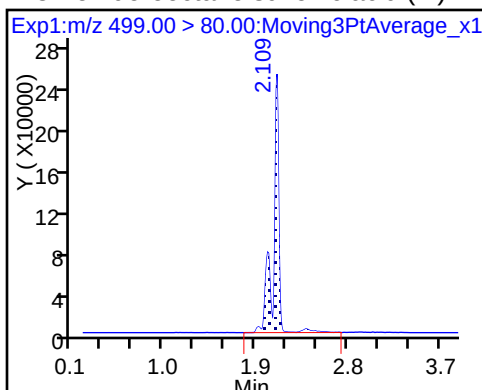
* 7 13C4 PFOS



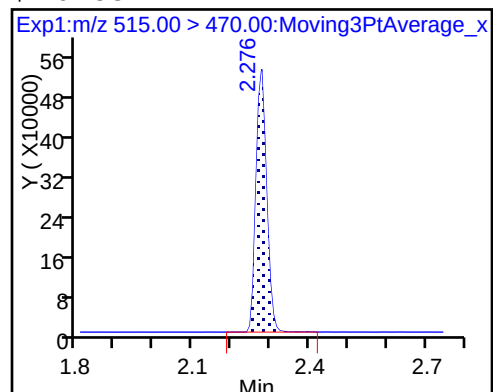
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

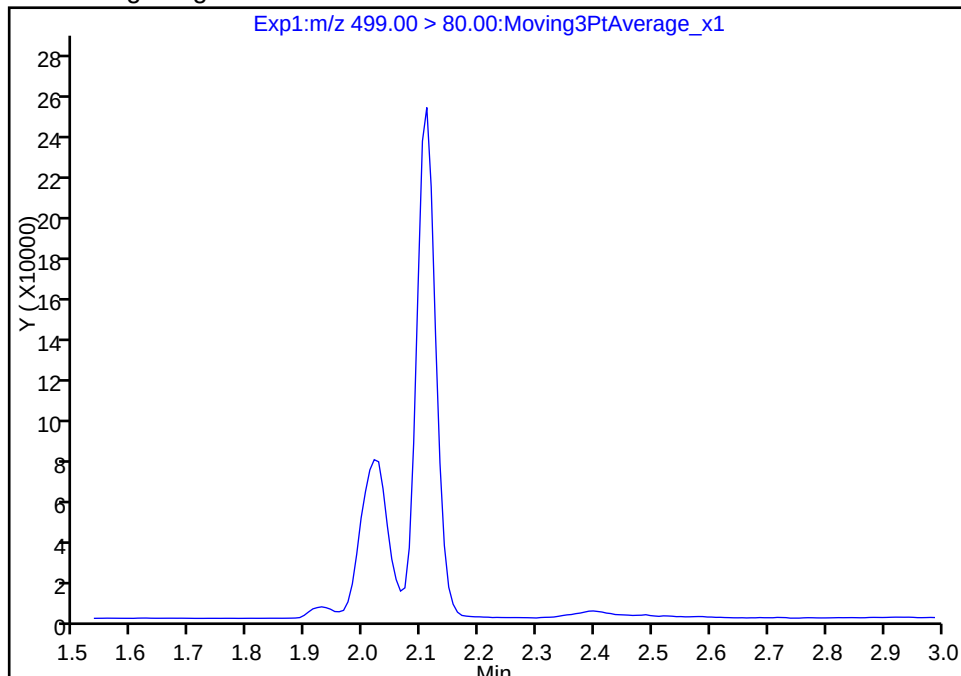
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180205-53686.b\2018.02.05_537A_004.d
Injection Date: 05-Feb-2018 11:37:45 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

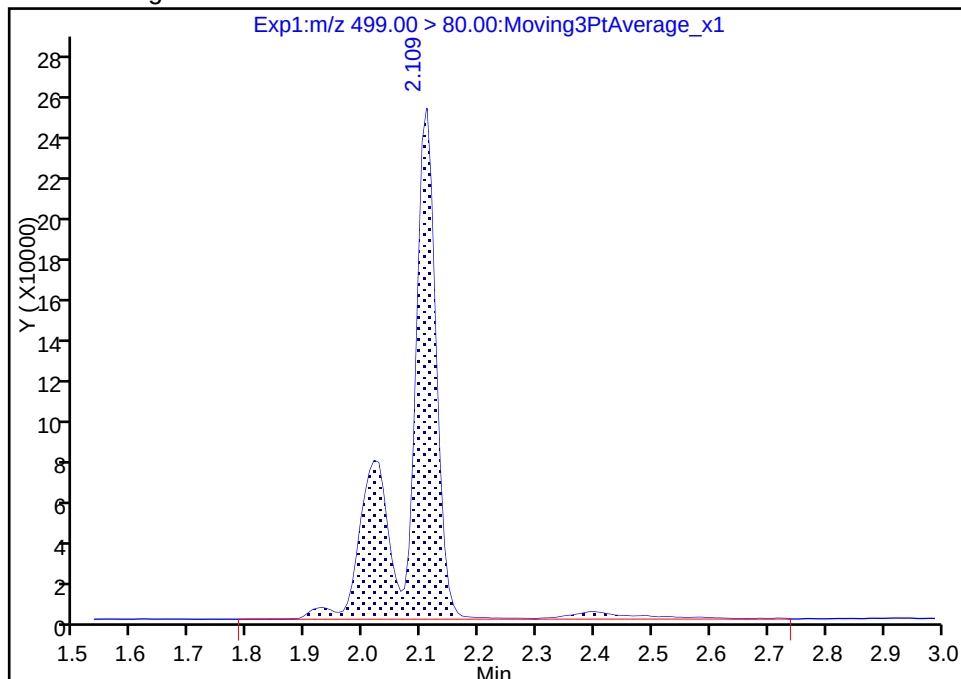
Not Detected
Expected RT: 2.10

Processing Integration Results



Manual Integration Results

RT: 2.11
Area: 873071
Amount: 9.353646
Amount Units: ng/ml



Reviewer: roycea, 05-Feb-2018 12:15:09

Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207066/1 Calibration Date: 02/06/2018 03:19
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.114		47.9	45.0	6.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.019		5.44	5.00	8.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.720		15.4	15.0	2.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9711		10.5	10.1	4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9690		20.7	20.1	3.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7024		10.6	10.0	5.8	30.0
13C2 PFHxA	Ave	1.100	1.140		10.4	10.0	3.6	30.0
13C2 PFDA	Ave	0.7652	0.7700		10.1	10.0	0.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_022.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 06-Feb-2018 03:19:43 ALS Bottle#: 3 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:22:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	4976885	47.9		11869	
298.90 > 99.00	1.373	1.373	0.0	1.000	3717601		1.34(0.00-0.00)	11424	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	1436898	10.4		7785	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2561835	15.4		6524	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	642760	5.44		223	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1260866	10.0		4481	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	1231204	10.5		215	
413.00 > 169.00	1.813	1.813	0.0	1.000	694640		1.77(0.00-0.00)	2162	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.064	0.0		2846644	28.7		6580	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.048	0.016	1.000	1931698	20.7		1019	Ma
499.00 > 99.00	2.064	2.048	0.016	1.000	410217		4.71(0.00-0.00)	884	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.071	0.0	1.000	885865	10.6		245	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	970885	10.1		5702	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_022.d

Injection Date: 06-Feb-2018 03:19:43

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

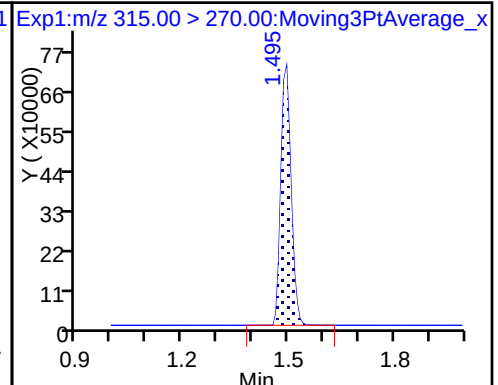
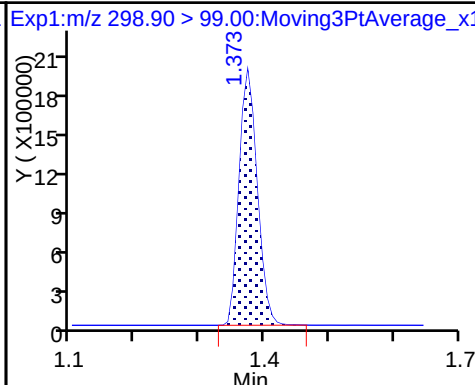
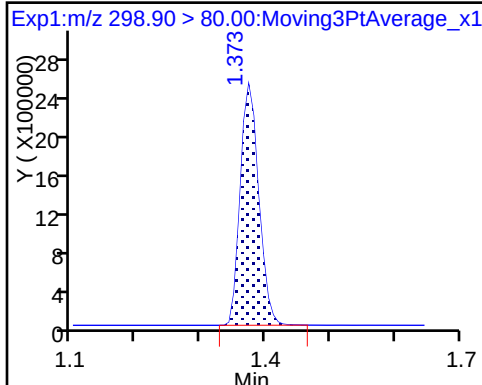
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

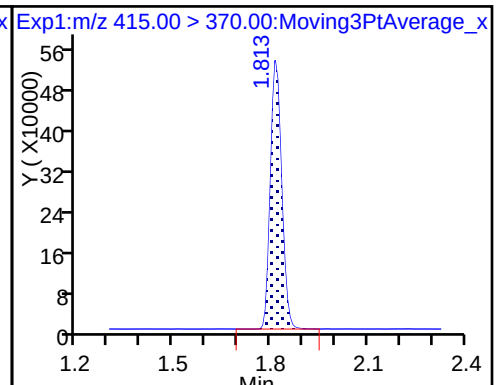
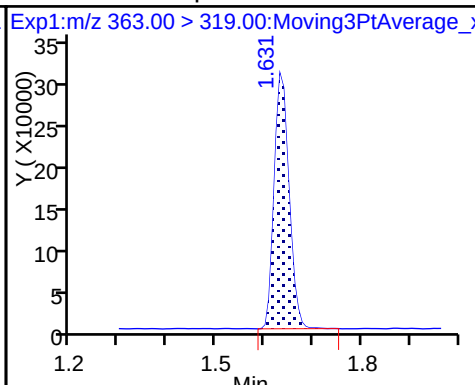
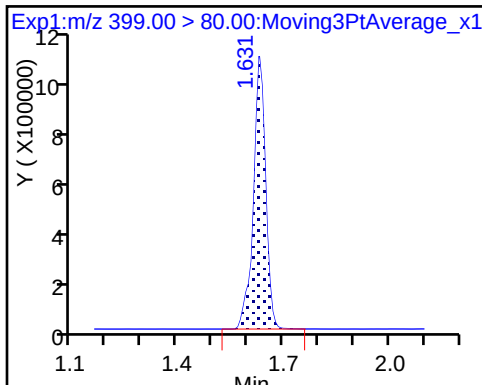
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

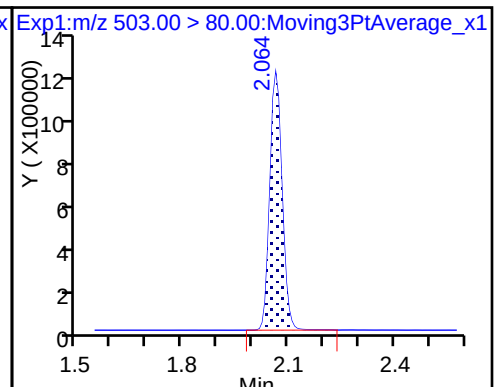
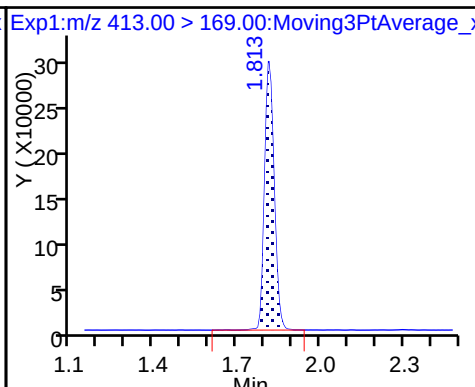
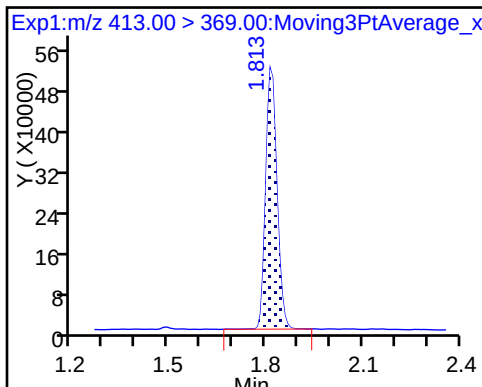
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

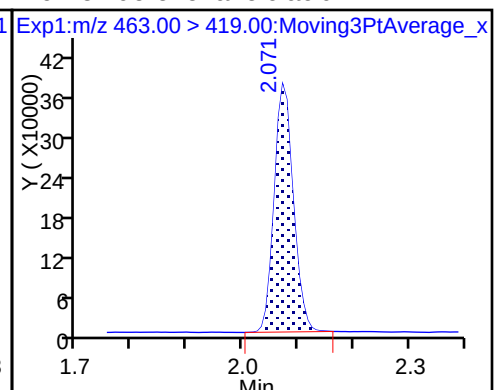
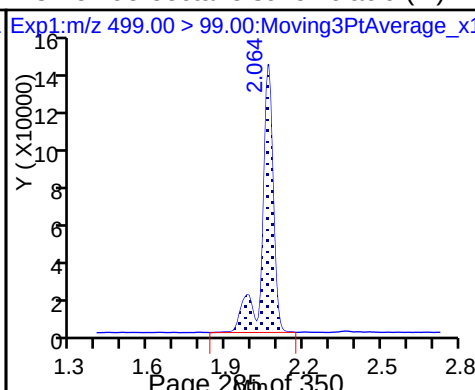
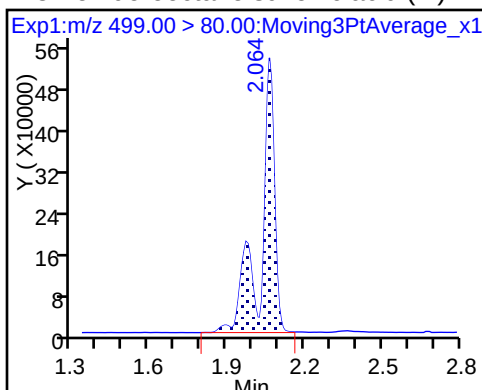
* 7 13C4 PFOS



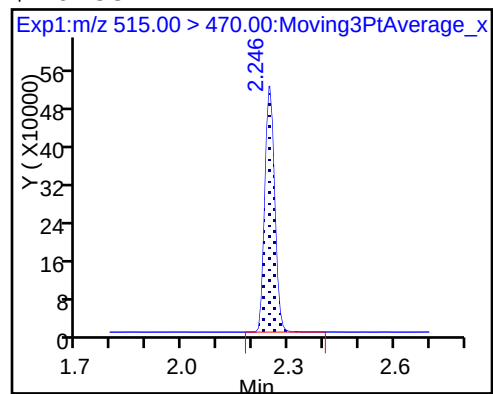
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

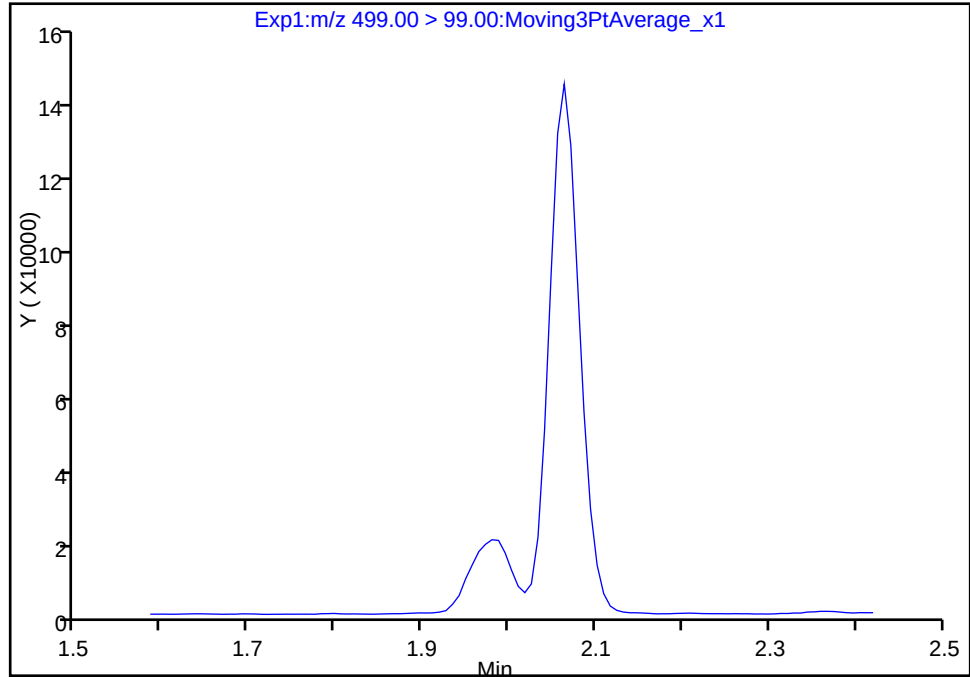
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_022.d
Injection Date: 06-Feb-2018 03:19:43 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

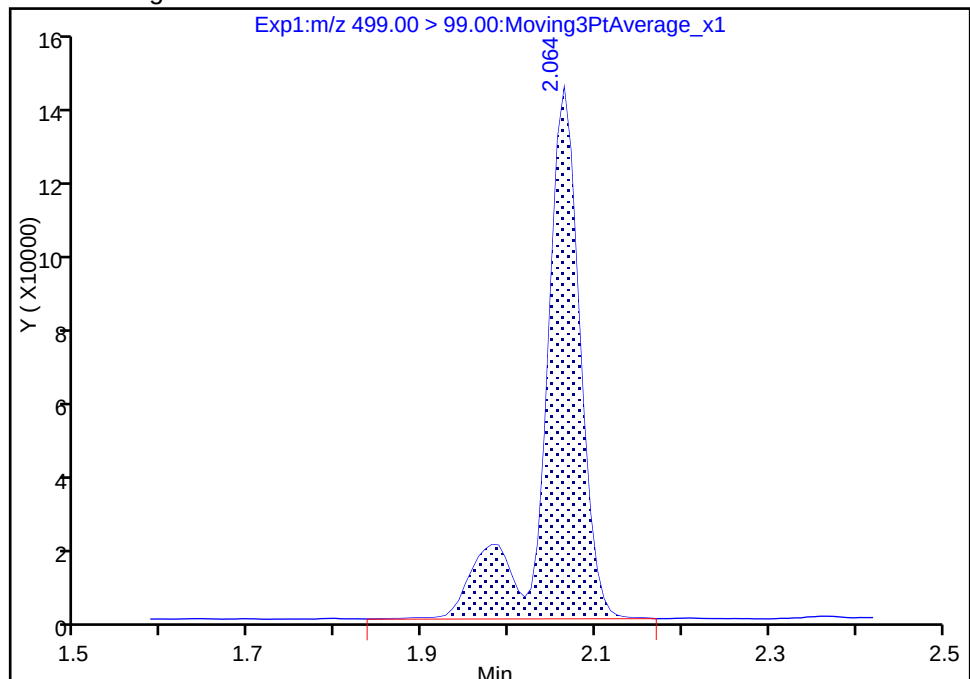
Not Detected
Expected RT: 2.05

Processing Integration Results



RT: 2.06
Area: 410217
Amount: 20.727330
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:22:23
Audit Action: Manually Integrated

Audit Reason: Assign Peak
Page 287 of 350

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_022.d

Injection Date: 06-Feb-2018 03:19:43

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

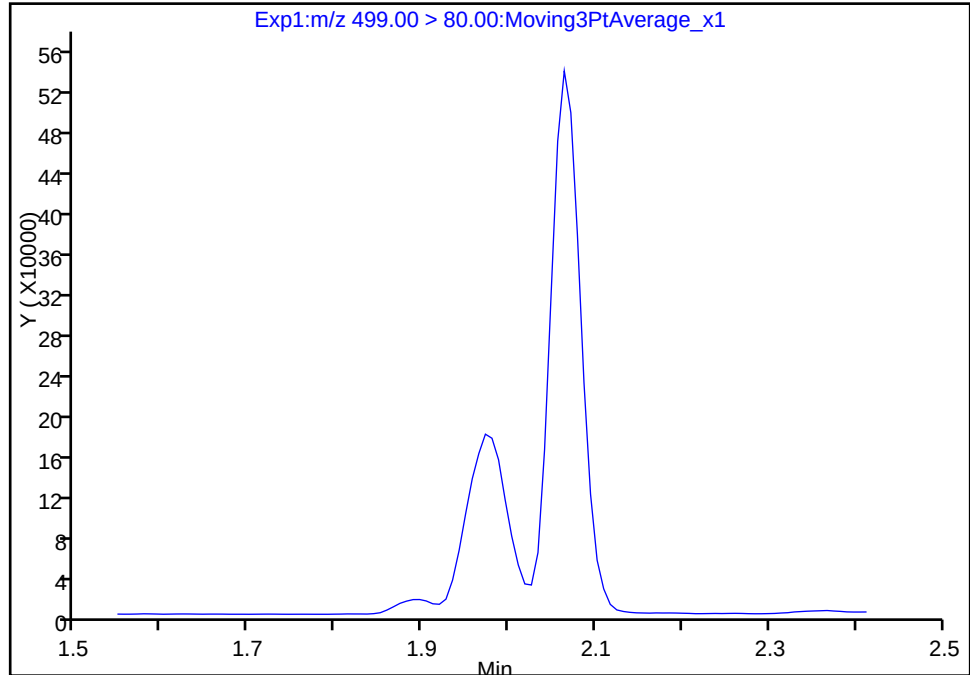
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

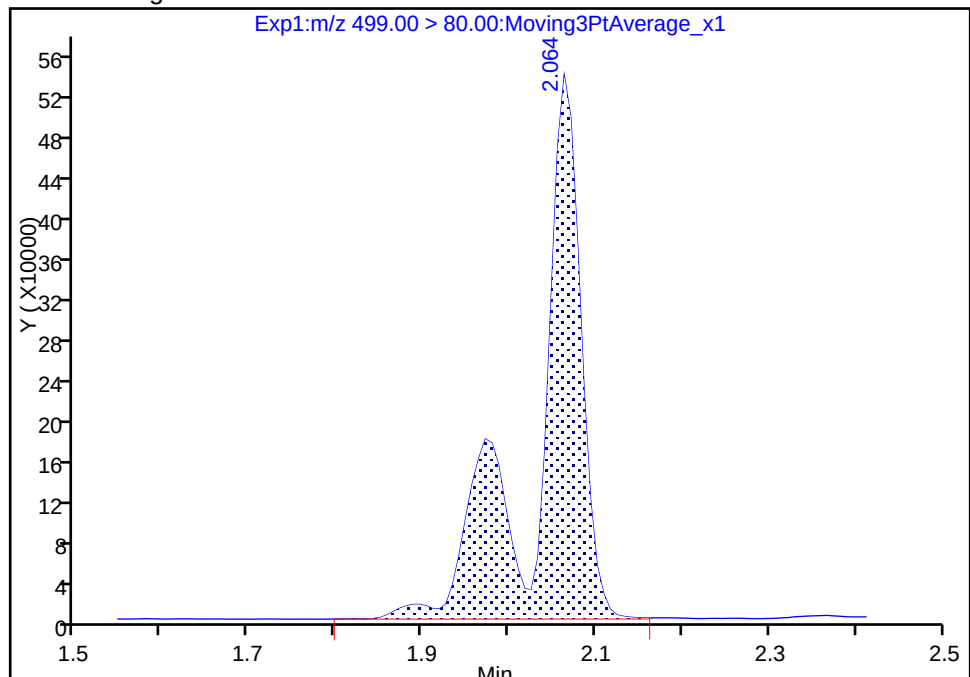
Not Detected

Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.06

Area: 1931698

Amount: 20.727330

Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:22:23

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207066/13 Calibration Date: 02/06/2018 04:15
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9402		139	135	3.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.039		16.6	15.0	10.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.694		45.5	45.0	1.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9764		31.8	30.2	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9811		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7213		32.6	30.0	8.6	30.0
13C2 PFHxA	Ave	1.100	1.130		10.3	10.0	2.7	30.0
13C2 PFDA	Ave	0.7652	0.7553		9.87	10.0	-1.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207068/13 Calibration Date: 02/06/2018 04:15
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9402		139	135	3.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.039		16.6	15.0	10.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.694		45.5	45.0	1.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9764		31.8	30.2	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9811		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7213		32.6	30.0	8.6	30.0
13C2 PFHxA	Ave	1.100	1.130		10.3	10.0	2.7	30.0
13C2 PFDA	Ave	0.7652	0.7553		9.87	10.0	-1.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 06-Feb-2018 04:15:46 ALS Bottle#: 5 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:23:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	13326825	139.4		18363	
298.90 > 99.00	1.366	1.373	-0.007	0.994	10273339		1.30(0.00-0.00)	16141	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1506991	10.3		8066	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	8003524	45.5		12944	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	2079848	16.6		685	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1333970	10.0		5179	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	3929087	31.8		627	
413.00 > 169.00	1.806	1.813	-0.007	0.996	2168029		1.81(0.00-0.00)	6920	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	6206731	63.0		2512	Ma
499.00 > 99.00	2.056	2.048	0.008	1.000	1274983		4.87(0.00-0.00)	2453	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3011017	28.7		6076	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	2887588	32.6		744	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1007542	9.87		6052	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 06-Feb-2018 04:15:46 ALS Bottle#: 5 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:24 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:23:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	13326825	139.4		18363	
298.90 > 99.00	1.366	1.373	-0.007	0.994	10273339		1.30(0.00-0.00)	16141	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1506991	10.3		8066	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	8003524	45.5		12944	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	2079848	16.6		685	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1333970	10.0		5179	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.813	0.0	1.000	3929087	31.8		627	
413.00 > 169.00	1.806	1.813	-0.007	0.996	2168029		1.81(0.00-0.00)	6920	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	6206731	63.0		2512	Ma
499.00 > 99.00	2.056	2.048	0.008	1.000	1274983		4.87(0.00-0.00)	2453	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3011017	28.7		6076	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	2887588	32.6		744	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1007542	9.87		6052	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d

