



**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 320-29300-1**

*Naval Air Station Willow Grove
Willow Grove, Pennsylvania*

August 2019

N00158_000725
WILLOW_GROVE_NAS
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-29300-1, NAWC WARMINSTER NAS
WILLOW GROVE PA**

07/13/2017
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-29300-1

Job Description: Warminster: PFAS, NAS JRB Willow Grove

For:
Tetra Tech, Inc.
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King of Prussia, PA 19406
Attention: Andy Frebowitz



Approved for release.
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7/13/2017 4:22 PM

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Definitions/Glossary

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

TestAmerica Job ID: 320-29300-1

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
320-29300-1

Receipt

The samples were received on 6/21/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

Receipt Exceptions

No analysis or hold is indicated for samples WGNA-061917-RW-0143, WGNA-061917-FRB-0143, or WGNA-061917-RW-3118B. Samples were logged in for PFAS analysis.

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 320-171866.

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: 320-29300-1

Client Sample ID: WGNA-061917-RW-3493

Lab Sample ID: 320-29300-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	30	J	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	22	M	20	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16	J	29	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.8	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3493

Lab Sample ID: 320-29300-2

No Detections.

Client Sample ID: WGNA-061917-RW-3283

Lab Sample ID: 320-29300-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	20	M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.9	J	29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.3	J	9.7	1.8	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	23	J	87	16	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3283

Lab Sample ID: 320-29300-4

No Detections.

Client Sample ID: WGNA-061917-RW-0386

Lab Sample ID: 320-29300-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	31	J M	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21	M	20	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	21	J	29	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1	J	9.8	1.9	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	18	J	88	16	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-0386

Lab Sample ID: 320-29300-6

No Detections.

Client Sample ID: WGNA-061917-RW-3460

Lab Sample ID: 320-29300-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	3.6	J M	20	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.0	J M	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3460

Lab Sample ID: 320-29300-8

No Detections.

Client Sample ID: WGNA-061917-RW-3118A

Lab Sample ID: 320-29300-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	28	J	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21	M	20	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.0	J	29	5.4	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: 320-29300-1

Client Sample ID: WGNA-061917-RW-3118A (Continued)

Lab Sample ID: 320-29300-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	6.5	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3118A

Lab Sample ID: 320-29300-10

No Detections.

Client Sample ID: WGNA-061917-RW-3556

Lab Sample ID: 320-29300-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	17	J	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	14	J M	19	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8	J	9.7	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3556

Lab Sample ID: 320-29300-12

No Detections.

Client Sample ID: WGNA-061917-RW-0335

Lab Sample ID: 320-29300-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	28	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.1	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-0335

Lab Sample ID: 320-29300-14

No Detections.

Client Sample ID: WGNA-061917-RW-3882

Lab Sample ID: 320-29300-15

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	28	J	38	6.4	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	8.9	J M	19	2.6	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	10	J	28	5.2	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.7	J	9.4	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3882

Lab Sample ID: 320-29300-16

No Detections.

Client Sample ID: WGNA-061917-RW-3382

Lab Sample ID: 320-29300-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	14	J M	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.1	J	29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.7	J M	9.7	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-3382

Lab Sample ID: 320-29300-18

No Detections.

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: 320-29300-1

Client Sample ID: WGNA-061917-DUP01

Lab Sample ID: 320-29300-19

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	48	M	38	6.5	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	24	M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	41		29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.9	J	9.6	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-RW-0143

Lab Sample ID: 320-29300-20

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	48		38	6.5	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25	M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	44		29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.2	J	9.6	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-061917-FRB-0143

Lab Sample ID: 320-29300-21

No Detections.

Client Sample ID: WGNA-061917-RW-3118B

Lab Sample ID: 320-29300-22

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	28	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	23	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.9	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.7	J	9.9	1.9	ng/L	1		537	Total/NA

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: 320-29300-1

Client Sample ID: WGNA-061917-RW-3493

Date Collected: 06/19/17 08:40

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	30	J	39	6.6	ng/L	—	06/30/17 09:25	07/08/17 14:40	1
Perfluorooctanoic acid (PFOA)	22	M	20	2.7	ng/L		06/30/17 09:25	07/08/17 14:40	1
Perfluorononanoic acid (PFNA)	20	U M	23	7.8	ng/L		06/30/17 09:25	07/08/17 14:40	1
Perfluorohexanesulfonic acid (PFHxS)	16	J	29	5.4	ng/L		06/30/17 09:25	07/08/17 14:40	1
Perfluoroheptanoic acid (PFHpA)	6.8	J	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 14:40	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		06/30/17 09:25	07/08/17 14:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		70 - 130				06/30/17 09:25	07/08/17 14:40	1
13C2 PFDA	91		70 - 130				06/30/17 09:25	07/08/17 14:40	1

Client Sample ID: WGNA-061917-FRB-3493

Date Collected: 06/19/17 08:35

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-2

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	39	6.7	ng/L	—	06/30/17 09:25	07/08/17 14:45	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		06/30/17 09:25	07/08/17 14:45	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		06/30/17 09:25	07/08/17 14:45	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		06/30/17 09:25	07/08/17 14:45	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	1.9	ng/L		06/30/17 09:25	07/08/17 14:45	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		06/30/17 09:25	07/08/17 14:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130				06/30/17 09:25	07/08/17 14:45	1
13C2 PFDA	90		70 - 130				06/30/17 09:25	07/08/17 14:45	1

Client Sample ID: WGNA-061917-RW-3283

Date Collected: 06/19/17 09:15

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-3

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	39	6.6	ng/L	—	06/30/17 09:25	07/08/17 14:50	1
Perfluorooctanoic acid (PFOA)	20	M	19	2.7	ng/L		06/30/17 09:25	07/08/17 14:50	1
Perfluorononanoic acid (PFNA)	19	U M	23	7.8	ng/L		06/30/17 09:25	07/08/17 14:50	1
Perfluorohexanesulfonic acid (PFHxS)	7.9	J	29	5.3	ng/L		06/30/17 09:25	07/08/17 14:50	1
Perfluoroheptanoic acid (PFHpA)	6.3	J	9.7	1.8	ng/L		06/30/17 09:25	07/08/17 14:50	1
Perfluorobutanesulfonic acid (PFBS)	23	J	87	16	ng/L		06/30/17 09:25	07/08/17 14:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130				06/30/17 09:25	07/08/17 14:50	1
13C2 PFDA	93		70 - 130				06/30/17 09:25	07/08/17 14:50	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-FRB-3283

Lab Sample ID: 320-29300-4

Date Collected: 06/19/17 09:10

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		06/30/17 09:25	07/08/17 14:54	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		06/30/17 09:25	07/08/17 14:54	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		06/30/17 09:25	07/08/17 14:54	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		06/30/17 09:25	07/08/17 14:54	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 14:54	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		06/30/17 09:25	07/08/17 14:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130	06/30/17 09:25	07/08/17 14:54	1
13C2 PFDA	95		70 - 130	06/30/17 09:25	07/08/17 14:54	1

Client Sample ID: WGNA-061917-RW-0386

Lab Sample ID: 320-29300-5

Date Collected: 06/19/17 09:55

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	31	J M	39	6.6	ng/L		06/30/17 09:25	07/08/17 14:59	1
Perfluorooctanoic acid (PFOA)	21	M	20	2.7	ng/L		06/30/17 09:25	07/08/17 14:59	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		06/30/17 09:25	07/08/17 14:59	1
Perfluorohexanesulfonic acid (PFHxS)	21	J	29	5.4	ng/L		06/30/17 09:25	07/08/17 14:59	1
Perfluoroheptanoic acid (PFHpA)	4.1	J	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 14:59	1
Perfluorobutanesulfonic acid (PFBS)	18	J	88	16	ng/L		06/30/17 09:25	07/08/17 14:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130	06/30/17 09:25	07/08/17 14:59	1
13C2 PFDA	92		70 - 130	06/30/17 09:25	07/08/17 14:59	1

Client Sample ID: WGNA-061917-FRB-0386

Lab Sample ID: 320-29300-6

Date Collected: 06/19/17 09:50

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.7	ng/L		06/30/17 09:25	07/08/17 15:04	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.7	ng/L		06/30/17 09:25	07/08/17 15:04	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		06/30/17 09:25	07/08/17 15:04	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		06/30/17 09:25	07/08/17 15:04	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 15:04	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		06/30/17 09:25	07/08/17 15:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130	06/30/17 09:25	07/08/17 15:04	1
13C2 PFDA	93		70 - 130	06/30/17 09:25	07/08/17 15:04	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-RW-3460

Date Collected: 06/19/17 11:30

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-7

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 M	39	6.7	ng/L		06/30/17 09:25	07/08/17 15:18	1
Perfluorooctanoic acid (PFOA)	3.6	J M	20	2.7	ng/L		06/30/17 09:25	07/08/17 15:18	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		06/30/17 09:25	07/08/17 15:18	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	29	5.4	ng/L		06/30/17 09:25	07/08/17 15:18	1
Perfluoroheptanoic acid (PFHpA)	2.0	J M	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 15:18	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		06/30/17 09:25	07/08/17 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130	06/30/17 09:25	07/08/17 15:18	1
13C2 PFDA	92		70 - 130	06/30/17 09:25	07/08/17 15:18	1

Client Sample ID: WGNA-061917-FRB-3460

Date Collected: 06/19/17 11:25

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-8

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	6.8	ng/L		06/30/17 09:25	07/08/17 15:32	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		06/30/17 09:25	07/08/17 15:32	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		06/30/17 09:25	07/08/17 15:32	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		06/30/17 09:25	07/08/17 15:32	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		06/30/17 09:25	07/08/17 15:32	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		06/30/17 09:25	07/08/17 15:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	06/30/17 09:25	07/08/17 15:32	1
13C2 PFDA	92		70 - 130	06/30/17 09:25	07/08/17 15:32	1

Client Sample ID: WGNA-061917-RW-3118A

Date Collected: 06/19/17 13:30

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-9

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	28	J	39	6.6	ng/L		06/30/17 09:25	07/08/17 15:37	1
Perfluorooctanoic acid (PFOA)	21	M	20	2.7	ng/L		06/30/17 09:25	07/08/17 15:37	1
Perfluorononanoic acid (PFNA)	20	U M	23	7.8	ng/L		06/30/17 09:25	07/08/17 15:37	1
Perfluorohexanesulfonic acid (PFHxS)	6.0	J	29	5.4	ng/L		06/30/17 09:25	07/08/17 15:37	1
Perfluoroheptanoic acid (PFHpA)	6.5	J	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 15:37	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		06/30/17 09:25	07/08/17 15:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130	06/30/17 09:25	07/08/17 15:37	1
13C2 PFDA	96		70 - 130	06/30/17 09:25	07/08/17 15:37	1

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-FRB-3118A

Lab Sample ID: 320-29300-10

Date Collected: 06/19/17 13:20

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L	—	06/30/17 09:25	07/08/17 15:42	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L	—	06/30/17 09:25	07/08/17 15:42	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L	—	06/30/17 09:25	07/08/17 15:42	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L	—	06/30/17 09:25	07/08/17 15:42	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L	—	06/30/17 09:25	07/08/17 15:42	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L	—	06/30/17 09:25	07/08/17 15:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	06/30/17 09:25	07/08/17 15:42	1
13C2 PFDA	93		70 - 130	06/30/17 09:25	07/08/17 15:42	1

Client Sample ID: WGNA-061917-RW-3556

Lab Sample ID: 320-29300-11

Date Collected: 06/19/17 13:55

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	17	J	39	6.6	ng/L	—	06/30/17 09:25	07/08/17 15:47	1
Perfluorooctanoic acid (PFOA)	14	J M	19	2.7	ng/L	—	06/30/17 09:25	07/08/17 15:47	1
Perfluorononanoic acid (PFNA)	19	U	23	7.8	ng/L	—	06/30/17 09:25	07/08/17 15:47	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L	—	06/30/17 09:25	07/08/17 15:47	1
Perfluoroheptanoic acid (PFHpA)	3.8	J	9.7	1.8	ng/L	—	06/30/17 09:25	07/08/17 15:47	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L	—	06/30/17 09:25	07/08/17 15:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		70 - 130	06/30/17 09:25	07/08/17 15:47	1
13C2 PFDA	96		70 - 130	06/30/17 09:25	07/08/17 15:47	1

Client Sample ID: WGNA-061917-FRB-3556

Lab Sample ID: 320-29300-12

Date Collected: 06/19/17 15:50

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L	—	06/30/17 09:25	07/08/17 15:51	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L	—	06/30/17 09:25	07/08/17 15:51	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L	—	06/30/17 09:25	07/08/17 15:51	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L	—	06/30/17 09:25	07/08/17 15:51	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L	—	06/30/17 09:25	07/08/17 15:51	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	15	ng/L	—	06/30/17 09:25	07/08/17 15:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130	06/30/17 09:25	07/08/17 15:51	1
13C2 PFDA	91		70 - 130	06/30/17 09:25	07/08/17 15:51	1

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-RW-0335

Lab Sample ID: 320-29300-13

Date Collected: 06/19/17 14:45

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	22	J	40	6.8	ng/L		06/30/17 09:25	07/08/17 15:56	1
Perfluorooctanoic acid (PFOA)	28	M	20	2.8	ng/L		06/30/17 09:25	07/08/17 15:56	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		06/30/17 09:25	07/08/17 15:56	1
Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	5.5	ng/L		06/30/17 09:25	07/08/17 15:56	1
Perfluoroheptanoic acid (PFHpA)	7.1	J	9.9	1.9	ng/L		06/30/17 09:25	07/08/17 15:56	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		06/30/17 09:25	07/08/17 15:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	06/30/17 09:25	07/08/17 15:56	1
13C2 PFDA	98		70 - 130	06/30/17 09:25	07/08/17 15:56	1

Client Sample ID: WGNA-061917-FRB-0335

Lab Sample ID: 320-29300-14

Date Collected: 06/19/17 14:40

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		06/30/17 09:25	07/08/17 16:01	1
Perfluorooctanoic acid (PFOA)	7.8	U	19	2.7	ng/L		06/30/17 09:25	07/08/17 16:01	1
Perfluorononanoic acid (PFNA)	19	U	23	7.8	ng/L		06/30/17 09:25	07/08/17 16:01	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		06/30/17 09:25	07/08/17 16:01	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		06/30/17 09:25	07/08/17 16:01	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		06/30/17 09:25	07/08/17 16:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130	06/30/17 09:25	07/08/17 16:01	1
13C2 PFDA	92		70 - 130	06/30/17 09:25	07/08/17 16:01	1

Client Sample ID: WGNA-061917-RW-3882

Lab Sample ID: 320-29300-15

Date Collected: 06/19/17 15:30

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	28	J	38	6.4	ng/L		06/30/17 09:25	07/08/17 16:15	1
Perfluorooctanoic acid (PFOA)	8.9	J M	19	2.6	ng/L		06/30/17 09:25	07/08/17 16:15	1
Perfluorononanoic acid (PFNA)	19	U	23	7.5	ng/L		06/30/17 09:25	07/08/17 16:15	1
Perfluorohexanesulfonic acid (PFHxS)	10	J	28	5.2	ng/L		06/30/17 09:25	07/08/17 16:15	1
Perfluoroheptanoic acid (PFHpA)	3.7	J	9.4	1.8	ng/L		06/30/17 09:25	07/08/17 16:15	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L		06/30/17 09:25	07/08/17 16:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130	06/30/17 09:25	07/08/17 16:15	1
13C2 PFDA	96		70 - 130	06/30/17 09:25	07/08/17 16:15	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-FRB-3882

Lab Sample ID: 320-29300-16

Date Collected: 06/19/17 15:25

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		06/30/17 09:25	07/08/17 16:20	1
Perfluorooctanoic acid (PFOA)	7.8	U	19	2.7	ng/L		06/30/17 09:25	07/08/17 16:20	1
Perfluorononanoic acid (PFNA)	19	U	23	7.8	ng/L		06/30/17 09:25	07/08/17 16:20	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		06/30/17 09:25	07/08/17 16:20	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		06/30/17 09:25	07/08/17 16:20	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		06/30/17 09:25	07/08/17 16:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130	06/30/17 09:25	07/08/17 16:20	1
13C2 PFDA	97		70 - 130	06/30/17 09:25	07/08/17 16:20	1

Client Sample ID: WGNA-061917-RW-3382

Lab Sample ID: 320-29300-17

Date Collected: 06/19/17 16:00

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	14	J M	39	6.6	ng/L		06/30/17 09:25	07/08/17 16:25	1
Perfluorooctanoic acid (PFOA)	17	J M	19	2.7	ng/L		06/30/17 09:25	07/08/17 16:25	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		06/30/17 09:25	07/08/17 16:25	1
Perfluorohexanesulfonic acid (PFHxS)	6.1	J	29	5.3	ng/L		06/30/17 09:25	07/08/17 16:25	1
Perfluoroheptanoic acid (PFHpA)	5.7	J M	9.7	1.8	ng/L		06/30/17 09:25	07/08/17 16:25	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		06/30/17 09:25	07/08/17 16:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130	06/30/17 09:25	07/08/17 16:25	1
13C2 PFDA	99		70 - 130	06/30/17 09:25	07/08/17 16:25	1

Client Sample ID: WGNA-061917-FRB-3382

Lab Sample ID: 320-29300-18

Date Collected: 06/19/17 14:55

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.7	ng/L		06/30/17 09:25	07/08/17 16:29	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		06/30/17 09:25	07/08/17 16:29	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		06/30/17 09:25	07/08/17 16:29	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		06/30/17 09:25	07/08/17 16:29	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		06/30/17 09:25	07/08/17 16:29	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		06/30/17 09:25	07/08/17 16:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	06/30/17 09:25	07/08/17 16:29	1
13C2 PFDA	90		70 - 130	06/30/17 09:25	07/08/17 16:29	1

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-DUP01

Lab Sample ID: 320-29300-19

Date Collected: 06/19/17 07:00

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	48	M	38	6.5	ng/L		06/30/17 09:25	07/08/17 16:34	1
Perfluorooctanoic acid (PFOA)	24	M	19	2.7	ng/L		06/30/17 09:25	07/08/17 16:34	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		06/30/17 09:25	07/08/17 16:34	1
Perfluorohexanesulfonic acid (PFHxS)	41		29	5.3	ng/L		06/30/17 09:25	07/08/17 16:34	1
Perfluoroheptanoic acid (PFHpA)	4.9	J	9.6	1.8	ng/L		06/30/17 09:25	07/08/17 16:34	1
Perfluorobutanesulfonic acid (PFBS)	35	U	86	15	ng/L		06/30/17 09:25	07/08/17 16:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130				06/30/17 09:25	07/08/17 16:34	1
13C2 PFDA	98		70 - 130				06/30/17 09:25	07/08/17 16:34	1

Client Sample ID: WGNA-061917-RW-0143

Lab Sample ID: 320-29300-20

Date Collected: 06/19/17 10:25

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	48		38	6.5	ng/L		06/30/17 09:25	07/08/17 16:39	1
Perfluorooctanoic acid (PFOA)	25	M	19	2.7	ng/L		06/30/17 09:25	07/08/17 16:39	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		06/30/17 09:25	07/08/17 16:39	1
Perfluorohexanesulfonic acid (PFHxS)	44		29	5.3	ng/L		06/30/17 09:25	07/08/17 16:39	1
Perfluoroheptanoic acid (PFHpA)	5.2	J	9.6	1.8	ng/L		06/30/17 09:25	07/08/17 16:39	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	15	ng/L		06/30/17 09:25	07/08/17 16:39	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130				06/30/17 09:25	07/08/17 16:39	1
13C2 PFDA	91		70 - 130				06/30/17 09:25	07/08/17 16:39	1

Client Sample ID: WGNA-061917-FRB-0143

Lab Sample ID: 320-29300-21

Date Collected: 06/19/17 10:30

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		06/30/17 09:34	07/08/17 14:12	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		06/30/17 09:34	07/08/17 14:12	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		06/30/17 09:34	07/08/17 14:12	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		06/30/17 09:34	07/08/17 14:12	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L		06/30/17 09:34	07/08/17 14:12	1
Perfluorobutanesulfonic acid (PFBS)	35	U	86	15	ng/L		06/30/17 09:34	07/08/17 14:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130				06/30/17 09:34	07/08/17 14:12	1
13C2 PFDA	94		70 - 130				06/30/17 09:34	07/08/17 14:12	1

Client Sample Results

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-RW-3118B

Lab Sample ID: 320-29300-22

Date Collected: 06/19/17 13:30

Matrix: Water

Date Received: 06/21/17 09:10

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	28	J	40	6.8	ng/L		06/30/17 09:34	07/08/17 14:16	1
Perfluorooctanoic acid (PFOA)	23	M	20	2.8	ng/L		06/30/17 09:34	07/08/17 14:16	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		06/30/17 09:34	07/08/17 14:16	1
Perfluorohexanesulfonic acid (PFHxS)	5.9	J	30	5.5	ng/L		06/30/17 09:34	07/08/17 14:16	1
Perfluoroheptanoic acid (PFHpA)	6.7	J	9.9	1.9	ng/L		06/30/17 09:34	07/08/17 14:16	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		06/30/17 09:34	07/08/17 14:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	06/30/17 09:34	07/08/17 14:16	1
13C2 PFDA	99		70 - 130	06/30/17 09:34	07/08/17 14:16	1

Default Detection Limits

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-29300-1

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: 320-29300-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		3C2 PFHx (70-130)	3C2 PFD/ (70-130)
320-29300-1	WGNA-061917-RW-3493	90	91
320-29300-2	WGNA-061917-FRB-3493	97	90
320-29300-3	WGNA-061917-RW-3283	89	93
320-29300-4	WGNA-061917-FRB-3283	104	95
320-29300-5	WGNA-061917-RW-0386	87	92
320-29300-6	WGNA-061917-FRB-0386	98	93
320-29300-7	WGNA-061917-RW-3460	86	92
320-29300-7 LMS	WGNA-061917-RW-3460	79	89
320-29300-7 LMSD	WGNA-061917-RW-3460	83	95
320-29300-8	WGNA-061917-FRB-3460	99	92
320-29300-9	WGNA-061917-RW-3118A	91	96
320-29300-10	WGNA-061917-FRB-3118A	99	93
320-29300-11	WGNA-061917-RW-3556	84	96
320-29300-12	WGNA-061917-FRB-3556	98	91
320-29300-13	WGNA-061917-RW-0335	93	98
320-29300-14	WGNA-061917-FRB-0335	102	92
320-29300-15	WGNA-061917-RW-3882	89	96
320-29300-16	WGNA-061917-FRB-3882	110	97
320-29300-17	WGNA-061917-RW-3382	98	99
320-29300-18	WGNA-061917-FRB-3382	99	90
320-29300-19	WGNA-061917-DUP01	98	98
320-29300-20	WGNA-061917-RW-0143	92	91
320-29300-21	WGNA-061917-FRB-0143	99	94
320-29300-22	WGNA-061917-RW-3118B	93	99
LCS 320-171856/2-A	Lab Control Sample	102	97
LLCS 320-171866/2-A	Lab Control Sample	104	95
LLCSD 320-171866/3-A	Lab Control Sample Dup	97	94
MB 320-171856/1-A	Method Blank	96	91
MB 320-171866/1-A	Method Blank	95	92

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C2 PFDA = 13C2 PFDA

QC Sample Results

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

TestAmerica Job ID: 320-29300-1

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

Lab Sample ID: MB 320-171856/1-A

Matrix: Water

Analysis Batch: 173118

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 171856

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		06/30/17 09:25	07/08/17 14:31	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		06/30/17 09:25	07/08/17 14:31	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		06/30/17 09:25	07/08/17 14:31	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		06/30/17 09:25	07/08/17 14:31	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		06/30/17 09:25	07/08/17 14:31	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		06/30/17 09:25	07/08/17 14:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	06/30/17 09:25	07/08/17 14:31	1
13C2 PFDA	91		70 - 130	06/30/17 09:25	07/08/17 14:31	1

Lab Sample ID: LCS 320-171856/2-A

Matrix: Water

Analysis Batch: 173118

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 171856

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	300	292		ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	150	147		ng/L		98	70 - 130
Perfluorononanoic acid (PFNA)	144	134		ng/L		93	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	225	202		ng/L		90	70 - 130
Perfluoroheptanoic acid (PFHpA)	74.3	78.2		ng/L		105	70 - 130
Perfluorobutanesulfonic acid (PFBS)	663	570		ng/L		86	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	102		70 - 130
13C2 PFDA	97		70 - 130

Lab Sample ID: 320-29300-7 LMS

Matrix: Water

Analysis Batch: 173119

Client Sample ID: WGNA-061917-RW-3460

Prep Type: Total/NA

Prep Batch: 171856

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	16	U M	38.9	41.7	M	ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	3.6	J M	19.4	23.6	M	ng/L		103	50 - 150
Perfluorononanoic acid (PFNA)	20	U	18.7	18.7	J	ng/L		100	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	12	U M	29.2	30.7		ng/L		105	50 - 150
Perfluoroheptanoic acid (PFHpA)	2.0	J M	9.62	12.5		ng/L		109	50 - 150
Perfluorobutanesulfonic acid (PFBS)	35	U	85.8	97.5		ng/L		114	50 - 150

Surrogate	LMS %Recovery	LMS Qualifier	Limits
13C2 PFHxA	79		70 - 130
13C2 PFDA	89		70 - 130

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-29300-1

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

Lab Sample ID: 320-29300-7 LMSD

Matrix: Water

Analysis Batch: 173119

Client Sample ID: WGNA-061917-RW-3460

Prep Type: Total/NA

Prep Batch: 171856

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	16	U M	39.7	41.4		ng/L		104	50 - 150	1	50
Perfluorooctanoic acid (PFOA)	3.6	J M	19.8	28.4	M	ng/L		125	50 - 150	18	50
Perfluorononanoic acid (PFNA)	20	U	19.1	20.3	J	ng/L		106	50 - 150	8	50
Perfluorohexanesulfonic acid (PFHxS)	12	U M	29.8	30.5		ng/L		102	50 - 150	1	50
Perfluoroheptanoic acid (PFHpA)	2.0	J M	9.81	13.4		ng/L		116	50 - 150	7	50
Perfluorobutanesulfonic acid (PFBS)	35	U	87.5	98.9		ng/L		113	50 - 150	1	50

Surrogate	LMSD %Recovery	LMSD Qualifier	Limits
13C2 PFHxA	83		70 - 130
13C2 PFDA	95		70 - 130

Lab Sample ID: MB 320-171866/1-A

Matrix: Water

Analysis Batch: 173117

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 171866

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		06/30/17 09:34	07/08/17 13:58	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		06/30/17 09:34	07/08/17 13:58	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		06/30/17 09:34	07/08/17 13:58	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		06/30/17 09:34	07/08/17 13:58	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		06/30/17 09:34	07/08/17 13:58	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		06/30/17 09:34	07/08/17 13:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	06/30/17 09:34	07/08/17 13:58	1
13C2 PFDA	92		70 - 130	06/30/17 09:34	07/08/17 13:58	1

Lab Sample ID: LLCS 320-171866/2-A

Matrix: Water

Analysis Batch: 173117

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 171866

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	40.0	40.1		ng/L		100	50 - 150
Perfluorooctanoic acid (PFOA)	20.0	20.2		ng/L		101	50 - 150
Perfluorononanoic acid (PFNA)	19.3	19.7	J	ng/L		102	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.1	28.9	J	ng/L		96	50 - 150
Perfluoroheptanoic acid (PFHpA)	9.90	10.9		ng/L		110	50 - 150
Perfluorobutanesulfonic acid (PFBS)	88.3	89.2	J	ng/L		101	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	104		70 - 130
13C2 PFDA	95		70 - 130

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-29300-1

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

Lab Sample ID: LLCSD 320-171866/3-A

Matrix: Water

Analysis Batch: 173117

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 171866

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	40.0	41.4		ng/L		103	50 - 150	3	50
Perfluorooctanoic acid (PFOA)	20.0	21.2		ng/L		106	50 - 150	5	50
Perfluorononanoic acid (PFNA)	19.3	20.4	J	ng/L		106	50 - 150	3	50
Perfluorohexanesulfonic acid (PFHxS)	30.1	28.9	J	ng/L		96	50 - 150	0.2	50
Perfluoroheptanoic acid (PFHpA)	9.90	11.7		ng/L		118	50 - 150	7	50
Perfluorobutanesulfonic acid (PFBS)	88.3	92.6		ng/L		105	50 - 150	4	50

Surrogate	LLCSD %Recovery	LLCSD Qualifier	Limits
13C2 PFHxA	97		70 - 130
13C2 PFDA	94		70 - 130

QC Association Summary

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

TestAmerica Job ID: 320-29300-1

LCMS

Prep Batch: 171856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29300-1	WGNA-061917-RW-3493	Total/NA	Water	537	
320-29300-2	WGNA-061917-FRB-3493	Total/NA	Water	537	
320-29300-3	WGNA-061917-RW-3283	Total/NA	Water	537	
320-29300-4	WGNA-061917-FRB-3283	Total/NA	Water	537	
320-29300-5	WGNA-061917-RW-0386	Total/NA	Water	537	
320-29300-6	WGNA-061917-FRB-0386	Total/NA	Water	537	
320-29300-7	WGNA-061917-RW-3460	Total/NA	Water	537	
320-29300-8	WGNA-061917-FRB-3460	Total/NA	Water	537	
320-29300-9	WGNA-061917-RW-3118A	Total/NA	Water	537	
320-29300-10	WGNA-061917-FRB-3118A	Total/NA	Water	537	
320-29300-11	WGNA-061917-RW-3556	Total/NA	Water	537	
320-29300-12	WGNA-061917-FRB-3556	Total/NA	Water	537	
320-29300-13	WGNA-061917-RW-0335	Total/NA	Water	537	
320-29300-14	WGNA-061917-FRB-0335	Total/NA	Water	537	
320-29300-15	WGNA-061917-RW-3882	Total/NA	Water	537	
320-29300-16	WGNA-061917-FRB-3882	Total/NA	Water	537	
320-29300-17	WGNA-061917-RW-3382	Total/NA	Water	537	
320-29300-18	WGNA-061917-FRB-3382	Total/NA	Water	537	
320-29300-19	WGNA-061917-DUP01	Total/NA	Water	537	
320-29300-20	WGNA-061917-RW-0143	Total/NA	Water	537	
MB 320-171856/1-A	Method Blank	Total/NA	Water	537	
LCS 320-171856/2-A	Lab Control Sample	Total/NA	Water	537	
320-29300-7 LMS	WGNA-061917-RW-3460	Total/NA	Water	537	
320-29300-7 LMSD	WGNA-061917-RW-3460	Total/NA	Water	537	

Prep Batch: 171866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29300-21	WGNA-061917-FRB-0143	Total/NA	Water	537	
320-29300-22	WGNA-061917-RW-3118B	Total/NA	Water	537	
MB 320-171866/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-171866/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-171866/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 173117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29300-21	WGNA-061917-FRB-0143	Total/NA	Water	537	171866
320-29300-22	WGNA-061917-RW-3118B	Total/NA	Water	537	171866
MB 320-171866/1-A	Method Blank	Total/NA	Water	537	171866
LLCS 320-171866/2-A	Lab Control Sample	Total/NA	Water	537	171866
LLCSD 320-171866/3-A	Lab Control Sample Dup	Total/NA	Water	537	171866

Analysis Batch: 173118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29300-1	WGNA-061917-RW-3493	Total/NA	Water	537	171856
320-29300-2	WGNA-061917-FRB-3493	Total/NA	Water	537	171856
320-29300-3	WGNA-061917-RW-3283	Total/NA	Water	537	171856
320-29300-4	WGNA-061917-FRB-3283	Total/NA	Water	537	171856
320-29300-5	WGNA-061917-RW-0386	Total/NA	Water	537	171856
320-29300-6	WGNA-061917-FRB-0386	Total/NA	Water	537	171856
MB 320-171856/1-A	Method Blank	Total/NA	Water	537	171856
LCS 320-171856/2-A	Lab Control Sample	Total/NA	Water	537	171856

TestAmerica Sacramento

QC Association Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-29300-1

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

Analysis Batch: 173119

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29300-7	WGNA-061917-RW-3460	Total/NA	Water	537	171856
320-29300-8	WGNA-061917-FRB-3460	Total/NA	Water	537	171856
320-29300-9	WGNA-061917-RW-3118A	Total/NA	Water	537	171856
320-29300-10	WGNA-061917-FRB-3118A	Total/NA	Water	537	171856
320-29300-11	WGNA-061917-RW-3556	Total/NA	Water	537	171856
320-29300-12	WGNA-061917-FRB-3556	Total/NA	Water	537	171856
320-29300-13	WGNA-061917-RW-0335	Total/NA	Water	537	171856
320-29300-14	WGNA-061917-FRB-0335	Total/NA	Water	537	171856
320-29300-7 LMS	WGNA-061917-RW-3460	Total/NA	Water	537	171856
320-29300-7 LMSD	WGNA-061917-RW-3460	Total/NA	Water	537	171856

Analysis Batch: 173120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-29300-15	WGNA-061917-RW-3882	Total/NA	Water	537	171856
320-29300-16	WGNA-061917-FRB-3882	Total/NA	Water	537	171856
320-29300-17	WGNA-061917-RW-3382	Total/NA	Water	537	171856
320-29300-18	WGNA-061917-FRB-3382	Total/NA	Water	537	171856
320-29300-19	WGNA-061917-DUP01	Total/NA	Water	537	171856
320-29300-20	WGNA-061917-RW-0143	Total/NA	Water	537	171856

Lab Chronicle

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-RW-3493

Date Collected: 06/19/17 08:40

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173118	07/08/17 14:40	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3493

Date Collected: 06/19/17 08:35

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173118	07/08/17 14:45	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-3283

Date Collected: 06/19/17 09:15

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173118	07/08/17 14:50	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3283

Date Collected: 06/19/17 09:10

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173118	07/08/17 14:54	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-0386

Date Collected: 06/19/17 09:55

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173118	07/08/17 14:59	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-0386

Date Collected: 06/19/17 09:50

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173118	07/08/17 15:04	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-RW-3460

Date Collected: 06/19/17 11:30

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:18	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3460

Date Collected: 06/19/17 11:25

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:32	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-3118A

Date Collected: 06/19/17 13:30

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:37	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3118A

Date Collected: 06/19/17 13:20

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:42	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-3556

Date Collected: 06/19/17 13:55

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:47	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3556

Date Collected: 06/19/17 15:50

Date Received: 06/21/17 09:10

Lab Sample ID: 320-29300-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:51	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-RW-0335

Lab Sample ID: 320-29300-13

Date Collected: 06/19/17 14:45

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 15:56	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-0335

Lab Sample ID: 320-29300-14

Date Collected: 06/19/17 14:40

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173119	07/08/17 16:01	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-3882

Lab Sample ID: 320-29300-15

Date Collected: 06/19/17 15:30

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173120	07/08/17 16:15	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3882

Lab Sample ID: 320-29300-16

Date Collected: 06/19/17 15:25

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173120	07/08/17 16:20	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-3382

Lab Sample ID: 320-29300-17

Date Collected: 06/19/17 16:00

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173120	07/08/17 16:25	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-3382

Lab Sample ID: 320-29300-18

Date Collected: 06/19/17 14:55

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173120	07/08/17 16:29	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-29300-1

Client Sample ID: WGNA-061917-DUP01

Lab Sample ID: 320-29300-19

Date Collected: 06/19/17 07:00

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173120	07/08/17 16:34	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-0143

Lab Sample ID: 320-29300-20

Date Collected: 06/19/17 10:25

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171856	06/30/17 09:25	CCB	TAL SAC
Total/NA	Analysis	537		1	173120	07/08/17 16:39	JRB	TAL SAC

Client Sample ID: WGNA-061917-FRB-0143

Lab Sample ID: 320-29300-21

Date Collected: 06/19/17 10:30

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171866	06/30/17 09:34	CCB	TAL SAC
Total/NA	Analysis	537		1	173117	07/08/17 14:12	JRB	TAL SAC

Client Sample ID: WGNA-061917-RW-3118B

Lab Sample ID: 320-29300-22

Date Collected: 06/19/17 13:30

Matrix: Water

Date Received: 06/21/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			171866	06/30/17 09:34	CCB	TAL SAC
Total/NA	Analysis	537		1	173117	07/08/17 14:16	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.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-29300-1

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	4040	01-28-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537	537	Water	Perfluorobutanesulfonic acid (PFBS)
537	537	Water	Perfluoroheptanoic acid (PFHpA)
537	537	Water	Perfluorohexanesulfonic acid (PFHxS)
537	537	Water	Perfluorononanoic acid (PFNA)
537	537	Water	Perfluorooctanesulfonic acid (PFOS)
537	537	Water	Perfluorooctanoic acid (PFOA)

Method Summary

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

TestAmerica Job ID: 320-29300-1

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: 320-29300-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-29300-1	WGNA-061917-RW-3493	Water	06/19/17 08:40	06/21/17 09:10
320-29300-2	WGNA-061917-FRB-3493	Water	06/19/17 08:35	06/21/17 09:10
320-29300-3	WGNA-061917-RW-3283	Water	06/19/17 09:15	06/21/17 09:10
320-29300-4	WGNA-061917-FRB-3283	Water	06/19/17 09:10	06/21/17 09:10
320-29300-5	WGNA-061917-RW-0386	Water	06/19/17 09:55	06/21/17 09:10
320-29300-6	WGNA-061917-FRB-0386	Water	06/19/17 09:50	06/21/17 09:10
320-29300-7	WGNA-061917-RW-3460	Water	06/19/17 11:30	06/21/17 09:10
320-29300-8	WGNA-061917-FRB-3460	Water	06/19/17 11:25	06/21/17 09:10
320-29300-9	WGNA-061917-RW-3118A	Water	06/19/17 13:30	06/21/17 09:10
320-29300-10	WGNA-061917-FRB-3118A	Water	06/19/17 13:20	06/21/17 09:10
320-29300-11	WGNA-061917-RW-3556	Water	06/19/17 13:55	06/21/17 09:10
320-29300-12	WGNA-061917-FRB-3556	Water	06/19/17 15:50	06/21/17 09:10
320-29300-13	WGNA-061917-RW-0335	Water	06/19/17 14:45	06/21/17 09:10
320-29300-14	WGNA-061917-FRB-0335	Water	06/19/17 14:40	06/21/17 09:10
320-29300-15	WGNA-061917-RW-3882	Water	06/19/17 15:30	06/21/17 09:10
320-29300-16	WGNA-061917-FRB-3882	Water	06/19/17 15:25	06/21/17 09:10
320-29300-17	WGNA-061917-RW-3382	Water	06/19/17 16:00	06/21/17 09:10
320-29300-18	WGNA-061917-FRB-3382	Water	06/19/17 14:55	06/21/17 09:10
320-29300-19	WGNA-061917-DUP01	Water	06/19/17 07:00	06/21/17 09:10
320-29300-20	WGNA-061917-RW-0143	Water	06/19/17 10:25	06/21/17 09:10
320-29300-21	WGNA-061917-FRB-0143	Water	06/19/17 10:30	06/21/17 09:10
320-29300-22	WGNA-061917-RW-3118B	Water	06/19/17 13:30	06/21/17 09:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 172646Lab Sample ID: IC 320-172646/4 Client Sample ID: _____Date Analyzed: 07/05/17 19:50 Lab File ID: 2017.07.05_537CURVE_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 173117Lab Sample ID: 320-29300-22 Client Sample ID: WGNA-061917-RW-3118BDate Analyzed: 07/08/17 14:16 Lab File ID: 2017.07.08_537A_037.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:13
Perfluorononanoic acid (PFNA)	2.17	Split Peak	barnettj	07/10/17 10:13

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 173118Lab Sample ID: 320-29300-1 Client Sample ID: WGNA-061917-RW-3493Date Analyzed: 07/08/17 14:40 Lab File ID: 2017.07.08_537A_042.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:41
Perfluorononanoic acid (PFNA)	2.17	Split Peak	barnettj	07/10/17 10:42

Lab Sample ID: 320-29300-3 Client Sample ID: WGNA-061917-RW-3283Date Analyzed: 07/08/17 14:50 Lab File ID: 2017.07.08_537A_044.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:43
Perfluorononanoic acid (PFNA)	2.17	Split Peak	barnettj	07/10/17 10:43

Lab Sample ID: 320-29300-5 Client Sample ID: WGNA-061917-RW-0386Date Analyzed: 07/08/17 14:59 Lab File ID: 2017.07.08_537A_046.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:44
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	07/10/17 10:44

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 173119Lab Sample ID: 320-29300-7 Client Sample ID: WGNA-061917-RW-3460Date Analyzed: 07/08/17 15:18 Lab File ID: 2017.07.08_537A_050.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.73	Missed Peak	barnettj	07/10/17 10:47
Perfluorohexanesulfonic acid (PFHxS)	1.73	Missed Peak	barnettj	07/10/17 10:48
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:46
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	07/10/17 10:48

Lab Sample ID: 320-29300-7 LMS Client Sample ID: WGNA-061917-RW-3460 LMSDate Analyzed: 07/08/17 15:23 Lab File ID: 2017.07.08_537A_051.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:49
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	07/10/17 10:49

Lab Sample ID: 320-29300-7 LMSD Client Sample ID: WGNA-061917-RW-3460 LMSDDate Analyzed: 07/08/17 15:28 Lab File ID: 2017.07.08_537A_052.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:50

Lab Sample ID: 320-29300-9 Client Sample ID: WGNA-061917-RW-3118ADate Analyzed: 07/08/17 15:37 Lab File ID: 2017.07.08_537A_054.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:51
Perfluorononanoic acid (PFNA)	2.17	Split Peak	barnettj	07/10/17 10:52

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 173119Lab Sample ID: 320-29300-11 Client Sample ID: WGNA-061917-RW-3556Date Analyzed: 07/08/17 15:47 Lab File ID: 2017.07.08_537A_056.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 10:53

Lab Sample ID: 320-29300-13 Client Sample ID: WGNA-061917-RW-0335Date Analyzed: 07/08/17 15:56 Lab File ID: 2017.07.08_537A_058.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 11:01
Perfluorononanoic acid (PFNA)	2.17	Split Peak	barnettj	07/10/17 11:01

Lab Sample ID: CCV 320-173119/23 CCVIS Client Sample ID: _____Date Analyzed: 07/08/17 16:06 Lab File ID: 2017.07.08_537A_060.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	07/10/17 10:40

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 173120Lab Sample ID: CCV 320-173120/23 CCVIS Client Sample ID: _____Date Analyzed: 07/08/17 16:06 Lab File ID: 2017.07.08_537A_060.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	07/10/17 10:40

Lab Sample ID: 320-29300-15 Client Sample ID: WGNA-061917-RW-3882Date Analyzed: 07/08/17 16:15 Lab File ID: 2017.07.08_537A_062.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	07/10/17 11:02

Lab Sample ID: 320-29300-17 Client Sample ID: WGNA-061917-RW-3382Date Analyzed: 07/08/17 16:25 Lab File ID: 2017.07.08_537A_064.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.72	Missed Peak	barnettj	07/10/17 11:03
Perfluorooctanoic acid (PFOA)	1.92	Isomers	barnettj	07/10/17 11:04
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	07/10/17 11:04

Lab Sample ID: 320-29300-19 Client Sample ID: WGNA-061917-DUP01Date Analyzed: 07/08/17 16:34 Lab File ID: 2017.07.08_537A_066.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.91	Isomers	barnettj	07/10/17 11:05
Perfluorooctanesulfonic acid (PFOS)	2.15	Missed Peak	barnettj	07/10/17 16:17

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 173120Lab Sample ID: 320-29300-20 Client Sample ID: WGNA-061917-RW-0143Date Analyzed: 07/08/17 16:39 Lab File ID: 2017.07.08_537A_067.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.91	Isomers	barnettj	07/10/17 11:05

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-HSP_00017	08/09/17	03/23/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutane Sulfonate	1656.41 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
.LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutane Sulfonate	88.3417 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
..LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutane Sulfonate	2007.77 ug/mL
				Perfluorobutanesulfonic acid (PFBS)			2007.77 ug/mL	
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
...LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
...LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
...LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-ICV_00020	07/25/17	02/21/17	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00031	200 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
.LC537-IS_00031	07/31/17	01/31/17	Methanol, Lot 090285	10000 uL	LCM2PFOA_00005	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00019	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA_00005	06/19/18	Wellington Laboratories, Lot M2PFOA0613			(Purchased Reagent)		13C2-PFOA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

 Lab Name: TestAmerica Sacramento

 Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-ICV_00020	07/25/17	02/21/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00030	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
					LC537ICIM_00015	20 uL	Perfluorobutanesulfonic acid (PFBS)	100.676 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.08 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	21.1854 ng/mL
							Perfluorononanoic acid (PFNA)	20.0076 ng/mL
							Perfluorooctanoic acid (PFOA)	20.0186 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.6936 ng/mL
..LC537-SU_00030	07/31/17	01/31/17	Methanol, Lot 104453	20000 uL	LCMPFDA_00012	80 uL	13C2 PFDA	0.2 ug/mL
		LCMPFHxA_00013	80 uL	13C2 PFHxA	0.2 ug/mL			
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537ICIM_00015	07/25/17	02/21/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00007	0.55 mL	Perfluorobutanesulfonic acid (PFBS)	50.3381 ug/mL
					LC537-PFHpA2_00010	0.05 mL	Perfluoroheptanoic acid (PFHpA)	5.04 ug/mL
					LC537-PFHxS2_00007	0.13 mL	Perfluorohexanesulfonic acid (PFHxS)	10.5927 ug/mL
					LC537-PFNA2_00008	0.093 mL	Perfluorononanoic acid (PFNA)	10.0038 ug/mL
					LC537-PFOA2_00008	0.142 mL	Perfluorooctanoic acid (PFOA)	10.0093 ug/mL
					LC537-PFOS2_00007	0.21 mL	Perfluorooctanesulfonic acid (PFOS)	10.3468 ug/mL
..LC537-PFBS2_00007	08/09/17	02/20/17	Methanol, Lot 090285	8.2 mL	LC537_PFBS2_00001	0.0188 g	Perfluorobutanesulfonic acid (PFBS)	2288.1 ug/mL
...LC537_PFBS2_00001	08/09/17	Santa Cruz Biotechnology, Lot H0112			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFHpA2_00010	07/25/17	12/20/16	Methanol, Lot 09092	25 mL	LC537_PFHpA2_00001	0.063 g	Perfluoroheptanoic acid (PFHpA)	2520 ug/mL
...LC537_PFHpA2_00001	07/25/17	Afla Aesar, Lot 10160443			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFHxS2_00007	07/25/17	02/20/17	Methanol, Lot 090285	10 mL	LC537_PFHxS2_00001	0.0224 g	Perfluorohexanesulfonic acid (PFHxS)	2037.06 ug/mL
...LC537_PFHxS2_00001	07/25/17	Santa Cruz Biotechnology, Lot F2612			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA2_00008	07/25/17	12/20/16	Methanol, Lot 090285	10 mL	LC537_PFNA2_00001	0.027 g	Perfluorononanoic acid (PFNA)	2689.2 ug/mL
...LC537 PFNA2_00001	07/25/17	Aldrich, Lot MKBJ2926V			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
..LC537-PFOA2_00008	07/25/17	12/20/16	Methanol, Lot 090285	10 mL	LC537_PFOA2_00001	0.0178 g	Perfluorooctanoic acid (PFOA)	1762.2 ug/mL
...LC537 PFOA2_00001	07/25/17	Afla Aesar, Lot D24Y026			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
..LC537-PFOS2_00007	07/26/17	02/20/17	Methanol, Lot 090285	11 mL	LC537_PFOS2_00001	0.0174 g	Perfluorooctanesulfonic acid (PFOS)	1231.76 ug/mL
...LC537_PFOS2_00001	07/26/17	Sigma, Lot BCBF5116V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00044	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-29300-1

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_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
LC537-L1_00019	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL		
					LC537-MSP_00025	50 uL	13C4 PFOS	28.68 ng/mL		
							Perfluorobutanesulfonic acid (PFBS)	8.83417 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	0.99 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	3.00607 ng/mL		
							Perfluorononanoic acid (PFNA)	1.926 ng/mL		
							Perfluorooctanoic acid (PFOA)	1.998 ng/mL		
					Perfluorooctanesulfonic acid (PFOS)	4.00329 ng/mL				
LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL							
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL		
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL		
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL		
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
.LC537-MSP_00025	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	200 uL	Perfluorobutanesulfonic acid (PFBS)	883.417 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	99 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	300.607 ng/mL		
							Perfluorononanoic acid (PFNA)	192.6 ng/mL		
							Perfluorooctanoic acid (PFOA)	199.8 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	400.329 ng/mL		
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL		
							LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
							LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
							LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
							LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
							LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL		
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL		
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA 00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537 PFNA 00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
...LC537 PFNA 00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA 00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537 PFOA 00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
...LC537 PFOA 00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00045	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA 00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA 00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA 00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00019	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	64 uL	Perfluorobutanesulfonic acid (PFBS)	21.202 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.376 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	7.21457 ng/mL
							Perfluorononanoic acid (PFNA)	4.6224 ng/mL
							Perfluorooctanoic acid (PFOA)	4.7952 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	9.6079 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
							Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA 00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00022	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	134 uL	Perfluorobutanesulfonic acid (PFBS)	44.3917 ng/mL
							Perfluoroheptanoic acid (PFHpA)	4.97475 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.1055 ng/mL
							Perfluorononanoic acid (PFNA)	9.67815 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0399 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1165 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537 PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537 PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537 PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00019	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L4_00019	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	270 uL	Perfluorobutanesulfonic acid (PFBS)	89.446 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0238 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanesulfonic acid (PFHxS)	30.4365 ng/mL
							Perfluorononanoic acid (PFNA)	19.5008 ng/mL
							Perfluorooctanoic acid (PFOA)	20.2297 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.5333 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
					LC537-SU_00045	500 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
							Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
							Perfluorononanoic acid (PFNA)	19.26 ug/mL
							Perfluorooctanoic acid (PFOA)	19.98 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
...LC537-PFHxA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHxA_00002	0.05 g	Perfluorohexanesulfonic acid (PFHxS)	990 ug/mL
....LC537_PFHxA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537 PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537 PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537 PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00045	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00023	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	400 uL	Perfluorobutanesulfonic acid (PFBS)	132.513 ng/mL
							Perfluoroheptanoic acid (PFHpA)	14.85 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0911 ng/mL
							Perfluorononanoic acid (PFNA)	28.89 ng/mL
							Perfluorooctanoic acid (PFOA)	29.97 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0494 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00045	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00019	08/03/21		Wellington Laboratories, Lot MPFOS0816		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00045	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	47.8 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFDA	50 ug/mL
LC537-L6_00018	08/09/17	07/05/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00019	530 uL	Perfluorobutanesulfonic acid (PFBS)	175.579 ng/mL
							Perfluoroheptanoic acid (PFHpA)	19.6763 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	59.7457 ng/mL
							Perfluorononanoic acid (PFNA)	38.2792 ng/mL
							Perfluorooctanoic acid (PFOA)	39.7103 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	79.5654 ng/mL
					LC537-IS_00045	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00019	08/09/17	03/30/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00022	375 uL	13C2 PFHxA	10 ng/mL
							13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1656.41 ng/mL
							Perfluoroheptanoic acid (PFHpA)	185.625 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	563.639 ng/mL
							Perfluorononanoic acid (PFNA)	361.125 ng/mL
							Perfluorooctanoic acid (PFOA)	374.625 ng/mL
..LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorooctanesulfonic acid (PFOS)	750.617 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
...LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537_PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00019	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00045	01/05/18	07/05/17	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_00020	08/08/17	03/23/17	Methanol, Lot 090285	20000 uL	LC537SPIM_00022	50 uL	Perfluorobutane Sulfonate	220.854 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	220.854 ng/mL
							Perfluoroheptanoic acid (PFHpA)	24.75 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	75.1518 ng/mL
							Perfluorononanoic acid (PFNA)	48.15 ng/mL
							Perfluorooctanoic acid (PFOA)	49.95 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	100.082 ng/mL
.LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutane Sulfonate	88.3417 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-29300-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
..LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutane Sulfonate	2007.77 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
...LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
...LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
...LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537 PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
...LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537 PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
...LC537 PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
...LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00044	12/20/17	06/20/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFB_00002

4/1/15 SPV

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sigma-aldrich.com

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Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Nonafluorobutane-1-sulfonic acid - 97%

Product Number:

562629

Batch Number:

MKBP8842V

Brand:

ALDRICH

CAS Number:

375-73-5

MDL Number:

MFCD01320794

Formula:

C₄HF₉O₃S

Formula Weight:

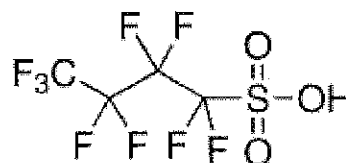
300.10 g/mol

Storage Temperature:

Store at 2 - 8 °C

Quality Release Date:

11 OCT 2013



PFBS

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

Jamie Gleason

Jamie Gleason, Manager

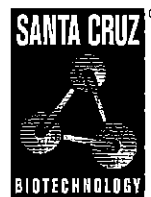
Quality Control

Milwaukee, Wisconsin US

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

Reagent

LC537_PFB2_00001



The Power to Question

CERTIFICATE OF ANALYSIS

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

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

Test Conditions: Refractive Index: $n_{20/D}$

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 Geithner
Manager Quality Control
Buchs, Switzerland

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

Reagent

LC537_PFHpA2_00001

Certificate of Analysis

Alfa Aesar
A Johnson Matthey Company

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

PFHpA

Appearance: White crystalline powder
Melting Point: 28.2 (slip point)
Assay (Aqueous acid-base titration): 100.2%

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KOREA
Tel: +82-2-3140-6000
Fax: +82-2-3140-6002
Email: saleskorea@alfa-asia.com

Reagent

LC537_PFHxS_00002

r: 4/1/15 stw

SIGMA-ALDRICH®

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

Certificate of Analysis

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

PFH₁₃S-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

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

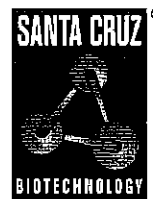
$$Purity = 90.94 \% \text{ w/m.w correction}$$

stw 4/1/15

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

Reagent

LC537_PFHxS2_00001

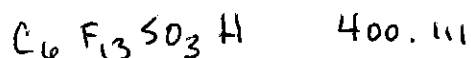
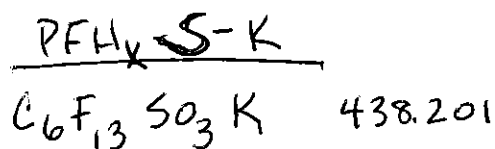


CERTIFICATE OF ANALYSIS

The Power to Question

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

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



$$\text{MW correction} = \frac{400.111}{438.201} = 0.91307 \quad \begin{array}{l} \text{PFH}_x\text{S} \\ \text{CAS } 355-46-4 \end{array}$$

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

Reagent

LC537_PFNA_00002

R: 4/1/15 SKV



Certificate of Analysis

Apr 2, 2015 (JST)

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

Chemical Name: Heptadecafluorononanoic Acid		
Product Number: H0843	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_00001

3050 Spruce Street, Saint Louis, MO 63103, USA

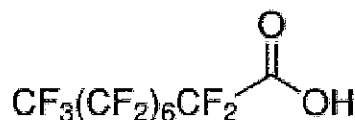
Website: www.sigmaaldrich.comEmail USA: techserv@sial.comOutside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Perfluorononanoic acid - 97%

Product Number: 394459
Lot Number: MKBJ2926V
Brand: ALDRICH
CAS Number: 375-95-1
MDL Number: MFCD00039605
Formula: C₉H₁₇O₂
Formula Weight: 464.08 g/mol
Quality Release Date: 20 OCT 2011



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



Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

PFNA

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

Reagent

LC537_PFOA_00002

3/20/15

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

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

Seelze, 13.11.2013/505378/13/24029

Order-No.:

Customer-No.:

Order-Code:

Quantity:

Production Date: 04.Nov.2013

Expiry Date: 04.Nov.2018

Article/Product: 33824

Batch : SZBD308XV

Pentadecafluorooctanoic acid OEKANAL®

PFOA

Reference Material (RM)

1. General Information

Formula: C₈HF₁₅O₂

CAS-No.: [335-67-1]

Usage : PFOA

Molar mass: 414.07 g/Mole

Recomm. storage temp.: roomtemp.

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

2. Batch Analysis

identity (GC-MS)

Assay (GCMS)

Date of Analysis

complying

99.4 %

13.Nov.2013

3. Advice and Remarks

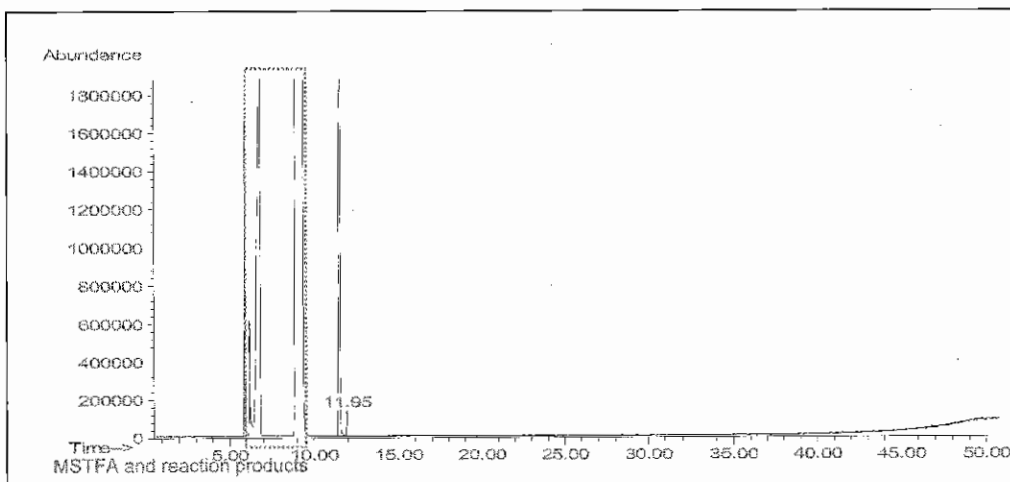
- The expiry date is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliquot portions of the substance, the person handling the substance must assure, that the integrity of the substance 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

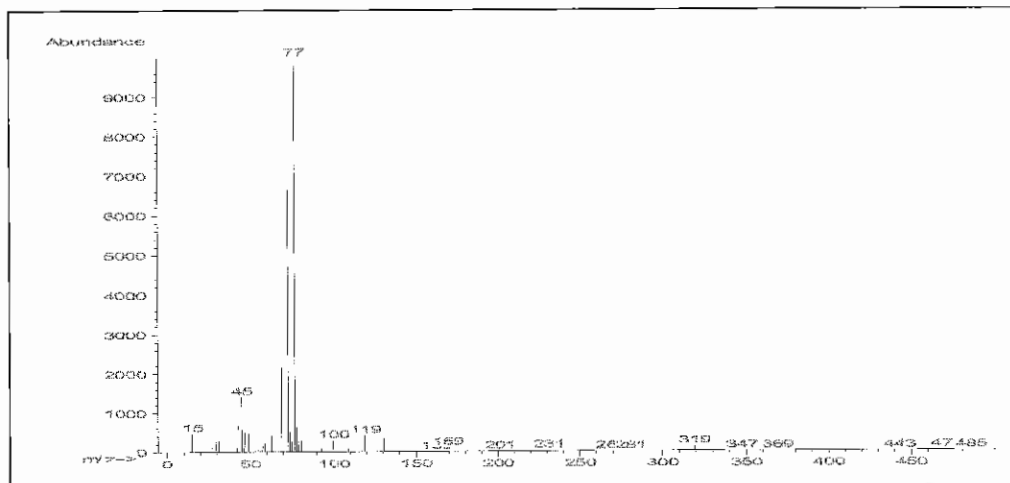
This document was produced electronically and is valid without a signature

GC/MS-Method**Analytical Department****Article:** Pentadecafluorooctanoic acid OEKANAL**Article-No.:** 33824**Batch:** SZBD308XV**Column:** XTI-5 (Restek); 30 m; fs cap.; I.D.:0.25 mm; 1 µm df**Injector:** Split mode**Injection:** approx. 1 µl of reaction mixture with MSTFA (approx. 10 mg + 200 µl MSTFA)**Inj.-temp.:** 280°C**Oven-temp.:** 40°C (for 2 min) to 320°C (6°C/min) hold for 2 min**Split:** 1:100**Flow:** 1 ml He/min (Constant flow mode)**Detector:** MSD**Mass range:** 10-600 amu (Scan mode)**Evaluation:** Purity: Total Ion Chromatogram
(MSTFA and reaction products blinded out in report)

Identity: Mass spectrum complies

Operator: Ahrens / 2013-11-13**Total Ion Chromatogram:**

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

Mass spectrum (rt = 11.54 min):

Reagent

LC537_PFOA2_00001

Certificate of Analysis

Alfa Aesar
A Johnson Matthey Company

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

PFOA

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

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Fax: 00800 4577 4577 or
+49 721 84007 300
Email: Eurosales@alfa.com

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Email: UKsales@alfa.com

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Fax: 0800 10 20 67 or
+33 (0)3 8862 6864
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+91 8008 812626
Fax: +91 8418 260060
Email: India@alfa.com

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Fax: +82-2-3140-6002
Email: saleskorea@alfa-asia.com

Reagent

LC537_PFOS_00002

F: 4/1/15 SV

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

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

Seelze, 13.08.2012/419060/12/17583

Order-No.:

Customer-No.:

Order-Code:

Quantity:

Production Date: 09.Aug.2012

Expiry Date: 09.Aug.2017 - *ex date*

Article/Product: 33829

Batch : SZBC222XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

PFOS-K⁺

Reference Material (RM)

1. General Information

Formula: C8F17KO3S

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

Usage : PFOS

Molar mass: 538.22 g/Mole

Recomm. storage temp.: roomtemp.

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

2. Batch Analysis

Identity

Assay (LC-MS)

Date of Analysis

complying

98 %

10.Aug.2012

PW-correction:

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

Purity = 91.66 %

3. Advice and Remarks

- The minimum shelf life is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of 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_00001

Certificate of Analysis

Inv 820
12LCMS 0579

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

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

QC RELEASE DATE 13/APR/11

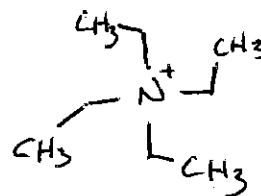
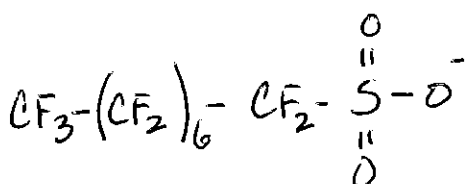
E. Schwarz

Edeltraud Schwarzler, Manager
Quality Control
Buchs, Switzerland

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

~~79.46%~~ $\frac{500.125}{629.37} \times 100 = 79.46\%$ $\frac{500.125}{629.37} \times 100 = 79.46\%$ $\frac{500.125}{629.37} \times 100 = 79.46\%$

$$Purity + MW \text{ Correction} = 77.87\%$$



	$C_8F_{17}SO_3 + H$
C = 12.011	96.088
F = 18.998	322.966
S = 32.066	32.066
O = 15.999	47.997
H = 1.008	1.008
N = 14.007	-
	<u>500.125</u>

$C_8H_{20}N$
96.088
-
-
-
20.160
14.007
<u>130.255</u>
→

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Certificate of Origin

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

Country of Origin China

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

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

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For further questions please contact your local Sigma-Aldrich representative.

We are committed to the success of our Customers, Employees and Shareholders through leadership in Life Science, High Technology and Service.

Reagent

LCM2PFOA_00005



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

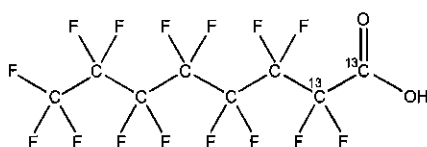
M2PFOA

LOT NUMBER:

M2PFOA0613

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

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₆H₁₅O₂**MOLECULAR WEIGHT:**

416.05

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

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

06/19/2013

(1,2-¹³C₂)**EXPIRY DATE:** (mm/dd/yyyy)

06/19/2018

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 07/16/2013

(mm/dd/yyyy)

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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. They are designed to be used as reference standards for the identification and/or quantification of specific chemical compound(s).

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

$x_1, x_2, \dots, x_n$ 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 our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external, ISO/IEC 17025:2005 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

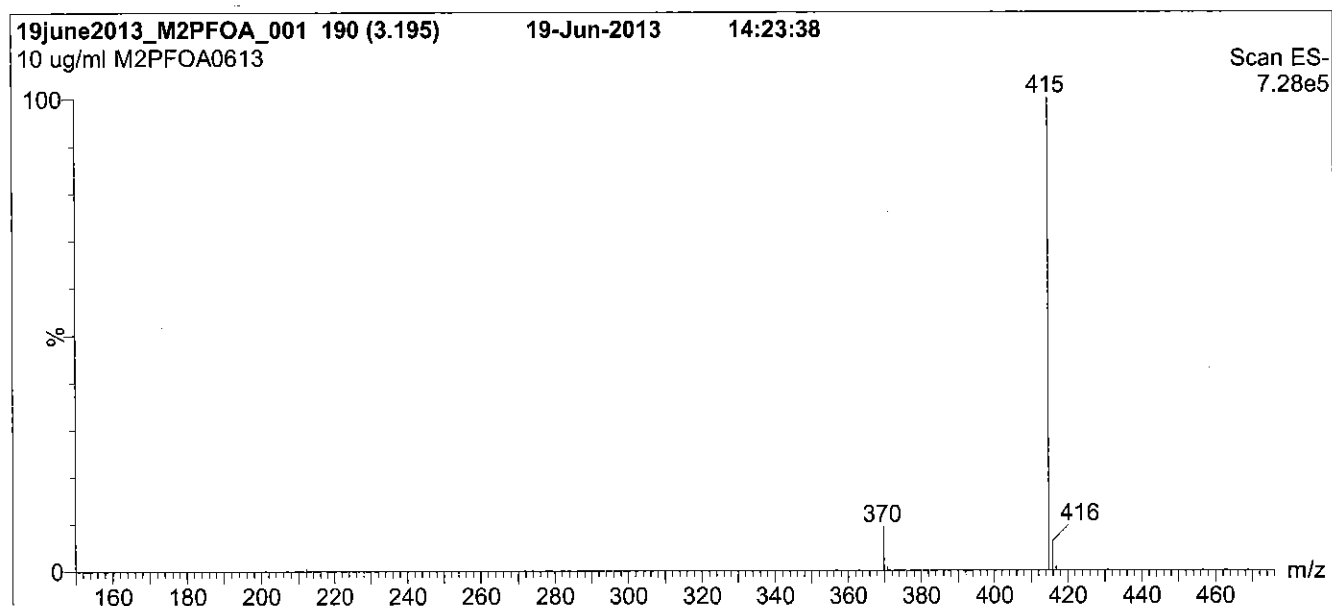
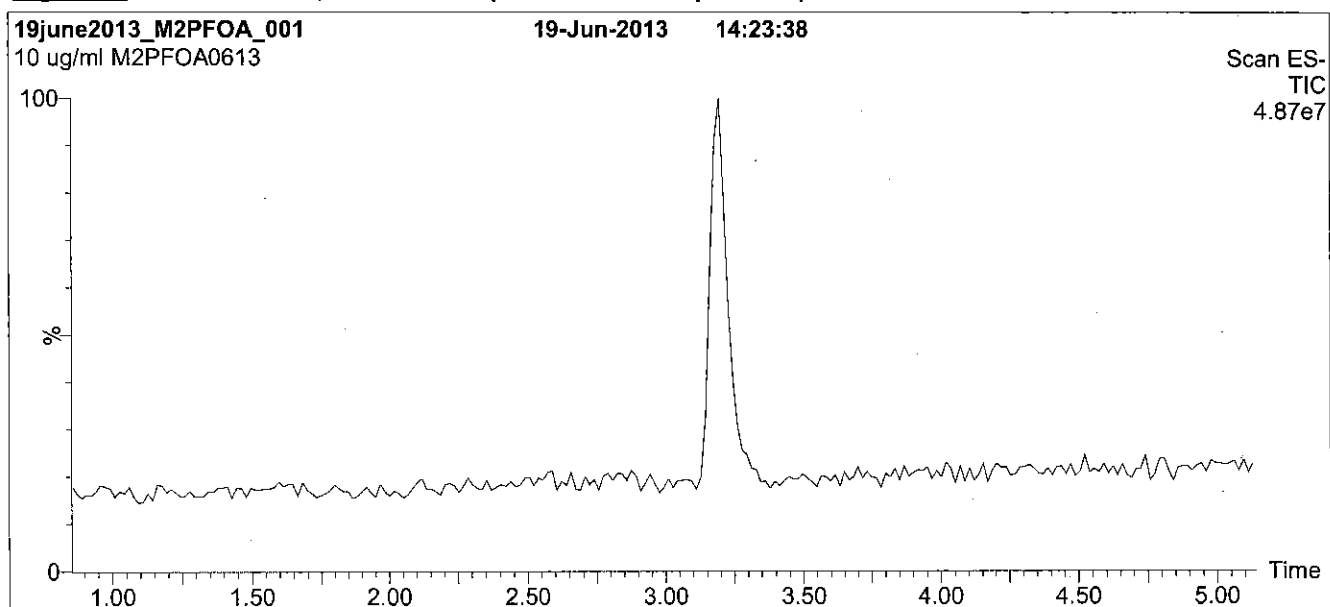
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

Column: Acquity UPLC BEH Shield 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

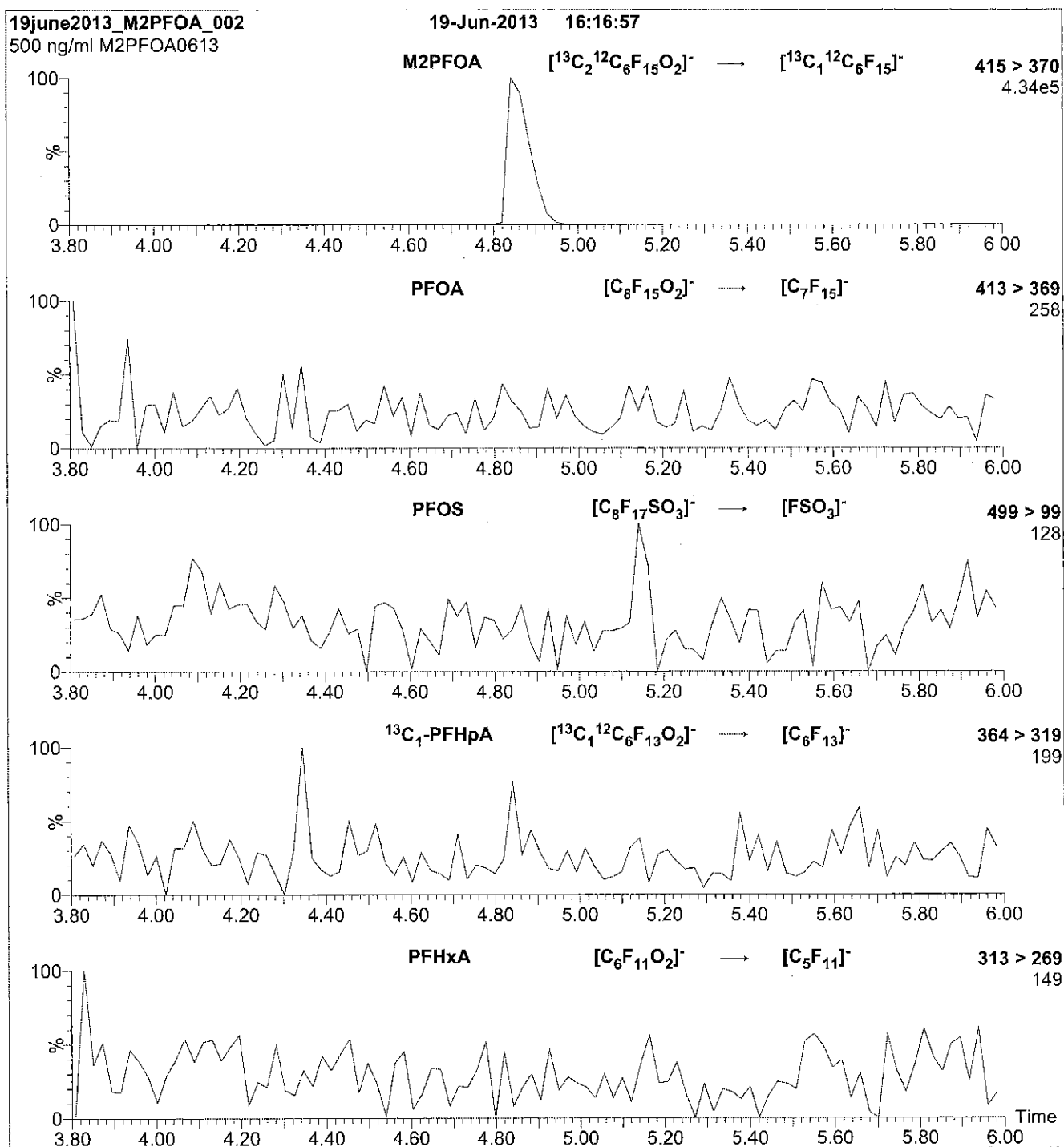
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCM2PFOA_00007



WELLINGTON LABORATORIES

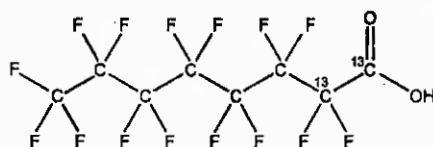
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]octanoic acid

LOT NUMBER: M2PFOA0216

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: ¹³C₂¹²C₆H₁₅O₂
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.