Injection Date: 06-Feb-2018 04:15:46

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

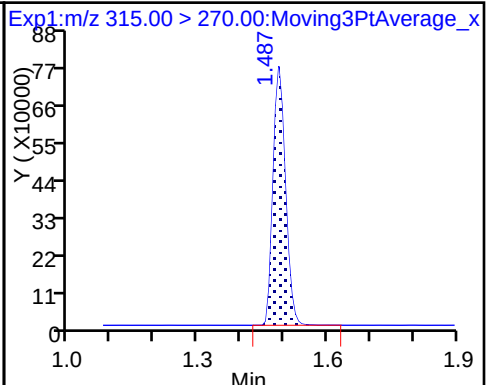
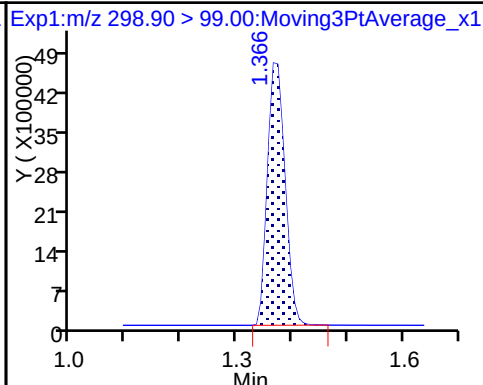
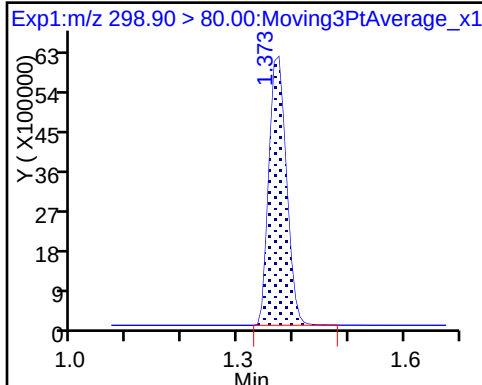
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

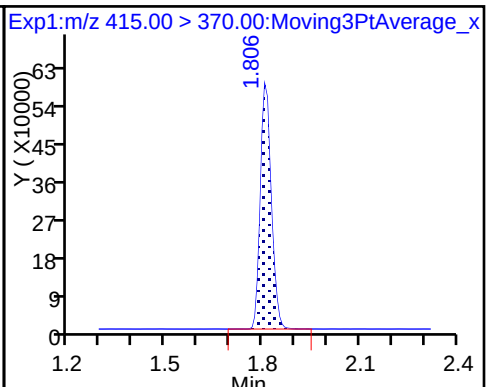
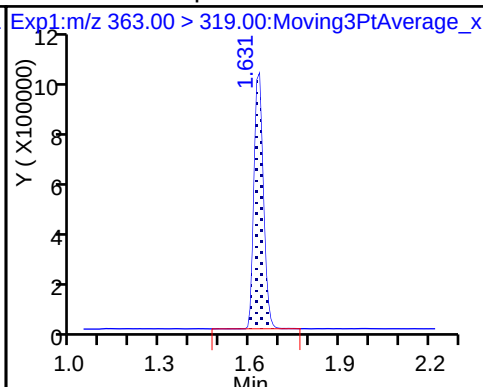
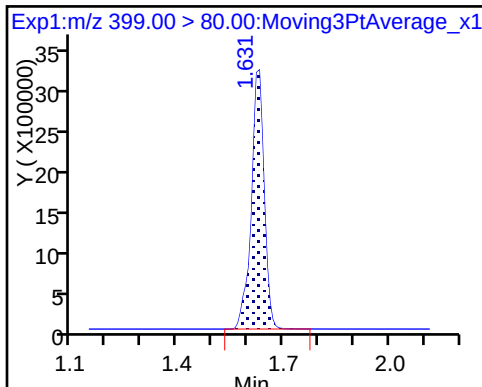
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

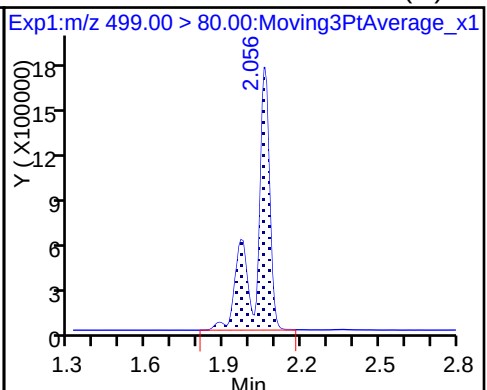
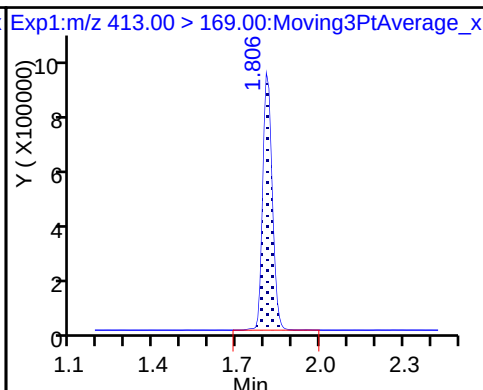
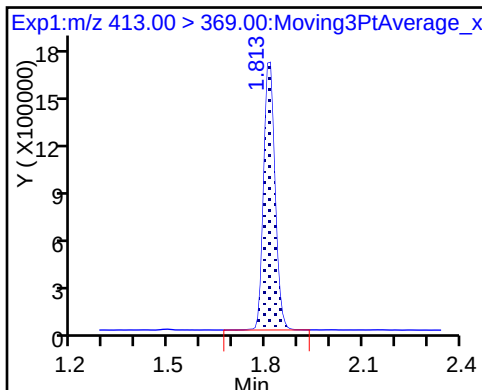
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

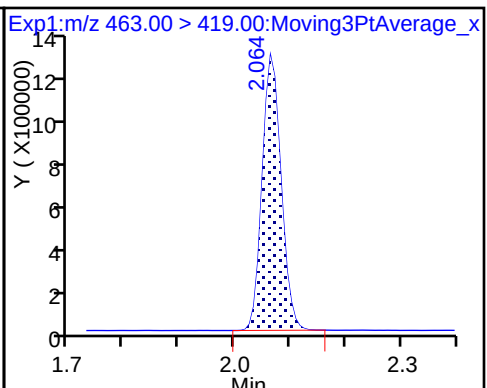
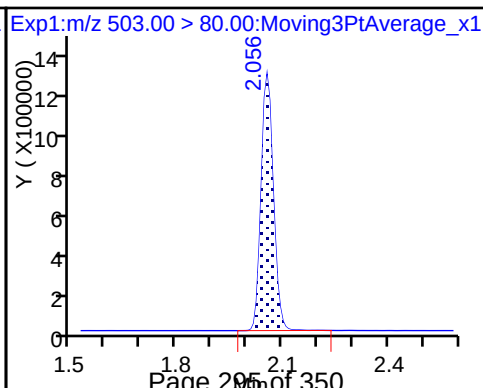
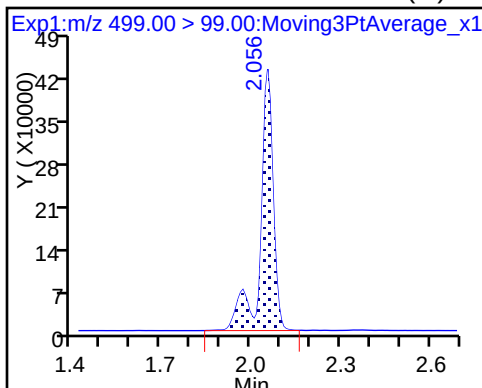
8 Perfluorooctane sulfonic acid (M)



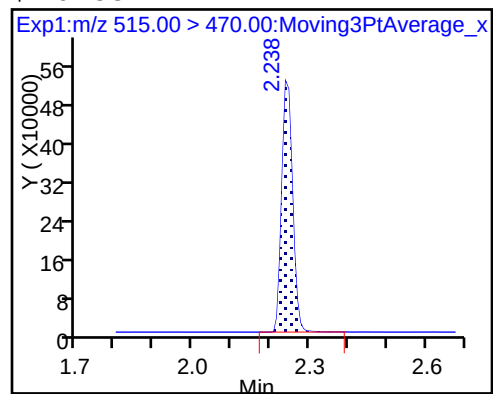
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d

Injection Date: 06-Feb-2018 04:15:46

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

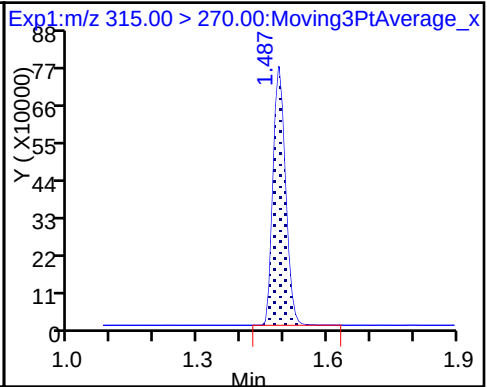
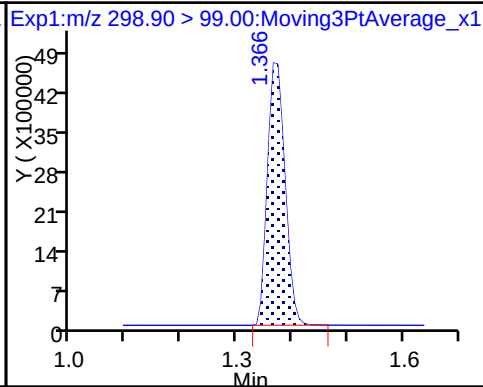
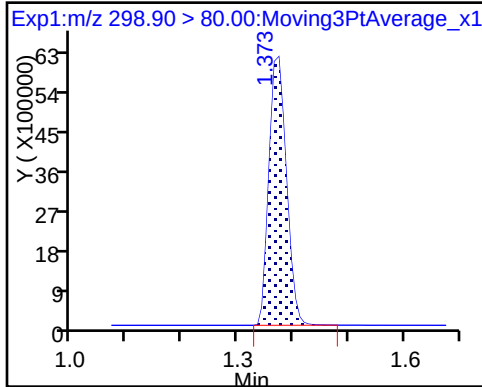
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

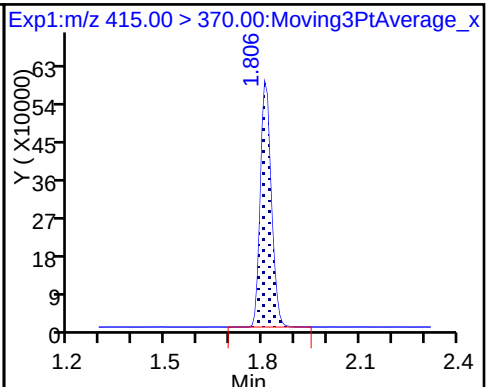
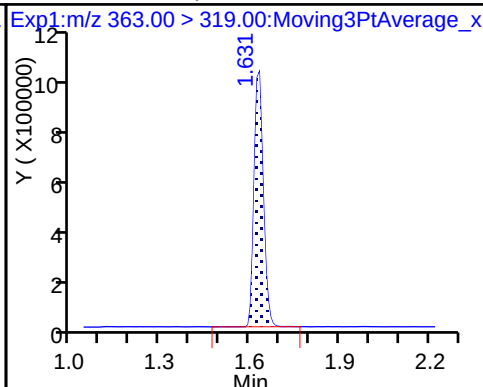
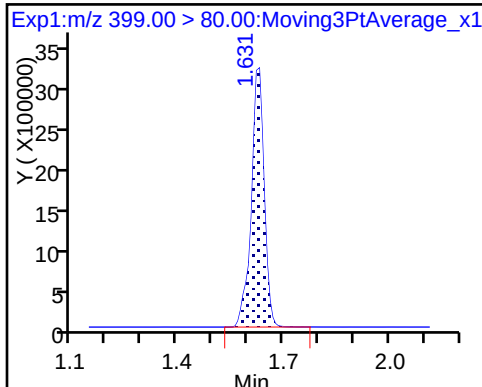
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

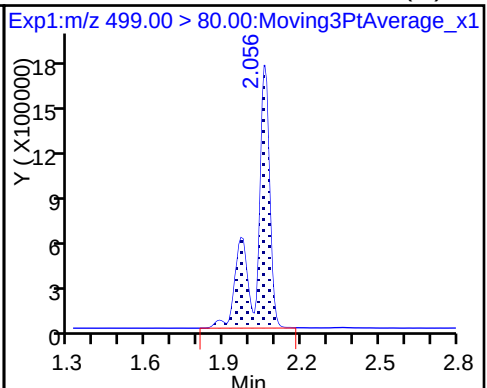
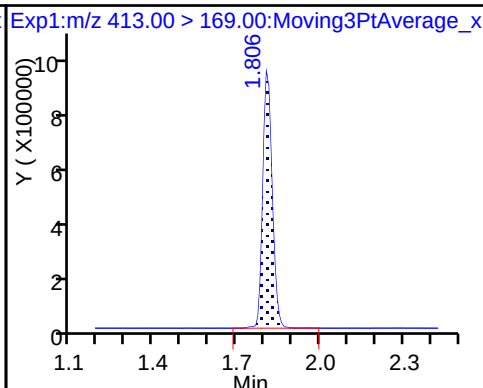
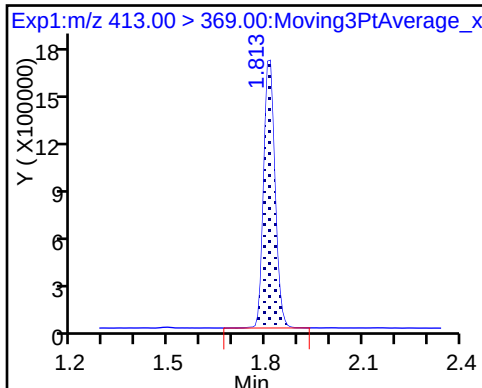
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

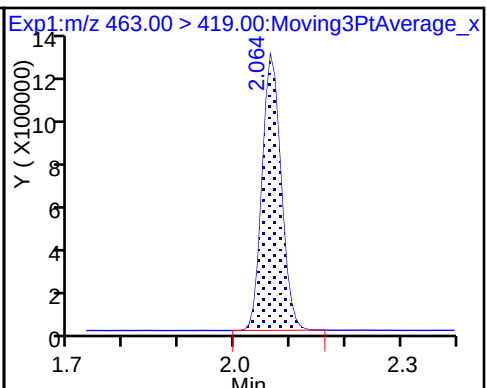
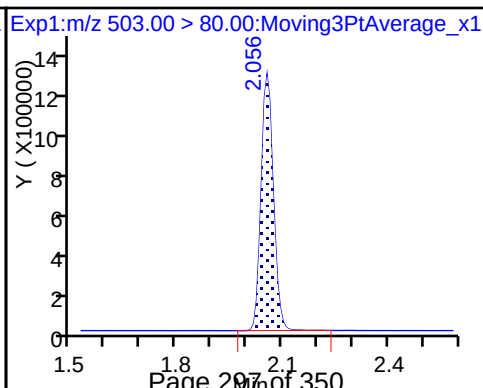
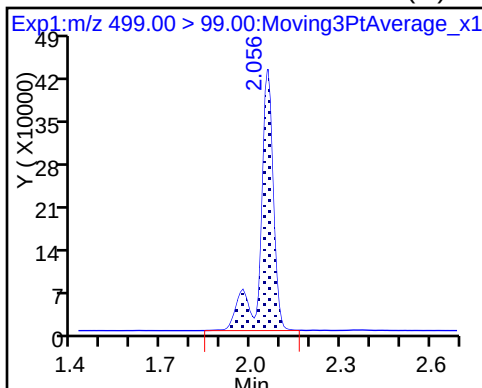
8 Perfluorooctane sulfonic acid (M)



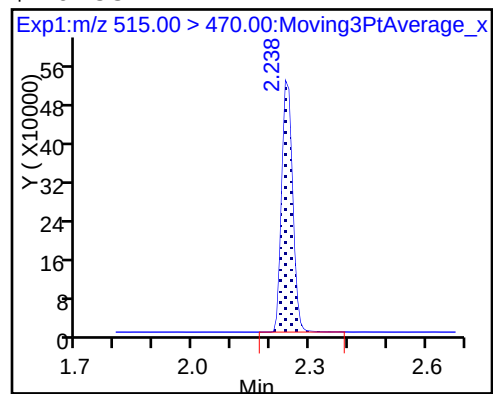
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

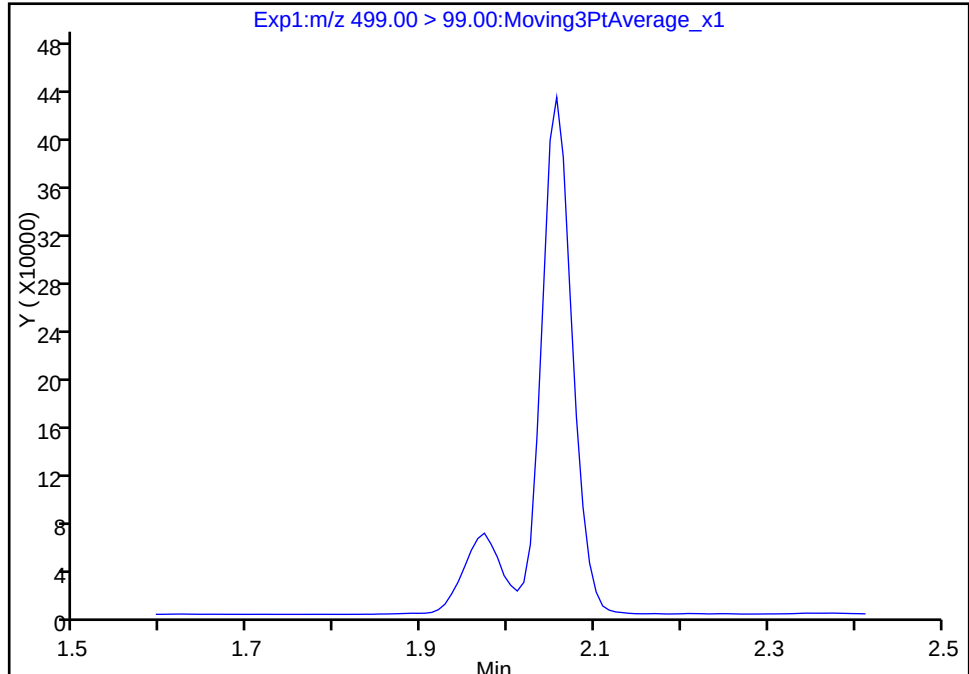
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d
Injection Date: 06-Feb-2018 04:15:46 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

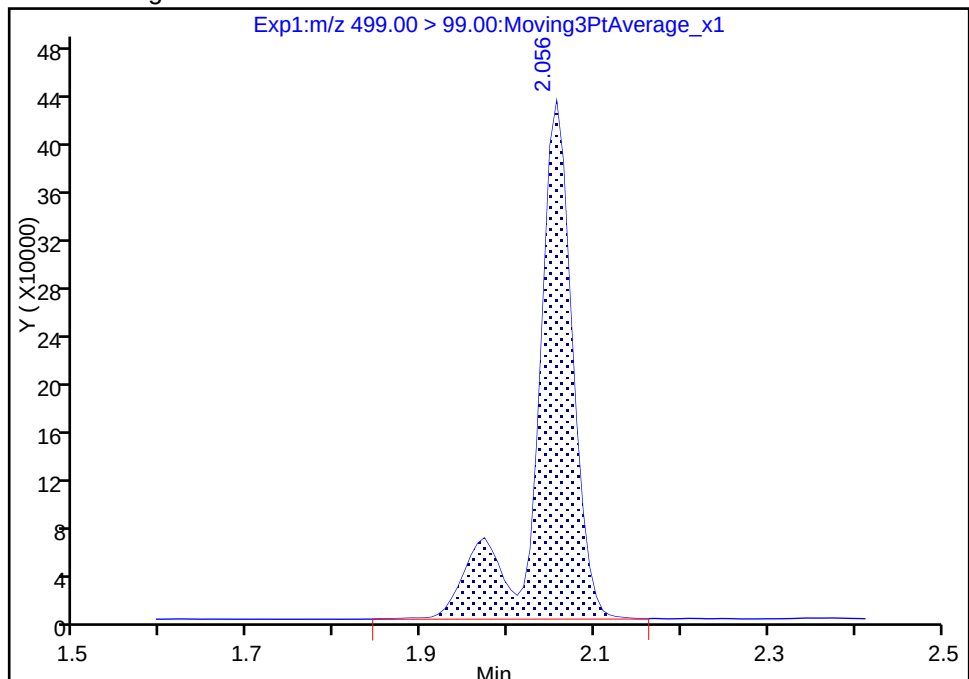
Not Detected
Expected RT: 2.05

Processing Integration Results



RT: 2.06
Area: 1274983
Amount: 62.963230
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:23:02
Audit Action: Manually Integrated

Audit Reason: Assign Peak
Page 299 of 350

TestAmerica Sacramento

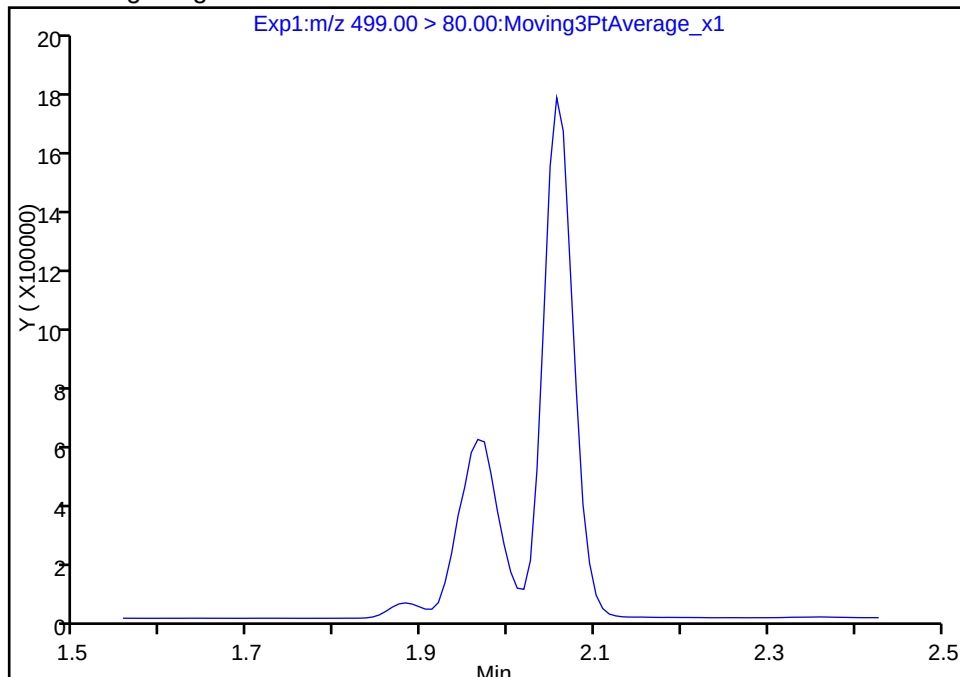
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d
Injection Date: 06-Feb-2018 04:15:46 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

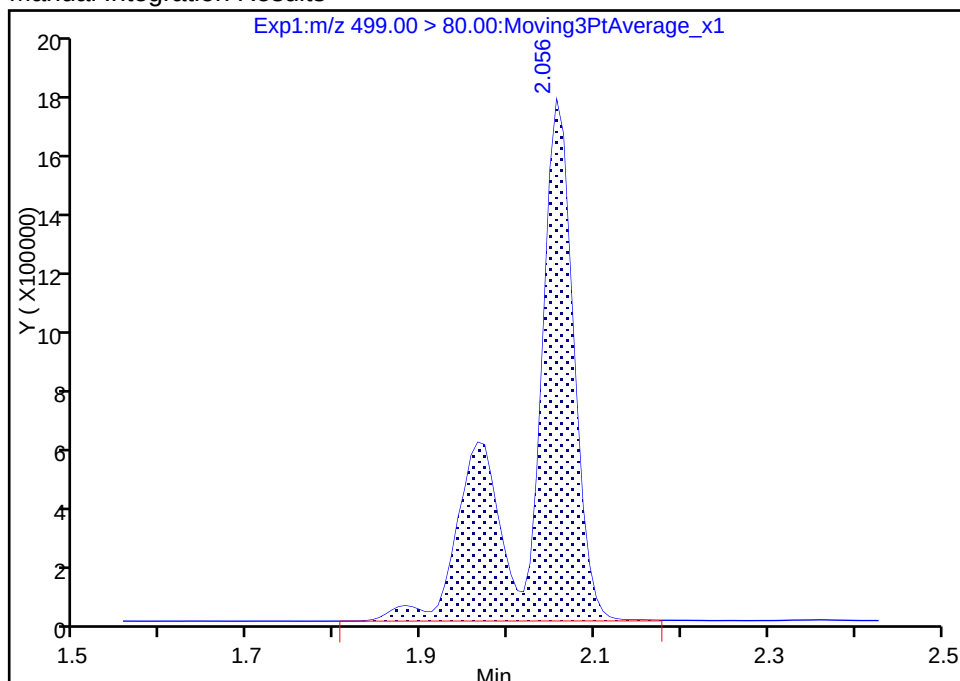
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 6206731
Amount: 62.963230
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:23:02

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

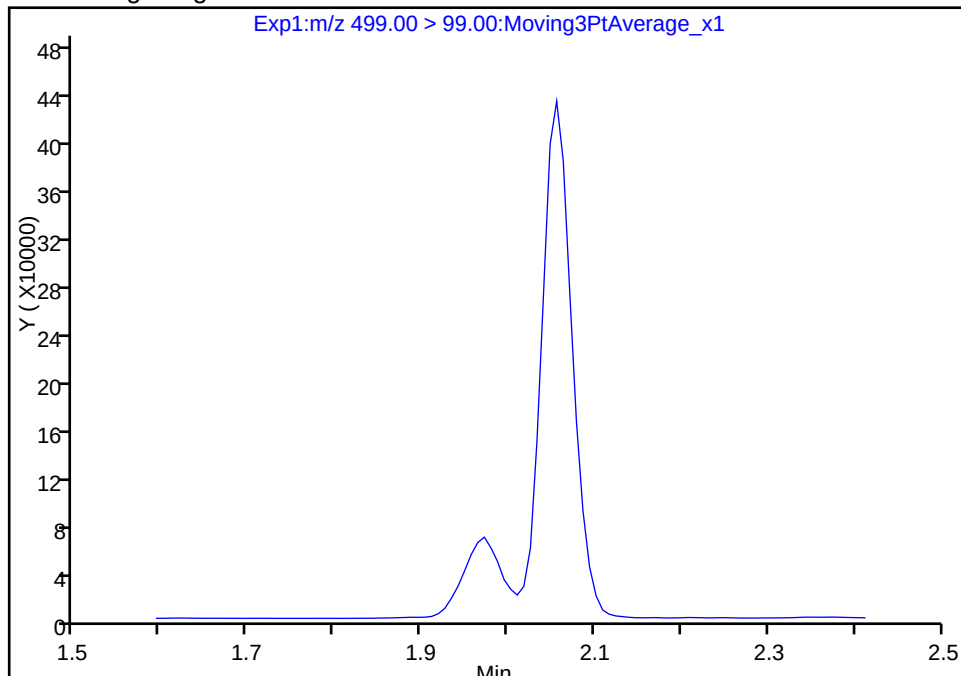
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Injection Date: 06-Feb-2018 04:15:46 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

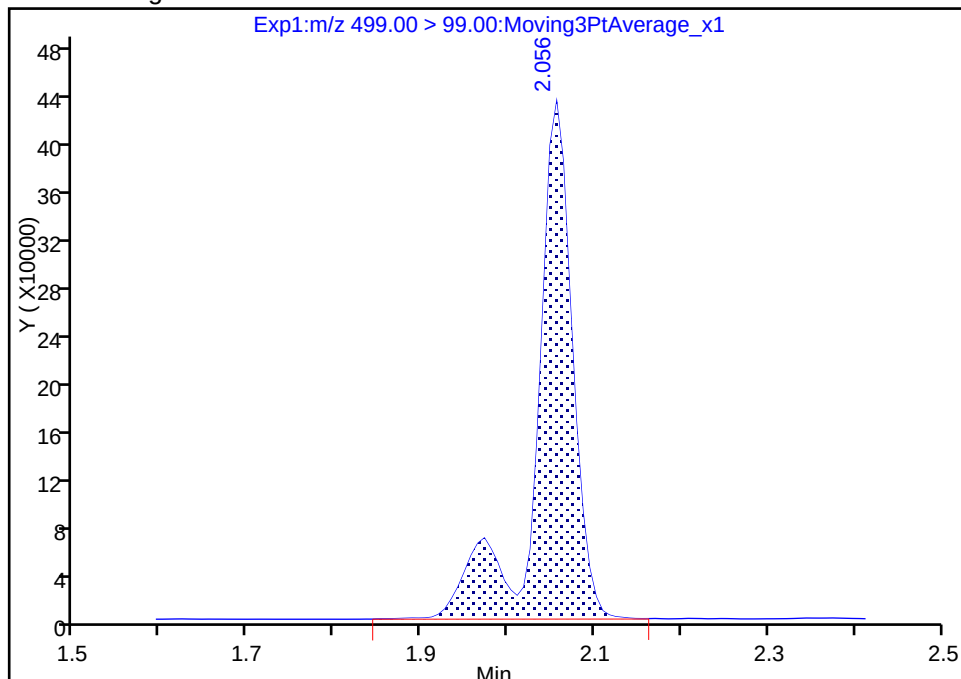
Not Detected
Expected RT: 2.05

Processing Integration Results



RT: 2.06
Area: 1274983
Amount: 62.963230
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:23:02

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

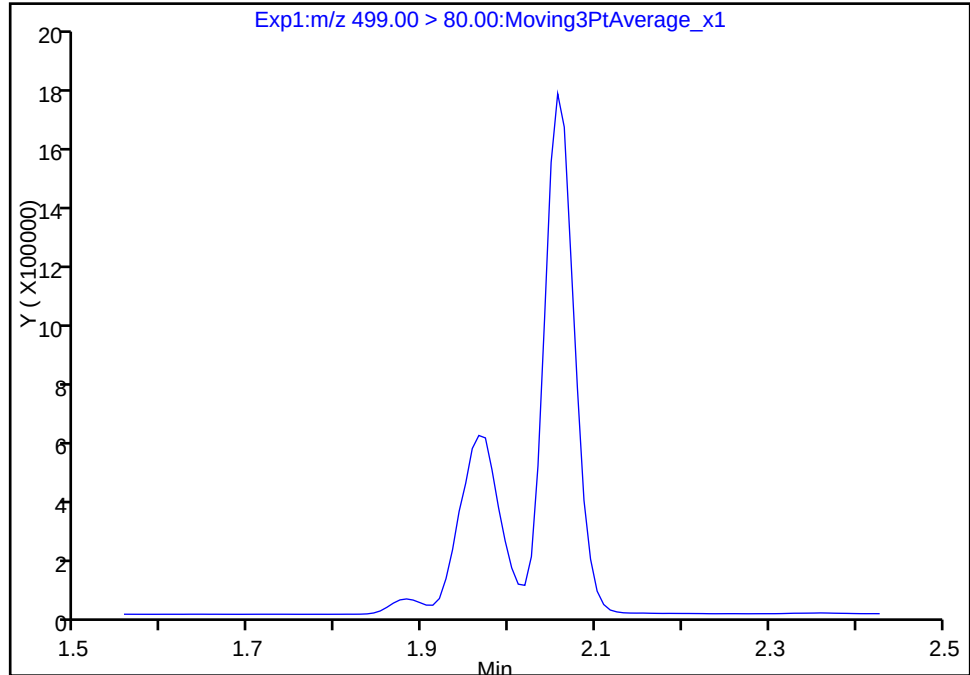
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_034.d
Injection Date: 06-Feb-2018 04:15:46 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

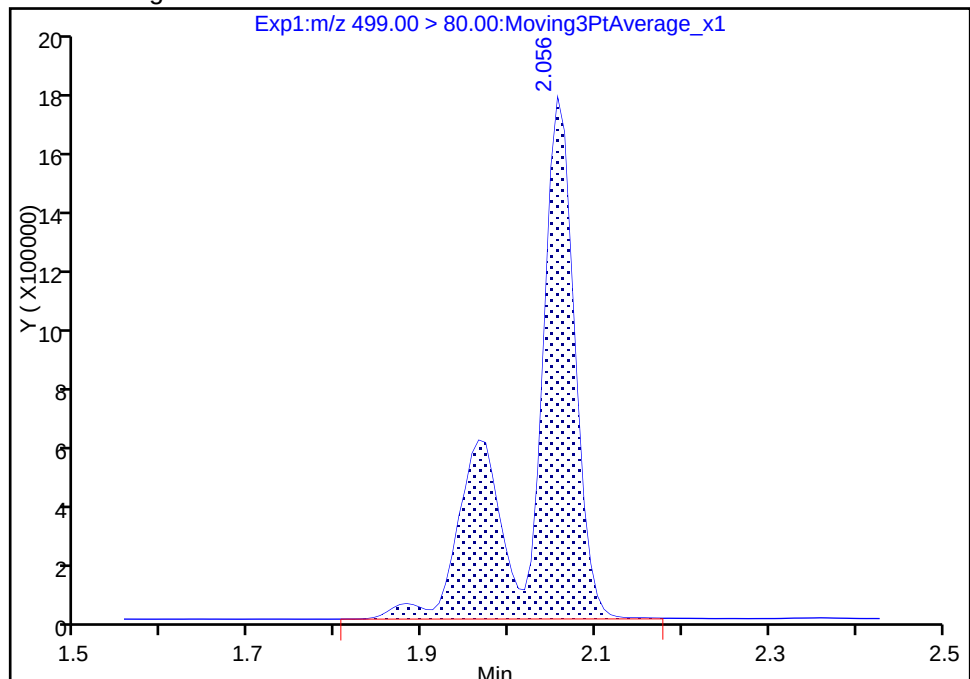
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 6206731
Amount: 62.963230
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:23:02

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207068/25 Calibration Date: 02/06/2018 05:11
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_046.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.085		46.5	45.0	3.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.016		5.42	5.00	8.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.726		15.5	15.0	3.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9368		10.2	10.1	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9513		20.3	20.1	1.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6791		10.2	10.0	2.2	30.0
13C2 PFHxA	Ave	1.100	1.082		9.83	10.0	-1.7	30.0
13C2 PFDA	Ave	0.7652	0.7376		9.64	10.0	-3.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_046.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 06-Feb-2018 05:11:47 ALS Bottle#: 3 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:34 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:23:51

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	1.366	0.0	1.000	5177314	46.5		11683	
298.90 > 99.00	1.366	1.366	0.0	1.000	4072733		1.27(0.00-0.00)	12152	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1477852	9.83		7834	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	2745725	15.5		6928	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	694210	5.42		222	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1366090	10.0		5190	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1286757	10.2		213	
413.00 > 169.00	1.806	1.806	0.0	1.000	697923		1.84(0.00-0.00)	2424	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.048	0.0	1.000	2026038	20.3		799	Ma
499.00 > 99.00	2.048	2.048	0.0	1.000	444415		4.56(0.00-0.00)	1110	M
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3041172	28.7		6503	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.056	0.0	1.000	927951	10.2		241	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	1007560	9.64		5868	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_046.d

Injection Date: 06-Feb-2018 05:11:47

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

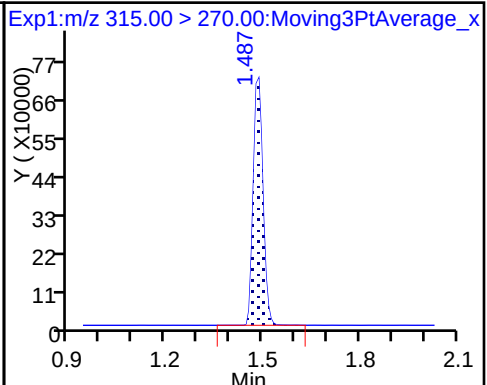
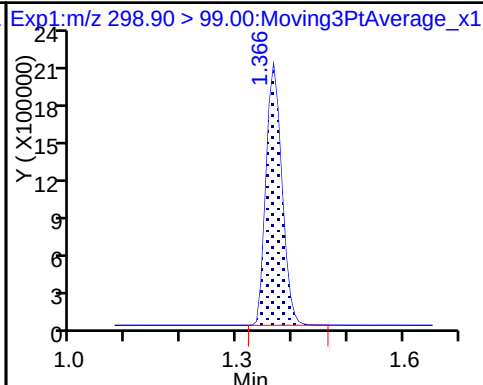
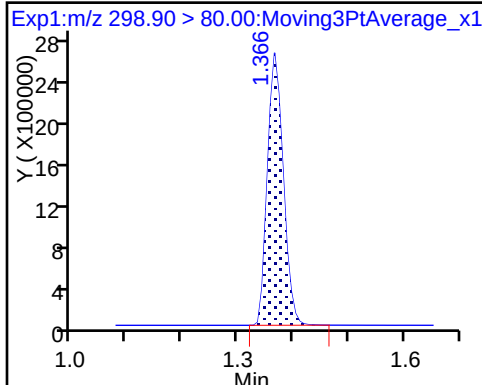
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

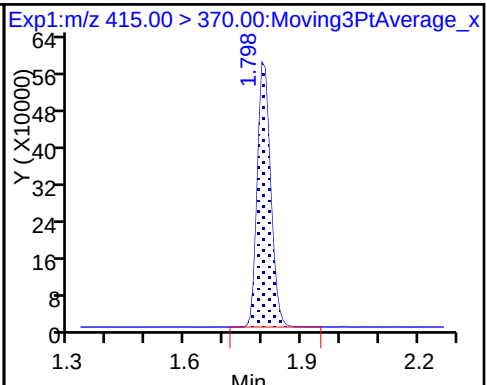
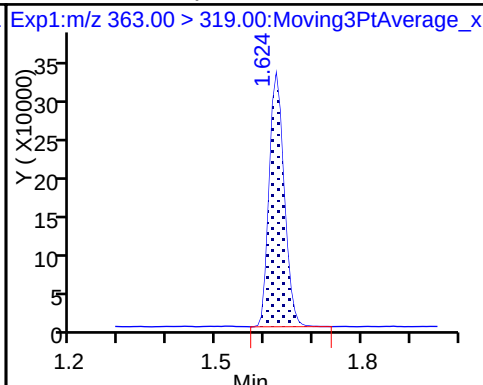
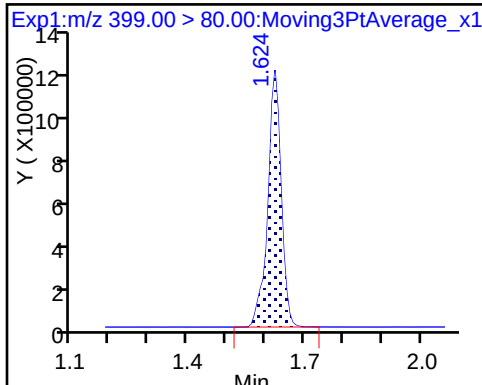
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

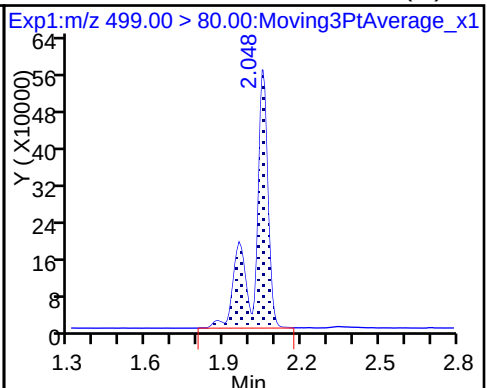
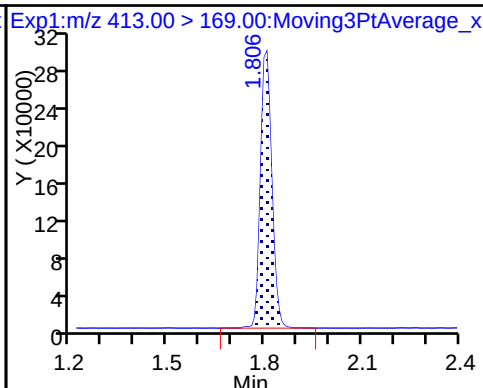
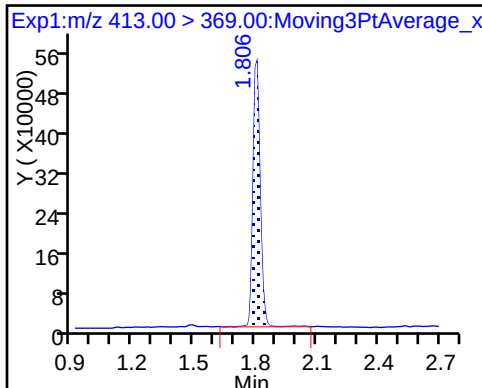
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

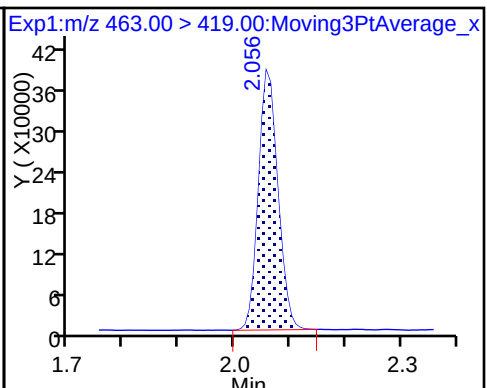
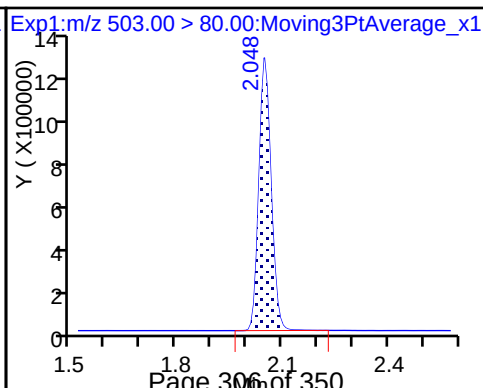
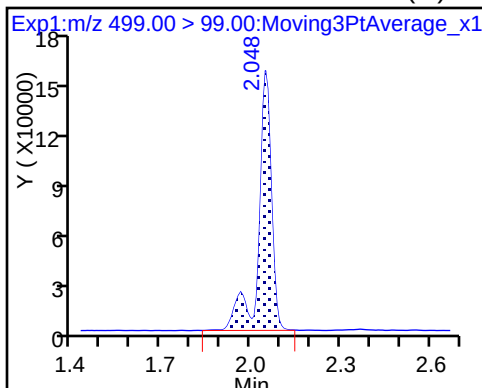
8 Perfluorooctane sulfonic acid (M)



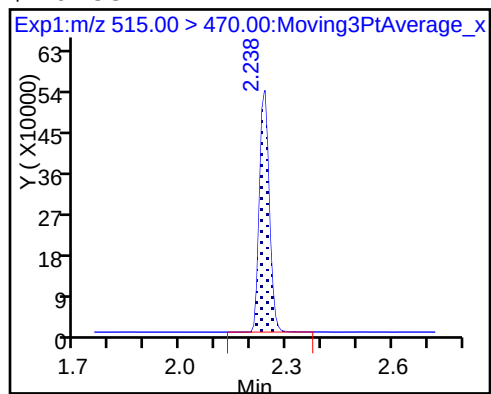
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

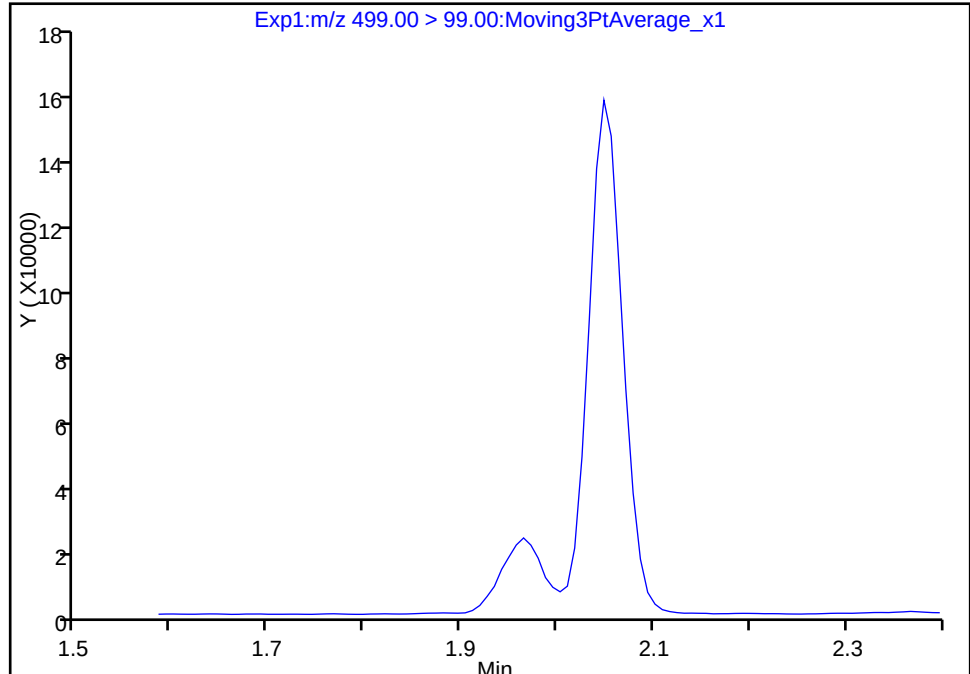
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_046.d
Injection Date: 06-Feb-2018 05:11:47 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

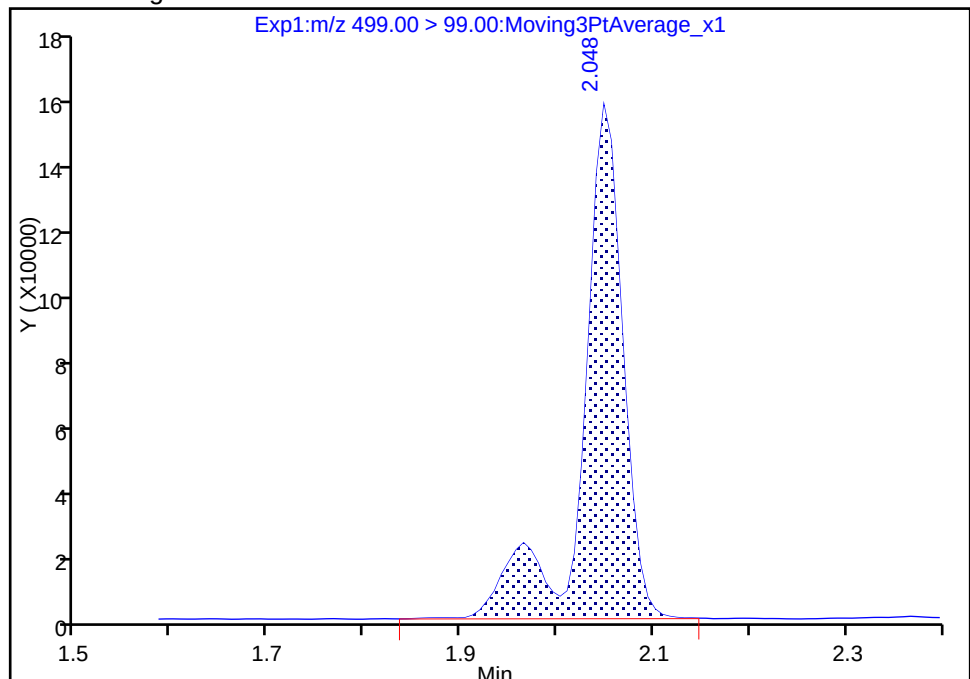
Not Detected
Expected RT: 2.05

Processing Integration Results



RT: 2.05
Area: 444415
Amount: 20.349038
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Feb-2018 14:23:39
Audit Action: Manually Integrated

Audit Reason: Assign Peak
Page 308 of 350

TestAmerica Sacramento

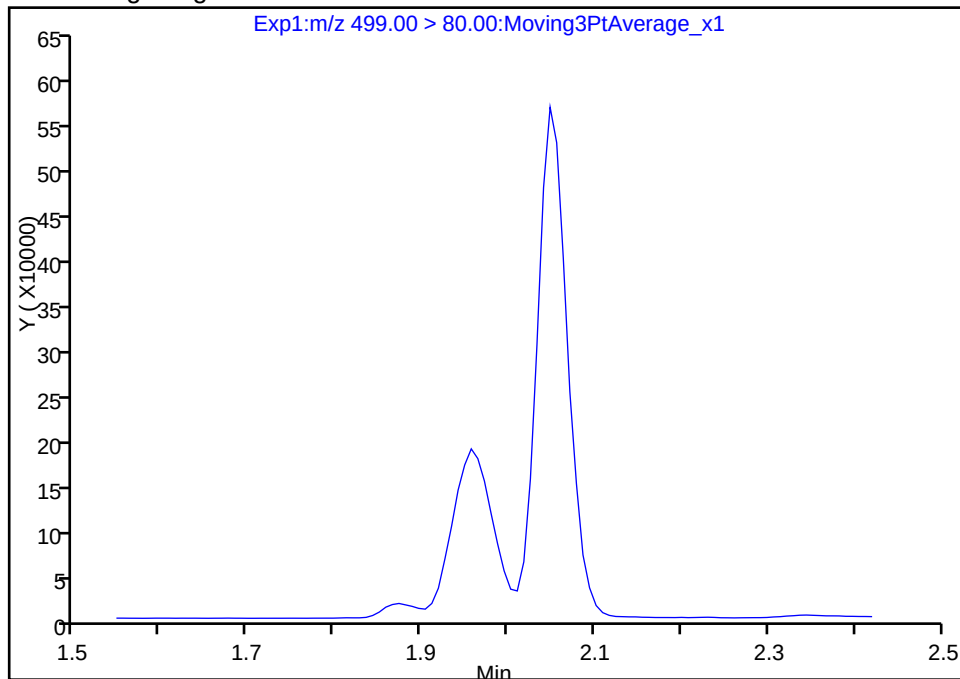
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_046.d
Injection Date: 06-Feb-2018 05:11:47 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

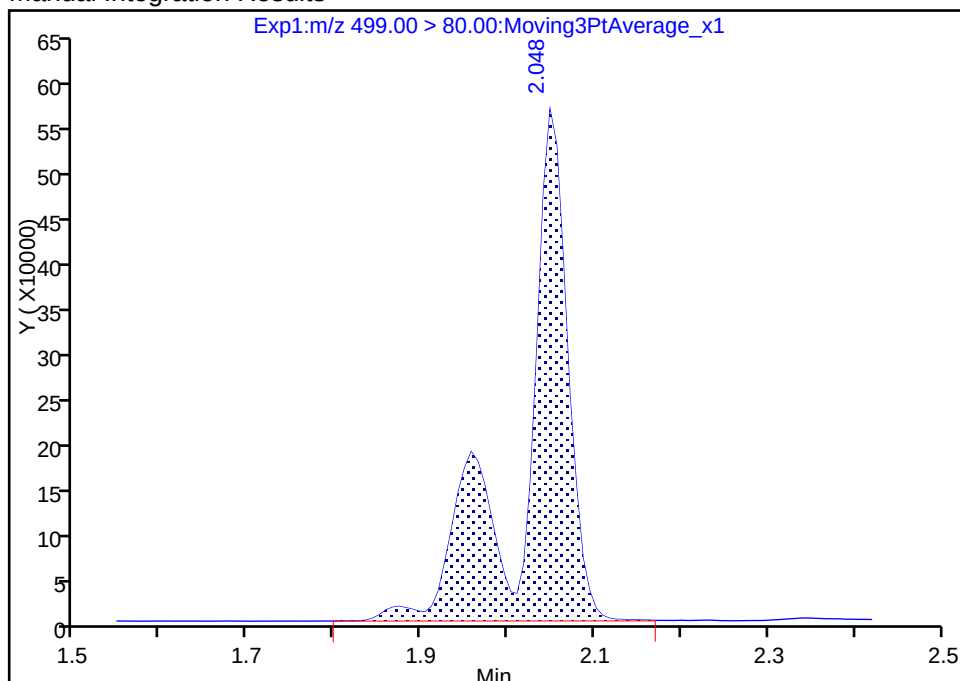
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 2026038
Amount: 20.349038
Amount Units: ng/ml



Reviewer: barnettj, 06-Feb-2018 14:23:39

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-206282/1-A
 Matrix: Water Lab File ID: 2018.02.05_537B_024.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 03:29
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 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	94		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_024.d
 Lims ID: MB 320-206282/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 06-Feb-2018 03:29:02 ALS Bottle#: 12 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-206282/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1640759	9.38		8362	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1590401	10.0		5968	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3298203	28.7		6430	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1293820	10.6		9049	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_024.d

Injection Date: 06-Feb-2018 03:29:02

Instrument ID: A8_N

Lims ID: MB 320-206282/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

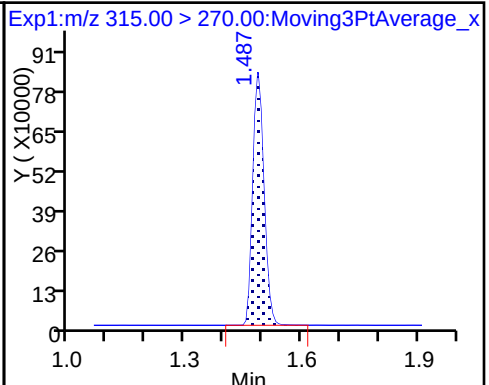
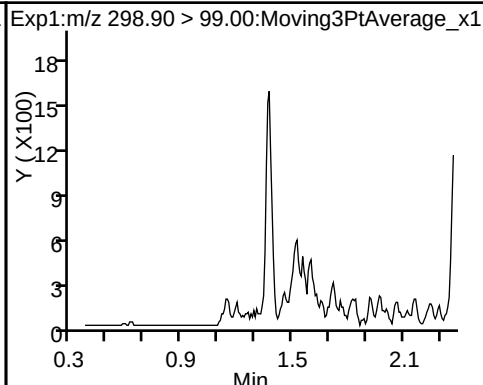
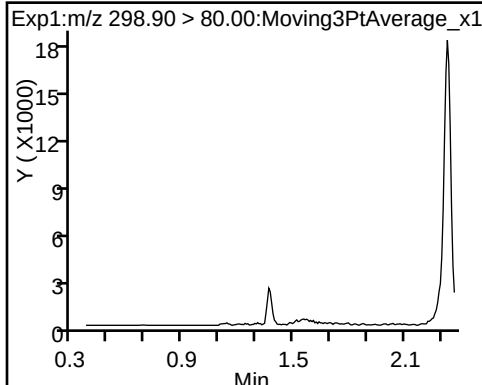
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