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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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EXPIRY DATE / PERIOD OF VALIDITY:

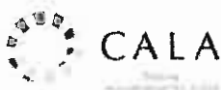
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

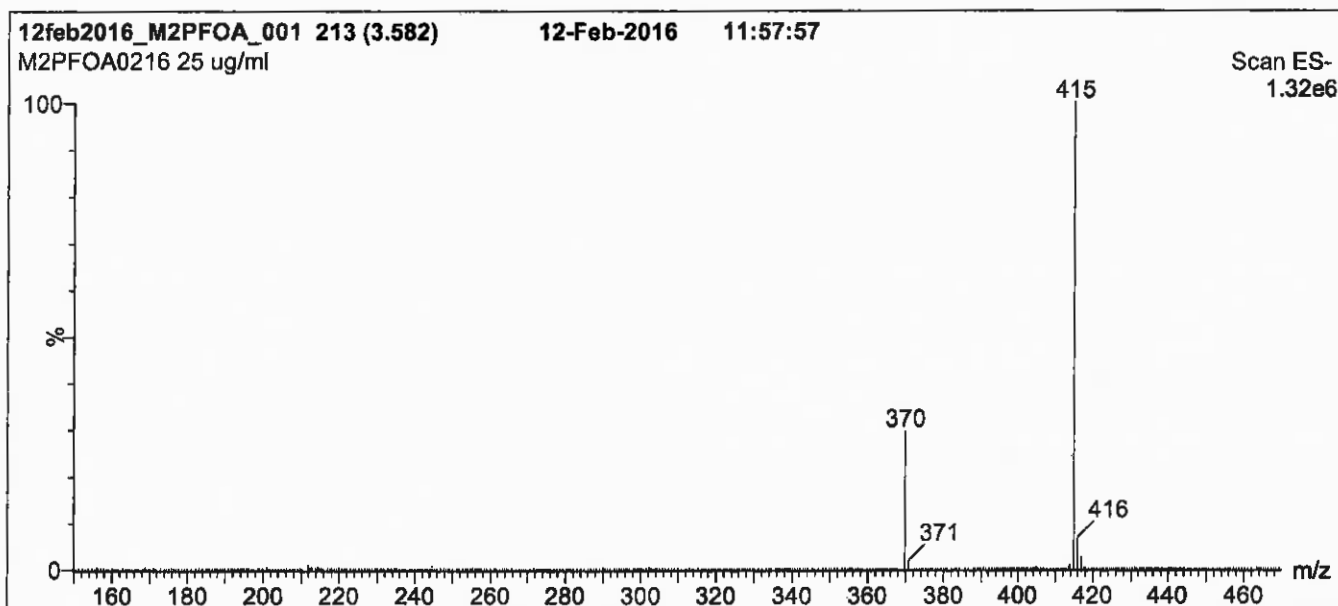
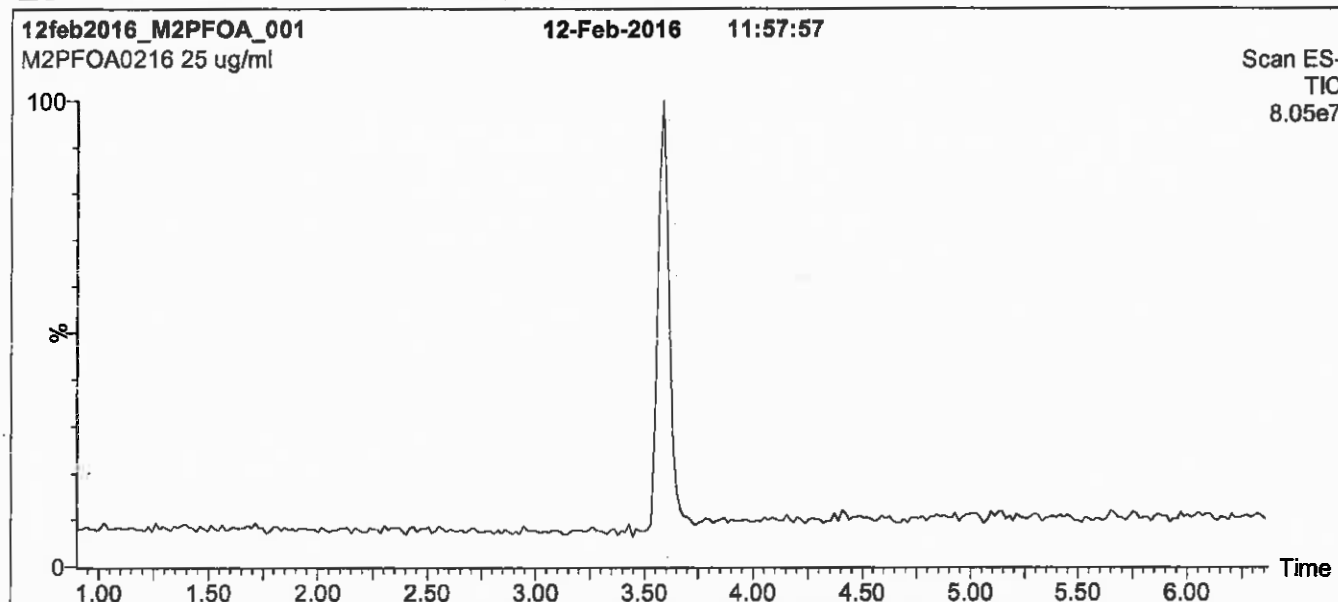
QUALITY MANAGEMENT:

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)

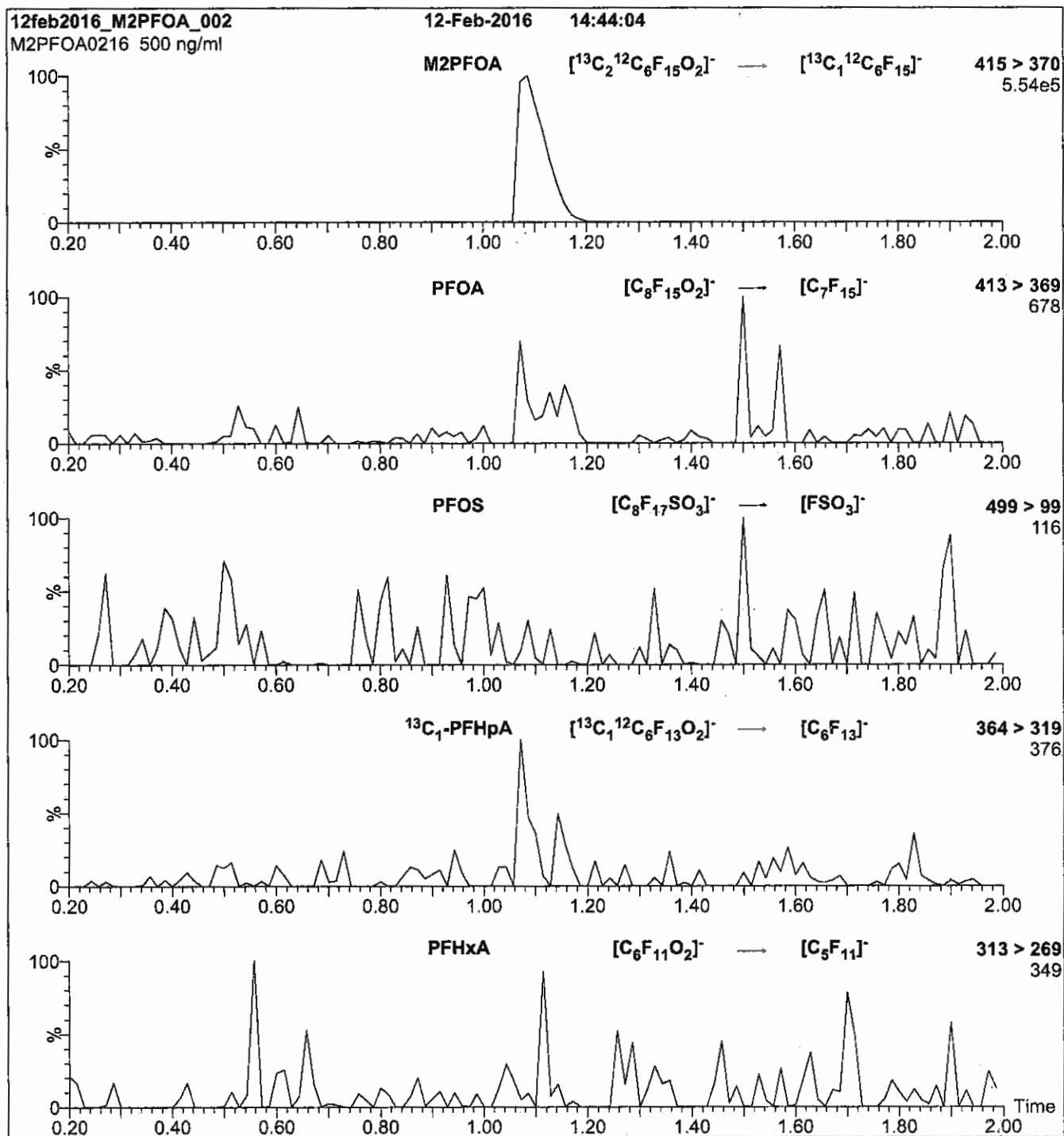
Capillary Voltage (kV) = 3.00

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

LOT NUMBER:

MPFDA0916

COMPOUND:

Perfluoro-n-[1,2-¹³C₂]decanoic acid

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

INTENDED USE:

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

HAZARDS:

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EXPIRY DATE / PERIOD OF VALIDITY:

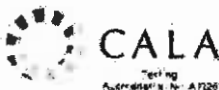
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LIMITED WARRANTY:

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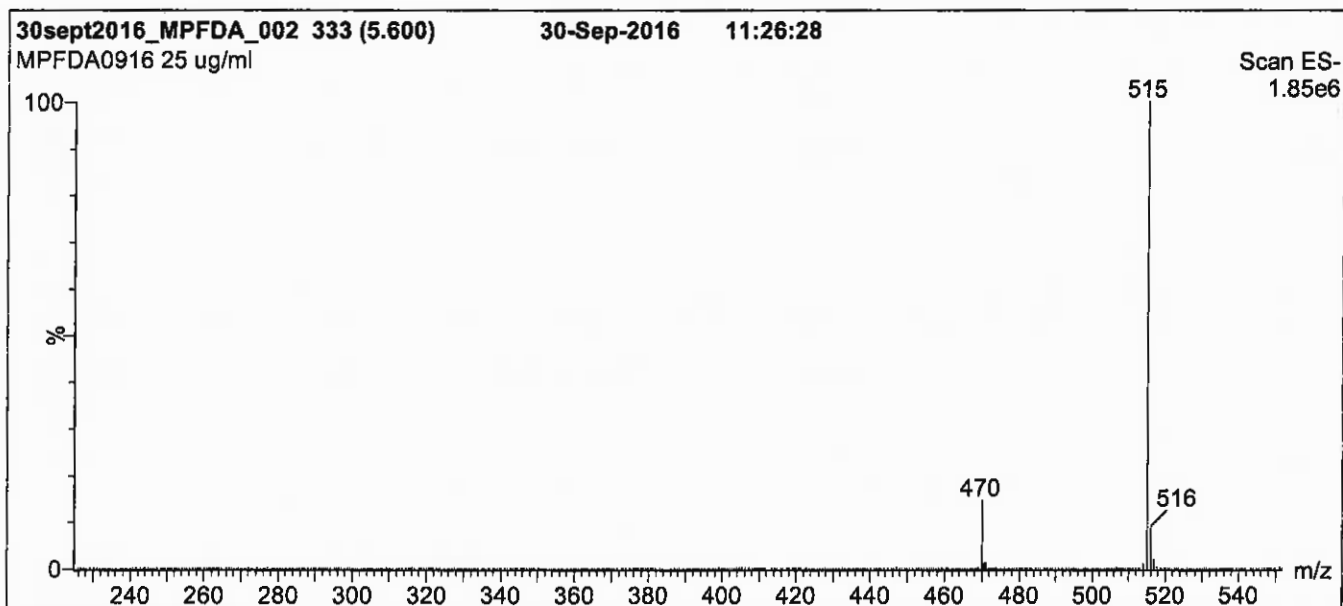
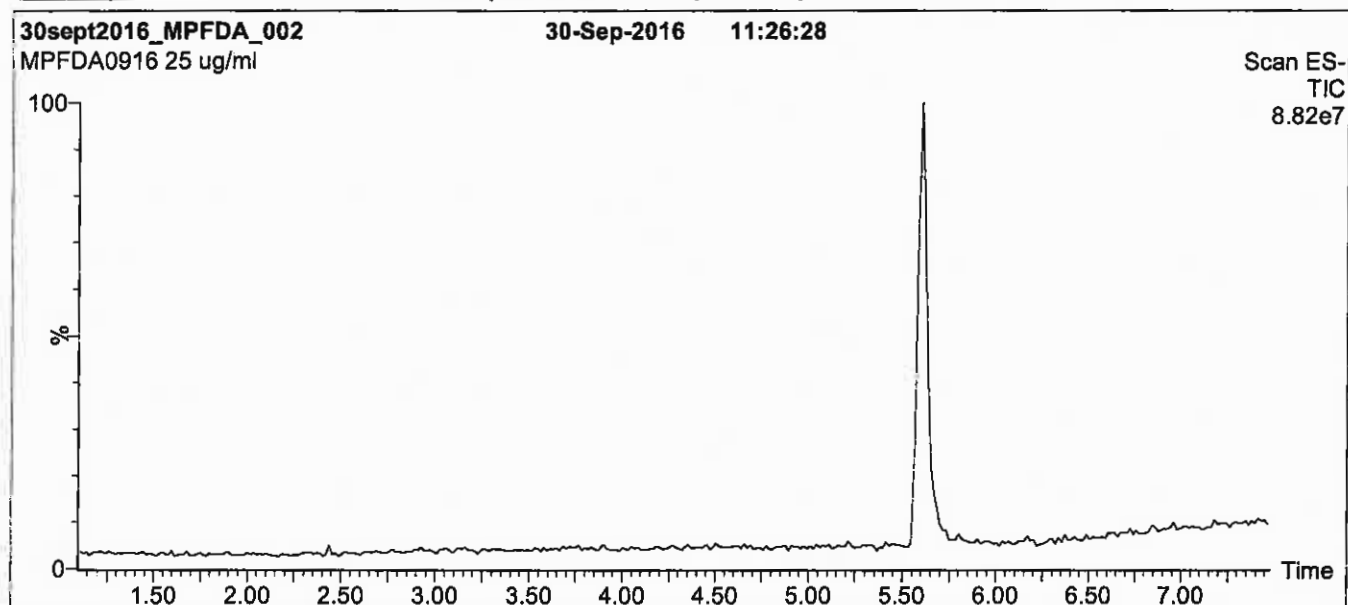
QUALITY MANAGEMENT:

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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

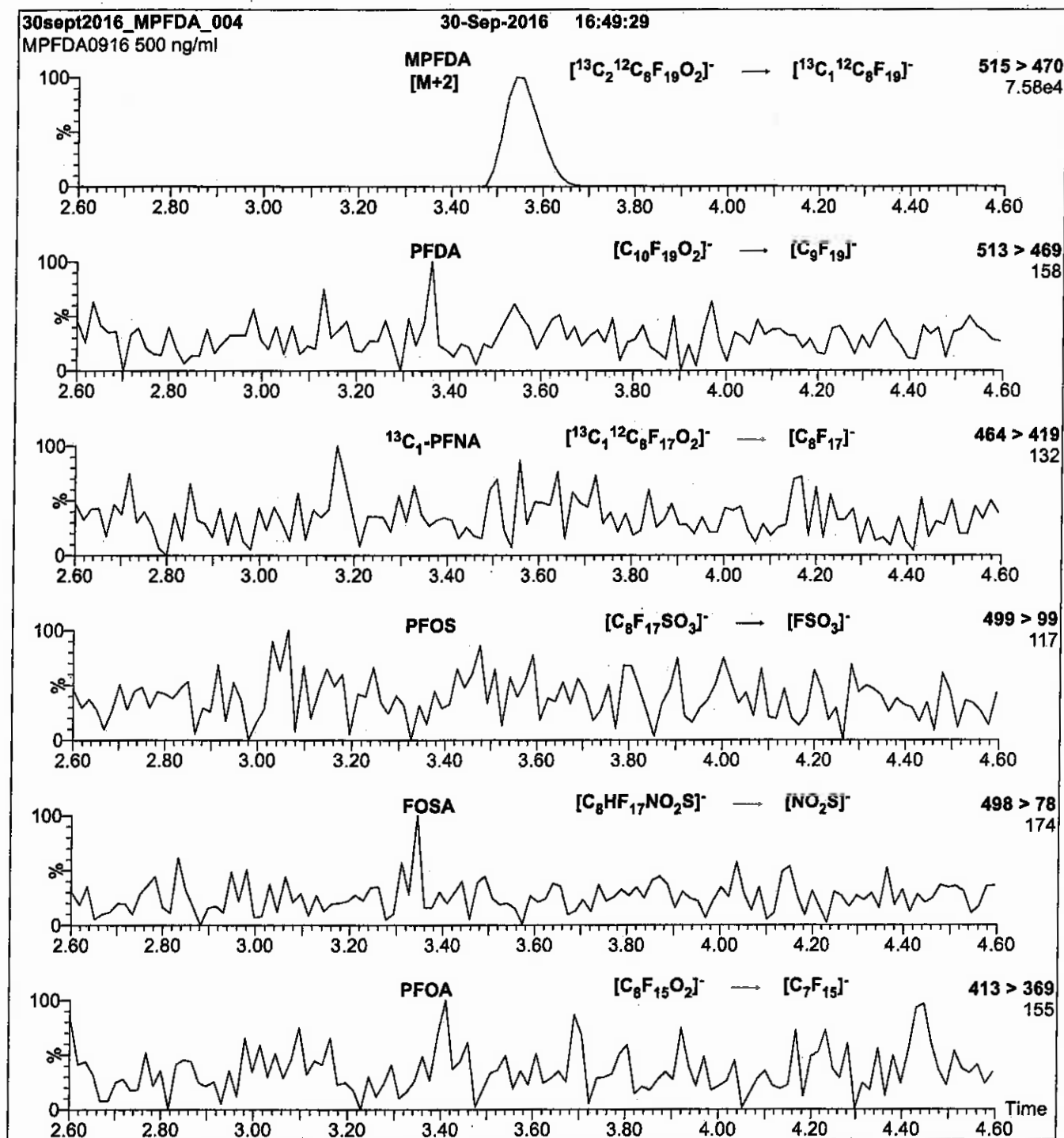
Flow: 300 μ l/min

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:**

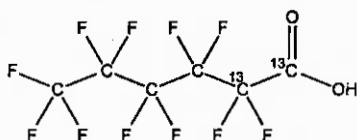
MPFHxA

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

(1,2-¹³C₂)**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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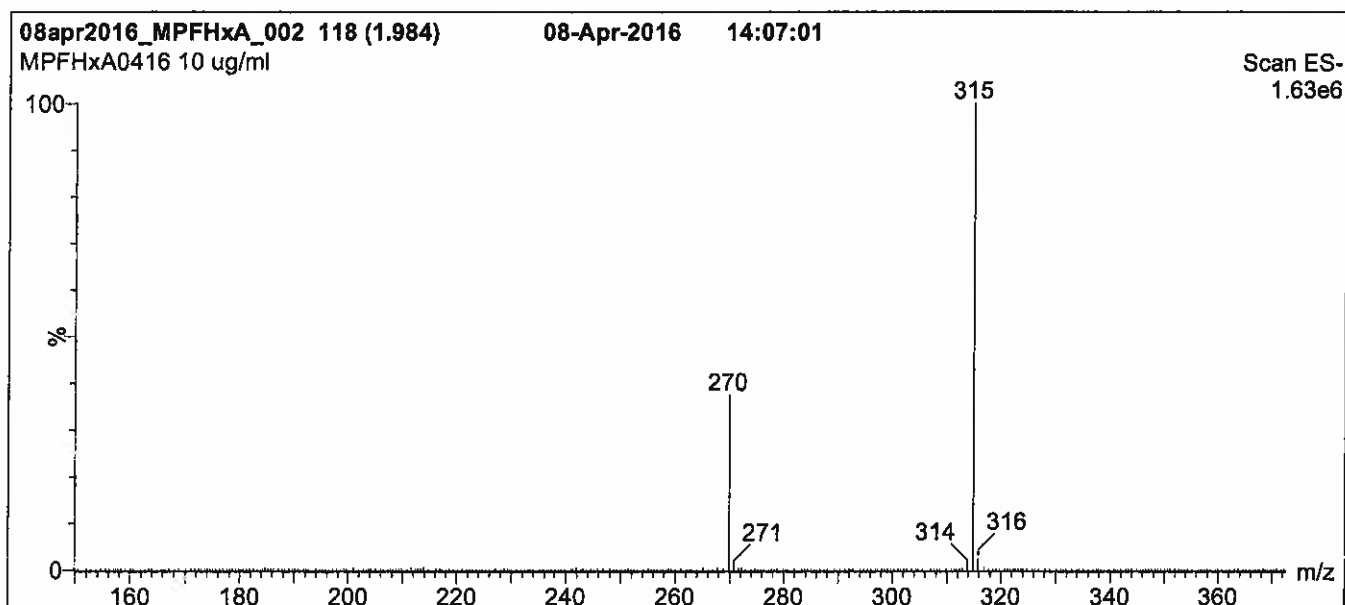
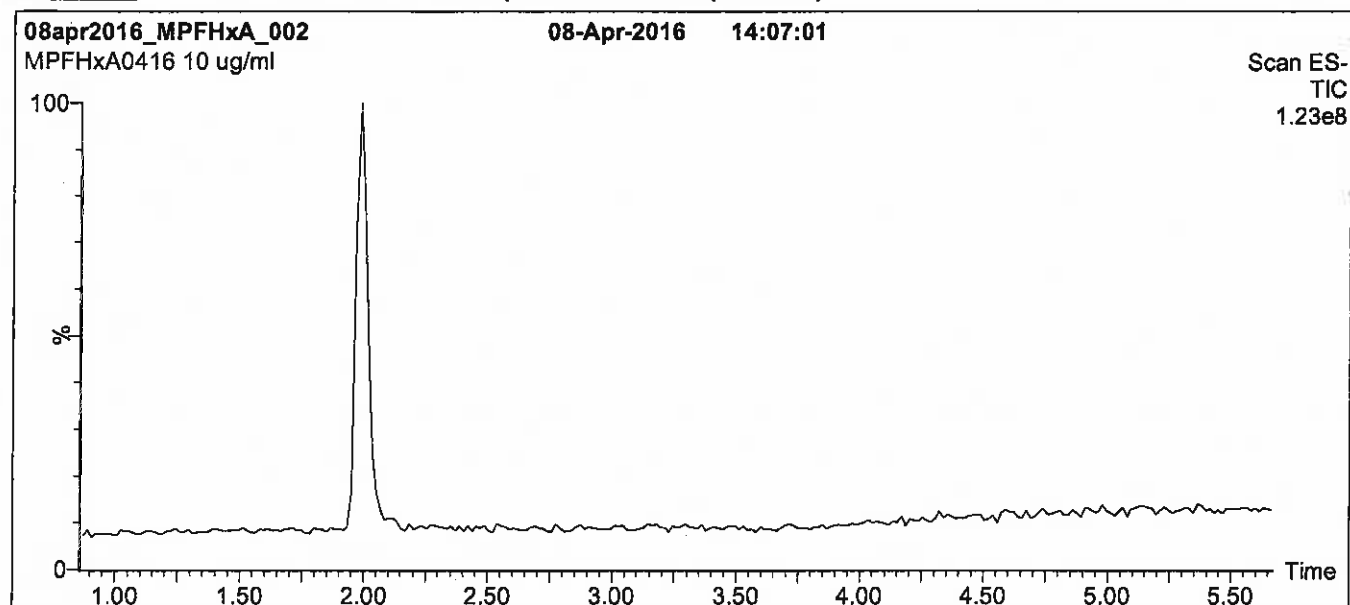
QUALITY MANAGEMENT:

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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)

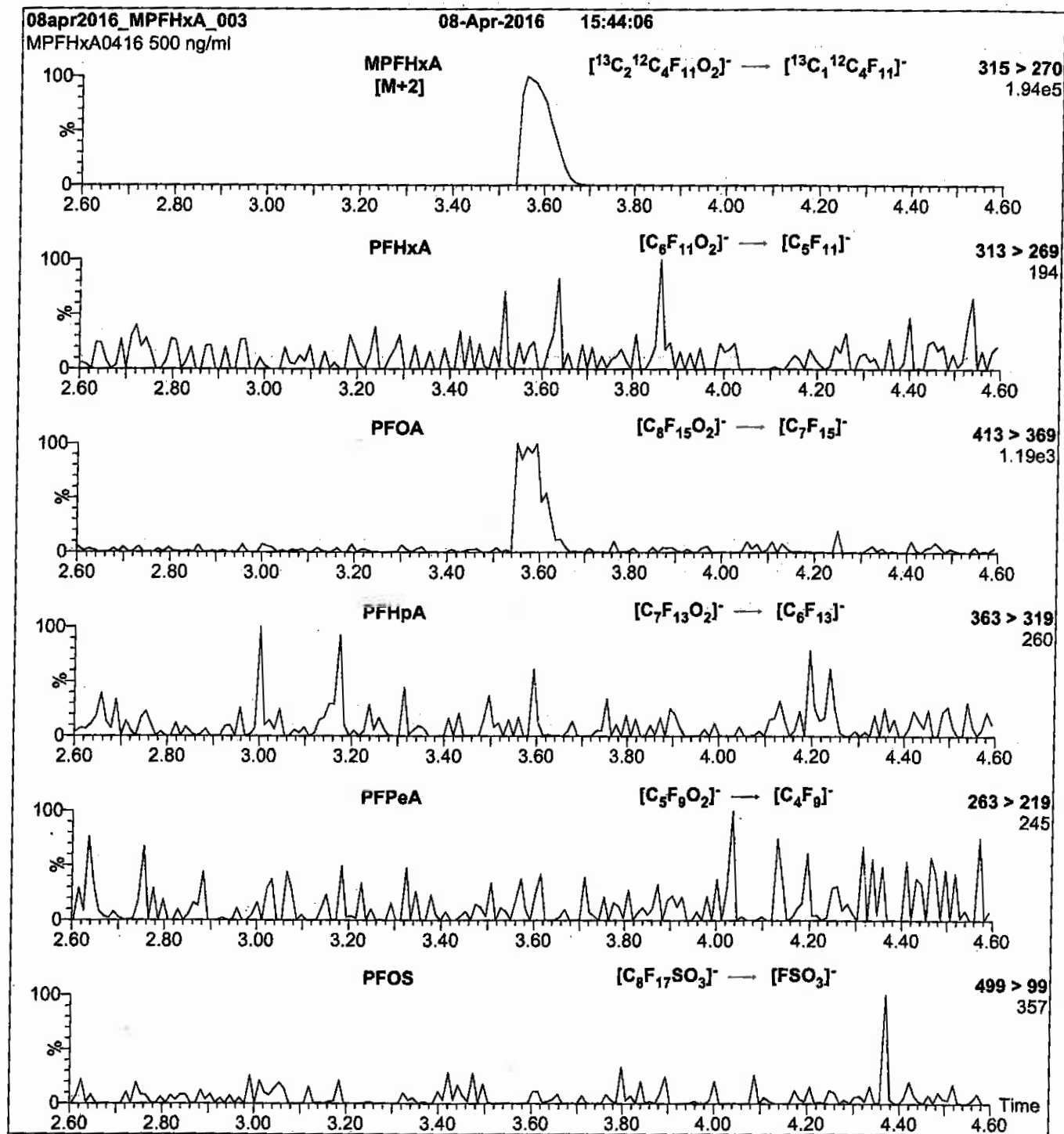
Capillary Voltage (kV) = 2.00

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) = 3.39e-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 LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

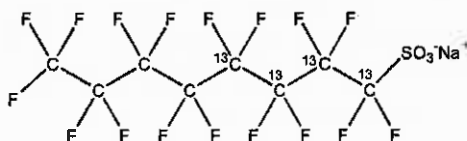
MPFOS

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)

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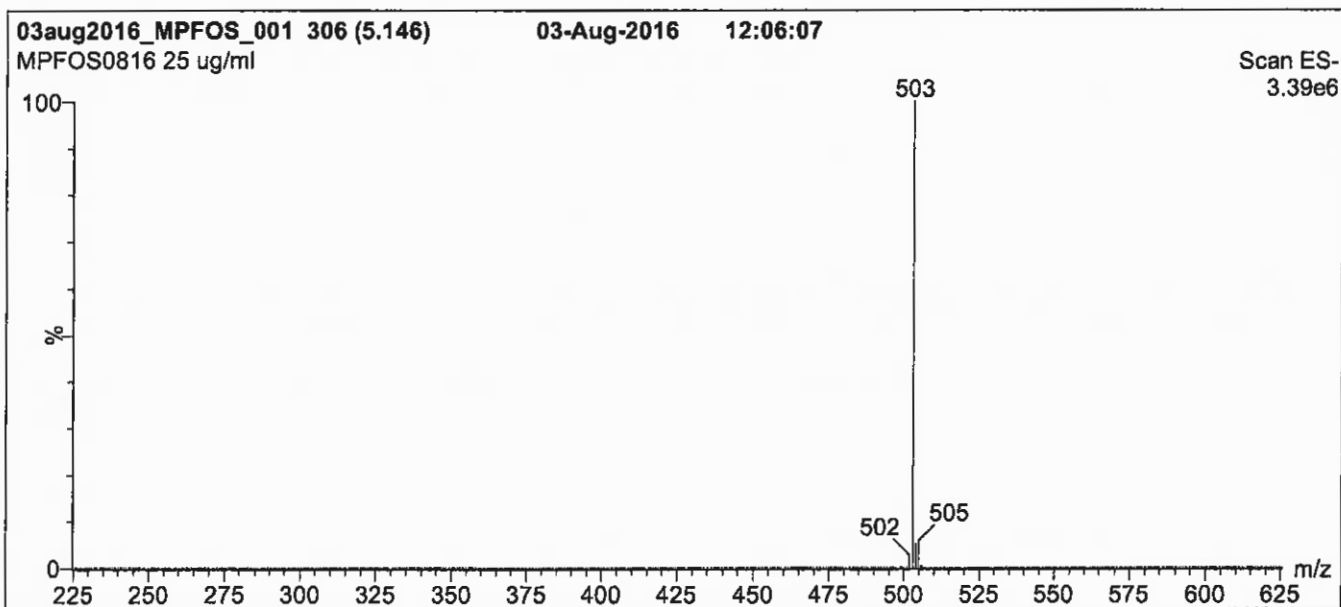
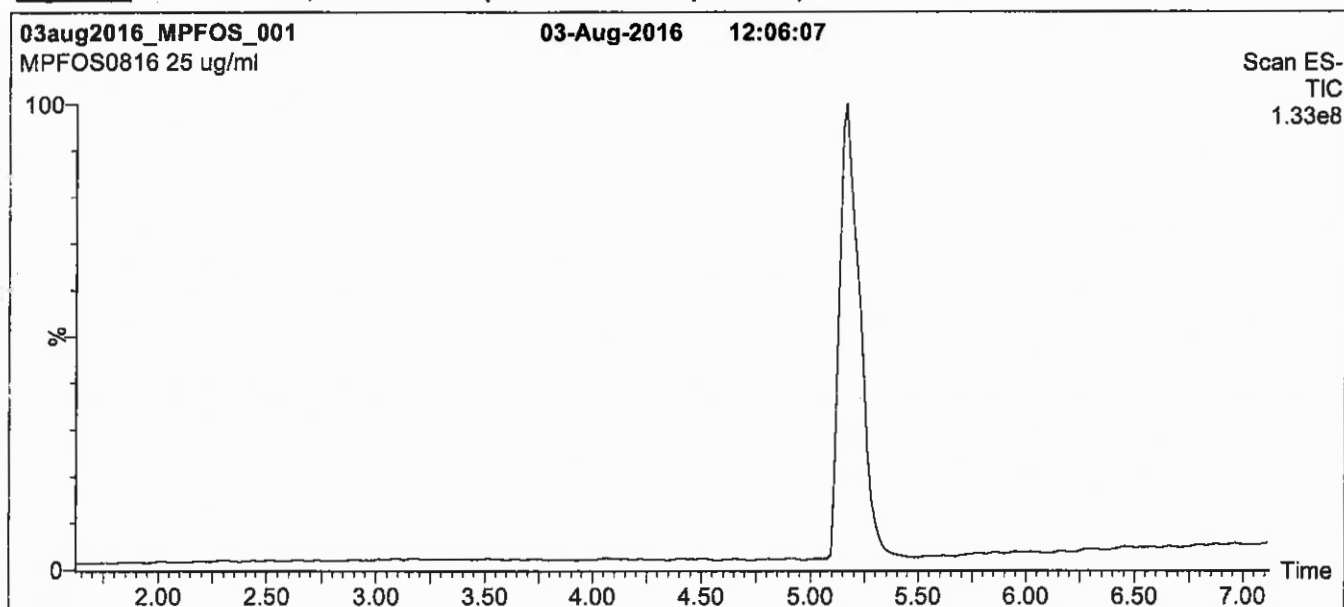
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LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

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

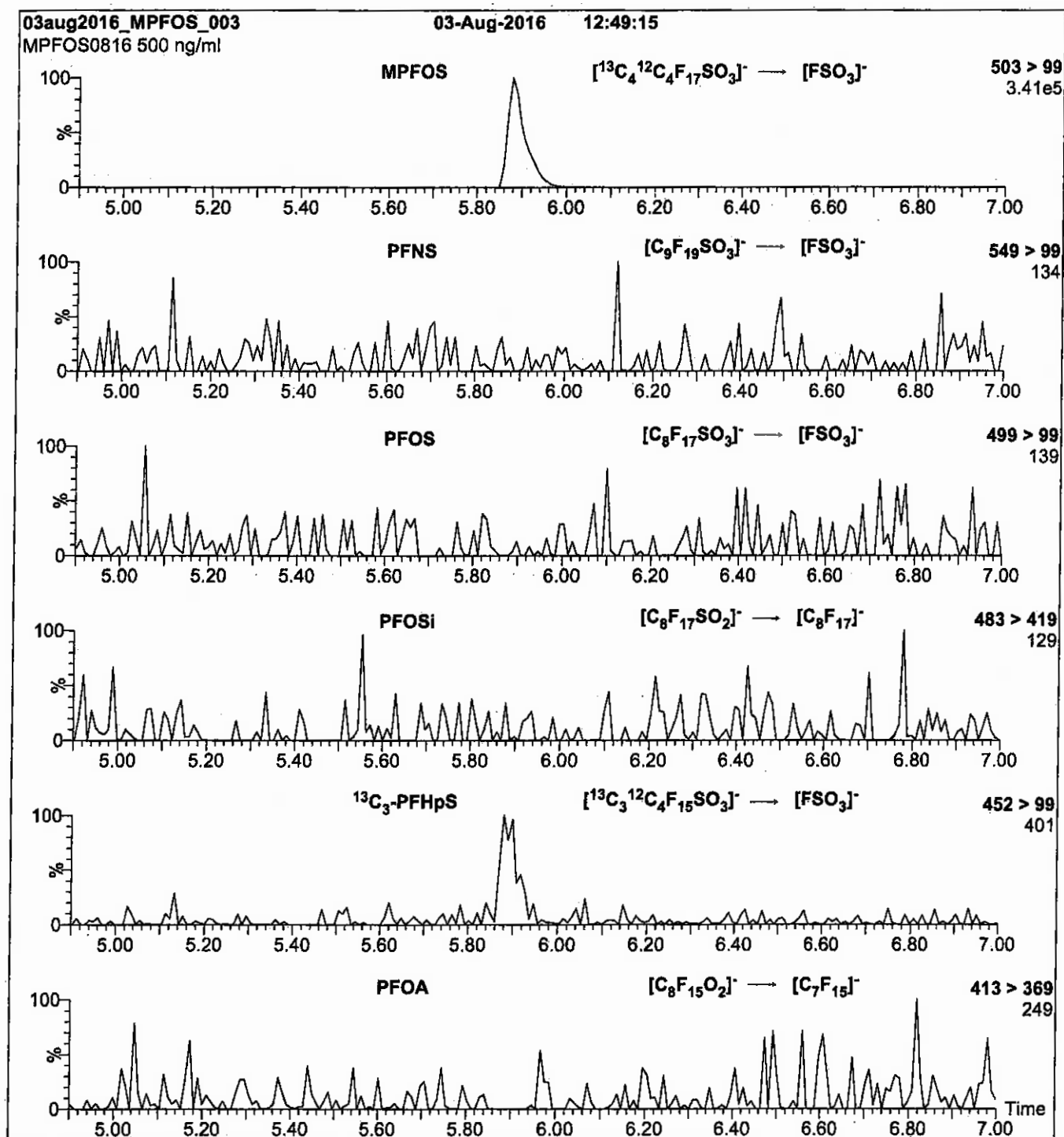
Flow: 300 μ l/min

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

Method 537 DOD

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-061917-RW-3493	320-29300-1	90	91
WGNA-061917-FRB-3493	320-29300-2	97	90
WGNA-061917-RW-3283	320-29300-3	89	93
WGNA-061917-FRB-3283	320-29300-4	104	95
WGNA-061917-RW-0386	320-29300-5	87	92
WGNA-061917-FRB-0386	320-29300-6	98	93
WGNA-061917-RW-3460	320-29300-7	86	92
WGNA-061917-FRB-3460	320-29300-8	99	92
WGNA-061917-RW-3118A	320-29300-9	91	96
WGNA-061917-FRB-3118A	320-29300-10	99	93
WGNA-061917-RW-3556	320-29300-11	84	96
WGNA-061917-FRB-3556	320-29300-12	98	91
WGNA-061917-RW-0335	320-29300-13	93	98
WGNA-061917-FRB-0335	320-29300-14	102	92
WGNA-061917-RW-3882	320-29300-15	89	96
WGNA-061917-FRB-3882	320-29300-16	110	97
WGNA-061917-RW-3382	320-29300-17	98	99
WGNA-061917-FRB-3382	320-29300-18	99	90
WGNA-061917-DUP01	320-29300-19	98	98
WGNA-061917-RW-0143	320-29300-20	92	91
WGNA-061917-FRB-0143	320-29300-21	99	94
WGNA-061917-RW-3118B	320-29300-22	93	99
	MB 320-171856/1-A	96	91
	MB 320-171866/1-A	95	92
	LCS 320-171856/2-A	102	97

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	LLCS 320-171866/2-A	104	95
WGNA-061917-RW-346 0 LMS	320-29300-7 LMS	79	89
WGNA-061917-RW-346 0 LMSD	320-29300-7 LMSD	83	95
	LLCSD 320-171866/3-A	97	94

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_041.d
 Lab ID: LCS 320-171856/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	300	292	97	70-130	
Perfluorooctanoic acid (PFOA)	150	147	98	70-130	
Perfluorononanoic acid (PFNA)	144	134	93	70-130	
Perfluorohexanesulfonic acid (PFHxS)	225	202	90	70-130	
Perfluoroheptanoic acid (PFHpA)	74.3	78.2	105	70-130	
Perfluorobutanesulfonic acid (PFBS)	663	570	86	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_034.d
 Lab ID: LLCS 320-171866/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	40.1	100	50-150	
Perfluorooctanoic acid (PFOA)	20.0	20.2	101	50-150	
Perfluorononanoic acid (PFNA)	19.3	19.7 J	102	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	28.9 J	96	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	10.9	110	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	89.2 J	101	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_051.d
 Lab ID: 320-29300-7 LMS Client ID: WGNA-061917-RW-3460 LMS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	LMS CONCENTRATION (ng/L)	LMS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	38.9	16 U	41.7	107	50-150	M
Perfluorooctanoic acid (PFOA)	19.4	3.6 J	23.6	103	50-150	M
Perfluorononanoic acid (PFNA)	18.7	20 U	18.7 J	100	50-150	
Perfluorohexanesulfonic acid (PFHxS)	29.2	12 U	30.7	105	50-150	
Perfluoroheptanoic acid (PFHpA)	9.62	2.0 J	12.5	109	50-150	
Perfluorobutanesulfonic acid (PFBS)	85.8	35 U	97.5	114	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_052.d
 Lab ID: 320-29300-7 LMSD Client ID: WGNA-061917-RW-3460 LMSD

COMPOUND	SPIKE ADDED (ng/L)	LMSD CONCENTRATION (ng/L)	LMSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	39.7	41.4	104	1	50	50-150	
Perfluorooctanoic acid (PFOA)	19.8	28.4	125	18	50	50-150	M
Perfluorononanoic acid (PFNA)	19.1	20.3 J	106	8	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	29.8	30.5	102	1	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.81	13.4	116	7	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	87.5	98.9	113	1	50	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.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_035.d
 Lab ID: LLCSD 320-171866/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.0	41.4	103	3	50	50-150	
Perfluorooctanoic acid (PFOA)	20.0	21.2	106	5	50	50-150	
Perfluorononanoic acid (PFNA)	19.3	20.4 J	106	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	28.9 J	96	0.2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	11.7	118	7	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	92.6	105	4	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.: 320-29300-1
 SDG No.: _____
 Lab File ID: 2017.07.08_537A_040.d Lab Sample ID: MB 320-171856/1-A
 Matrix: Water Date Extracted: 06/30/2017 09:25
 Instrument ID: A8_N Date Analyzed: 07/08/2017 14:31
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-171856/2-A	2017.07.08_537A_041.d	07/08/2017 14:35
WGNA-061917-RW-3493	320-29300-1	2017.07.08_537A_042.d	07/08/2017 14:40
WGNA-061917-FRB-3493	320-29300-2	2017.07.08_537A_043.d	07/08/2017 14:45
WGNA-061917-RW-3283	320-29300-3	2017.07.08_537A_044.d	07/08/2017 14:50
WGNA-061917-FRB-3283	320-29300-4	2017.07.08_537A_045.d	07/08/2017 14:54
WGNA-061917-RW-0386	320-29300-5	2017.07.08_537A_046.d	07/08/2017 14:59
WGNA-061917-FRB-0386	320-29300-6	2017.07.08_537A_047.d	07/08/2017 15:04
WGNA-061917-RW-3460	320-29300-7	2017.07.08_537A_050.d	07/08/2017 15:18
WGNA-061917-RW-3460 LMS	320-29300-7 LMS	2017.07.08_537A_051.d	07/08/2017 15:23
WGNA-061917-RW-3460 LMSD	320-29300-7 LMSD	2017.07.08_537A_052.d	07/08/2017 15:28
WGNA-061917-FRB-3460	320-29300-8	2017.07.08_537A_053.d	07/08/2017 15:32
WGNA-061917-RW-3118A	320-29300-9	2017.07.08_537A_054.d	07/08/2017 15:37
WGNA-061917-FRB-3118A	320-29300-10	2017.07.08_537A_055.d	07/08/2017 15:42
WGNA-061917-RW-3556	320-29300-11	2017.07.08_537A_056.d	07/08/2017 15:47
WGNA-061917-FRB-3556	320-29300-12	2017.07.08_537A_057.d	07/08/2017 15:51
WGNA-061917-RW-0335	320-29300-13	2017.07.08_537A_058.d	07/08/2017 15:56
WGNA-061917-FRB-0335	320-29300-14	2017.07.08_537A_059.d	07/08/2017 16:01
WGNA-061917-RW-3882	320-29300-15	2017.07.08_537A_062.d	07/08/2017 16:15
WGNA-061917-FRB-3882	320-29300-16	2017.07.08_537A_063.d	07/08/2017 16:20
WGNA-061917-RW-3382	320-29300-17	2017.07.08_537A_064.d	07/08/2017 16:25
WGNA-061917-FRB-3382	320-29300-18	2017.07.08_537A_065.d	07/08/2017 16:29
WGNA-061917-DUP01	320-29300-19	2017.07.08_537A_066.d	07/08/2017 16:34

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
SDG No.: _____
Lab File ID: 2017.07.08_537A_040.d Lab Sample ID: MB 320-171856/1-A
Matrix: Water Date Extracted: 06/30/2017 09:25
Instrument ID: A8_N Date Analyzed: 07/08/2017 14:31
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-061917-RW-0143	320-29300-20	2017.07.08_ 537A 067.d	07/08/2017 16:39

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
SDG No.: _____
Lab File ID: 2017.07.08_537A_033.d Lab Sample ID: MB 320-171866/1-A
Matrix: Water Date Extracted: 06/30/2017 09:34
Instrument ID: A8_N Date Analyzed: 07/08/2017 13:58
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-171866/2-A	2017.07.08_ 537A_034.d	07/08/2017 14:02
	LLCSD 320-171866/3-A	2017.07.08_ 537A_035.d	07/08/2017 14:07
WGNA-061917-FRB-0143	320-29300-21	2017.07.08_ 537A_036.d	07/08/2017 14:12
WGNA-061917-RW-3118B	320-29300-22	2017.07.08_ 537A_037.d	07/08/2017 14:16

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-172646/11		960063	1.87	2831967	2.11		
ICV 320-172646/13		920859	1.87	2667731	2.11		
CCVL 320-173114/4		980863	1.94	3129733	2.17		
CCV 320-173117/29 CCVIS		869614	1.93	3053864	2.16		
MB 320-171866/1-A		909159	1.93	2877414	2.16		
LLCS 320-171866/2-A		886884	1.93	2980404	2.16		
LLCSD 320-171866/3-A		889644	1.93	2963885	2.16		
320-29300-21	WGNA-061917-FRB-0143	887660	1.93	2959213	2.16		
320-29300-22	WGNA-061917-RW-3118B	846898	1.93	3075458	2.16		
CCV 320-173117/38 CCVIS		860316	1.93	3010705	2.16		
CCV 320-173118/1 CCVIS		860316	1.93	3010705	2.16		
MB 320-171856/1-A		884557	1.94	2856148	2.16		
LCS 320-171856/2-A		868743	1.93	2960574	2.16		
320-29300-1	WGNA-061917-RW-3493	909874	1.93	2978841	2.16		
320-29300-2	WGNA-061917-FRB-3493	929304	1.93	2958021	2.16		
320-29300-3	WGNA-061917-RW-3283	880967	1.93	2805026	2.16		
320-29300-4	WGNA-061917-FRB-3283	861669	1.93	2850101	2.16		
320-29300-5	WGNA-061917-RW-0386	890869	1.92	2934456	2.16		
320-29300-6	WGNA-061917-FRB-0386	859503	1.93	2912151	2.16		
CCV 320-173118/11 CCVIS		849324	1.93	2879308	2.16		
CCV 320-173119/11 CCVIS		849324	1.93	2879308	2.16		
320-29300-7	WGNA-061917-RW-3460	857546	1.93	2762126	2.16		
320-29300-7 LMS	WGNA-061917-RW-3460 LMS	839476	1.93	2796351	2.16		
320-29300-7 LMSD	WGNA-061917-RW-3460 LMSD	822170	1.92	2769101	2.16		
320-29300-8	WGNA-061917-FRB-3460	844884	1.93	2709306	2.16		
320-29300-9	WGNA-061917-RW-3118A	812252	1.93	2704310	2.16		
320-29300-10	WGNA-061917-FRB-3118A	859528	1.93	2814729	2.17		

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.: 320-29300-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29300-11	WGNA-061917-RW-3556	824489	1.93	2740985	2.16		
320-29300-12	WGNA-061917-FRB-3556	862733	1.92	2807629	2.16		
320-29300-13	WGNA-061917-RW-0335	850423	1.93	2889608	2.16		
320-29300-14	WGNA-061917-FRB-0335	839396	1.93	2594885	2.16		
CCV 320-173119/23 CCVIS		813808	1.92	2869074	2.16		
CCV 320-173120/23 CCVIS		813808	1.92	2869074	2.16		
320-29300-15	WGNA-061917-RW-3882	809341	1.93	2688123	2.16		
320-29300-16	WGNA-061917-FRB-3882	829383	1.90	2715624	2.15		
320-29300-17	WGNA-061917-RW-3382	817686	1.92	2793731	2.16		
320-29300-18	WGNA-061917-FRB-3382	801880	1.91	2685263	2.15		
320-29300-19	WGNA-061917-DUP01	841540	1.91	2676331	2.15		
320-29300-20	WGNA-061917-RW-0143	784949	1.90	2644931	2.15		
CCV 320-173120/31 CCVIS		793606	1.91	2772993	2.15		

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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173117/29 Date Analyzed: 07/08/2017 13:39
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_029 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	869614	1.93	3053864	2.16		
UPPER LIMIT	1217460	2.43	4275410	2.66		
LOWER LIMIT	608730	1.43	2137705	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-171866/1-A		909159	1.93	2877414	2.16	
LLCS 320-171866/2-A		886884	1.93	2980404	2.16	
LLCSD 320-171866/3-A		889644	1.93	2963885	2.16	
320-29300-21	WGNA-061917-FRB-0143	887660	1.93	2959213	2.16	
320-29300-22	WGNA-061917-RW-3118B	846898	1.93	3075458	2.16	

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173117/38 Date Analyzed: 07/08/2017 14:21
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_038 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	860316	1.93	3010705	2.16		
UPPER LIMIT	1204442	2.43	4214987	2.66		
LOWER LIMIT	602221	1.43	2107494	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-171866/1-A		909159	1.93	2877414	2.16	
LLCS 320-171866/2-A		886884	1.93	2980404	2.16	
LLCSD 320-171866/3-A		889644	1.93	2963885	2.16	
320-29300-21	WGNA-061917-FRB-0143	887660	1.93	2959213	2.16	
320-29300-22	WGNA-061917-RW-3118B	846898	1.93	3075458	2.16	

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173118/1 Date Analyzed: 07/08/2017 14:21
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_038 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	860316	1.93	3010705	2.16		
UPPER LIMIT	1204442	2.43	4214987	2.66		
LOWER LIMIT	602221	1.43	2107494	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-171856/1-A		884557	1.94	2856148	2.16	
LCS 320-171856/2-A		868743	1.93	2960574	2.16	
320-29300-1	WGNA-061917-RW-3493	909874	1.93	2978841	2.16	
320-29300-2	WGNA-061917-FRB-3493	929304	1.93	2958021	2.16	
320-29300-3	WGNA-061917-RW-3283	880967	1.93	2805026	2.16	
320-29300-4	WGNA-061917-FRB-3283	861669	1.93	2850101	2.16	
320-29300-5	WGNA-061917-RW-0386	890869	1.92	2934456	2.16	
320-29300-6	WGNA-061917-FRB-0386	859503	1.93	2912151	2.16	

13PFOA = 13C2-PFOA
 13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173118/11 Date Analyzed: 07/08/2017 15:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_048 Heated Purge: (Y/N) N
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		849324	1.93	2879308	2.16		
UPPER LIMIT		1189054	2.43	4031031	2.66		
LOWER LIMIT		594527	1.43	2015516	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-171856/1-A		884557	1.94	2856148	2.16		
LCS 320-171856/2-A		868743	1.93	2960574	2.16		
320-29300-1	WGNA-061917-RW-3493	909874	1.93	2978841	2.16		
320-29300-2	WGNA-061917-FRB-3493	929304	1.93	2958021	2.16		
320-29300-3	WGNA-061917-RW-3283	880967	1.93	2805026	2.16		
320-29300-4	WGNA-061917-FRB-3283	861669	1.93	2850101	2.16		
320-29300-5	WGNA-061917-RW-0386	890869	1.92	2934456	2.16		
320-29300-6	WGNA-061917-FRB-0386	859503	1.93	2912151	2.16		

13PFOA = 13C2-PFOA
 13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173119/11 Date Analyzed: 07/08/2017 15:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_048 Heated Purge: (Y/N) N
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		849324	1.93	2879308	2.16		
UPPER LIMIT		1189054	2.43	4031031	2.66		
LOWER LIMIT		594527	1.43	2015516	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29300-7	WGNA-061917-RW-3460	857546	1.93	2762126	2.16		
320-29300-7 LMS	WGNA-061917-RW-3460 LMS	839476	1.93	2796351	2.16		
320-29300-7 LMSD	WGNA-061917-RW-3460 LMSD	822170	1.92	2769101	2.16		
320-29300-8	WGNA-061917-FRB-3460	844884	1.93	2709306	2.16		
320-29300-9	WGNA-061917-RW-3118A	812252	1.93	2704310	2.16		
320-29300-10	WGNA-061917-FRB-3118A	859528	1.93	2814729	2.17		
320-29300-11	WGNA-061917-RW-3556	824489	1.93	2740985	2.16		
320-29300-12	WGNA-061917-FRB-3556	862733	1.92	2807629	2.16		
320-29300-13	WGNA-061917-RW-0335	850423	1.93	2889608	2.16		
320-29300-14	WGNA-061917-FRB-0335	839396	1.93	2594885	2.16		

13PFOA = 13C2-PFOA
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173119/23 Date Analyzed: 07/08/2017 16:06
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_060 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	813808	1.92	2869074	2.16		
UPPER LIMIT	1139331	2.42	4016704	2.66		
LOWER LIMIT	569666	1.42	2008352	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-29300-7	WGNA-061917-RW-3460	857546	1.93	2762126	2.16	
320-29300-7 LMS	WGNA-061917-RW-3460 LMS	839476	1.93	2796351	2.16	
320-29300-7 LMSD	WGNA-061917-RW-3460 LMSD	822170	1.92	2769101	2.16	
320-29300-8	WGNA-061917-FRB-3460	844884	1.93	2709306	2.16	
320-29300-9	WGNA-061917-RW-3118A	812252	1.93	2704310	2.16	
320-29300-10	WGNA-061917-FRB-3118A	859528	1.93	2814729	2.17	
320-29300-11	WGNA-061917-RW-3556	824489	1.93	2740985	2.16	
320-29300-12	WGNA-061917-FRB-3556	862733	1.92	2807629	2.16	
320-29300-13	WGNA-061917-RW-0335	850423	1.93	2889608	2.16	
320-29300-14	WGNA-061917-FRB-0335	839396	1.93	2594885	2.16	

13PFOA = 13C2-PFOA
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173120/23 Date Analyzed: 07/08/2017 16:06
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_060 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	813808	1.92	2869074	2.16		
UPPER LIMIT	1139331	2.42	4016704	2.66		
LOWER LIMIT	569666	1.42	2008352	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-29300-15	WGNA-061917-RW-3882	809341	1.93	2688123	2.16	
320-29300-16	WGNA-061917-FRB-3882	829383	1.90	2715624	2.15	
320-29300-17	WGNA-061917-RW-3382	817686	1.92	2793731	2.16	
320-29300-18	WGNA-061917-FRB-3382	801880	1.91	2685263	2.15	
320-29300-19	WGNA-061917-DUP01	841540	1.91	2676331	2.15	
320-29300-20	WGNA-061917-RW-0143	784949	1.90	2644931	2.15	

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173120/31 Date Analyzed: 07/08/2017 16:44
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_068 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	793606	1.91	2772993	2.15		
UPPER LIMIT	1111048	2.41	3882190	2.65		
LOWER LIMIT	555524	1.41	1941095	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-29300-15	WGNA-061917-RW-3882	809341	1.93	2688123	2.16	
320-29300-16	WGNA-061917-FRB-3882	829383	1.90	2715624	2.15	
320-29300-17	WGNA-061917-RW-3382	817686	1.92	2793731	2.16	
320-29300-18	WGNA-061917-FRB-3382	801880	1.91	2685263	2.15	
320-29300-19	WGNA-061917-DUP01	841540	1.91	2676331	2.15	
320-29300-20	WGNA-061917-RW-0143	784949	1.90	2644931	2.15	

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

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3493 Lab Sample ID: 320-29300-1
 Matrix: Water Lab File ID: 2017.07.08_537A_042.d
 Analysis Method: 537 Date Collected: 06/19/2017 08:40
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 256.4(mL) Date Analyzed: 07/08/2017 14:40
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173118 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.8	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	90		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_042.d
 Lims ID: 320-29300-A-1-A
 Client ID: WGNA-061917-RW-3493
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:40:43 ALS Bottle#: 30 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:42:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	241765	2.61		65.7	
298.90 > 99.00	1.426	1.404	0.022	1.000	191322		1.26(0.00-0.00)	82.9	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	933000	9.03		5212	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	165722	1.74		20.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	581900	4.02		139	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		909874	10.0		4149	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	473011	5.64		31.0	M
413.00 > 169.00	1.927	1.879	0.048	1.000	327786		1.44(0.00-0.00)	371	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2978841	28.7		2156	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	43690	0.5827		1.3	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	807830	7.59		346	
499.00 > 99.00	2.162	2.147	0.015	1.000	147220		5.49(0.00-0.00)	171	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	691317	9.05		1526	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_042.d

Injection Date: 08-Jul-2017 14:40:43

Instrument ID: A8_N

Lims ID: 320-29300-A-1-A

Lab Sample ID: 320-29300-1

Client ID: WGNA-061917-RW-3493

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

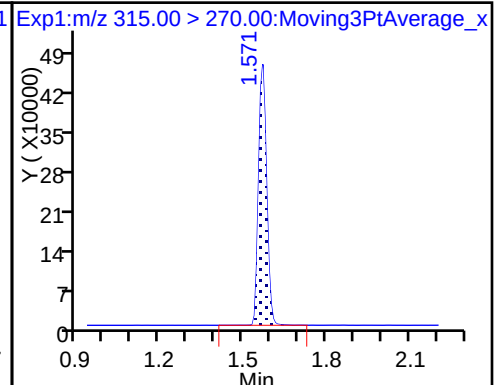
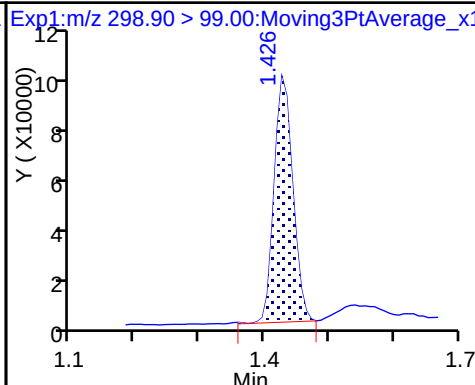
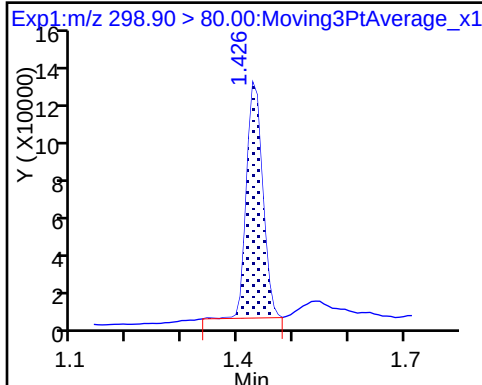
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

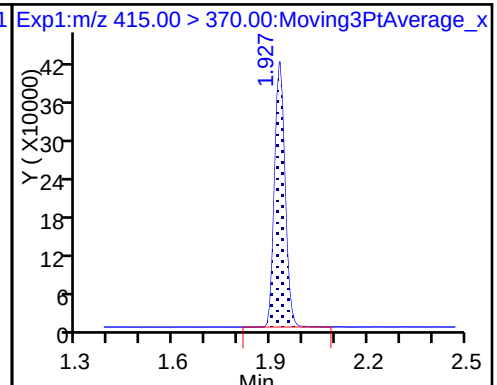
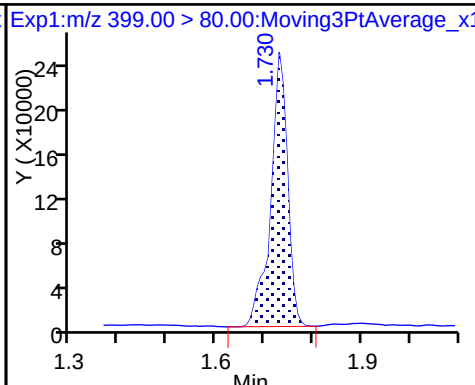
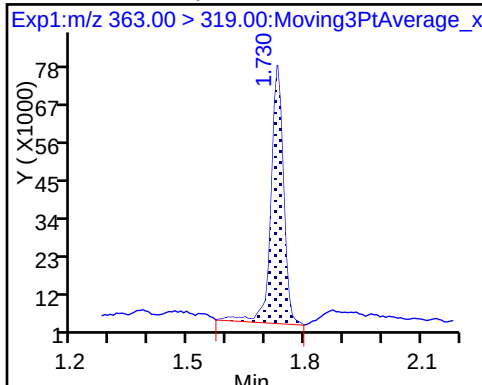
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

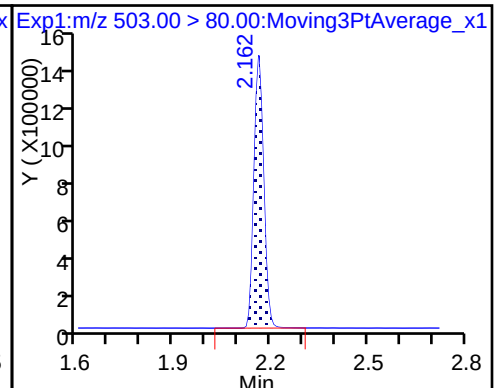
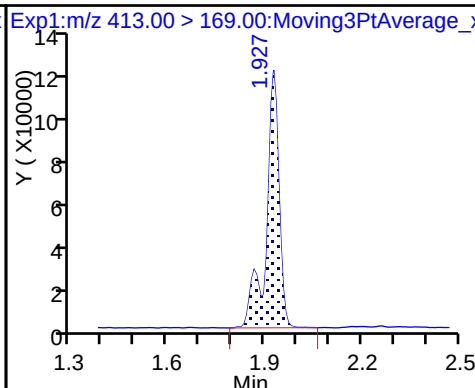
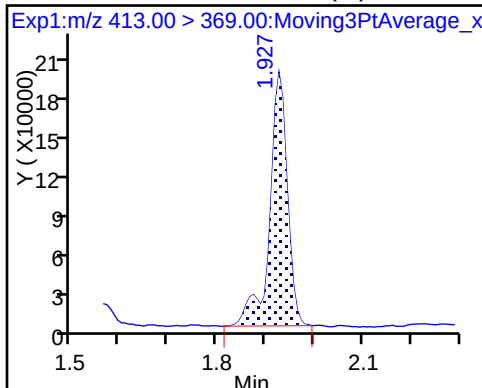
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

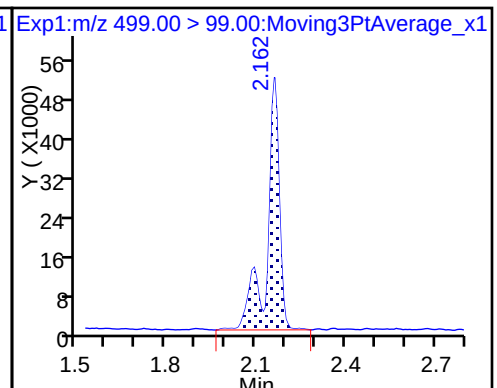
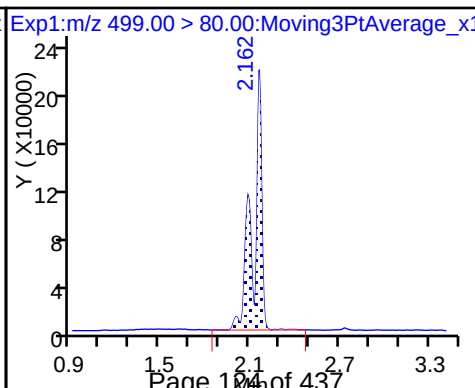
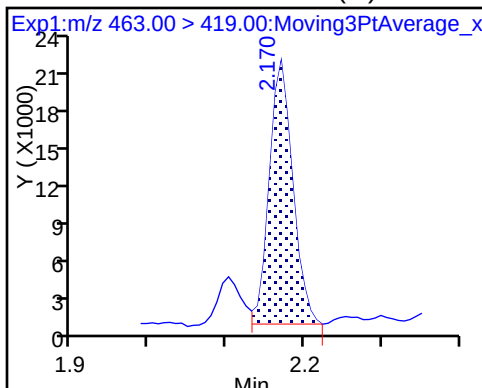
* 7 13C4 PFOS



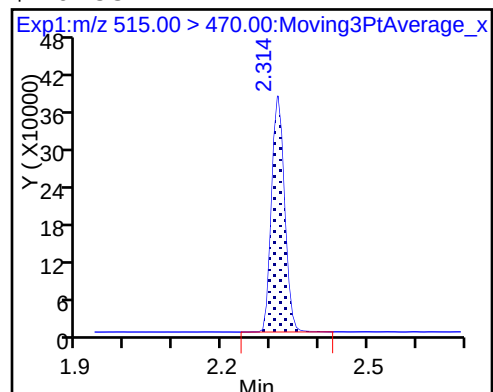
9 Perfluorononanoic acid (M)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_042.d
Lims ID: 320-29300-A-1-A
Client ID: WGNA-061917-RW-3493
Sample Type: Client
Inject. Date: 08-Jul-2017 14:40:43 ALS Bottle#: 30 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:42:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.03	90.25
\$ 10 13C2 PFDA	10.0	9.05	90.50

TestAmerica Sacramento

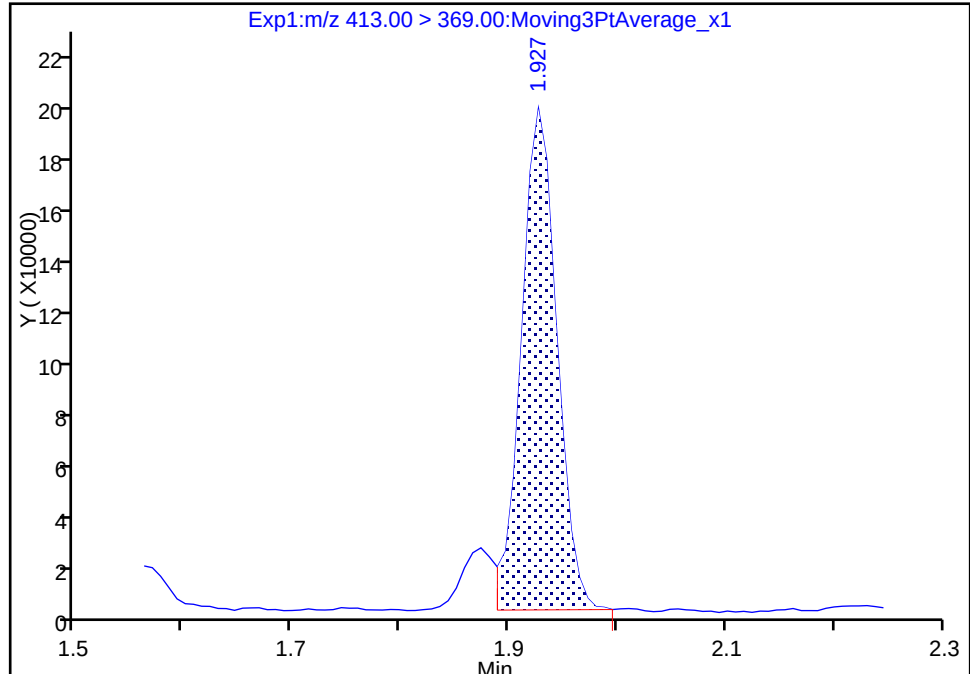
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_042.d				
Injection Date:	08-Jul-2017 14:40:43	Instrument ID:	A8_N		
Lims ID:	320-29300-A-1-A	Lab Sample ID:	320-29300-1		
Client ID:	WGNA-061917-RW-3493				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	5
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

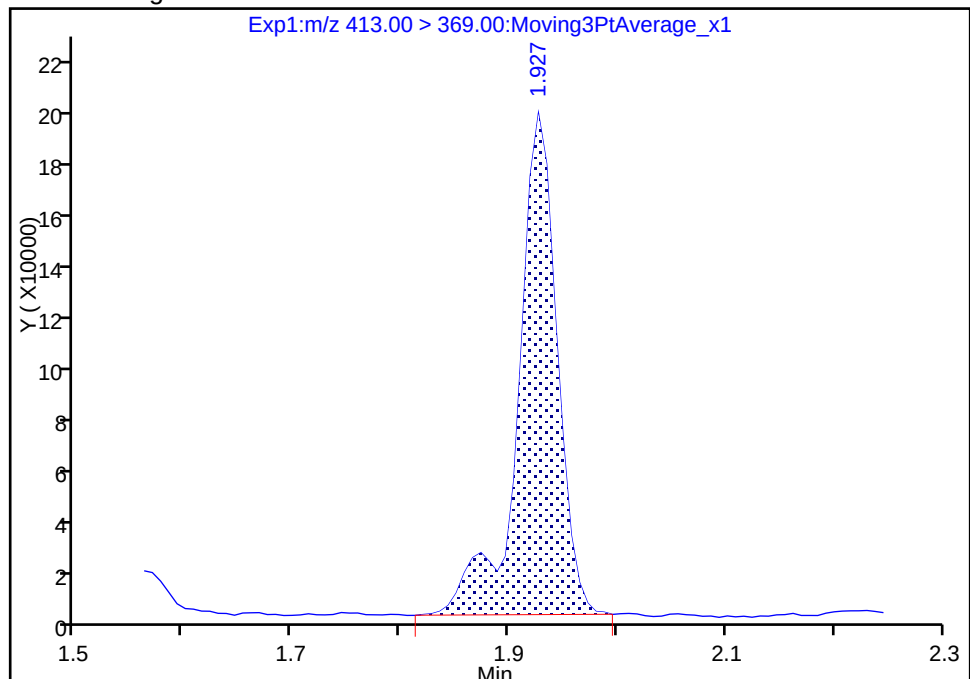
RT: 1.93
Area: 426661
Amount: 5.087651
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 473011
Amount: 5.640344
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:41:31
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

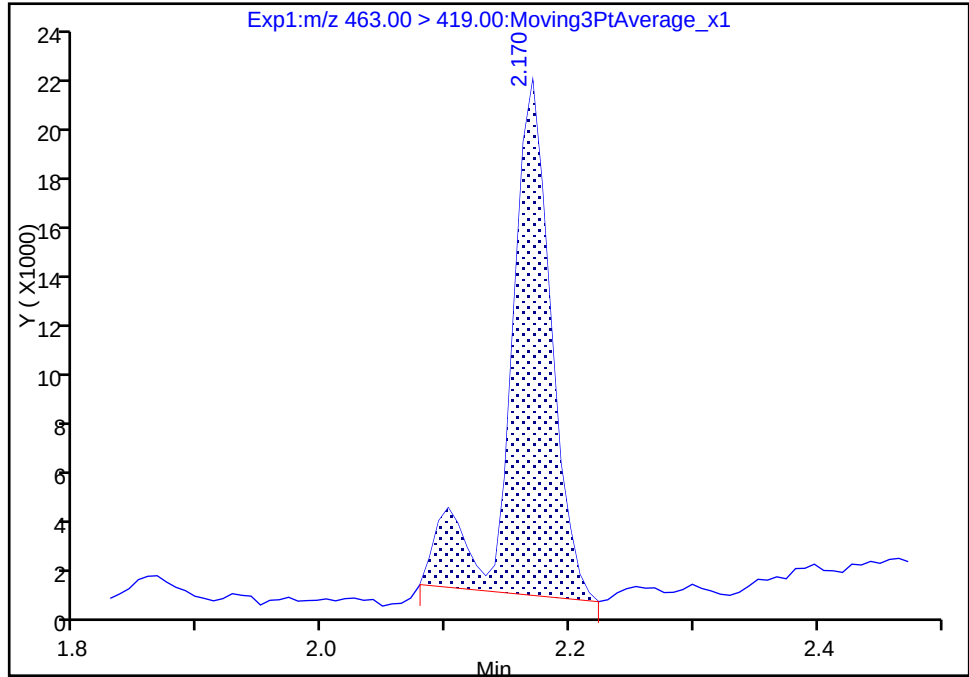
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_042.d				
Injection Date:	08-Jul-2017 14:40:43	Instrument ID:	A8_N		
Lims ID:	320-29300-A-1-A	Lab Sample ID:	320-29300-1		
Client ID:	WGNA-061917-RW-3493				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	30	Worklist Smp#:	5
Injection 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

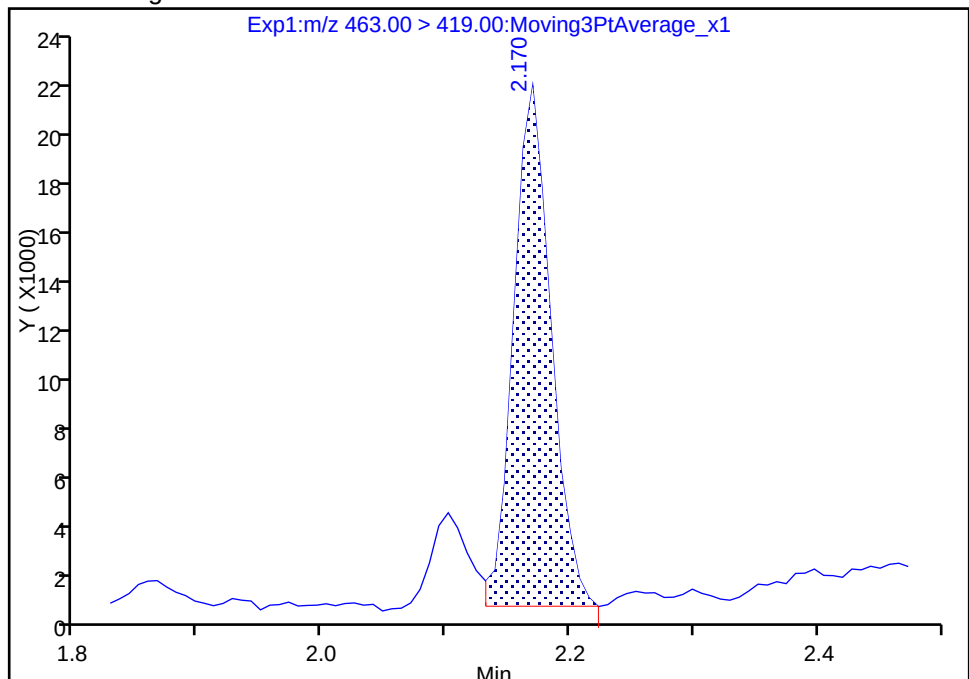
RT: 2.17
Area: 48270
Amount: 0.643750
Amount Units: ng/ml

Processing Integration Results



RT: 2.17
Area: 43690
Amount: 0.582669
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:42:04

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3493</u>	Lab Sample ID: <u>320-29300-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_043.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 08:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>253.5 (mL)</u>	Date Analyzed: <u>07/08/2017 14:45</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>173118</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	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_043.d
 Lims ID: 320-29300-A-2-A
 Client ID: WGNA-061917-FRB-3493
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:45:27 ALS Bottle#: 31 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:42:31

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 1022793 9.69 5817

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 929304 10.0 4175

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2958021 28.7 3696

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 705830 9.05 1421

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_043.d

Injection Date: 08-Jul-2017 14:45:27

Instrument ID: A8_N

Lims ID: 320-29300-A-2-A

Lab Sample ID: 320-29300-2

Client ID: WGNA-061917-FRB-3493

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

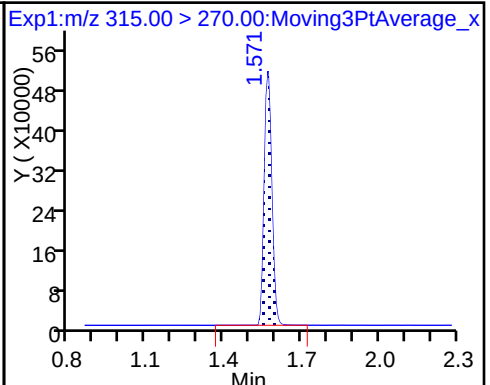
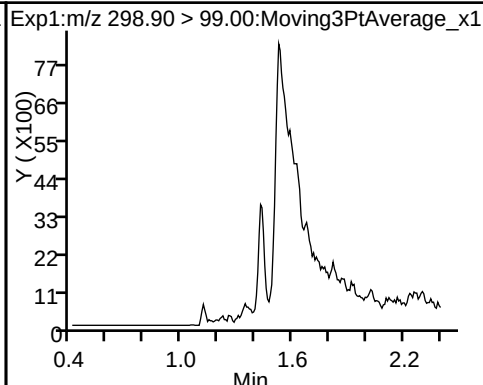
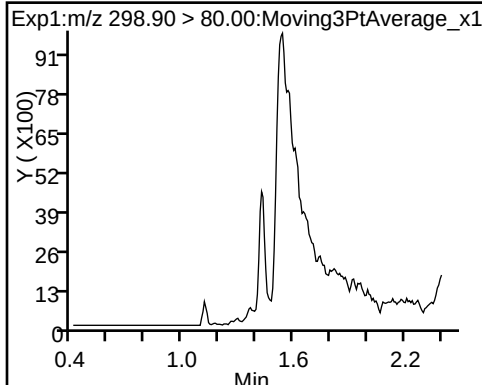
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

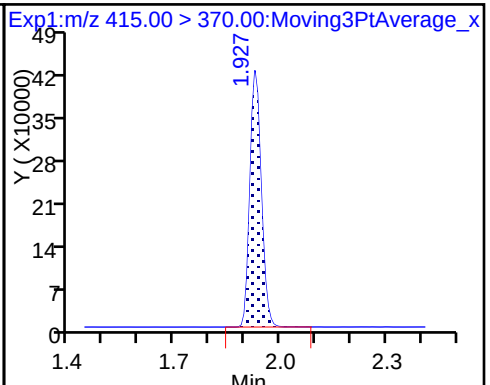
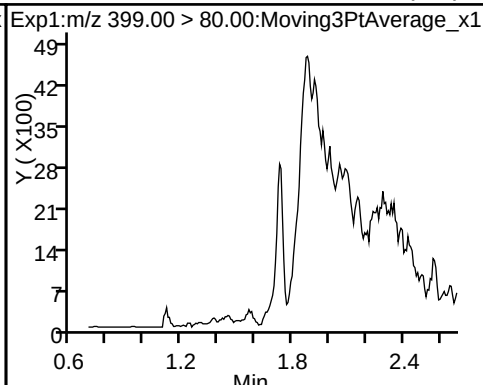
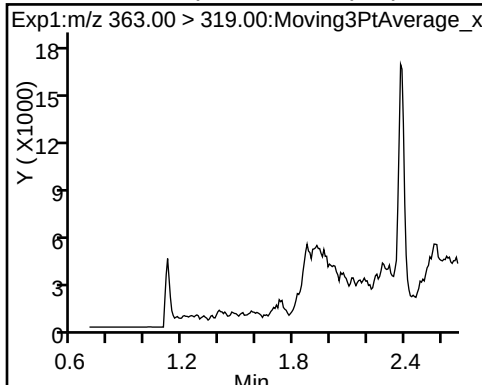
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

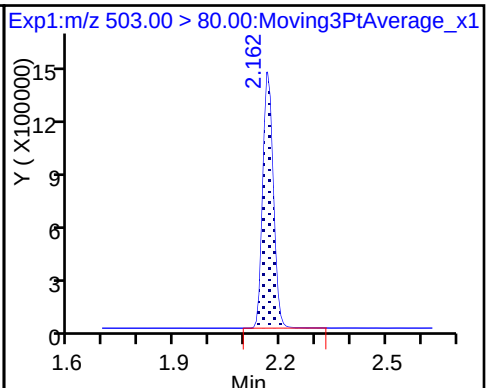
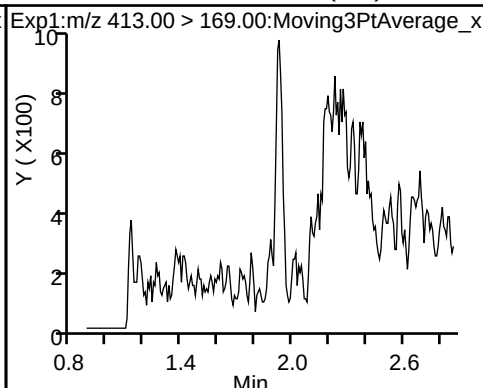
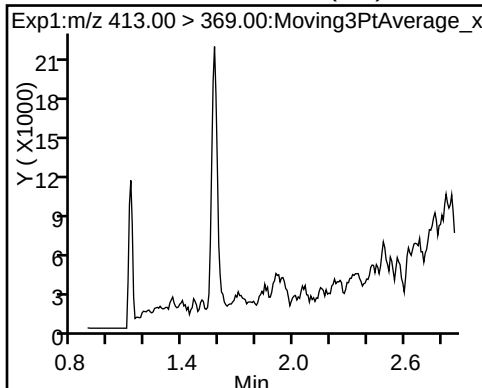
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

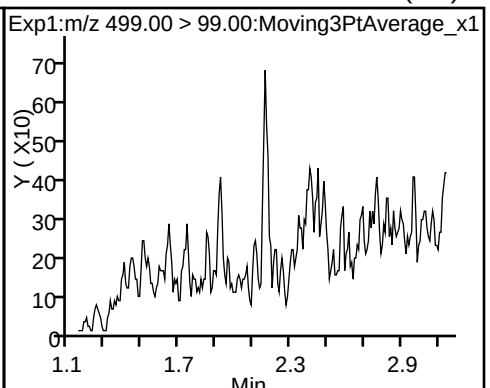
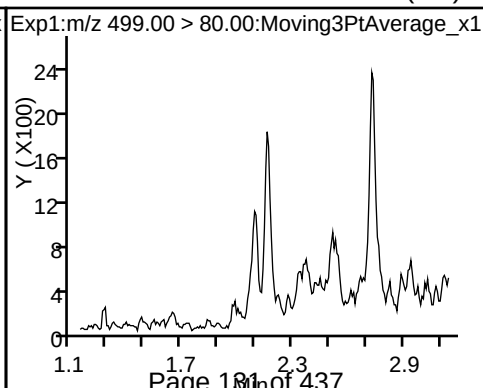
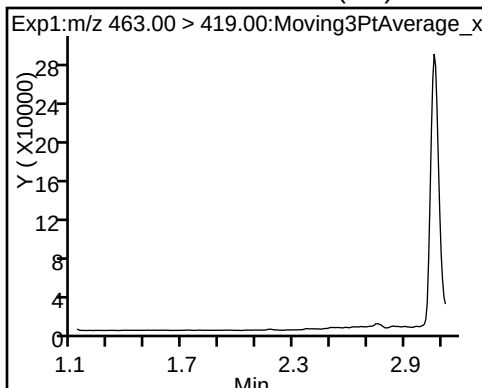
* 7 13C4 PFOS



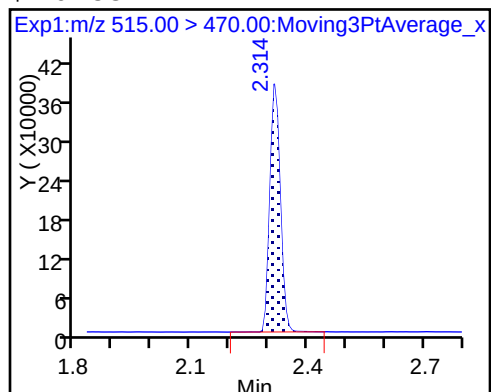
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_043.d
Lims ID: 320-29300-A-2-A
Client ID: WGNA-061917-FRB-3493
Sample Type: Client
Inject. Date: 08-Jul-2017 14:45:27 ALS Bottle#: 31 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:42:31

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.69	96.87
\$ 10 13C2 PFDA	10.0	9.05	90.47

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3283</u>	Lab Sample ID: <u>320-29300-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_044.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 09:15</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.6(mL)</u>	Date Analyzed: <u>07/08/2017 14:50</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>173118</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	20	M	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U M	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.3	J	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	23	J	87	35	16

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_044.d
 Lims ID: 320-29300-A-3-A
 Client ID: WGNA-061917-RW-3283
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:50:10 ALS Bottle#: 32 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:43:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	526687	6.04		175	
298.90 > 99.00	1.426	1.404	0.022	1.000	397035		1.33(0.00-0.00)	190	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	895046	8.94		5163	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	148903	1.62		20.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	277662	2.04		67.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		880967	10.0		3586	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	417863	5.15		30.4	M
413.00 > 169.00	1.927	1.879	0.048	1.000	300914		1.39(0.00-0.00)	378	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2805026	28.7		2331	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	55926	0.7703		1.7	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	504515	5.04		215	
499.00 > 99.00	2.162	2.147	0.015	1.000	85411		5.91(0.00-0.00)	105	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	690201	9.33		1584	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_044.d

Injection Date: 08-Jul-2017 14:50:10

Instrument ID: A8_N

Lims ID: 320-29300-A-3-A

Lab Sample ID: 320-29300-3

Client ID: WGNA-061917-RW-3283

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

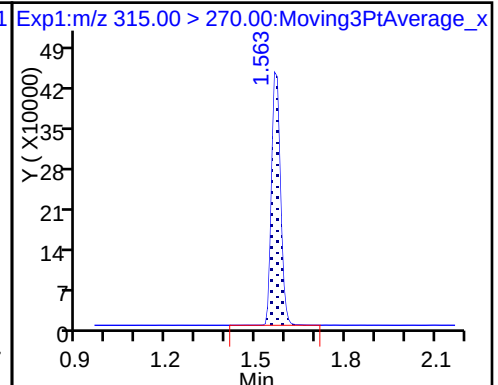
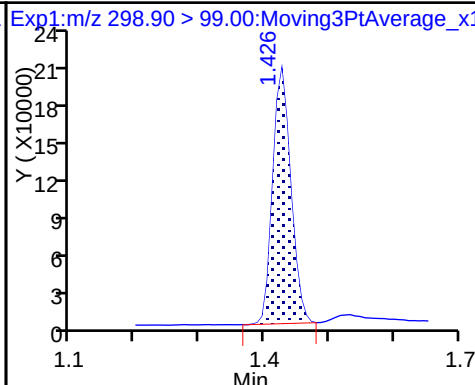
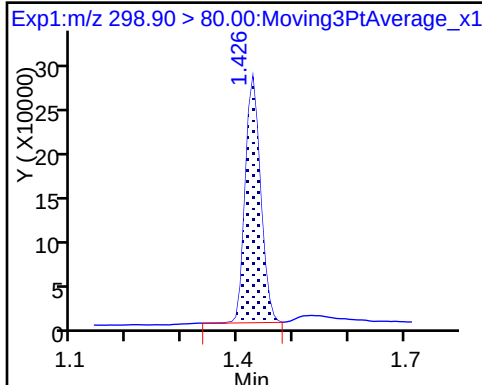
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

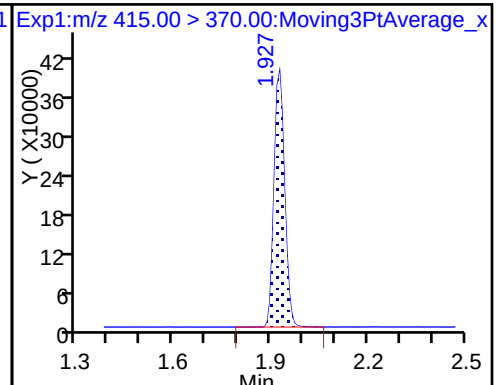
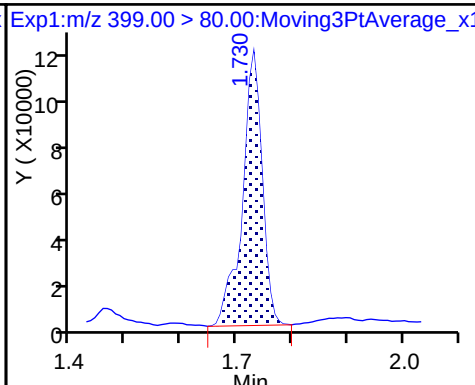
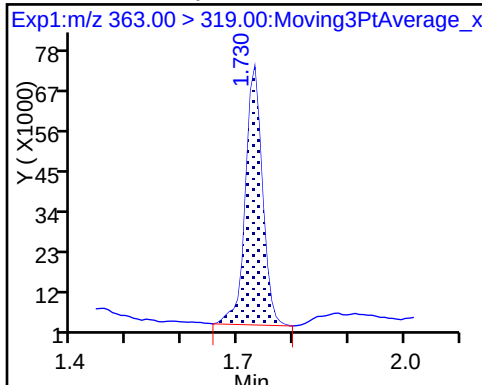
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

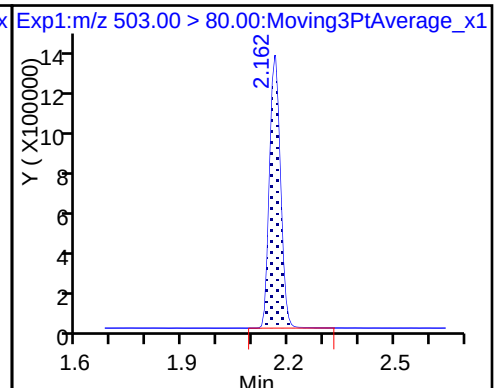
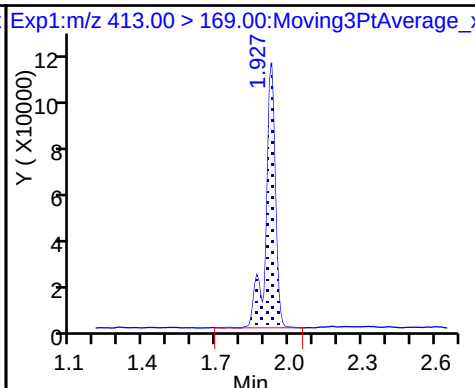
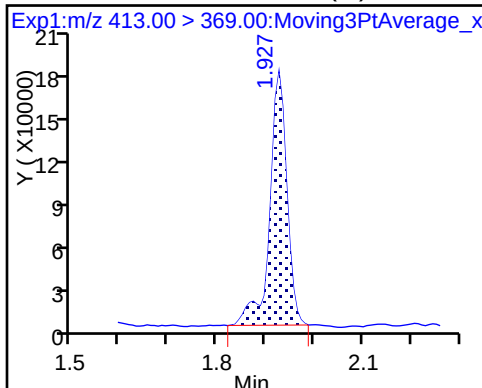
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

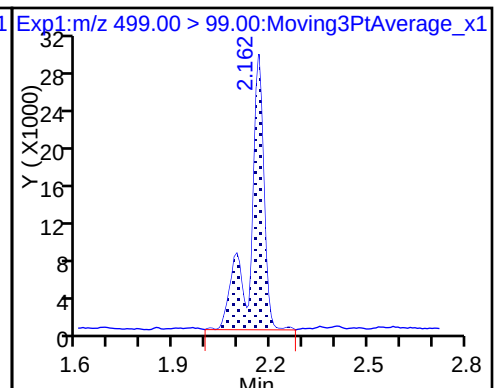
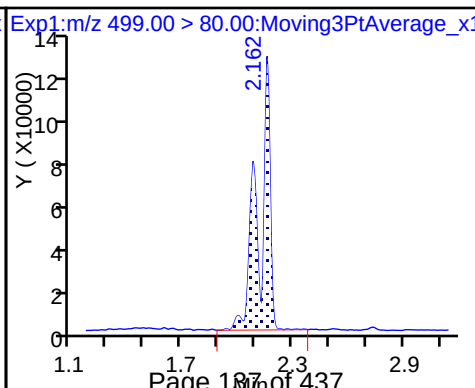
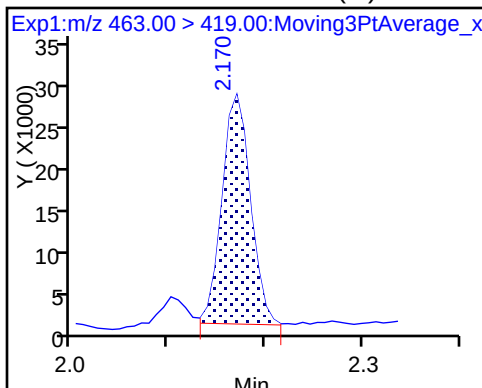
* 7 13C4 PFOS



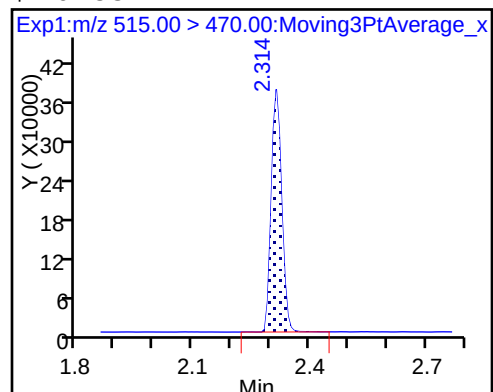
9 Perfluorononanoic acid (M)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_044.d
Lims ID: 320-29300-A-3-A
Client ID: WGNA-061917-RW-3283
Sample Type: Client
Inject. Date: 08-Jul-2017 14:50:10 ALS Bottle#: 32 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:43:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.94	89.42
\$ 10 13C2 PFDA	10.0	9.33	93.32

TestAmerica Sacramento

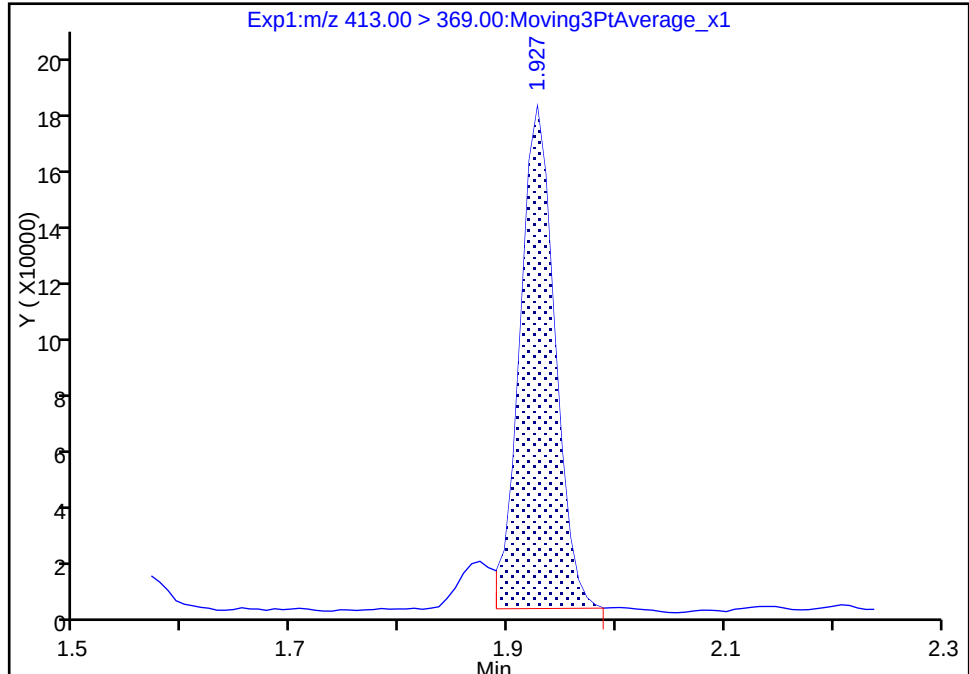
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Injection Date:	08-Jul-2017 14:50:10	Instrument ID:	A8_N		
Lims ID:	320-29300-A-3-A	Lab Sample ID:	320-29300-3		
Client ID:	WGNA-061917-RW-3283				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

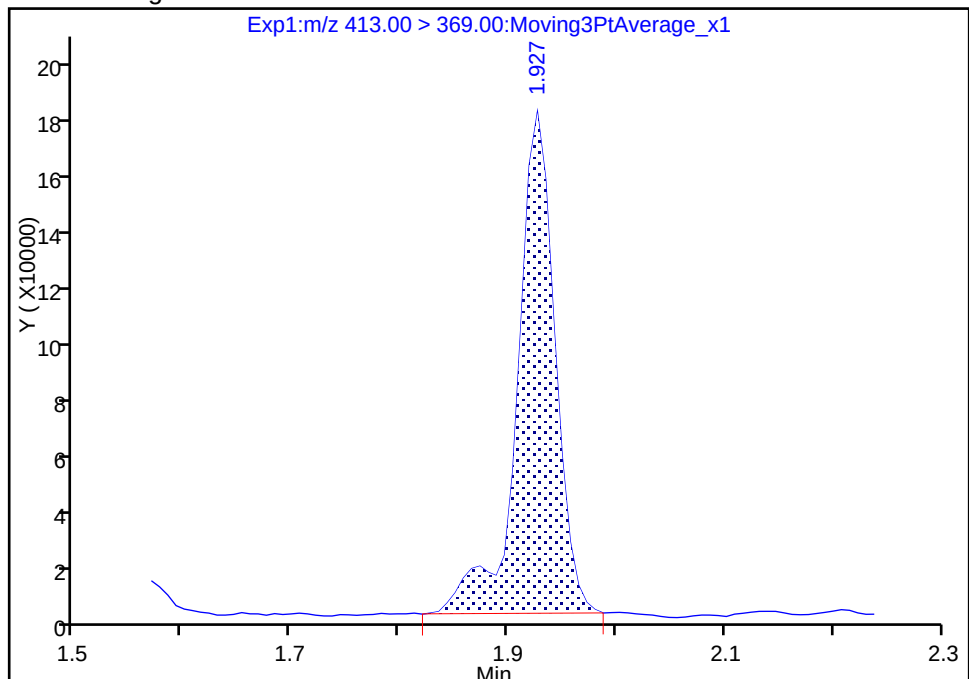
RT: 1.93
Area: 383501
Amount: 4.723049
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 417863
Amount: 5.146238
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:43:13

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

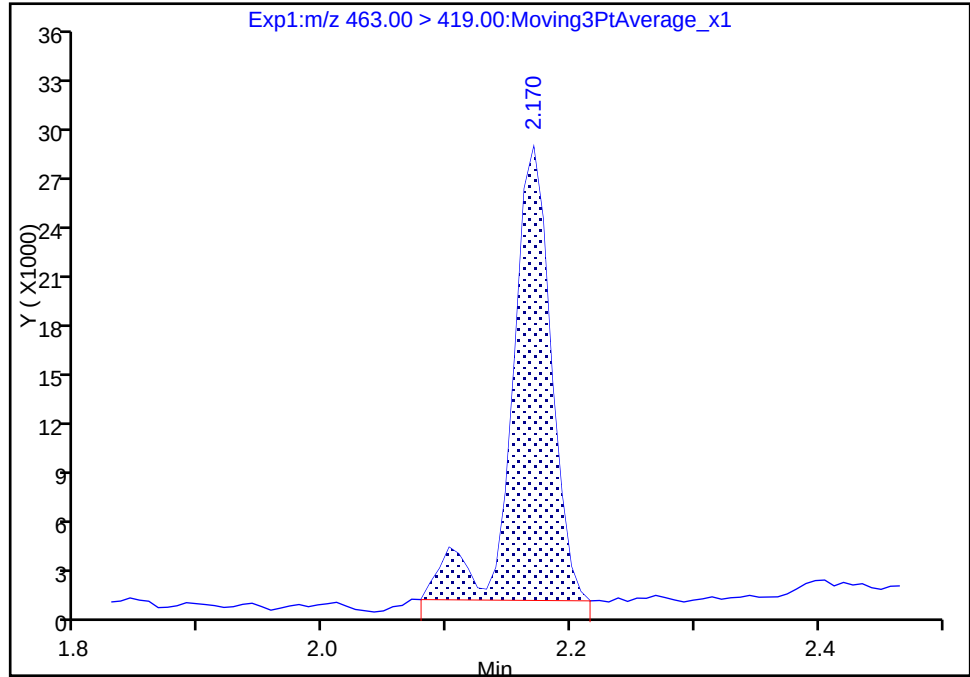
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_044.d				
Injection Date:	08-Jul-2017 14:50:10	Instrument ID:	A8_N		
Lims ID:	320-29300-A-3-A	Lab Sample ID:	320-29300-3		
Client ID:	WGNA-061917-RW-3283				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	7
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

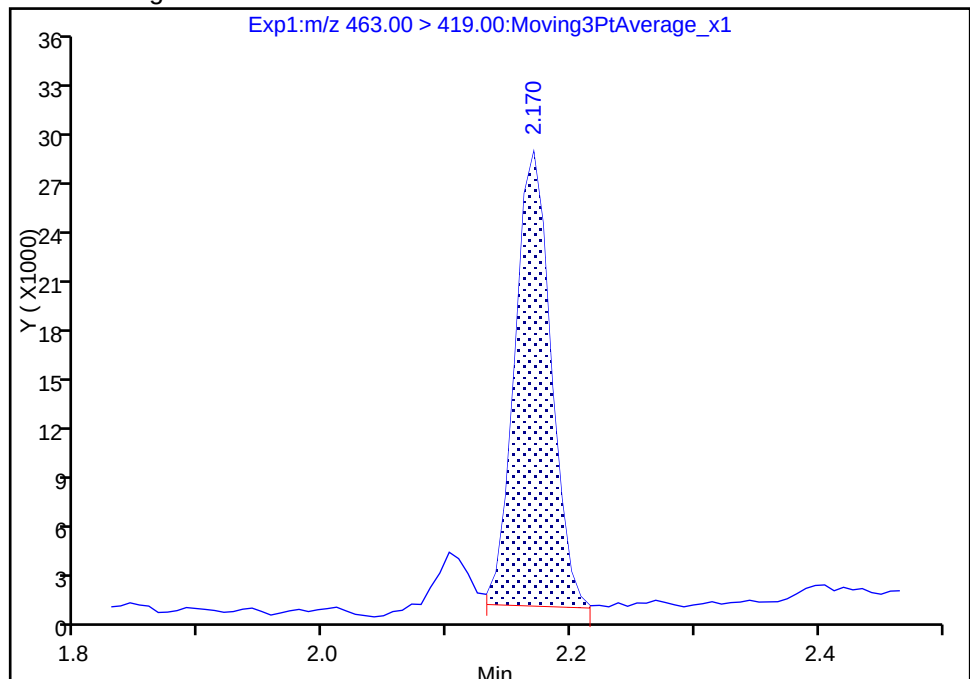
RT: 2.17
Area: 61060
Amount: 0.841043
Amount Units: ng/ml

Processing Integration Results



RT: 2.17
Area: 55926
Amount: 0.770327
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:43:30

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3283</u>	Lab Sample ID: <u>320-29300-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_045.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 09:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>256(mL)</u>	Date Analyzed: <u>07/08/2017 14:54</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>173118</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_045.d
 Lims ID: 320-29300-A-4-A
 Client ID: WGNA-061917-FRB-3283
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:54:55 ALS Bottle#: 33 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:44:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 1017543 10.4 5613

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 861669 10.0 3858

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2850101 28.7 3918

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 686403 9.49 1419

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_045.d

Injection Date: 08-Jul-2017 14:54:55

Instrument ID: A8_N

Lims ID: 320-29300-A-4-A

Lab Sample ID: 320-29300-4

Client ID: WGNA-061917-FRB-3283

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

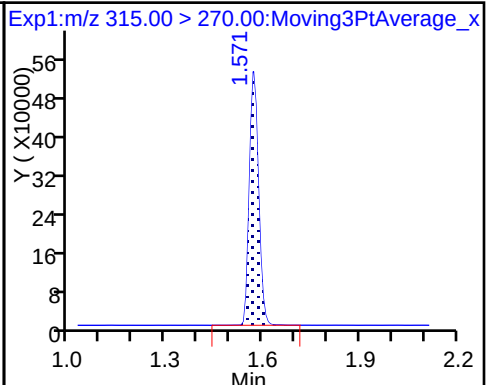
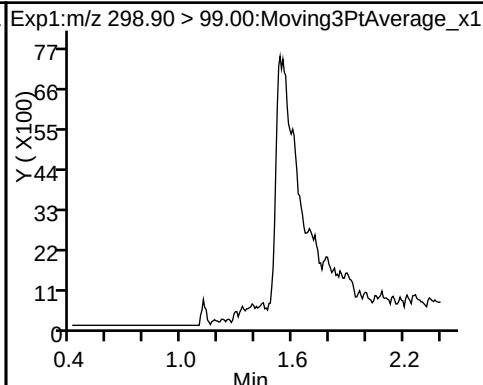
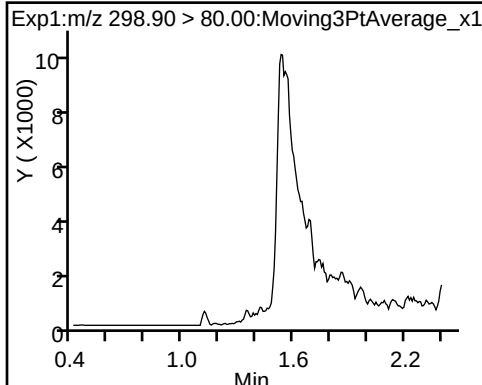
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

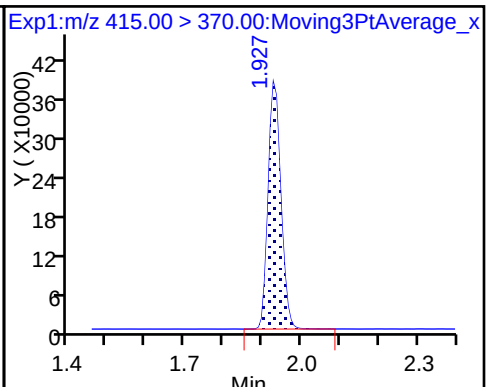
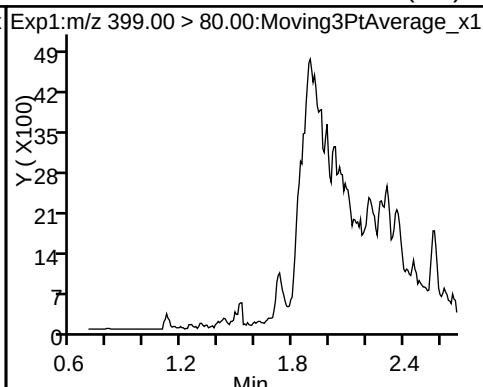
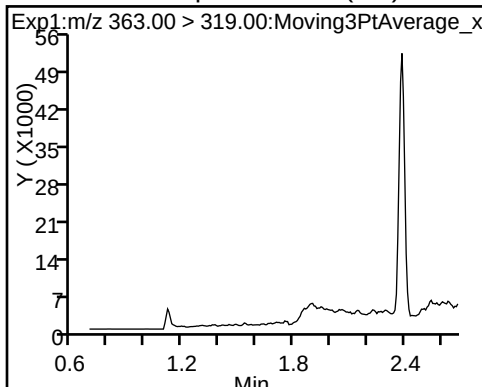
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

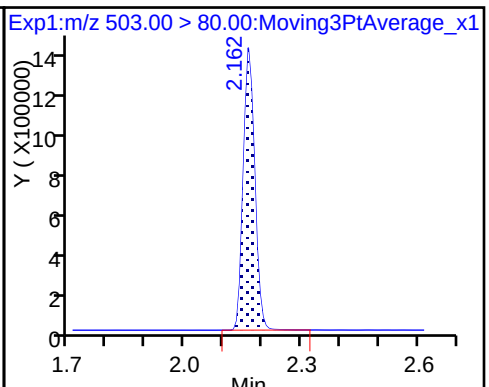
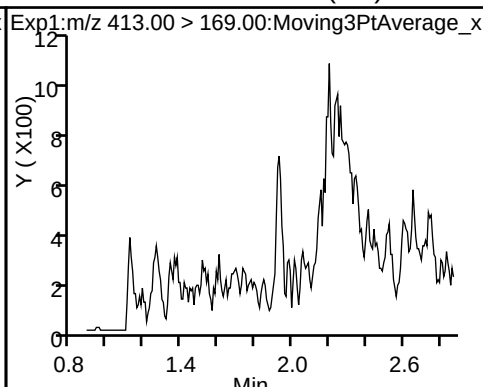
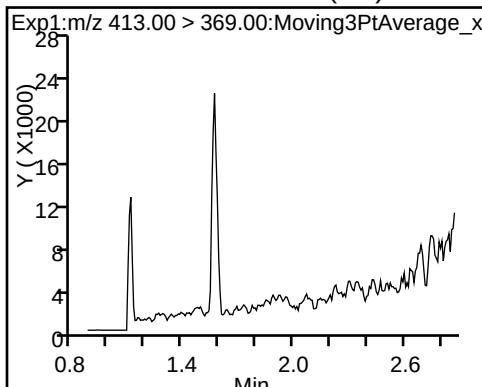
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

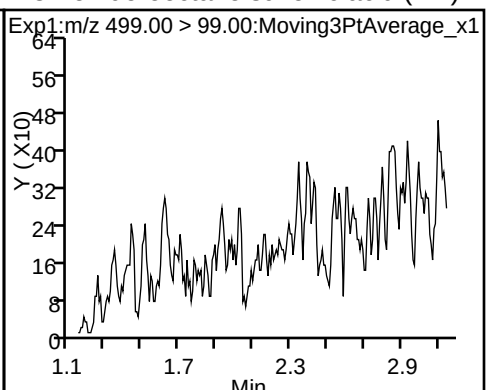
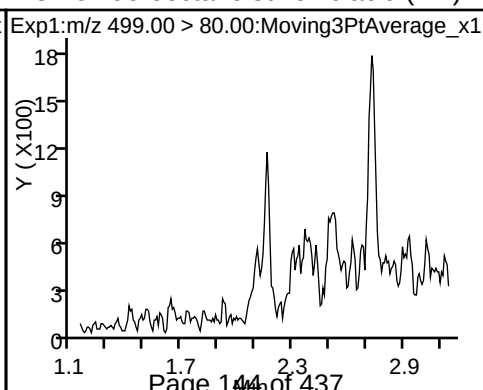
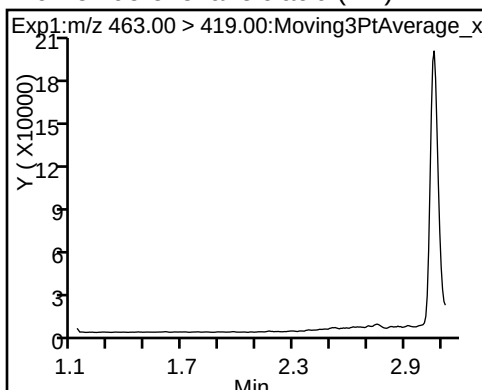
* 7 13C4 PFOS



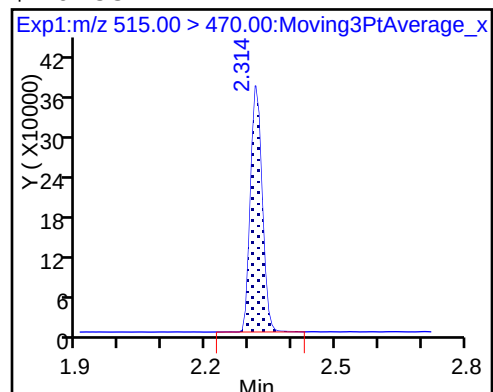
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_045.d
Lims ID: 320-29300-A-4-A
Client ID: WGNA-061917-FRB-3283
Sample Type: Client
Inject. Date: 08-Jul-2017 14:54:55 ALS Bottle#: 33 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-4-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:44:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.4	103.94
\$ 10 13C2 PFDA	10.0	9.49	94.89

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-0386 Lab Sample ID: 320-29300-5
 Matrix: Water Lab File ID: 2017.07.08_537A_046.d
 Analysis Method: 537 Date Collected: 06/19/2017 09:55
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 255.8 (mL) Date Analyzed: 07/08/2017 14:59
 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.: 173118 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	21	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	18	J	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_046.d
 Lims ID: 320-29300-A-5-A
 Client ID: WGNA-061917-RW-0386
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:59:41 ALS Bottle#: 34 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:45:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	415290	4.55		150	
298.90 > 99.00	1.426	1.404	0.022	1.000	329016		1.26(0.00-0.00)	149	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	875596	8.65		5054	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.691	0.031	1.000	97168	1.04		11.0	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	757120	5.31		198	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.878	0.042		890869	10.0		3947	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	451446	5.50		29.1	M
413.00 > 169.00	1.927	1.879	0.048	1.000	313681		1.44(0.00-0.00)	350	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.117	0.038		2934456	28.7		2433	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	840020	8.02		289	M
499.00 > 99.00	2.155	2.147	0.008	0.996	140858		5.96(0.00-0.00)	156	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	685625	9.17		1454	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_046.d

Injection Date: 08-Jul-2017 14:59:41

Instrument ID: A8_N

Lims ID: 320-29300-A-5-A

Lab Sample ID: 320-29300-5

Client ID: WGNA-061917-RW-0386

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

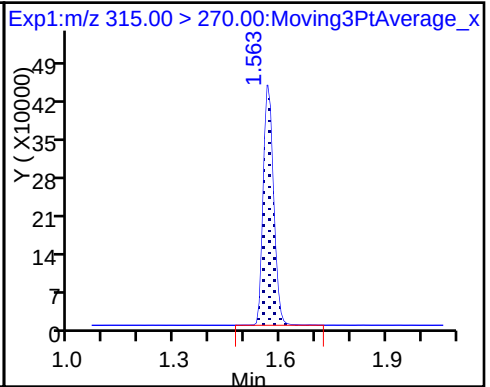
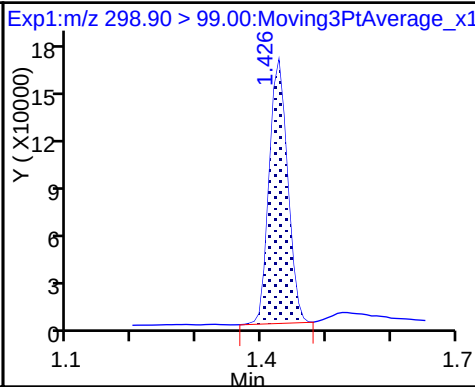
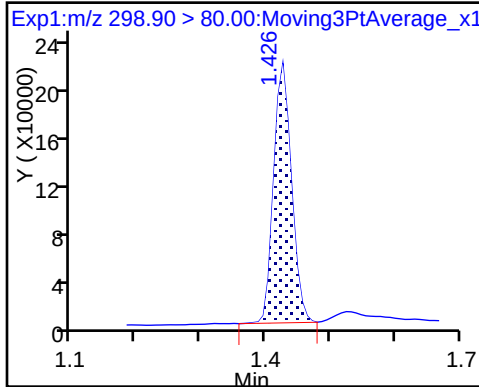
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

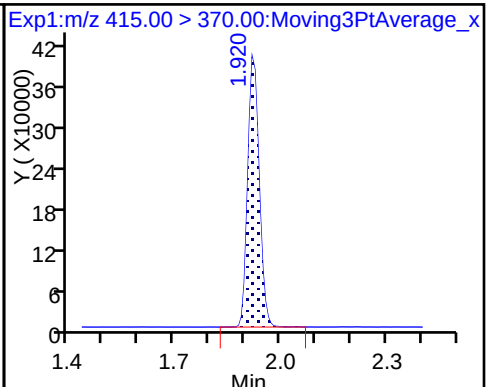
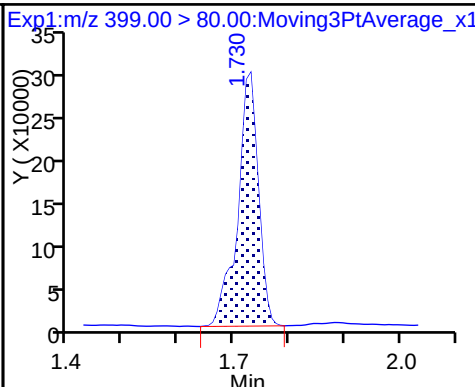
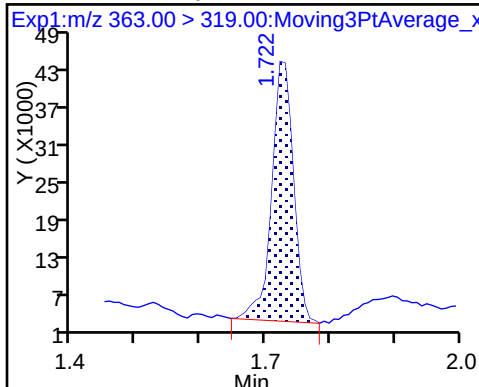
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

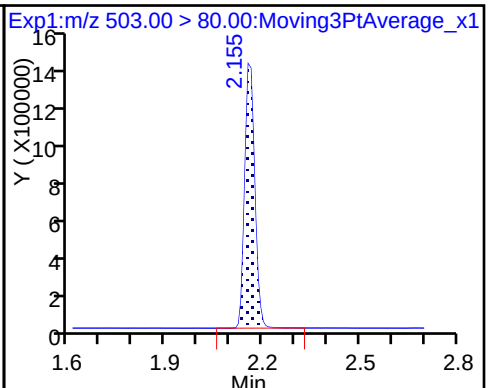
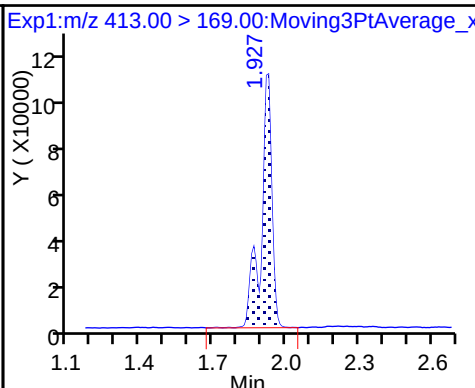
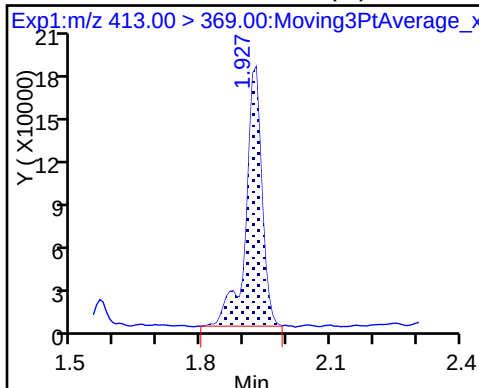
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

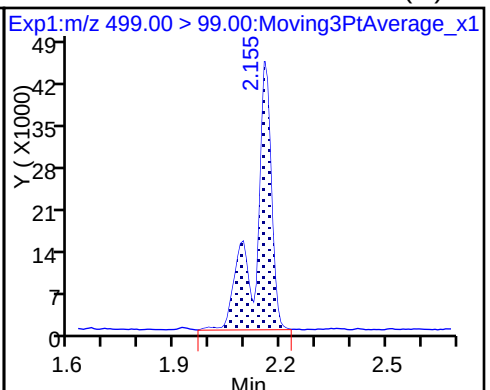
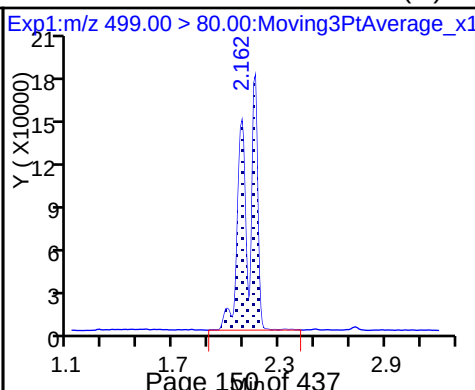
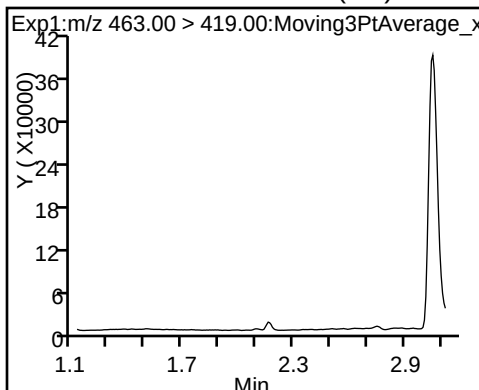
* 7 13C4 PFOS



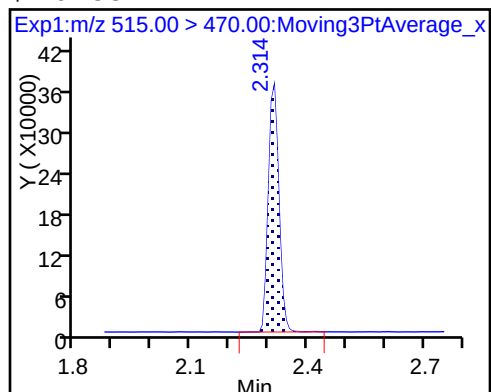
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_046.d
Lims ID: 320-29300-A-5-A
Client ID: WGNA-061917-RW-0386
Sample Type: Client
Inject. Date: 08-Jul-2017 14:59:41 ALS Bottle#: 34 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-5-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:45:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.65	86.51
\$ 10 13C2 PFDA	10.0	9.17	91.67

TestAmerica Sacramento

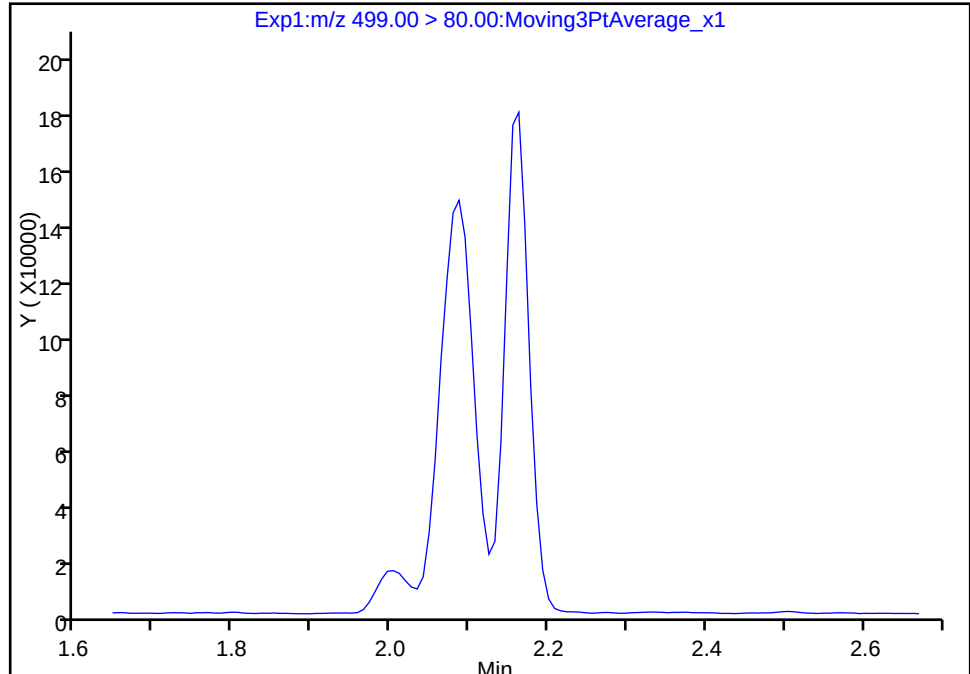
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Injection Date:	08-Jul-2017 14:59:41	Instrument ID:	A8_N		
Lims ID:	320-29300-A-5-A	Lab Sample ID:	320-29300-5		
Client ID:	WGNA-061917-RW-0386				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

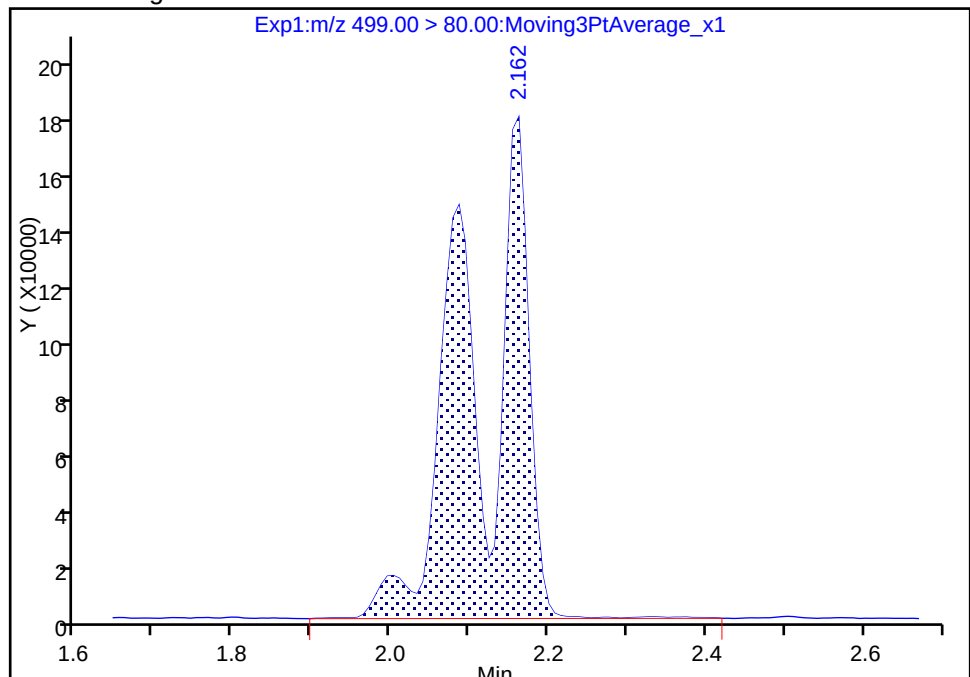
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.16
Area: 840020
Amount: 8.016676
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 10:44:12

Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

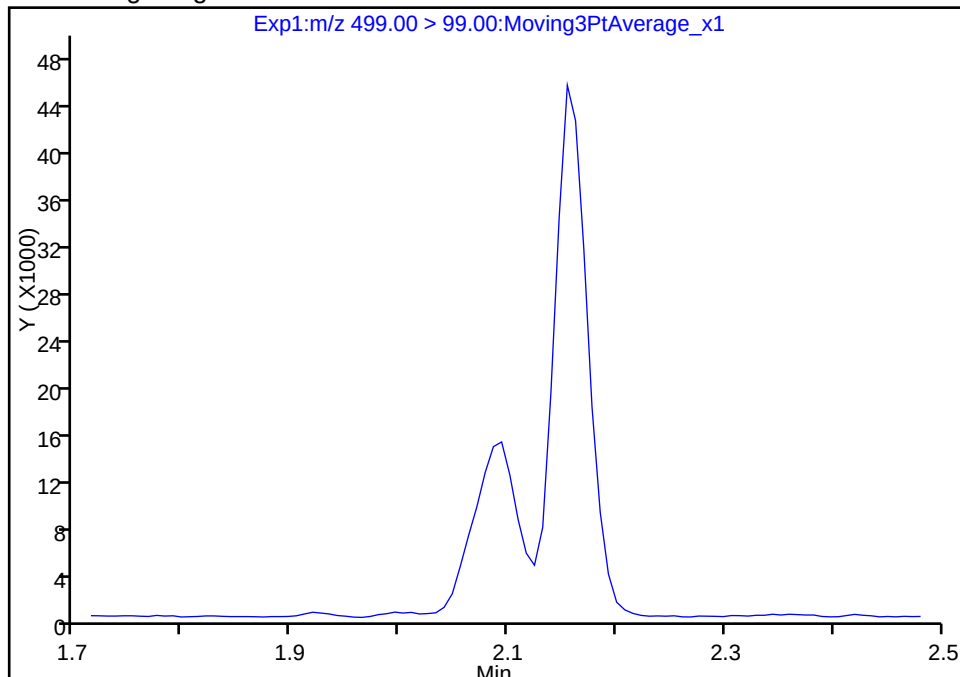
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Injection Date:	08-Jul-2017 14:59:41	Instrument ID:	A8_N		
Lims ID:	320-29300-A-5-A	Lab Sample ID:	320-29300-5		
Client ID:	WGNA-061917-RW-0386				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

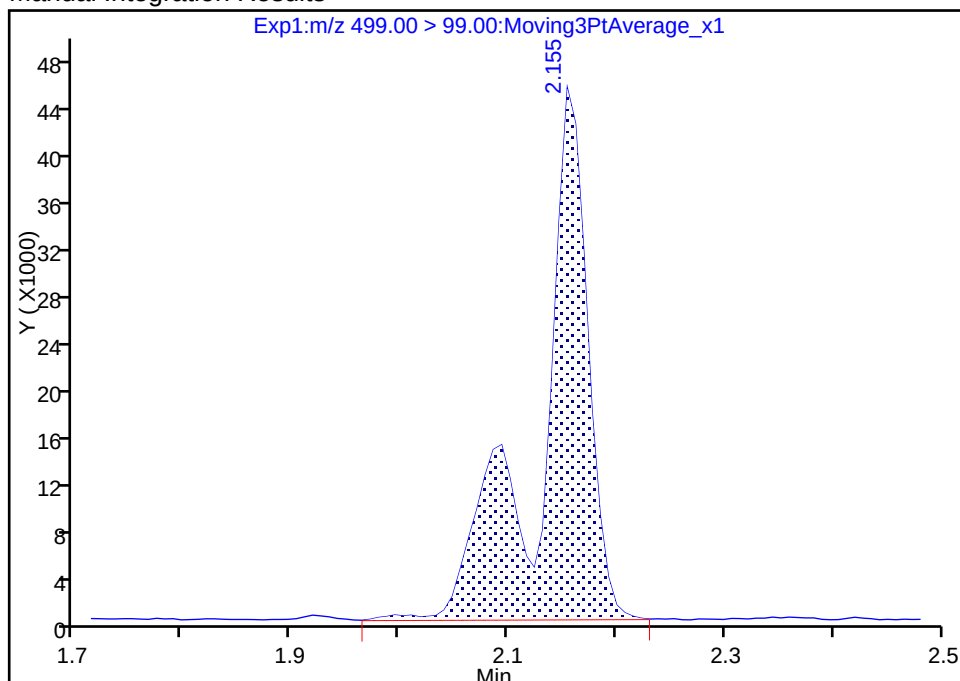
Signal: 2

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 140858
Amount: 8.016676
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 10:44:29

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

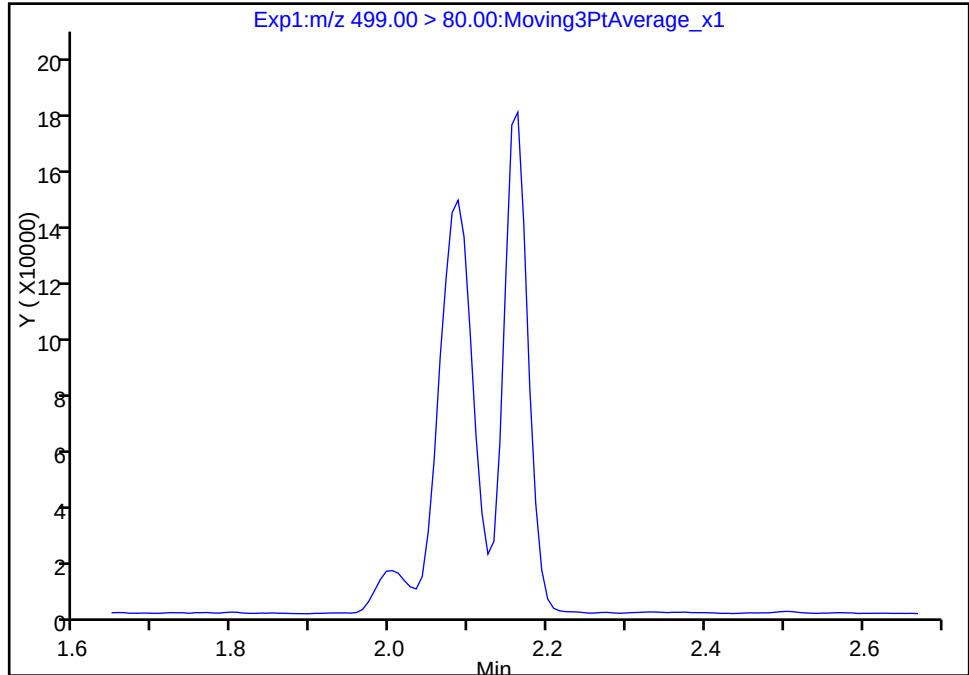
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Injection Date: 08-Jul-2017 14:59:41 Instrument ID: A8_N
Lims ID: 320-29300-A-5-A Lab Sample ID: 320-29300-5
Client ID: WGNA-061917-RW-0386
Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

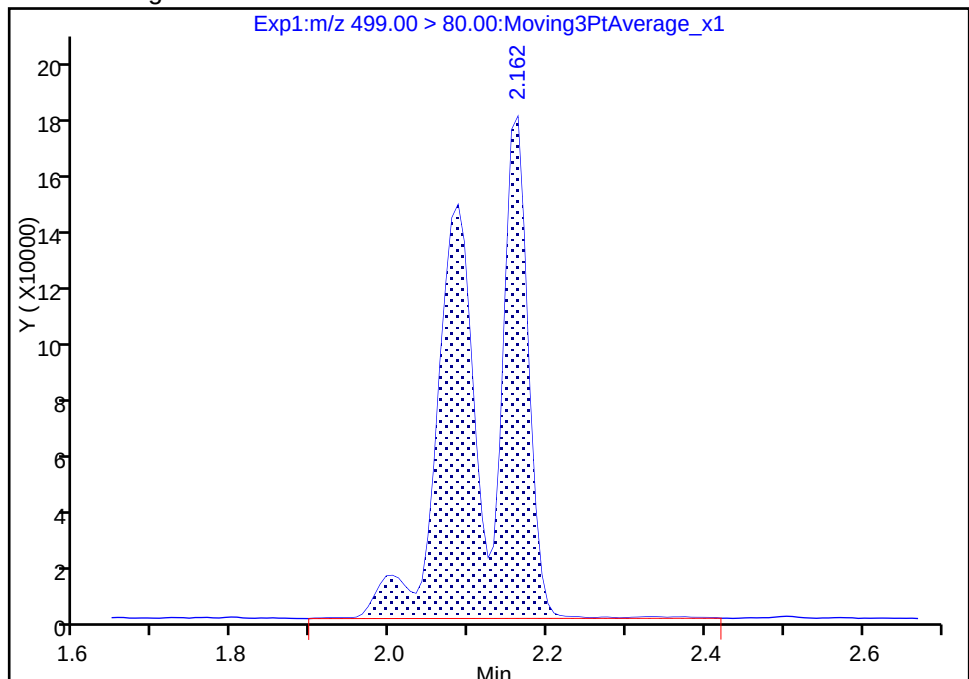
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.16
Area: 840020
Amount: 8.016676
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:44:29

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

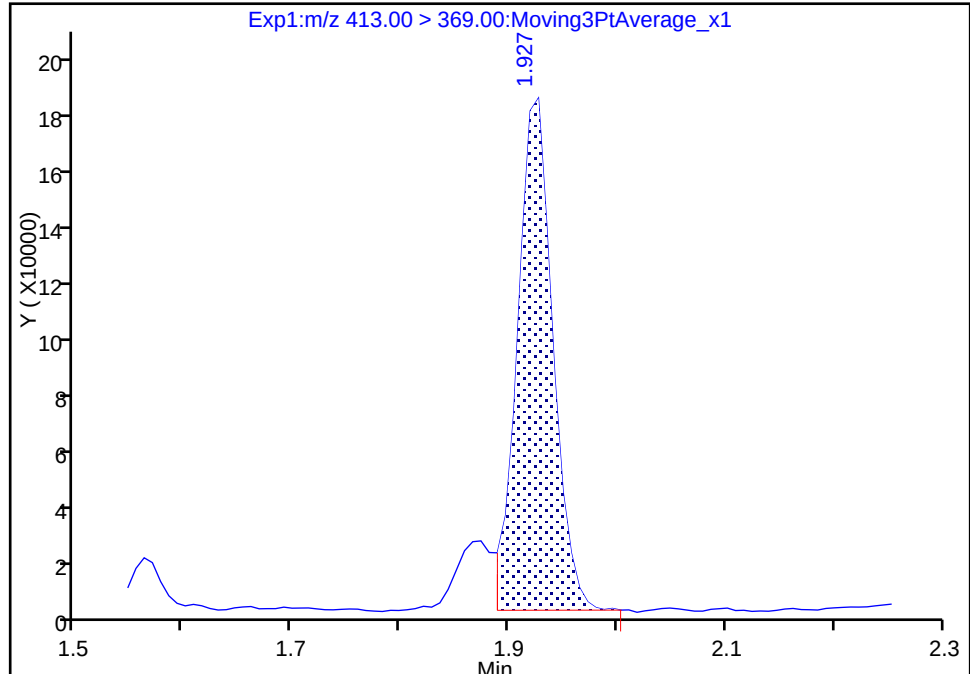
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Injection Date:	08-Jul-2017 14:59:41	Instrument ID:	A8_N		
Lims ID:	320-29300-A-5-A	Lab Sample ID:	320-29300-5		
Client ID:	WGNA-061917-RW-0386				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	34	Worklist Smp#:	9
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

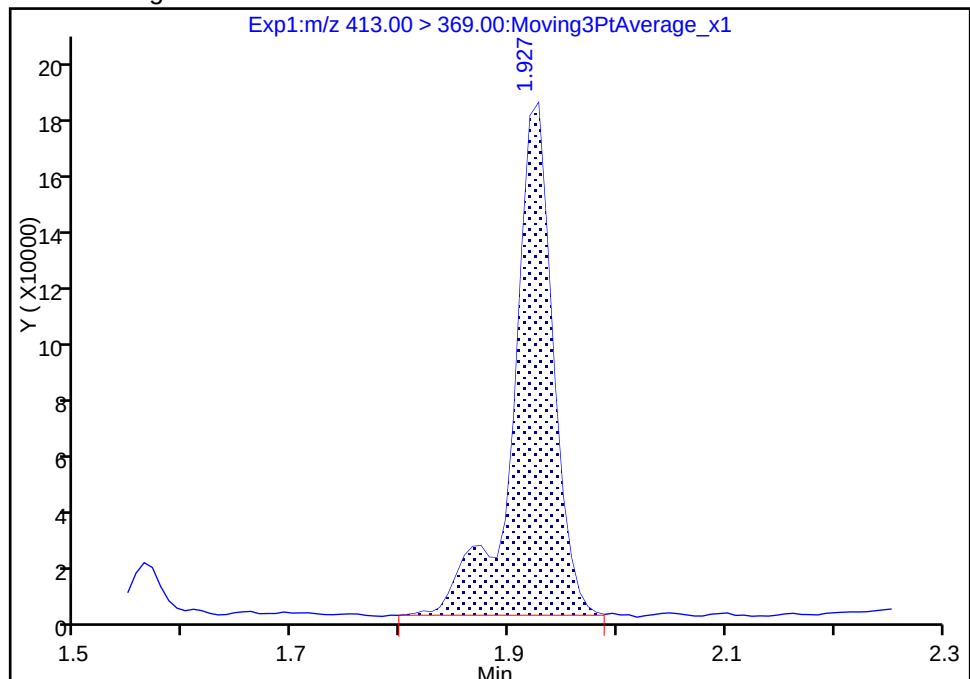
RT: 1.93
Area: 394971
Amount: 4.810242
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 451446
Amount: 5.498036
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:44:52

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-FRB-0386 Lab Sample ID: 320-29300-6
 Matrix: Water Lab File ID: 2017.07.08_537A_047.d
 Analysis Method: 537 Date Collected: 06/19/2017 09:50
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 254.6(mL) Date Analyzed: 07/08/2017 15:04
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173118 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.9	U	20	7.9	2.7
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	98		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_047.d
 Lims ID: 320-29300-A-6-A
 Client ID: WGNA-061917-FRB-0386
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:04:26 ALS Bottle#: 35 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:45:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 961581 9.85 5070

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 859503 10.0 3397

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2912151 28.7 4362

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 670731 9.30 1466

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_047.d

Injection Date: 08-Jul-2017 15:04:26

Instrument ID: A8_N

Lims ID: 320-29300-A-6-A

Lab Sample ID: 320-29300-6

Client ID: WGNA-061917-FRB-0386

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

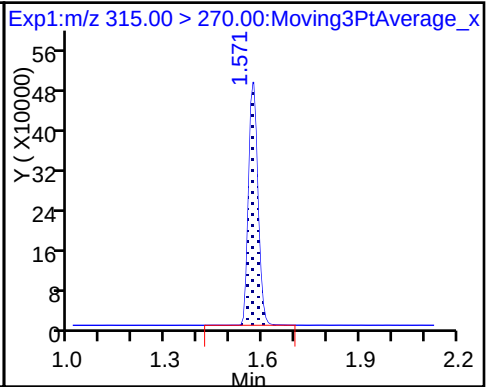
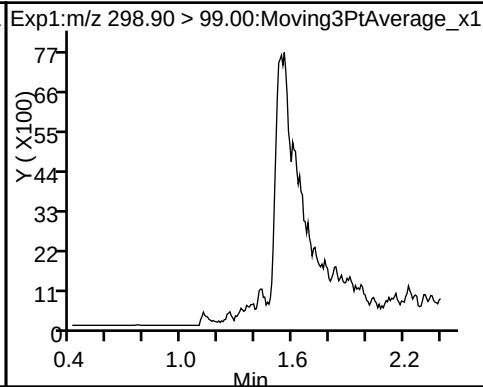
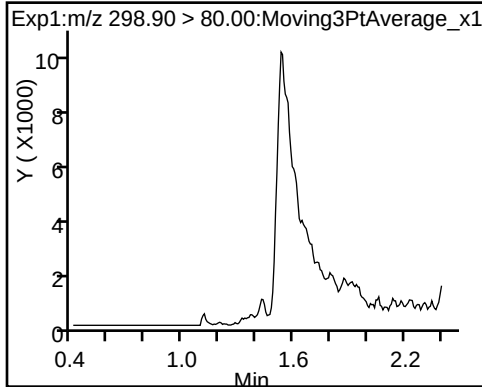
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

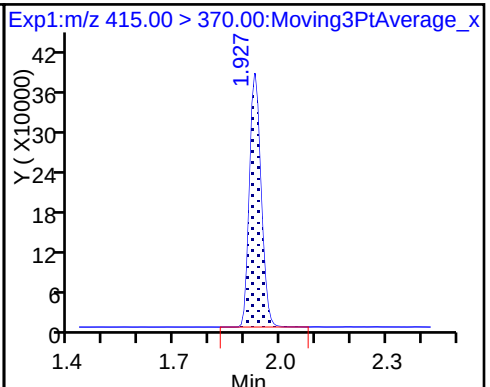
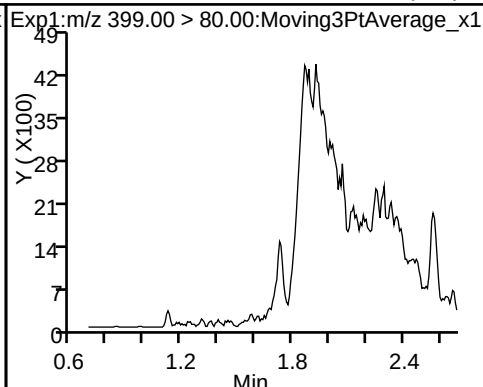
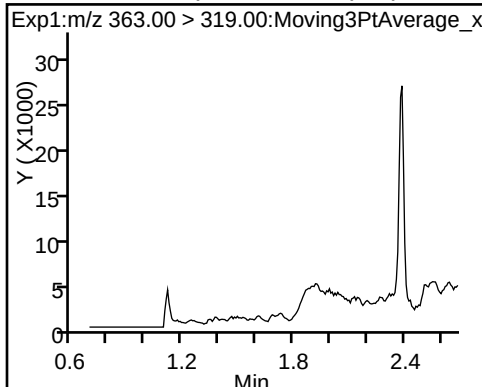
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

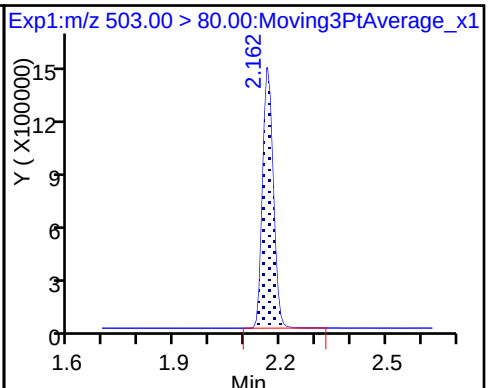
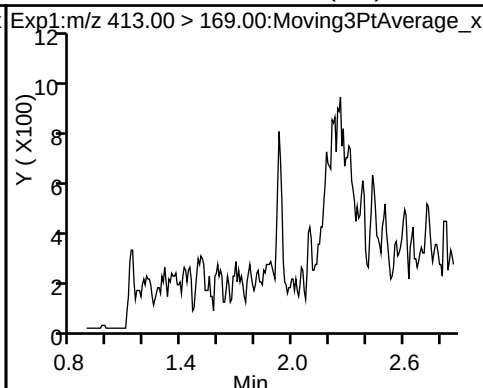
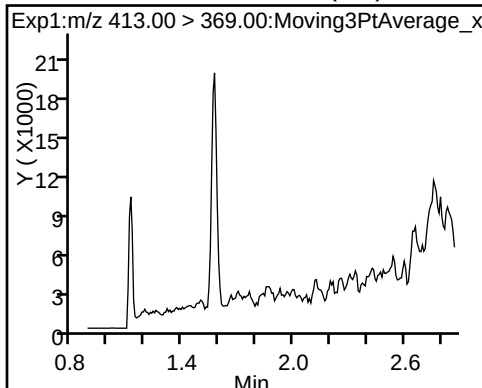
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

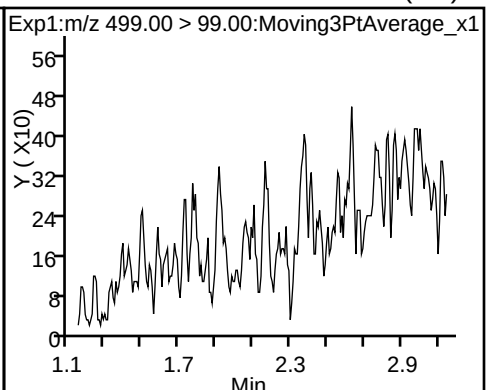
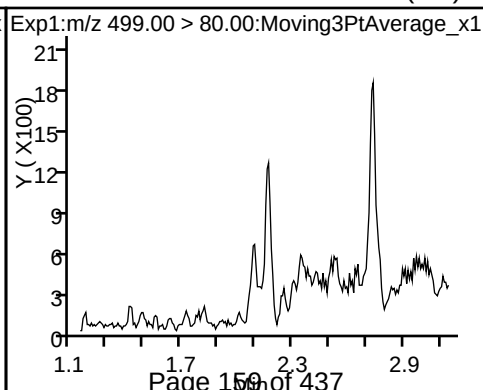
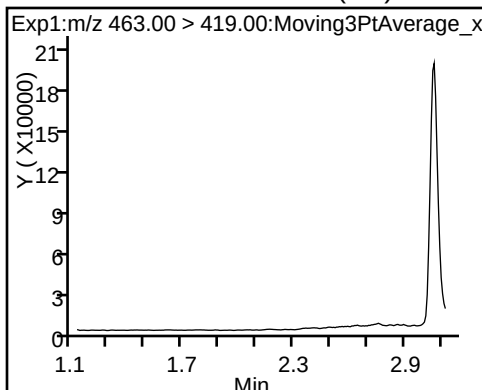
* 7 13C4 PFOS



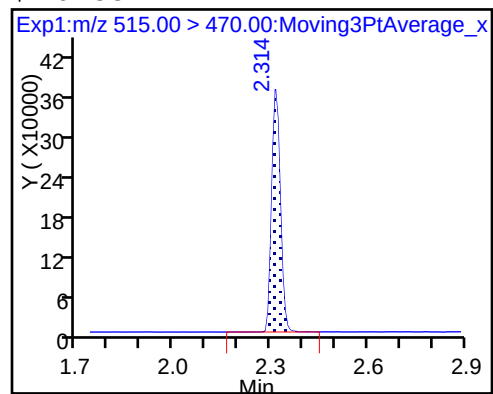
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_047.d
Lims ID: 320-29300-A-6-A
Client ID: WGNA-061917-FRB-0386
Sample Type: Client
Inject. Date: 08-Jul-2017 15:04:26 ALS Bottle#: 35 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-6-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:45:24

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.85	98.47
\$ 10 13C2 PFDA	10.0	9.30	92.95

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3460 Lab Sample ID: 320-29300-7
 Matrix: Water Lab File ID: 2017.07.08_537A_050.d
 Analysis Method: 537 Date Collected: 06/19/2017 11:30
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 254.7(mL) Date Analyzed: 07/08/2017 15:18
 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.: 173119 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)	3.6	J M	20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	J M	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	86		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_050.d
 Lims ID: 320-29300-A-7-A
 Client ID: WGNA-061917-RW-3460
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:18:38 ALS Bottle#: 36 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:47:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	119820	1.40		46.4	
298.90 > 99.00	1.426	1.404	0.022	1.000	98355		1.22(0.00-0.00)	49.0	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	842372	8.65		4886	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	46655	0.5203		6.7	M
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	29515	0.2199		10.6	M
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		857546	10.0		3654	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	71827	0.9088		4.9	M
413.00 > 169.00	1.927	1.879	0.048	1.000	56391		1.27(0.00-0.00)	71.8	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2762126	28.7		3250	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.147	-0.061	1.000	49699	0.5039		25.7	M
499.00 > 99.00	2.162	2.147	0.015	1.036	7098		7.00(0.00-0.00)	8.0	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	664660	9.23		1406	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_050.d

Injection Date: 08-Jul-2017 15:18:38

Instrument ID: A8_N

Lims ID: 320-29300-A-7-A

Lab Sample ID: 320-29300-7

Client ID: WGNA-061917-RW-3460

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

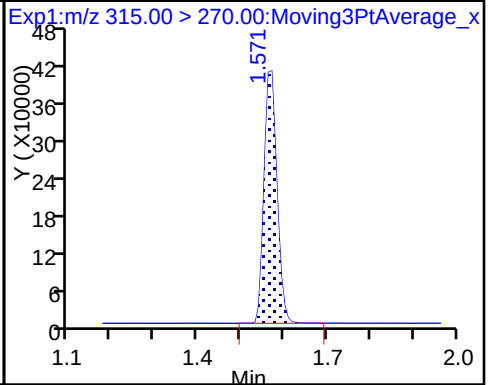
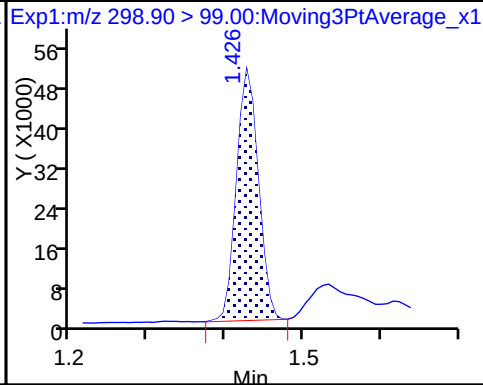
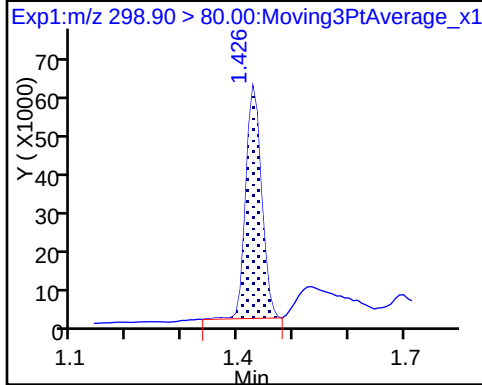
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

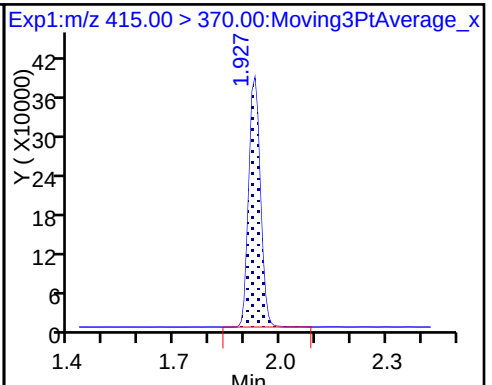
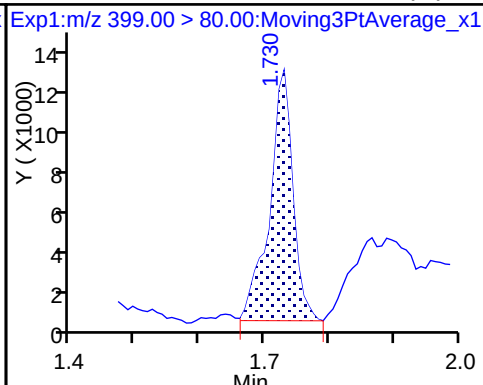
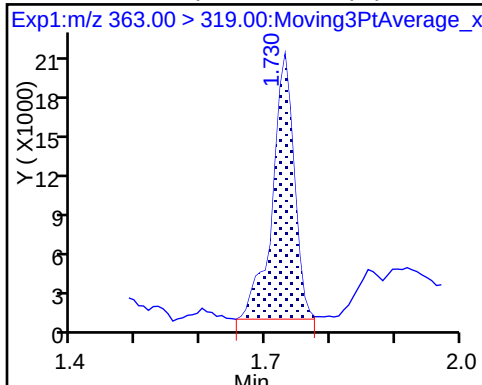
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (M)

3 Perfluorohexanesulfonic acid (M)

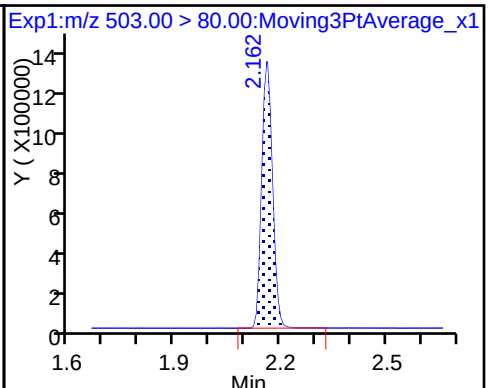
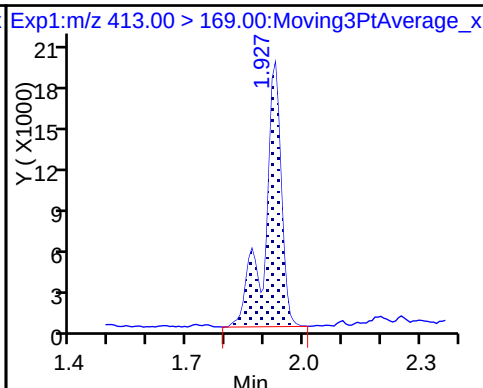
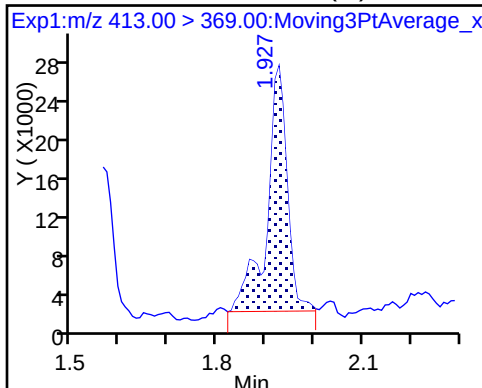
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