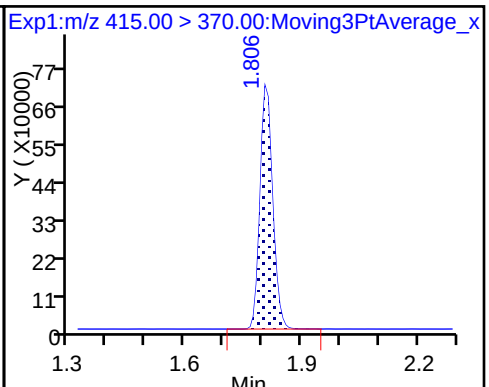
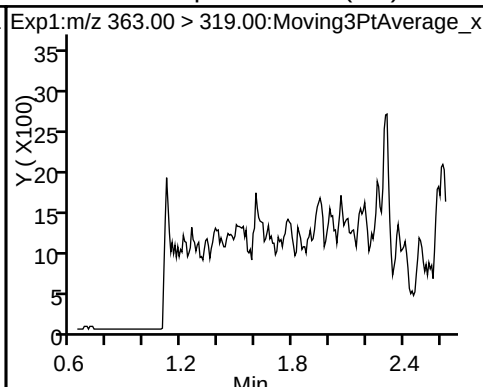
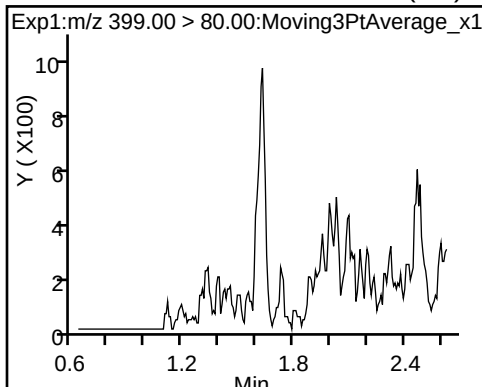
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

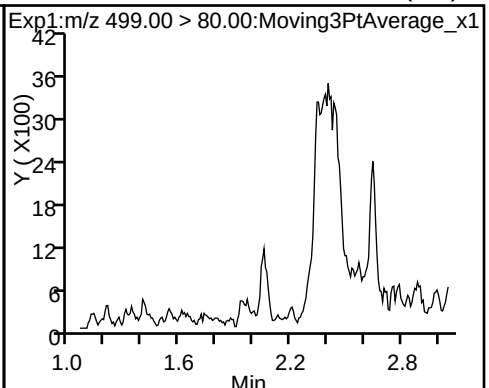
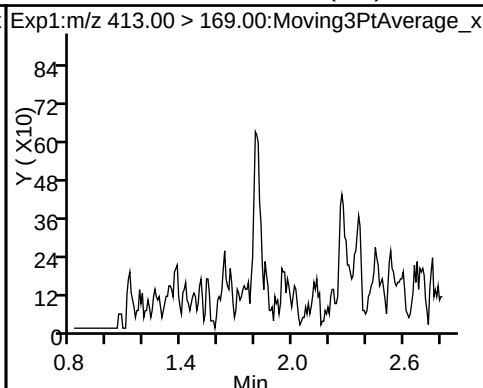
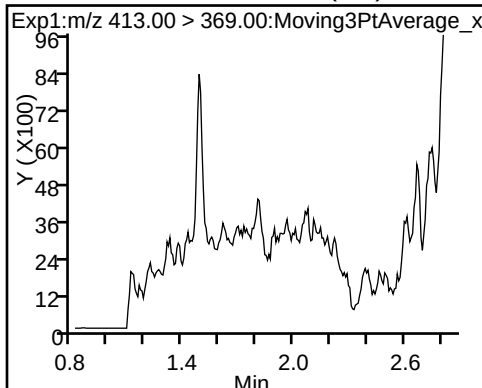
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

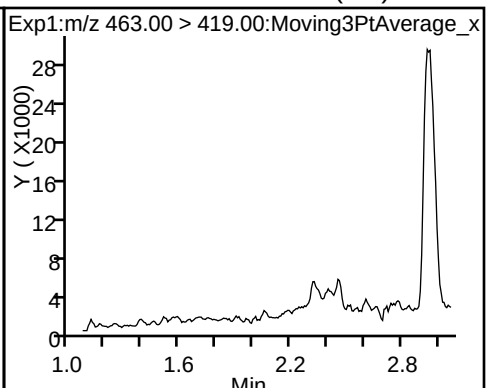
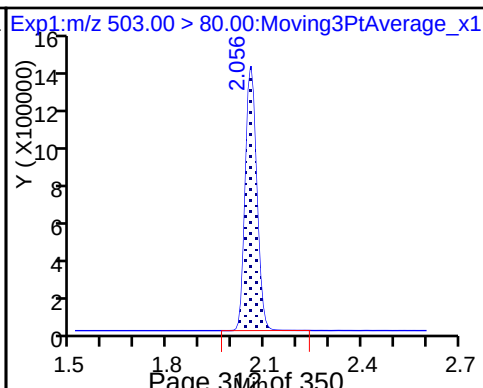
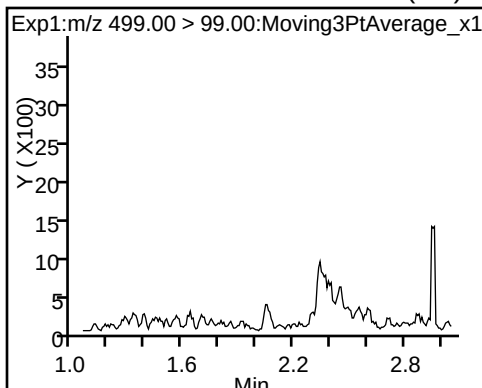
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

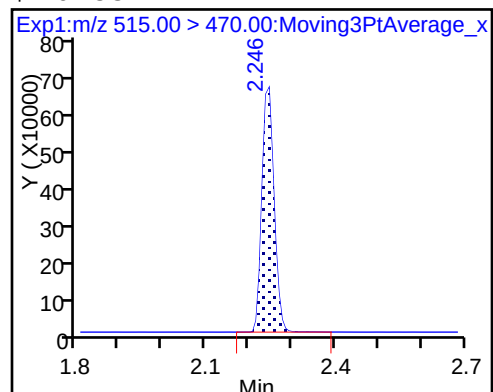


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_024.d
Lims ID: MB 320-206282/1-A
Client ID:
Sample Type: MB
Inject. Date: 06-Feb-2018 03:29:02 ALS Bottle#: 12 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-206282/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.38	93.76
\$ 10 13C2 PFDA	10.0	10.6	106.31

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCS 320-206282/2-A
 Matrix: Water Lab File ID: 2018.02.05_537B_025.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 03:33
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	38.4	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	18.8	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	18.2	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	30.9		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.97	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	87.5	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_025.d
 Lims ID: LLCS 320-206282/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 06-Feb-2018 03:33:43 ALS Bottle#: 13 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-206282/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:24:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	2868594	21.9		4313	
298.90 > 99.00	1.366	1.373	-0.007	1.000	2160296		1.33(0.00-0.00)	4337	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1667618	9.06		9109	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	1563035	7.73		3470	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	390674	2.49		147	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1673441	10.0		5431	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	727582	4.70		126	
413.00 > 169.00	1.806	1.813	-0.007	1.000	404234		1.80(0.00-0.00)	1297	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	1087627	9.59		490	a
499.00 > 99.00	2.056	2.048	0.008	1.000	229211		4.75(0.00-0.00)	349	a
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3462485	28.7		6898	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.071	-0.007	1.000	504736	4.54		73.7	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.246	0.0	1.000	1266710	9.89		8594	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_025.d

Injection Date: 06-Feb-2018 03:33:43

Instrument ID: A8_N

Lims ID: LLCS 320-206282/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

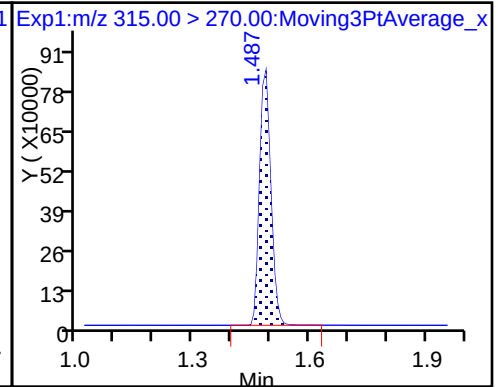
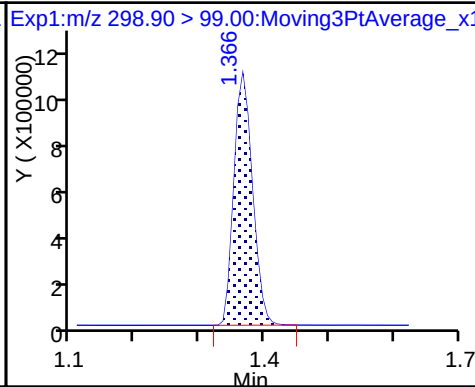
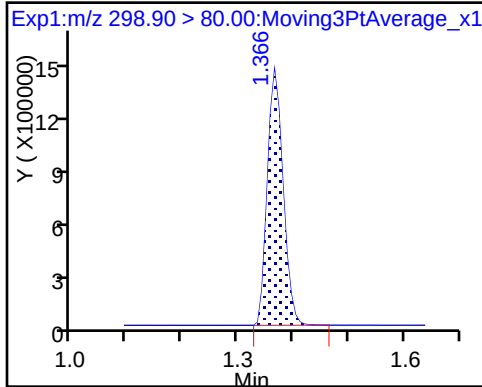
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

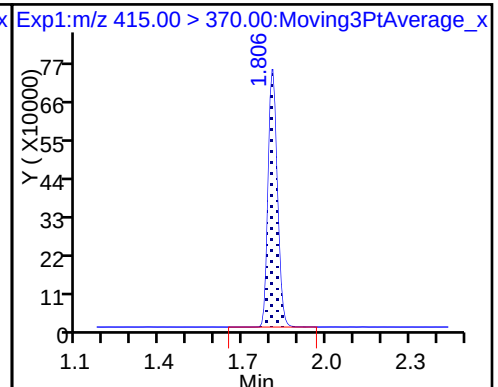
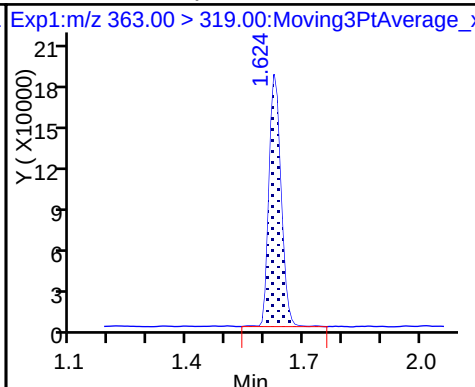
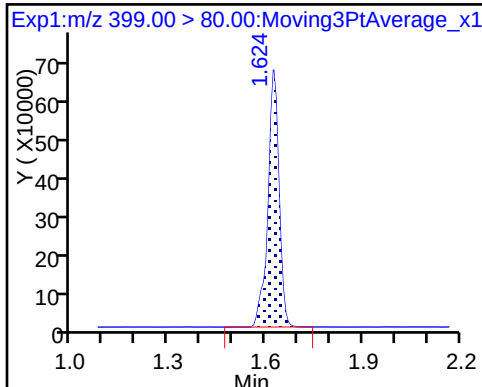
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

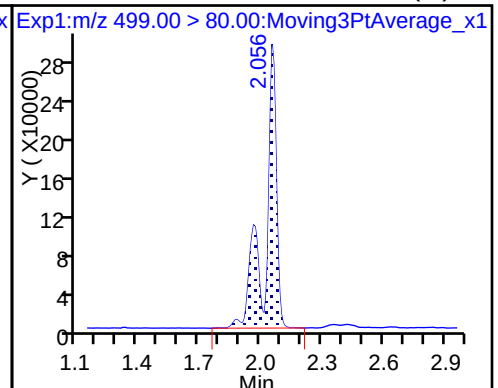
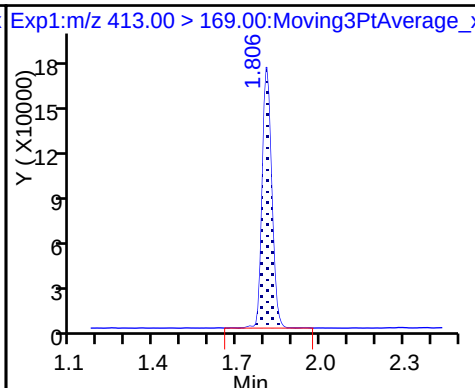
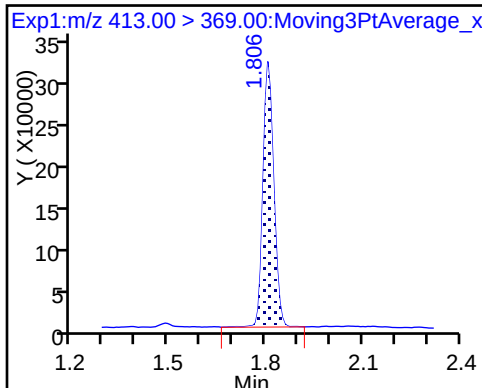
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

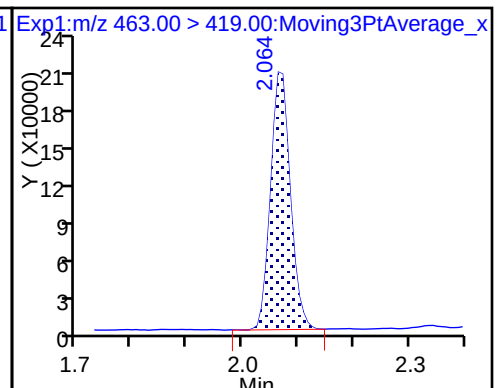
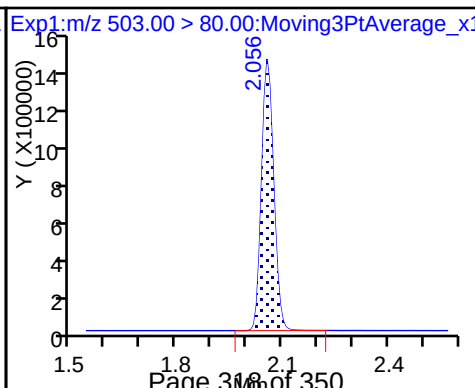
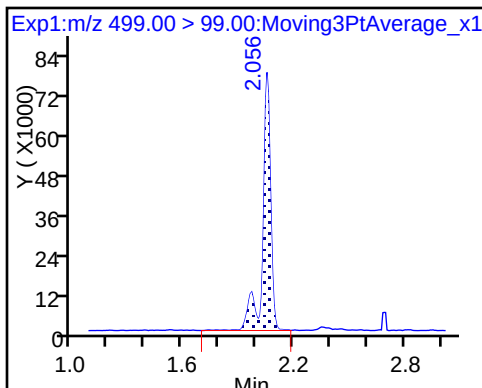
8 Perfluorooctane sulfonic acid (M)



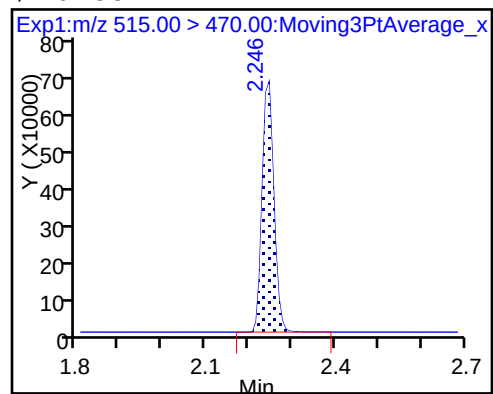
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_025.d
Lims ID: LLCS 320-206282/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 06-Feb-2018 03:33:43 ALS Bottle#: 13 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-206282/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:24:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.06	90.57
\$ 10 13C2 PFDA	10.0	9.89	98.92

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_025.d

Injection Date: 06-Feb-2018 03:33:43

Instrument ID: A8_N

Lims ID: LLCS 320-206282/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

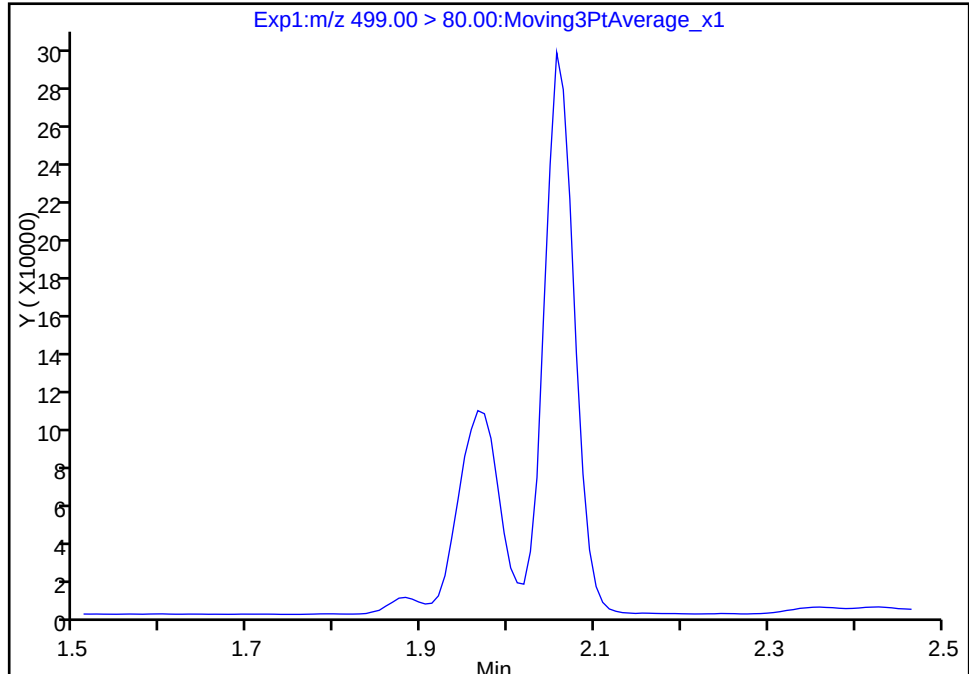
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

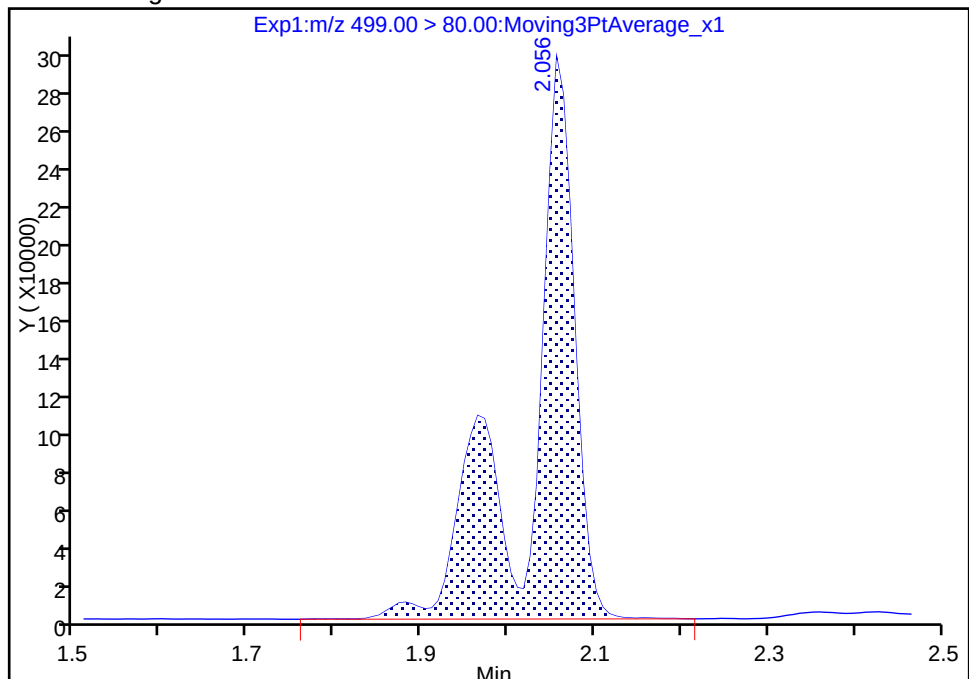
Not Detected

Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.06

Area: 1087627

Amount: 9.594655

Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:24:03

Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCSD 320-206282/3-A
 Matrix: Water Lab File ID: 2018.02.05_537B_026.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 03:38
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	38.0	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	19.9	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	17.4	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.6		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	10.4		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	94.2		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_026.d
 Lims ID: LLCSD 320-206282/3-A
 Client ID:
 Sample Type: LLCSD
 Inject. Date: 06-Feb-2018 03:38:24 ALS Bottle#: 14 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcsd 320-206282/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:24:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	3081191	23.5		6422	
298.90 > 99.00	1.366	1.373	-0.007	0.994	2322410		1.33(0.00-0.00)	4644	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	1739899	9.33		8998	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	1599004	7.91		3924	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	414274	2.61		133	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.813	-0.007		1695147	10.0		6248	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.813	-0.007	1.000	778902	4.96		123	
413.00 > 169.00	1.806	1.813	-0.007	1.000	422211		1.84(0.00-0.00)	1466	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	1076277	9.50		177	a
499.00 > 99.00	2.056	2.048	0.008	1.000	230968		4.66(0.00-0.00)	384	a
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.064	-0.008		3462268	28.7		7082	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.071	-0.007	1.000	489099	4.34		74.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.246	-0.008	1.000	1257552	9.69		7966	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_026.d

Injection Date: 06-Feb-2018 03:38:24

Instrument ID: A8_N

Lims ID: LLCSD 320-206282/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

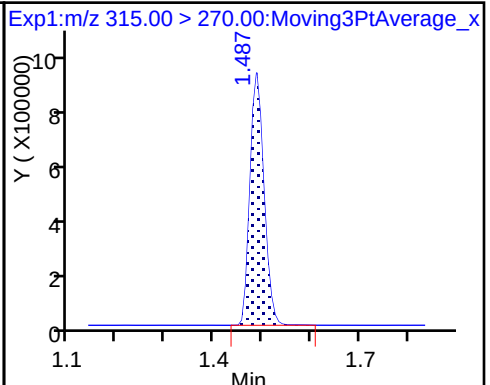
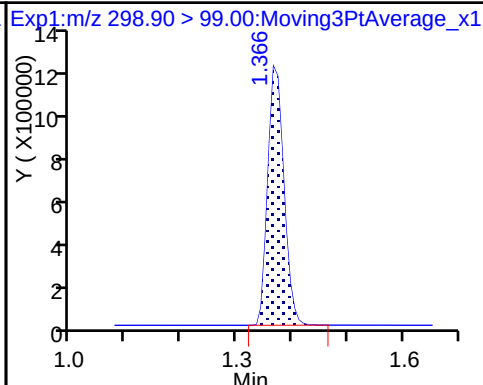
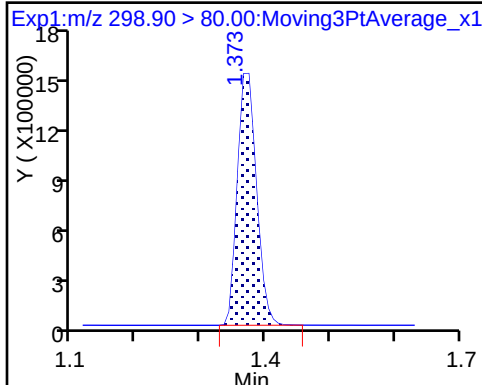
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

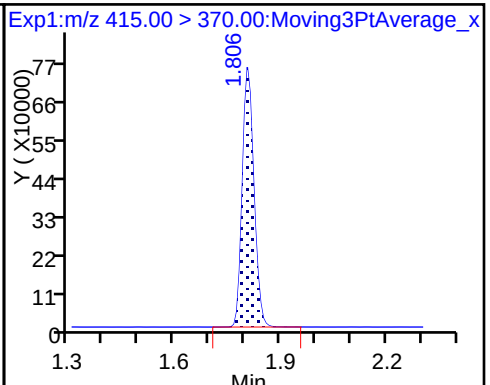
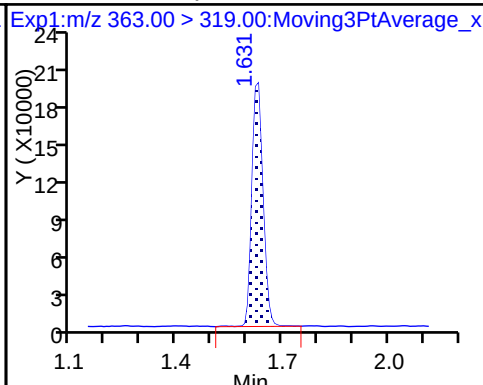
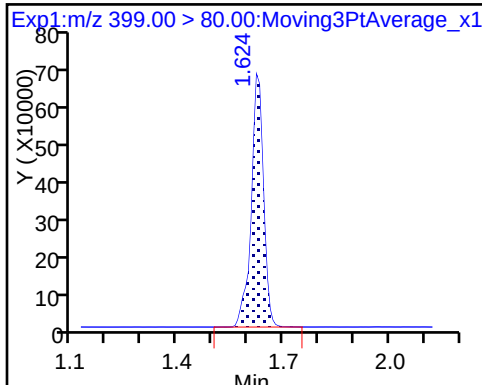
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

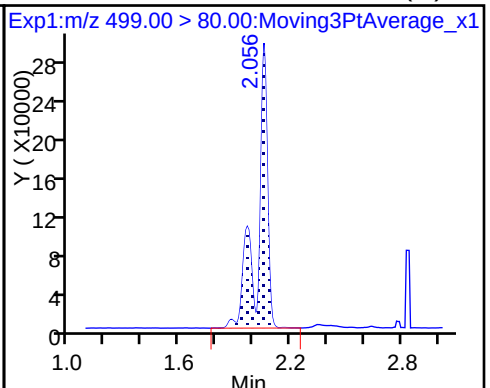
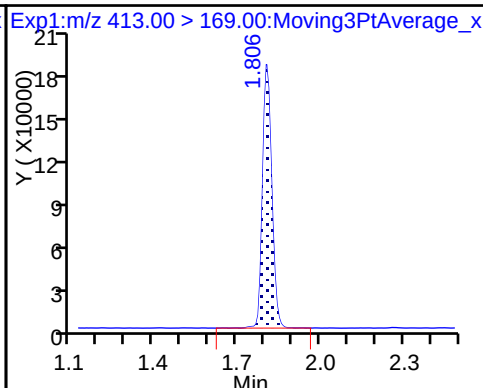
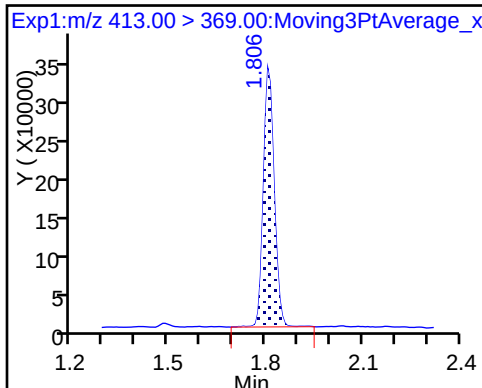
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

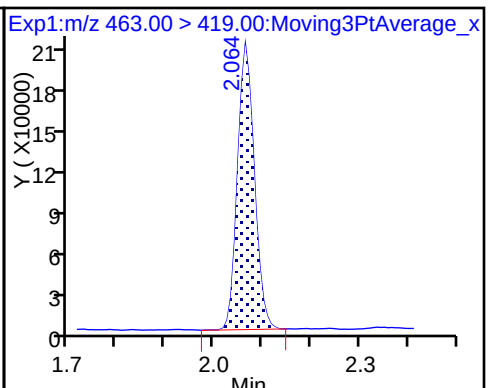
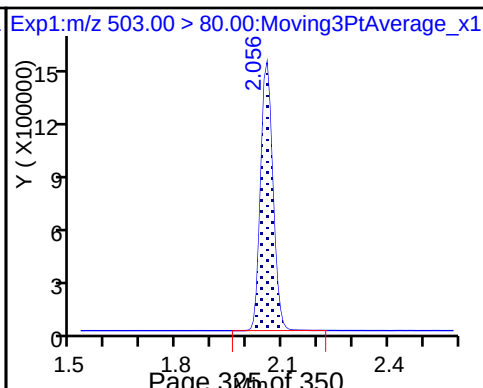
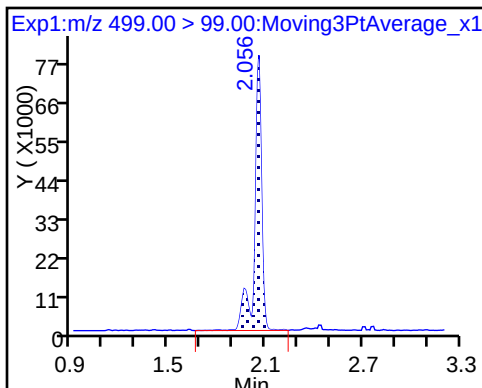
8 Perfluorooctane sulfonic acid (M)



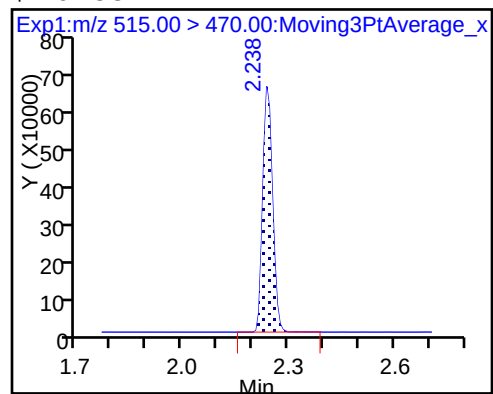
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_026.d
Lims ID: LLCSD 320-206282/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 06-Feb-2018 03:38:24 ALS Bottle#: 14 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-206282/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Feb-2018 15:04:13 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: XAWRK026

First Level Reviewer: barnettj

Date: 06-Feb-2018 14:24:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.33	93.28
\$ 10 13C2 PFDA	10.0	9.69	96.95

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b\2018.02.05_537B_026.d

Injection Date: 06-Feb-2018 03:38:24

Instrument ID: A8_N

Lims ID: LLCSD 320-206282/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

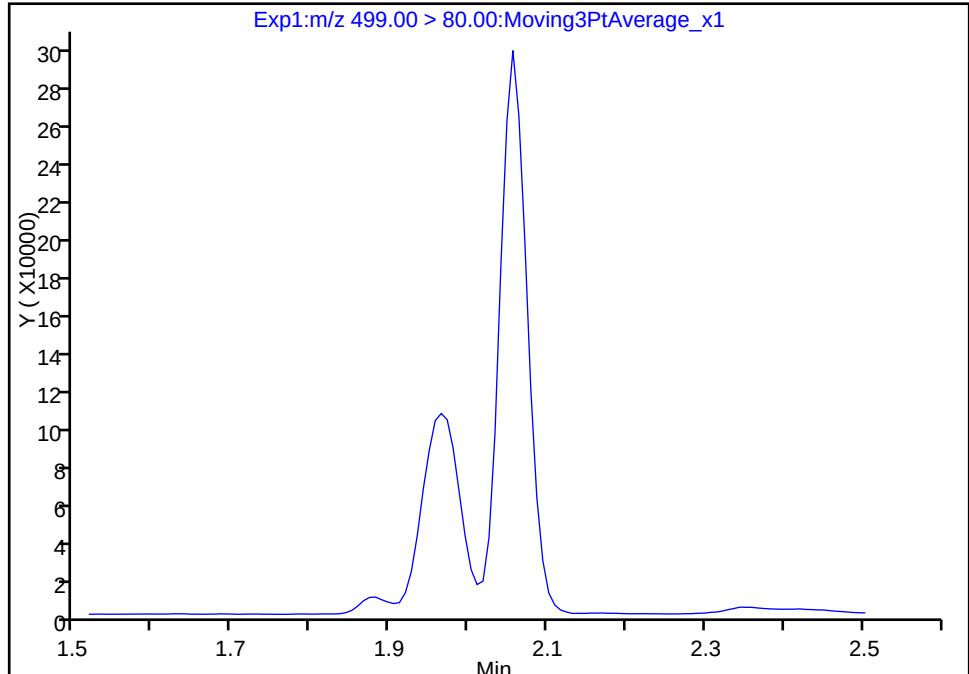
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

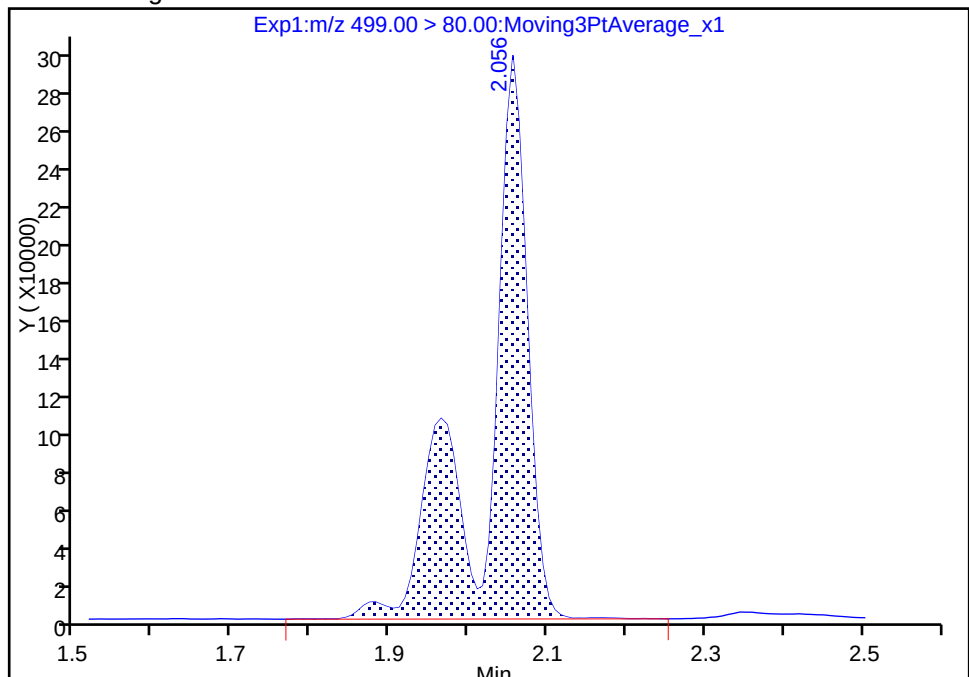
Not Detected

Expected RT: 2.05

Processing Integration Results



Manual Integration Results



RT: 2.06

Area: 1076277

Amount: 9.495124

Amount Units: ng/ml

Reviewer: barnettj, 06-Feb-2018 14:24:38

Audit Action: Assigned Compound ID

Audit Reason: User Assigned

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 11/03/2017 13:37Analysis 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.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/05/2018 11:37Analysis Batch Number: 206939 End Date: 02/05/2018 12:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-206939/1		02/05/2018 11:37	1	2018.02.05_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-206939/2 CCVIS		02/05/2018 11:42	1		GeminiC18 3x100 3(mm)
CCV 320-206939/8 CCVIS		02/05/2018 12:10	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/06/2018 03:19Analysis Batch Number: 207066 End Date: 02/06/2018 04:15

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207066/1 CCVIS		02/06/2018 03:19	1	2018.02.05_537B 022.d	GeminiC18 3x100 3(mm)
MB 320-206282/1-A		02/06/2018 03:29	1	2018.02.05_537B 024.d	GeminiC18 3x100 3(mm)
LLCS 320-206282/2-A		02/06/2018 03:33	1	2018.02.05_537B 025.d	GeminiC18 3x100 3(mm)
LLCSD 320-206282/3-A		02/06/2018 03:38	1	2018.02.05_537B 026.d	GeminiC18 3x100 3(mm)
320-35150-1		02/06/2018 03:43	1	2018.02.05_537B 027.d	GeminiC18 3x100 3(mm)
320-35150-2		02/06/2018 03:47	1	2018.02.05_537B 028.d	GeminiC18 3x100 3(mm)
320-35150-3		02/06/2018 03:52	1	2018.02.05_537B 029.d	GeminiC18 3x100 3(mm)
320-35150-4		02/06/2018 03:57	1	2018.02.05_537B 030.d	GeminiC18 3x100 3(mm)
320-35150-5		02/06/2018 04:01	1	2018.02.05_537B 031.d	GeminiC18 3x100 3(mm)
320-35150-6		02/06/2018 04:06	1	2018.02.05_537B 032.d	GeminiC18 3x100 3(mm)
320-35150-7		02/06/2018 04:11	1	2018.02.05_537B 033.d	GeminiC18 3x100 3(mm)
CCV 320-207066/13 CCVIS		02/06/2018 04:15	1	2018.02.05_537B 034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/06/2018 04:15Analysis Batch Number: 207068 End Date: 02/06/2018 05:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207068/13 CCVIS		02/06/2018 04:15	1	2018.02.05_537B 034.d	GeminiC18 3x100 3(mm)
320-35150-8		02/06/2018 04:25	1	2018.02.05_537B 036.d	GeminiC18 3x100 3(mm)
320-35150-9		02/06/2018 04:29	1	2018.02.05_537B 037.d	GeminiC18 3x100 3(mm)
320-35150-10		02/06/2018 04:34	1	2018.02.05_537B 038.d	GeminiC18 3x100 3(mm)
320-35150-11		02/06/2018 04:39	1	2018.02.05_537B 039.d	GeminiC18 3x100 3(mm)
320-35150-12		02/06/2018 04:43	1	2018.02.05_537B 040.d	GeminiC18 3x100 3(mm)
320-35150-13		02/06/2018 04:48	1	2018.02.05_537B 041.d	GeminiC18 3x100 3(mm)
320-35150-14		02/06/2018 04:53	1	2018.02.05_537B 042.d	GeminiC18 3x100 3(mm)
320-35150-15		02/06/2018 04:57	1	2018.02.05_537B 043.d	GeminiC18 3x100 3(mm)
320-35150-16		02/06/2018 05:02	1	2018.02.05_537B 044.d	GeminiC18 3x100 3(mm)
320-35150-17		02/06/2018 05:07	1	2018.02.05_537B 045.d	GeminiC18 3x100 3(mm)
CCV 320-207068/25 CCVIS		02/06/2018 05:11	1	2018.02.05_537B 046.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Batch Number: 206282 Batch Start Date: 01/31/18 07:27 Batch Analyst: Kouchari, ShamiranBatch Method: 537 Batch End Date: 02/02/18 16:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00056
MB 320-206282/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-206282/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-206282/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-35150-A-1	NAWC-011718-RW-278	537, 537	T	283.94 g	28.90 g	255 mL	1.00 mL	7 SU	100 uL
320-35150-A-2	NAWC-011718-FRB-278	537, 537	T	279.29 g	27.24 g	252.1 mL	1.00 mL	7 SU	100 uL
320-35150-A-3	NAWC-011718-RW-235	537, 537	T	275.68 g	28.70 g	247 mL	1.00 mL	7 SU	100 uL
320-35150-A-4	NAWC-011718-FRB-235	537, 537	T	270.03 g	27.45 g	242.6 mL	1.00 mL	7 SU	100 uL
320-35150-A-5	NAWC-011718-RW-91	537, 537	T	272.94 g	28.77 g	244.2 mL	1.00 mL	9 SU	100 uL
320-35150-A-6	NAWC-011718-FRB-91	537, 537	T	281.90 g	27.55 g	254.4 mL	1.00 mL	7 SU	100 uL
320-35150-A-7	NAWC-011718-RW-228	537, 537	T	279.89 g	29.82 g	250.1 mL	1.00 mL	7 SU	100 uL
320-35150-A-8	NAWC-011718-FRB-228	537, 537	T	273.31 g	27.31 g	246 mL	1.00 mL	7 SU	100 uL
320-35150-A-9	NAWC-011718-RW-237	537, 537	T	278.94 g	29.32 g	249.6 mL	1.00 mL	7 SU	100 uL
320-35150-A-10	NAWC-011718-FRB-237	537, 537	T	278.50 g	27.46 g	251 mL	1.00 mL	7 SU	100 uL
320-35150-A-11	NAWC-011718-RW-244	537, 537	T	279.18 g	28.33 g	250.9 mL	1.00 mL	7 SU	100 uL
320-35150-A-12	NAWC-011718-FRB-244	537, 537	T	274.36 g	27.16 g	247.2 mL	1.00 mL	7 SU	100 uL
320-35150-A-13	NAWC-011718-DUP-21	537, 537	T	279.49 g	27.87 g	251.6 mL	1.00 mL	7 SU	100 uL
320-35150-A-14	NAWC-011718-RW-240	537, 537	T	283.42 g	28.21 g	255.2 mL	1.00 mL	7 SU	100 uL
320-35150-A-15	NAWC-011718-FRB-240	537, 537	T	279.70 g	27.44 g	252.3 mL	1.00 mL	7 SU	100 uL
320-35150-A-16	NAWC-011718-RW-249	537, 537	T	283.37 g	28.70 g	254.7 mL	1.00 mL	7 SU	100 uL
320-35150-A-17	NAWC-011718-FRB-249	537, 537	T	268.59 g	27.24 g	241.4 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00026	LC537-SU 00053	AnalysisComment			
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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.: 320-35150-1

SDG No.: _____

Batch Number: 206282 Batch Start Date: 01/31/18 07:27 Batch Analyst: Kouchari, ShamiranBatch Method: 537 Batch End Date: 02/02/18 16:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00026	LC537-SU 00053	AnalysisComment			
MB 320-206282/1		537, 537			100 uL	C1 ND			
LLCS 320-206282/2		537, 537		100 uL	100 uL	C1 ND			
LLCSD 320-206282/3		537, 537		100 uL	100 uL	C1 ND			
320-35150-A-1	NAWC-011718-RW-2 78	537, 537	T		100 uL	C1 ND			
320-35150-A-2	NAWC-011718-FRB- 278	537, 537	T		100 uL	C1 ND			
320-35150-A-3	NAWC-011718-RW-2 35	537, 537	T		100 uL	C1 ND			
320-35150-A-4	NAWC-011718-FRB- 235	537, 537	T		100 uL	C1 ND			
320-35150-A-5	NAWC-011718-RW-9 1	537, 537	T		100 uL	C1 ND			
320-35150-A-6	NAWC-011718-FRB- 91	537, 537	T		100 uL	C1 ND			
320-35150-A-7	NAWC-011718-RW-2 28	537, 537	T		100 uL	C1 ND			
320-35150-A-8	NAWC-011718-FRB- 228	537, 537	T		100 uL	C1 ND			
320-35150-A-9	NAWC-011718-RW-2 37	537, 537	T		100 uL	C1 ND			
320-35150-A-10	NAWC-011718-FRB- 237	537, 537	T		100 uL	C1 ND			
320-35150-A-11	NAWC-011718-RW-2 44	537, 537	T		100 uL	C1 ND			
320-35150-A-12	NAWC-011718-FRB- 244	537, 537	T		100 uL	C1 ND			
320-35150-A-13	NAWC-011718-DUP- 21	537, 537	T		100 uL	C1 ND			
320-35150-A-14	NAWC-011718-RW-2 40	537, 537	T		100 uL	C1 ND			
320-35150-A-15	NAWC-011718-FRB- 240	537, 537	T		100 uL	C1 ND			
320-35150-A-16	NAWC-011718-RW-2 49	537, 537	T		100 uL	C1 ND			
320-35150-A-17	NAWC-011718-FRB- 249	537, 537	T		100 uL	C1 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.: 320-35150-1

SDG No.: _____

Batch Number: 206282 Batch Start Date: 01/31/18 07:27 Batch Analyst: Kouchari, ShamiranBatch Method: 537 Batch End Date: 02/02/18 16:40

Batch Notes	
Analyst ID - Aliquot Step	VPM
Batch Comment	Client labels match TA label, 01/31/18 SKD
Analyst ID - Concentration	CCB
Analyst ID - Final Volume Step	CCB
Internal Standard ID#	1099356
Manifold ID	1,15
Methanol ID	6369499
pH Indicator ID	3817
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	JNS
SPE Cartridge ID	6369499-04
Trizma ID	SLBR4303V
Reagent Water ID	1-30-18

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Method 537 CCV/Data Review Checklist

A8

Job No: 35150 Instrument ID & Date: 2-6-18 ICAL Batch: 192908
 Extraction Batch: 206282 Worklist #: 53721 TALS Batch: 207066, 207068

Review Items	— Level 1 —			Level 2
	Yes	No	N/A	
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 $\pm 50\%$ of true value Mid and High-range within $\pm 30\%$ of true value	✓			✓
4. Internal Standard areas in control? Areas $\geq 50\%$ 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? $\pm 50\%$ from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?			✓	
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?			✓	
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 2-6-18 2nd Level Reviewer / Date: mwj 2/7/2018

NCM # and Comments: _____

A8

Instrument ID & Date: 11-3-17 Worklist#: 49975

ICAL Batch: 192908, 192909 Calibration ID number: 36012, 36013

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
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): <u>Average</u> Linear (1/x ²) Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd 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: M. Way 11/6/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 05FEB2018_537C

Worklist Number: 53721

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 207066
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-206282/1-A	# 3 MB 320-206282/1-A
# 4 LLCS 320-206282/2-A	# 4 LLCS 320-206282/2-A
# 5 LLCSD 320-206282/3-A	# 5 LLCSD 320-206282/3-A
# 6 320-35150-A-1-A	# 6 320-35150-A-1-A
# 7 320-35150-A-2-A	# 7 320-35150-A-2-A
# 8 320-35150-A-3-A	# 8 320-35150-A-3-A
# 9 320-35150-A-4-A	# 9 320-35150-A-4-A
#10 320-35150-A-5-A	#10 320-35150-A-5-A
#11 320-35150-A-6-A	#11 320-35150-A-6-A
#12 320-35150-A-7-A	#12 320-35150-A-7-A
#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 207068
#13 CCV L5	#13 CCV L5
#14 RB	#14 RB
#15 320-35150-A-8-A	#15 320-35150-A-8-A
#16 320-35150-A-9-A	#16 320-35150-A-9-A
#17 320-35150-A-10-A	#17 320-35150-A-10-A
#18 320-35150-A-11-A	#18 320-35150-A-11-A
#19 320-35150-A-12-A	#19 320-35150-A-12-A
#20 320-35150-A-13-A	#20 320-35150-A-13-A
#21 320-35150-A-14-B	#21 320-35150-A-14-B
#22 320-35150-A-15-A	#22 320-35150-A-15-A
#23 320-35150-A-16-A	#23 320-35150-A-16-A
#24 320-35150-A-17-B	#24 320-35150-A-17-B
#25 CCV L3	#25 CCV L3
#26 RB	#26 RB

CCVL in AB 206 939

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05FEB2018_537C

Worklist Num: 53721

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180206-53721.b

Analysis Type: SemiVOA

Creator: Hannigan, Alyssa B

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L3	320-0053721-001	CCVIS	06-Feb-2018 03:19:43	2018.02.05_537B_022.d	3	1.0		sv
RB	320-0053721-002	RB	06-Feb-2018 03:24:24	2018.02.05_537B_023.d	8	1.0		sv
MB 320-206282/1-A	320-0053721-003	MB	06-Feb-2018 03:29:02	2018.02.05_537B_024.d	12	1.0		sv
LLCS 320-206282/2-A	320-0053721-004	LLCS	06-Feb-2018 03:33:43	2018.02.05_537B_025.d	13	1.0		sv
LLCSD 320-206282/3-A	320-0053721-005	LLCSD	06-Feb-2018 03:38:24	2018.02.05_537B_026.d	14	1.0		sv
320-35150-A-1-A	320-0053721-006	Client	06-Feb-2018 03:43:05	2018.02.05_537B_027.d	15	1.0	NAWC-011718-RW-278	sv
320-35150-A-2-A	320-0053721-007	Client	06-Feb-2018 03:47:44	2018.02.05_537B_028.d	16	1.0	NAWC-011718-FRB-278	sv
320-35150-A-3-A	320-0053721-008	Client	06-Feb-2018 03:52:26	2018.02.05_537B_029.d	17	1.0	NAWC-011718-RW-235	sv
320-35150-A-4-A	320-0053721-009	Client	06-Feb-2018 03:57:06	2018.02.05_537B_030.d	18	1.0	NAWC-011718-FRB-235	sv
320-35150-A-5-A	320-0053721-010	Client	06-Feb-2018 04:01:46	2018.02.05_537B_031.d	19	1.0	NAWC-011718-RW-91	sv
320-35150-A-6-A	320-0053721-011	Client	06-Feb-2018 04:06:26	2018.02.05_537B_032.d	20	1.0	NAWC-011718-FRB-91	sv
320-35150-A-7-A	320-0053721-012	Client	06-Feb-2018 04:11:06	2018.02.05_537B_033.d	21	1.0	NAWC-011718-RW-228	sv
CCV L5	320-0053721-013	CCVIS	06-Feb-2018 04:15:46	2018.02.05_537B_034.d	5	1.0		sv
RB	320-0053721-014	RB	06-Feb-2018 04:20:25	2018.02.05_537B_035.d	8	1.0		sv
320-35150-A-8-A	320-0053721-015	Client	06-Feb-2018 04:25:04	2018.02.05_537B_036.d	22	1.0	NAWC-011718-FRB-228	sv
320-35150-A-9-A	320-0053721-016	Client	06-Feb-2018 04:29:45	2018.02.05_537B_037.d	23	1.0	NAWC-011718-RW-237	sv
320-35150-A-10-A	320-0053721-017	Client	06-Feb-2018 04:34:26	2018.02.05_537B_038.d	24	1.0	NAWC-011718-FRB-237	sv
320-35150-A-11-A	320-0053721-018	Client	06-Feb-2018 04:39:05	2018.02.05_537B_039.d	25	1.0	NAWC-011718-RW-244	sv
320-35150-A-12-A	320-0053721-019	Client	06-Feb-2018 04:43:46	2018.02.05_537B_040.d	26	1.0	NAWC-011718-FRB-244	sv
320-35150-A-13-A	320-0053721-020	Client	06-Feb-2018 04:48:26	2018.02.05_537B_041.d	27	1.0	NAWC-011718-DUP-21	sv
320-35150-A-14-B	320-0053721-021	Client	06-Feb-2018 04:53:05	2018.02.05_537B_042.d	28	1.0	NAWC-011718-RW-240	sv
320-35150-A-15-A	320-0053721-022	Client	06-Feb-2018 04:57:45	2018.02.05_537B_043.d	29	1.0	NAWC-011718-FRB-240	sv
320-35150-A-16-A	320-0053721-023	Client	06-Feb-2018 05:02:26	2018.02.05_537B_044.d	30	1.0	NAWC-011718-RW-249	sv
320-35150-A-17-B	320-0053721-024	Client	06-Feb-2018 05:07:07	2018.02.05_537B_045.d	31	1.0	NAWC-011718-FRB-249	sv
CCV L3	320-0053721-025	CCVIS	06-Feb-2018 05:11:47	2018.02.05_537B_046.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0053721-026	RB	06-Feb-2018 05:16:28	2018.02.05_537B_047.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05FEB2018_537A

Worklist Num: 53686

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180205-53686.b

Analysis 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	320-0053686-001	CCVL	05-Feb-2018 11:37:45	2018.02.05_537A_004.d	2	1.0		sv
CCV L5	320-0053686-002	CCVIS	05-Feb-2018 11:42:26	2018.02.05_537A_005.d	5	1.0		sv
RB	320-0053686-003	RB	05-Feb-2018 11:47:07	2018.02.05_537A_006.d	8	1.0		sv
320-35322-A-1-A	320-0053686-004	Client	05-Feb-2018 11:51:46	2018.02.05_537A_007.d	1	5.0	GC012318-PT	sv
320-35322-A-3-A	320-0053686-005	Client	05-Feb-2018 11:56:27	2018.02.05_537A_008.d	2	5.0	GC012318-PV2-LEAD	sv
320-35322-A-3-B MS	320-0053686-006	MS	05-Feb-2018 12:01:08	2018.02.05_537A_009.d	3	5.0	GC012318-PV2-LEAD	sv
320-35322-A-3-C MSD	320-0053686-007	MSD	05-Feb-2018 12:05:49	2018.02.05_537A_010.d	4	5.0	GC012318-PV2-LEAD	sv
CCV L3	320-0053686-008	CCVIS	05-Feb-2018 12:10:30	2018.02.05_537A_011.d	3	1.0		sv
RB	320-0053686-009	RB	05-Feb-2018 12:15:10	2018.02.05_537A_012.d	8	1.0		sv
320-35322-A-2-A	320-0053686-010	Client	05-Feb-2018 12:21:34	2018.02.05_537A_013.d	5	1.0	GC012318-PV1-LAG	sv
CCV L5	320-0053686-011	CCVIS	05-Feb-2018 12:26:14	2018.02.05_537A_014.d	5	1.0		sv
RB	320-0053686-012	RB	05-Feb-2018 12:30:53	2018.02.05_537A_015.d	8	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End: 2/2/2018 4:40:00PM

Extraction of Perfluorinated Alkyl Acids

Due: 2/8

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Dlv Rank	Comments	Output Sample Lab ID
1 MB-320-206282/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
2 LLCS-320-206282/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
3 LLCSD-320-206282/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
320-35150-A-1 (537_DOD5)	N/A (320-35150-1)	283.94 g	255 mL	7			1/22/18	16_Days	4	CI ND	
		28.90 g	1.00 mL								
320-35150-A-2 (537_DOD5)	N/A (320-35150-1)	279.29 g	252.1 mL	7			1/22/18	16_Days	4	CI ND	
		27.24 g	1.00 mL								
320-35150-A-3 (537_DOD5)	N/A (320-35150-1)	275.68 g	247 mL	7			1/22/18	16_Days	4	CI ND	
		28.70 g	1.00 mL								
320-35150-A-4 (537_DOD5)	N/A (320-35150-1)	270.03 g	242.6 mL	7			1/22/18	16_Days	4	CI ND	
		27.45 g	1.00 mL								
320-35150-A-5 (537_DOD5)	N/A (320-35150-1)	272.94 g	244.2 mL	9			1/22/18	16_Days	4	CI ND	
		28.77 g	1.00 mL								
320-35150-A-6 (537_DOD5)	N/A (320-35150-1)	281.90 g	254.4 mL	7			1/22/18	16_Days	4	CI ND	
		27.55 g	1.00 mL								
320-35150-A-7 (537_DOD5)	N/A (320-35150-1)	279.89 g	250.1 mL	7			1/22/18	16_Days	4	CI ND	
		29.82 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End: 2/2/2018 4:40:00PM