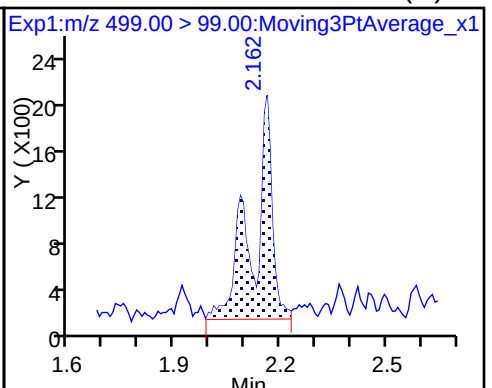
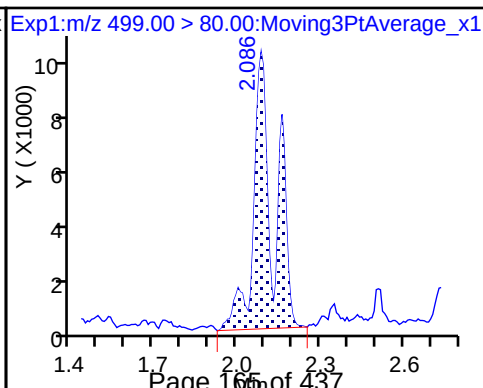
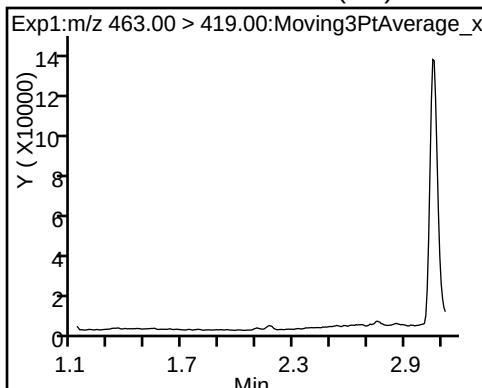
* 7 13C4 PFOS



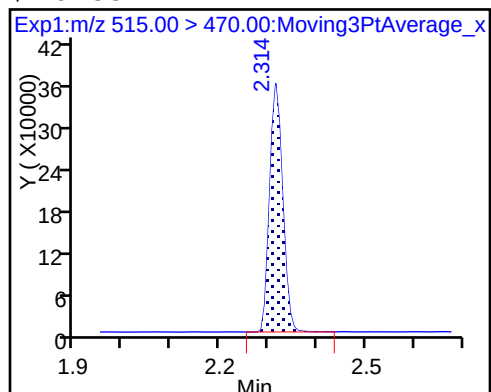
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_050.d
Lims ID: 320-29300-A-7-A
Client ID: WGNA-061917-RW-3460
Sample Type: Client
Inject. Date: 08-Jul-2017 15:18:38 ALS Bottle#: 36 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-7-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:47:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.65	86.46
\$ 10 13C2 PFDA	10.0	9.23	92.32

TestAmerica Sacramento

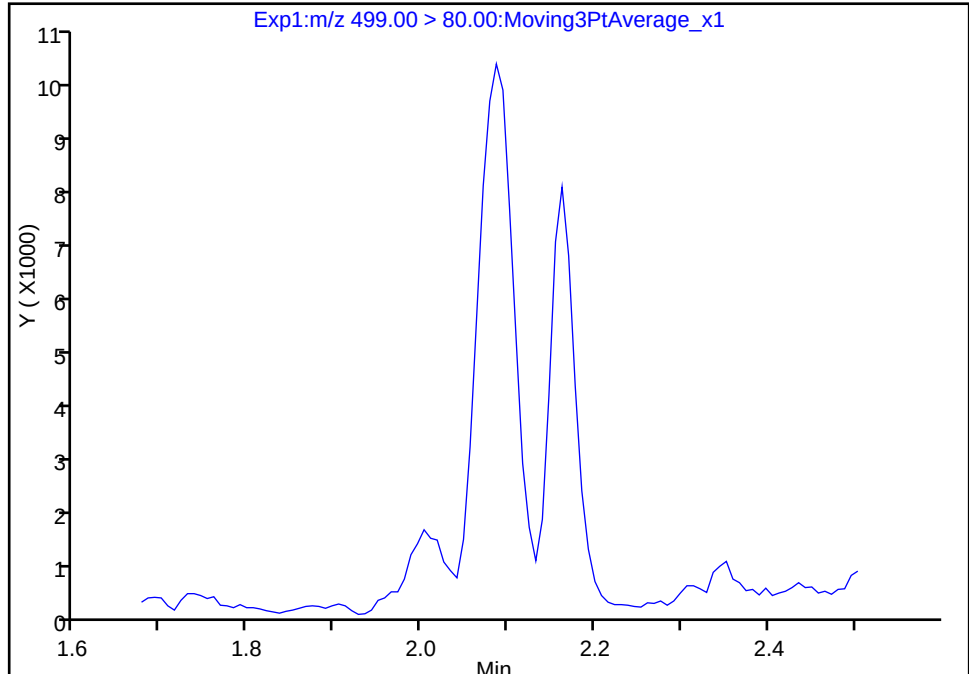
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Injection Date:	08-Jul-2017 15:18:38	Instrument ID:	A8_N		
Lims ID:	320-29300-A-7-A	Lab Sample ID:	320-29300-7		
Client ID:	WGNA-061917-RW-3460				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

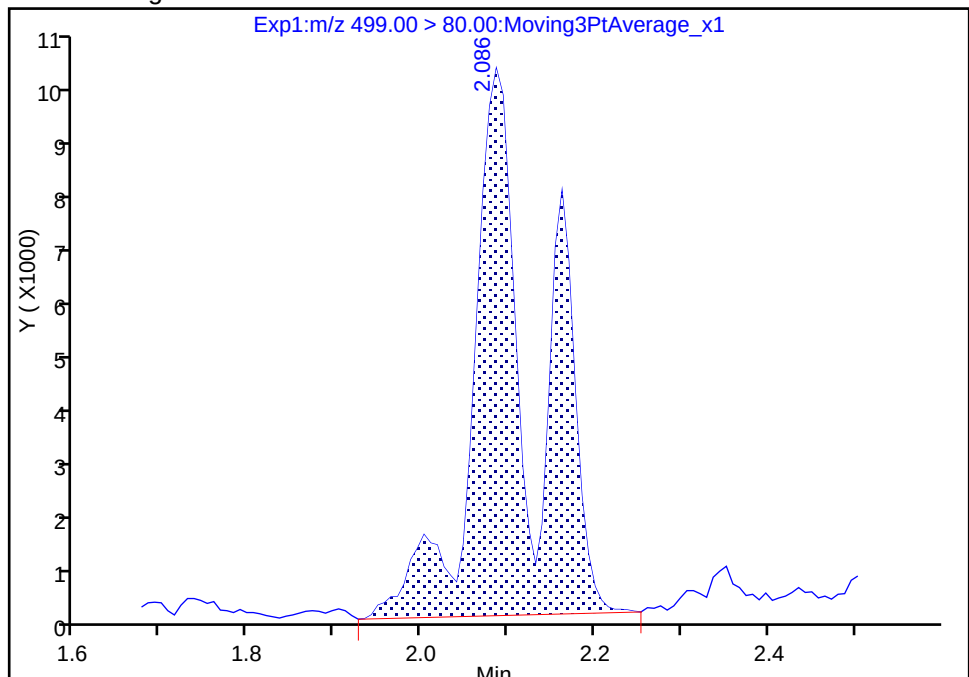
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 49699
Amount: 0.503891
Amount Units: ng/ml

TestAmerica Sacramento

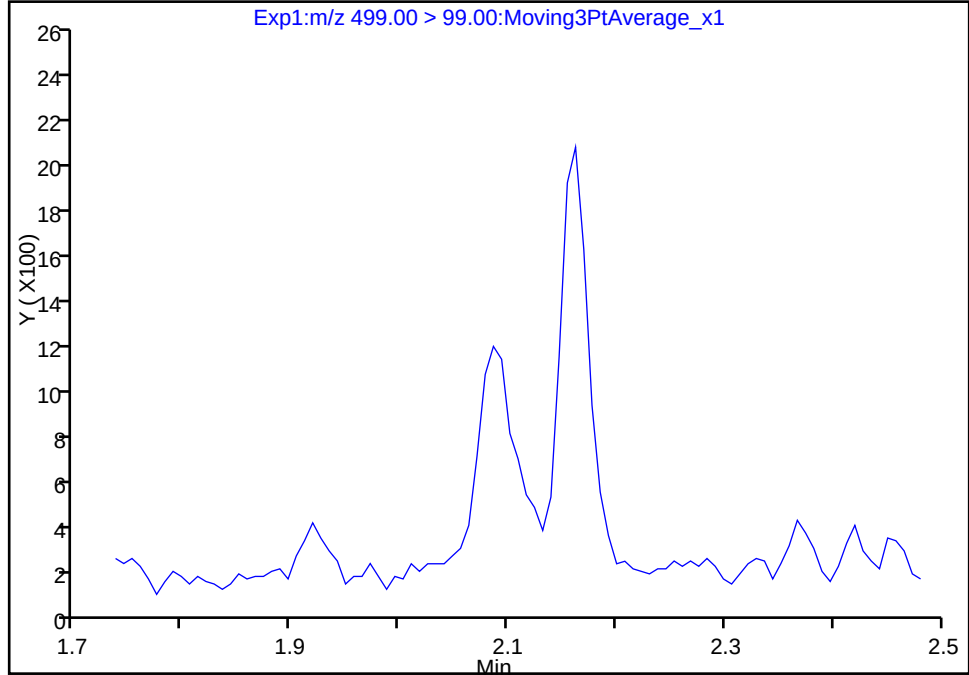
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Injection Date: 08-Jul-2017 15:18:38 Instrument ID: A8_N
Lims ID: 320-29300-A-7-A Lab Sample ID: 320-29300-7
Client ID: WGNA-061917-RW-3460
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

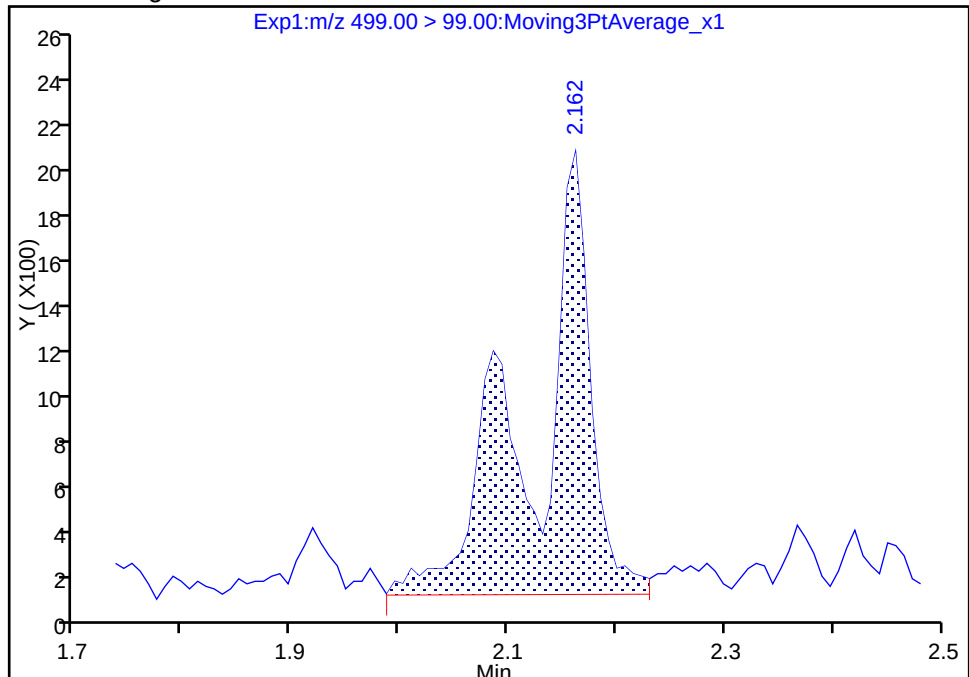
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.16
Area: 7098
Amount: 0.503891
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:48:53

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

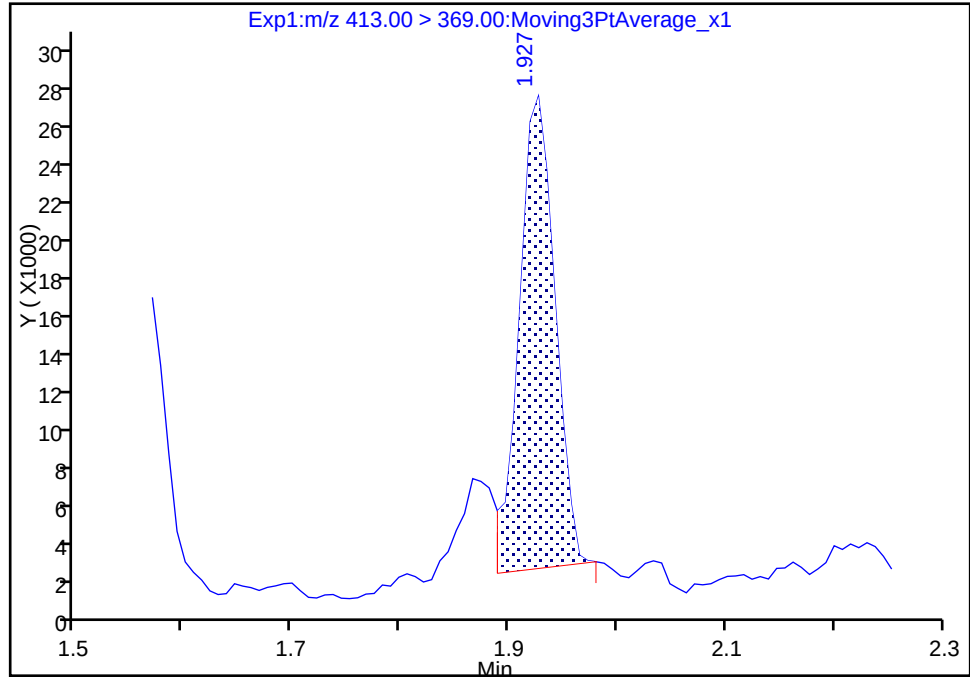
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Injection Date:	08-Jul-2017 15:18:38	Instrument ID:	A8_N		
Lims ID:	320-29300-A-7-A	Lab Sample ID:	320-29300-7		
Client ID:	WGNA-061917-RW-3460				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

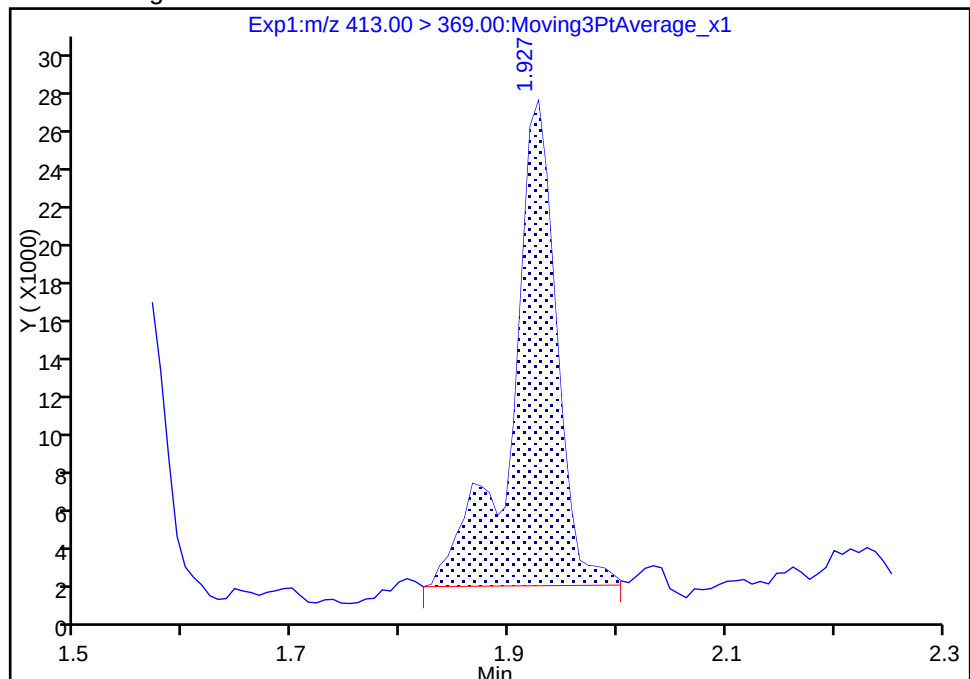
RT: 1.93
Area: 55388
Amount: 0.700767
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 71827
Amount: 0.908753
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:46:53

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

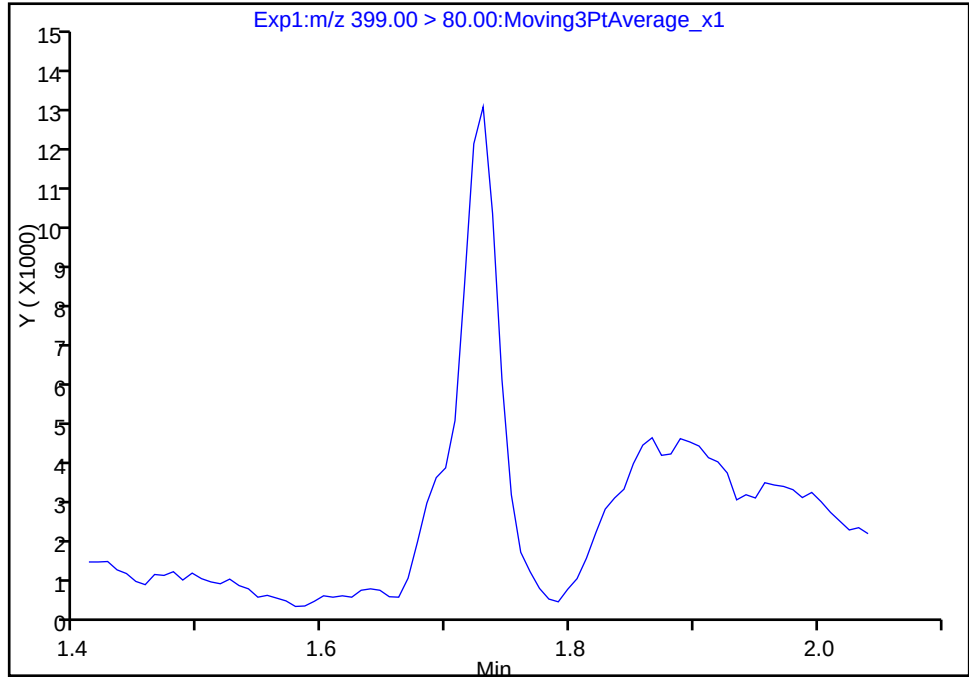
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_050.d				
Injection Date:	08-Jul-2017 15:18:38	Instrument ID:	A8_N		
Lims ID:	320-29300-A-7-A	Lab Sample ID:	320-29300-7		
Client ID:	WGNA-061917-RW-3460				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

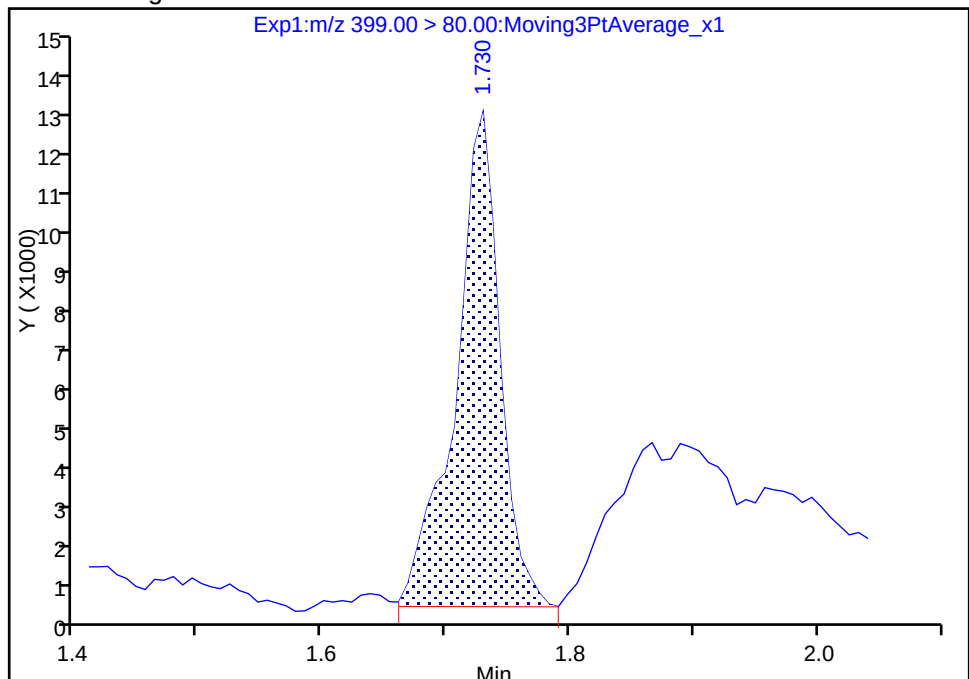
Signal: 1

Not Detected
Expected RT: 1.69

Processing Integration Results



Manual Integration Results

RT: 1.73
Area: 29515
Amount: 0.219920
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 10:48:20

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

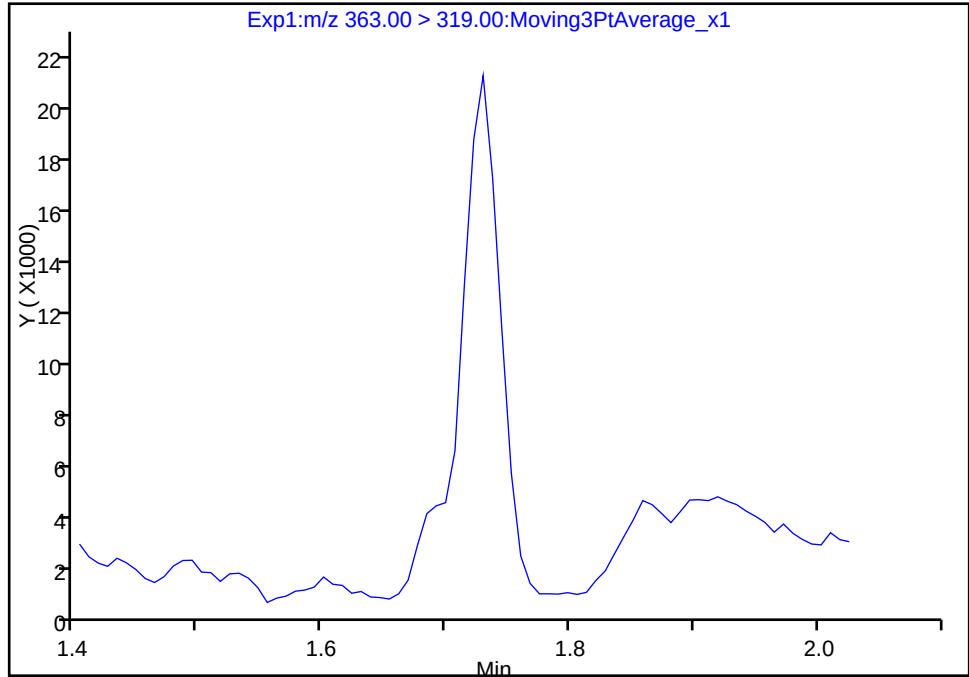
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_050.d				
Injection Date:	08-Jul-2017 15:18:38	Instrument ID:	A8_N		
Lims ID:	320-29300-A-7-A	Lab Sample ID:	320-29300-7		
Client ID:	WGNA-061917-RW-3460				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	36	Worklist Smp#:	13
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

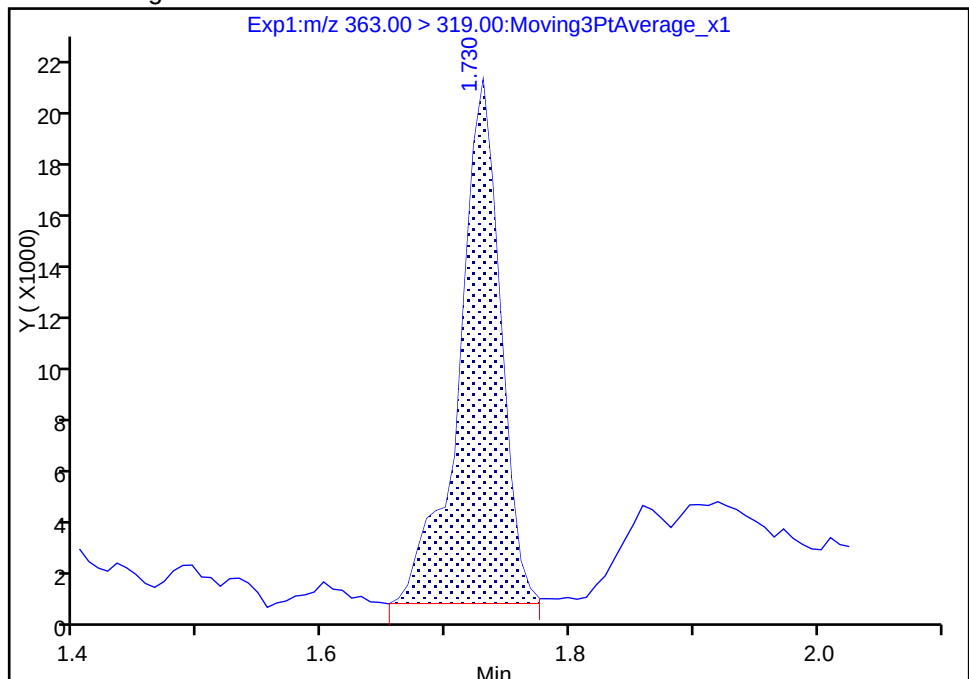
Signal: 1

Not Detected
Expected RT: 1.69

Processing Integration Results



Manual Integration Results



RT: 1.73
Area: 46655
Amount: 0.520296
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 10:47:41

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-FRB-3460 Lab Sample ID: 320-29300-8
 Matrix: Water Lab File ID: 2017.07.08_537A_053.d
 Analysis Method: 537 Date Collected: 06/19/2017 11:25
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 251.4 (mL) Date Analyzed: 07/08/2017 15:32
 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.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_053.d
 Lims ID: 320-29300-A-8-A
 Client ID: WGNA-061917-FRB-3460
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:32:53 ALS Bottle#: 39 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:51:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 952975 9.93 5646

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 844884 10.0 3977

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2709306 28.7 3564

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 649726 9.16 1384

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_053.d

Injection Date: 08-Jul-2017 15:32:53

Instrument ID: A8_N

Lims ID: 320-29300-A-8-A

Lab Sample ID: 320-29300-8

Client ID: WGNA-061917-FRB-3460

Operator ID: SACINSTLCMS01

ALS Bottle#: 39

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

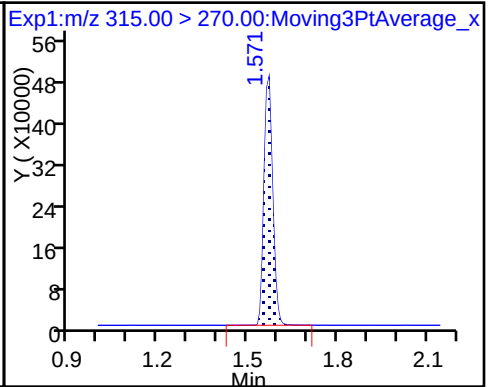
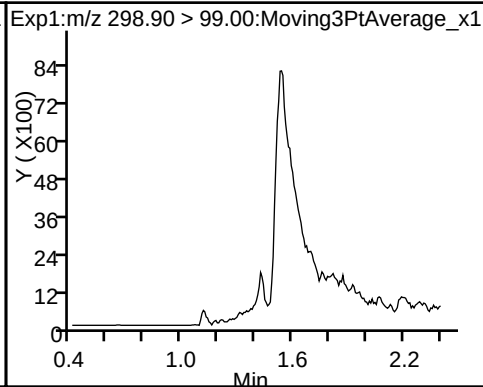
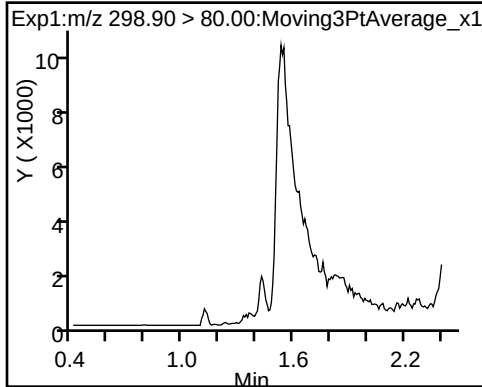
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

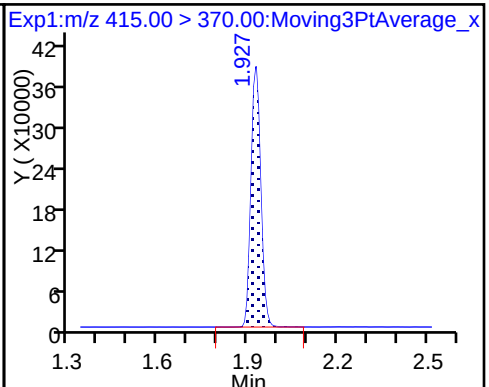
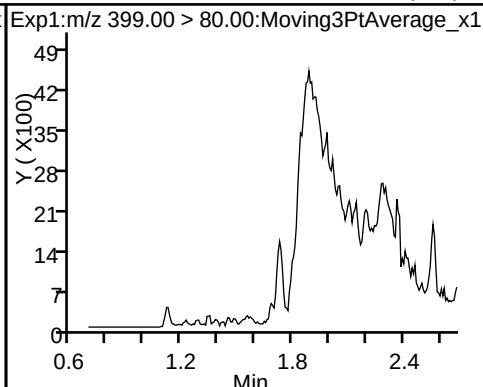
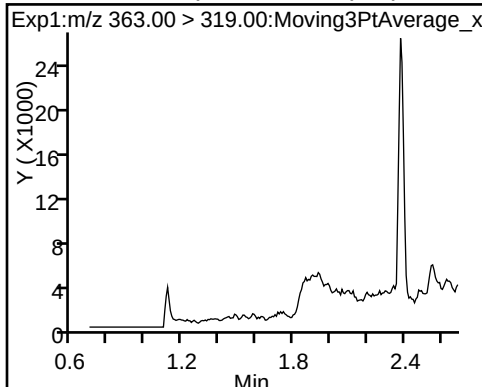
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

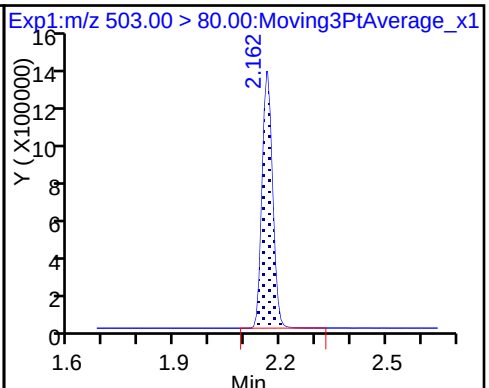
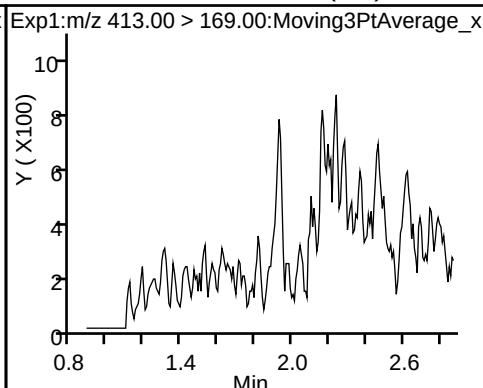
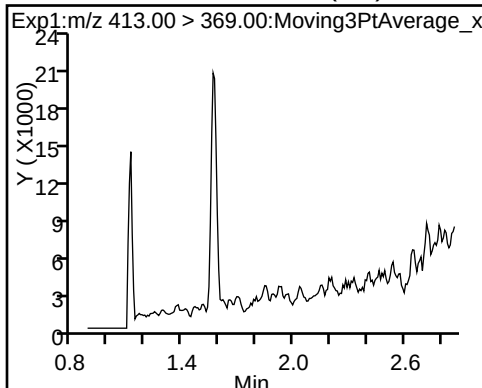
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

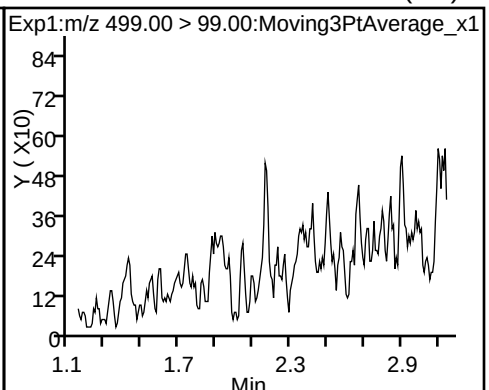
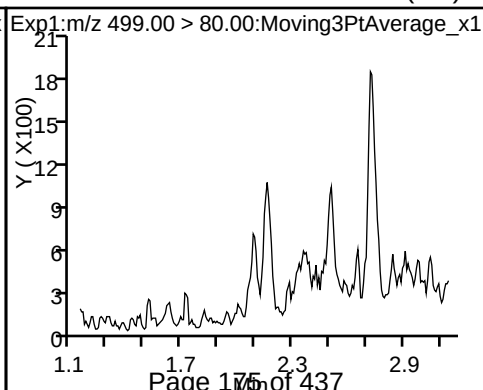
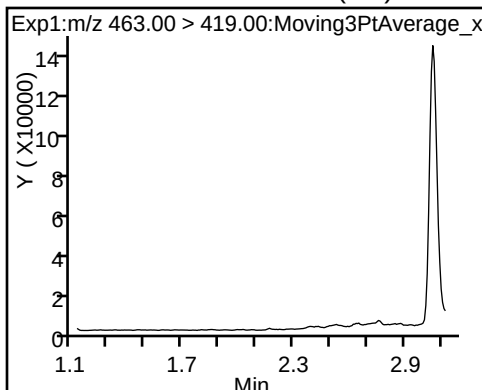
* 7 13C4 PFOS



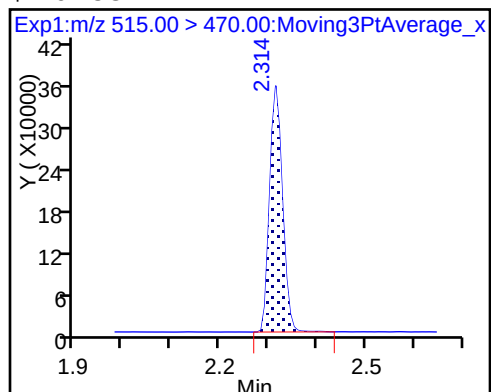
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_053.d
Lims ID: 320-29300-A-8-A
Client ID: WGNA-061917-FRB-3460
Sample Type: Client
Inject. Date: 08-Jul-2017 15:32:53 ALS Bottle#: 39 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-8-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:51:05

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.93	99.28
\$ 10 13C2 PFDA	10.0	9.16	91.60

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3118A Lab Sample ID: 320-29300-9
 Matrix: Water Lab File ID: 2017.07.08_537A_054.d
 Analysis Method: 537 Date Collected: 06/19/2017 13:30
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 256.2 (mL) Date Analyzed: 07/08/2017 15:37
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.5	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	91		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_054.d
 Lims ID: 320-29300-A-9-A
 Client ID: WGNA-061917-RW-3118A
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:37:38 ALS Bottle#: 40 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:52:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	315733	3.76		93.1	
298.90 > 99.00	1.426	1.404	0.022	1.000	255542		1.24(0.00-0.00)	124	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	839583	9.10		4769	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	141355	1.66		16.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	202039	1.54		41.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		812252	10.0		3467	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	409547	5.47		30.4	M
413.00 > 169.00	1.927	1.879	0.048	1.000	299046		1.37(0.00-0.00)	317	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2704310	28.7		1600	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	49826	0.7444		1.5	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	694251	7.19		222	
499.00 > 99.00	2.162	2.147	0.015	1.000	115809		5.99(0.00-0.00)	129	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	657584	9.64		1576	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_054.d

Injection Date: 08-Jul-2017 15:37:38

Instrument ID: A8_N

Lims ID: 320-29300-A-9-A

Lab Sample ID: 320-29300-9

Client ID: WGNA-061917-RW-3118A

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

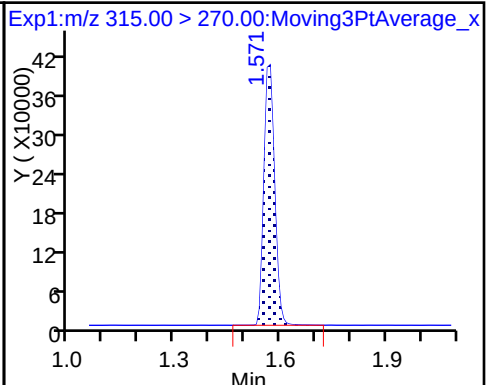
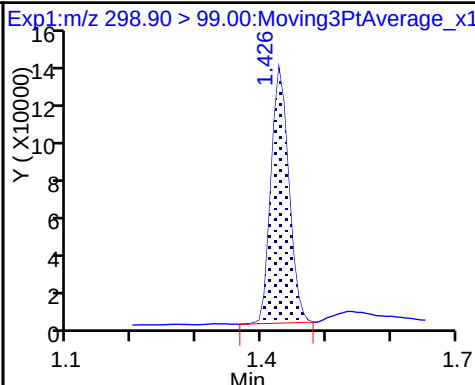
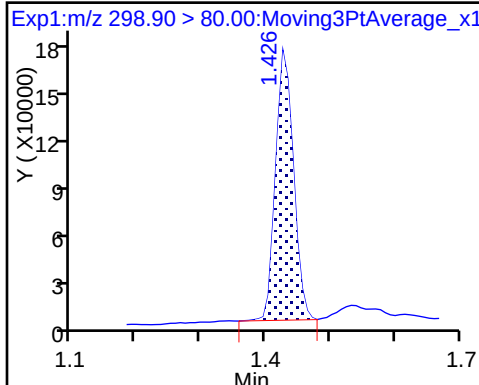
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

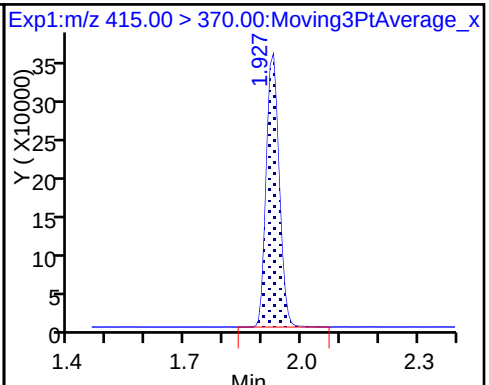
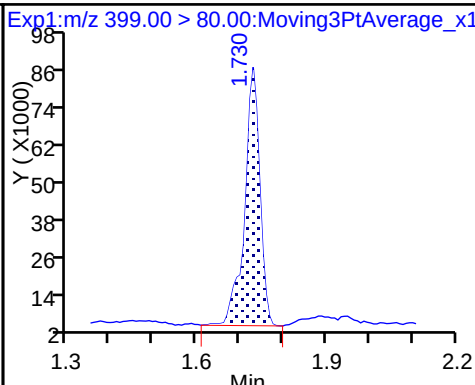
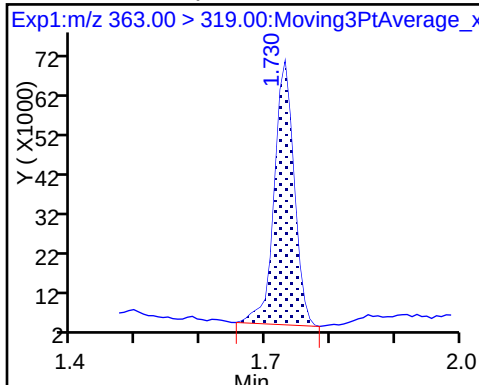
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

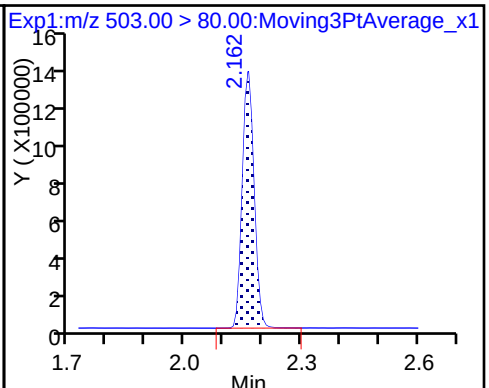
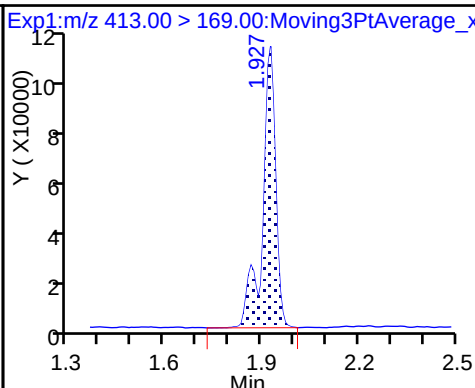
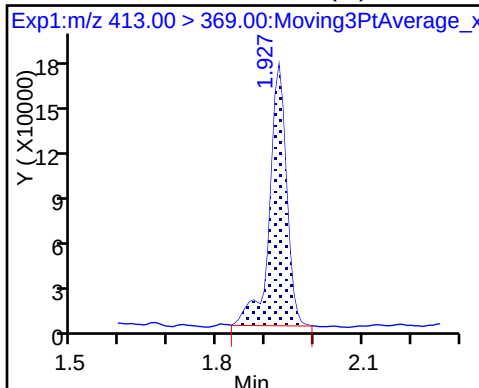
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

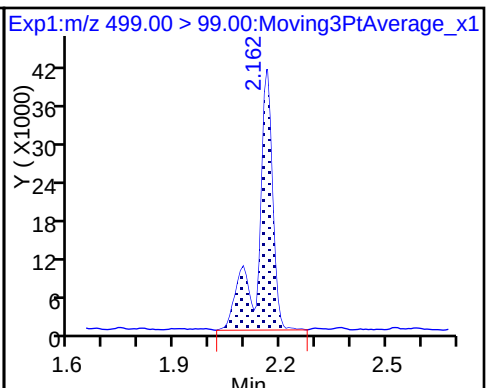
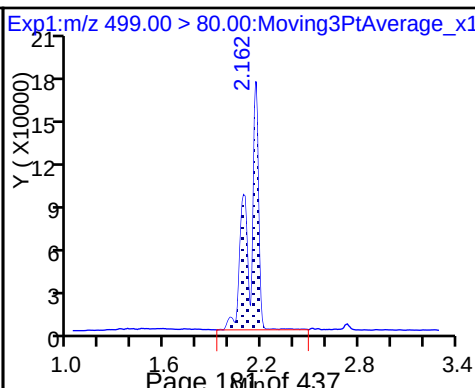
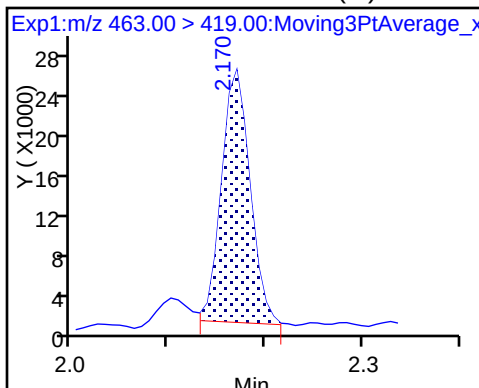
* 7 13C4 PFOS



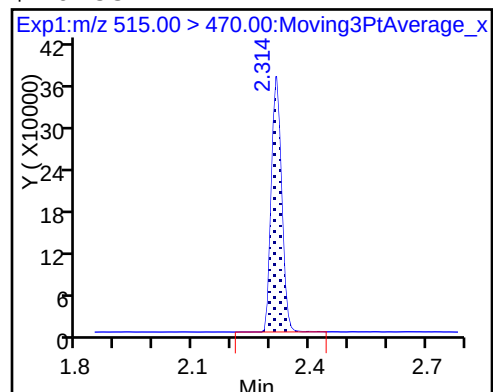
9 Perfluorononanoic acid (M)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_054.d
Lims ID: 320-29300-A-9-A
Client ID: WGNA-061917-RW-3118A
Sample Type: Client
Inject. Date: 08-Jul-2017 15:37:38 ALS Bottle#: 40 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-9-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:52:10

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.10	90.98
\$ 10 13C2 PFDA	10.0	9.64	96.43

TestAmerica Sacramento

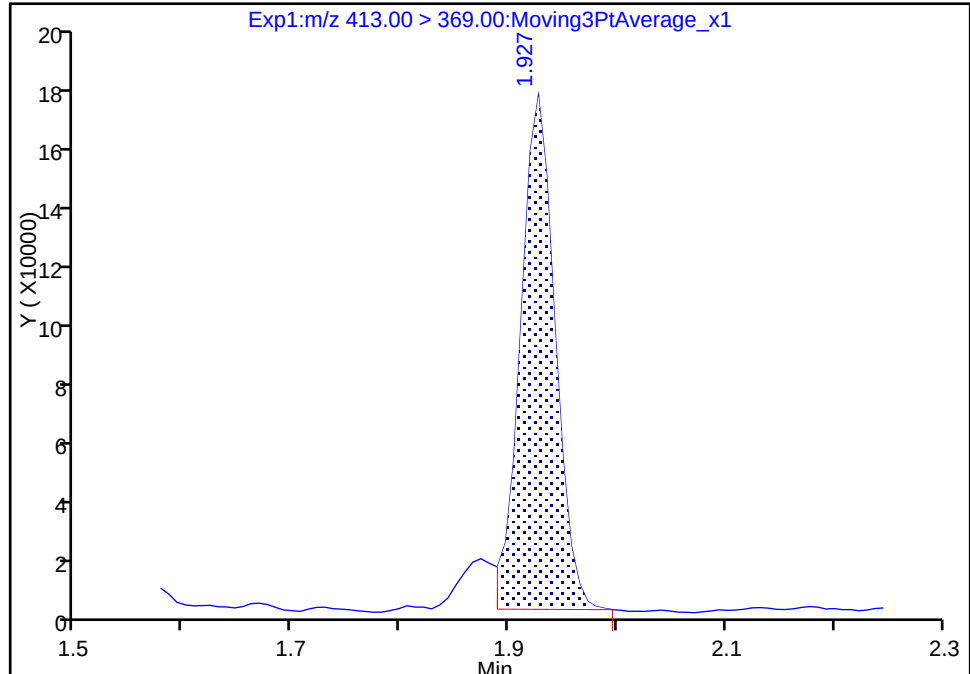
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Injection Date:	08-Jul-2017 15:37:38	Instrument ID:	A8_N		
Lims ID:	320-29300-A-9-A	Lab Sample ID:	320-29300-9		
Client ID:	WGNA-061917-RW-3118A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	40	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

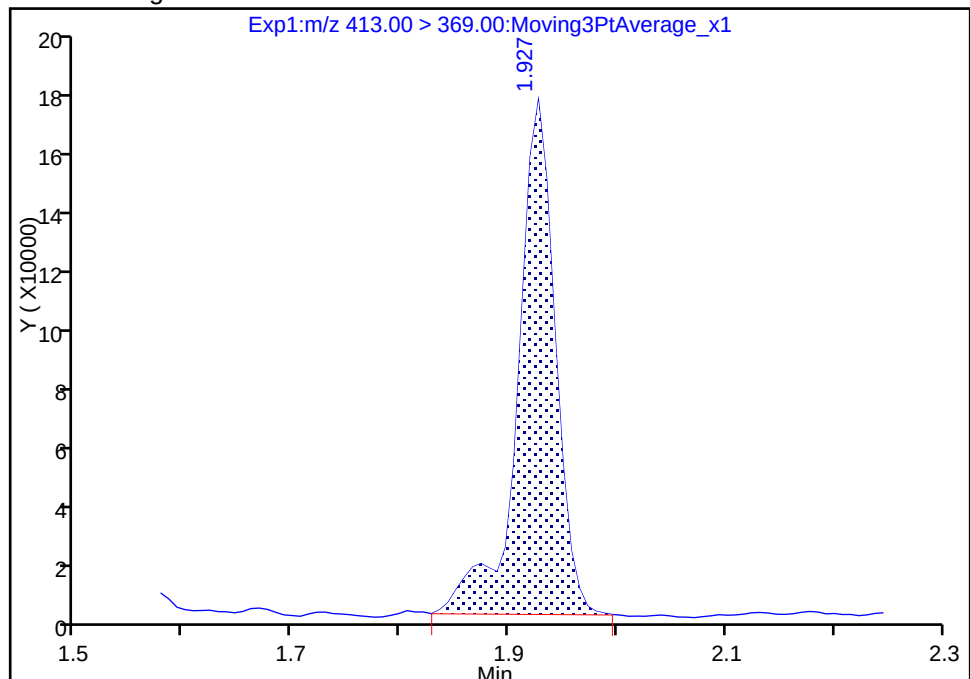
RT: 1.93
Area: 372741
Amount: 4.978884
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 409547
Amount: 5.470519
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:51:41
Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

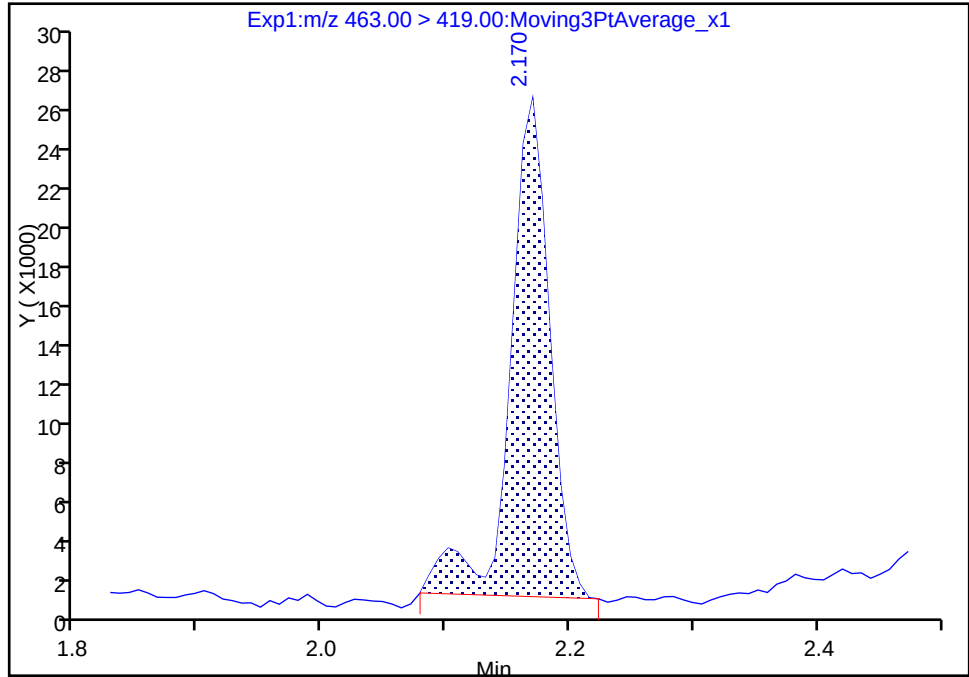
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_054.d				
Injection Date:	08-Jul-2017 15:37:38	Instrument ID:	A8_N		
Lims ID:	320-29300-A-9-A	Lab Sample ID:	320-29300-9		
Client ID:	WGNA-061917-RW-3118A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	40	Worklist Smp#:	17
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

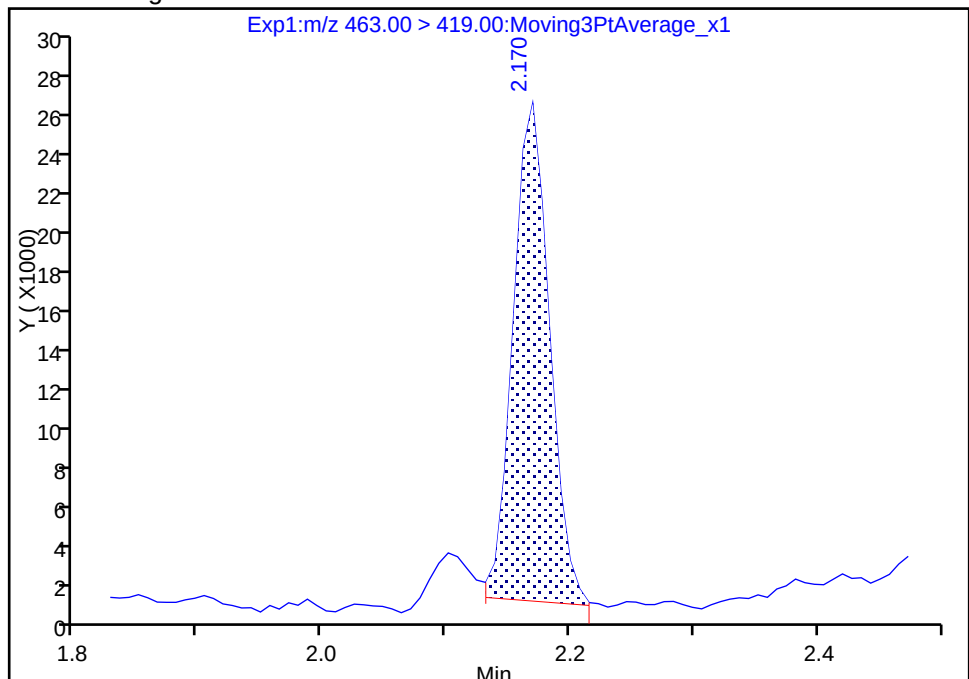
RT: 2.17
Area: 54400
Amount: 0.812698
Amount Units: ng/ml

Processing Integration Results



RT: 2.17
Area: 49826
Amount: 0.744366
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:52:03

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3118A</u>	Lab Sample ID: <u>320-29300-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_055.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 13:20</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>255.7(mL)</u>	Date Analyzed: <u>07/08/2017 15:42</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>173119</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_055.d
 Lims ID: 320-29300-A-10-A
 Client ID: WGNA-061917-FRB-3118A
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:42:21 ALS Bottle#: 41 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:52:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 962367 9.85 5529

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 859528 10.0 4427

* 7 13C4 PFOS

503.00 > 80.00 2.170 2.117 0.053 2814729 28.7 3683

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 670528 9.29 1425

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_055.d

Injection Date: 08-Jul-2017 15:42:21

Instrument ID: A8_N

Lims ID: 320-29300-A-10-A

Lab Sample ID: 320-29300-10

Client ID: WGNA-061917-FRB-3118A

Operator ID: SACINSTLCMS01

ALS Bottle#: 41

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

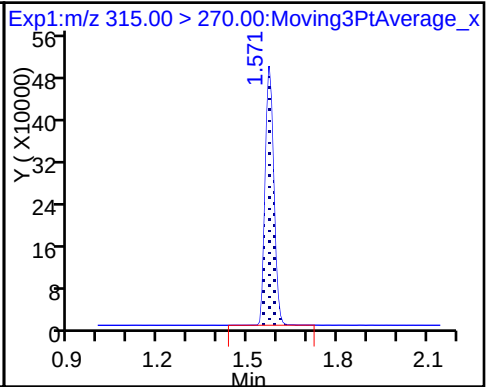
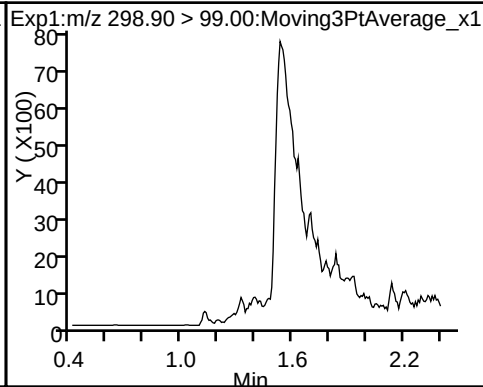
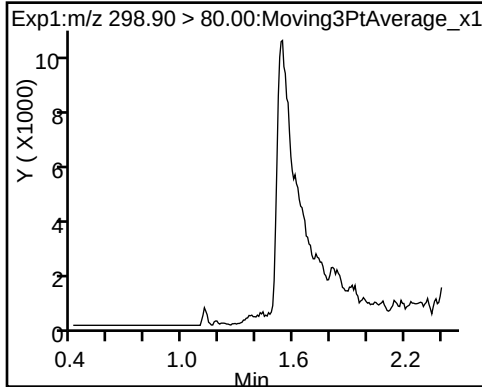
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

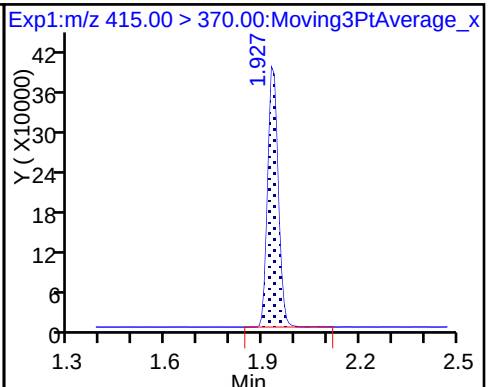
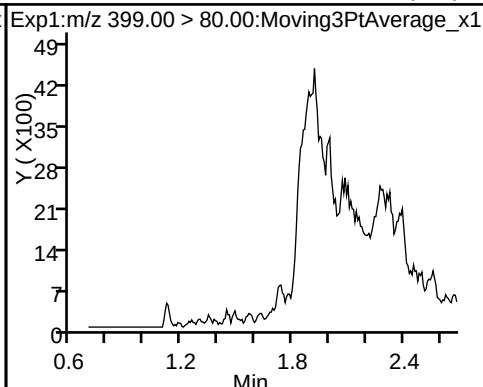
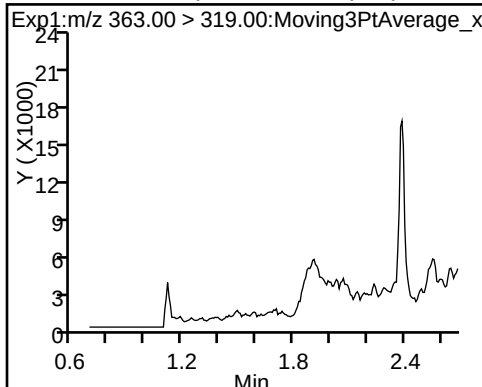
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

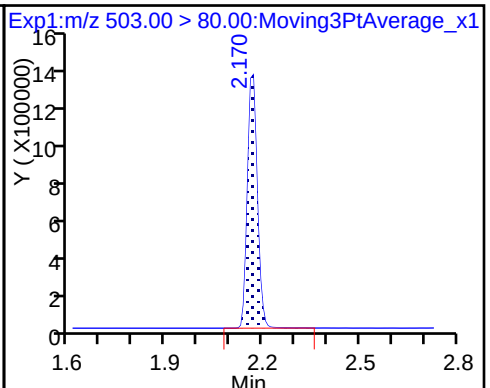
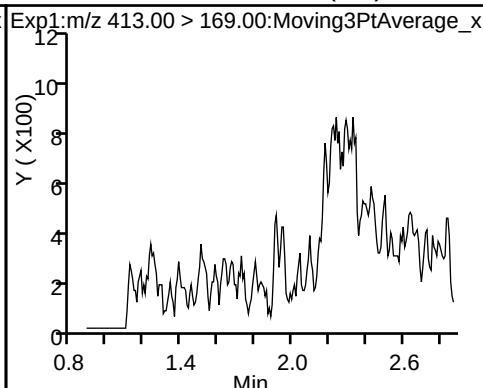
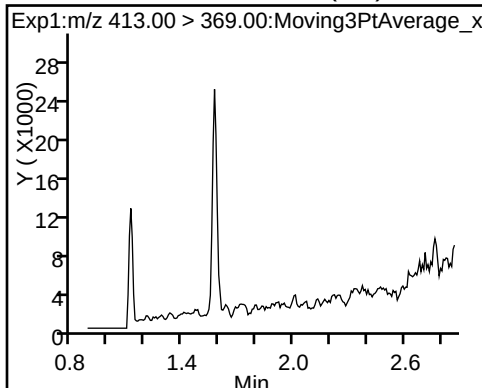
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

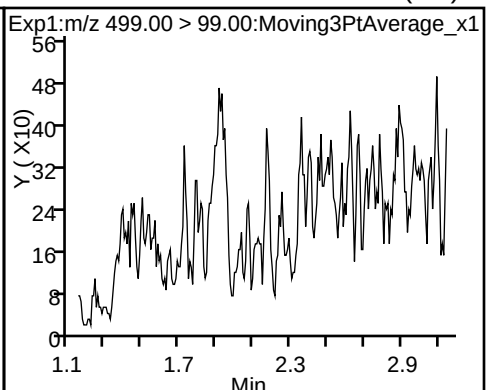
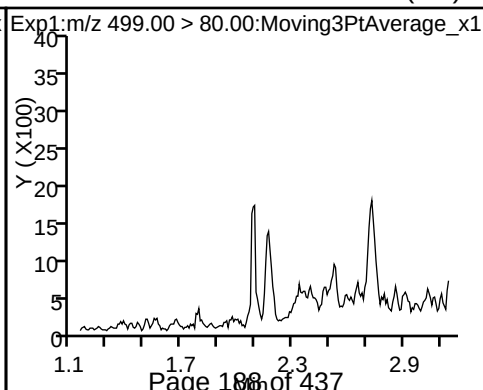
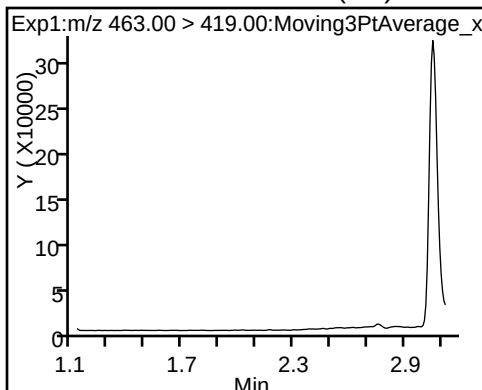
* 7 13C4 PFOS



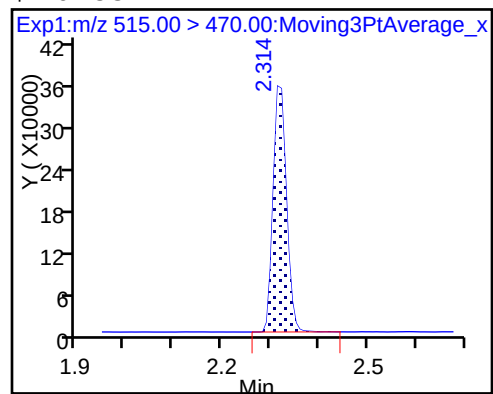
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_055.d
Lims ID: 320-29300-A-10-A
Client ID: WGNA-061917-FRB-3118A
Sample Type: Client
Inject. Date: 08-Jul-2017 15:42:21 ALS Bottle#: 41 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:52:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.85	98.55
\$ 10 13C2 PFDA	10.0	9.29	92.92

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3556 Lab Sample ID: 320-29300-11
 Matrix: Water Lab File ID: 2017.07.08_537A_056.d
 Analysis Method: 537 Date Collected: 06/19/2017 13:55
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 257.9(mL) Date Analyzed: 07/08/2017 15:47
 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.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	14	J M	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	J	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_056.d
 Lims ID: 320-29300-A-11-A
 Client ID: WGNA-061917-RW-3556
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:47:06 ALS Bottle#: 42 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:53:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	146582	1.72		46.5	
298.90 > 99.00	1.426	1.404	0.022	1.000	109623		1.34(0.00-0.00)	51.0	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	788748	8.42		3773	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	85299	0.9894		9.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	111234	0.8352		26.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		824489	10.0		4054	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	267761	3.52		18.2	M
413.00 > 169.00	1.927	1.879	0.048	1.000	190011		1.41(0.00-0.00)	222	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2740985	28.7		1972	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	424761	4.34		176	
499.00 > 99.00	2.162	2.147	0.015	1.000	70829		6.00(0.00-0.00)	78.4	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	664361	9.60		1583	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_056.d

Injection Date: 08-Jul-2017 15:47:06

Instrument ID: A8_N

Lims ID: 320-29300-A-11-A

Lab Sample ID: 320-29300-11

Client ID: WGNA-061917-RW-3556

Operator ID: SACINSTLCMS01

ALS Bottle#: 42

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

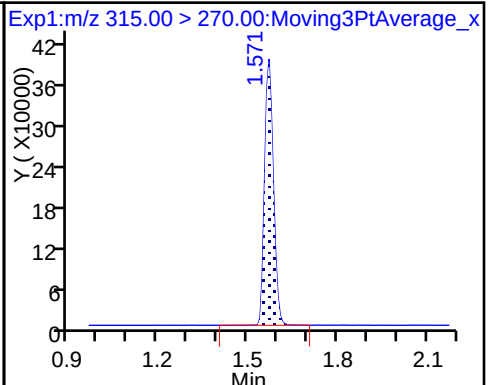
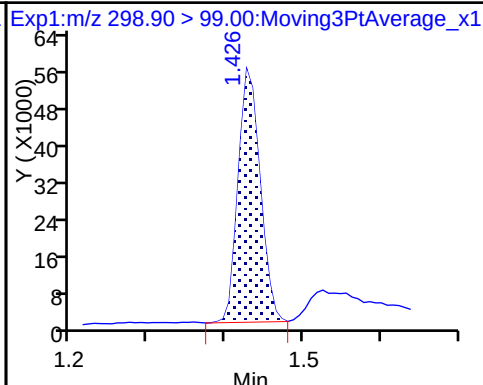
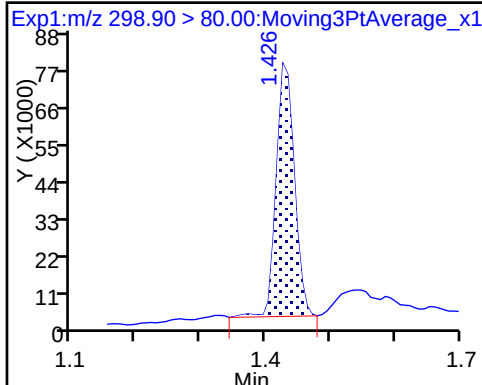
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

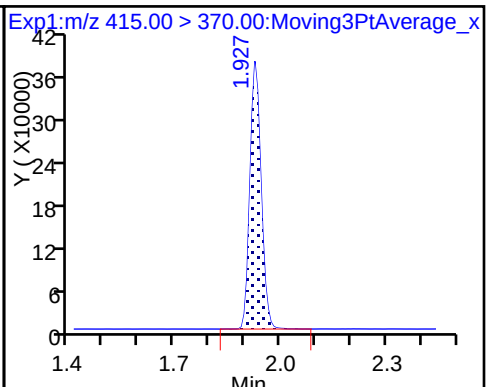
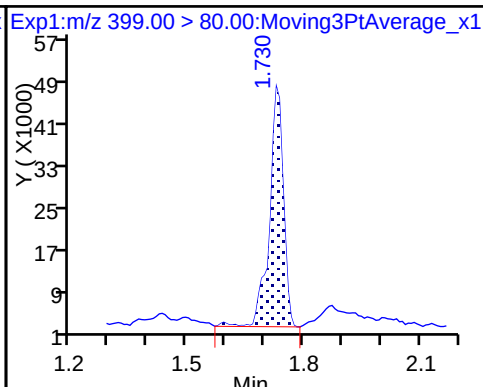
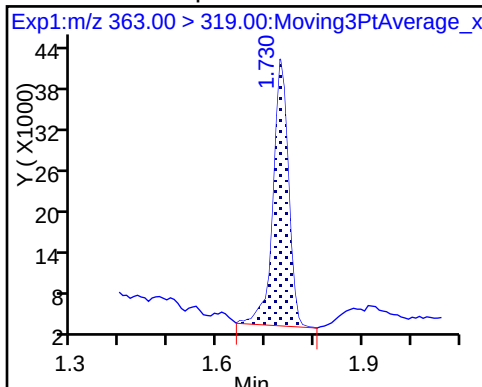
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

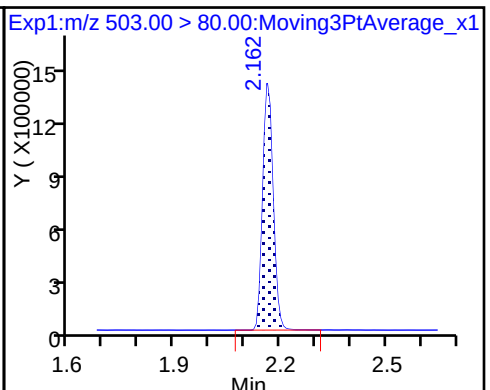
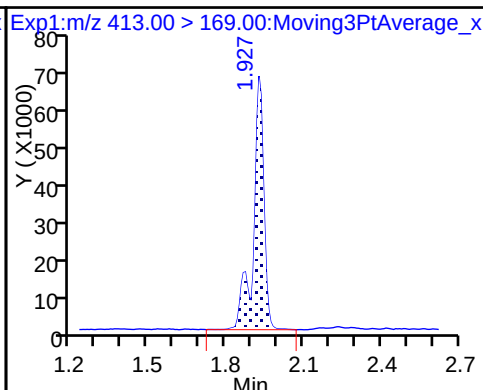
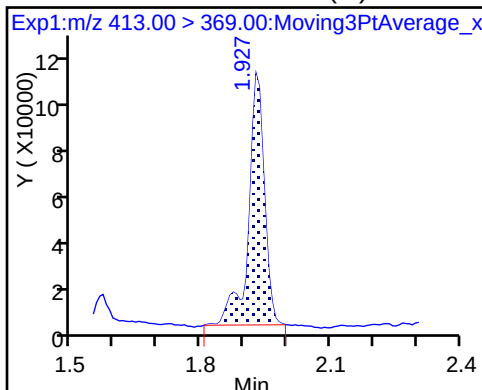
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

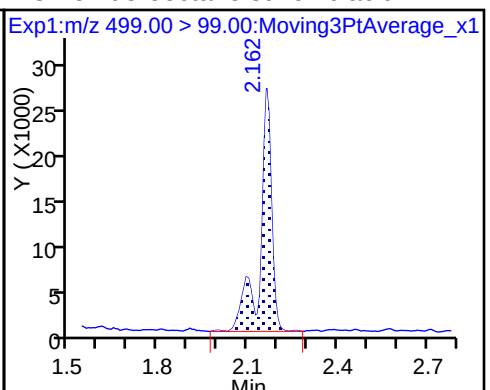
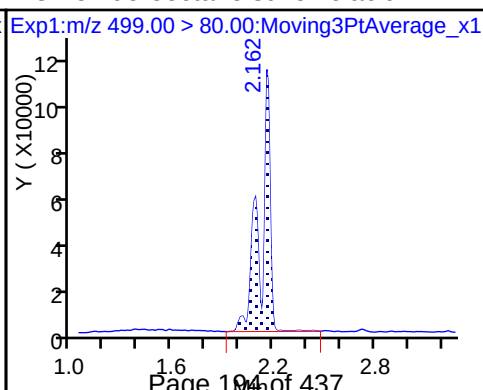
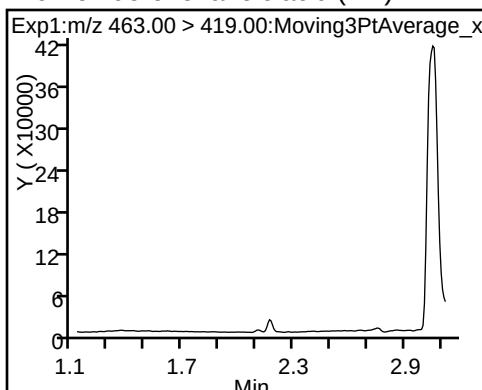
* 7 13C4 PFOS



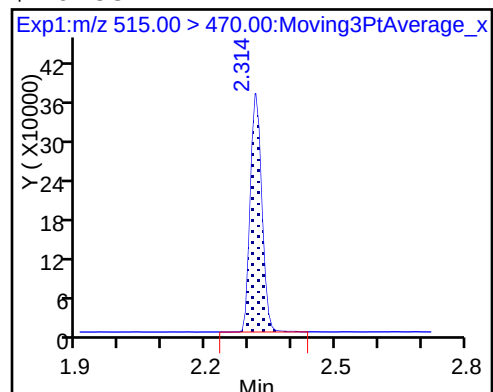
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_056.d
Lims ID: 320-29300-A-11-A
Client ID: WGNA-061917-RW-3556
Sample Type: Client
Inject. Date: 08-Jul-2017 15:47:06 ALS Bottle#: 42 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-11-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:53:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.42	84.20
\$ 10 13C2 PFDA	10.0	9.60	95.98

TestAmerica Sacramento

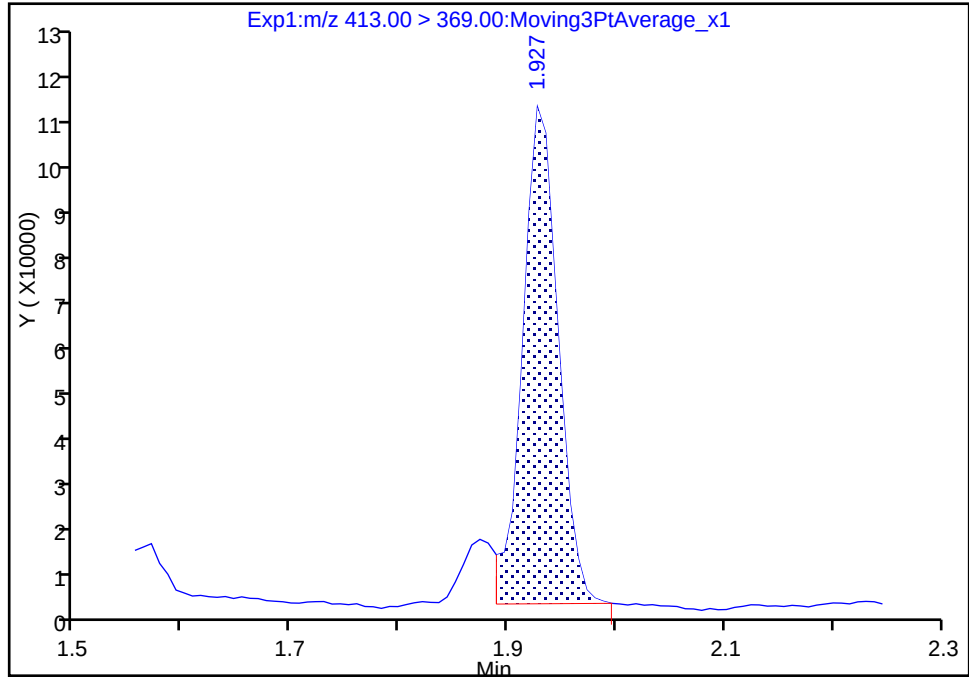
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Injection Date:	08-Jul-2017 15:47:06	Instrument ID:	A8_N		
Lims ID:	320-29300-A-11-A	Lab Sample ID:	320-29300-11		
Client ID:	WGNA-061917-RW-3556				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	42	Worklist Smp#:	19
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

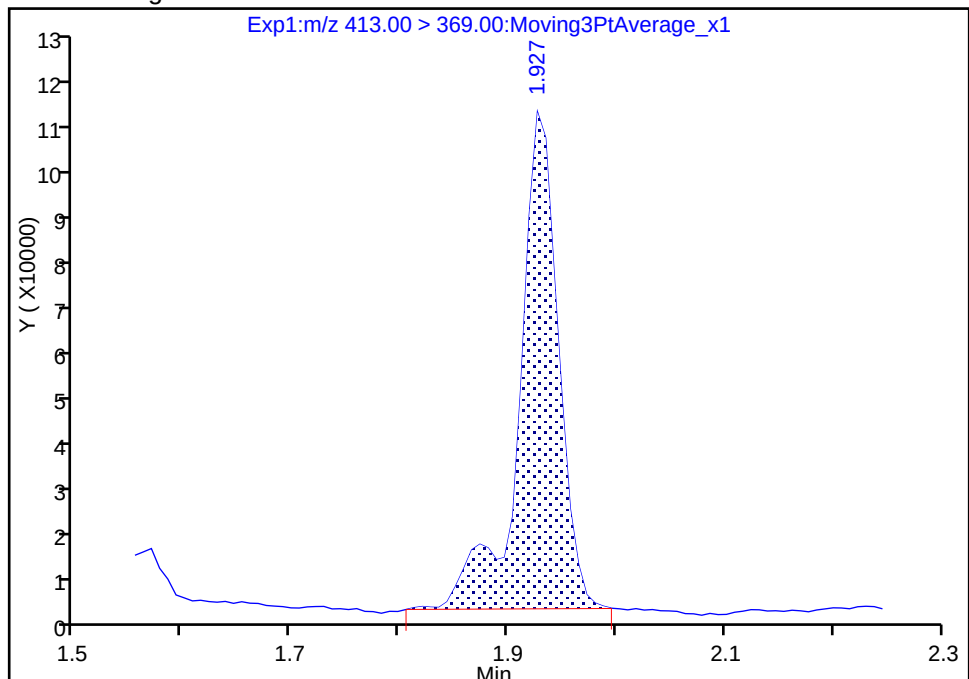
RT: 1.93
Area: 239544
Amount: 3.152216
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 267761
Amount: 3.523531
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:53:04
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 197 of 437

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3556</u>	Lab Sample ID: <u>320-29300-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_057.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 15:50</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>260.1(mL)</u>	Date Analyzed: <u>07/08/2017 15:51</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>173119</u>	Units: <u>ng/L</u>

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_057.d
 Lims ID: 320-29300-A-12-A
 Client ID: WGNA-061917-FRB-3556
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:51:51 ALS Bottle#: 43 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-12-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	965460	9.85		5566	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.878	0.042		862733	10.0		3963	
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.117	0.038		2807629	28.7		3675	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.281	0.025	1.000	662193	9.14		1491	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_057.d

Injection Date: 08-Jul-2017 15:51:51

Instrument ID: A8_N

Lims ID: 320-29300-A-12-A

Lab Sample ID: 320-29300-12

Client ID: WGNA-061917-FRB-3556

Operator ID: SACINSTLCMS01

ALS Bottle#: 43

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

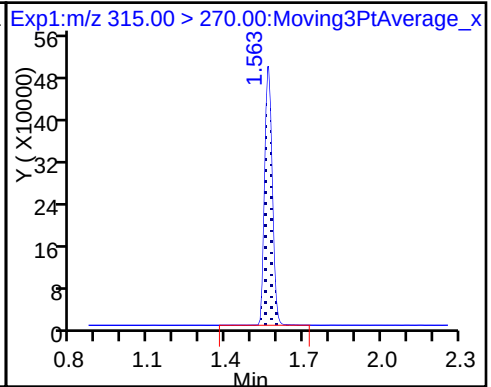
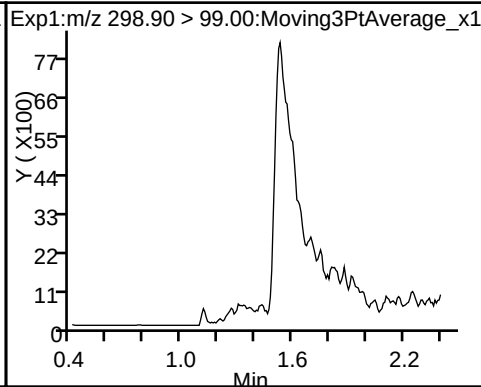
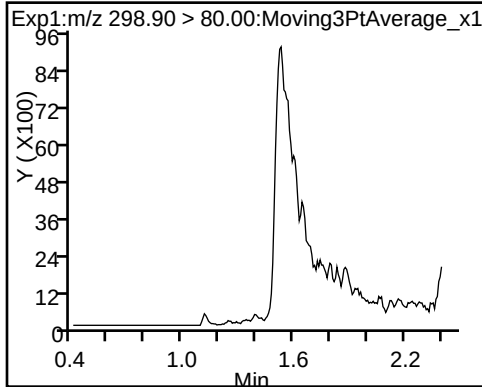
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

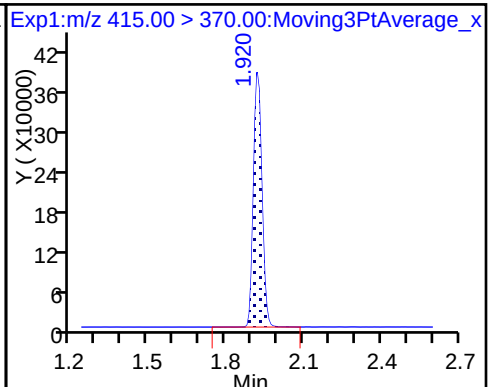
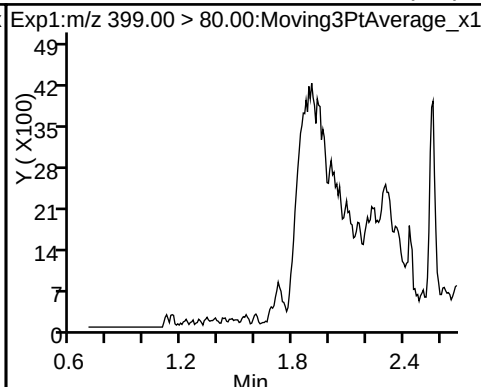
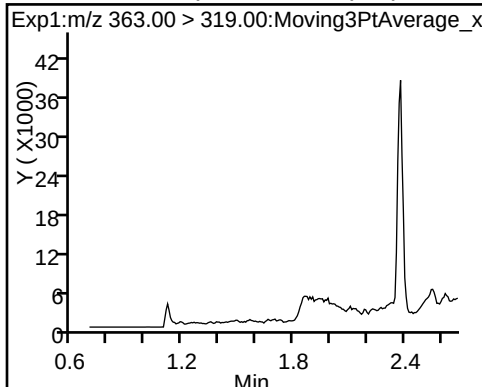
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

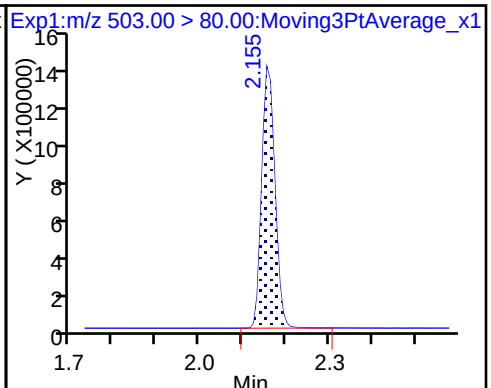
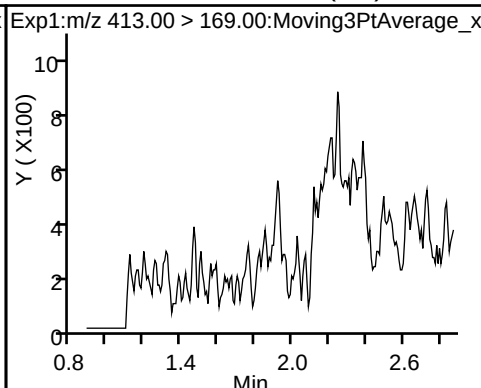
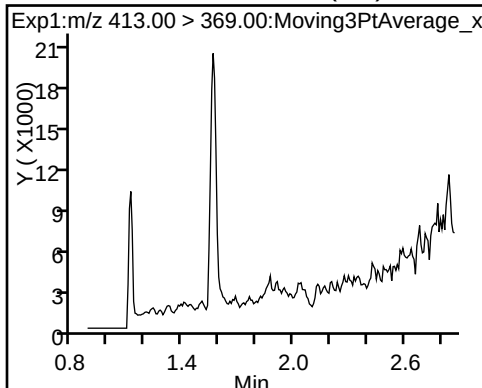
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

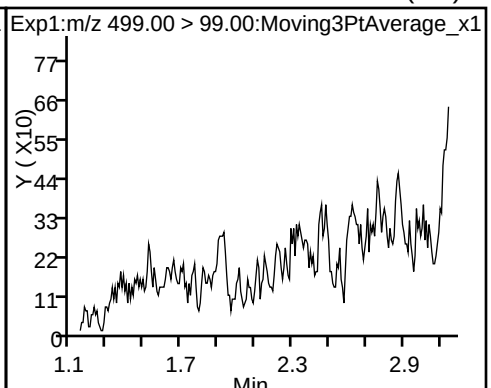
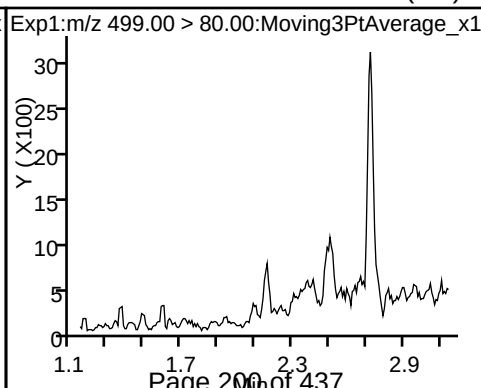
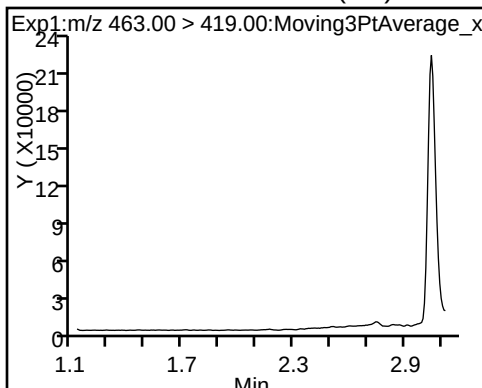
* 7 13C4 PFOS



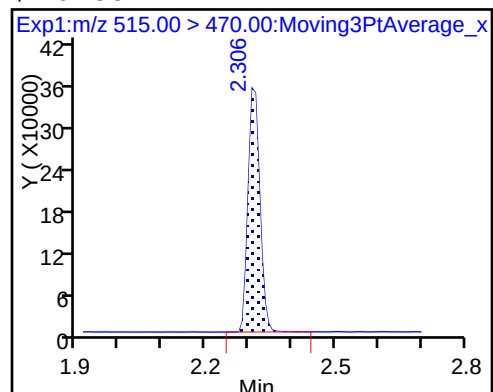
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_057.d
Lims ID: 320-29300-A-12-A
Client ID: WGNA-061917-FRB-3556
Sample Type: Client
Inject. Date: 08-Jul-2017 15:51:51 ALS Bottle#: 43 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-12-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.85	98.49
\$ 10 13C2 PFDA	10.0	9.14	91.43

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Client Sample ID: WGNA-061917-RW-0335 Lab Sample ID: 320-29300-13

Matrix: Water Lab File ID: 2017.07.08_537A_058.d

Analysis Method: 537 Date Collected: 06/19/2017 14:45

Extraction Method: 537 Date Extracted: 06/30/2017 09:25

Sample wt/vol: 251.7(mL) Date Analyzed: 07/08/2017 15:56

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

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

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

Analysis Batch No.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_058.d
 Lims ID: 320-29300-A-13-A
 Client ID: WGNA-061917-RW-0335
 Sample Type: Client
 Inject. Date: 08-Jul-2017 15:56:35 ALS Bottle#: 44 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-13-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:01:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.404	0.030	1.000	188956	2.10		49.3	
298.90 > 99.00	1.434	1.404	0.030	1.000	147496		1.28(0.00-0.00)	65.2	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	895250	9.27		4917	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	159911	1.80		19.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	300252	2.14		61.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		850423	10.0		4032	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	542932	6.93		38.4	M
413.00 > 169.00	1.927	1.879	0.048	1.000	380078		1.43(0.00-0.00)	399	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2889608	28.7		1972	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	45369	0.6474		2.3	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.147	0.023	1.000	584314	5.66		199	
499.00 > 99.00	2.162	2.147	0.015	0.996	92838		6.29(0.00-0.00)	109	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	699668	9.80		1573	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_058.d

Injection Date: 08-Jul-2017 15:56:35

Instrument ID: A8_N

Lims ID: 320-29300-A-13-A

Lab Sample ID: 320-29300-13

Client ID: WGNA-061917-RW-0335

Operator ID: SACINSTLCMS01

ALS Bottle#: 44

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

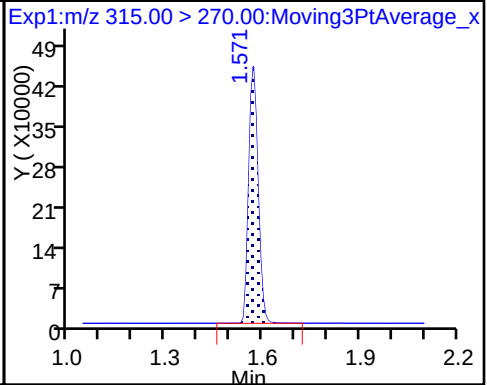
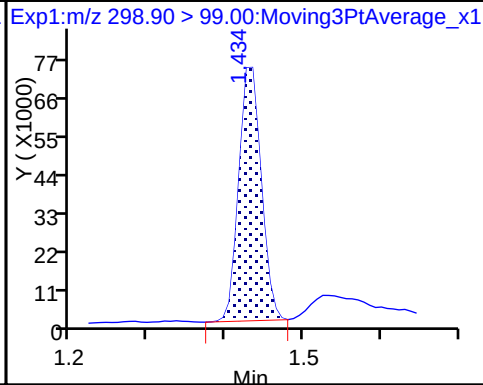
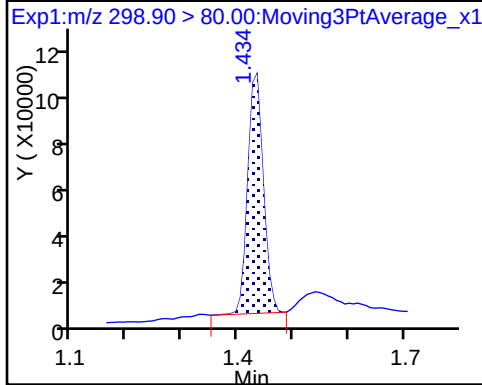
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

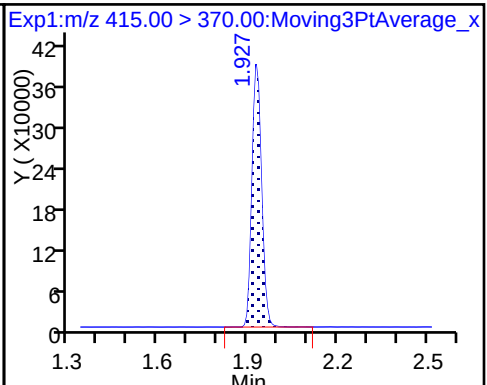
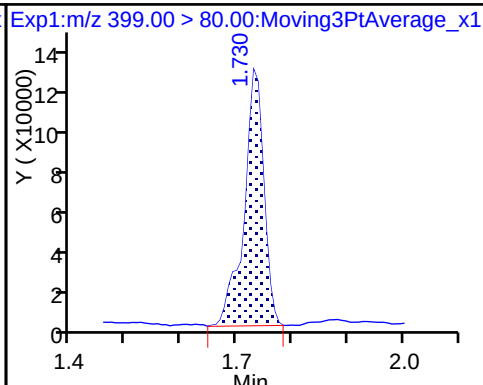
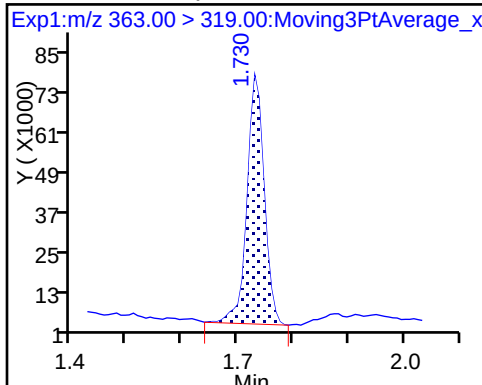
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

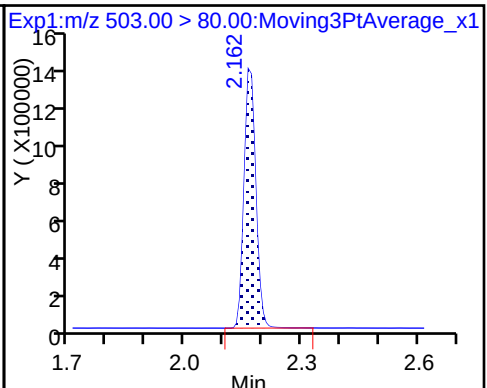
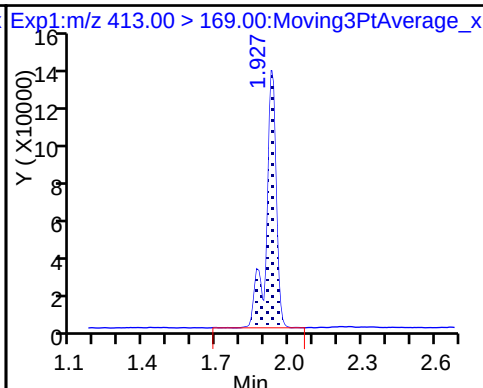
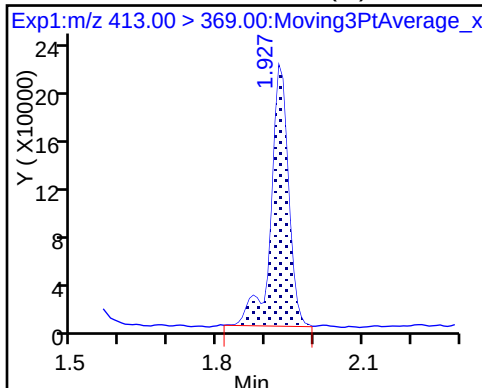
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

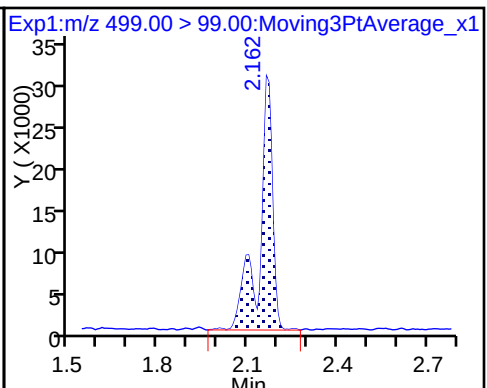
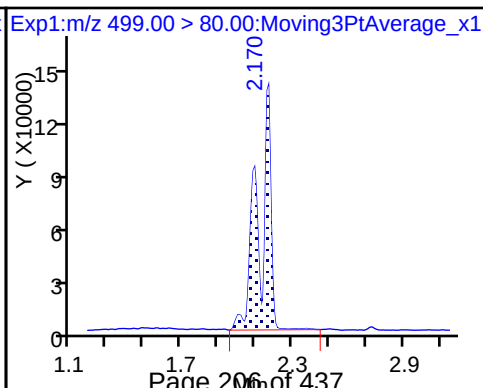
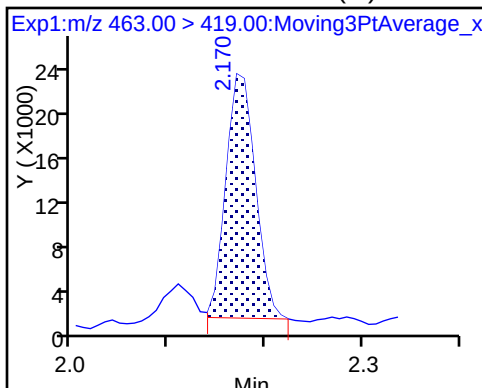
* 7 13C4 PFOS



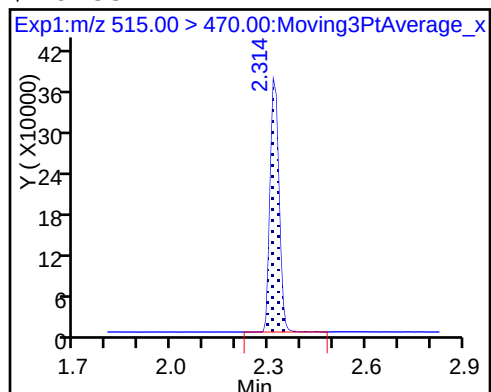
9 Perfluorononanoic acid (M)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_058.d
Lims ID: 320-29300-A-13-A
Client ID: WGNA-061917-RW-0335
Sample Type: Client
Inject. Date: 08-Jul-2017 15:56:35 ALS Bottle#: 44 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-13-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:01:43

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.27	92.65
\$ 10 13C2 PFDA	10.0	9.80	98.00

TestAmerica Sacramento

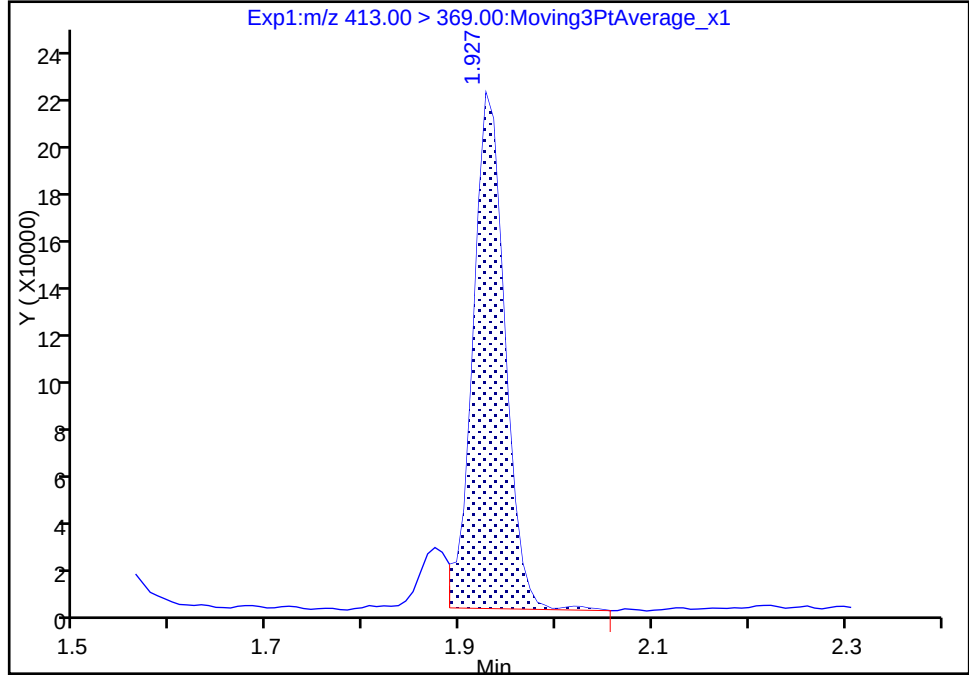
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Injection Date:	08-Jul-2017 15:56:35	Instrument ID:	A8_N		
Lims ID:	320-29300-A-13-A	Lab Sample ID:	320-29300-13		
Client ID:	WGNA-061917-RW-0335				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	44	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

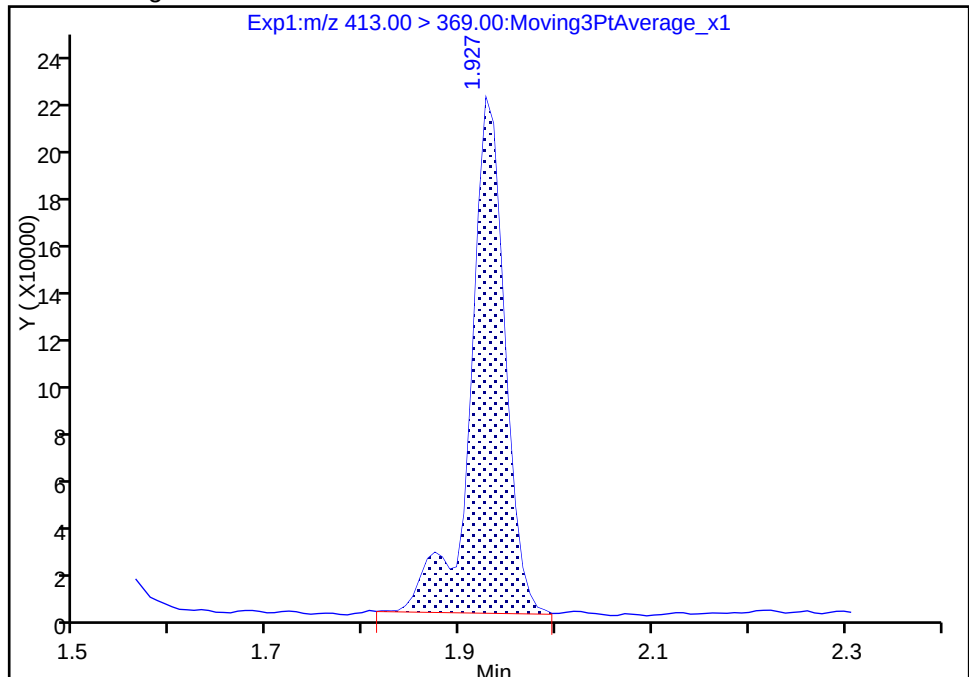
RT: 1.93
Area: 498234
Amount: 6.356440
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 542932
Amount: 6.926695
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 11:01:12
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 209 of 437

TestAmerica Sacramento

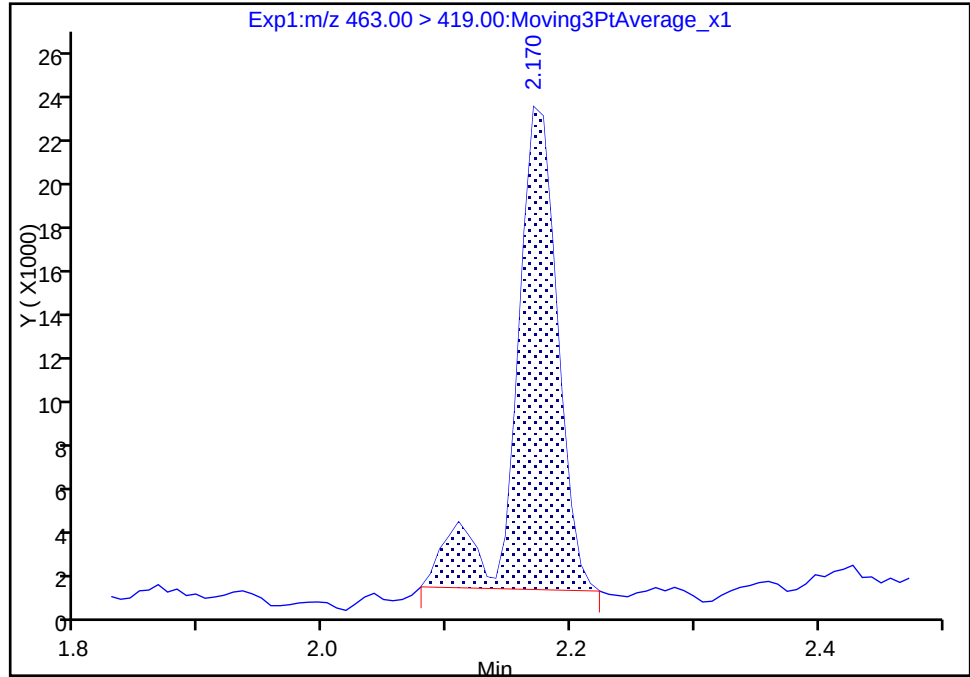
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Injection Date:	08-Jul-2017 15:56:35	Instrument ID:	A8_N		
Lims ID:	320-29300-A-13-A	Lab Sample ID:	320-29300-13		
Client ID:	WGNA-061917-RW-0335				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	44	Worklist Smp#:	21
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

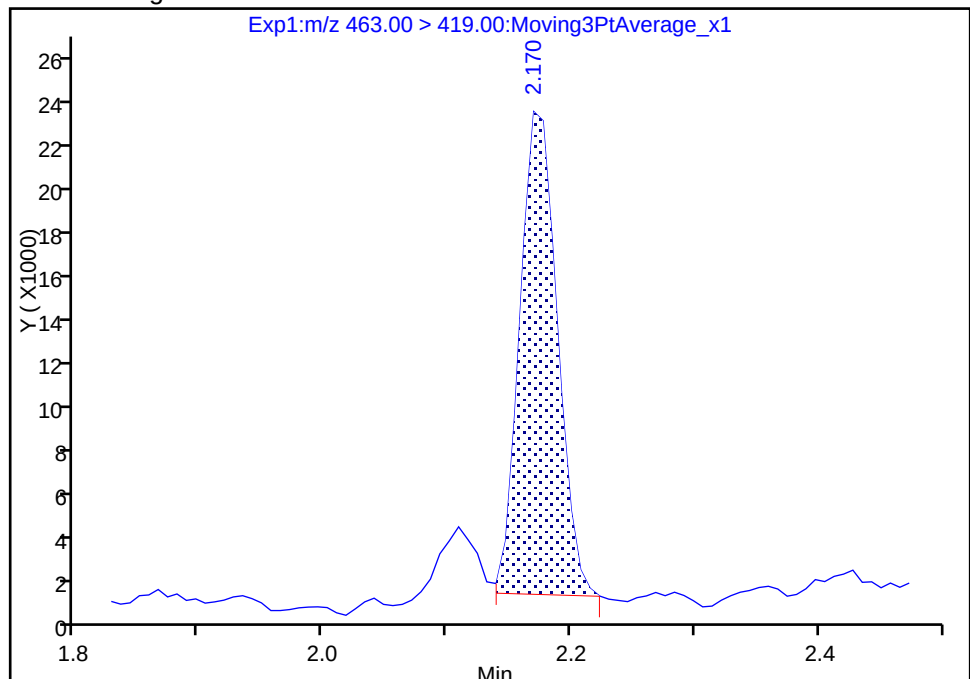
RT: 2.17
Area: 51039
Amount: 0.728263
Amount Units: ng/ml

Processing Integration Results



RT: 2.17
Area: 45369
Amount: 0.647359
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 11:01:36

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-0335</u>	Lab Sample ID: <u>320-29300-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_059.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 14:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.5 (mL)</u>	Date Analyzed: <u>07/08/2017 16:01</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</u> ID: <u>3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>173119</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_059.d
 Lims ID: 320-29300-A-14-A
 Client ID: WGNA-061917-FRB-0335
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:01:19 ALS Bottle#: 45 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: -29300-a-14-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:01:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 971063 10.2 5481

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 839396 10.0 4033

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2594885 28.7 3411

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 647218 9.18 1415

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_059.d

Injection Date: 08-Jul-2017 16:01:19

Instrument ID: A8_N

Lims ID: 320-29300-A-14-A

Lab Sample ID: 320-29300-14

Client ID: WGNA-061917-FRB-0335

Operator ID: SACINSTLCMS01

ALS Bottle#: 45

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

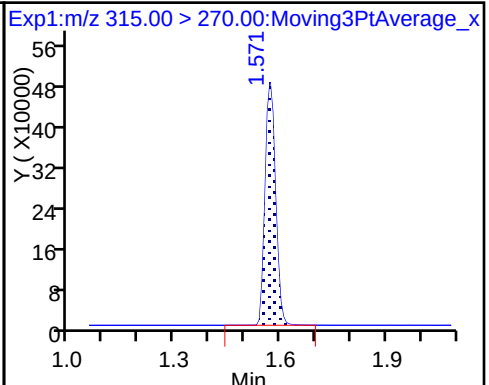
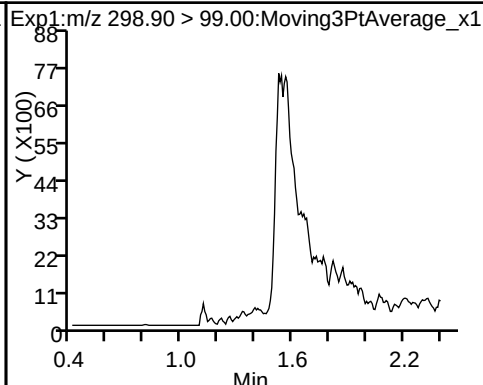
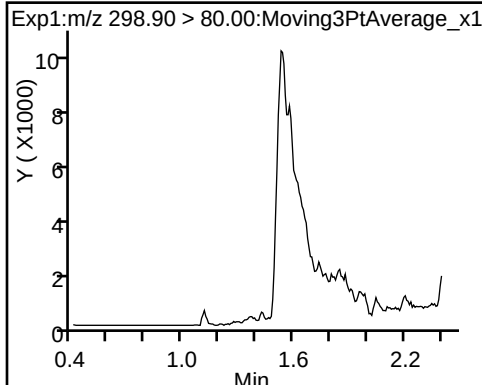
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

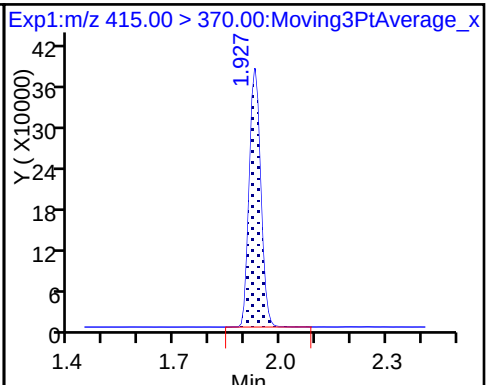
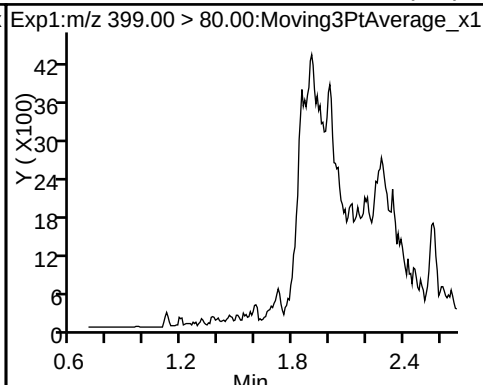
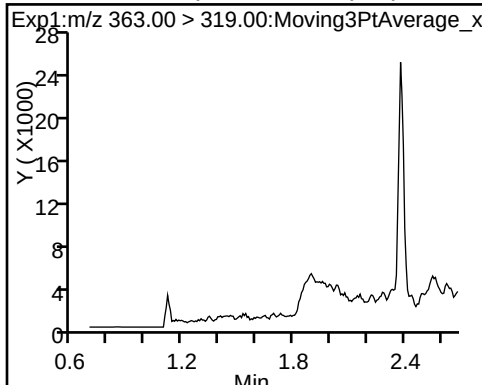
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

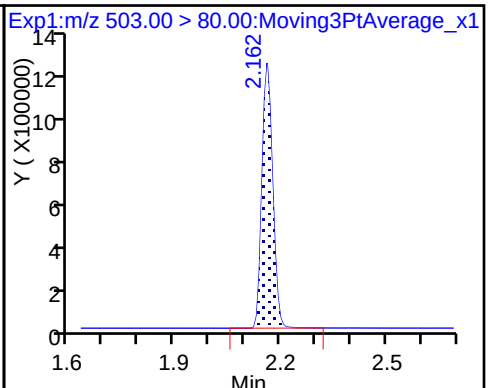
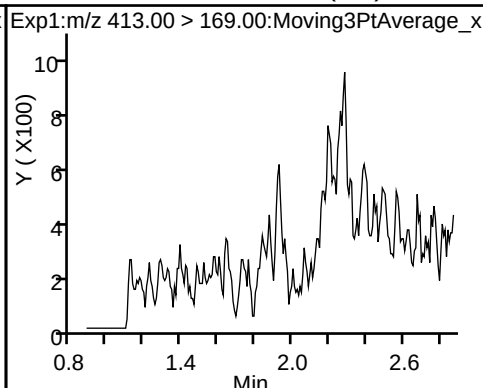
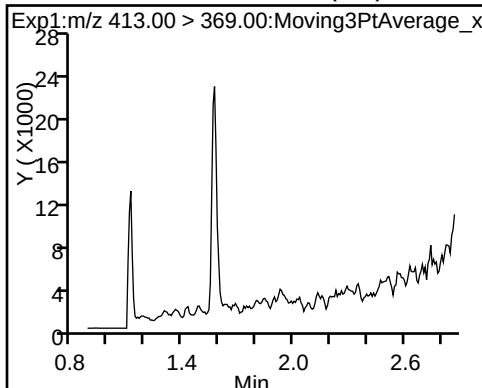
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

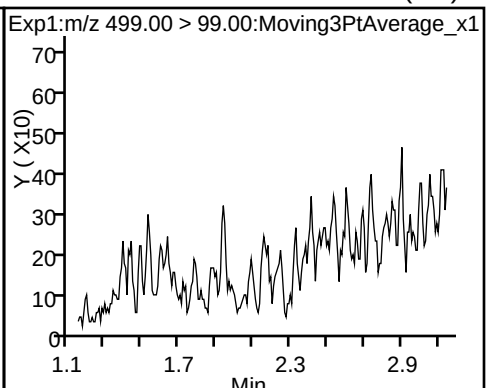
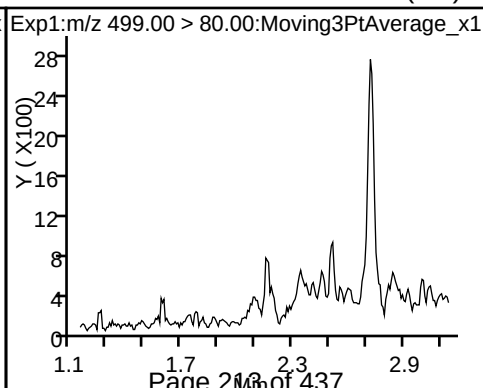
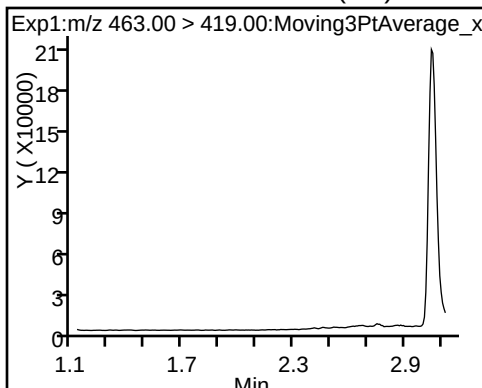
* 7 13C4 PFOS



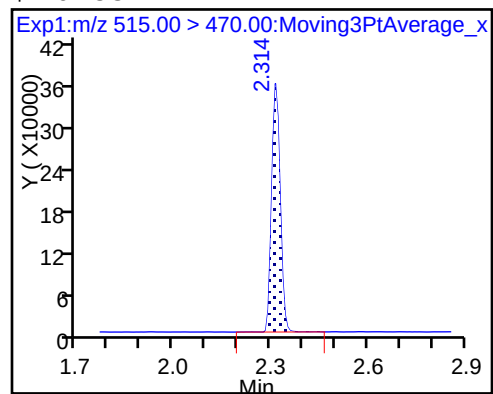
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_059.d
Lims ID: 320-29300-A-14-A
Client ID: WGNA-061917-FRB-0335
Sample Type: Client
Inject. Date: 08-Jul-2017 16:01:19 ALS Bottle#: 45 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: -29300-a-14-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:01:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	101.82
\$ 10 13C2 PFDA	10.0	9.18	91.84

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Client Sample ID: WGNA-061917-RW-3882 Lab Sample ID: 320-29300-15

Matrix: Water Lab File ID: 2017.07.08_537A_062.d

Analysis Method: 537 Date Collected: 06/19/2017 15:30

Extraction Method: 537 Date Extracted: 06/30/2017 09:25

Sample wt/vol: 265 (mL) Date Analyzed: 07/08/2017 16:15

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.: 173120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	8.9	J M	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_062.d
 Lims ID: 320-29300-A-15-A
 Client ID: WGNA-061917-RW-3882
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:15:33 ALS Bottle#: 46 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-15-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:03:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	106509	1.28		40.0	
298.90 > 99.00	1.426	1.404	0.022	1.000	88262		1.21(0.00-0.00)	47.9	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	821725	8.94		4481	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	83412	0.9856		12.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	363115	2.78		129	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		809341	10.0		3850	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	176660	2.37		14.5	M
413.00 > 169.00	1.927	1.879	0.048	1.000	134038		1.32(0.00-0.00)	161	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2688123	28.7		2744	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	709104	7.39		416	
499.00 > 99.00	2.162	2.147	0.015	1.000	126145		5.62(0.00-0.00)	193	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	650911	9.58		1685	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_062.d

Injection Date: 08-Jul-2017 16:15:33

Instrument ID: A8_N

Lims ID: 320-29300-A-15-A

Lab Sample ID: 320-29300-15

Client ID: WGNA-061917-RW-3882

Operator ID: SACINSTLCMS01

ALS Bottle#: 46

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

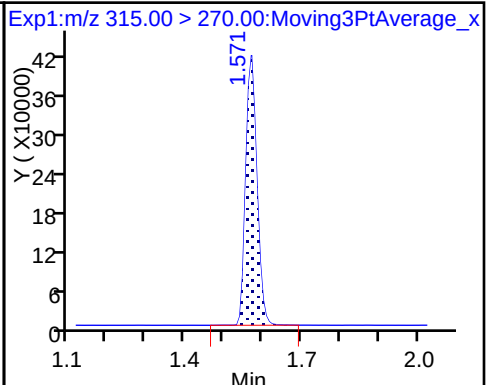
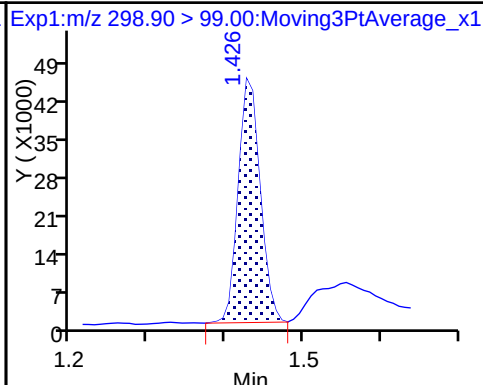
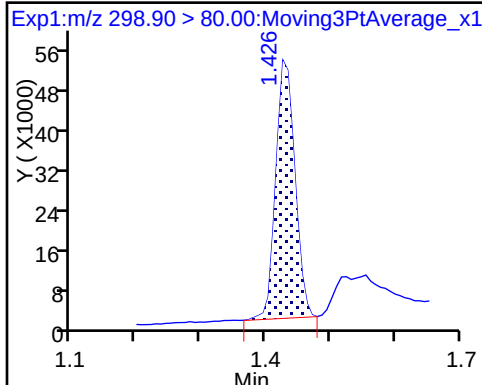
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

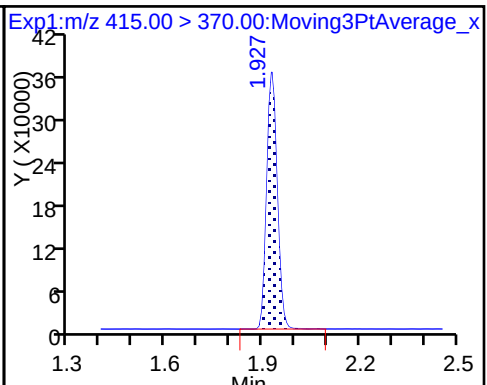
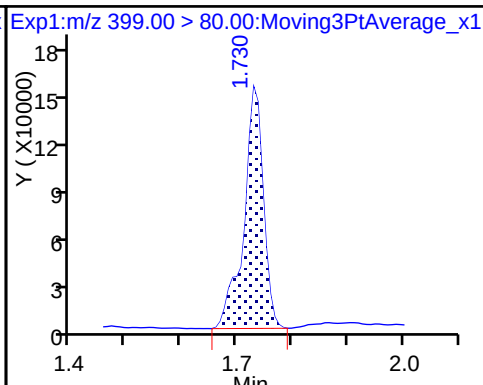
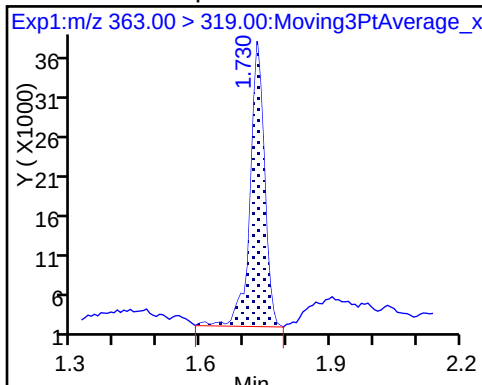
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

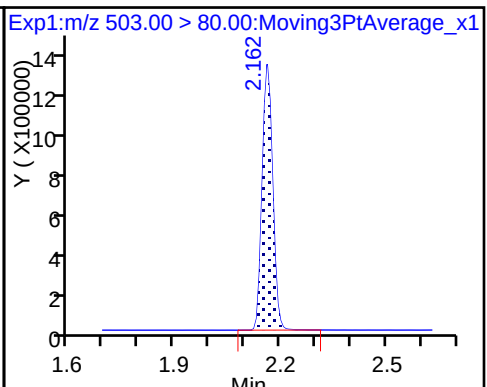
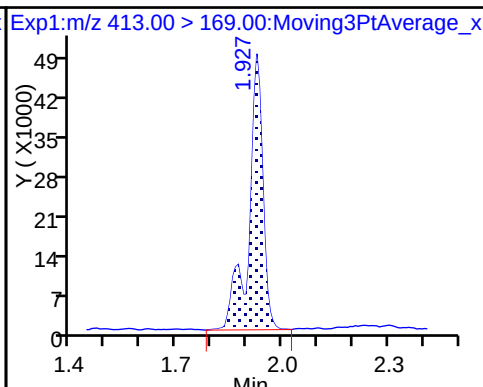
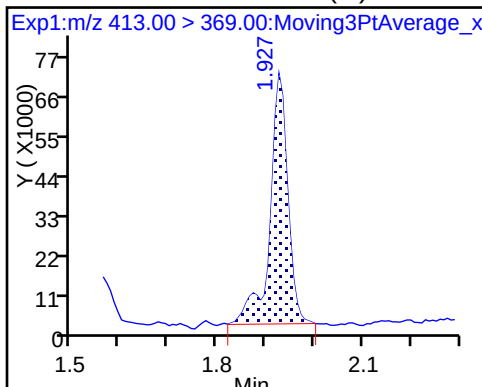
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

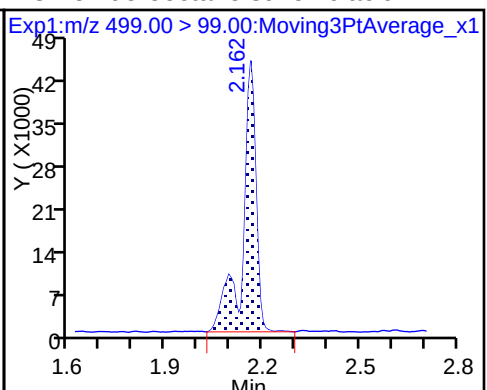
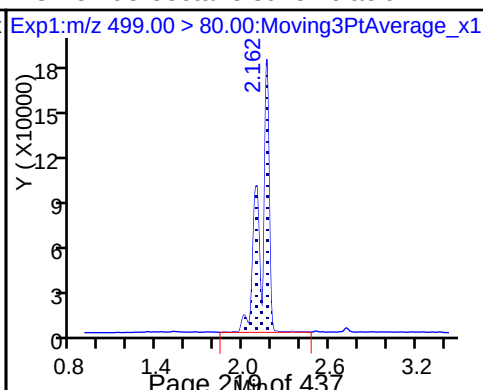
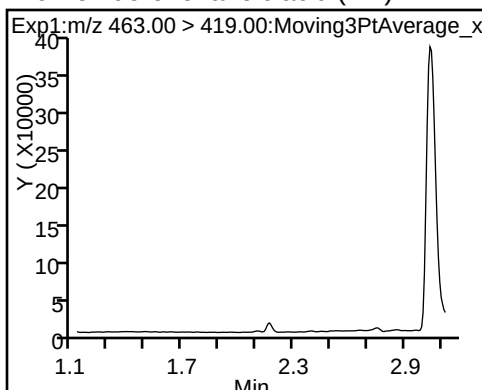
* 7 13C4 PFOS



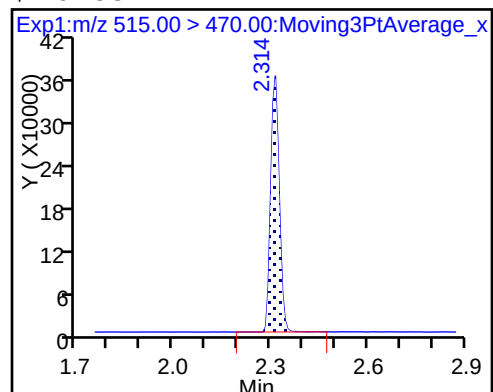
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_062.d
Lims ID: 320-29300-A-15-A
Client ID: WGNA-061917-RW-3882
Sample Type: Client
Inject. Date: 08-Jul-2017 16:15:33 ALS Bottle#: 46 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-15-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:03:15

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.94	89.36
\$ 10 13C2 PFDA	10.0	9.58	95.80

TestAmerica Sacramento

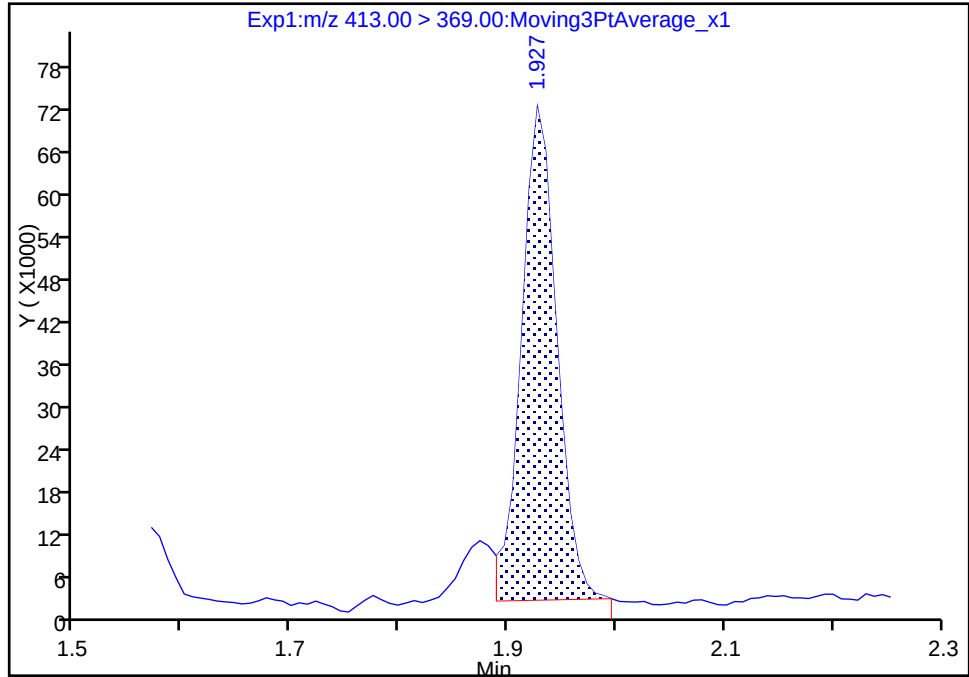
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Injection Date:	08-Jul-2017 16:15:33	Instrument ID:	A8_N		
Lims ID:	320-29300-A-15-A	Lab Sample ID:	320-29300-15		
Client ID:	WGNA-061917-RW-3882				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	46	Worklist Smp#:	25
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

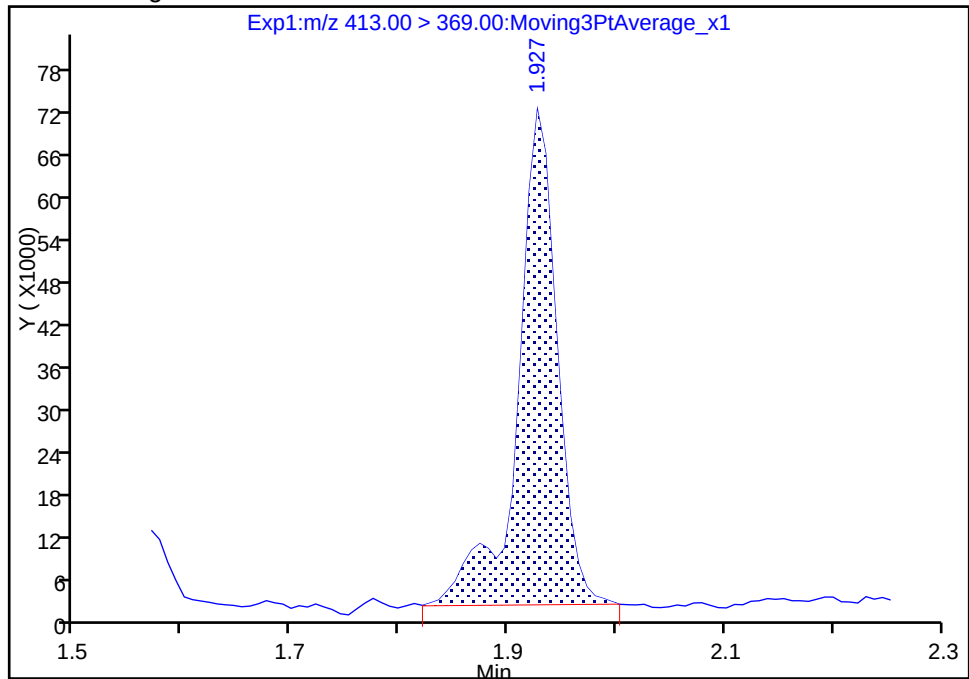
RT: 1.93
Area: 156476
Amount: 2.097644
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 176660
Amount: 2.368221
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 11:02:55
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 222 of 437

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3882</u>	Lab Sample ID: <u>320-29300-16</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_063.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 15:25</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.2 (mL)</u>	Date Analyzed: <u>07/08/2017 16:20</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>173120</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_063.d
 Lims ID: 320-29300-A-16-A
 Client ID: WGNA-061917-FRB-3882
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:20:19 ALS Bottle#: 47 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-16-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:03:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.555 1.539 0.016 1.000 1036222 11.0 5962

* 6 13C2-PFOA

415.00 > 370.00 1.904 1.878 0.026 829383 10.0 3811

* 7 13C4 PFOS

503.00 > 80.00 2.147 2.117 0.030 2715624 28.7 3544

\$ 10 13C2 PFDA

515.00 > 470.00 2.299 2.281 0.018 1.000 674820 9.69 1590

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_063.d

Injection Date: 08-Jul-2017 16:20:19

Instrument ID: A8_N

Lims ID: 320-29300-A-16-A

Lab Sample ID: 320-29300-16

Client ID: WGNA-061917-FRB-3882

Operator ID: SACINSTLCMS01

ALS Bottle#: 47

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

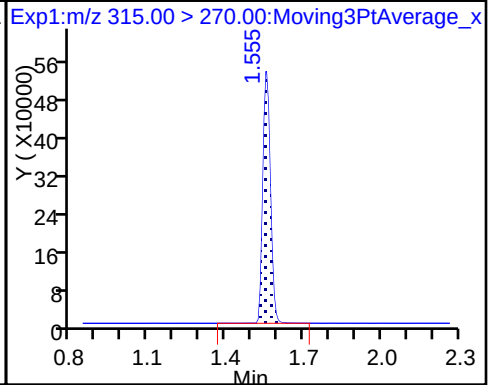
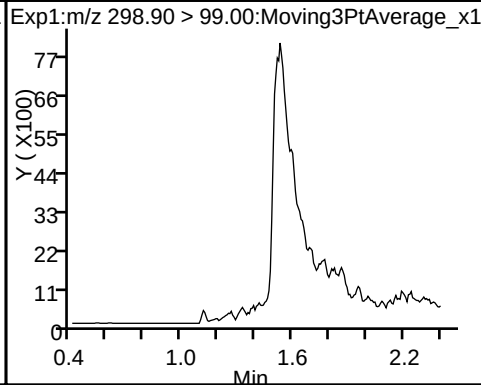
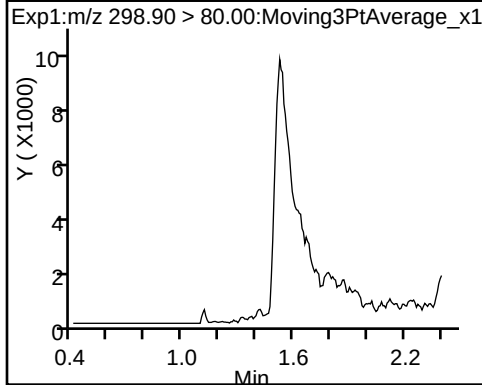
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

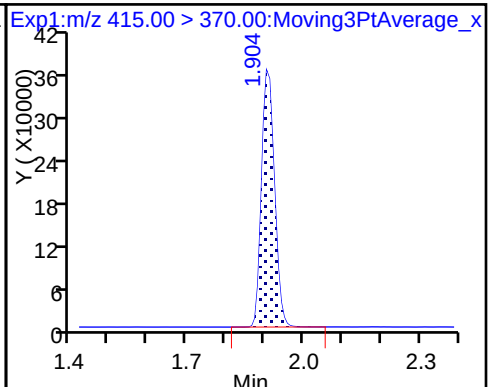
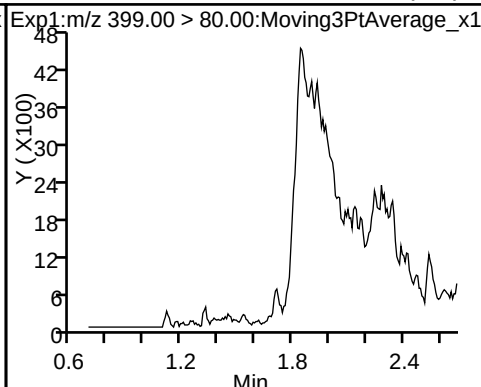
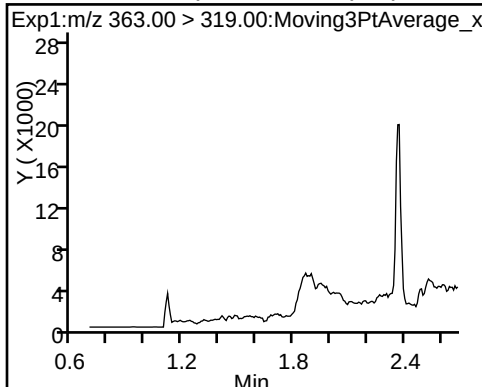
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

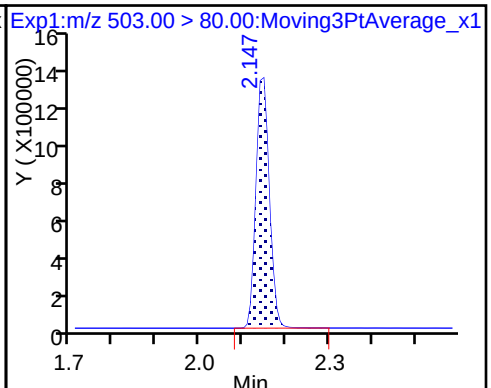
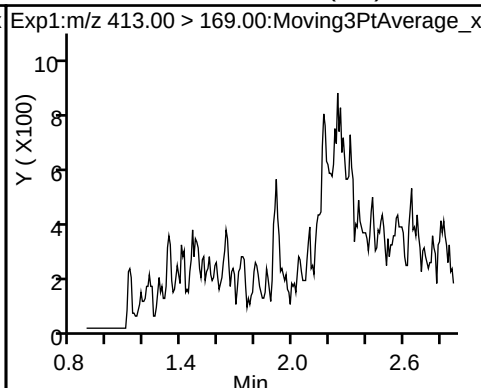
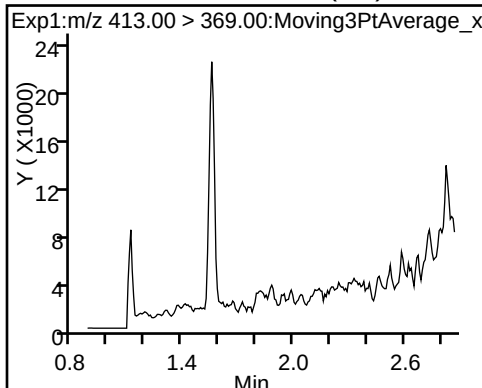
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

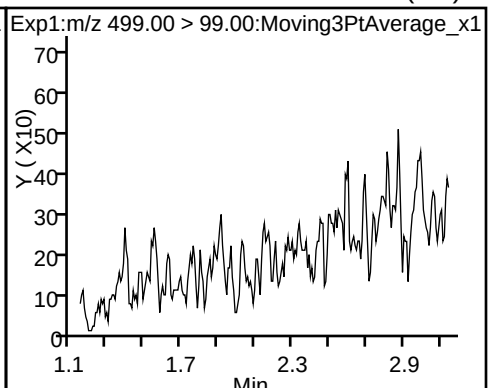
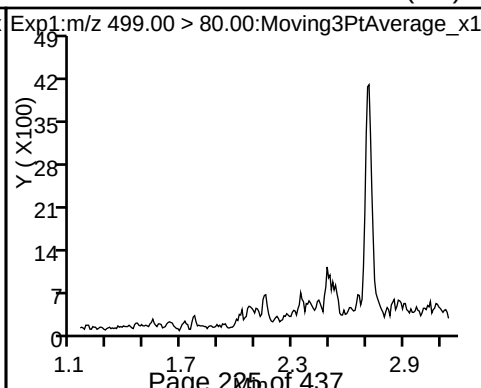
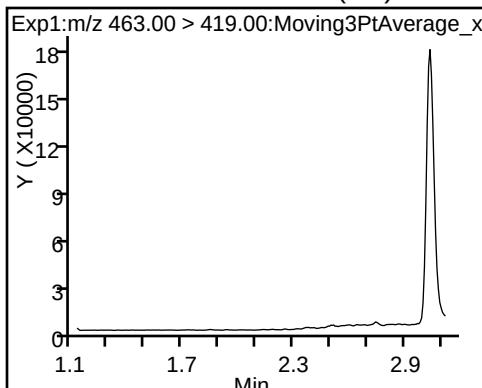
* 7 13C4 PFOS



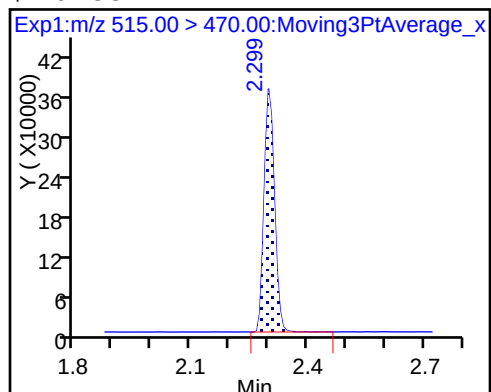
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_063.d
Lims ID: 320-29300-A-16-A
Client ID: WGNA-061917-FRB-3882
Sample Type: Client
Inject. Date: 08-Jul-2017 16:20:19 ALS Bottle#: 47 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-16-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:03:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.0	109.96
\$ 10 13C2 PFDA	10.0	9.69	96.92

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3382</u>	Lab Sample ID: <u>320-29300-17</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_064.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 16:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>258.4 (mL)</u>	Date Analyzed: <u>07/08/2017 16:25</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>173120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.1	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.7	J M	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d
 Lims ID: 320-29300-A-17-A
 Client ID: WGNA-061917-RW-3382
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:25:04 ALS Bottle#: 48 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-17-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:04:43

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	280444	3.23		105	
298.90 > 99.00	1.426	1.404	0.022	1.000	211740		1.32(0.00-0.00)	117	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	909950	9.79		5793	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.691	0.031	1.000	126672	1.48		16.9	M
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	213681	1.57		59.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.878	0.042		817686	10.0		4131	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.879	0.041	1.000	335392	4.45		24.7	M
413.00 > 169.00	1.920	1.879	0.041	1.000	248348		1.35(0.00-0.00)	284	
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.117	0.038		2793731	28.7		2364	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	361426	3.62		162	M
499.00 > 99.00	2.155	2.147	0.008	1.000	59095		6.12(0.00-0.00)	82.5	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.281	0.025	1.000	679440	9.90		1682	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d

Injection Date: 08-Jul-2017 16:25:04

Instrument ID: A8_N

Lims ID: 320-29300-A-17-A

Lab Sample ID: 320-29300-17

Client ID: WGNA-061917-RW-3382

Operator ID: SACINSTLCMS01

ALS Bottle#: 48

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

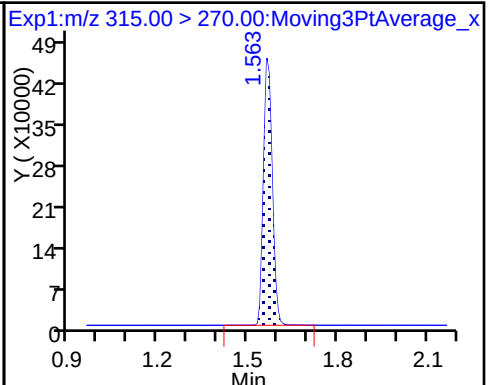
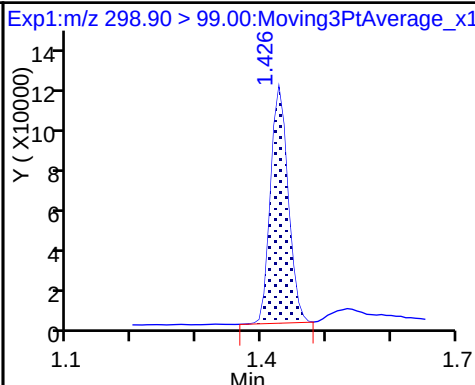
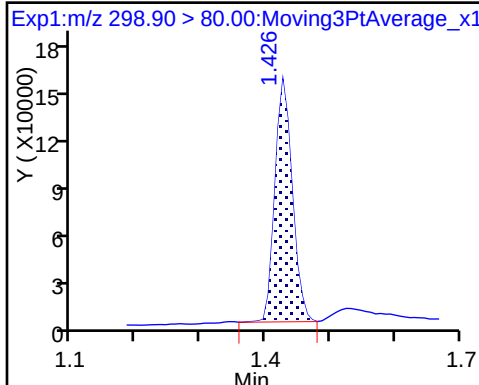
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

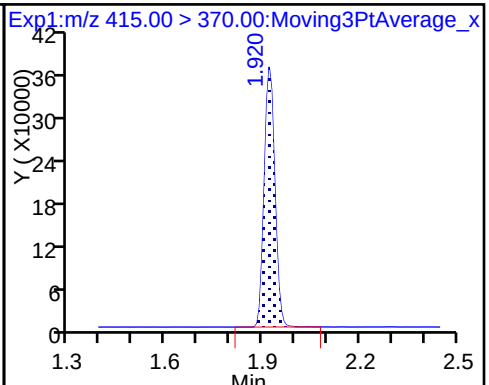
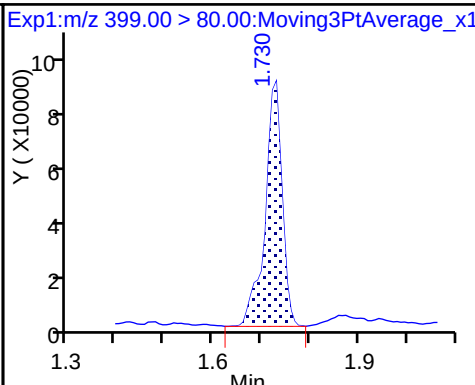
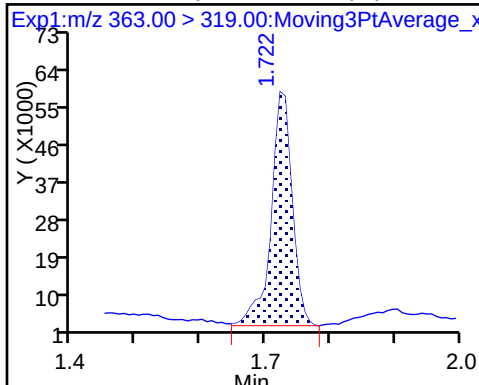
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (M)

3 Perfluorohexanesulfonic acid

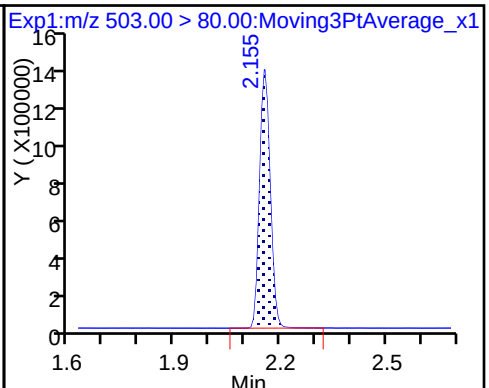
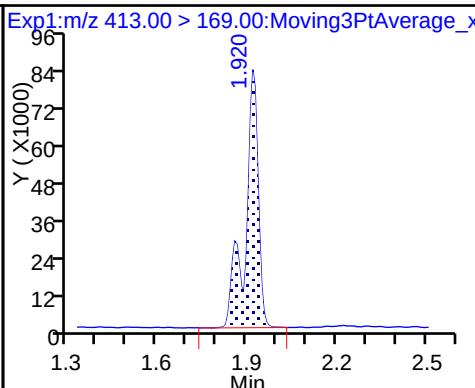
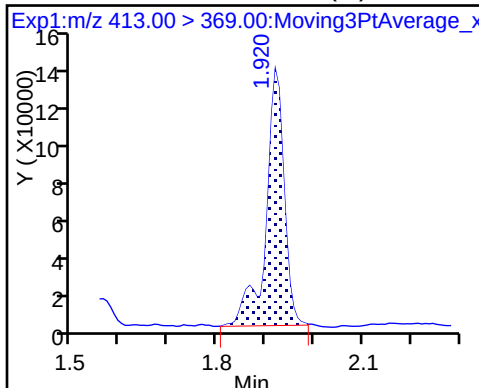
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

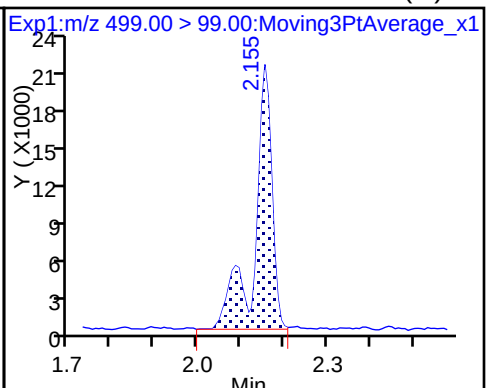
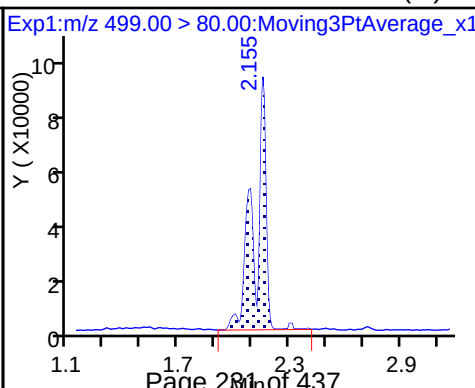
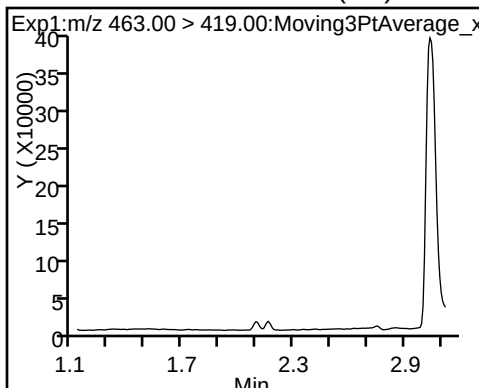
* 7 13C4 PFOS



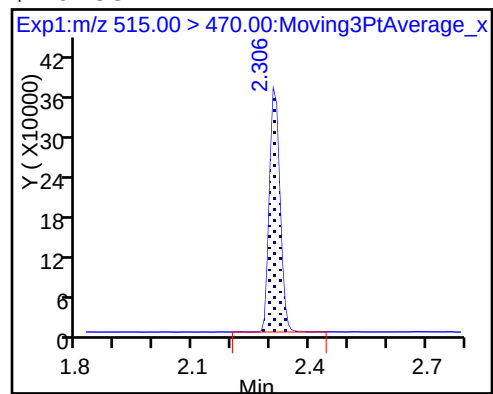
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d
Lims ID: 320-29300-A-17-A
Client ID: WGNA-061917-RW-3382
Sample Type: Client
Inject. Date: 08-Jul-2017 16:25:04 ALS Bottle#: 48 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-17-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:04:43

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.79	97.95
\$ 10 13C2 PFDA	10.0	9.90	98.98

TestAmerica Sacramento

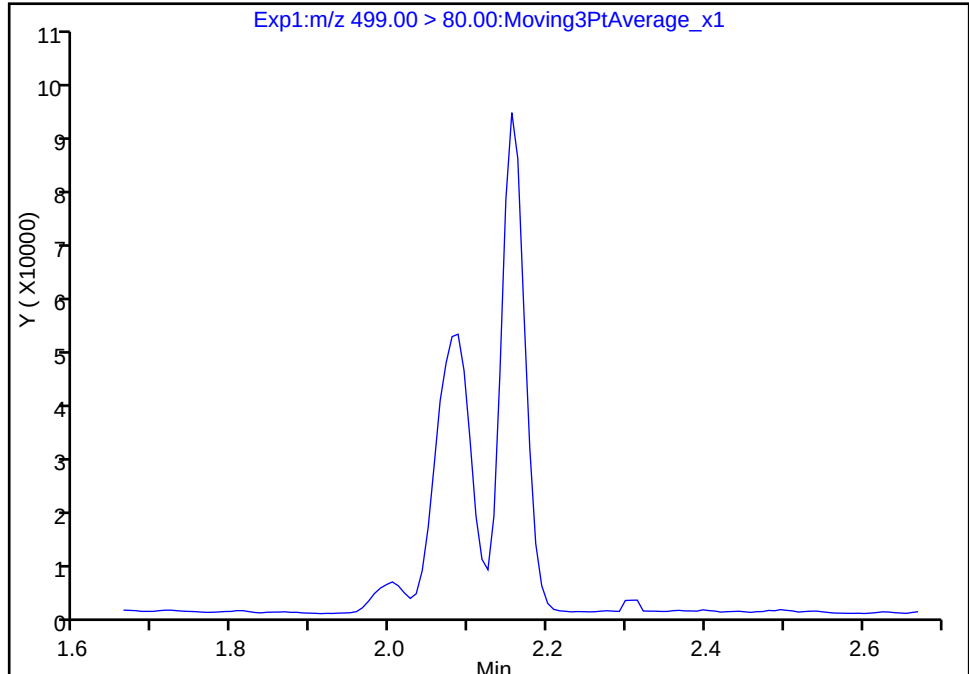
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Injection Date:	08-Jul-2017 16:25:04	Instrument ID:	A8_N		
Lims ID:	320-29300-A-17-A	Lab Sample ID:	320-29300-17		
Client ID:	WGNA-061917-RW-3382				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	48	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

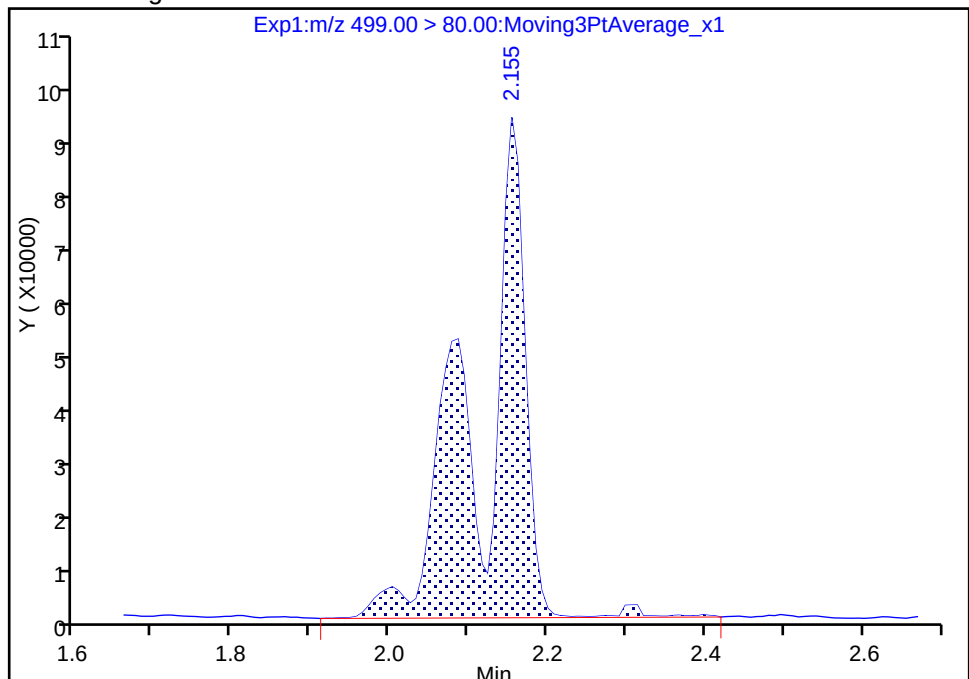
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 361426
Amount: 3.622990
Amount Units: ng/mlReviewer: barnettj, 10-Jul-2017 11:04:00
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