11	320-35150-A-8 (537_DOD5)	N/A (320-35150-1)	273.31 g	246 mL	7		1/22/18	16_Days	4	CI ND	
			27.31 g	1.00 mL							
12	320-35150-A-9 (537_DOD5)	N/A (320-35150-1)	278.94 g	249.6 mL	7		1/22/18	16_Days	4	CI ND	
			29.32 g	1.00 mL							
13	320-35150-A-10 (537_DOD5)	N/A (320-35150-1)	278.50 g	251 mL	7		1/22/18	16_Days	4	CI ND	
			27.46 g	1.00 mL							
14	320-35150-A-11 (537_DOD5)	N/A (320-35150-1)	279.18 g	250.9 mL	7		1/22/18	16_Days	4	CI ND	
			28.33 g	1.00 mL							
15	320-35150-A-12 (537_DOD5)	N/A (320-35150-1)	274.36 g	247.2 mL	7		1/22/18	16_Days	4	CI ND	
			27.16 g	1.00 mL							
16	320-35150-A-13 (537_DOD5)	N/A (320-35150-1)	279.49 g	251.6 mL	7		1/22/18	16_Days	4	CI ND	
			27.87 g	1.00 mL							
17	320-35150-A-14 (537_DOD5)	N/A (320-35150-1)	283.42 g	255.2 mL	7		1/22/18	16_Days	4	CI ND	
			28.21 g	1.00 mL							
18	320-35150-A-15 (537_DOD5)	N/A (320-35150-1)	279.70 g	252.3 mL	7		1/22/18	16_Days	4	CI ND	
			27.44 g	1.00 mL							
19	320-35150-A-16 (537_DOD5)	N/A (320-35150-1)	283.37 g	254.7 mL	7		1/22/18	16_Days	4	CI ND	
			28.70 g	1.00 mL							
20	320-35150-A-17 (537_DOD5)	N/A (320-35150-1)	268.59 g	241.4 mL	7		1/22/18	16_Days	4	CI ND	
			27.24 g	1.00 mL							

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End: 2/2/2018 4:40:00PM

Batch Notes

Manifold ID 1,15

pH Indicator ID 3817

Trizma ID SLBR4303V

SPE Cartridge ID 6369499-04

Methanol ID 6369499

Reagent Water ID 1-30-18

Internal Standard ID# 1099356

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop JNS

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop JNS

Witness

Analyst ID - IS Reagent Drop JER

Analyst ID - IS Reagent Drop TWL

Witness

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step VPM

Analyst ID - Final Volume Step CCB

Batch Comment Client labels match TA label, 01/31/18 SKD

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-206282/1	LC537-SU_00053	100 uL	1.00 mL	1-31-18	1/31/18
LLCS 320-206282/2	LC537-LSP_00026	100 uL	1.00 mL		
LLCS 320-206282/2	LC537-SU_00053	100 uL	1.00 mL		
LLCSD 320-206282/3	LC537-LSP_00026	100 uL	1.00 mL		
LLCSD 320-206282/3	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-1	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-2	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-3	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-4	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-5	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-6	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-7	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-8	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-9	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-10	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-11	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-12	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-13	LC537-SU_00053	100 uL	1.00 mL		

Page 345 of 350

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End:

320-35150-A-14	LC537-SU_00053	100 uL	1.00 mL	COB 1-31-18	JNS 1/31/18
320-35150-A-15	LC537-SU_00053	100 uL	1.00 mL	↓	↓
320-35150-A-16	LC537-SU_00053	100 uL	1.00 mL		
320-35150-A-17	LC537-SU_00053	100 uL	1.00 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

Page 346 of 350

Preparation Batch Number(s) 206282

Test 537 - Prep

Earliest Holding Time 1/31/18

Batch Information	1 st Level Reviewer	2 nd 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	1 st Level Reviewer	2 nd 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	1 st Level Reviewer	2 nd 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	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: [Signature]

Date: 2/2/18

2nd Level Reviewer: VPM

Date: 2/13/18

Comments: _____

Shipping and Receiving Documents

TestAmerica Sacramento
 880 Riverside Parkway
 West Sacramento, CA 95605-1500
 phone 916.373.5600 fax 303.467.7248

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Andy Frebowitz		Site Contact: Mary Kay Bond		Date: 1/17/2018		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		Filtered Sample (Y/N) Perform MS / MSD (Y/N) EPA 837 UCMR3				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 ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling:	
Project Name: WE04								Job / SDG No.:	
Site: WE04									
P O # 1132358 (through EarthToxics)									
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
NAWC-011718-RW-278	1/17/2018	08:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-278	1/17/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-235	1/17/2018	09:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-235	1/17/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-91	1/17/2018	10:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-91	1/17/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-228	1/17/2018	13:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-228	1/17/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-237	1/17/2018	14:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-237	1/17/2018	14:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-244	1/17/2018	14:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-244	1/17/2018	14:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-DUP-21	1/17/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
NAWC-011718-RW-241	1/17/2018	16:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-241	1/17/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-249	1/17/2018	10:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-249	1/17/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other: Trizma						6			
Possible Hazard Identification:						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the						☐ Return to Client ☒ Disposal by Lab ☐ Archive for Months			
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown									
Fed Ex Tracking: 7712 4207 6010									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp (°C): Obs'd: 14		Corr'd:		Therm ID No.: AK2	
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:				
Mary Kay Bond	Tetra Tech	1/17/2018 16:00	[Signature]	TH-Sac	1/17/18 1025				
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:				
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Com:					

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35150-1

Login Number: 35150

List Source: TestAmerica Sacramento

List Number: 1

Creator: Turpen, Troy

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","20","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES","-99","","255","1.00","16",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","21","ng/L","","2.7","DL","","TRG","","","20","LOQ","YES","-99","","255","1.00","7.8",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","255","1.00","12",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","255","1.00","35",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","7.8","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","255","1.00","3.9",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.8","DL","","TRG","","","24","LOQ","YES","-99","","255","1.00","20",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","STL00993","13C2 PFHxA","37","ng/L","","-99","DL","","SURRE","94","","-99","LOQ","YES","39.2","","255","1.00","0",""
"NAWC-011718-RW-278","537","RES","320-35150-1","TALSAC","STL00996","13C2 PFDA","40","ng/L","","-99","DL","","SURRE","102","","-99","LOQ","YES","39.2","","255","1.00","0",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251","1.00","16",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251","1.00","8.0",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251","1.00","12",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","251","1.00","36",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","251","1.00","4.0",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","251","1.00","20",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","STL00993","13C2 PFHxA","38","ng/L","","-99","DL","","SURRE","95","","-99","LOQ","YES","39.8","","251","1.00","0",""
"NAWC-011718-FRB-237","537","RES","320-35150-10","TALSAC","STL00996","13C2 PFDA","38","ng/L","","-99","DL","","SURRE","97","","-99","LOQ","YES","39.8","","251","1.00","0",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","19","ng/L","J M","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250.9","1.00","16",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","12","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250.9","1.00","8.0",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","7.9","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250.9","1.00","12",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250.9","1.00","36",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250.9","1.00","4.0",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250.9","1.00","20",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","STL00993","13C2 PFHxA","33","ng/L","","-99","DL","","SURRE","82","","-99","LOQ","YES","39.9","","250.9","1.00","0",""
"NAWC-011718-RW-244","537","RES","320-35150-11","TALSAC","STL00996","13C2 PFDA","37","ng/L","","-99","DL","","SURRE","92","","-99","LOQ","YES","39.9","","250.9","1.00","0",""
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.2","1.00","16",""
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.2","1.00","8.1",""
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES",-99","","247.2","1.00","12","","
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99","","247.2","1.00","36","","
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99","","247.2","1.00","4.0","","
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99","","247.2","1.00","20","","
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURRE","94","","-99","LOQ","YES","40.5","","247.2","1.00","0","","
"NAWC-011718-FRB-244","537","RES","320-35150-12","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURRE","95","","-99","LOQ","YES","40.5","","247.2","1.00","0","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U M","6.8","DL","","TRG","","","40","LOQ","YES",-99","","251.6","1.00","16","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","12","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES",-99","","251.6","1.00","7.9","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99","","251.6","1.00","12","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U M","16","DL","","TRG","","","89","LOQ","YES",-99","","251.6","1.00","36","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.6","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES",-99","","251.6","1.00","4.0","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","7.9","DL","","TRG","","","24","LOQ","YES",-99","","251.6","1.00","20","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURRE","85","","-99","LOQ","YES","39.7","","251.6","1.00","0","","
"NAWC-011718-DUP-21","537","RES","320-35150-13","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURRE","94","","-99","LOQ","YES","39.7","","251.6","1.00","0","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","9.4","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES",-99","","255.2","1.00","16","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","9.3","ng/L","J","2.7","DL","","TRG","","","20","LOQ","YES",-99","","255.2","1.00","7.8","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.3","ng/L","J","5.4","DL","","TRG","","","29","LOQ","YES",-99","","255.2","1.00","12","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES",-99","","255.2","1.00","35","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES",-99","","255.2","1.00","3.9","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","24","LOQ","YES",-99","","255.2","1.00","20","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURRE","88","","-99","LOQ","YES","39.2","","255.2","1.00","0","","
"NAWC-011718-RW-240","537","RES","320-35150-14","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURRE","93","","-99","LOQ","YES","39.2","","255.2","1.00","0","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","40","LOQ","YES",-99","","252.3","1.00","16","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","252.3","1.00","7.9","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES",-99","","252.3","1.00","12","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES",-99","","252.3","1.00","36","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES",-99","","252.3","1.00","4.0","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA),"20","ng/L","U","7.9","DL","","","TRG","","","24","LOQ","YES",-99","","252.3","1.00","20","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","","SURRE","101","","-99","LOQ","YES","39.6","","252.3","1.00","0","","
"NAWC-011718-FRB-240","537","RES","320-35150-15","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","","SURRE","101","","-99","LOQ","YES","39.6","","252.3","1.00","0","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U M","6.7","DL","","","TRG","","","39","LOQ","YES",-99","","254.7","1.00","16","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","12","ng/L","J","2.7","DL","","","TRG","","","20","LOQ","YES",-99","","254.7","1.00","7.9","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","","TRG","","","29","LOQ","YES",-99","","254.7","1.00","12","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U M","16","DL","","","TRG","","","88","LOQ","YES",-99","","254.7","1.00","35","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.8","ng/L","J","1.9","DL","","","TRG","","","9.8","LOQ","YES",-99","","254.7","1.00","3.9","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U M","7.9","DL","","","TRG","","","24","LOQ","YES",-99","","254.7","1.00","20","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","","SURRE","96","","-99","LOQ","YES","39.3","","254.7","1.00","0","","
"NAWC-011718-RW-249","537","RES","320-35150-16","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","","SURRE","100","","-99","LOQ","YES","39.3","","254.7","1.00","0","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","17","ng/L","U","7.0","DL","","","TRG","","","41","LOQ","YES",-99","","241.4","1.00","17","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.3","ng/L","U","2.9","DL","","","TRG","","","21","LOQ","YES",-99","","241.4","1.00","8.3","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.7","DL","","","TRG","","","31","LOQ","YES",-99","","241.4","1.00","12","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","17","DL","","","TRG","","","93","LOQ","YES",-99","","241.4","1.00","37","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","2.0","DL","","","TRG","","","10","LOQ","YES",-99","","241.4","1.00","4.1","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"21","ng/L","U","8.3","DL","","","TRG","","","25","LOQ","YES",-99","","241.4","1.00","21","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","","SURRE","97","","-99","LOQ","YES","41.4","","241.4","1.00","0","","
"NAWC-011718-FRB-249","537","RES","320-35150-17","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","","SURRE","102","","-99","LOQ","YES","41.4","","241.4","1.00","0","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","","TRG","","","40","LOQ","YES",-99","","252.1","1.00","16","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","","TRG","","","20","LOQ","YES",-99","","252.1","1.00","7.9","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","","TRG","","","30","LOQ","YES",-99","","252.1","1.00","12","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","","TRG","","","89","LOQ","YES",-99","","252.1","1.00","36","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","","TRG","","","9.9","LOQ","YES",-99","","252.1","1.00","4.0","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","7.9","DL","","","TRG","","","24","LOQ","YES",-99","","252.1","1.00","20","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","","SURRE","97","","-99","LOQ","YES","39.7","","252.1","1.00","0","","
"NAWC-011718-FRB-278","537","RES","320-35150-2","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","","SURRE","96","","-99","LOQ","YES","39.7","","252.1","1.00","0","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"11","ng/L","J M","6.9","DL","","TRG","","","40","LOQ","YES",-99","","247","1.00","16","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"13","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES",-99","","247","1.00","8.1","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"6.3","ng/L","J","5.6","DL","","TRG","","","30","LOQ","YES",-99","","247","1.00","12","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99","","247","1.00","36","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"6.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99","","247","1.00","4.0","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99","","247","1.00","20","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURRE","86","","-99","LOQ","YES","40.5","","247","1.00","0","","
"NAWC-011718-RW-235","537","RES","320-35150-3","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURRE","95","","-99","LOQ","YES","40.5","","247","1.00","0","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","7.0","DL","","TRG","","","41","LOQ","YES",-99","","242.6","1.00","16","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.2","ng/L","U","2.9","DL","","TRG","","","21","LOQ","YES",-99","","242.6","1.00","8.2","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES",-99","","242.6","1.00","12","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES",-99","","242.6","1.00","37","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.1","ng/L","U","2.0","DL","","TRG","","","10","LOQ","YES",-99","","242.6","1.00","4.1","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"21","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES",-99","","242.6","1.00","21","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","STL00993","13C2
PFHxA","41","ng/L","","-99","DL","","SURRE","99","","-99","LOQ","YES","41.2","","242.6","1.00","0","","
"NAWC-011718-FRB-235","537","RES","320-35150-4","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURRE","101","","-99","LOQ","YES","41.2","","242.6","1.00","0","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"20","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES",-99","","244.2","1.00","16","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"19","ng/L","J","2.9","DL","","TRG","","","20","LOQ","YES",-99","","244.2","1.00","8.2","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"5.9","ng/L","J","5.6","DL","","TRG","","","31","LOQ","YES",-99","","244.2","1.00","12","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES",-99","","244.2","1.00","37","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"6.6","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99","","244.2","1.00","4.1","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U M","8.2","DL","","TRG","","","25","LOQ","YES",-99","","244.2","1.00","20","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURRE","97","","-99","LOQ","YES","41.0","","244.2","1.00","0","","
"NAWC-011718-RW-91","537","RES","320-35150-5","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURRE","99","","-99","LOQ","YES","41.0","","244.2","1.00","0","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES",-99","","254.4","1.00","16","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","254.4","1.00","7.9","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES",-99","","254.4","1.00","12","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","35","ng/L","U","16","DL","","","TRG","","","88","LOQ","YES",-99","","254.4","1.00","35","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","","TRG","","","9.8","LOQ","YES",-99","","254.4","1.00","3.9","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","","TRG","","","24","LOQ","YES",-99","","254.4","1.00","20","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","","-99","DL","","","SURRE","94","","","-99","LOQ","YES","39.3","","254.4","1.00","0","","
"NAWC-011718-FRB-91","537","RES","320-35150-6","TALSAC","STL00996","13C2
PFDA","39","ng/L","","","-99","DL","","","SURRE","99","","","-99","LOQ","YES","39.3","","254.4","1.00","0","","
"NAWC-011718-RW-228","537","RES","320-35150-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","J M","6.8","DL","","","TRG","","","40","LOQ","YES",-99","","250.1","1.00","16","","
"NAWC-011718-RW-228","537","RES","320-35150-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","29","ng/L","","","2.8","DL","","","TRG","","","20","LOQ","YES",-99","","250.1","1.00","8.0","","
"NAWC-011718-RW-228","537","RES","320-35150-7","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-011718-RW-228","537","RES","320-35150-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","53","ng/L","J","16","DL","","","TRG","","","90","LOQ","YES",-99","","250.1","1.00","36","","
"NAWC-011718-RW-228","537","RES","320-35150-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","11","ng/L","","","1.9","DL","","","TRG","","","10","LOQ","YES",-99","","250.1","1.00","4.0","","
"NAWC-011718-RW-228","537","RES","320-35150-7","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-011718-RW-228","537","RES","320-35150-7","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","","-99","DL","","","SURRE","95","","","-99","LOQ","YES","40.0","","250.1","1.00","0","","
"NAWC-011718-RW-228","537","RES","320-35150-7","TALSAC","STL00996","13C2
PFDA","40","ng/L","","","-99","DL","","","SURRE","101","","","-99","LOQ","YES","40.0","","250.1","1.00","0","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","","TRG","","","41","LOQ","YES",-99","","246","1.00","16","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","","TRG","","","20","LOQ","YES",-99","","246","1.00","8.1","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","","TRG","","","30","LOQ","YES",-99","","246","1.00","12","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","","TRG","","","91","LOQ","YES",-99","","246","1.00","37","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","","TRG","","","10","LOQ","YES",-99","","246","1.00","4.1","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","","TRG","","","24","LOQ","YES",-99","","246","1.00","20","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","","-99","DL","","","SURRE","90","","","-99","LOQ","YES","40.7","","246","1.00","0","","
"NAWC-011718-FRB-228","537","RES","320-35150-8","TALSAC","STL00996","13C2
PFDA","38","ng/L","","","-99","DL","","","SURRE","93","","","-99","LOQ","YES","40.7","","246","1.00","0","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","13","ng/L","J M","6.8","DL","","","TRG","","","40","LOQ","YES",-99","","249.6","1.00","16","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","12","ng/L","J","2.8","DL","","","TRG","","","20","LOQ","YES",-99","","249.6","1.00","8.0","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.3","ng/L","J","5.5","DL","","","TRG","","","30","LOQ","YES",-99","","249.6","1.00","12","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","","TRG","","","90","LOQ","YES",-99","","249.6","1.00","36","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","J","1.9","DL","","","TRG","","","10","LOQ","YES",-99","","249.6","1.00","4.0","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","","TRG","","","24","LOQ","YES",-99","","249.6","1.00","20","","
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","STL00993","13C2

PFHxA","38","ng/L","",-99","DL","","SURRE","94","","-99","LOQ","YES","40.1","","249.6","1.00","0",""
"NAWC-011718-RW-237","537","RES","320-35150-9","TALSAC","STL00996","13C2
PFDA","40","ng/L","",-99","DL","","SURRE","99","","-99","LOQ","YES","40.1","","249.6","1.00","0",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","38.4","ng/L","J M","6.8","DL","","SPK","96","","40","LOQ","YES","40.0","","250","1.00","16",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","18.8","ng/L","J","2.8","DL","","SPK","94","","20","LOQ","YES","20.0","","250","1.00","8.0",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","30.9","ng/L","","5.5","DL","","SPK","103","","30","LOQ","YES","30.0","","250","1.00","12",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","87.5","ng/L","J","16","DL","","SPK","97","","90","LOQ","YES","90.0","","250","1.00","36",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","9.97","ng/L","J","1.9","DL","","SPK","100","","10","LOQ","YES","10.0","","250","1.00","4.0",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18.2","ng/L","J","8.0","DL","","SPK","91","","24","LOQ","YES","20.0","","250","1.00","20",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","STL00993","13C2
PFHxA","36.2","ng/L","","-99","DL","","SURRE","91","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCS 320-206282/2-A","537","RES","LLCS 320-206282/2-A","TALSAC","STL00996","13C2
PFDA","39.6","ng/L","","-99","DL","","SURRE","99","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","38.0","ng/L","J M","6.8","DL","","SPK","95","1","40","LOQ","YES","40.0","LLCS 320-206282/2-
A","250","1.00","16",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","19.9","ng/L","J","2.8","DL","","SPK","99","6","20","LOQ","YES","20.0","LLCS 320-206282/2-
A","250","1.00","8.0",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","31.6","ng/L","","5.5","DL","","SPK","105","2","30","LOQ","YES","30.0","LLCS 320-206282/2-
A","250","1.00","12",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic
acid (PFBS)","94.2","ng/L","","16","DL","","SPK","105","7","90","LOQ","YES","90.0","LLCS 320-206282/2-
A","250","1.00","36",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","10.4","ng/L","","1.9","DL","","SPK","104","5","10","LOQ","YES","10.0","LLCS 320-206282/2-
A","250","1.00","4.0",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","17.4","ng/L","J","8.0","DL","","SPK","87","4","24","LOQ","YES","20.0","LLCS 320-206282/2-
A","250","1.00","20",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","STL00993","13C2
PFHxA","37.3","ng/L","","-99","DL","","SURRE","93","3","-99","LOQ","YES","40.0","LLCS 320-206282/2-
A","250","1.00","0",""
"LLCSD 320-206282/3-A","537","RES","LLCSD 320-206282/3-A","TALSAC","STL00996","13C2
PFDA","38.8","ng/L","","-99","DL","","SURRE","97","2","-99","LOQ","YES","40.0","LLCS 320-206282/2-
A","250","1.00","0",""
"MB 320-206282/1-A","537","RES","MB 320-206282/1-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 320-206282/1-A","537","RES","MB 320-206282/1-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 320-206282/1-A","537","RES","MB 320-206282/1-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 320-206282/1-A","537","RES","MB 320-206282/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-206282/1-A","537","RES","MB 320-206282/1-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 320-206282/1-A","537","RES","MB 320-206282/1-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 320-206282/1-A","537","RES","MB 320-206282/1-A","TALSAC","STL00993","13C2
PFHxA","37.5","ng/L","","","-99","DL","","","SURRE","94","","","-99","LOQ","YES","40.0","","","250","1.00","0","","
"MB 320-206282/1-A","537","RES","MB 320-206282/1-A","TALSAC","STL00996","13C2
PFDA","42.5","ng/L","","","-99","DL","","","SURRE","106","","","-99","LOQ","YES","40.0","","","250","1.00","0","","
"Unknown","Unknown","NAWC-011718-RW-278","01/17/2018 08:10","AQ","320-35150-
1","NM","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:43","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-FRB-237","01/17/2018 14:05","AQ","320-35150-
10","FB","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:34","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-RW-244","01/17/2018 14:40","AQ","320-35150-
11","NM","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:39","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-FRB-244","01/17/2018 14:35","AQ","320-35150-
12","FB","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:43","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-DUP-21","01/17/2018 07:00","AQ","320-35150-
13","FD","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:48","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-RW-240","01/17/2018 16:40","AQ","320-35150-
14","NM","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:53","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-FRB-240","01/17/2018 16:35","AQ","320-35150-
15","FB","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:57","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-RW-249","01/17/2018 10:40","AQ","320-35150-
16","NM","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
05:02","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-FRB-249","01/17/2018 10:35","AQ","320-35150-
17","FB","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
05:07","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-FRB-278","01/17/2018 08:05","AQ","320-35150-
2","FB","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:47","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-RW-235","01/17/2018 09:10","AQ","320-35150-
3","NM","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:52","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-FRB-235","01/17/2018 09:05","AQ","320-35150-
4","FB","","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:57","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07","","
"Unknown","Unknown","NAWC-011718-RW-91","01/17/2018 10:10","AQ","320-35150-

5","NM","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:01","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07",""
"Unknown","Unknown","NAWC-011718-FRB-91","01/17/2018 10:05","AQ","320-35150-
6","FB","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:06","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07",""
"Unknown","Unknown","NAWC-011718-RW-228","01/17/2018 13:40","AQ","320-35150-
7","NM","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:11","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/18/2018 10:20","02/07/2018 14:07",""
"Unknown","Unknown","NAWC-011718-FRB-228","01/17/2018 13:35","AQ","320-35150-
8","FB","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:25","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07",""
"Unknown","Unknown","NAWC-011718-RW-237","01/17/2018 14:10","AQ","320-35150-
9","NM","","1.40","537","METHOD","RES","01/31/2018 07:27","02/06/2018
04:29","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207068","320-35150-1","01/18/2018 10:20","02/07/2018 14:07",""
"Unknown","Unknown","LLCS 320-206282/2-A","","AQ","LLCS 320-206282/2-
A","LCS","","-99","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:33","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/31/2018 07:27","02/07/2018 14:07",""
"Unknown","Unknown","LLCSD 320-206282/3-A","","AQ","LLCSD 320-206282/3-
A","LCSD","","-99","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:38","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/31/2018 07:27","02/07/2018 14:07",""
"Unknown","Unknown","MB 320-206282/1-A","","AQ","MB 320-206282/1-
A","MB","","-99","537","METHOD","RES","01/31/2018 07:27","02/06/2018
03:29","TALSAC","COA","WET","NA","1","NA","NA","","100","320-206282","320-206282","NA","320-
207066","320-35150-1","01/31/2018 07:27","02/07/2018 14:07",""



TO: A. FREBOWITZ **DATE:** FEBRUARY 14, 2018
FROM: TERRI L. SOLOMON **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-35150-1

SAMPLES: 8/Field Reagent Blank (FRB)
NAWC-011718-FRB-228 NAWC-011718-FRB-235
NAWC-011718-FRB-237 NAWC-011718-FRB-240
NAWC-011718-FRB-244 NAWC-011718-FRB-249
NAWC-011718-FRB-278 NAWC-011718-FRB-91

9/Drinking Water
NAWC-011718-DUP-21 NAWC-011718-RW-228
NAWC-011718-RW-235 NAWC-011718-RW-237
NAWC-011718-RW-240 NAWC-011718-RW-244
NAWC-011718-RW-249 NAWC-011718-RW-278
NAWC-011718-RW-91

Overview

The sample set for NAS JRB Willow Grove, SDG 320-35150-1, consisted of nine (9) drinking water samples and eight (8) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). One (1) field duplicate sample pair (NAWC-011718-RW-249 / NAWC-011718-DUP-21) was included in this SDG.

The samples were collected by Tetra Tech on January 17, 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, field duplicate results, internal standard areas and recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

None.

Minor

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

Notes

It was noted in the case narrative that per client request, the sample IDs were changed from NAWC-011718-RW-241 and NAWC-011718-FRB-241 (listed on the chain of custody) to NAWC-011718-RW-240 and NAWC-011718-FRB-240.

TO: A. FREBOWITZ
SDG: 320-35150-1

PAGE 2

It was noted that sample NAWC-011718-RW-91 had a pH of 9. No validation actions were required.

It was noted that the laboratory altered the final volumes for all samples. All surrogate and internal standard recoveries were with quality control limits. No validation actions were necessary.

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

<u>Sample</u>	<u>Associated FRB</u>
NAWC-011718-DUP-21	NAWC-011718-FRB-249
NAWC-011718-RW-228	NAWC-011718-FRB-228
NAWC-011718-RW-235	NAWC-011718-FRB-235
NAWC-011718-RW-237	NAWC-011718-FRB-237
NAWC-011718-RW-240	NAWC-011718-FRB-240
NAWC-011718-RW-244	NAWC-011718-FRB-244
NAWC-011718-RW-249	NAWC-011718-FRB-249
NAWC-011718-RW-278	NAWC-011718-FRB-278
NAWC-011718-RW-91	NAWC-011718-FRB-91

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.