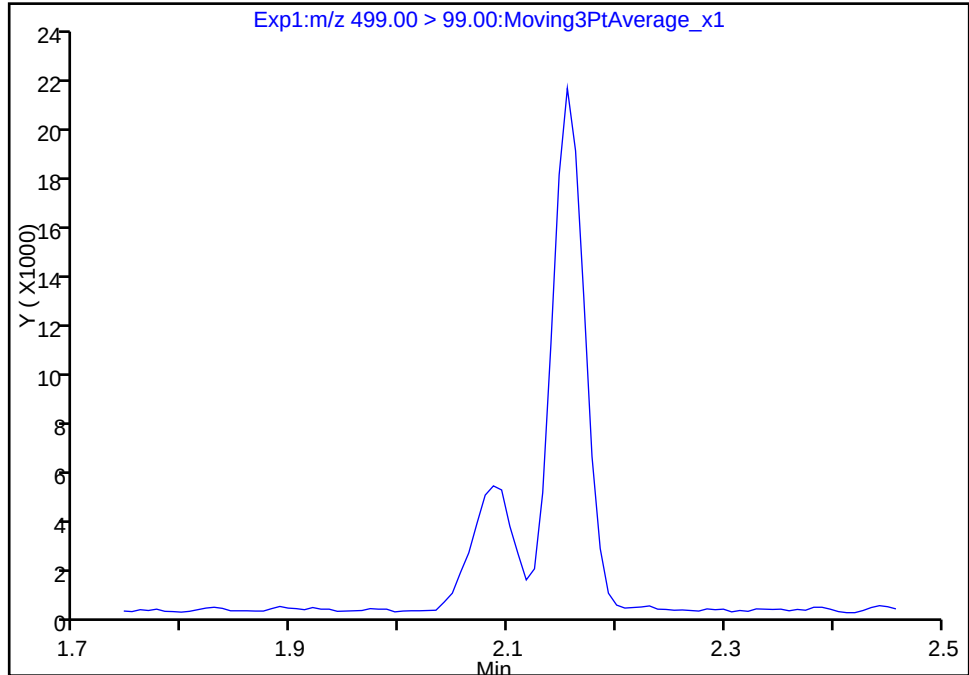
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d				
Injection Date:	08-Jul-2017 16:25:04	Instrument ID:	A8_N		
Lims ID:	320-29300-A-17-A	Lab Sample ID:	320-29300-17		
Client ID:	WGNA-061917-RW-3382				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	48	Worklist Smp#:	27
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

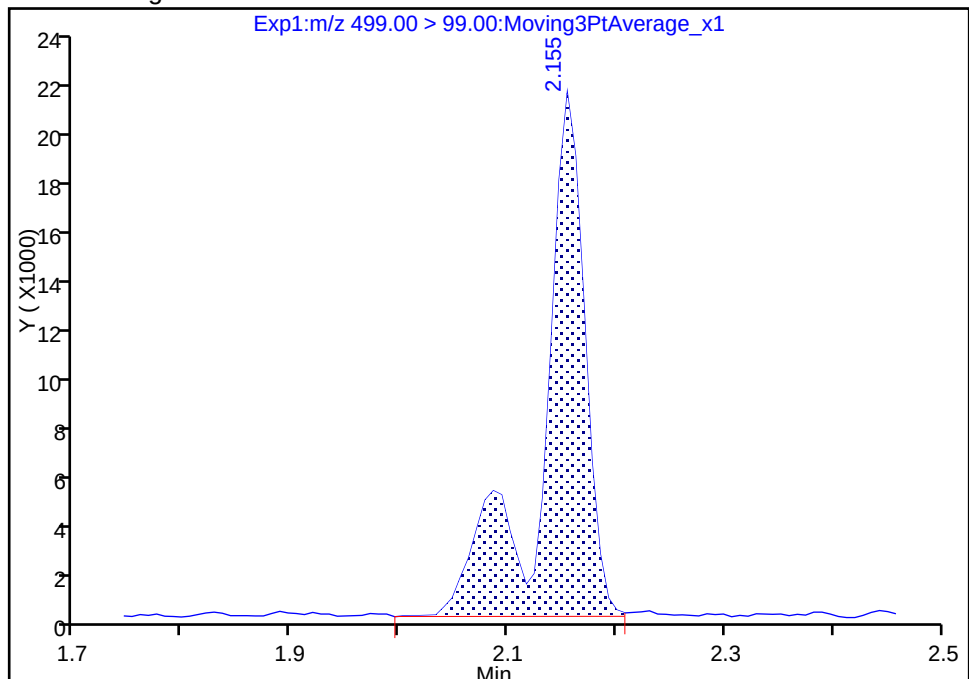
Signal: 2

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.15
Area: 59095
Amount: 3.622990
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 11:04:17

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

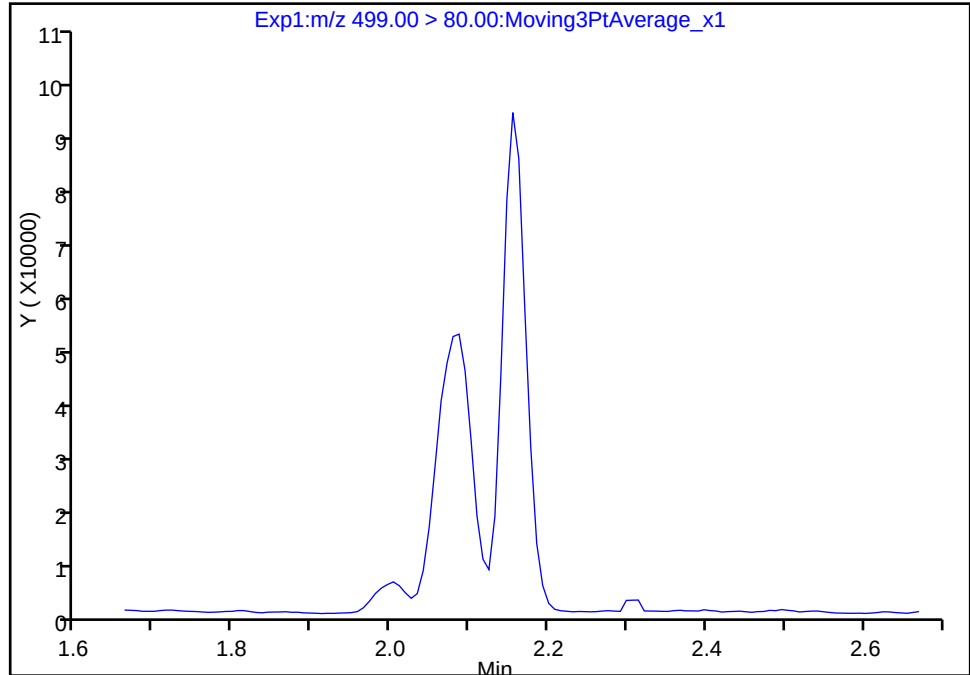
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d
Injection Date: 08-Jul-2017 16:25:04 Instrument ID: A8_N
Lims ID: 320-29300-A-17-A Lab Sample ID: 320-29300-17
Client ID: WGNA-061917-RW-3382
Operator ID: SACINSTLCMS01 ALS Bottle#: 48 Worklist Smp#: 27
Injection Vol: 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

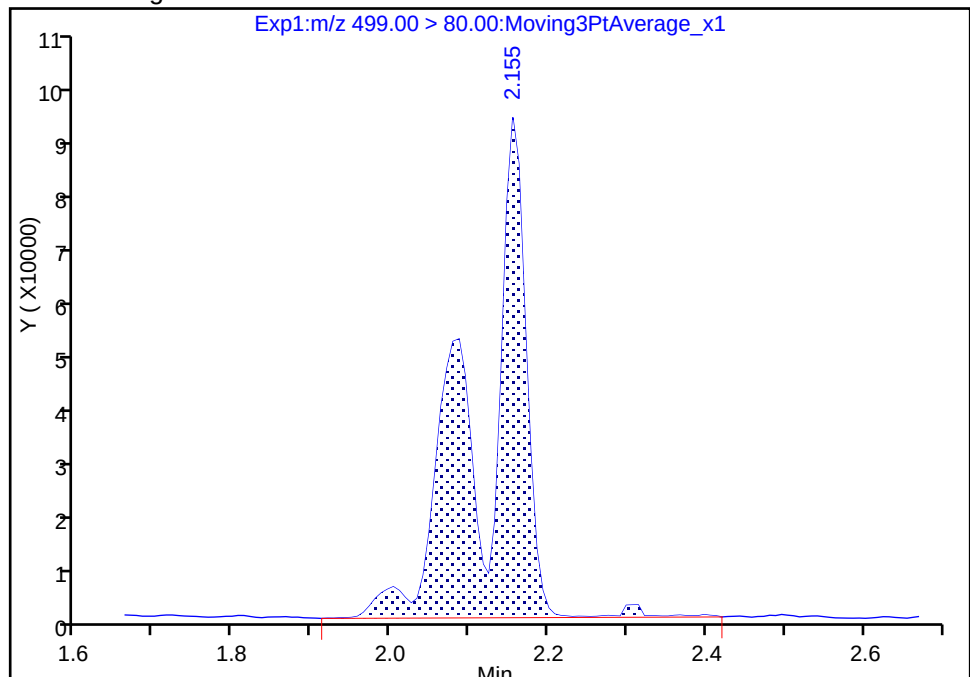
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 361426
Amount: 3.622990
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 11:04:17

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

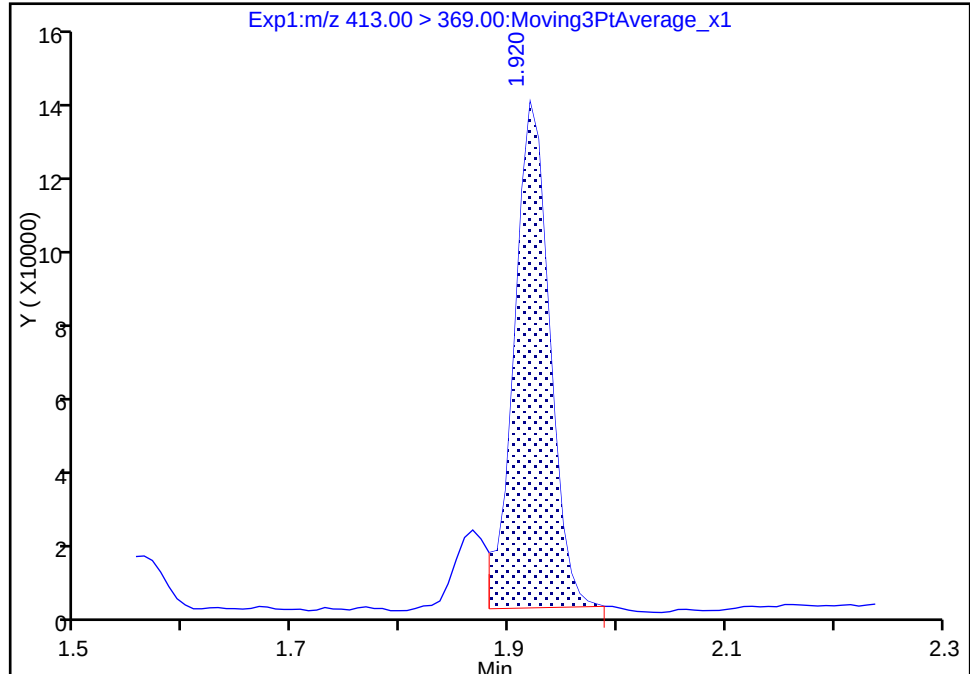
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d				
Injection Date:	08-Jul-2017 16:25:04	Instrument ID:	A8_N		
Lims ID:	320-29300-A-17-A	Lab Sample ID:	320-29300-17		
Client ID:	WGNA-061917-RW-3382				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	48	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

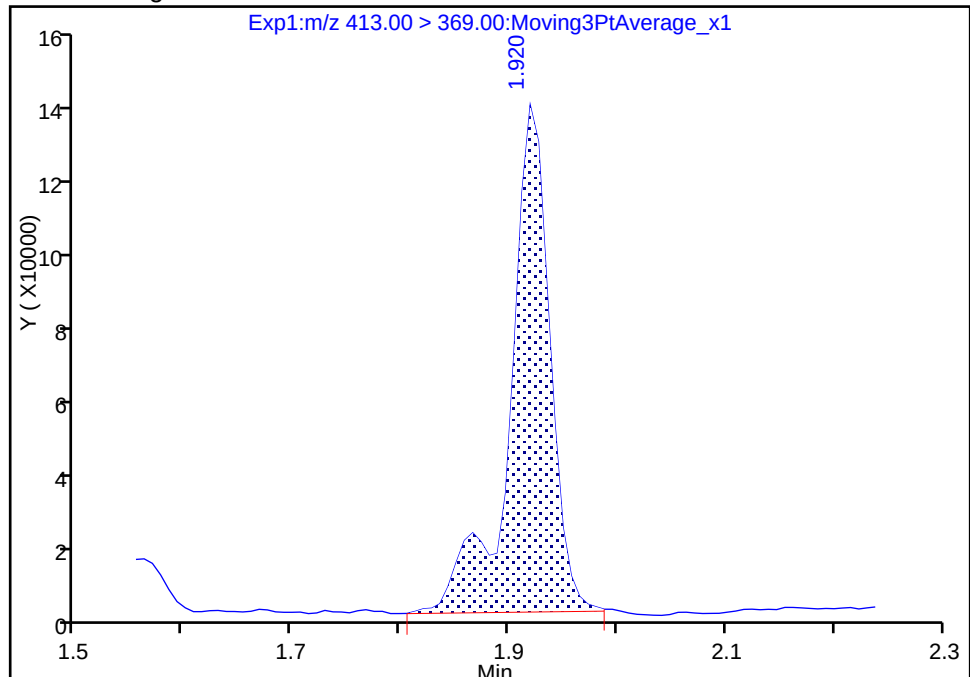
RT: 1.92
Area: 292223
Amount: 3.877425
Amount Units: ng/ml

Processing Integration Results



RT: 1.92
Area: 335392
Amount: 4.450223
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 11:04:33

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

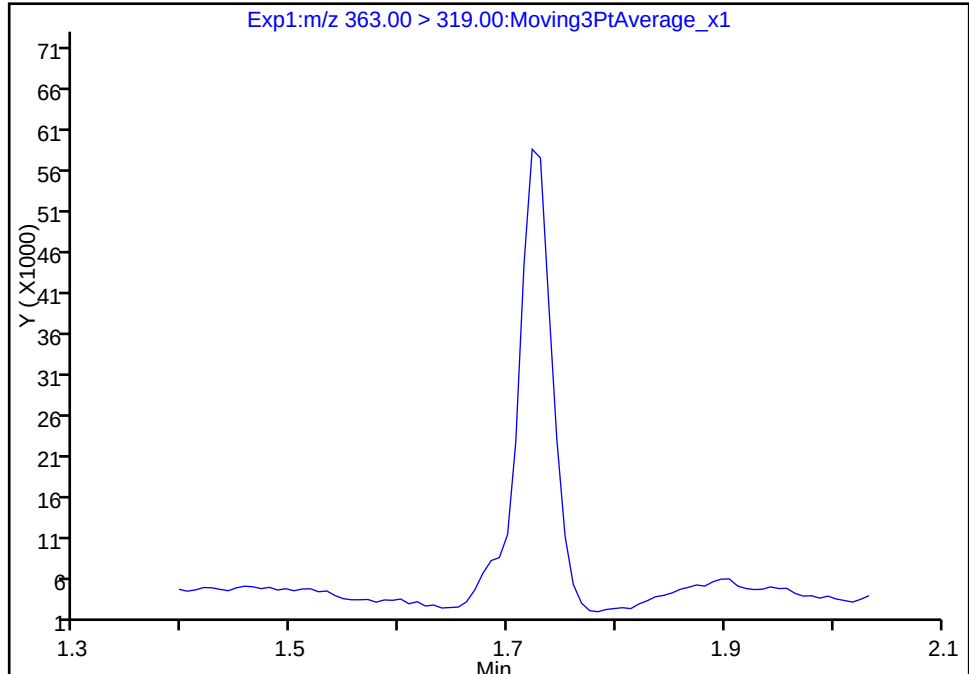
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_064.d				
Injection Date:	08-Jul-2017 16:25:04	Instrument ID:	A8_N		
Lims ID:	320-29300-A-17-A	Lab Sample ID:	320-29300-17		
Client ID:	WGNA-061917-RW-3382				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	48	Worklist Smp#:	27
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

4 Perfluoroheptanoic acid, CAS: 375-85-9

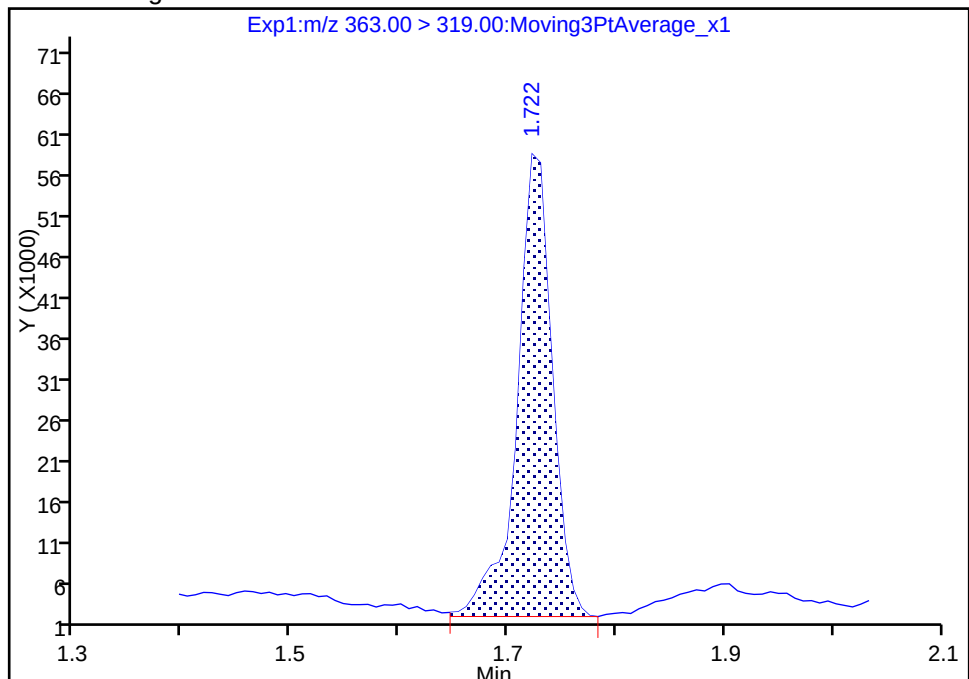
Signal: 1

Not Detected
Expected RT: 1.69

Processing Integration Results



Manual Integration Results



RT: 1.72
Area: 126672
Amount: 1.481508
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 11:03:53

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3382</u>	Lab Sample ID: <u>320-29300-18</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_065.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 14:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>254.5 (mL)</u>	Date Analyzed: <u>07/08/2017 16:29</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>173120</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	99		70-130
STL00996	13C2 PFDA	90		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_065.d
 Lims ID: 320-29300-A-18-A
 Client ID: WGNA-061917-FRB-3382
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:29:48 ALS Bottle#: 49 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-18-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.539	0.016	1.000	898116	9.86		5416	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.878	0.034		801880	10.0		4391	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.117	0.030		2685263	28.7		3898	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.281	0.025	1.000	604028	8.97		1437	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_065.d

Injection Date: 08-Jul-2017 16:29:48

Instrument ID: A8_N

Lims ID: 320-29300-A-18-A

Lab Sample ID: 320-29300-18

Client ID: WGNA-061917-FRB-3382

Operator ID: SACINSTLCMS01

ALS Bottle#: 49

Worklist Smp#: 28

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

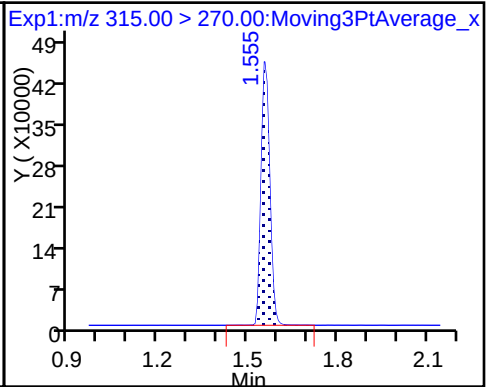
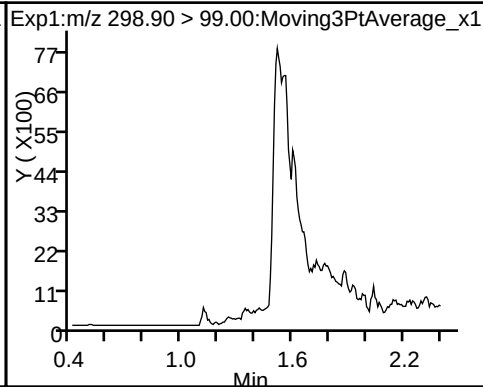
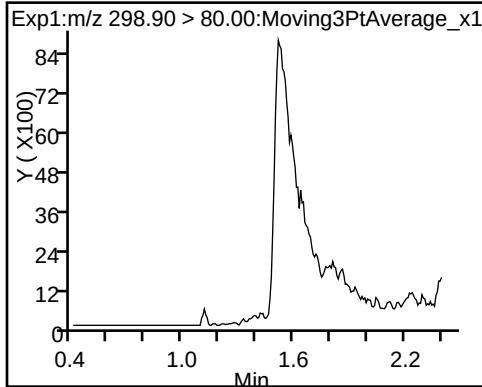
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

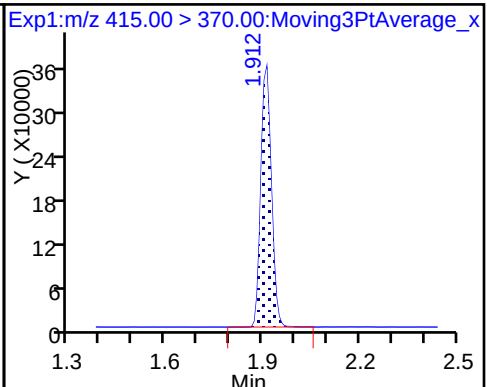
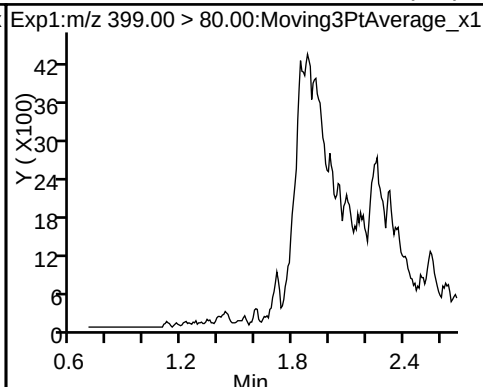
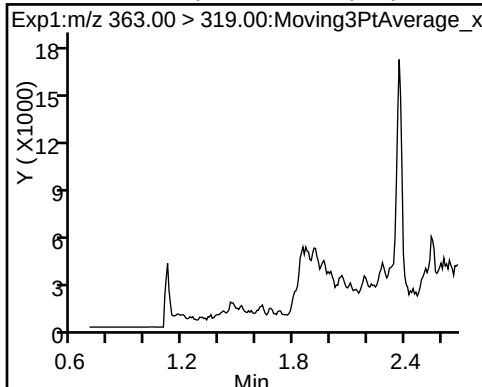
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

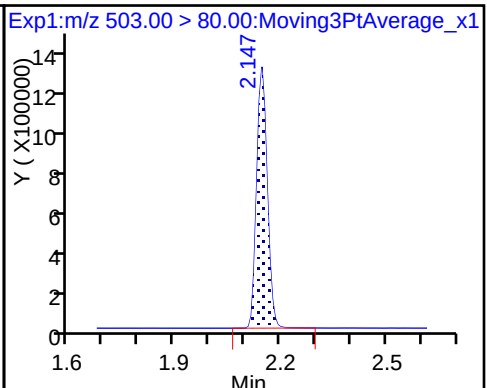
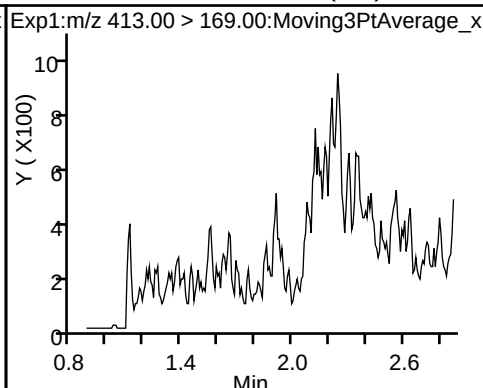
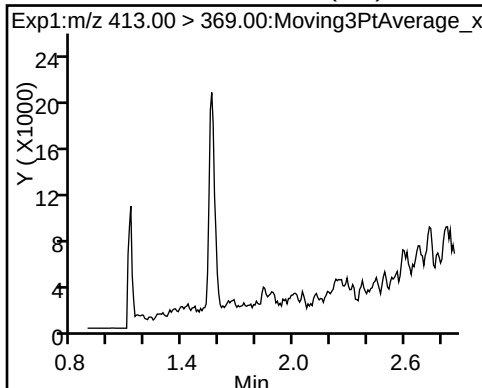
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

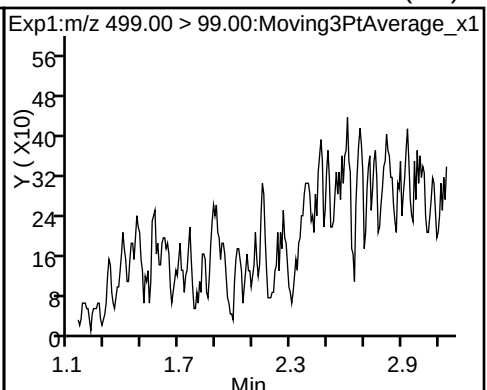
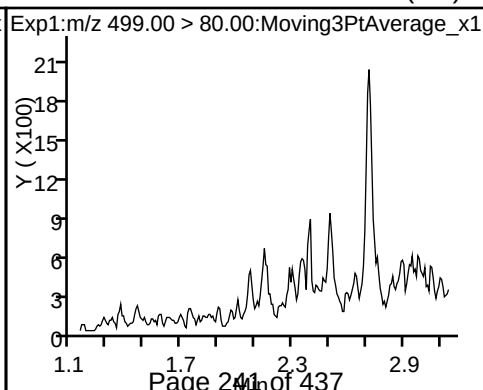
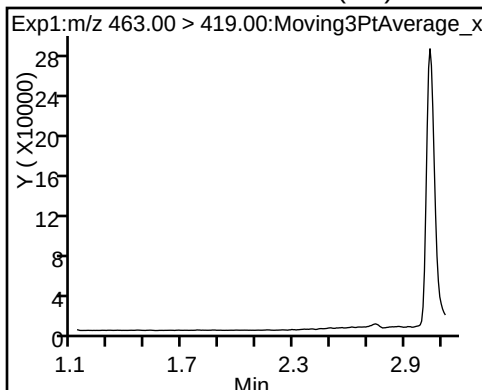
* 7 13C4 PFOS



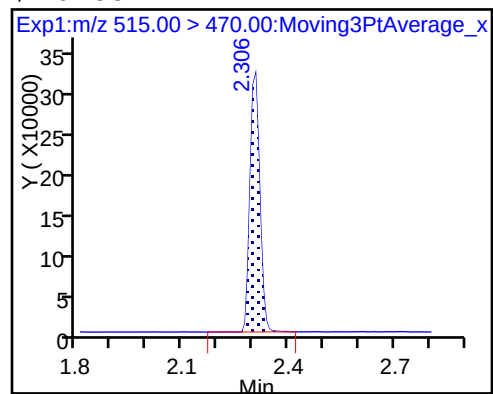
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_065.d
Lims ID: 320-29300-A-18-A
Client ID: WGNA-061917-FRB-3382
Sample Type: Client
Inject. Date: 08-Jul-2017 16:29:48 ALS Bottle#: 49 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-18-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 :

Det: EXP1

Process Host: XAWRK015

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.86	98.58
\$ 10 13C2 PFDA	10.0	8.97	89.72

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-DUP01</u>	Lab Sample ID: <u>320-29300-19</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_066.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>260.8 (mL)</u>	Date Analyzed: <u>07/08/2017 16:34</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>173120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	48	M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	24	M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	41		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	86	35	15

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_066.d
 Lims ID: 320-29300-A-19-A
 Client ID: WGNA-061917-DUP01
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:34:33 ALS Bottle#: 50 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-19-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 16:18:11 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 16:18:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.404	0.015	1.000	232627	2.80		53.3	
298.90 > 99.00	1.419	1.404	0.015	1.000	185487		1.25(0.00-0.00)	99.0	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.539	0.016	1.000	935767	9.79		5519	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.691	0.024	1.000	111896	1.27		16.7	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.692	0.023	1.000	1404527	10.8		415	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.878	0.034		841540	10.0		3609	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.879	0.033	1.000	487304	6.28		37.3	M
413.00 > 169.00	1.912	1.879	0.033	1.000	351619		1.39(0.00-0.00)	396	M
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.117	0.030		2676331	28.7		1424	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	1200348	12.6		408	M
499.00 > 99.00	2.147	2.147	0.0	1.000	238398		5.04(0.00-0.00)	296	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.299	2.281	0.018	1.000	694516	9.83		1808	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_066.d

Injection Date: 08-Jul-2017 16:34:33

Instrument ID: A8_N

Lims ID: 320-29300-A-19-A

Lab Sample ID: 320-29300-19

Client ID: WGNA-061917-DUP01

Operator ID: SACINSTLCMS01

ALS Bottle#: 50

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

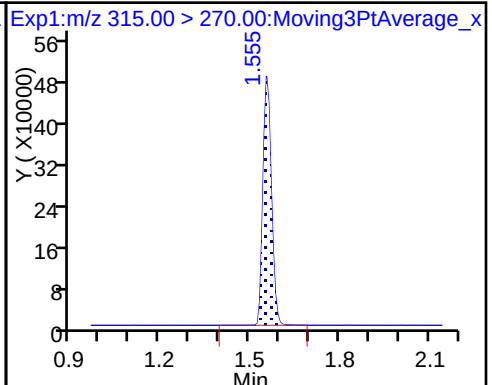
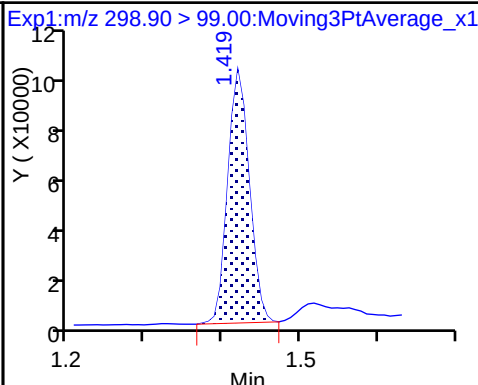
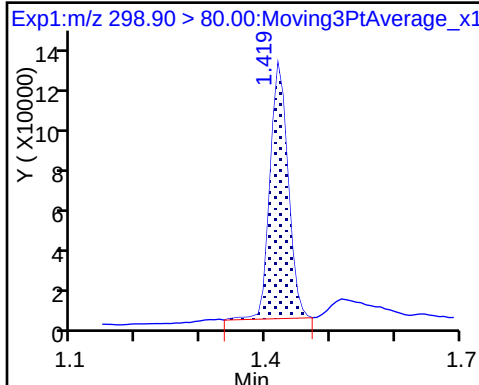
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

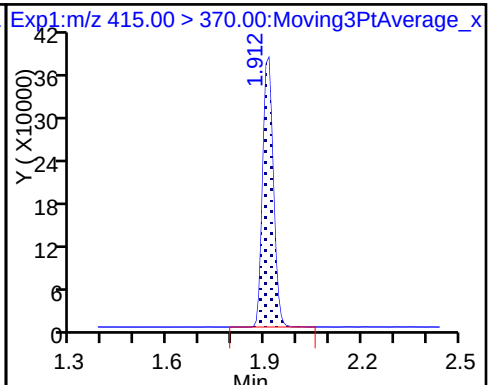
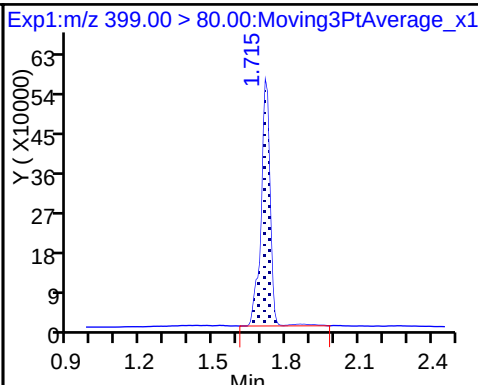
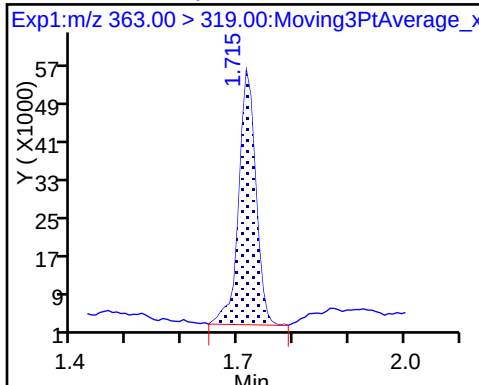
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

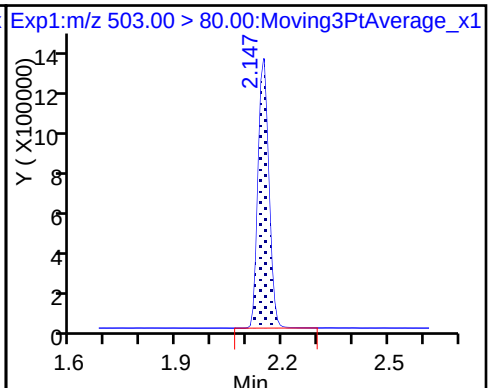
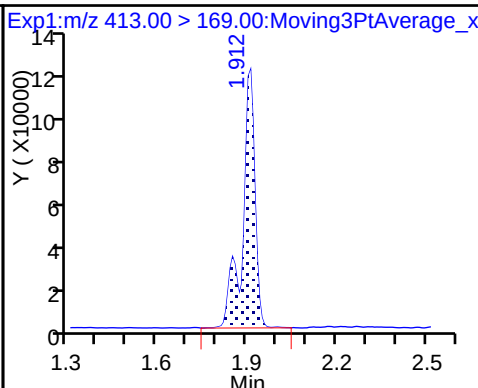
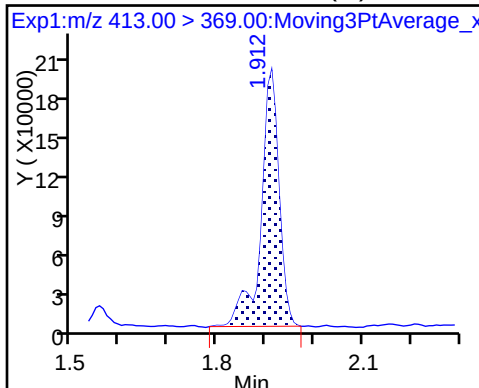
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

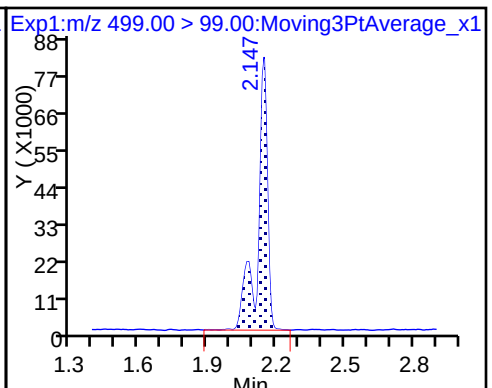
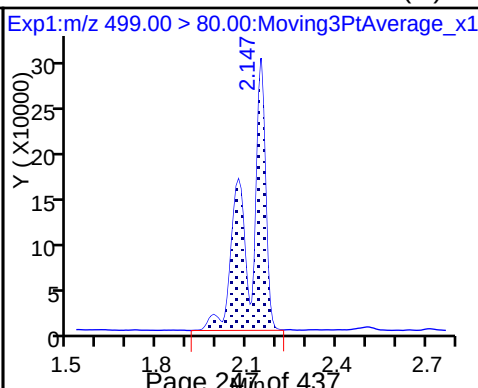
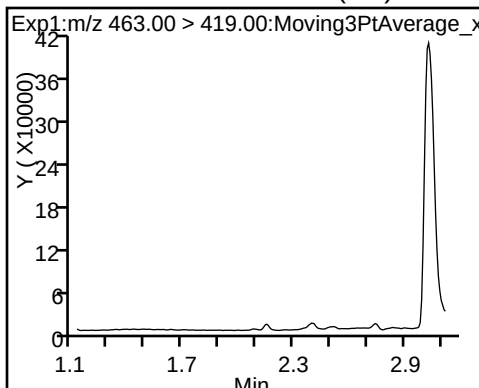
* 7 13C4 PFOS



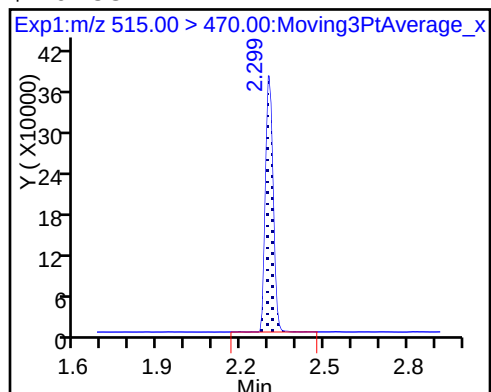
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_066.d
Lims ID: 320-29300-A-19-A
Client ID: WGNA-061917-DUP01
Sample Type: Client
Inject. Date: 08-Jul-2017 16:34:33 ALS Bottle#: 50 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-19-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 16:18:11 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 16:18:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.79	97.87
\$ 10 13C2 PFDA	10.0	9.83	98.30

TestAmerica Sacramento

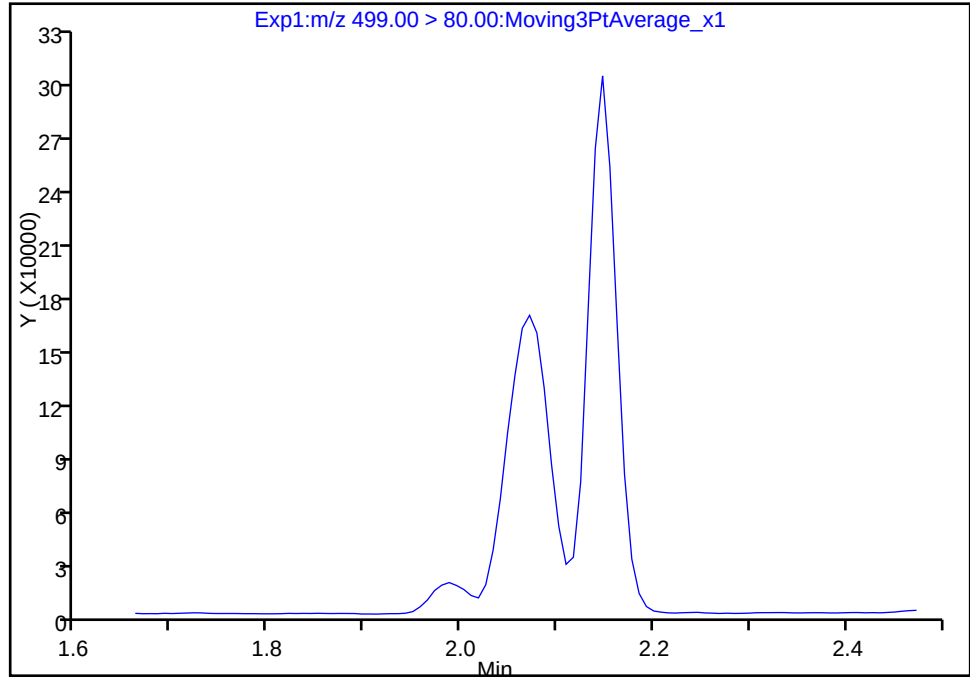
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_066.d				
Injection Date:	08-Jul-2017 16:34:33	Instrument ID:	A8_N		
Lims ID:	320-29300-A-19-A	Lab Sample ID:	320-29300-19		
Client ID:	WGNA-061917-DUP01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	50	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

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

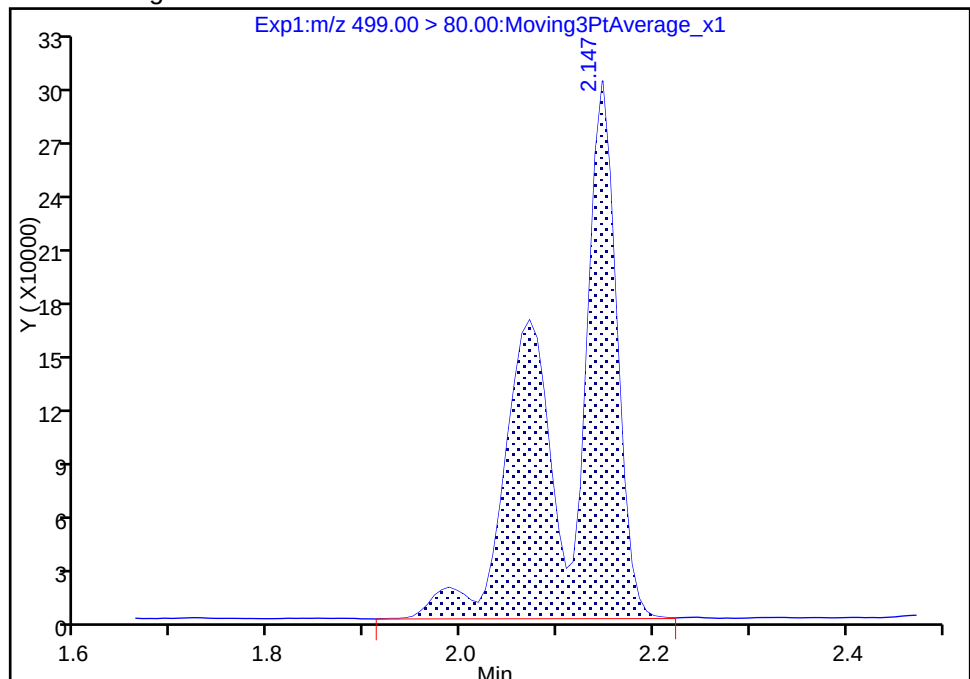
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1200348
Amount: 12.560289
Amount Units: ng/mlReviewer: barnettj, 10-Jul-2017 11:05:23
Audit Action: Assigned Compound IDAudit Reason: Isomers
Page 250 of 437

TestAmerica Sacramento

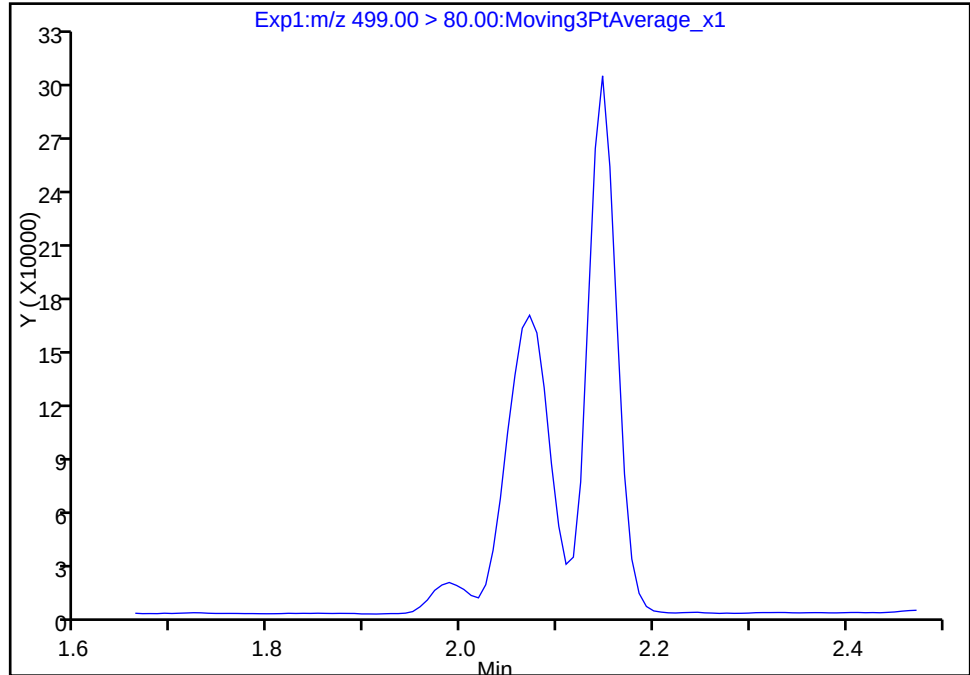
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_066.d
Injection Date: 08-Jul-2017 16:34:33 Instrument ID: A8_N
Lims ID: 320-29300-A-19-A Lab Sample ID: 320-29300-19
Client ID: WGNA-061917-DUP01
Operator ID: SACINSTLCMS01 ALS Bottle#: 50 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

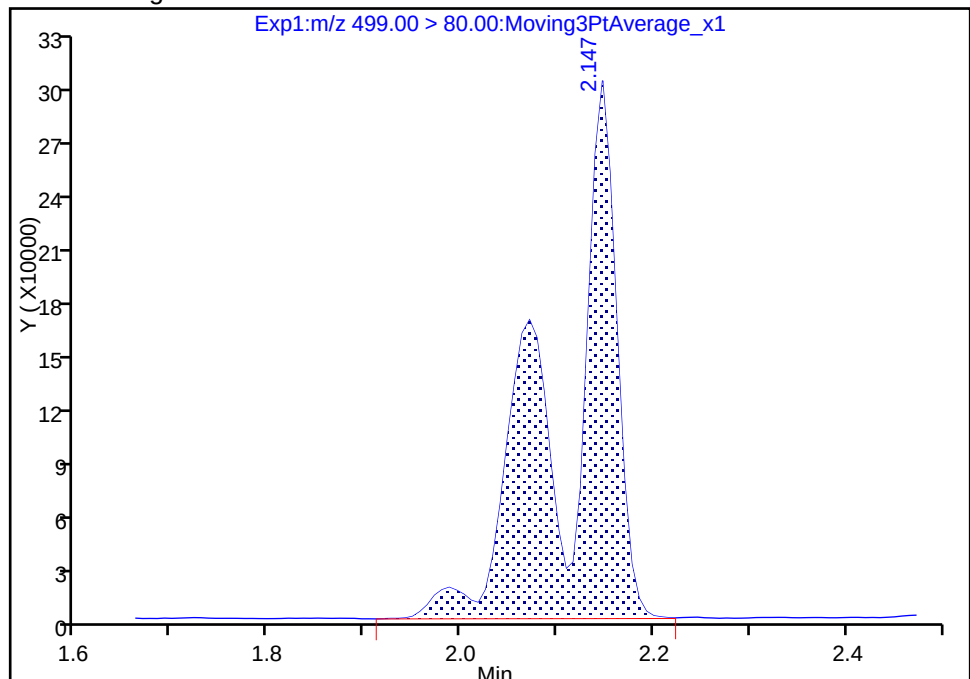
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1200348
Amount: 12.560289
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 16:17:59

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

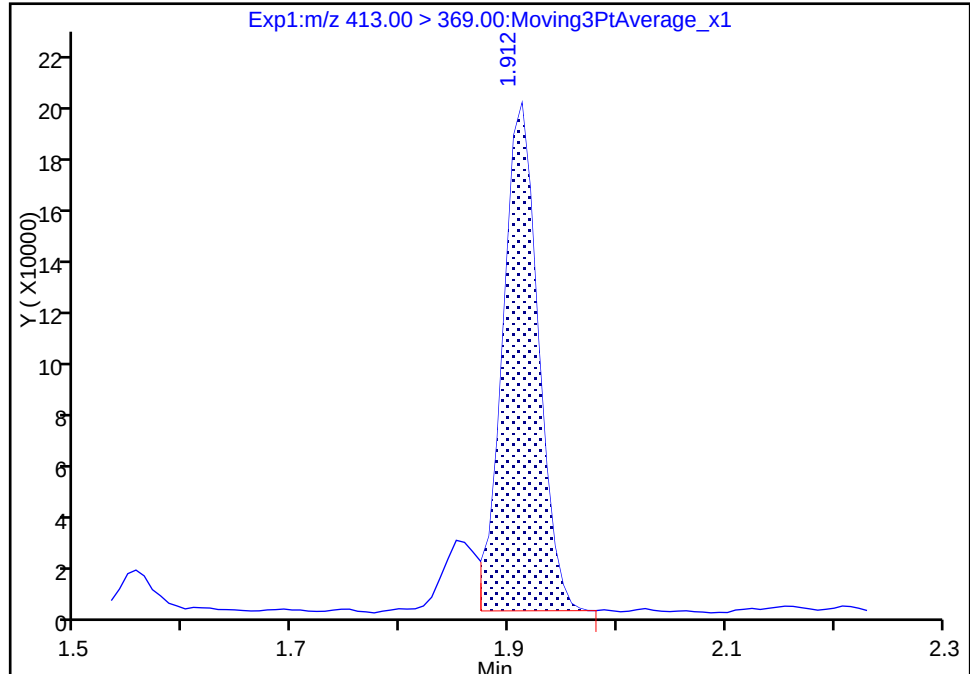
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Injection Date:	08-Jul-2017 16:34:33	Instrument ID:	A8_N		
Lims ID:	320-29300-A-19-A	Lab Sample ID:	320-29300-19		
Client ID:	WGNA-061917-DUP01				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	50	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

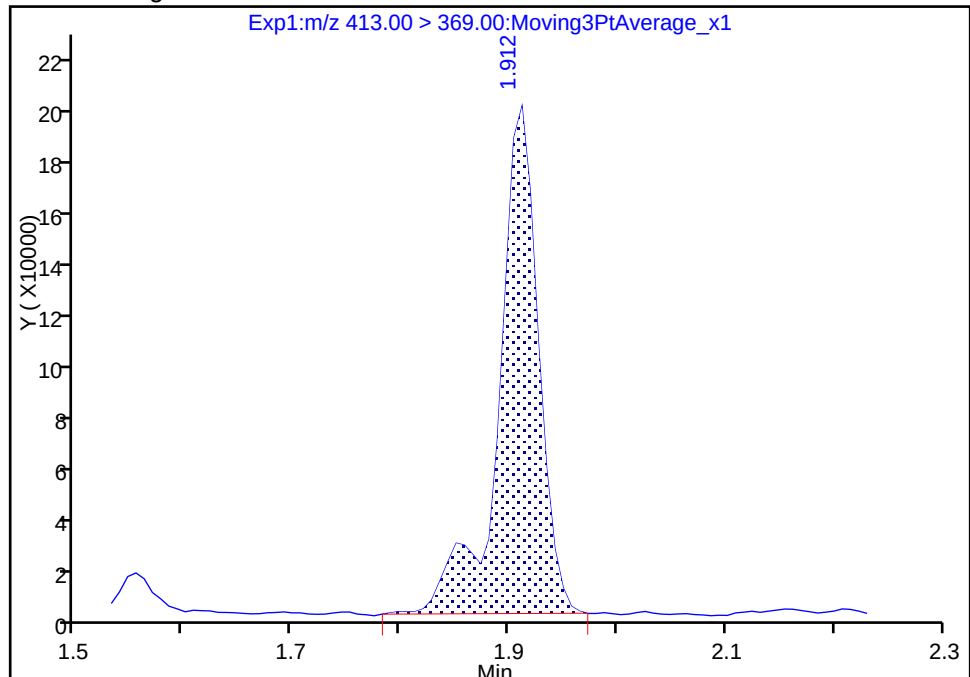
RT: 1.91
Area: 430594
Amount: 5.551480
Amount Units: ng/ml

Processing Integration Results



RT: 1.91
Area: 487304
Amount: 6.282620
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 11:05:13

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-0143 Lab Sample ID: 320-29300-20
 Matrix: Water Lab File ID: 2017.07.08_537A_067.d
 Analysis Method: 537 Date Collected: 06/19/2017 10:25
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 260.1(mL) Date Analyzed: 07/08/2017 16:39
 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.: 173120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	48		38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	44		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.2	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_067.d
 Lims ID: 320-29300-A-20-A
 Client ID: WGNA-061917-RW-0143
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:39:18 ALS Bottle#: 51 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-20-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:06:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.404	0.015	1.000	245025	2.98		81.0	
298.90 > 99.00	1.419	1.404	0.015	1.000	197181		1.24(0.00-0.00)	102	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.539	0.016	1.000	820626	9.20		4306	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.691	0.024	1.000	110104	1.34		16.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.692	0.023	1.000	1466637	11.4		448	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.878	0.026		784949	10.0		3787	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.879	0.033	1.000	468742	6.48		33.7	M
413.00 > 169.00	1.912	1.879	0.033	1.000	324220		1.45(0.00-0.00)	358	M
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.117	0.030		2644931	28.7		2120	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	1184325	12.5		470	
499.00 > 99.00	2.147	2.147	0.0	1.000	224951		5.26(0.00-0.00)	269	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.299	2.281	0.018	1.000	602467	9.14		1489	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_067.d

Injection Date: 08-Jul-2017 16:39:18

Instrument ID: A8_N

Lims ID: 320-29300-A-20-A

Lab Sample ID: 320-29300-20

Client ID: WGNA-061917-RW-0143

Operator ID: SACINSTLCMS01

ALS Bottle#: 51

Worklist Smp#: 30

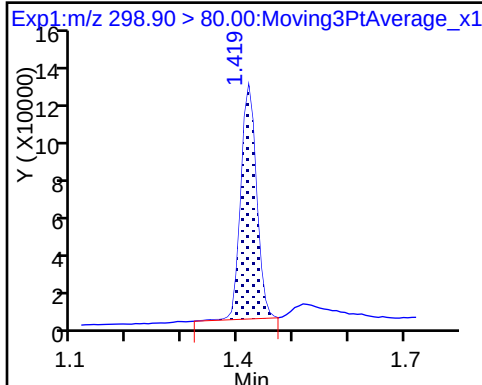
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

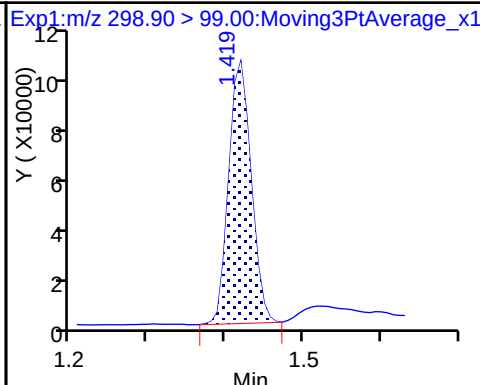
Method: 537_A8_N

Limit Group: LC 537 ICAL

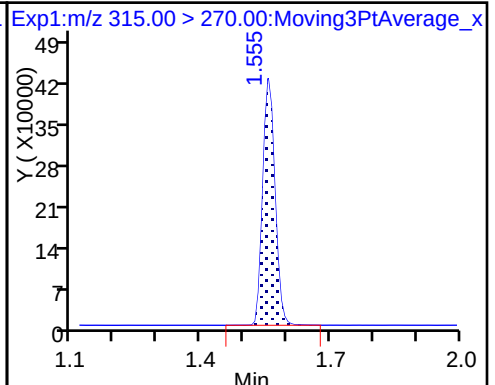
1 Perfluorobutanesulfonic acid



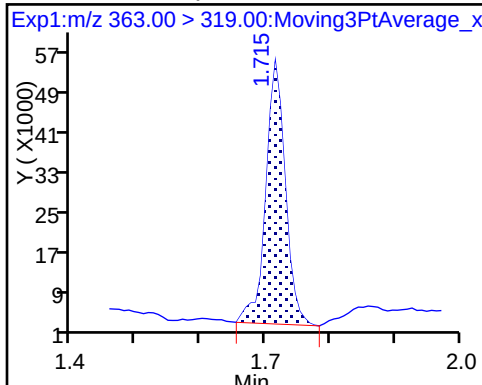
1 Perfluorobutanesulfonic acid



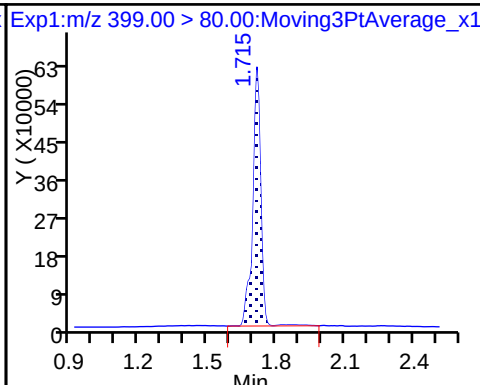
\$ 2 13C2 PFHxA



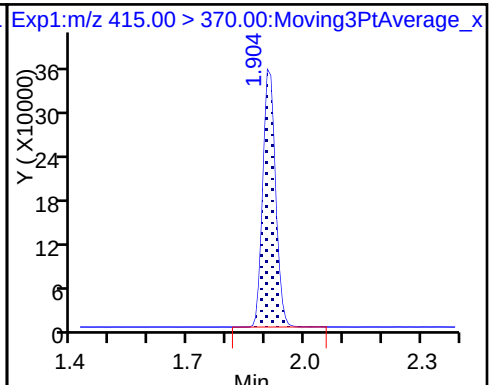
4 Perfluoroheptanoic acid



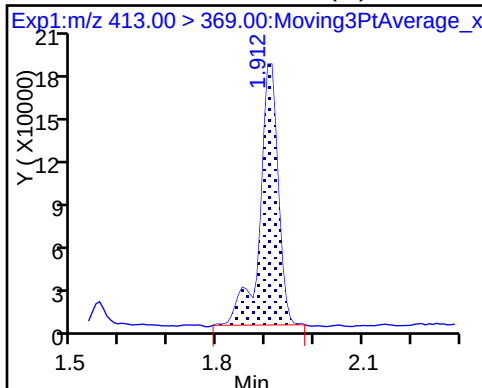
3 Perfluorohexanesulfonic acid



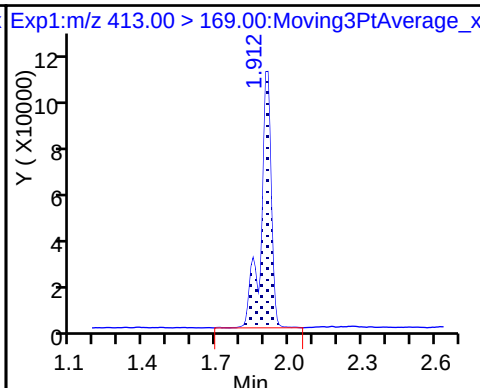
* 6 13C2-PFOA



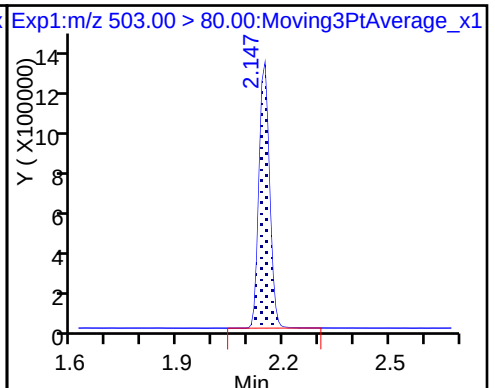
5 Perfluorooctanoic acid (M)



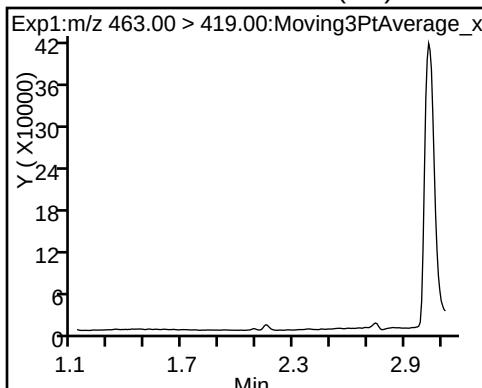
5 Perfluorooctanoic acid



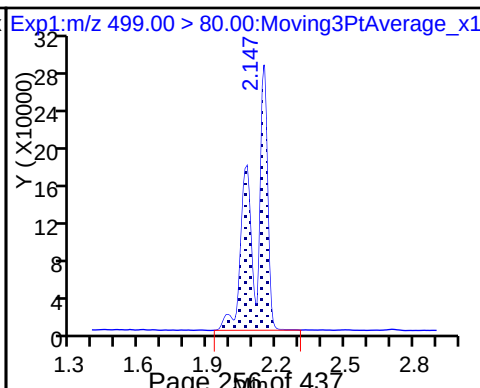
* 7 13C4 PFOS



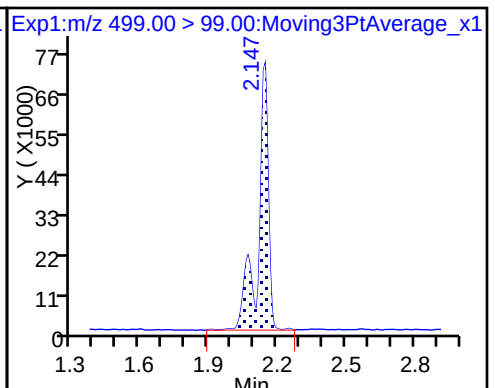
9 Perfluorononanoic acid (ND)



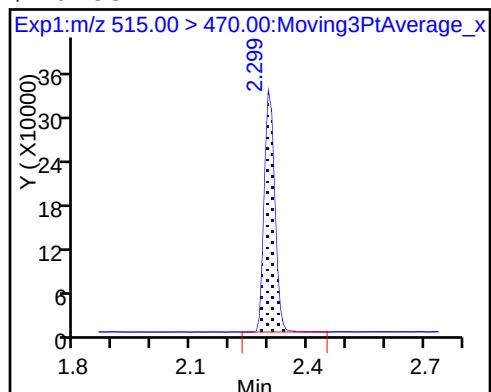
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_067.d
Lims ID: 320-29300-A-20-A
Client ID: WGNA-061917-RW-0143
Sample Type: Client
Inject. Date: 08-Jul-2017 16:39:18 ALS Bottle#: 51 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-20-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:06:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.20	92.02
\$ 10 13C2 PFDA	10.0	9.14	91.42

TestAmerica Sacramento

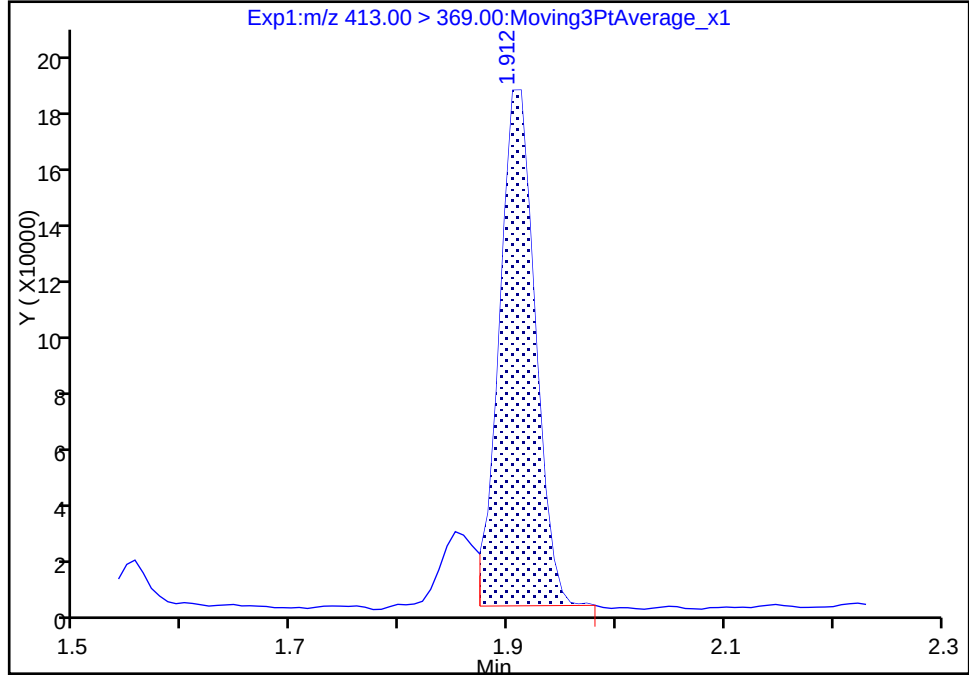
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Injection Date:	08-Jul-2017 16:39:18	Instrument ID:	A8_N		
Lims ID:	320-29300-A-20-A	Lab Sample ID:	320-29300-20		
Client ID:	WGNA-061917-RW-0143				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	51	Worklist Smp#:	30
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

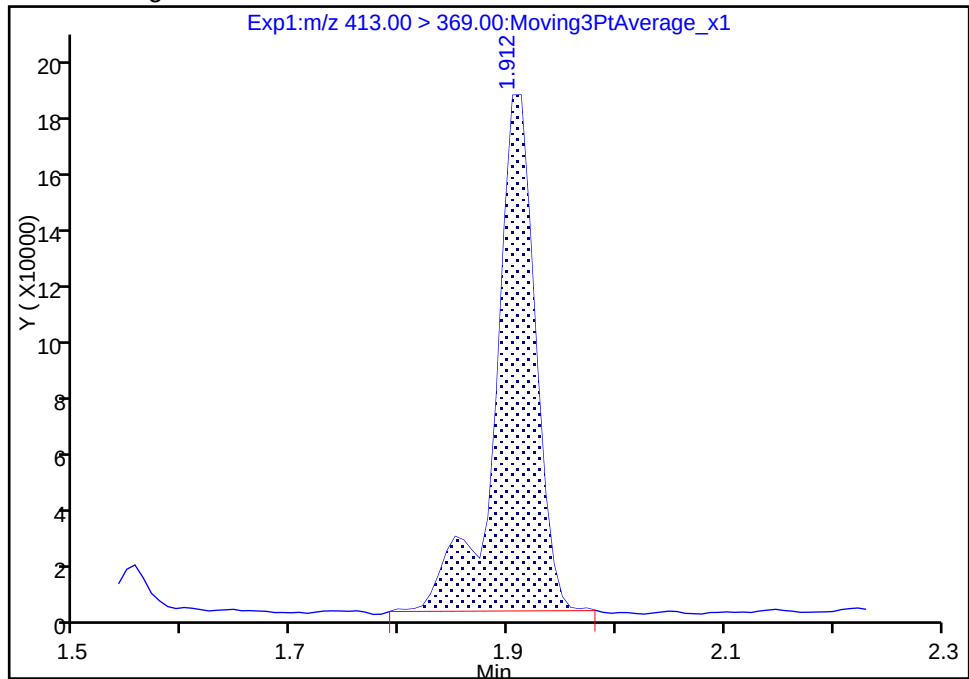
RT: 1.91
Area: 410899
Amount: 5.679489
Amount Units: ng/ml

Processing Integration Results



RT: 1.91
Area: 468742
Amount: 6.479001
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 11:05:55
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 259 of 437

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-FRB-0143 Lab Sample ID: 320-29300-21
 Matrix: Water Lab File ID: 2017.07.08_537A_036.d
 Analysis Method: 537 Date Collected: 06/19/2017 10:30
 Extraction Method: 537 Date Extracted: 06/30/2017 09:34
 Sample wt/vol: 260.3(mL) Date Analyzed: 07/08/2017 14:12
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173117 Units: ng/L

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

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_036.d
 Lims ID: 320-29300-A-21-A
 Client ID: WGNA-061917-FRB-0143
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:12:13 ALS Bottle#: 26 Worklist Smp#: 36
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-21-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	996623	9.88		4670	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		887660	10.0		3628	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2959213	28.7		4423	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	702910	9.43		1445	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_036.d

Injection Date: 08-Jul-2017 14:12:13

Instrument ID: A8_N

Lims ID: 320-29300-A-21-A

Lab Sample ID: 320-29300-21

Client ID: WGNA-061917-FRB-0143

Operator ID: SACINSTLCMS01

ALS Bottle#: 26

Worklist Smp#: 36

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

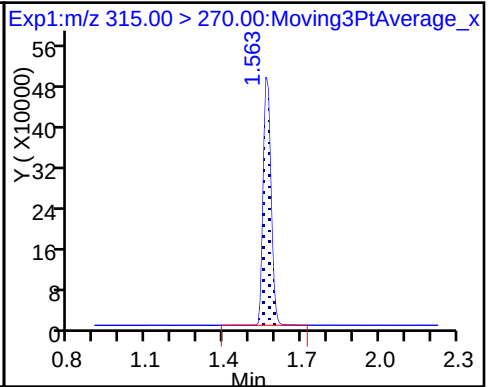
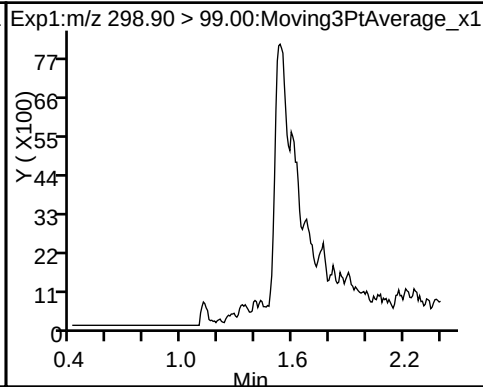
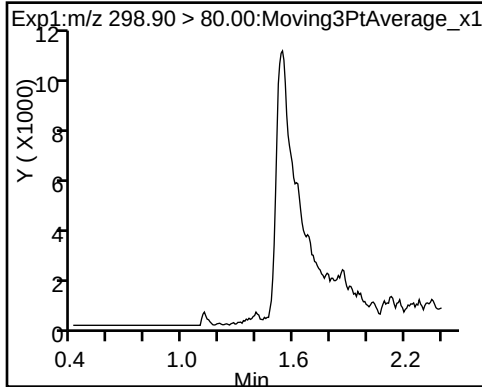
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

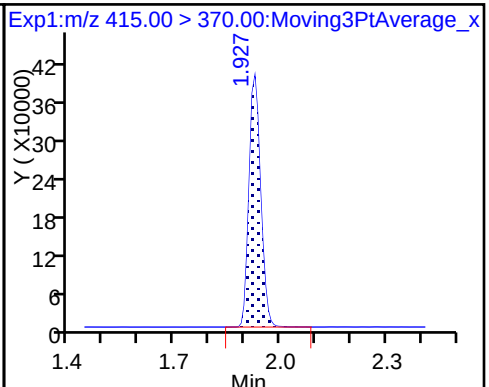
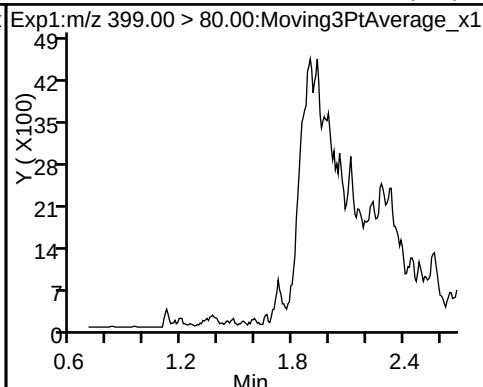
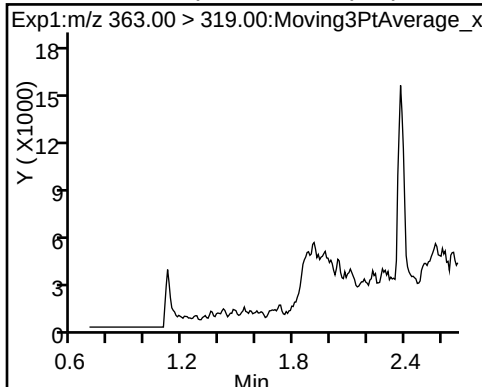
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

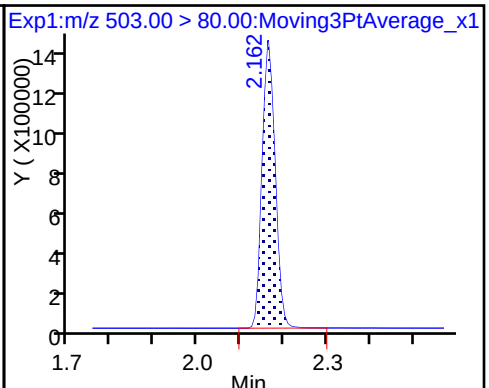
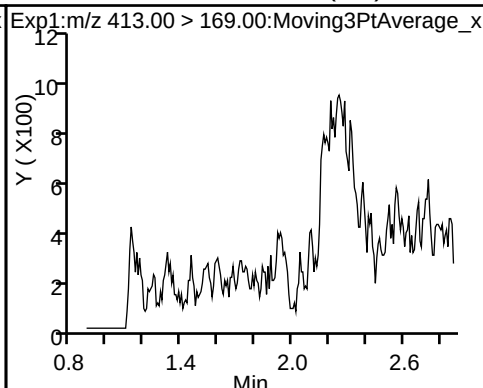
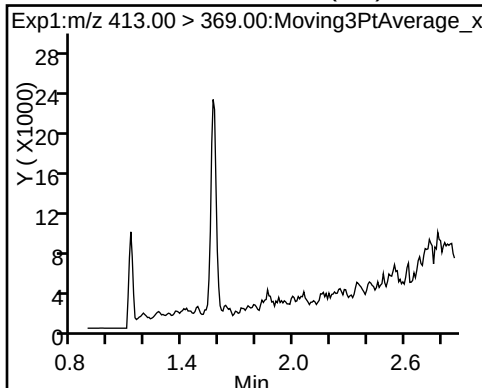
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

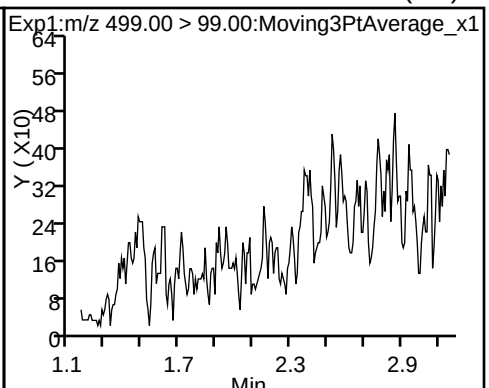
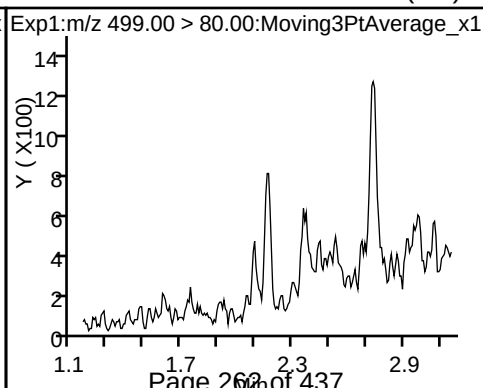
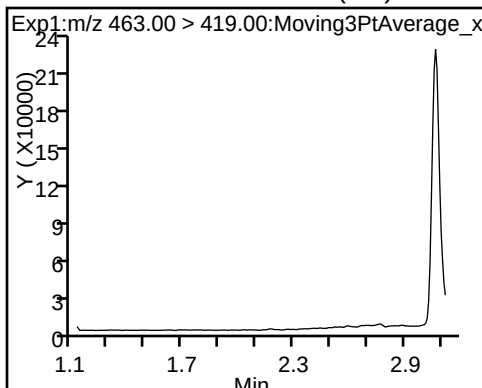
* 7 13C4 PFOS



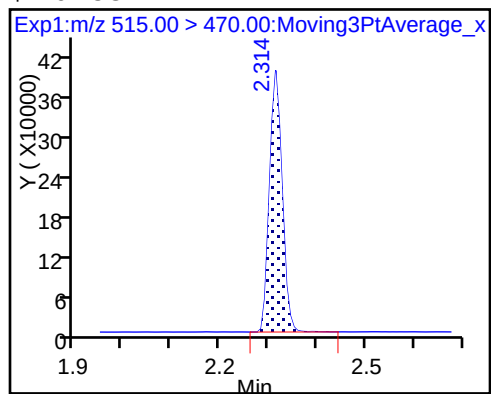
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_036.d
Lims ID: 320-29300-A-21-A
Client ID: WGNA-061917-FRB-0143
Sample Type: Client
Inject. Date: 08-Jul-2017 14:12:13 ALS Bottle#: 26 Worklist Smp#: 36
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-21-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.88	98.82
\$ 10 13C2 PFDA	10.0	9.43	94.32

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3118B</u>	Lab Sample ID: <u>320-29300-22</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_037.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 13:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:34</u>
Sample wt/vol: <u>251.8 (mL)</u>	Date Analyzed: <u>07/08/2017 14:16</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>173117</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.7	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_037.d
 Lims ID: 320-29300-A-22-A
 Client ID: WGNA-061917-RW-3118B
 Sample Type: Client
 Inject. Date: 08-Jul-2017 14:16:57 ALS Bottle#: 27 Worklist Smp#: 37
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-22-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:13:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	327393	3.43		101	
298.90 > 99.00	1.426	1.404	0.022	1.000	251663		1.30(0.00-0.00)	118	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	891839	9.27		4431	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	149845	1.69		17.1	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	220176	1.47		49.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		846898	10.0		3547	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	454033	5.82		30.4	M
413.00 > 169.00	1.927	1.879	0.048	1.000	318103		1.43(0.00-0.00)	359	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		3075458	28.7		2096	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	54260	0.7774		1.9	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.162	0.0	1.000	784092	7.14		319	
499.00 > 99.00	2.162	2.162	0.0	1.000	128864		6.08(0.00-0.00)	145	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	703106	9.89		1469	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_037.d

Injection Date: 08-Jul-2017 14:16:57

Instrument ID: A8_N

Lims ID: 320-29300-A-22-A

Lab Sample ID: 320-29300-22

Client ID: WGNA-061917-RW-3118B

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 37

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

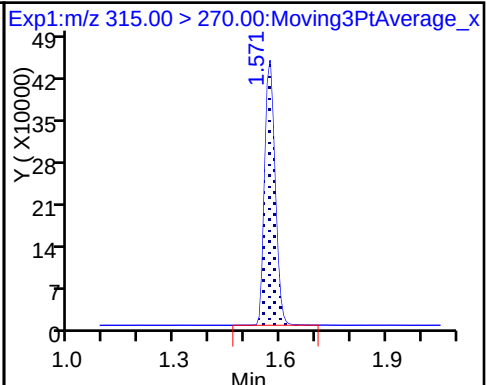
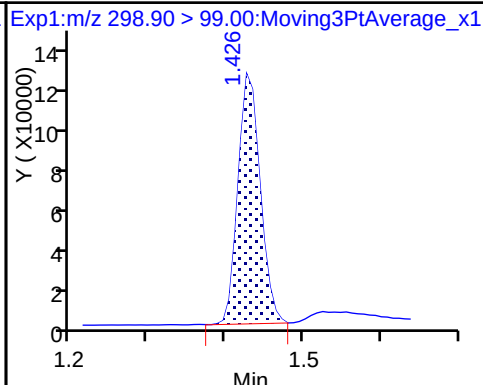
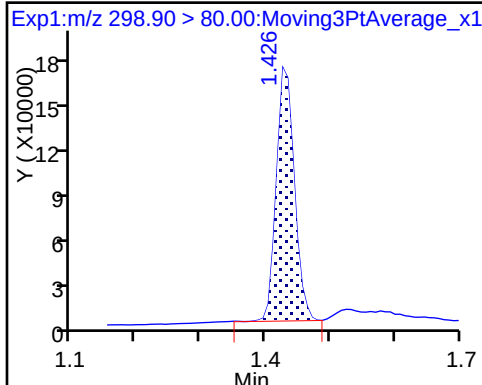
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

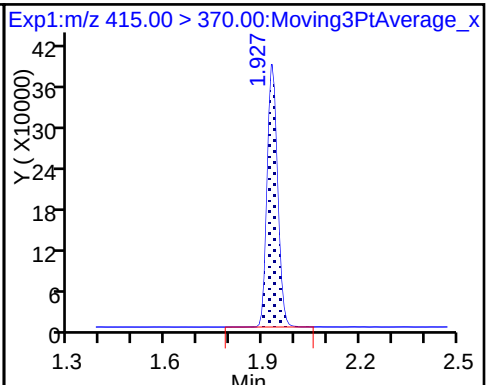
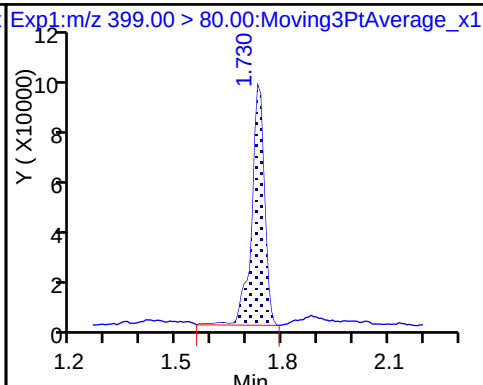
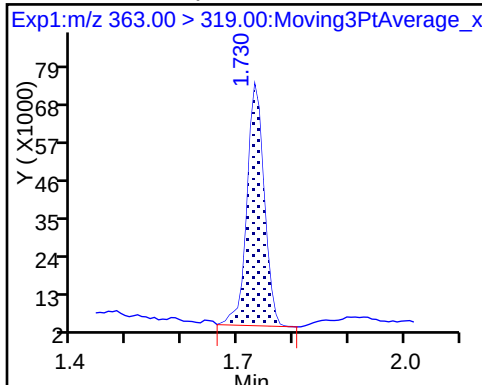
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

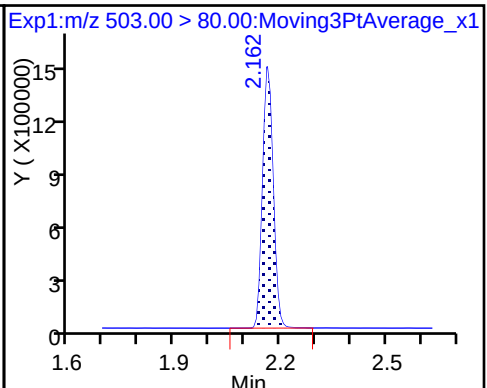
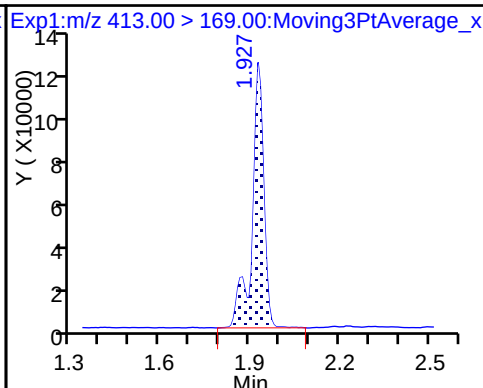
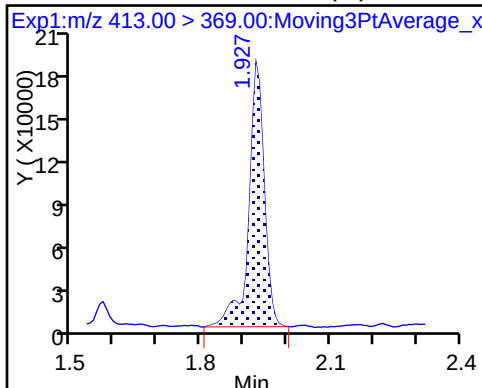
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

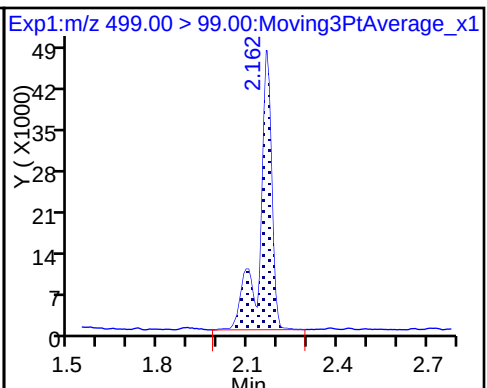
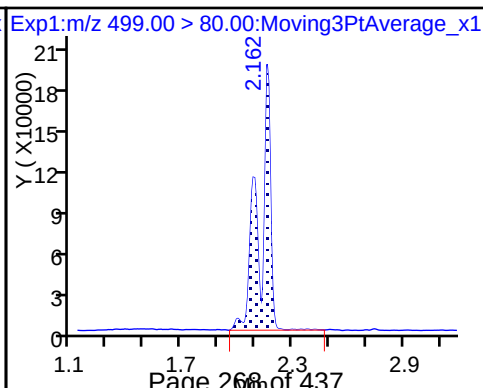
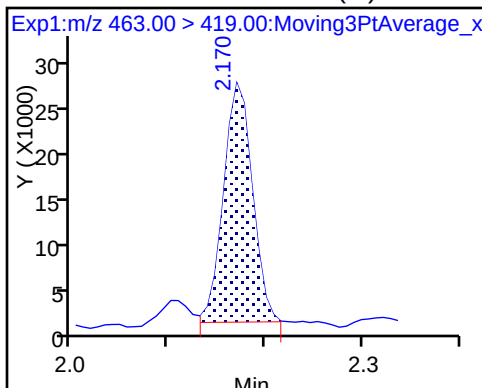
* 7 13C4 PFOS



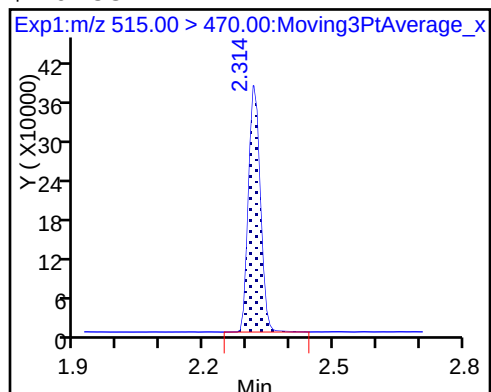
9 Perfluorononanoic acid (M)

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_037.d
Lims ID: 320-29300-A-22-A
Client ID: WGNA-061917-RW-3118B
Sample Type: Client
Inject. Date: 08-Jul-2017 14:16:57 ALS Bottle#: 27 Worklist Smp#: 37
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-22-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:13:42

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.27	92.69
\$ 10 13C2 PFDA	10.0	9.89	98.89

TestAmerica Sacramento

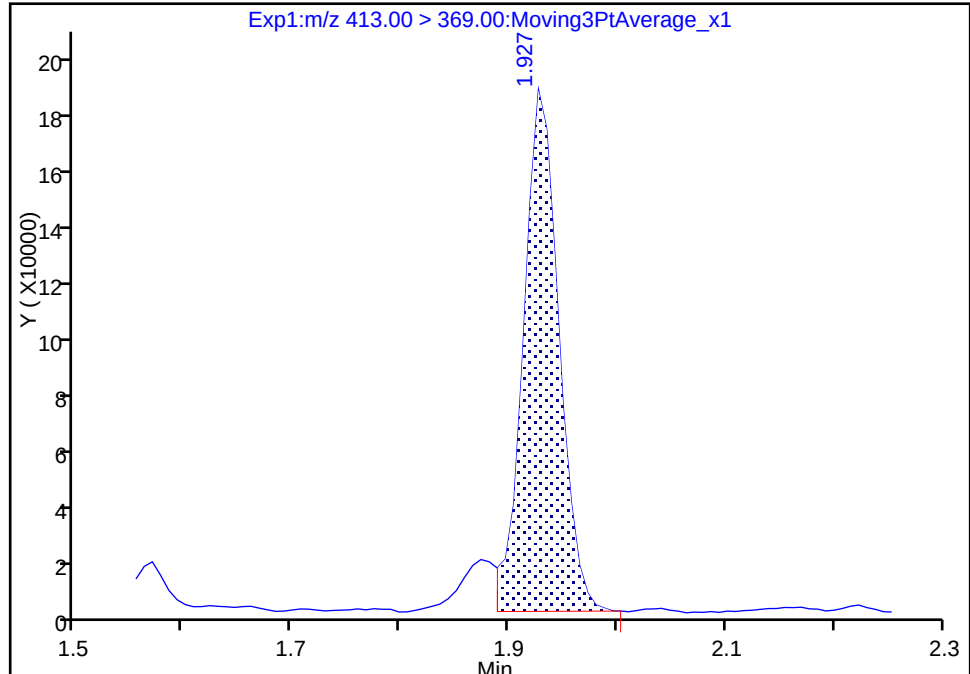
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Injection Date:	08-Jul-2017 14:16:57	Instrument ID:	A8_N		
Lims ID:	320-29300-A-22-A	Lab Sample ID:	320-29300-22		
Client ID:	WGNA-061917-RW-3118B				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	27	Worklist Smp#:	37
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

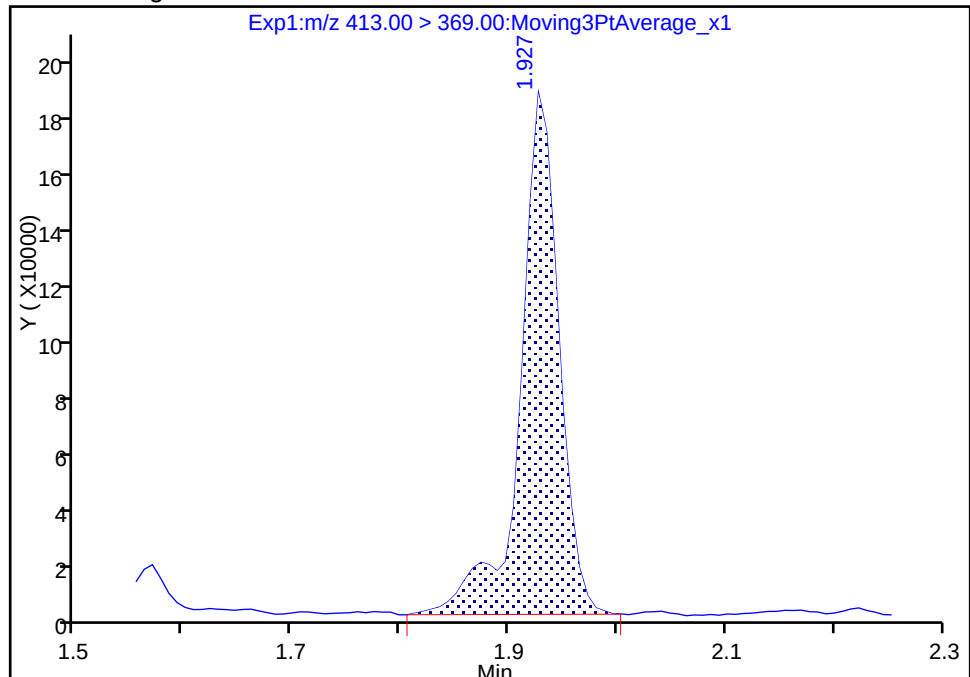
RT: 1.93
Area: 412750
Amount: 5.287758
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 454033
Amount: 5.816636
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:13:13

Audit Action: Manually Integrated

Audit Reason: Isomers

TestAmerica Sacramento

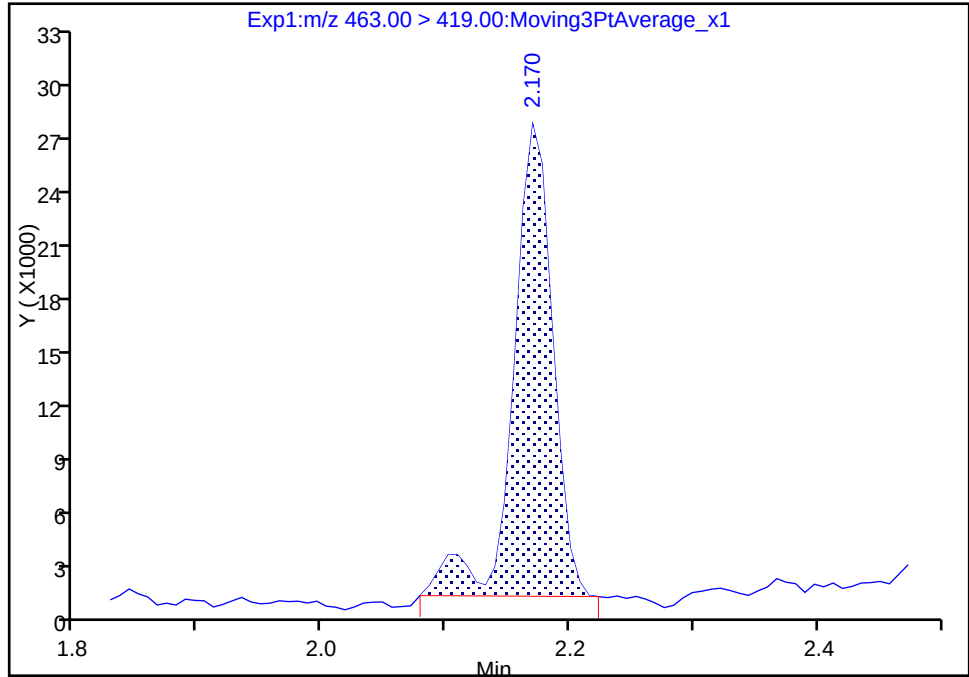
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_037.d
Injection Date: 08-Jul-2017 14:16:57 Instrument ID: A8_N
Lims ID: 320-29300-A-22-A Lab Sample ID: 320-29300-22
Client ID: WGNA-061917-RW-3118B
Operator ID: SACINSTLCMS01 ALS Bottle#: 27 Worklist Smp#: 37
Injection Vol: 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

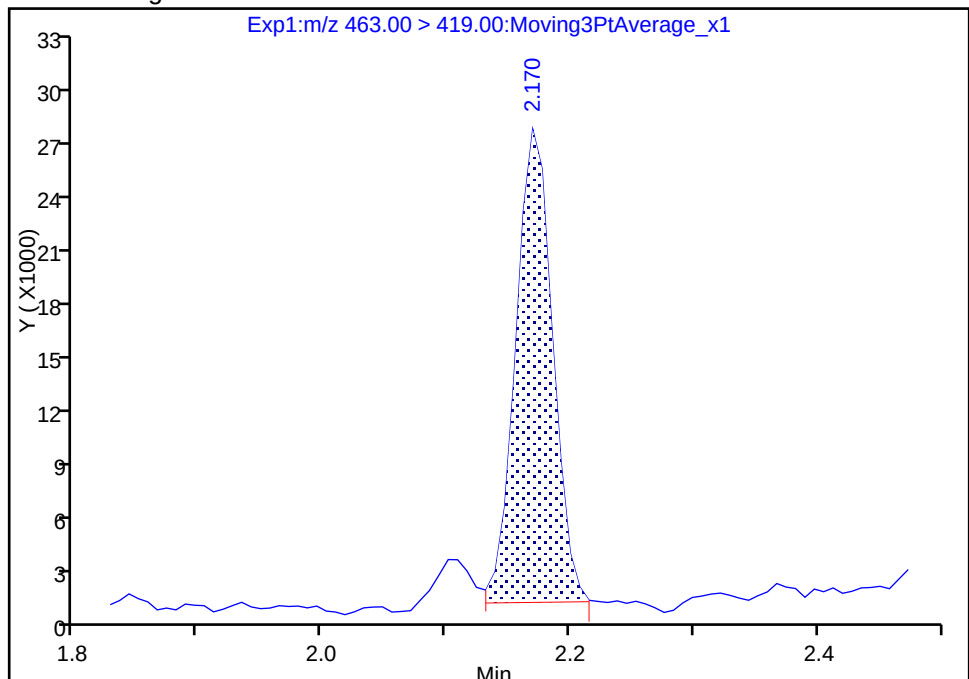
RT: 2.17
Area: 58138
Amount: 0.833010
Amount Units: ng/ml

Processing Integration Results



RT: 2.17
Area: 54260
Amount: 0.777445
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:13:35
Audit Action: Manually Integrated

Audit Reason: Split Peak

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

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1 Analy Batch No.: 172646

SDG No.: _____

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

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	0.9481 0.7897	0.9454	0.9006	0.8560	0.9067	Ave		0.8911				6.7		30.0			
Perfluoroheptanoic acid (PFHpA)	1.0233 1.0518	1.1219	1.0105	1.0079	1.0586	Ave		1.0457				4.1		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4151 1.3485	1.4140	1.3485	1.3337	1.5012	Ave		1.3935				4.6		30.0			
Perfluorooctanoic acid (PFOA)	0.8653 0.9458	0.9483	0.8907	0.9155	0.9646	Ave		0.9217				4.1		30.0			
Perfluorooctanesulfonic acid (PFOS)	1.0233 0.9990	1.0180	1.0066	1.0023	1.0955	Ave		1.0241				3.5		30.0			
Perfluorononanoic acid (PFNA)	0.8166 0.8011	0.8671	0.8018	0.8165	0.8416	Ave		0.8241				3.1		30.0			
13C2 PFHxA	1.0491 1.1558	1.1981	1.1291	1.1054	1.1794	Ave		1.1362				4.8		30.0			
13C2 PFDA	0.8223 0.8325	0.8717	0.8508	0.8171	0.8428	Ave		0.8395				2.4		30.0			

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1 Analy Batch No.: 172646

SDG No.: _____

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

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	Ave	803806 14234634	1925519	3823269	7725129	11133396	8.83 176	21.2	44.4	89.4	133
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	101135 1993330	250235	490415	984967	1494114	0.990 19.7	2.38	4.97	10.0	14.9
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	408251 8271288	980019	1948018	4095579	6272381	3.01 59.7	7.21	15.1	30.4	45.1
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	172606 3617366	426873	872357	1805622	2747595	2.00 39.7	4.80	10.0	20.2	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	393122 8159668	939618	1936577	4098834	6095701	4.00 79.6	9.61	20.1	40.5	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	157013 2953507	376270	756974	1552293	2310846	1.93 38.3	4.62	9.68	19.5	28.9
13C2 PFHxA	13PF OA	Ave	1047405 1113221	1124762	1101523	1077727	1120950	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	820977 801864	818323	829957	796662	800975	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD

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

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1 Analy Batch No.: 172646

SDG No.: _____

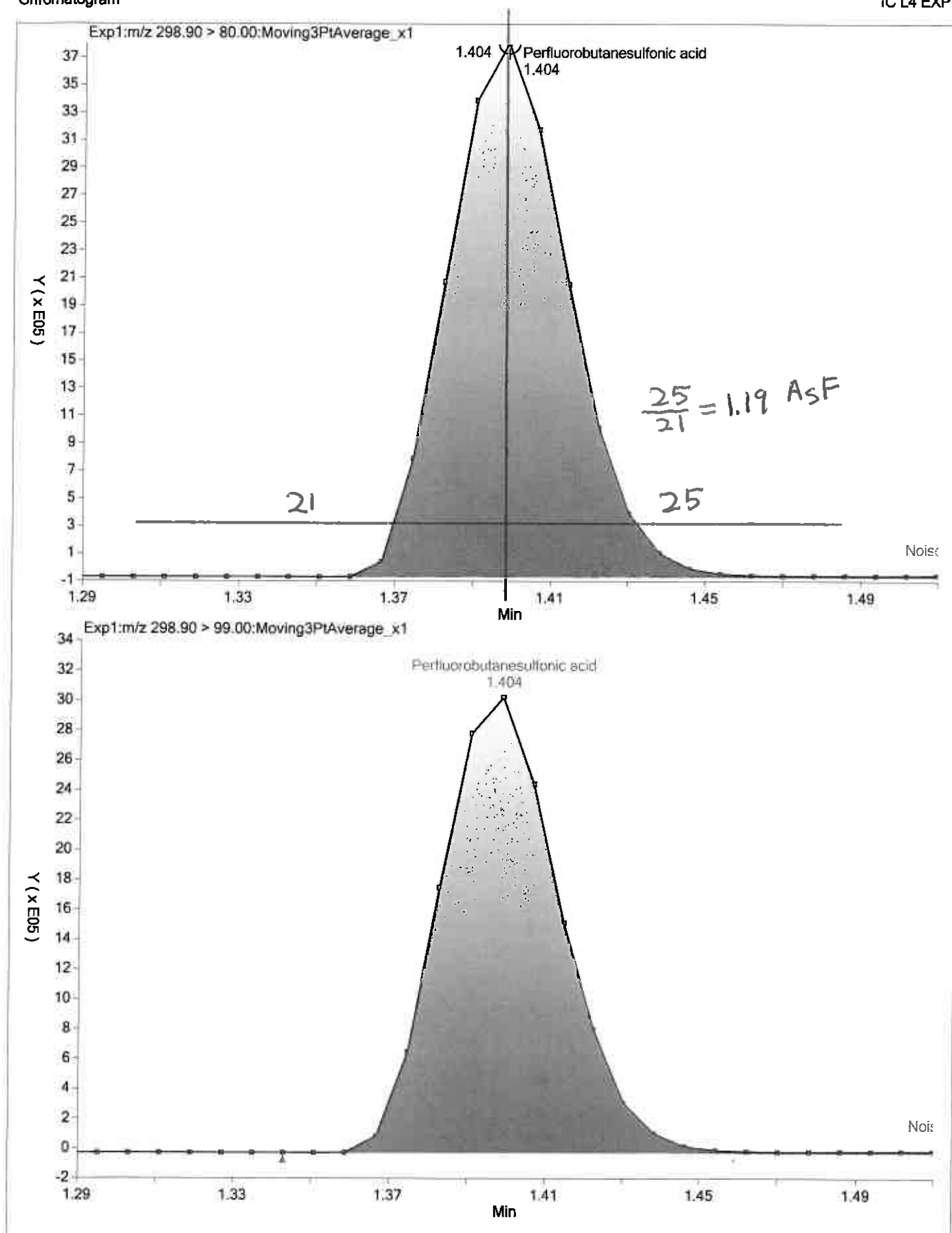
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

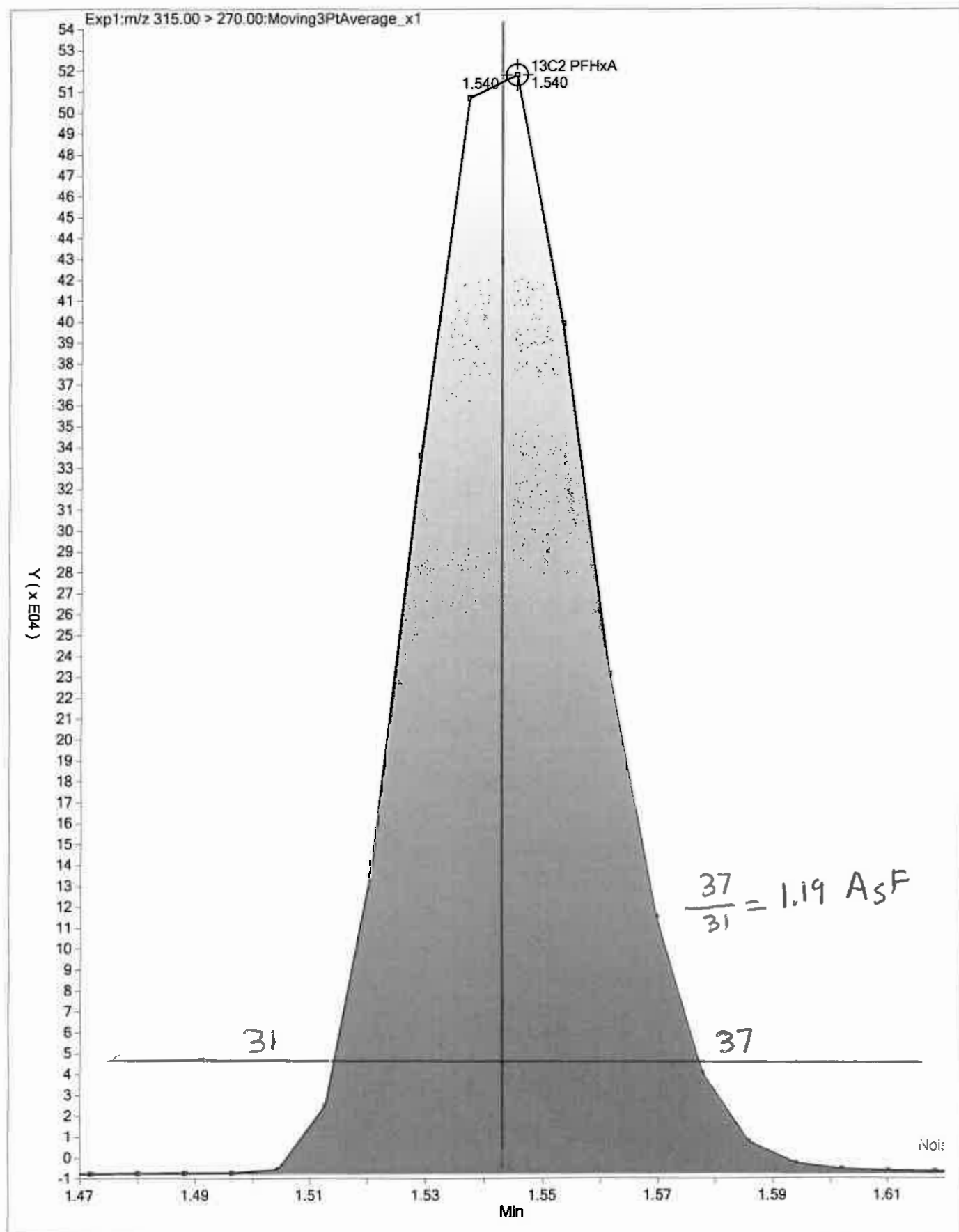
Calibration Start Date: 07/05/2017 19:50 Calibration End Date: 07/05/2017 20:13 Calibration ID: 32198

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	6.4	6.1	1.1	-3.9	1.8	-11.4	50	50	50	50	50	50
Perfluoroheptanoic acid (PFHpA)	-2.1	7.3	-3.4	-3.6	1.2	0.6	50	50	50	50	50	50
Perfluorohexanesulfonic acid (PFHxS)	1.6	1.5	-3.2	-4.3	7.7	-3.2	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-6.1	2.9	-3.4	-0.7	4.7	2.6	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-0.1	-0.6	-1.7	-2.1	7.0	-2.5	50	50	50	50	50	50
Perfluorononanoic acid (PFNA)	-0.9	5.2	-2.7	-0.9	2.1	-2.8	50	50	50	50	50	50
13C2 PFHxA	-7.7	5.5	-0.6	-2.7	3.8	1.7	30	30	30	30	30	30
13C2 PFDA	-2.0	3.8	1.3	-2.7	0.4	-0.8	30	30	30	30	30	30





TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_004.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 05-Jul-2017 19:50:03 ALS Bottle#: 1 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:30 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: westendorfc

Date: 06-Jul-2017 10:59:22

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

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

Injection Date: 05-Jul-2017 19:50:03

Instrument ID: A8_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

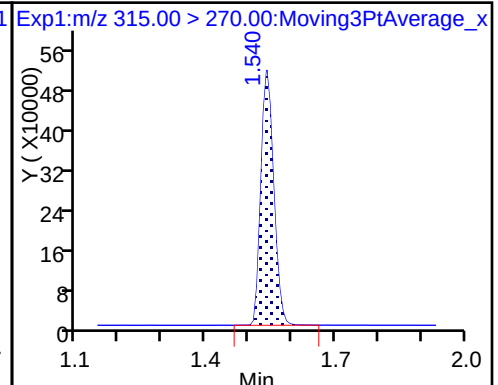
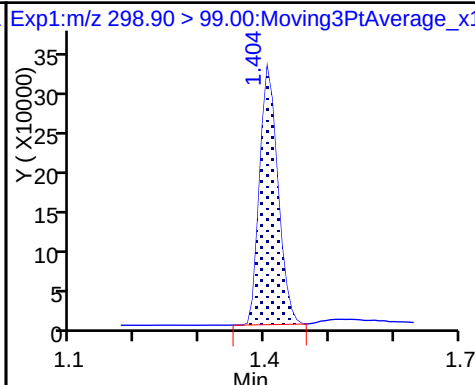
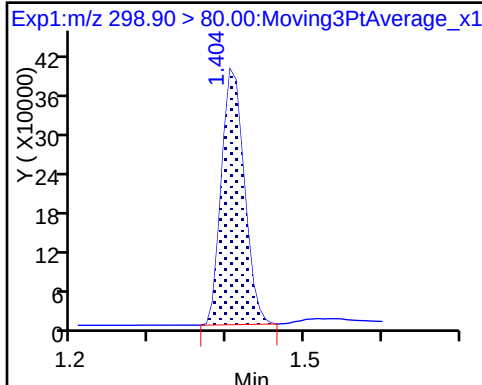
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

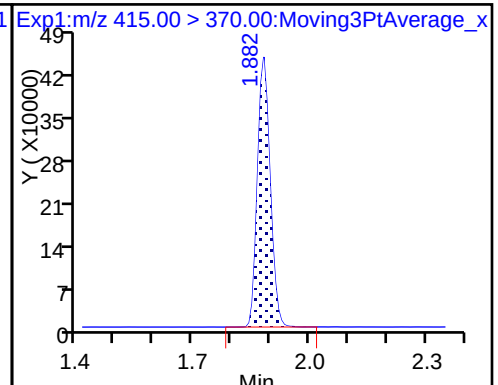
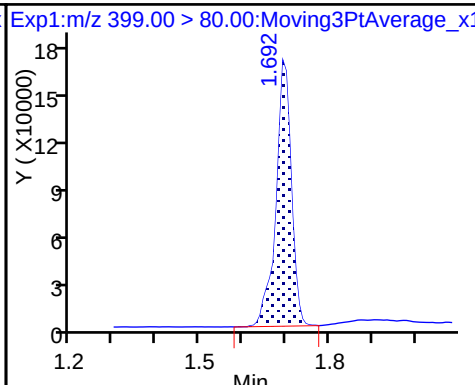
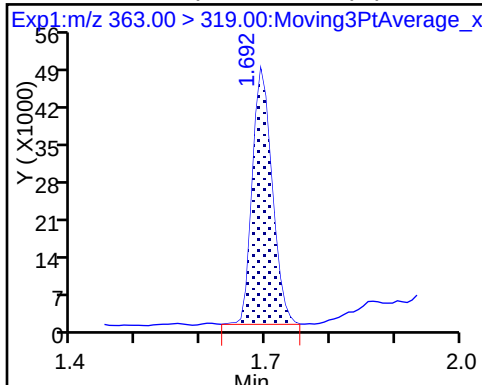
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (M)

3 Perfluorohexanesulfonic acid

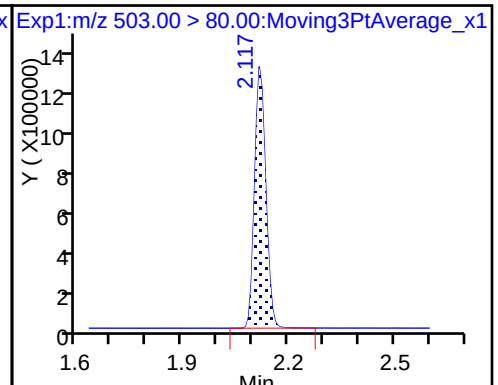
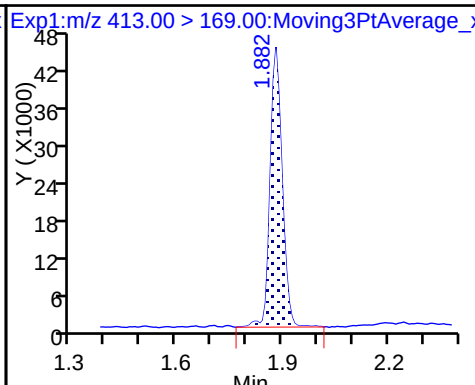
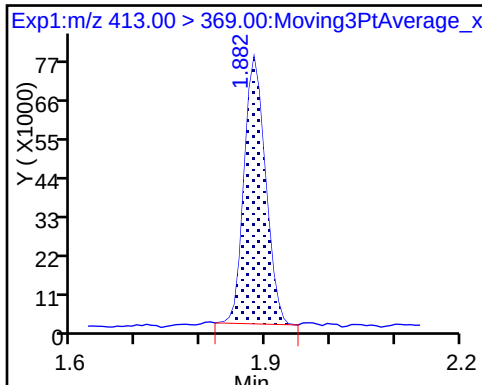
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

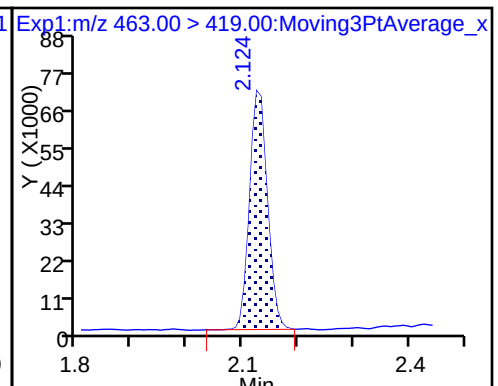
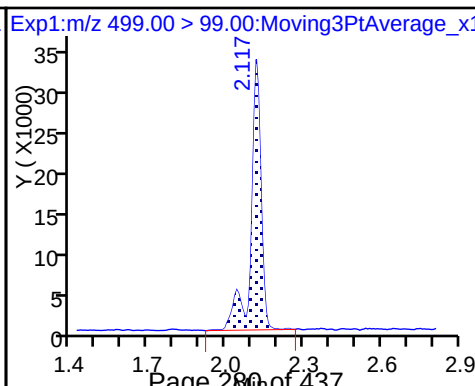
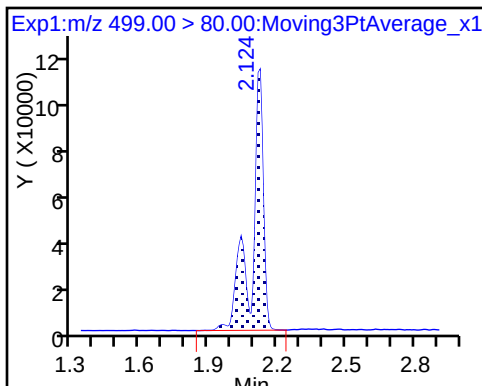
* 7 13C4 PFOS



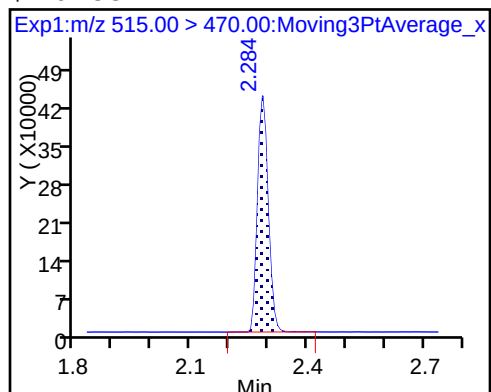
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

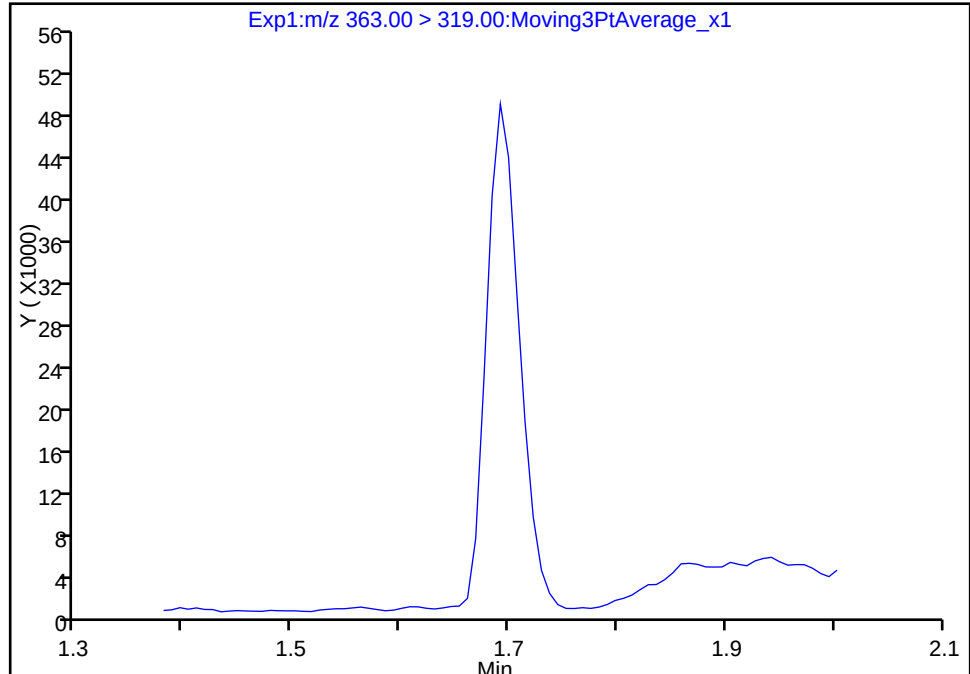
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_004.d
Injection Date: 05-Jul-2017 19:50:03 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: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

4 Perfluoroheptanoic acid, CAS: 375-85-9

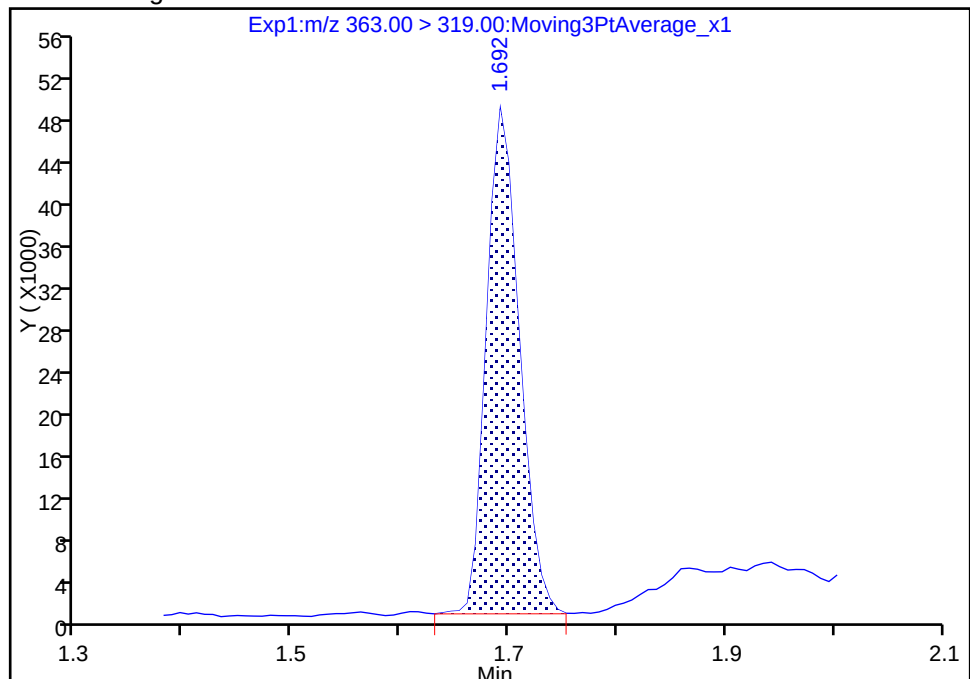
Signal: 1

Not Detected
Expected RT: 1.69

Processing Integration Results



Manual Integration Results



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

Reviewer: barnettj, 06-Jul-2017 11:03:45

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_005.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 05-Jul-2017 19:54:49 ALS Bottle#: 2 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:34 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: westendorfc

Date: 06-Jul-2017 10:59:32

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

Reagents:

LC537-L2_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

Injection Date: 05-Jul-2017 19:54:49

Instrument ID: A8_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

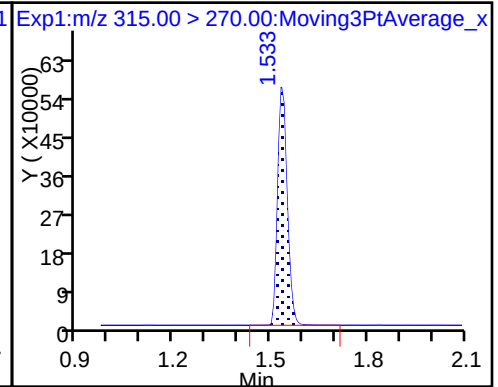
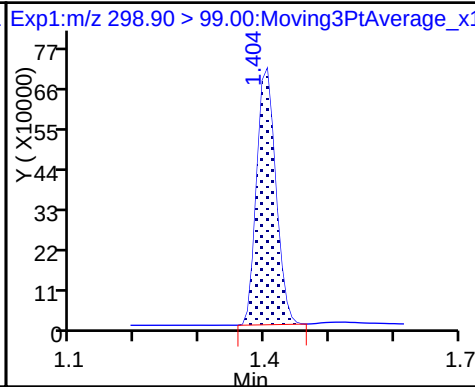
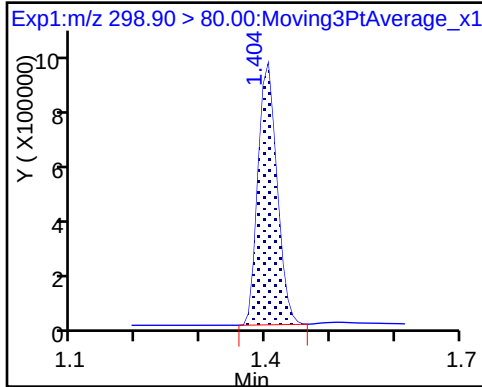
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

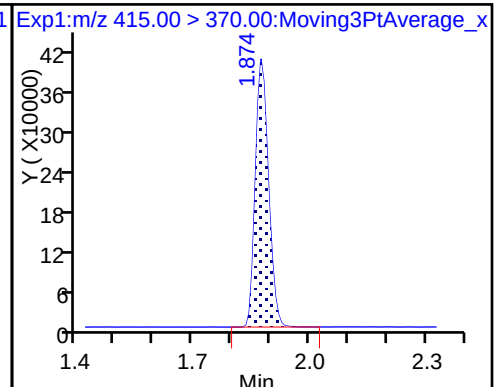
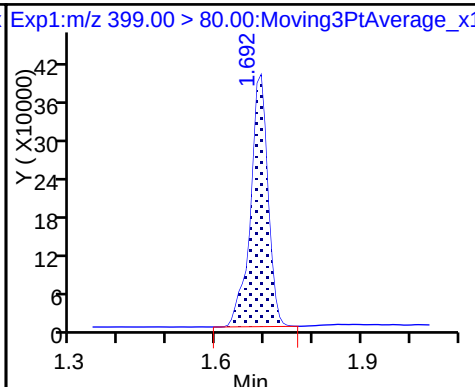
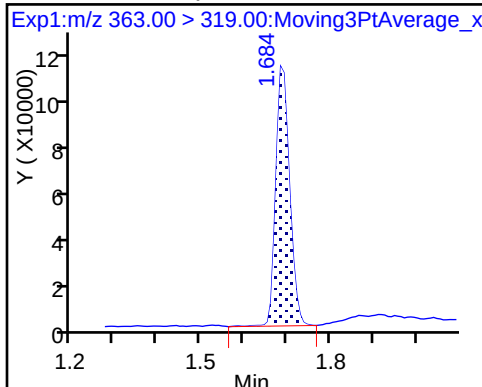
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

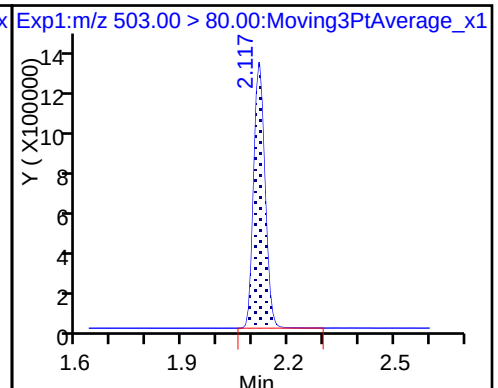
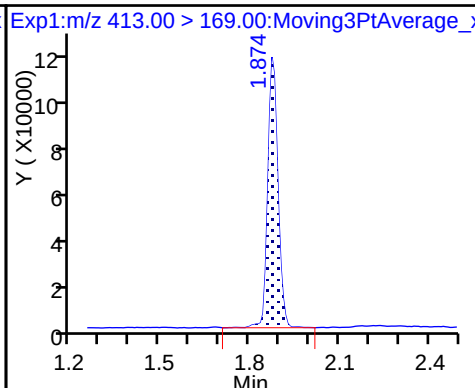
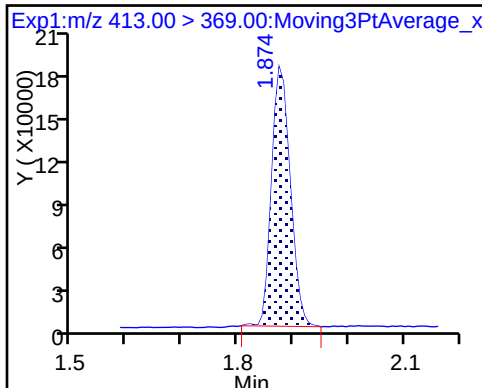
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

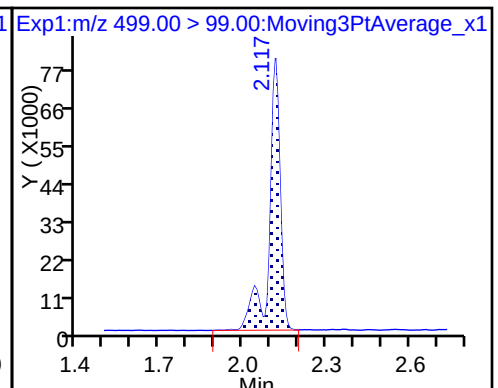
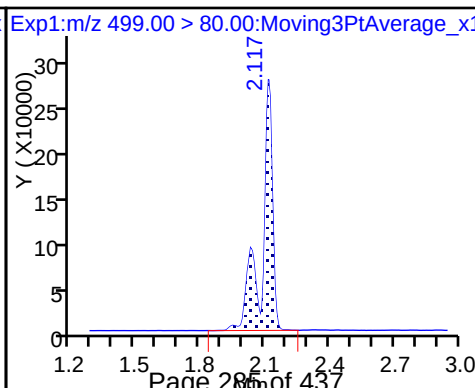
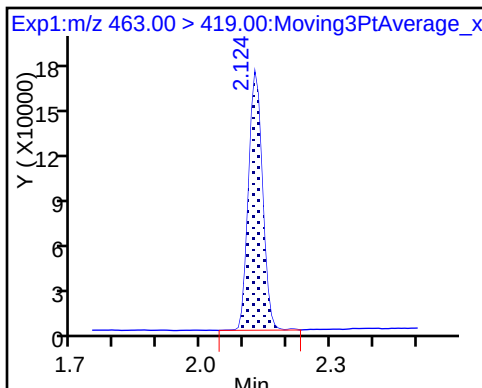
* 7 13C4 PFOS



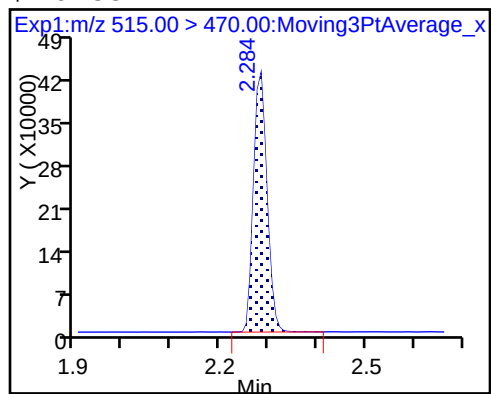
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_006.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 05-Jul-2017 19:59:33 ALS Bottle#: 3 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:41 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: westendorfc

Date: 06-Jul-2017 10:59:07

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

Reagents:

LC537-L3_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

Injection Date: 05-Jul-2017 19:59:33

Instrument ID: A8_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

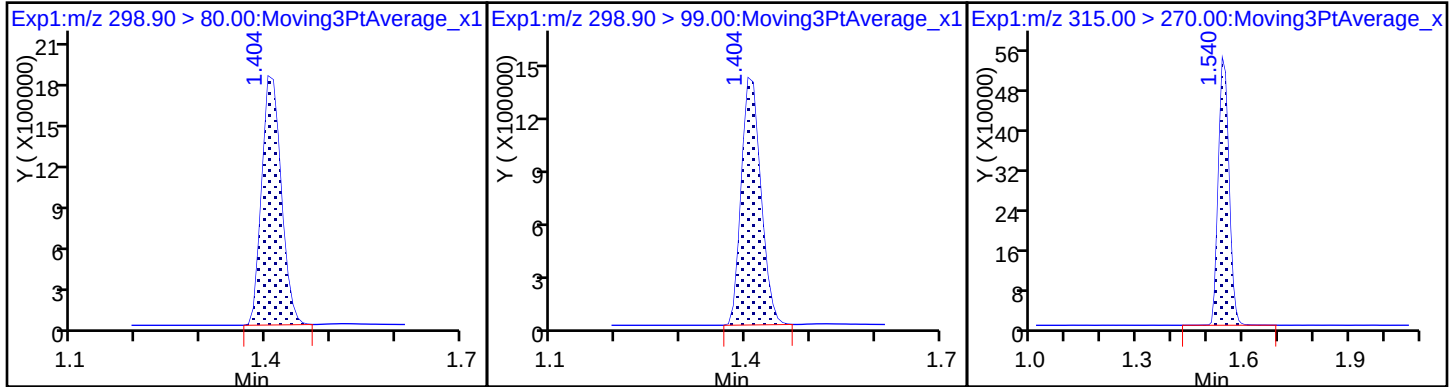
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

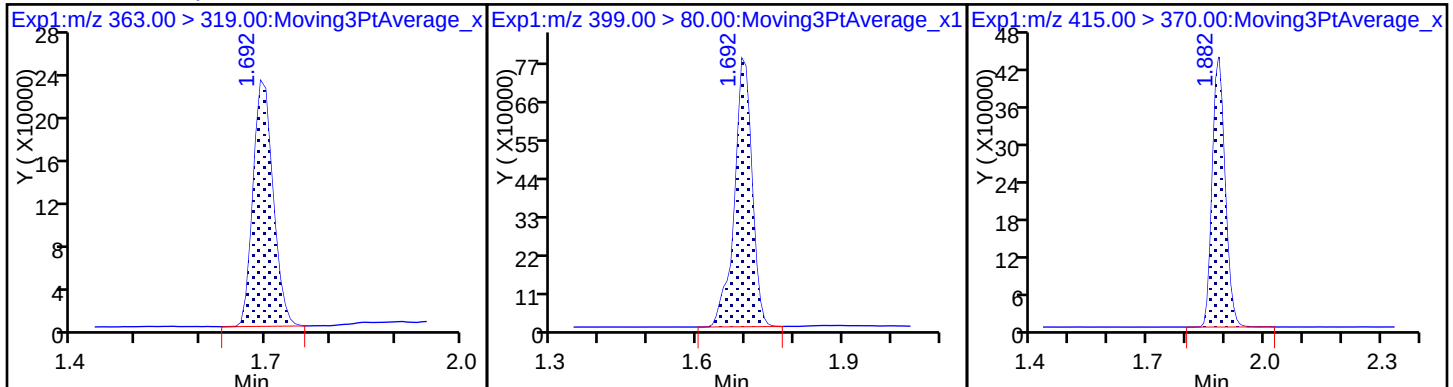
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

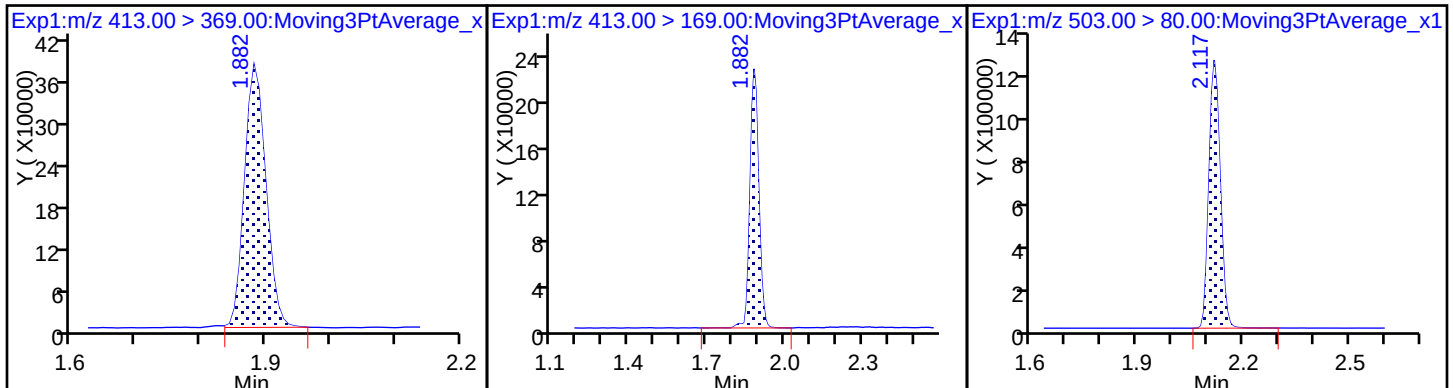
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

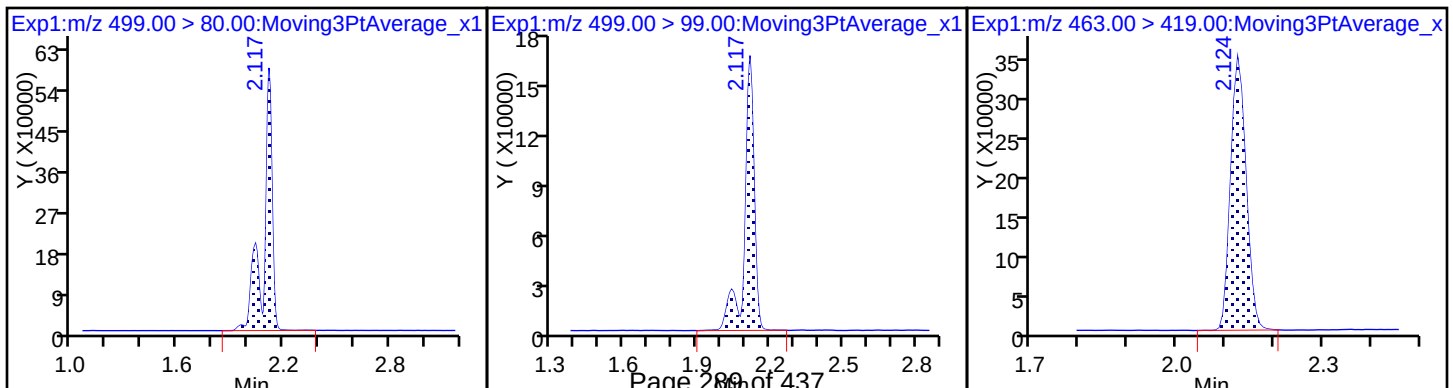
* 7 13C4 PFOS



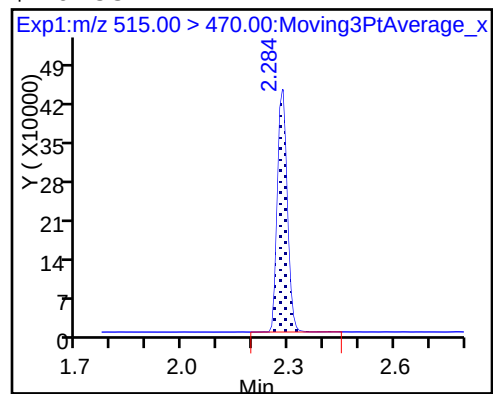
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_007.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 05-Jul-2017 20:04:17 ALS Bottle#: 4 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:45 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 06-Jul-2017 13:17:36

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

Reagents:

LC537-L4_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

Injection Date: 05-Jul-2017 20:04:17

Instrument ID: A8_N

Lims ID: IC L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

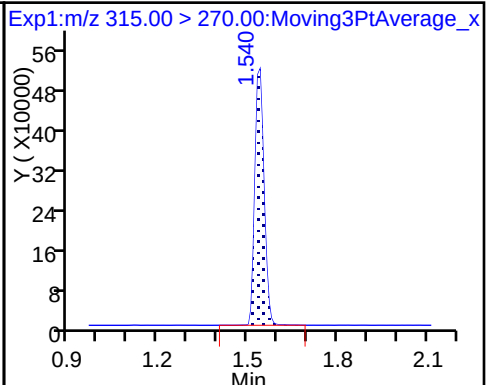
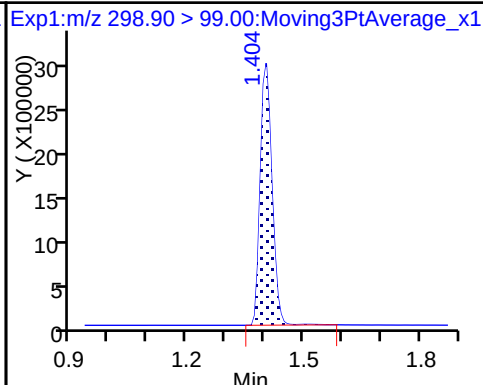
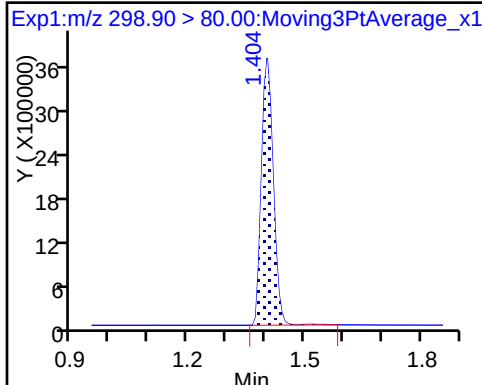
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

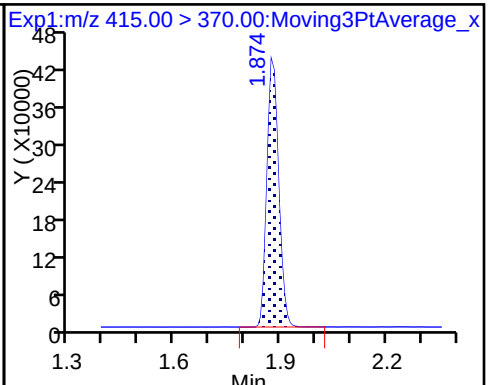
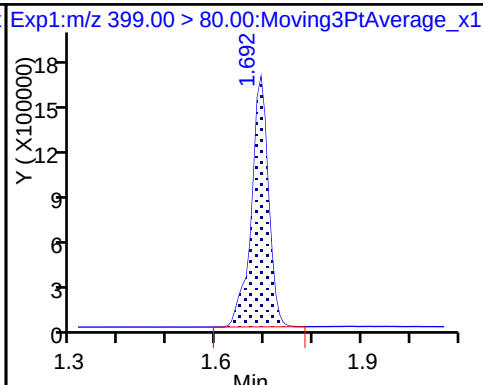
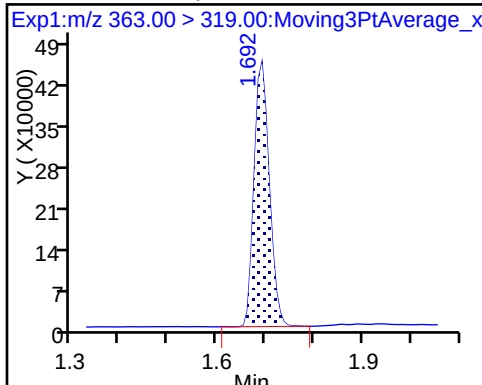
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

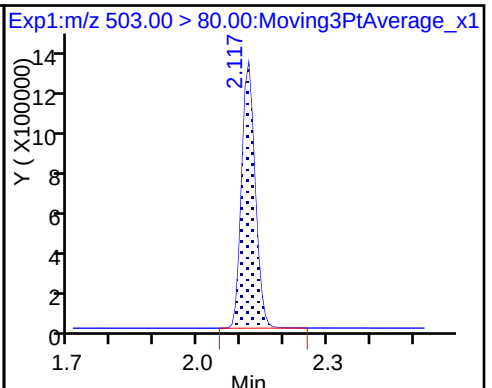
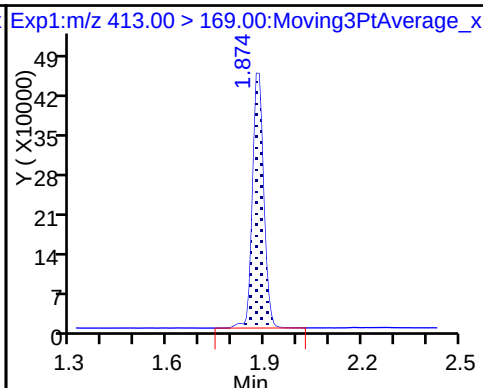
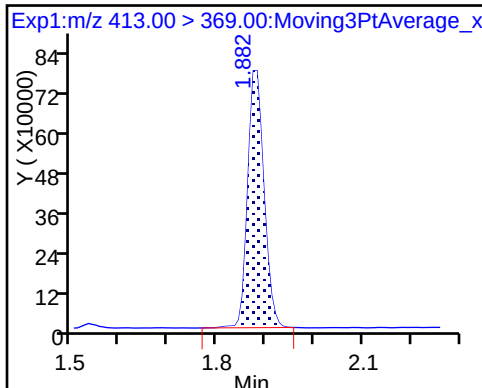
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

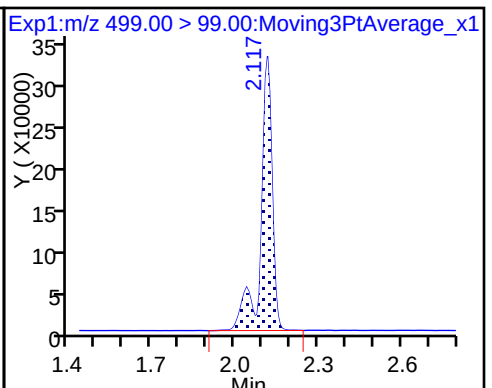
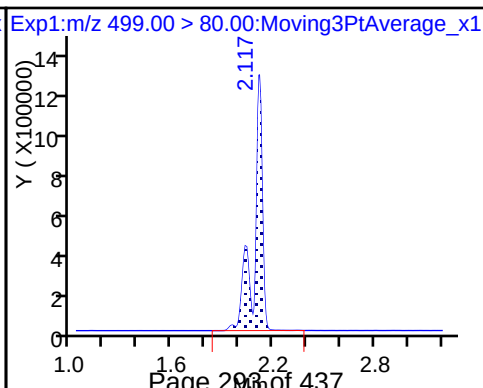
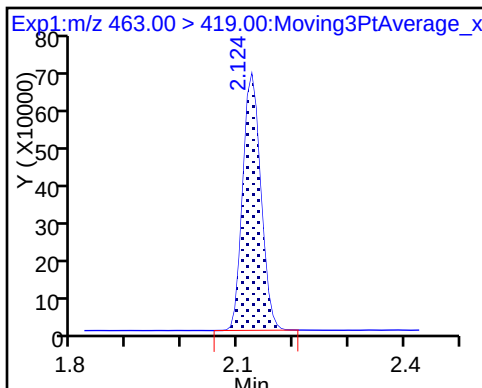
* 7 13C4 PFOS



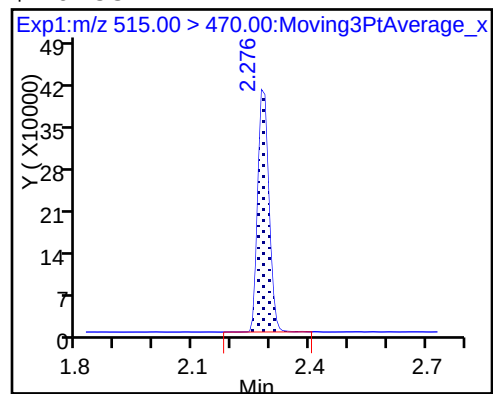
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_008.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 05-Jul-2017 20:09:01 ALS Bottle#: 5 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:48 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 06-Jul-2017 14:15:17

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

Reagents:

LC537-L5_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

Injection Date: 05-Jul-2017 20:09:01

Instrument ID: A8_N

Lims ID: IC L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

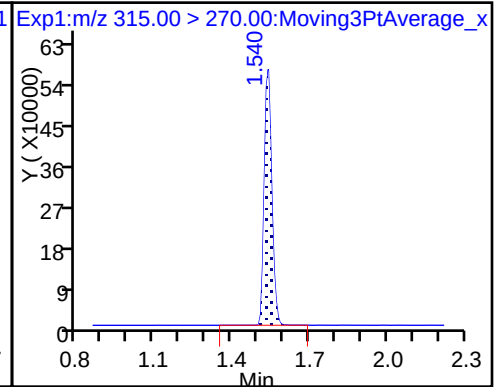
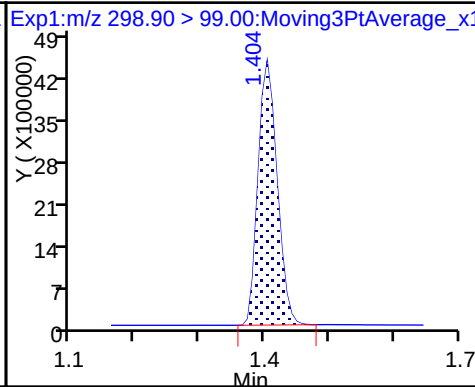
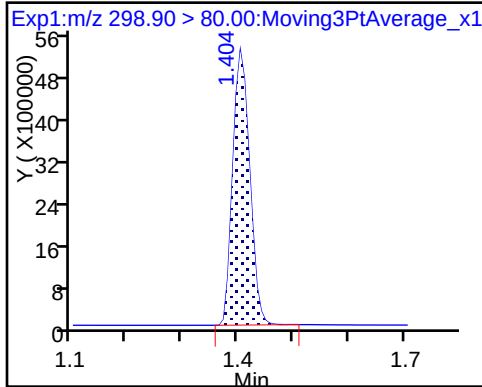
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

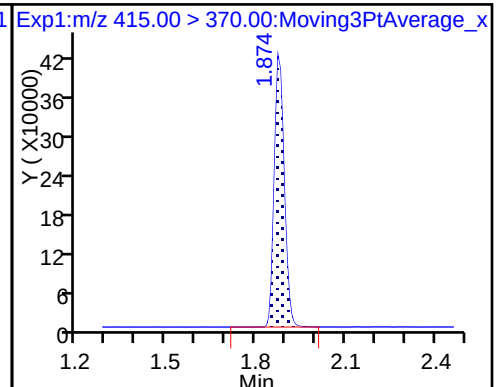
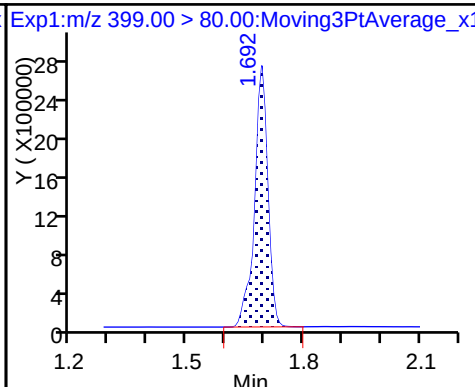
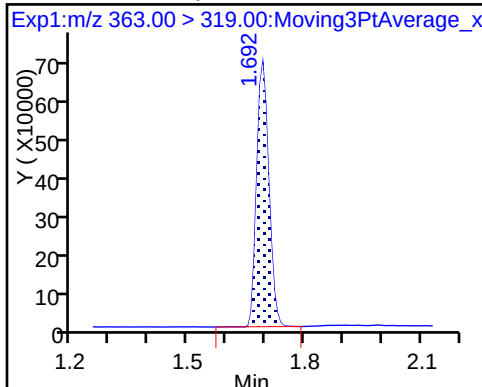
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

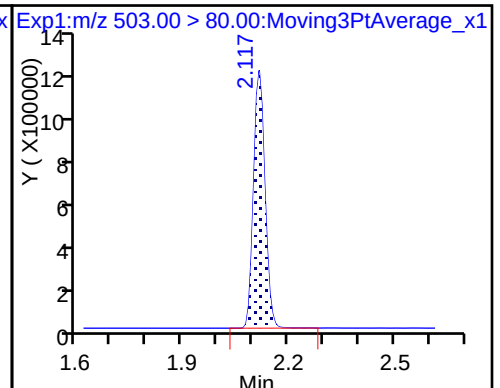
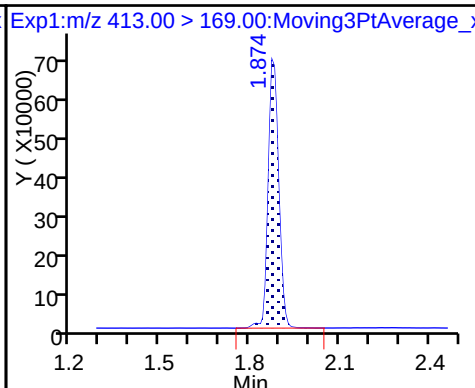
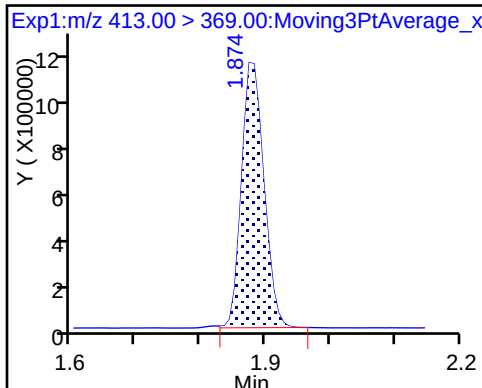
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

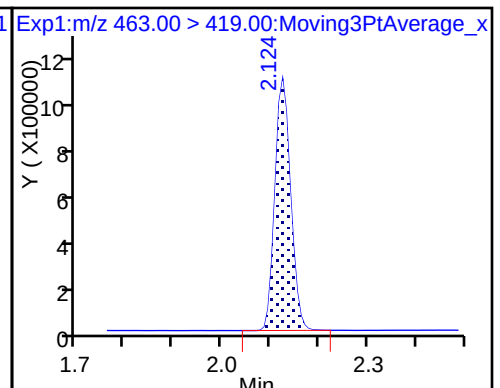
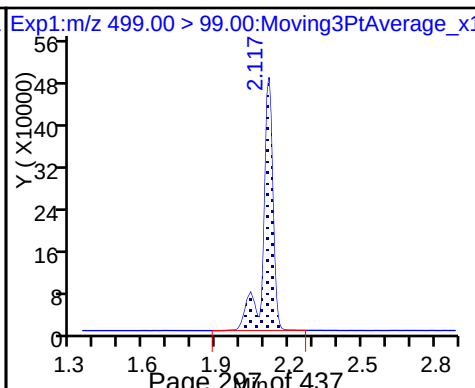
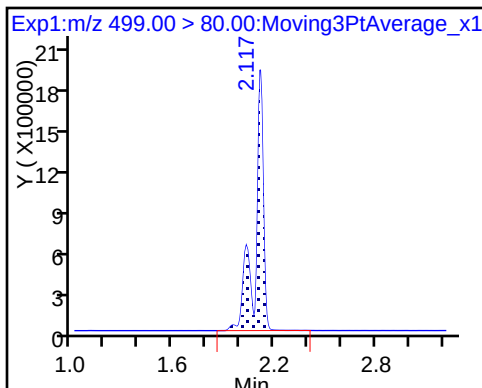
* 7 13C4 PFOS



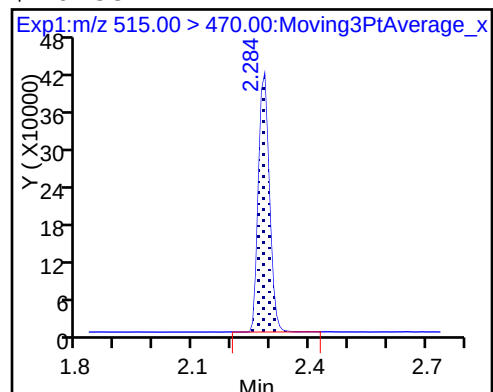
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 05-Jul-2017 20:13:46 ALS Bottle#: 6 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:51 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 06-Jul-2017 11:02:39

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

Reagents:

LC537-L6_00018

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

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

Injection Date: 05-Jul-2017 20:13:46

Instrument ID: A8_N

Lims ID: IC L6

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

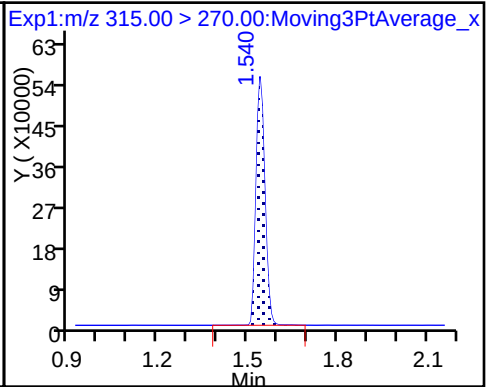
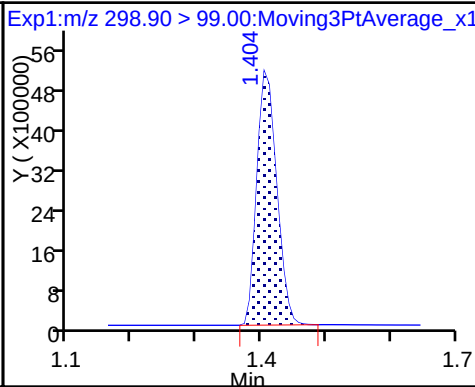
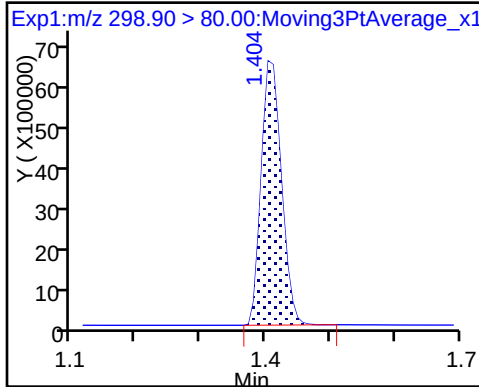
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