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 ($< 2 \times$ IDL for inorganics and $< \text{CRQL}$ 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 SDG: 320-35150-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-011718-DUP-21			NAWC-011718-FRB-228			NAWC-011718-FRB-235			NAWC-011718-FRB-237		
	LAB_ID	320-35150-13			320-35150-8			320-35150-4			320-35150-10		
	SAMP_DATE	1/17/2018			1/17/2018			1/17/2018			1/17/2018		
	QC_TYPE	FD			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	NAWC-011718-RW-249											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		12	J	P	8.1	U		8.2	U		8	U	
PERFLUOROBUTANESULFONIC ACID		36	U		37	U		37	U		36	U	
PERFLUOROHEPTANOIC ACID		5.6	J	P	4.1	U		4.1	U		4	U	
PERFLUOROHXANESULFONIC 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 SDG: 320-35150-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-011718-FRB-240			NAWC-011718-FRB-244			NAWC-011718-FRB-249			NAWC-011718-FRB-278		
	LAB_ID	320-35150-15			320-35150-12			320-35150-17			320-35150-2		
	SAMP_DATE	1/17/2018			1/17/2018			1/17/2018			1/17/2018		
	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		7.9	U		8.1	U		8.3	U		7.9	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		17	U		16	U	

PROJ_NO: 08005-WE04 SDG: 320-35150-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-011718-FRB-91			NAWC-011718-RW-228			NAWC-011718-RW-235			NAWC-011718-RW-237		
	LAB_ID	320-35150-6			320-35150-7			320-35150-3			320-35150-9		
	SAMP_DATE	1/17/2018			1/17/2018			1/17/2018			1/17/2018		
	QC_TYPE	FB			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.9	U		29			13	J	P	12	J	P
PERFLUOROBUTANESULFONIC ACID		35	U		53	J	P	36	U		36	U	
PERFLUOROHEPTANOIC ACID		3.9	U		11			6.1	J	P	3.7	J	P
PERFLUOROHXANESULFONIC ACID		12	U		12	U		6.3	J	P	6.3	J	P
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	J	P	11	J	P	13	J	P

PROJ_NO: 08005-WE04 SDG: 320-35150-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-011718-RW-240			NAWC-011718-RW-244			NAWC-011718-RW-249			NAWC-011718-RW-278		
	LAB_ID	320-35150-14			320-35150-11			320-35150-16			320-35150-1		
	SAMP_DATE	1/17/2018			1/17/2018			1/17/2018			1/17/2018		
	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		9.3	J	P	12	J	P	12	J	P	21		
PERFLUOROBUTANESULFONIC ACID		35	U		36	U		35	U		35	U	
PERFLUOROHEPTANOIC ACID		3.7	J	P	4.1	J	P	5.8	J	P	7.8	J	P
PERFLUOROHEXANESULFONIC ACID		6.3	J	P	7.9	J	P	12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		9.4	J	P	19	J	P	16	U		20	J	P

PROJ_NO: 08005-WE04 SDG: 320-35150-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-011718-RW-91		
	LAB_ID	320-35150-5		
	SAMP_DATE	1/17/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		19	J	P
PERFLUOROBUTANESULFONIC ACID		37	U	
PERFLUOROHEPTANOIC ACID		6.6	J	P
PERFLUOROHEXANESULFONIC ACID		5.9	J	P
PERFLUORONONANOIC ACID		20	U	
PERFLUOROOCTANE SULFONIC ACID		20	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-278 Lab Sample ID: 320-35150-1
 Matrix: Water Lab File ID: 2018.02.05_537B_027.d
 Analysis Method: 537 Date Collected: 01/17/2018 08:10
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 255 (mL) Date Analyzed: 02/06/2018 03:43
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	21		20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.8	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

Ali L. Salaman
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-278 Lab Sample ID: 320-35150-2
 Matrix: Water Lab File ID: 2018.02.05_537B_028.d
 Analysis Method: 537 Date Collected: 01/17/2018 08:05
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 252.1 (mL) Date Analyzed: 02/06/2018 03:47
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 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	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	96		70-130

Wesley L. Salomon

02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-235</u>	Lab Sample ID: <u>320-35150-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 09:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>247(mL)</u>	Date Analyzed: <u>02/06/2018 03:52</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	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	86		70-130
STL00996	13C2 PFDA	95		70-130

Ali L. Salameh
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-235 Lab Sample ID: 320-35150-4
 Matrix: Water Lab File ID: 2018.02.05_537B_030.d
 Analysis Method: 537 Date Collected: 01/17/2018 09:05
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 242.6(mL) Date Analyzed: 02/06/2018 03:57
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 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	99		70-130
STL00996	13C2 PFDA	101		70-130

Wesley L. Salomon
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-91</u>	Lab Sample ID: <u>320-35150-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_031.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>244.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:01</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	19	J	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	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	97		70-130
STL00996	13C2 PFDA	99		70-130

Amir L. Salaman
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-91</u>	Lab Sample ID: <u>320-35150-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_032.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>254.4 (mL)</u>	Date Analyzed: <u>02/06/2018 04:06</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	99		70-130

Wesley L. Salomon
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-228 Lab Sample ID: 320-35150-7
 Matrix: Water Lab File ID: 2018.02.05_537B_033.d
 Analysis Method: 537 Date Collected: 01/17/2018 13:40
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250.1 (mL) Date Analyzed: 02/06/2018 04:11
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	29		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)	11		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	53	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	101		70-130


02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-228 Lab Sample ID: 320-35150-8
 Matrix: Water Lab File ID: 2018.02.05_537B_036.d
 Analysis Method: 537 Date Collected: 01/17/2018 13:35
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 246(mL) Date Analyzed: 02/06/2018 04:25
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 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	90		70-130
STL00996	13C2 PFDA	93		70-130


02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-237 Lab Sample ID: 320-35150-9
 Matrix: Water Lab File ID: 2018.02.05_537B_037.d
 Analysis Method: 537 Date Collected: 01/17/2018 14:10
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 249.6(mL) Date Analyzed: 02/06/2018 04:29
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	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	94		70-130
STL00996	13C2 PFDA	99		70-130

Atari L. Salmeron
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-237</u>	Lab Sample ID: <u>320-35150-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_038.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 14:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>251(mL)</u>	Date Analyzed: <u>02/06/2018 04:34</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	97		70-130


02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-244 Lab Sample ID: 320-35150-11
 Matrix: Water Lab File ID: 2018.02.05_537B_039.d
 Analysis Method: 537 Date Collected: 01/17/2018 14:40
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250.9(mL) Date Analyzed: 02/06/2018 04:39
 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.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	92		70-130

Steve L. Salzman
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-244 Lab Sample ID: 320-35150-12
 Matrix: Water Lab File ID: 2018.02.05_537B_040.d
 Analysis Method: 537 Date Collected: 01/17/2018 14:35
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 247.2 (mL) Date Analyzed: 02/06/2018 04:43
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

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

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

Wesley L. Salmeron
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-DUP-21 Lab Sample ID: 320-35150-13
 Matrix: Water Lab File ID: 2018.02.05_537B_041.d
 Analysis Method: 537 Date Collected: 01/17/2018 07:00
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 251.6(mL) Date Analyzed: 02/06/2018 04:48
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U M	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	85		70-130
STL00996	13C2 PFDA	94		70-130

Heidi L. Salaman
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-240</u>	Lab Sample ID: <u>320-35150-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_042.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 16:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>255.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:53</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.4	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	9.3	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	93		70-130

Ami L. Selman
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-240 Lab Sample ID: 320-35150-15
 Matrix: Water Lab File ID: 2018.02.05_537B_043.d
 Analysis Method: 537 Date Collected: 01/17/2018 16:35
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 252.3(mL) Date Analyzed: 02/06/2018 04:57
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 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	101		70-130
STL00996	13C2 PFDA	101		70-130

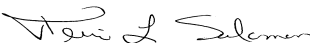
Ali L. Salem
02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-249 Lab Sample ID: 320-35150-16
 Matrix: Water Lab File ID: 2018.02.05_537B_044.d
 Analysis Method: 537 Date Collected: 01/17/2018 10:40
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 254.7(mL) Date Analyzed: 02/06/2018 05:02
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U M	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	100		70-130


02/14/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-249 Lab Sample ID: 320-35150-17
 Matrix: Water Lab File ID: 2018.02.05_537B_045.d
 Analysis Method: 537 Date Collected: 01/17/2018 10:35
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 241.4 (mL) Date Analyzed: 02/06/2018 05:07
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	41	17	7.0
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)	4.1	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	97		70-130
STL00996	13C2 PFDA	102		70-130

Teri L. Salomon
02/14/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-278</u>	Lab Sample ID: <u>320-35150-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_027.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 08:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>255 (mL)</u>	Date Analyzed: <u>02/06/2018 03:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	21		20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.8	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-278</u>	Lab Sample ID: <u>320-35150-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_028.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 08:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>252.1 (mL)</u>	Date Analyzed: <u>02/06/2018 03:47</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

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	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-235</u>	Lab Sample ID: <u>320-35150-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 09:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>247(mL)</u>	Date Analyzed: <u>02/06/2018 03:52</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	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	86		70-130
STL00996	13C2 PFDA	95		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-235 Lab Sample ID: 320-35150-4
 Matrix: Water Lab File ID: 2018.02.05_537B_030.d
 Analysis Method: 537 Date Collected: 01/17/2018 09:05
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 242.6(mL) Date Analyzed: 02/06/2018 03:57
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 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	99		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-91</u>	Lab Sample ID: <u>320-35150-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_031.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>244.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:01</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	19	J	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.6	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	97		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-91</u>	Lab Sample ID: <u>320-35150-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_032.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>254.4 (mL)</u>	Date Analyzed: <u>02/06/2018 04:06</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-228</u>	Lab Sample ID: <u>320-35150-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_033.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 13:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>250.1 (mL)</u>	Date Analyzed: <u>02/06/2018 04:11</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207066</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	29		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)	11		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	53	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-228</u>	Lab Sample ID: <u>320-35150-8</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_036.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 13:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>246(mL)</u>	Date Analyzed: <u>02/06/2018 04:25</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	90		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-237</u>	Lab Sample ID: <u>320-35150-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_037.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 14:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>249.6(mL)</u>	Date Analyzed: <u>02/06/2018 04:29</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	13	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	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	94		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-237</u>	Lab Sample ID: <u>320-35150-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_038.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 14:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>251(mL)</u>	Date Analyzed: <u>02/06/2018 04:34</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-RW-244 Lab Sample ID: 320-35150-11
 Matrix: Water Lab File ID: 2018.02.05_537B_039.d
 Analysis Method: 537 Date Collected: 01/17/2018 14:40
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250.9(mL) Date Analyzed: 02/06/2018 04:39
 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.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	82		70-130
STL00996	13C2 PFDA	92		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-244</u>	Lab Sample ID: <u>320-35150-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_040.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 14:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>247.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-DUP-21</u>	Lab Sample ID: <u>320-35150-13</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_041.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>251.6(mL)</u>	Date Analyzed: <u>02/06/2018 04:48</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U M	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	85		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-240</u>	Lab Sample ID: <u>320-35150-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_042.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 16:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>255.2 (mL)</u>	Date Analyzed: <u>02/06/2018 04:53</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.4	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	9.3	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.3	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-FRB-240</u>	Lab Sample ID: <u>320-35150-15</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_043.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 16:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>252.3 (mL)</u>	Date Analyzed: <u>02/06/2018 04:57</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100</u> ID: <u>3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

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	101		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-35150-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-011718-RW-249</u>	Lab Sample ID: <u>320-35150-16</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.02.05_537B_044.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>01/17/2018 10:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>01/31/2018 07:27</u>
Sample wt/vol: <u>254.7(mL)</u>	Date Analyzed: <u>02/06/2018 05:02</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>207068</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U M	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: NAWC-011718-FRB-249 Lab Sample ID: 320-35150-17
 Matrix: Water Lab File ID: 2018.02.05_537B_045.d
 Analysis Method: 537 Date Collected: 01/17/2018 10:35
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 241.4 (mL) Date Analyzed: 02/06/2018 05:07
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207068 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	U	41	17	7.0
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)	4.1	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	97		70-130
STL00996	13C2 PFDA	102		70-130

Appendix C

Support Documentation

ANALYTE					ORIGINAL				
	ORIGINAL 011718- RW-249	DUPLICATE 011718- DUP-21	RL	RPD	RPD > 50%	SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL	
Perfluorooctanoic acid (PFOA)	12	12	20	0.000	FALSE	FALSE	FALSE	FALSE	
Perfluoroheptanoic acid (PFHpA)	5.8	5.6	9.8	3.509	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 Laboratories, Inc.

Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Andy Frebowitz		Site Contact: Mary Kay Bond		Date: 1/17/2018		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		Filtered Sample (Y/N) Perform MS / MSD (Y/N) EPA 837 UCMR3				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 ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling:	
Project Name: WE04								Job / SDG No.:	
Site: WE04									
P O # 1132358 (through EarthToxics)									
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:			
NAWC-011718-RW-278	1/17/2018	08:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-278	1/17/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-235	1/17/2018	09:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-235	1/17/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-91	1/17/2018	10:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-91	1/17/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-228	1/17/2018	13:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-228	1/17/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-237	1/17/2018	14:10	G	DW	2	N	N	Y	
NAWC-011718-FRB-237	1/17/2018	14:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-244	1/17/2018	14:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-244	1/17/2018	14:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-DUP-21	1/17/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
NAWC-011718-RW-241	1/17/2018	16:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-241	1/17/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-011718-RW-249	1/17/2018	10:40	G	DW	2	N	N	Y	
NAWC-011718-FRB-249	1/17/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other: Trizma						6			
Possible Hazard Identification:						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the						☐ Return to Client ☒ Disposal by Lab ☐ Archive for Months			
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown									
Fed Ex Tracking: 7712 4207 6010									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 14		Corr'd:		Therm ID No.: AK2	
Relinquished by: Mary Kay Bond		Company: Tetra Tech		Date/Time: 1/17/2018 16:00		Received by: [Signature]		Company: TH-Sac	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Com:	



320-35150 Chain of Custody

Job Narrative
320-35150-1

Receipt

The samples were received on 1/18/2018 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

Receipt Exceptions

Per client request sample IDs for the following two samples were changed from what is listed on the CoC. CoC lists sample IDs ending in 241, client requested this be changed to 240. NAWC-011718-RW-240 (320-35150-14) and NAWC-011718-FRB-240 (320-35150-15)

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 320-206282.

Method(s) 537: The following sample NAWC-011718-RW-91 (320-35150-5), in preparation batch 320-206282 was observed to have a pH of 9.

Method(s) 537: Due to analyst error, the Internal Standard (IS) was added after the sample extracts were concentrated and brought to final volume. Additionally, the samples extracts prior to transferring to the instrument vials were mistakenly concentrated and brought to final volume a second time. The IS was not added again during the second process. All ISs were inconfrom showing no impact to the data. NAWC-011718-RW-278 (320-35150-1), NAWC-011718-FRB-278 (320-35150-2), NAWC-011718-RW-235 (320-35150-3), NAWC-011718-FRB-235 (320-35150-4), NAWC-011718-RW-91 (320-35150-5), NAWC-011718-FRB-91 (320-35150-6), NAWC-011718-RW-228 (320-35150-7), NAWC-011718-FRB-228 (320-35150-8), NAWC-011718-RW-237 (320-35150-9), NAWC-011718-FRB-237 (320-35150-10), NAWC-011718-RW-244 (320-35150-11), NAWC-011718-FRB-244 (320-35150-12), NAWC-011718-DUP-21 (320-35150-13), NAWC-011718-RW-240 (320-35150-14), NAWC-011718-FRB-240 (320-35150-15), NAWC-011718-RW-249 (320-35150-16) and NAWC-011718-FRB-249 (320-35150-17)

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

Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-35150-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35150-1	NAWC-011718-RW-278	Water	01/17/18 08:10	01/18/18 10:20
320-35150-2	NAWC-011718-FRB-278	Water	01/17/18 08:05	01/18/18 10:20
320-35150-3	NAWC-011718-RW-235	Water	01/17/18 09:10	01/18/18 10:20
320-35150-4	NAWC-011718-FRB-235	Water	01/17/18 09:05	01/18/18 10:20
320-35150-5	NAWC-011718-RW-91	Water	01/17/18 10:10	01/18/18 10:20
320-35150-6	NAWC-011718-FRB-91	Water	01/17/18 10:05	01/18/18 10:20
320-35150-7	NAWC-011718-RW-228	Water	01/17/18 13:40	01/18/18 10:20
320-35150-8	NAWC-011718-FRB-228	Water	01/17/18 13:35	01/18/18 10:20
320-35150-9	NAWC-011718-RW-237	Water	01/17/18 14:10	01/18/18 10:20
320-35150-10	NAWC-011718-FRB-237	Water	01/17/18 14:05	01/18/18 10:20
320-35150-11	NAWC-011718-RW-244	Water	01/17/18 14:40	01/18/18 10:20
320-35150-12	NAWC-011718-FRB-244	Water	01/17/18 14:35	01/18/18 10:20
320-35150-13	NAWC-011718-DUP-21	Water	01/17/18 07:00	01/18/18 10:20
320-35150-14	NAWC-011718-RW-240	Water	01/17/18 16:40	01/18/18 10:20
320-35150-15	NAWC-011718-FRB-240	Water	01/17/18 16:35	01/18/18 10:20
320-35150-16	NAWC-011718-RW-249	Water	01/17/18 10:40	01/18/18 10:20
320-35150-17	NAWC-011718-FRB-249	Water	01/17/18 10:35	01/18/18 10:20

Method Summary

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

TestAmerica Job ID: 320-35150-1

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

Protocol References:
EPA = US Environmental Protection Agency

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-011718-RW-278	320-35150-1	94	102
NAWC-011718-FRB-278	320-35150-2	97	96
NAWC-011718-RW-235	320-35150-3	86	95
NAWC-011718-FRB-235	320-35150-4	99	101
NAWC-011718-RW-91	320-35150-5	97	99
NAWC-011718-FRB-91	320-35150-6	94	99
NAWC-011718-RW-228	320-35150-7	95	101
NAWC-011718-FRB-228	320-35150-8	90	93
NAWC-011718-RW-237	320-35150-9	94	99
NAWC-011718-FRB-237	320-35150-10	95	97
NAWC-011718-RW-244	320-35150-11	82	92
NAWC-011718-FRB-244	320-35150-12	94	95
NAWC-011718-DUP-21	320-35150-13	85	94
NAWC-011718-RW-240	320-35150-14	88	93
NAWC-011718-FRB-240	320-35150-15	101	101
NAWC-011718-RW-249	320-35150-16	96	100
NAWC-011718-FRB-249	320-35150-17	97	102
	MB 320-206282/1-A	94	106
	LLCS 320-206282/2-A	91	99
	LLCSD 320-206282/3-A	93	97

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.02.05_537B_025.d
 Lab ID: LLCS 320-206282/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	38.4 J	96	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	18.8 J	94	50-150	
Perfluorononanoic acid (PFNA)	20.0	18.2 J	91	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	30.9	103	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	9.97 J	100	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	87.5 J	97	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.02.05_537B_026.d
 Lab ID: LLCSD 320-206282/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.0	38.0 J	95	1	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.0	19.9 J	99	6	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	17.4 J	87	4	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.6	105	2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	10.4	104	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	94.2	105	7	50	50-150	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
SDG No.: _____
Lab File ID: 2018.02.05_537B_024.d Lab Sample ID: MB 320-206282/1-A
Matrix: Water Date Extracted: 01/31/2018 07:27
Instrument ID: A8_N Date Analyzed: 02/06/2018 03:29
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-206282/2-A	2018.02.05_537B_025.d	02/06/2018 03:33
	LLCSD 320-206282/3-A	2018.02.05_537B_026.d	02/06/2018 03:38
NAWC-011718-RW-278	320-35150-1	2018.02.05_537B_027.d	02/06/2018 03:43
NAWC-011718-FRB-278	320-35150-2	2018.02.05_537B_028.d	02/06/2018 03:47
NAWC-011718-RW-235	320-35150-3	2018.02.05_537B_029.d	02/06/2018 03:52
NAWC-011718-FRB-235	320-35150-4	2018.02.05_537B_030.d	02/06/2018 03:57
NAWC-011718-RW-91	320-35150-5	2018.02.05_537B_031.d	02/06/2018 04:01
NAWC-011718-FRB-91	320-35150-6	2018.02.05_537B_032.d	02/06/2018 04:06
NAWC-011718-RW-228	320-35150-7	2018.02.05_537B_033.d	02/06/2018 04:11
NAWC-011718-FRB-228	320-35150-8	2018.02.05_537B_036.d	02/06/2018 04:25
NAWC-011718-RW-237	320-35150-9	2018.02.05_537B_037.d	02/06/2018 04:29
NAWC-011718-FRB-237	320-35150-10	2018.02.05_537B_038.d	02/06/2018 04:34
NAWC-011718-RW-244	320-35150-11	2018.02.05_537B_039.d	02/06/2018 04:39
NAWC-011718-FRB-244	320-35150-12	2018.02.05_537B_040.d	02/06/2018 04:43
NAWC-011718-DUP-21	320-35150-13	2018.02.05_537B_041.d	02/06/2018 04:48
NAWC-011718-RW-240	320-35150-14	2018.02.05_537B_042.d	02/06/2018 04:53
NAWC-011718-FRB-240	320-35150-15	2018.02.05_537B_043.d	02/06/2018 04:57
NAWC-011718-RW-249	320-35150-16	2018.02.05_537B_044.d	02/06/2018 05:02
NAWC-011718-FRB-249	320-35150-17	2018.02.05_537B_045.d	02/06/2018 05:07

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-206282/1-A
 Matrix: Water Lab File ID: 2018.02.05_537B_024.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/31/2018 07:27
 Sample wt/vol: 250 (mL) Date Analyzed: 02/06/2018 03:29
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207066 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	94		70-130
STL00996	13C2 PFDA	106		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192908/11		1586829	1.91	3305852	2.15		
ICV 320-192908/13		1512045	1.90	3433628	2.14		
CCV 320-207066/1 CCVIS		1260866	1.81	2846644	2.06		
MB 320-206282/1-A		1590401	1.81	3298203	2.06		
LLCS 320-206282/2-A		1673441	1.81	3462485	2.06		
LLCSD 320-206282/3-A		1695147	1.81	3462268	2.06		
320-35150-1	NAWC-011718-RW-278	1595642	1.81	3650305	2.06		
320-35150-2	NAWC-011718-FRB-278	1672340	1.81	3489833	2.06		
320-35150-3	NAWC-011718-RW-235	1753544	1.81	3611847	2.05		
320-35150-4	NAWC-011718-FRB-235	1567003	1.81	3601955	2.06		
320-35150-5	NAWC-011718-RW-91	1631984	1.81	3483217	2.06		
320-35150-6	NAWC-011718-FRB-91	1684554	1.81	3494467	2.06		
320-35150-7	NAWC-011718-RW-228	1608076	1.81	3499608	2.05		
CCV 320-207066/13 CCVIS		1333970	1.81	3011017	2.06		
CCV 320-207068/13 CCVIS		1333970	1.81	3011017	2.06		
320-35150-8	NAWC-011718-FRB-228	1639446	1.81	3457689	2.06		
320-35150-9	NAWC-011718-RW-237	1661892	1.80	3437859	2.05		
320-35150-10	NAWC-011718-FRB-237	1627067	1.80	3461102	2.05		
320-35150-11	NAWC-011718-RW-244	1805674	1.81	3652524	2.06		
320-35150-12	NAWC-011718-FRB-244	1700175	1.81	3588726	2.06		
320-35150-13	NAWC-011718-DUP-21	1746441	1.81	3473807	2.06		
320-35150-14	NAWC-011718-RW-240	1784061	1.80	3684979	2.05		
320-35150-15	NAWC-011718-FRB-240	1630433	1.81	3480691	2.06		
320-35150-16	NAWC-011718-RW-249	1680169	1.81	3580581	2.06		
320-35150-17	NAWC-011718-FRB-249	1593118	1.80	3519233	2.05		
CCV 320-207068/25 CCVIS		1366090	1.80	3041172	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207066/1 Date Analyzed: 02/06/2018 03:19
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_022 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS		AREA #		RT #
		AREA #	RT #	AREA #	RT #			
12/24 HOUR STD		1260866	1.81	2846644	2.06			
UPPER LIMIT		1765212	2.31	3985302	2.56			
LOWER LIMIT		882606	1.31	1992651	1.56			
LAB SAMPLE ID	CLIENT SAMPLE ID							
MB 320-206282/1-A		1590401	1.81	3298203	2.06			
LLCS 320-206282/2-A		1673441	1.81	3462485	2.06			
LLCSD 320-206282/3-A		1695147	1.81	3462268	2.06			
320-35150-1	NAWC-011718-RW-278	1595642	1.81	3650305	2.06			
320-35150-2	NAWC-011718-FRB-278	1672340	1.81	3489833	2.06			
320-35150-3	NAWC-011718-RW-235	1753544	1.81	3611847	2.05			
320-35150-4	NAWC-011718-FRB-235	1567003	1.81	3601955	2.06			
320-35150-5	NAWC-011718-RW-91	1631984	1.81	3483217	2.06			
320-35150-6	NAWC-011718-FRB-91	1684554	1.81	3494467	2.06			
320-35150-7	NAWC-011718-RW-228	1608076	1.81	3499608	2.05			

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207066/13 Date Analyzed: 02/06/2018 04:15
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1333970	1.81	3011017	2.06		
UPPER LIMIT		1867558	2.31	4215424	2.56		
LOWER LIMIT		933779	1.31	2107712	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-206282/1-A		1590401	1.81	3298203	2.06		
LLCS 320-206282/2-A		1673441	1.81	3462485	2.06		
LLCSD 320-206282/3-A		1695147	1.81	3462268	2.06		
320-35150-1	NAWC-011718-RW-278	1595642	1.81	3650305	2.06		
320-35150-2	NAWC-011718-FRB-278	1672340	1.81	3489833	2.06		
320-35150-3	NAWC-011718-RW-235	1753544	1.81	3611847	2.05		
320-35150-4	NAWC-011718-FRB-235	1567003	1.81	3601955	2.06		
320-35150-5	NAWC-011718-RW-91	1631984	1.81	3483217	2.06		
320-35150-6	NAWC-011718-FRB-91	1684554	1.81	3494467	2.06		
320-35150-7	NAWC-011718-RW-228	1608076	1.81	3499608	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207068/13 Date Analyzed: 02/06/2018 04:15
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1333970	1.81	3011017	2.06		
UPPER LIMIT	1867558	2.31	4215424	2.56		
LOWER LIMIT	933779	1.31	2107712	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35150-8	NAWC-011718-FRB-228	1639446	1.81	3457689	2.06	
320-35150-9	NAWC-011718-RW-237	1661892	1.80	3437859	2.05	
320-35150-10	NAWC-011718-FRB-237	1627067	1.80	3461102	2.05	
320-35150-11	NAWC-011718-RW-244	1805674	1.81	3652524	2.06	
320-35150-12	NAWC-011718-FRB-244	1700175	1.81	3588726	2.06	
320-35150-13	NAWC-011718-DUP-21	1746441	1.81	3473807	2.06	
320-35150-14	NAWC-011718-RW-240	1784061	1.80	3684979	2.05	
320-35150-15	NAWC-011718-FRB-240	1630433	1.81	3480691	2.06	
320-35150-16	NAWC-011718-RW-249	1680169	1.81	3580581	2.06	
320-35150-17	NAWC-011718-FRB-249	1593118	1.80	3519233	2.05	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Sample No.: CCV 320-207068/25 Date Analyzed: 02/06/2018 05:11
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.05_537B_046 Heated Purge: (Y/N) N
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1366090	1.80	3041172	2.05		
UPPER LIMIT		1912526	2.30	4257641	2.55		
LOWER LIMIT		956263	1.30	2128820	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-35150-8	NAWC-011718-FRB-228	1639446	1.81	3457689	2.06		
320-35150-9	NAWC-011718-RW-237	1661892	1.80	3437859	2.05		
320-35150-10	NAWC-011718-FRB-237	1627067	1.80	3461102	2.05		
320-35150-11	NAWC-011718-RW-244	1805674	1.81	3652524	2.06		
320-35150-12	NAWC-011718-FRB-244	1700175	1.81	3588726	2.06		
320-35150-13	NAWC-011718-DUP-21	1746441	1.81	3473807	2.06		
320-35150-14	NAWC-011718-RW-240	1784061	1.80	3684979	2.05		
320-35150-15	NAWC-011718-FRB-240	1630433	1.81	3480691	2.06		
320-35150-16	NAWC-011718-RW-249	1680169	1.81	3580581	2.06		
320-35150-17	NAWC-011718-FRB-249	1593118	1.80	3519233	2.05		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

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

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.0397 0.8468	1.0767	1.0898	0.9577	0.9303	QuaF		1.1193	-0.001498						0.9990		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9433 0.9848	0.9187	0.9551	0.9185	0.9011	Ave		0.9369				3.2		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.6459 1.6841	1.6355	1.7405	1.6631	1.6755	Ave		1.6741				2.2		30.0			
Perfluorooctanoic acid (PFOA)	0.9757 0.9799	0.8919	0.9000	0.8953	0.9117	Ave		0.9258				4.4		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8958 0.9902	0.9213	0.9281	0.9268	0.9715	Ave		0.9389				3.7		30.0			
Perfluorononanoic acid (PFNA)	0.6610 0.7042	0.6285	0.6624	0.6810	0.6478	Ave		0.6642				3.9		30.0			
13C2 PFHxA	1.0891 1.1664	1.0526	1.1042	1.1123	1.0772	Ave		1.1003				3.5		30.0			
13C2 PFDA	0.7748 0.8159	0.7295	0.7569	0.7811	0.7330	Ave		0.7652				4.3		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1076553 16699152	2591121	5461974	10142530	14011858	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	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)	13PF OA	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)	13PF OA	Ave	201053 4019666	453612	1020851	2106479	3023088	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1655691 1664260	1708988	1701491	1719911	1675220	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	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.: 320-35150-1 Analy Batch No.: 192908

SDG No.: _____

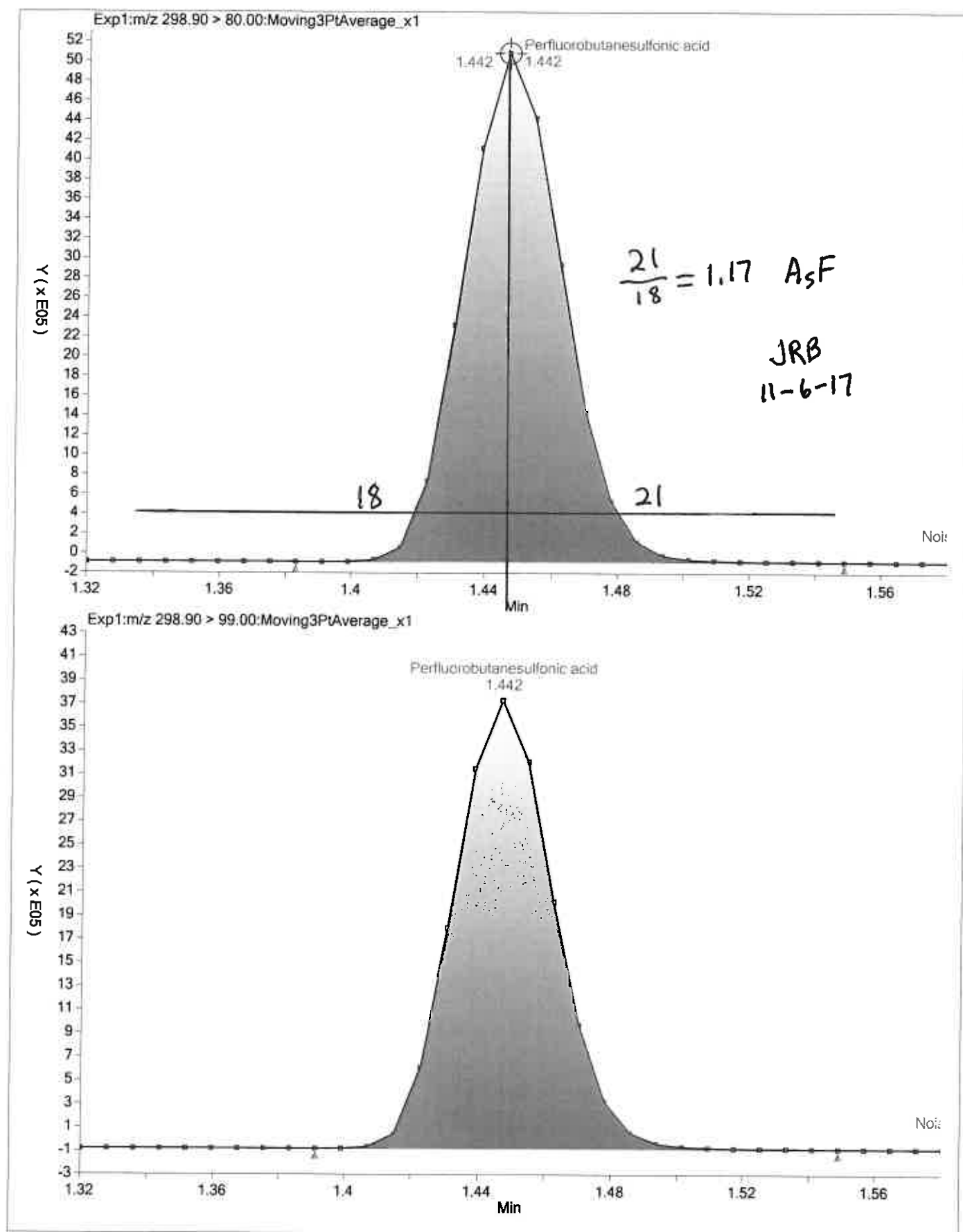
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

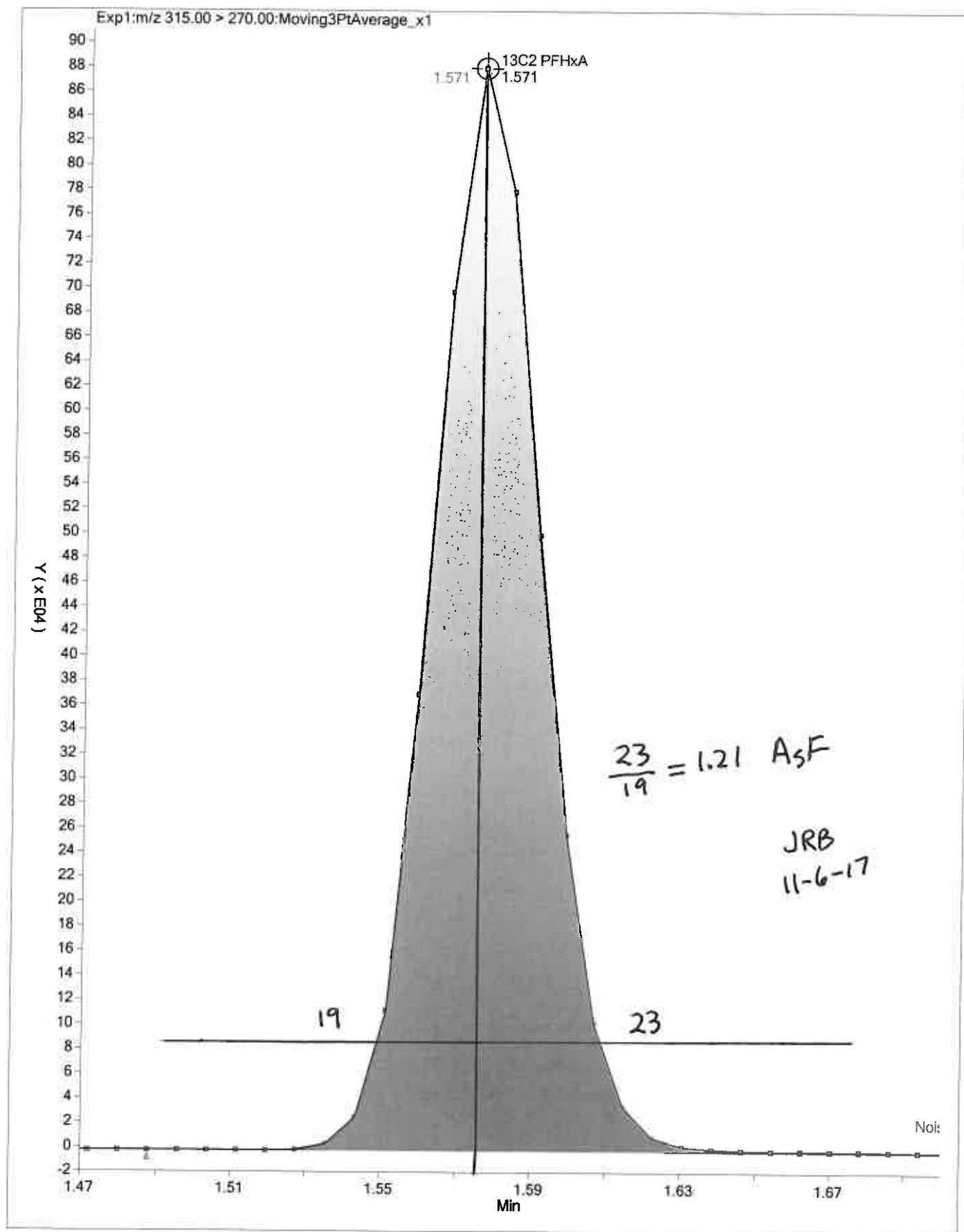
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30





FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-192908/11 Calibration Date: 11/03/2017 14:10
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.109		20.4	20.0	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9382		2.23	2.22	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		6.72	6.67	0.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8825		4.24	4.45	-4.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9176		8.69	8.89	-2.3	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6625		4.43	4.45	-0.2	50.0
13C2 PFHxA	Ave	1.100	1.068		9.70	10.0	-3.0	30.0
13C2 PFDA	Ave	0.7652	0.7460		9.75	10.0	-2.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: ICV 320-192908/13 Calibration Date: 11/03/2017 14:20
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8310		83.7	100	-16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8136		8.68	10.0	-13.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.463		17.5	20.1	-12.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.7995		17.7	20.5	-13.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8637		18.1	19.7	-8.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6428		19.5	20.1	-3.2	30.0
13C2 PFHxA	Ave	1.100	1.039		9.44	10.0	-5.6	30.0
13C2 PFDA	Ave	0.7652	0.7391		9.66	10.0	-3.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-206939/1 Calibration Date: 02/05/2018 11:37
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.125		20.7	20.0	3.4	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9558		2.27	2.22	2.0	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.721		6.86	6.67	2.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9430		4.55	4.47	1.9	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9838		9.35	8.93	4.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6702		4.49	4.45	0.9	50.0
13C2 PFHxA	Ave	1.100	0.9444		8.58	10.0	-14.2	30.0
13C2 PFDA	Ave	0.7652	0.7213		9.43	10.0	-5.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207066/1 Calibration Date: 02/06/2018 03:19
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.114		47.9	45.0	6.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.019		5.44	5.00	8.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.720		15.4	15.0	2.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9711		10.5	10.1	4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9690		20.7	20.1	3.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7024		10.6	10.0	5.8	30.0
13C2 PFHxA	Ave	1.100	1.140		10.4	10.0	3.6	30.0
13C2 PFDA	Ave	0.7652	0.7700		10.1	10.0	0.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207066/13 Calibration Date: 02/06/2018 04:15
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9402		139	135	3.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.039		16.6	15.0	10.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.694		45.5	45.0	1.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9764		31.8	30.2	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9811		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7213		32.6	30.0	8.6	30.0
13C2 PFHxA	Ave	1.100	1.130		10.3	10.0	2.7	30.0
13C2 PFDA	Ave	0.7652	0.7553		9.87	10.0	-1.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207068/13 Calibration Date: 02/06/2018 04:15
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9402		139	135	3.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.039		16.6	15.0	10.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.694		45.5	45.0	1.2	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9764		31.8	30.2	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9811		63.0	60.3	4.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7213		32.6	30.0	8.6	30.0
13C2 PFHxA	Ave	1.100	1.130		10.3	10.0	2.7	30.0
13C2 PFDA	Ave	0.7652	0.7553		9.87	10.0	-1.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207068/25 Calibration Date: 02/06/2018 05:11
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.05_537B_046.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.085		46.5	45.0	3.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.016		5.42	5.00	8.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.726		15.5	15.0	3.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9368		10.2	10.1	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9513		20.3	20.1	1.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6791		10.2	10.0	2.2	30.0
13C2 PFHxA	Ave	1.100	1.082		9.83	10.0	-1.7	30.0
13C2 PFDA	Ave	0.7652	0.7376		9.64	10.0	-3.6	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 11/03/2017 13:37Analysis 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.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/05/2018 11:37Analysis Batch Number: 206939 End Date: 02/05/2018 12:10

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-206939/1		02/05/2018 11:37	1	2018.02.05_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-206939/2 CCVIS		02/05/2018 11:42	1		GeminiC18 3x100 3(mm)
CCV 320-206939/8 CCVIS		02/05/2018 12:10	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1
 SDG No.: _____
 Instrument ID: A8_N Start Date: 02/06/2018 03:19
 Analysis Batch Number: 207066 End Date: 02/06/2018 04:15

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207066/1 CCVIS		02/06/2018 03:19	1	2018.02.05_537B 022.d	GeminiC18 3x100 3(mm)
MB 320-206282/1-A		02/06/2018 03:29	1	2018.02.05_537B 024.d	GeminiC18 3x100 3(mm)
LLCS 320-206282/2-A		02/06/2018 03:33	1	2018.02.05_537B 025.d	GeminiC18 3x100 3(mm)
LLCSD 320-206282/3-A		02/06/2018 03:38	1	2018.02.05_537B 026.d	GeminiC18 3x100 3(mm)
320-35150-1		02/06/2018 03:43	1	2018.02.05_537B 027.d	GeminiC18 3x100 3(mm)
320-35150-2		02/06/2018 03:47	1	2018.02.05_537B 028.d	GeminiC18 3x100 3(mm)
320-35150-3		02/06/2018 03:52	1	2018.02.05_537B 029.d	GeminiC18 3x100 3(mm)
320-35150-4		02/06/2018 03:57	1	2018.02.05_537B 030.d	GeminiC18 3x100 3(mm)
320-35150-5		02/06/2018 04:01	1	2018.02.05_537B 031.d	GeminiC18 3x100 3(mm)
320-35150-6		02/06/2018 04:06	1	2018.02.05_537B 032.d	GeminiC18 3x100 3(mm)
320-35150-7		02/06/2018 04:11	1	2018.02.05_537B 033.d	GeminiC18 3x100 3(mm)
CCV 320-207066/13 CCVIS		02/06/2018 04:15	1	2018.02.05_537B 034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/06/2018 04:15Analysis Batch Number: 207068 End Date: 02/06/2018 05:11

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207068/13 CCVIS		02/06/2018 04:15	1	2018.02.05_537B 034.d	GeminiC18 3x100 3(mm)
320-35150-8		02/06/2018 04:25	1	2018.02.05_537B 036.d	GeminiC18 3x100 3(mm)
320-35150-9		02/06/2018 04:29	1	2018.02.05_537B 037.d	GeminiC18 3x100 3(mm)
320-35150-10		02/06/2018 04:34	1	2018.02.05_537B 038.d	GeminiC18 3x100 3(mm)
320-35150-11		02/06/2018 04:39	1	2018.02.05_537B 039.d	GeminiC18 3x100 3(mm)
320-35150-12		02/06/2018 04:43	1	2018.02.05_537B 040.d	GeminiC18 3x100 3(mm)
320-35150-13		02/06/2018 04:48	1	2018.02.05_537B 041.d	GeminiC18 3x100 3(mm)
320-35150-14		02/06/2018 04:53	1	2018.02.05_537B 042.d	GeminiC18 3x100 3(mm)
320-35150-15		02/06/2018 04:57	1	2018.02.05_537B 043.d	GeminiC18 3x100 3(mm)
320-35150-16		02/06/2018 05:02	1	2018.02.05_537B 044.d	GeminiC18 3x100 3(mm)
320-35150-17		02/06/2018 05:07	1	2018.02.05_537B 045.d	GeminiC18 3x100 3(mm)
CCV 320-207068/25 CCVIS		02/06/2018 05:11	1	2018.02.05_537B 046.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35150-1

SDG No.: _____

Batch Number: 206282 Batch Start Date: 01/31/18 07:27 Batch Analyst: Kouchari, ShamiranBatch Method: 537 Batch End Date: 02/02/18 16:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00056
MB 320-206282/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-206282/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-206282/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-35150-A-1	NAWC-011718-RW-278	537, 537	T	283.94 g	28.90 g	255 mL	1.00 mL	7 SU	100 uL
320-35150-A-2	NAWC-011718-FRB-278	537, 537	T	279.29 g	27.24 g	252.1 mL	1.00 mL	7 SU	100 uL
320-35150-A-3	NAWC-011718-RW-235	537, 537	T	275.68 g	28.70 g	247 mL	1.00 mL	7 SU	100 uL
320-35150-A-4	NAWC-011718-FRB-235	537, 537	T	270.03 g	27.45 g	242.6 mL	1.00 mL	7 SU	100 uL
320-35150-A-5	NAWC-011718-RW-91	537, 537	T	272.94 g	28.77 g	244.2 mL	1.00 mL	9 SU	100 uL
320-35150-A-6	NAWC-011718-FRB-91	537, 537	T	281.90 g	27.55 g	254.4 mL	1.00 mL	7 SU	100 uL
320-35150-A-7	NAWC-011718-RW-228	537, 537	T	279.89 g	29.82 g	250.1 mL	1.00 mL	7 SU	100 uL
320-35150-A-8	NAWC-011718-FRB-228	537, 537	T	273.31 g	27.31 g	246 mL	1.00 mL	7 SU	100 uL
320-35150-A-9	NAWC-011718-RW-237	537, 537	T	278.94 g	29.32 g	249.6 mL	1.00 mL	7 SU	100 uL
320-35150-A-10	NAWC-011718-FRB-237	537, 537	T	278.50 g	27.46 g	251 mL	1.00 mL	7 SU	100 uL
320-35150-A-11	NAWC-011718-RW-244	537, 537	T	279.18 g	28.33 g	250.9 mL	1.00 mL	7 SU	100 uL
320-35150-A-12	NAWC-011718-FRB-244	537, 537	T	274.36 g	27.16 g	247.2 mL	1.00 mL	7 SU	100 uL
320-35150-A-13	NAWC-011718-DUP-21	537, 537	T	279.49 g	27.87 g	251.6 mL	1.00 mL	7 SU	100 uL
320-35150-A-14	NAWC-011718-RW-240	537, 537	T	283.42 g	28.21 g	255.2 mL	1.00 mL	7 SU	100 uL
320-35150-A-15	NAWC-011718-FRB-240	537, 537	T	279.70 g	27.44 g	252.3 mL	1.00 mL	7 SU	100 uL
320-35150-A-16	NAWC-011718-RW-249	537, 537	T	283.37 g	28.70 g	254.7 mL	1.00 mL	7 SU	100 uL
320-35150-A-17	NAWC-011718-FRB-249	537, 537	T	268.59 g	27.24 g	241.4 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00026	LC537-SU 00053	AnalysisComment		
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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.: 320-35150-1

SDG No.: _____

Batch Number: 206282 Batch Start Date: 01/31/18 07:27 Batch Analyst: Kouchari, ShamiranBatch Method: 537 Batch End Date: 02/02/18 16:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00026	LC537-SU 00053	AnalysisComment			
MB 320-206282/1		537, 537			100 uL	C1 ND			
LLCS 320-206282/2		537, 537		100 uL	100 uL	C1 ND			
LLCSD 320-206282/3		537, 537		100 uL	100 uL	C1 ND			
320-35150-A-1	NAWC-011718-RW-2 78	537, 537	T		100 uL	C1 ND			
320-35150-A-2	NAWC-011718-FRB- 278	537, 537	T		100 uL	C1 ND			
320-35150-A-3	NAWC-011718-RW-2 35	537, 537	T		100 uL	C1 ND			
320-35150-A-4	NAWC-011718-FRB- 235	537, 537	T		100 uL	C1 ND			
320-35150-A-5	NAWC-011718-RW-9 1	537, 537	T		100 uL	C1 ND			
320-35150-A-6	NAWC-011718-FRB- 91	537, 537	T		100 uL	C1 ND			
320-35150-A-7	NAWC-011718-RW-2 28	537, 537	T		100 uL	C1 ND			
320-35150-A-8	NAWC-011718-FRB- 228	537, 537	T		100 uL	C1 ND			
320-35150-A-9	NAWC-011718-RW-2 37	537, 537	T		100 uL	C1 ND			
320-35150-A-10	NAWC-011718-FRB- 237	537, 537	T		100 uL	C1 ND			
320-35150-A-11	NAWC-011718-RW-2 44	537, 537	T		100 uL	C1 ND			
320-35150-A-12	NAWC-011718-FRB- 244	537, 537	T		100 uL	C1 ND			
320-35150-A-13	NAWC-011718-DUP- 21	537, 537	T		100 uL	C1 ND			
320-35150-A-14	NAWC-011718-RW-2 40	537, 537	T		100 uL	C1 ND			
320-35150-A-15	NAWC-011718-FRB- 240	537, 537	T		100 uL	C1 ND			
320-35150-A-16	NAWC-011718-RW-2 49	537, 537	T		100 uL	C1 ND			
320-35150-A-17	NAWC-011718-FRB- 249	537, 537	T		100 uL	C1 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.: 320-35150-1

SDG No.: _____

Batch Number: 206282 Batch Start Date: 01/31/18 07:27 Batch Analyst: Kouchari, ShamiranBatch Method: 537 Batch End Date: 02/02/18 16:40

Batch Notes	
Analyst ID - Aliquot Step	VPM
Batch Comment	Client labels match TA label, 01/31/18 SKD
Analyst ID - Concentration	CCB
Analyst ID - Final Volume Step	CCB
Internal Standard ID#	1099356
Manifold ID	1,15
Methanol ID	6369499
pH Indicator ID	3817
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	TWL
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	JNS
SPE Cartridge ID	6369499-04
Trizma ID	SLBR4303V
Reagent Water ID	1-30-18

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End: 2/2/2018 4:40:00PM

Extraction of Perfluorinated Alkyl Acids

Due: 2/8

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-206282/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
2 LLCS-320-206282/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
3 LLCSD-320-206282/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
320-35150-A-1 (537_DOD5)	N/A (320-35150-1)	283.94 g	255 mL	7			1/22/18	16_Days	4	CI ND	
		28.90 g	1.00 mL								
320-35150-A-2 (537_DOD5)	N/A (320-35150-1)	279.29 g	252.1 mL	7			1/22/18	16_Days	4	CI ND	
		27.24 g	1.00 mL								
320-35150-A-3 (537_DOD5)	N/A (320-35150-1)	275.68 g	247 mL	7			1/22/18	16_Days	4	CI ND	
		28.70 g	1.00 mL								
320-35150-A-4 (537_DOD5)	N/A (320-35150-1)	270.03 g	242.6 mL	7			1/22/18	16_Days	4	CI ND	
		27.45 g	1.00 mL								
320-35150-A-5 (537_DOD5)	N/A (320-35150-1)	272.94 g	244.2 mL	9			1/22/18	16_Days	4	CI ND	
		28.77 g	1.00 mL								
320-35150-A-6 (537_DOD5)	N/A (320-35150-1)	281.90 g	254.4 mL	7			1/22/18	16_Days	4	CI ND	
		27.55 g	1.00 mL								
320-35150-A-7 (537_DOD5)	N/A (320-35150-1)	279.89 g	250.1 mL	7			1/22/18	16_Days	4	CI ND	
		29.82 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End: 2/2/2018 4:40:00PM

11	320-35150-A-8 (537_DOD5)	N/A (320-35150-1)	273.31 g	246 mL	7			1/22/18	16_Days	4	CI ND	
			27.31 g	1.00 mL								
12	320-35150-A-9 (537_DOD5)	N/A (320-35150-1)	278.94 g	249.6 mL	7			1/22/18	16_Days	4	CI ND	
			29.32 g	1.00 mL								
13	320-35150-A-10 (537_DOD5)	N/A (320-35150-1)	278.50 g	251 mL	7			1/22/18	16_Days	4	CI ND	
			27.46 g	1.00 mL								
14	320-35150-A-11 (537_DOD5)	N/A (320-35150-1)	279.18 g	250.9 mL	7			1/22/18	16_Days	4	CI ND	
			28.33 g	1.00 mL								
15	320-35150-A-12 (537_DOD5)	N/A (320-35150-1)	274.36 g	247.2 mL	7			1/22/18	16_Days	4	CI ND	
			27.16 g	1.00 mL								
16	320-35150-A-13 (537_DOD5)	N/A (320-35150-1)	279.49 g	251.6 mL	7			1/22/18	16_Days	4	CI ND	
			27.87 g	1.00 mL								
17	320-35150-A-14 (537_DOD5)	N/A (320-35150-1)	283.42 g	255.2 mL	7			1/22/18	16_Days	4	CI ND	
			28.21 g	1.00 mL								
18	320-35150-A-15 (537_DOD5)	N/A (320-35150-1)	279.70 g	252.3 mL	7			1/22/18	16_Days	4	CI ND	
			27.44 g	1.00 mL								
19	320-35150-A-16 (537_DOD5)	N/A (320-35150-1)	283.37 g	254.7 mL	7			1/22/18	16_Days	4	CI ND	
			28.70 g	1.00 mL								
20	320-35150-A-17 (537_DOD5)	N/A (320-35150-1)	268.59 g	241.4 mL	7			1/22/18	16_Days	4	CI ND	
			27.24 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-206282

Analyst: Kouchari, Shamiran

Batch Open: 1/31/2018 7:27:00AM

Method Code: 320-537_Prep-320

Batch End: 2/2/2018 4:40:00PM

Batch Notes

Manifold ID 1,15

pH Indicator ID 3817

Trizma ID SLBR4303V

SPE Cartridge ID 6369499-04

Methanol ID 6369499

Reagent Water ID 1-30-18

Internal Standard ID# 1099356

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop JNS

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop JNS

Witness

Analyst ID - IS Reagent Drop JER

Analyst ID - IS Reagent Drop TWL

Witness

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step VPM

Analyst ID - Final Volume Step CCB

Batch Comment Client labels match TA label, 01/31/18 SKD

Page 344 of 350

PFAS Calibration Calculations:

Initial Calibration 11/3/2017
Instrument A8_N

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
4	412315	3298877	28.7	0.89678	0.8958
8.89	985487	3450592	28.7	0.92201	0.9213
20	2067792	3194016	28.7	0.92901	0.9281
40	4363079	3374600	28.7	0.92767	0.9268
60	6504279	3199479	28.7	0.97241	0.9715
80	8679676	3141787	28.7	0.99110	0.9902
Average				0.93983	0.9389
Standard Deviation				0.0350	
RSD				0.0372	
%RSD				3.72448	3.7

Continuing Calibration 02/06/2018 @ 05:11

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
20	2026038	3041172	28.7	0.9560	1.3206944	0.9513	1.3

Willow Grove
SDG 320-35150-1

Sample Identification

NAWC-011718-RW-278

Compound

PFOS

Compound Area

610493

Internal Standard Amount (ng)

28.7

Dilution Factor

1

Internal Standard Area

3650305

Average RRF

0.9389

Sample Volume(L)

0.255

Volume Extract (ml)

1

Injection Volume (μl)

1

Concentration

20.0481 ng/L

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