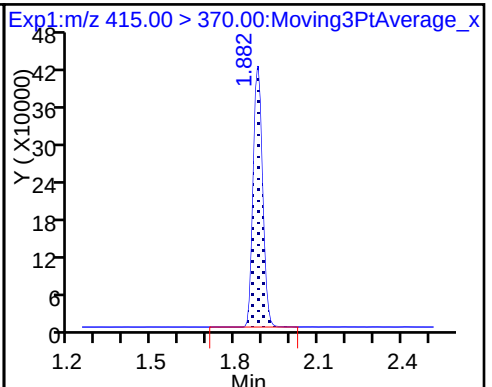
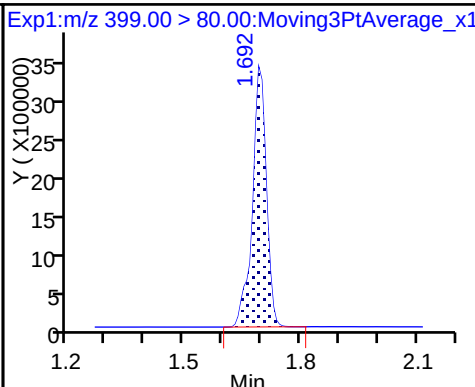
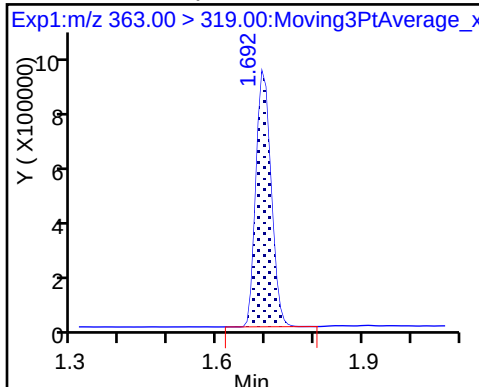
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

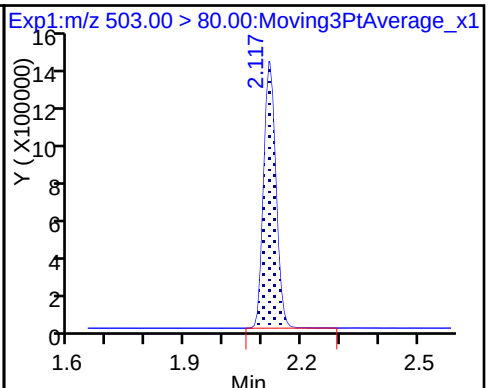
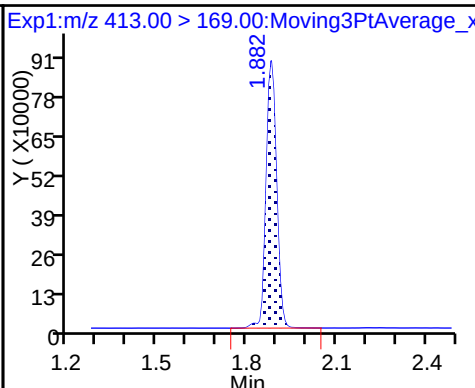
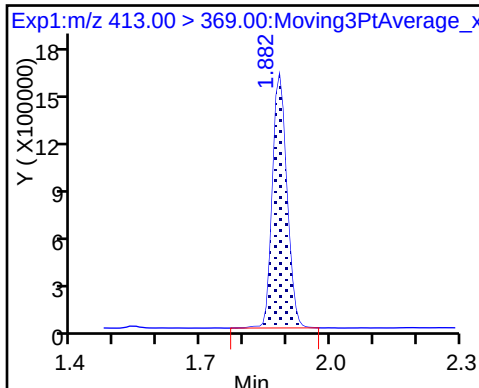
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

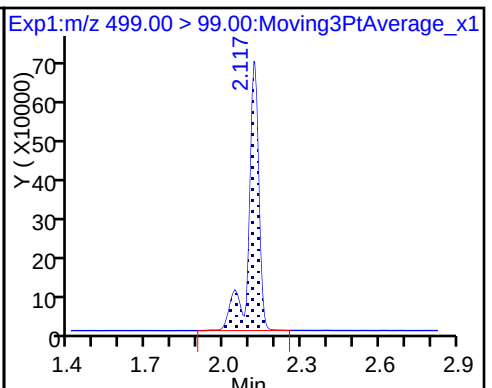
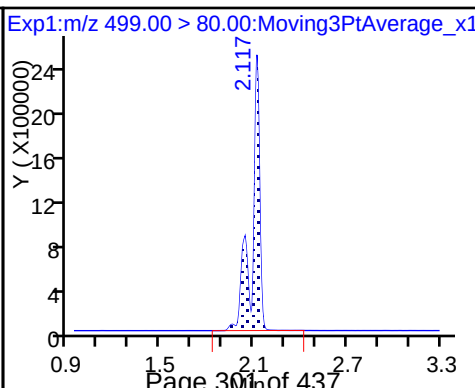
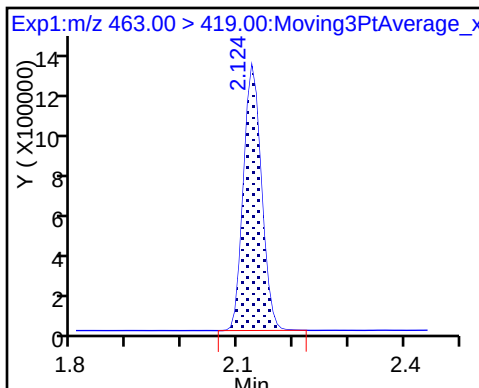
* 7 13C4 PFOS



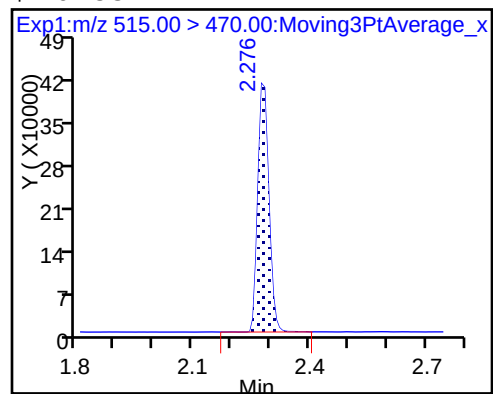
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-172646/11 Calibration Date: 07/05/2017 20:23
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.05_537CURVE_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9450		22.5	21.2	6.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.013		2.30	2.38	-3.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.375		7.12	7.21	-1.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9158		4.76	4.80	-0.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9585		8.99	9.61	-6.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8346		4.68	4.62	1.3	50.0
13C2 PFHxA	Ave	1.136	1.093		9.62	10.0	-3.8	30.0
13C2 PFDA	Ave	0.8395	0.8398		10.0	10.0	0.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_011.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 05-Jul-2017 20:23:16 ALS Bottle#: 2 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:15:58 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 06-Jul-2017 11:10:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.396	1.404	-0.008	1.000	1978330	22.5		577	
298.90 > 99.00	1.396	1.404	-0.008	1.000	1439219		1.37(0.00-0.00)	562	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1049709	9.62		3794	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	231101	2.30		34.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	979833	7.12		363	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		960063	10.0		3662	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	421619	4.76		51.2	
413.00 > 169.00	1.874	1.879	-0.005	1.000	257723		1.64(0.00-0.00)	279	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.117	-0.008		2831967	28.7		3554	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.124	-0.015	1.000	909348	8.99		844	
499.00 > 99.00	2.109	2.124	-0.015	1.000	216396		4.20(0.00-0.00)	463	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.124	-0.007	1.000	370397	4.68		53.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	806268	10.0		1841	

Reagents:

LC537-L2_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_011.d

Injection Date: 05-Jul-2017 20:23:16

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

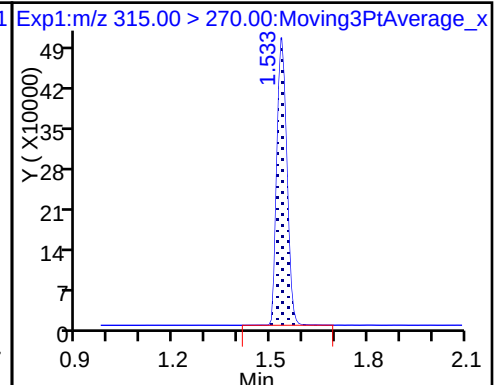
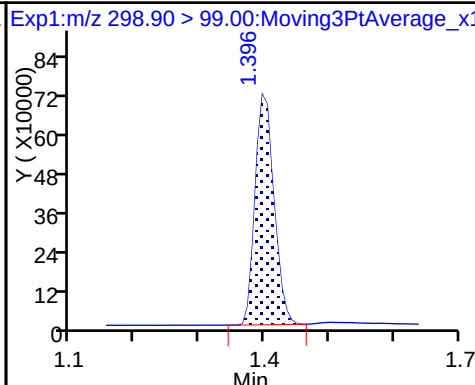
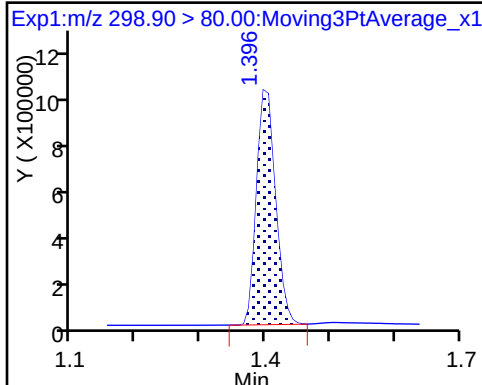
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

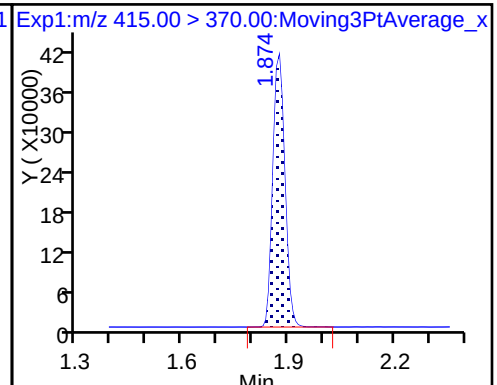
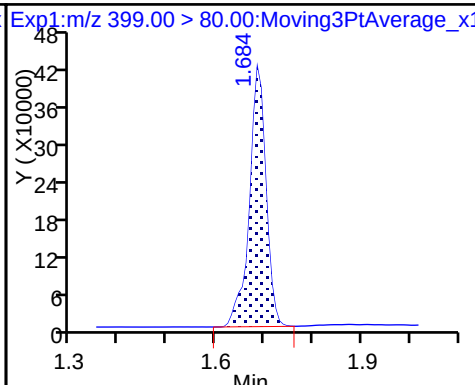
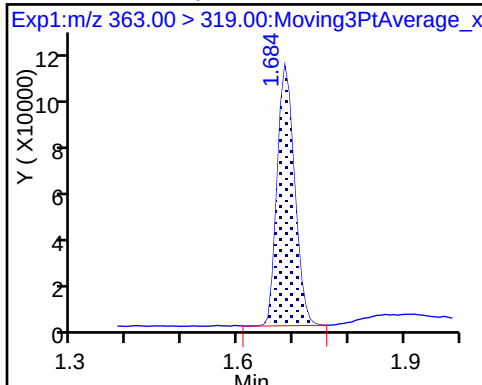
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

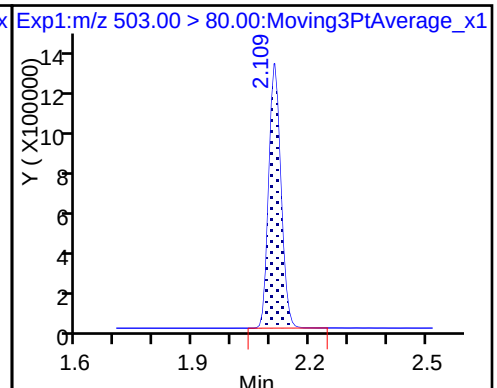
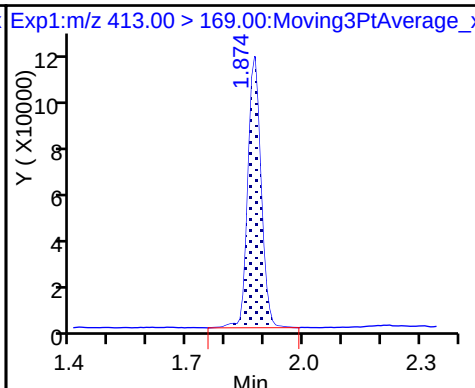
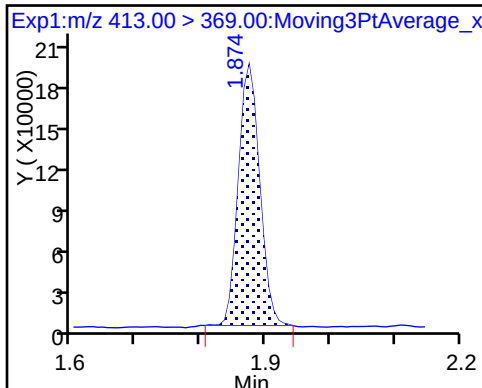
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

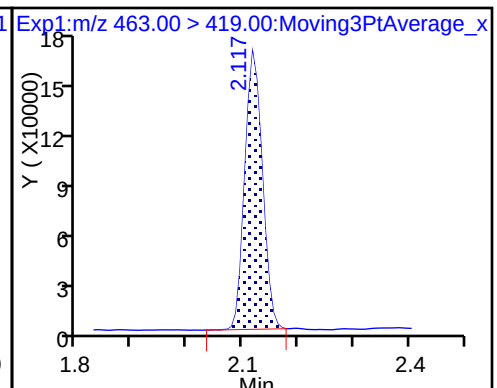
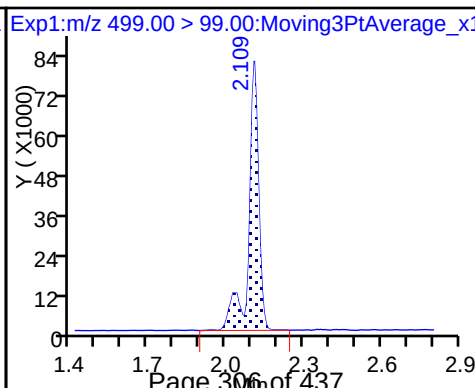
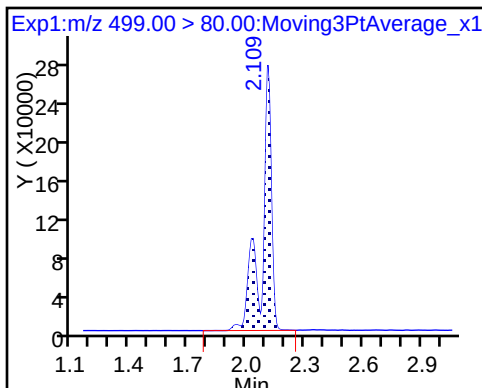
* 7 13C4 PFOS



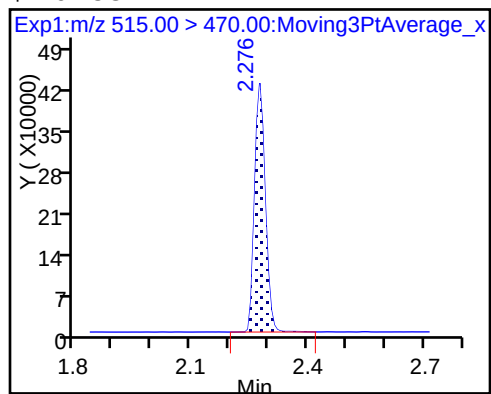
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: ICV 320-172646/13 Calibration Date: 07/05/2017 20:32
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.05_537CURVE_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9309		105	101	4.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	0.9545		9.20	10.1	-8.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.547		23.5	21.2	11.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9807		21.3	20.0	6.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.035		20.9	20.7	1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8757		21.3	20.0	6.3	30.0
13C2 PFHxA	Ave	1.136	1.143		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.8395	0.8348		9.94	10.0	-0.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_013.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 05-Jul-2017 20:32:46 ALS Bottle#: 7 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Jul-2017 14:16:05 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 06-Jul-2017 11:07:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.404	1.404	0.0	1.000	8717456	105.2		2832	
298.90 > 99.00	1.396	1.404	-0.008	0.995	6912302		1.26(0.00-0.00)	2975	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.533	1.539	-0.006	1.000	1052723	10.1		4488	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.684	1.691	-0.007	1.000	885966	9.20		135	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.684	1.692	-0.008	1.000	3047530	23.5		1030	
* 6 13C2-PFOA									
415.00 > 370.00	1.874	1.878	-0.004		920859	10.0		3493	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.874	1.879	-0.005	1.000	1807847	21.3		208	
413.00 > 169.00	1.866	1.879	-0.013	0.996	1047091		1.73(0.00-0.00)	1088	
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.117	-0.008		2667731	28.7		3721	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.124	-0.015	1.000	1991461	20.9		1878	
499.00 > 99.00	2.109	2.124	-0.015	1.000	375691		5.30(0.00-0.00)	756	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.124	-0.007	1.000	1613491	21.3		254	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.281	-0.005	1.000	768757	9.94		1760	

Reagents:

LC537-ICV_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_013.d

Injection Date: 05-Jul-2017 20:32:46

Instrument ID: A8_N

Lims ID: ICV

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

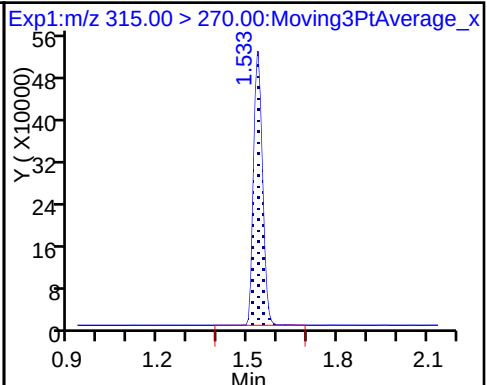
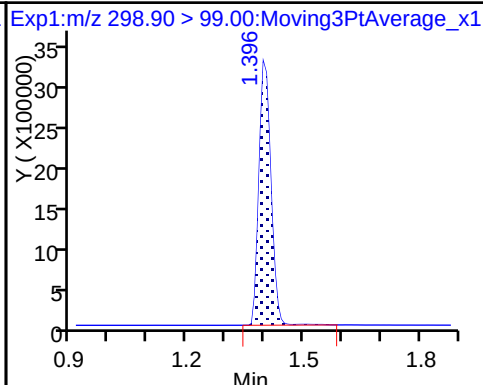
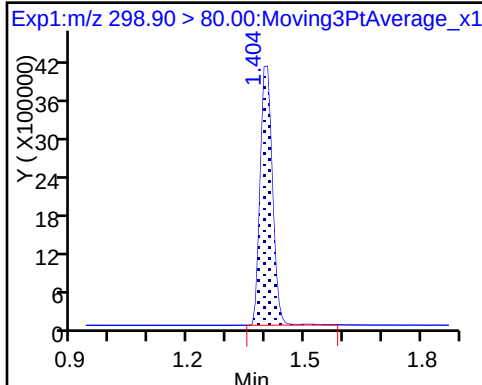
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

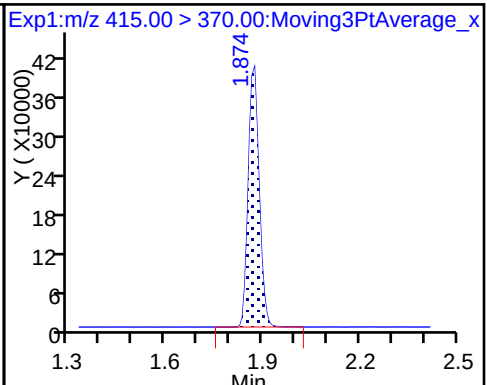
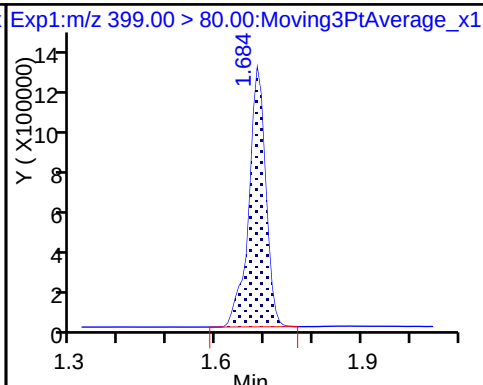
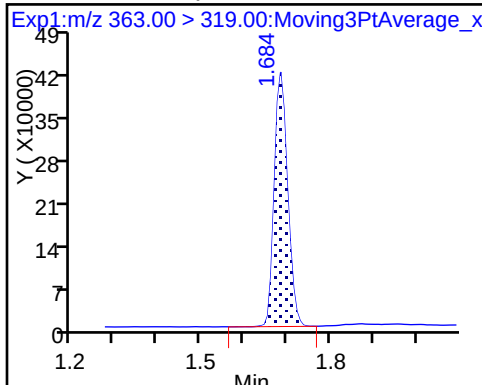
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

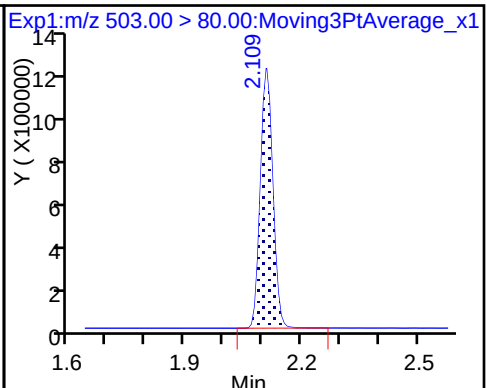
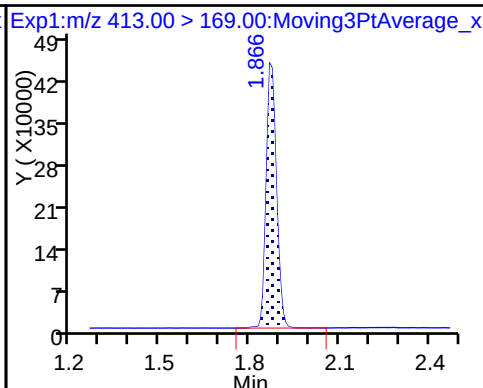
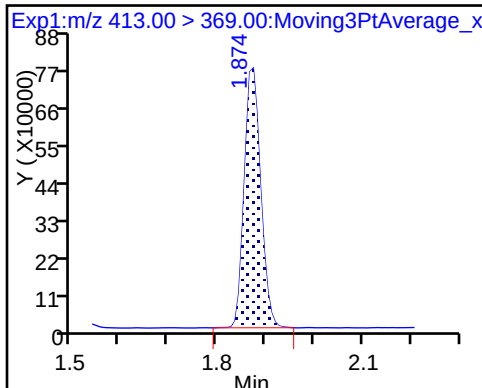
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

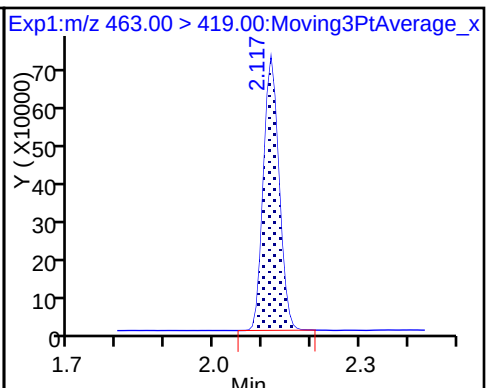
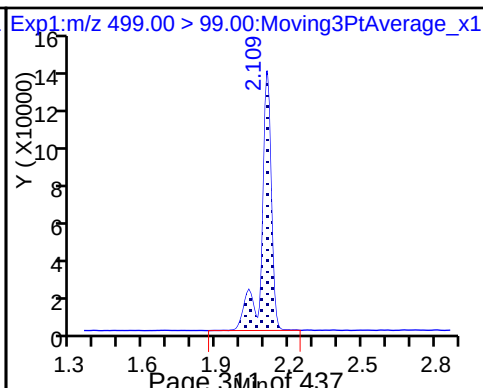
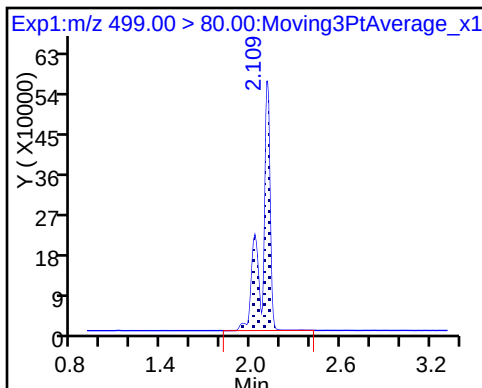
* 7 13C4 PFOS



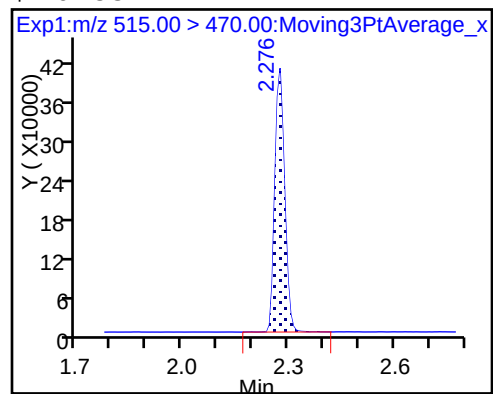
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-173114/4 Calibration Date: 07/08/2017 11:40
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9701		23.1	21.2	8.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.010		2.29	2.38	-3.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.264		6.54	7.21	-9.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9027		4.70	4.80	-2.1	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.998		9.36	9.61	-2.6	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.7837		4.40	4.62	-4.9	50.0
13C2 PFHxA	Ave	1.136	1.151		10.1	10.0	1.3	30.0
13C2 PFDA	Ave	0.8395	0.8172		9.73	10.0	-2.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 08-Jul-2017 11:40:23 ALS Bottle#: 2 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:16:29 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: phomsophat

Date: 08-Jul-2017 12:34:00

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	2244475	23.1		808	
298.90 > 99.00	1.426	1.404	0.022	1.000	1653438		1.36(0.00-0.00)	712	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	1128689	10.1		7320	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.691	0.046	1.000	235332	2.29		37.0	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.692	0.045	1.000	994818	6.54		370	
* 6 13C2-PFOA									
415.00 > 370.00	1.942	1.878	0.064		980863	10.0		4681	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.879	0.063	1.000	424594	4.70		34.0	
413.00 > 169.00	1.942	1.879	0.063	1.000	252436		1.68(0.00-0.00)	436	
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.117	0.053		3129733	28.7		5402	
9 Perfluorononanoic acid									
463.00 > 419.00	2.177	2.124	0.053	1.000	355328	4.40		54.3	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.162	0.008	1.000	1046110	9.36		1416	
499.00 > 99.00	2.170	2.162	0.008	1.000	249526		4.19(0.00-0.00)	508	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.281	0.041	1.000	801531	9.73		1635	

Reagents:

LC537-L2_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_004.d

Injection Date: 08-Jul-2017 11:40:23

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

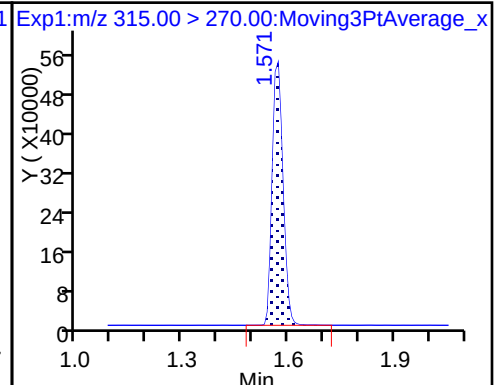
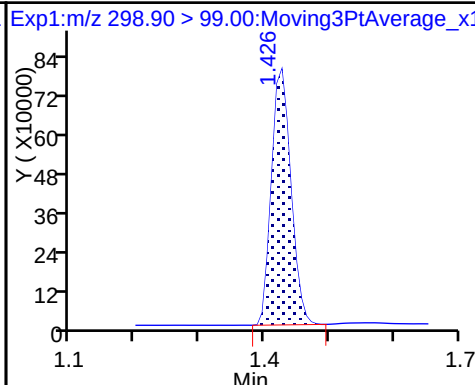
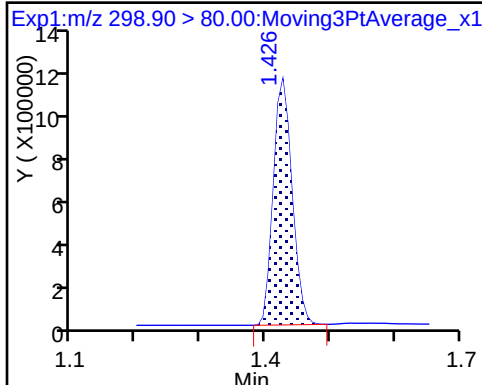
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

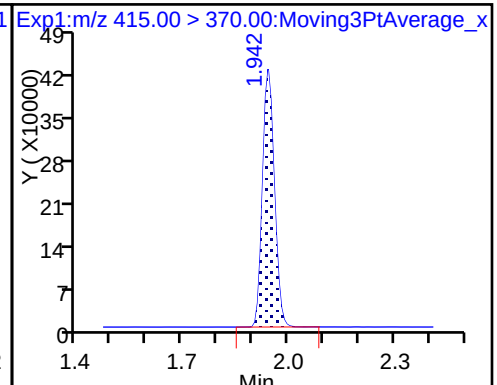
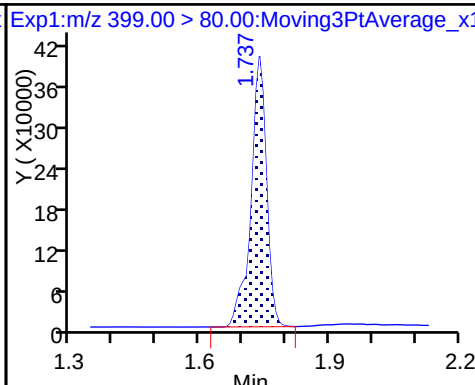
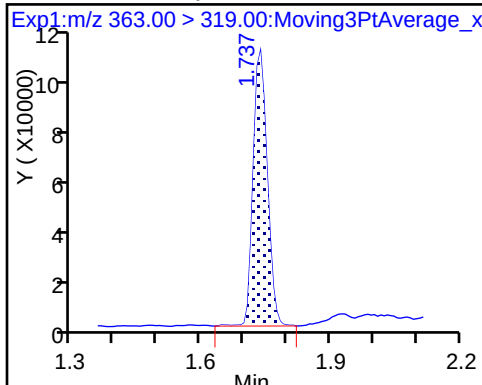
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

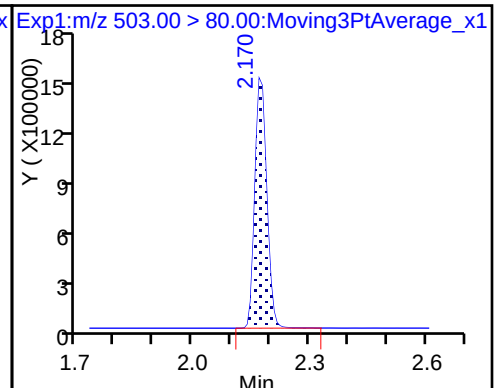
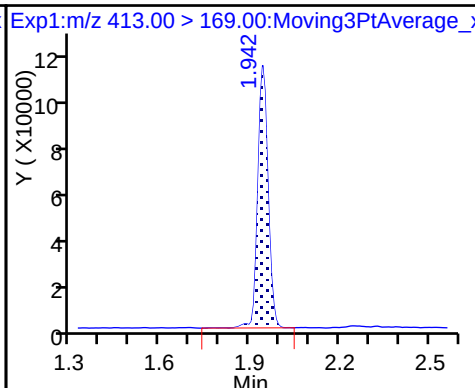
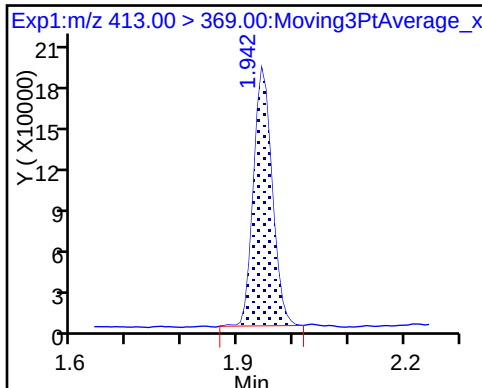
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

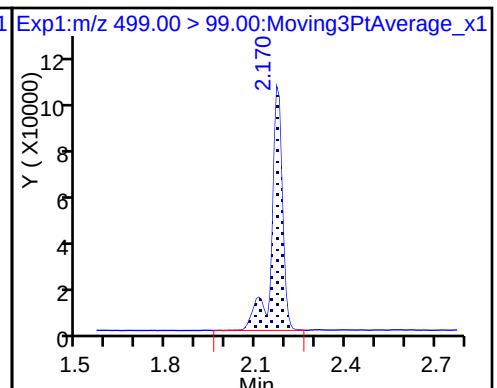
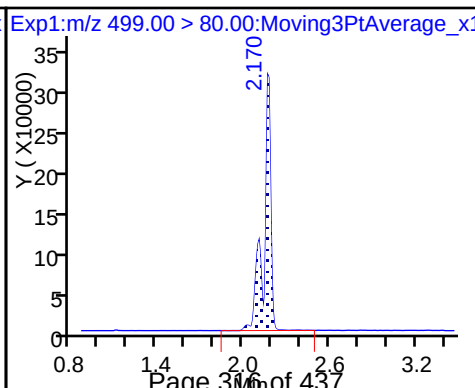
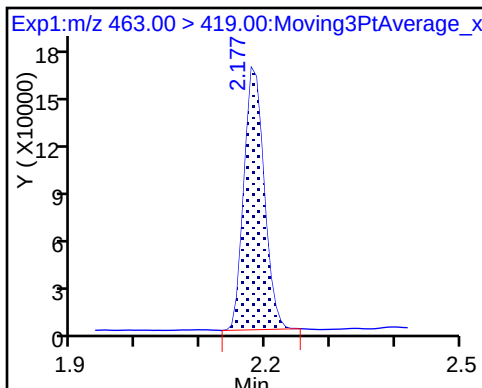
* 7 13C4 PFOS



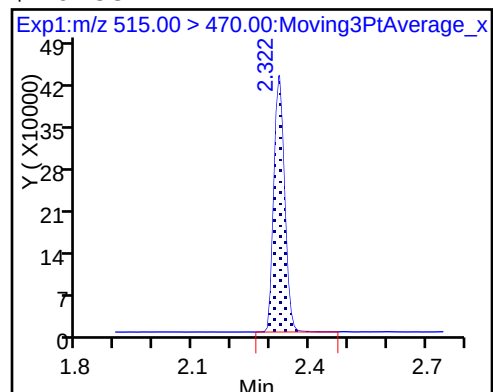
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173117/29 Calibration Date: 07/08/2017 13:39
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.7864		117	133	-11.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.036		14.7	14.9	-0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.299		42.0	45.1	-6.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9241		30.0	30.0	0.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.013		59.4	60.0	-1.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8277		29.0	28.9	0.4	30.0
13C2 PFHxA	Ave	1.136	1.211		10.7	10.0	6.6	30.0
13C2 PFDA	Ave	0.8395	0.8366		9.96	10.0	-0.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_029.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 13:39:00 ALS Bottle#: 5 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:05:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.404	0.015	1.000	11095437	116.9		3459	
298.90 > 99.00	1.419	1.404	0.015	1.000	9055730		1.23(0.00-0.00)	3251	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1053272	10.7		5555	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	1338279	14.7		227	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	6235562	42.0		2201	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		869614	10.0		3582	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	2408277	30.0		191	
413.00 > 169.00	1.927	1.879	0.048	1.000	1592640		1.51(0.00-0.00)	2142	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		3053864	28.7		4572	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	2079421	29.0		224	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.162	0.0	1.000	6477515	59.4		5338	
499.00 > 99.00	2.162	2.162	0.0	1.000	1470641		4.40(0.00-0.00)	2537	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	727477	9.96		1282	

Reagents:

LC537-L5_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_029.d

Injection Date: 08-Jul-2017 13:39:00

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

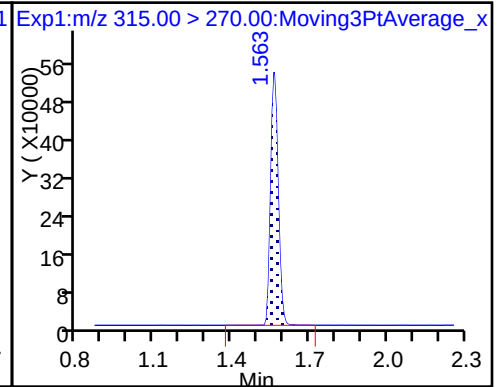
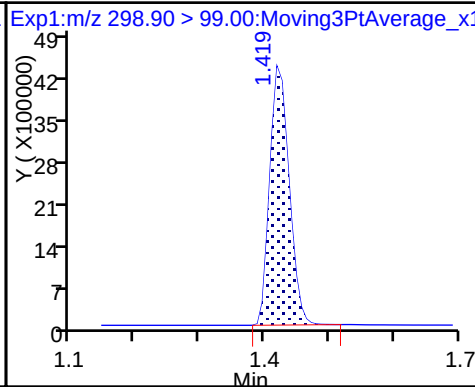
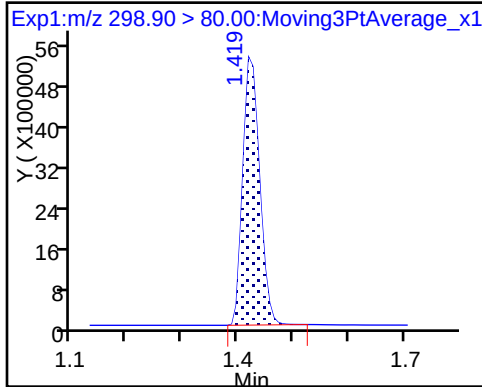
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

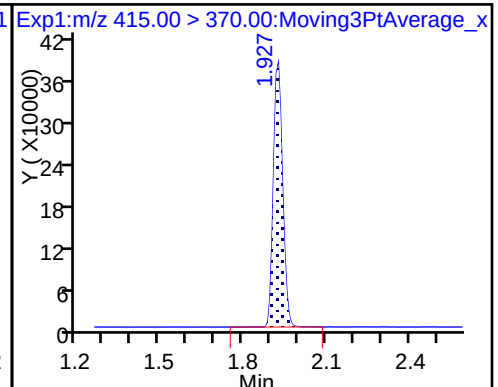
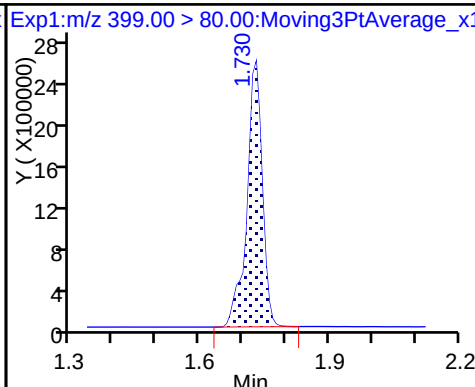
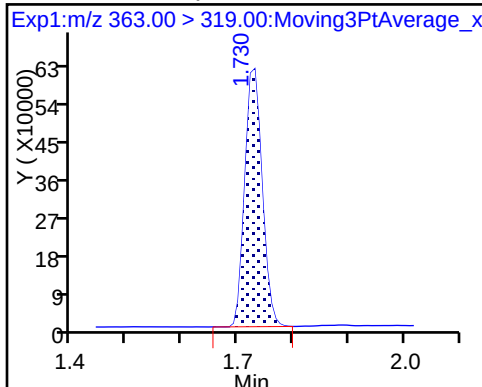
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

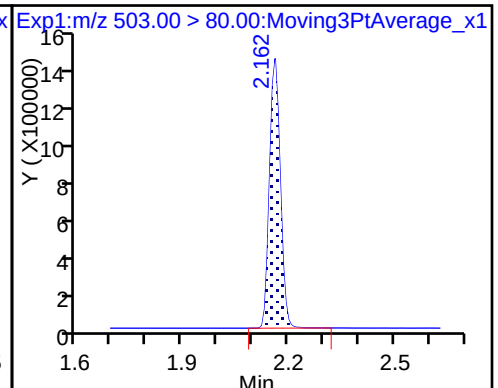
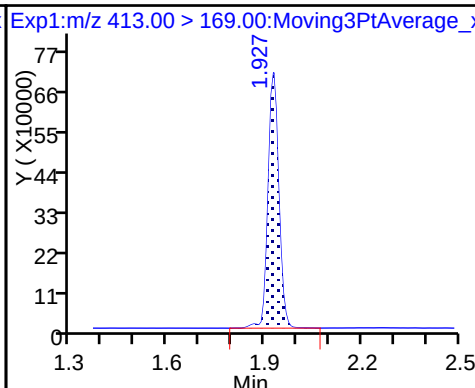
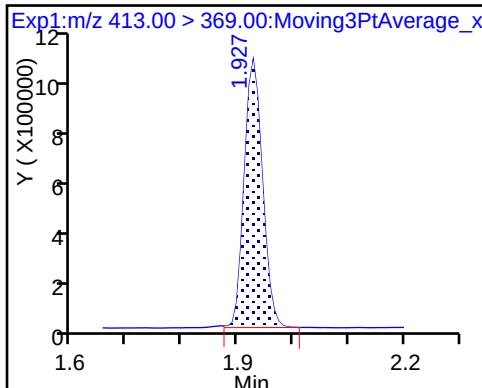
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

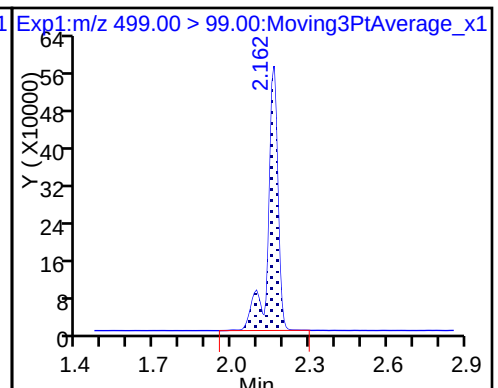
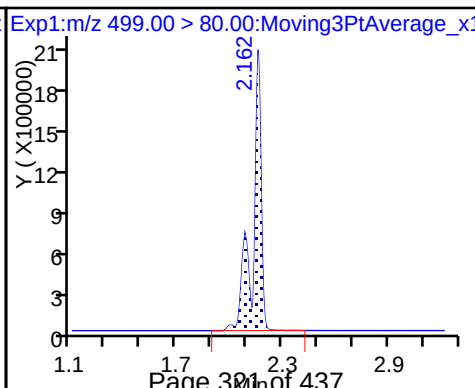
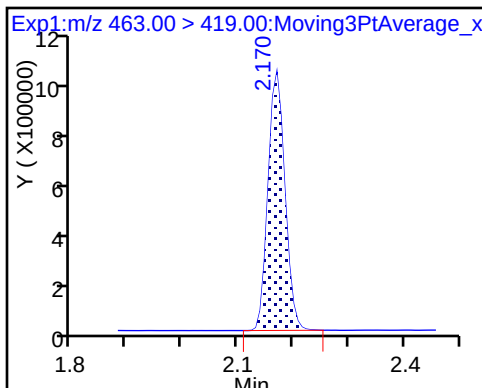
* 7 13C4 PFOS



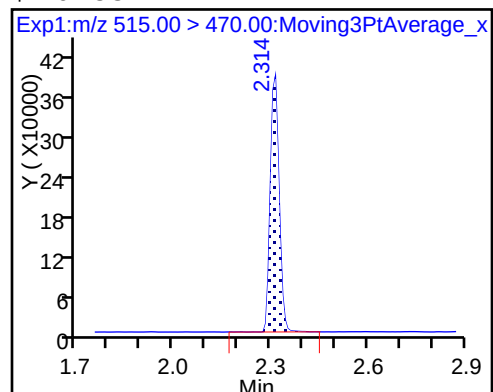
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173117/38 Calibration Date: 07/08/2017 14:21
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8672		43.2	44.4	-2.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.078		5.13	4.97	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.237		13.4	15.1	-11.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9122		9.94	10.0	-1.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.011		19.9	20.1	-1.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8235		9.67	9.68	-0.0	30.0
13C2 PFHxA	Ave	1.136	1.269		11.2	10.0	11.6	30.0
13C2 PFDA	Ave	0.8395	0.8509		10.1	10.0	1.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173118/1 Calibration Date: 07/08/2017 14:21
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8672		43.2	44.4	-2.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.078		5.13	4.97	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.237		13.4	15.1	-11.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9122		9.94	10.0	-1.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.011		19.9	20.1	-1.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8235		9.67	9.68	-0.0	30.0
13C2 PFHxA	Ave	1.136	1.269		11.2	10.0	11.6	30.0
13C2 PFDA	Ave	0.8395	0.8509		10.1	10.0	1.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_038.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 14:21:42 ALS Bottle#: 3 Worklist Smp#: 38
 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\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:50 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:06:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	4041048	43.2		2248	
298.90 > 99.00	1.426	1.404	0.022	1.000	3280970		1.23(0.00-0.00)	2072	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1091320	11.2		5682	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	461369	5.13		81.9	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1960790	13.4		796	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		860316	10.0		3899	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	787933	9.94		64.9	
413.00 > 169.00	1.927	1.879	0.048	1.000	522941		1.51(0.00-0.00)	798	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		3010705	28.7		4496	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	685678	9.67		71.7	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.162	0.0	1.000	2135166	19.9		2626	
499.00 > 99.00	2.162	2.162	0.0	1.000	476629		4.48(0.00-0.00)	888	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	732007	10.1		1328	

Reagents:

LC537-L3_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_038.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 14:21:42 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\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:46:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	4041048	43.2		2248	
298.90 > 99.00	1.426	1.404	0.022	1.000	3280970		1.23(0.00-0.00)	2072	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1091320	11.2		5682	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	461369	5.13		81.9	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1960790	13.4		796	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		860316	10.0		3899	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	787933	9.94		64.9	
413.00 > 169.00	1.927	1.879	0.048	1.000	522941		1.51(0.00-0.00)	798	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		3010705	28.7		4496	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	685678	9.67		71.7	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	2135166	19.9		2626	
499.00 > 99.00	2.162	2.147	0.015	1.000	476629		4.48(0.00-0.00)	888	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	732007	10.1		1328	

Reagents:

LC537-L3_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_038.d

Injection Date: 08-Jul-2017 14:21:42

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

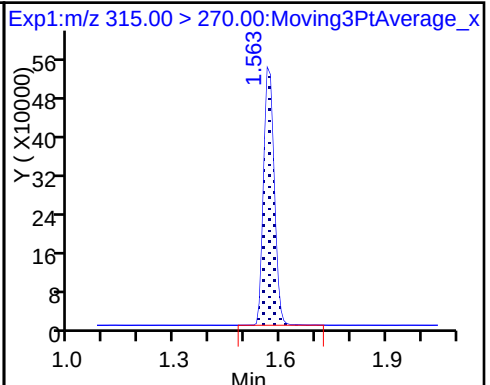
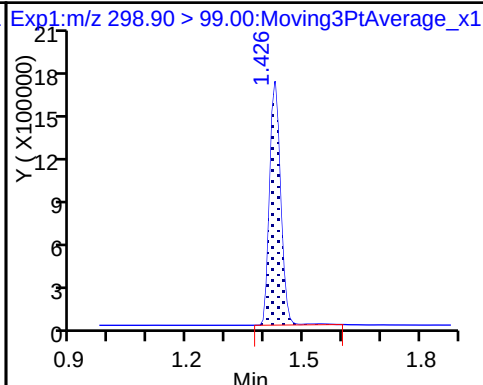
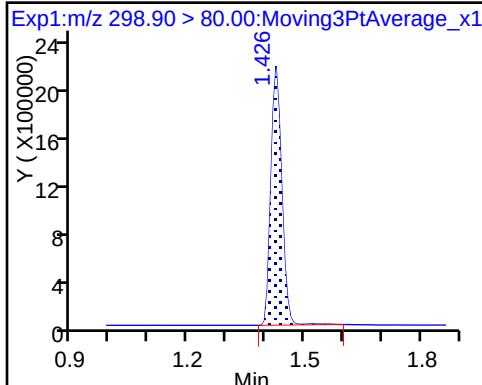
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

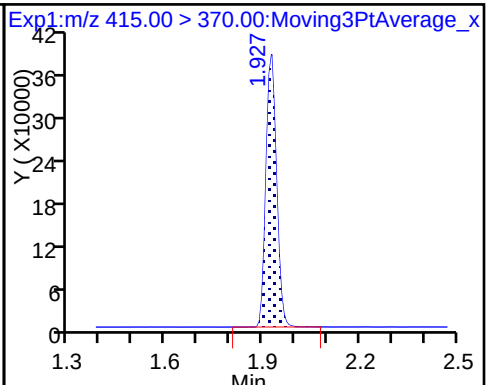
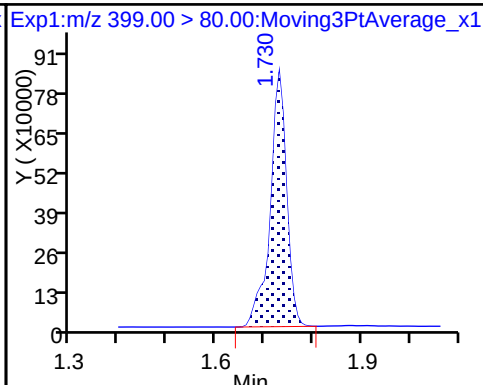
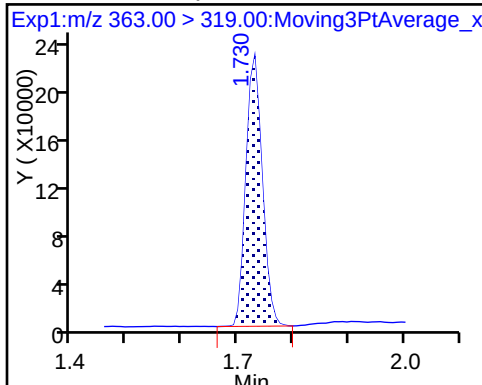
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

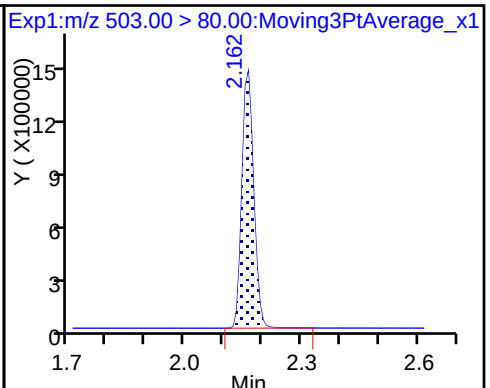
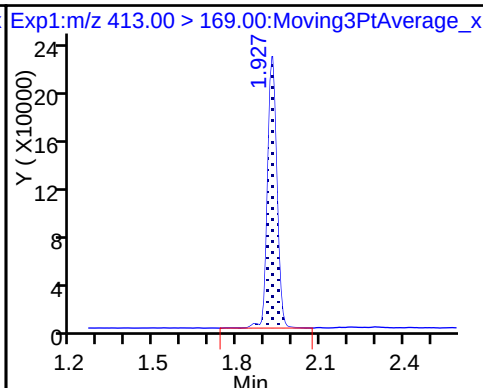
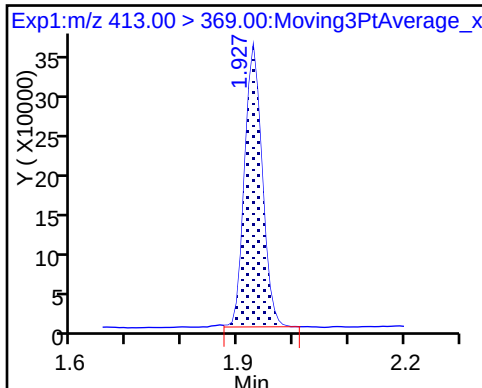
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

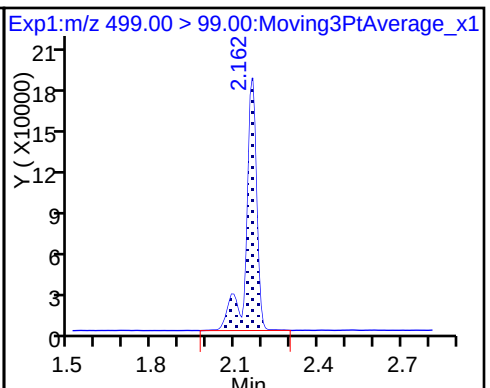
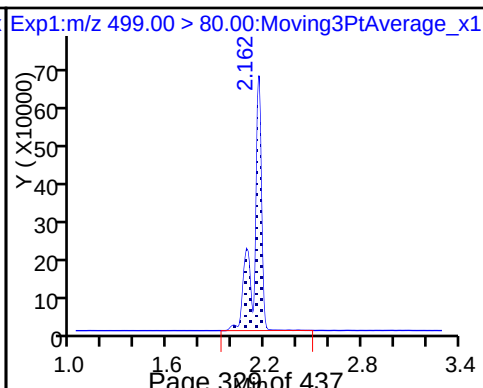
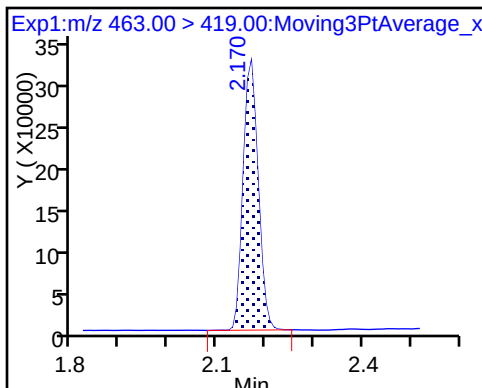
* 7 13C4 PFOS



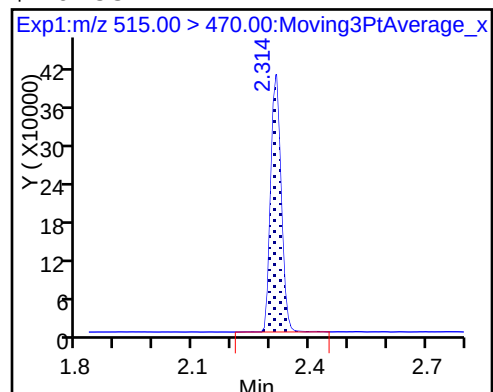
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_038.d

Injection Date: 08-Jul-2017 14:21:42

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 38

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

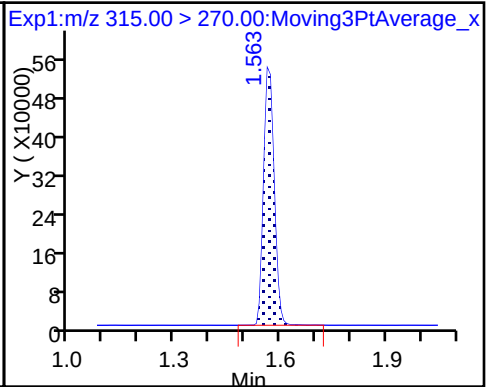
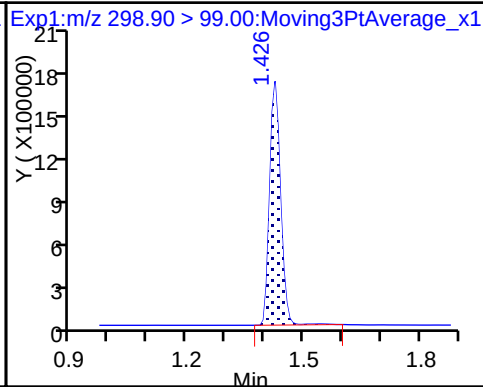
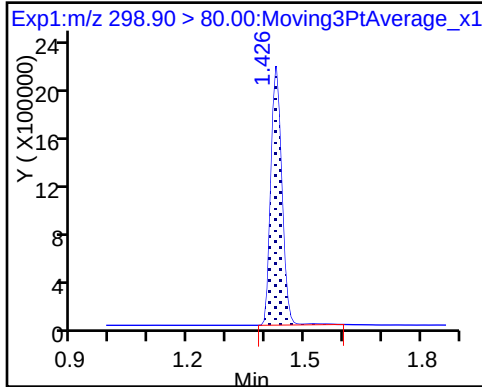
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

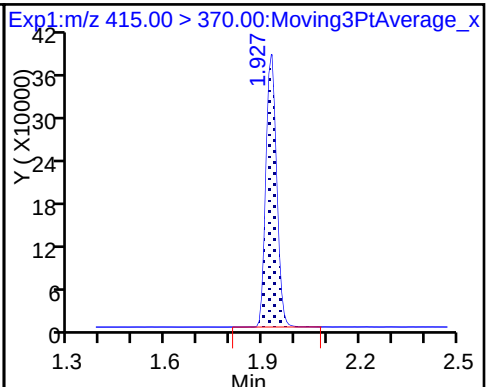
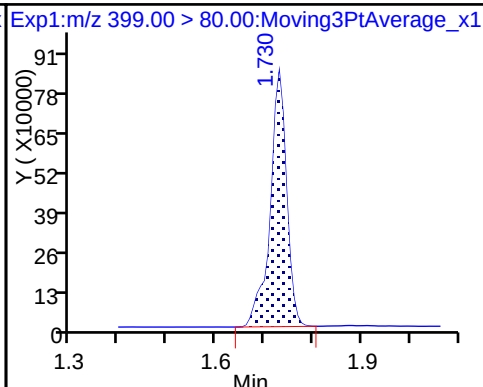
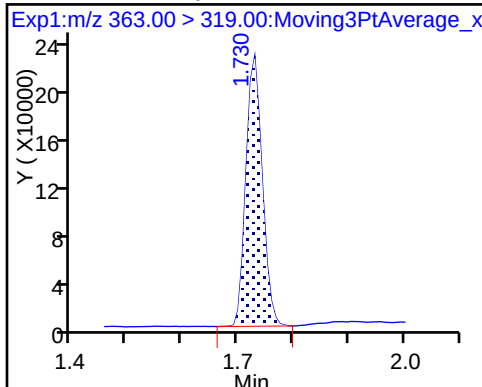
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

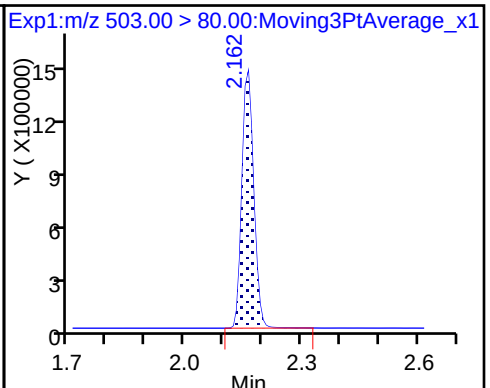
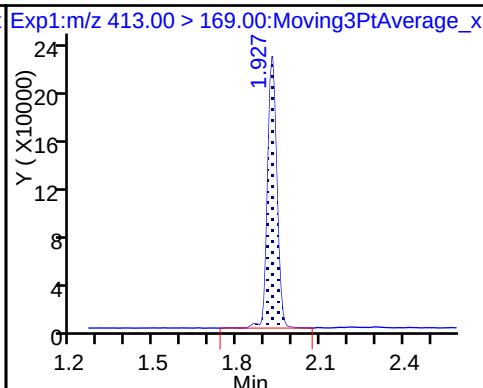
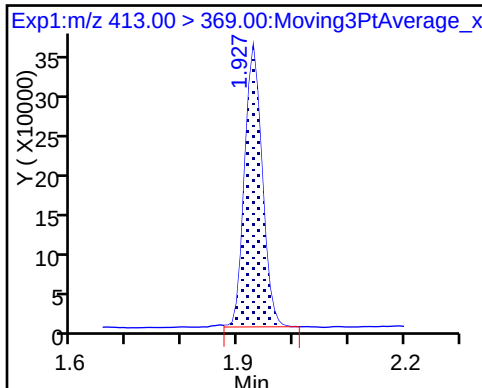
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

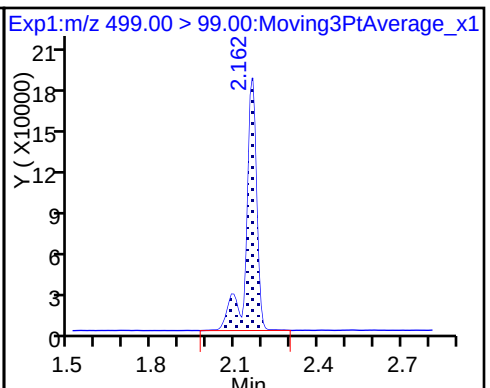
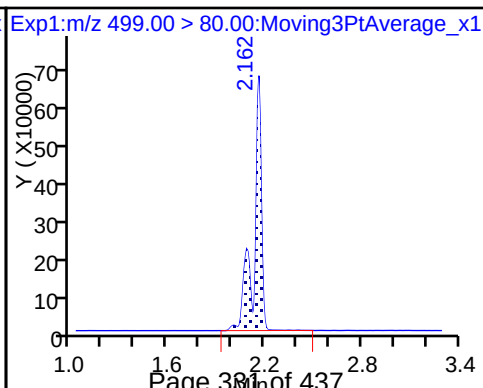
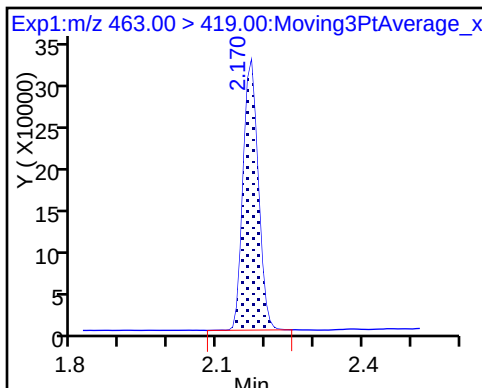
* 7 13C4 PFOS



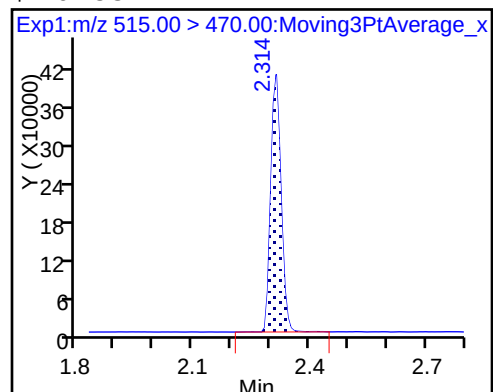
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173118/11 Calibration Date: 07/08/2017 15:09
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8200		122	133	-8.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.001		14.2	14.9	-4.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.389		45.0	45.1	-0.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9330		30.3	30.0	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.052		61.7	60.0	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8144		28.6	28.9	-1.2	30.0
13C2 PFHxA	Ave	1.136	1.193		10.5	10.0	5.0	30.0
13C2 PFDA	Ave	0.8395	0.8307		9.89	10.0	-1.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173119/11 Calibration Date: 07/08/2017 15:09
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8200		122	133	-8.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.001		14.2	14.9	-4.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.389		45.0	45.1	-0.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9330		30.3	30.0	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.052		61.7	60.0	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8144		28.6	28.9	-1.2	30.0
13C2 PFHxA	Ave	1.136	1.193		10.5	10.0	5.0	30.0
13C2 PFDA	Ave	0.8395	0.8307		9.89	10.0	-1.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_048.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 15:09:09 ALS Bottle#: 5 Worklist Smp#: 11
 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\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:40:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	10909252	121.9		3517	
298.90 > 99.00	1.426	1.404	0.022	1.000	9240770		1.18(0.00-0.00)	3702	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1013052	10.5		5590	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	1262481	14.2		228	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	6289341	45.0		2423	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		849324	10.0		3739	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	2374838	30.3		200	
413.00 > 169.00	1.927	1.879	0.048	1.000	1557779		1.52(0.00-0.00)	2264	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2879308	28.7		4322	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	1998301	28.6		262	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	6344543	61.7		5075	
499.00 > 99.00	2.162	2.147	0.015	1.000	1413497		4.49(0.00-0.00)	2294	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	705499	9.89		1407	

Reagents:

LC537-L5_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_048.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 15:09:09 ALS Bottle#: 5 Worklist Smp#: 11
 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\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:40:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	10909252	121.9		3517	
298.90 > 99.00	1.426	1.404	0.022	1.000	9240770		1.18(0.00-0.00)	3702	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1013052	10.5		5590	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	1262481	14.2		228	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	6289341	45.0		2423	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		849324	10.0		3739	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	2374838	30.3		200	
413.00 > 169.00	1.927	1.879	0.048	1.000	1557779		1.52(0.00-0.00)	2264	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2879308	28.7		4322	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	1998301	28.6		262	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	6344543	61.7		5075	
499.00 > 99.00	2.162	2.147	0.015	1.000	1413497		4.49(0.00-0.00)	2294	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	705499	9.89		1407	

Reagents:

LC537-L5_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_048.d

Injection Date: 08-Jul-2017 15:09:09

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

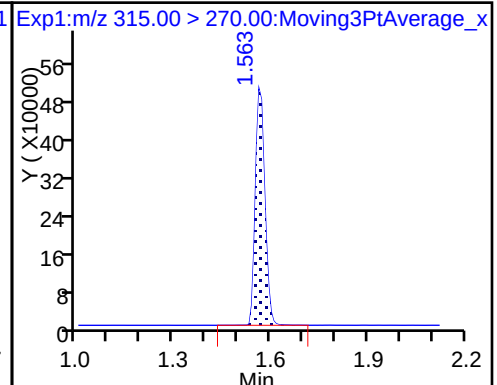
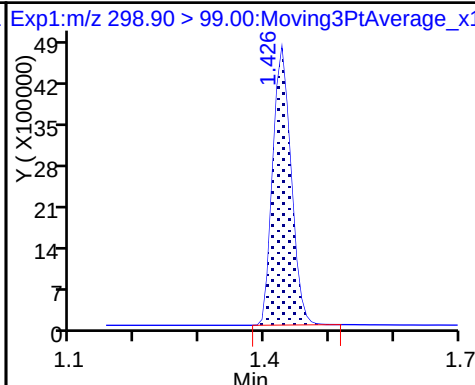
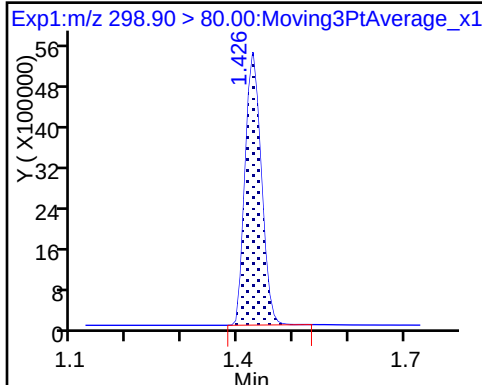
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

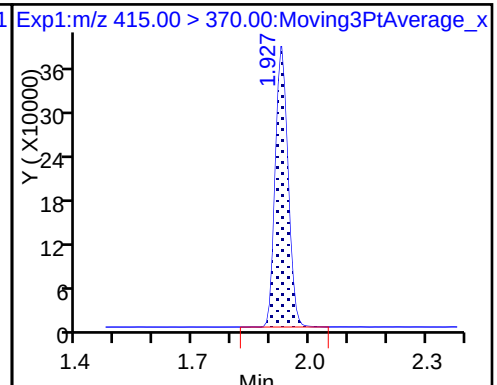
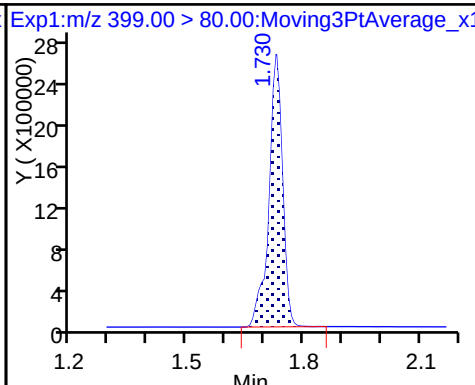
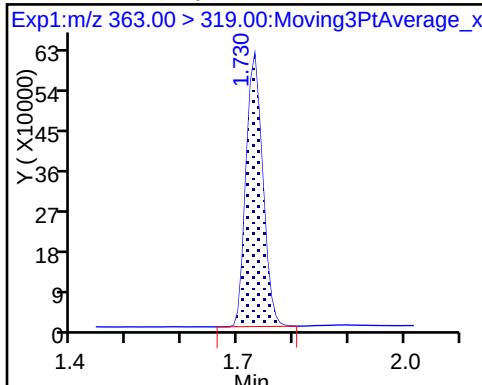
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

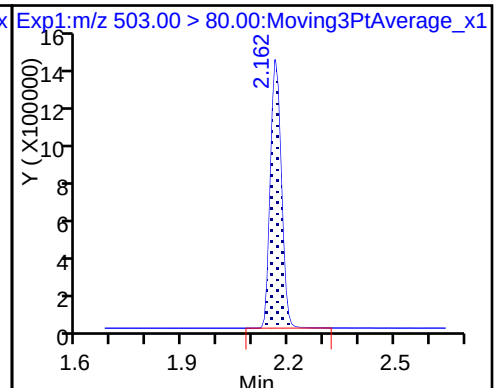
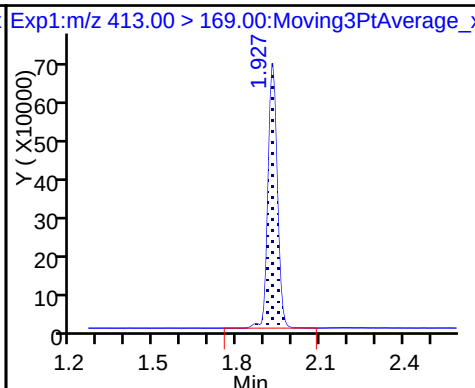
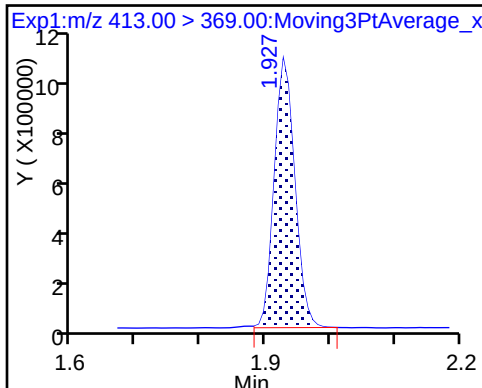
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

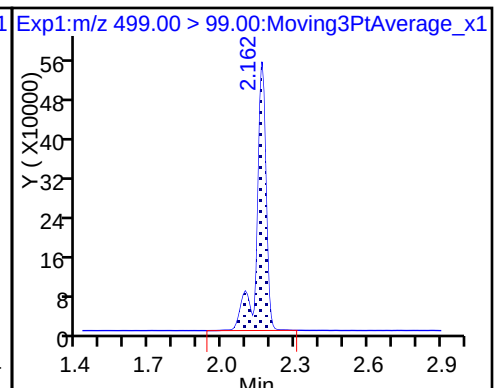
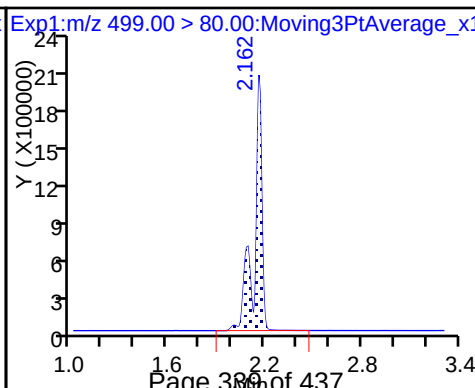
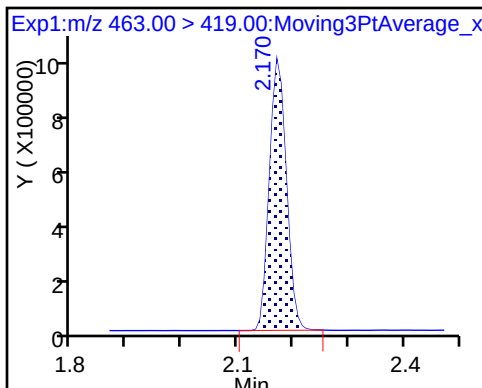
* 7 13C4 PFOS



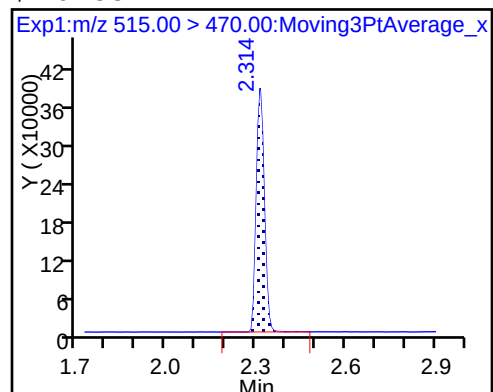
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_048.d

Injection Date: 08-Jul-2017 15:09:09

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

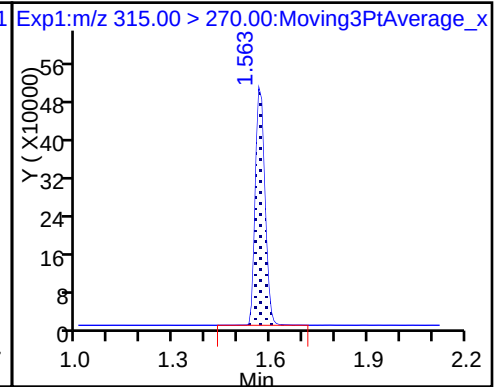
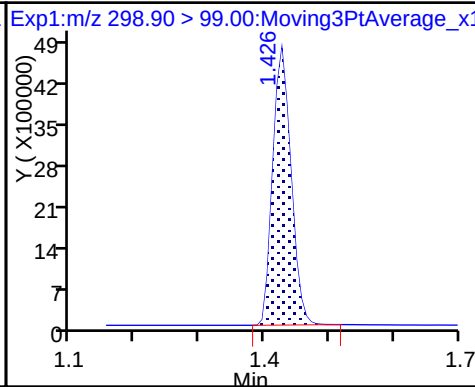
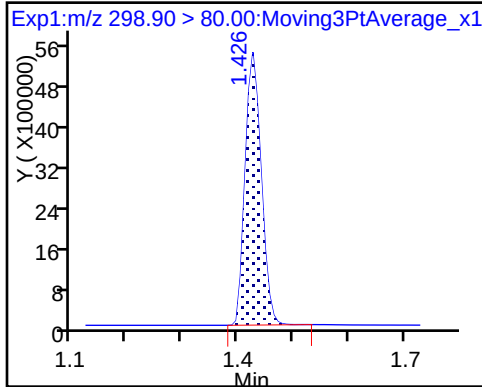
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

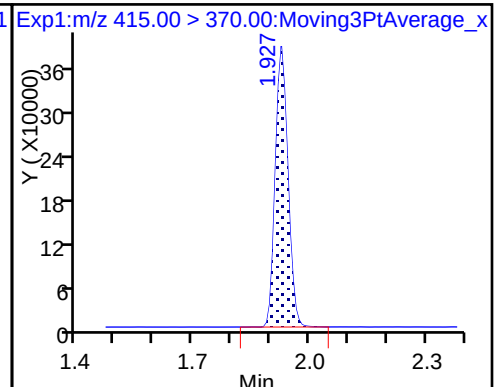
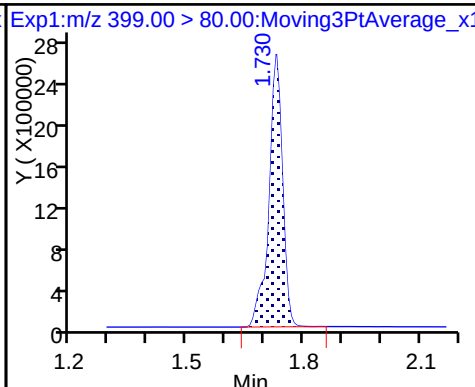
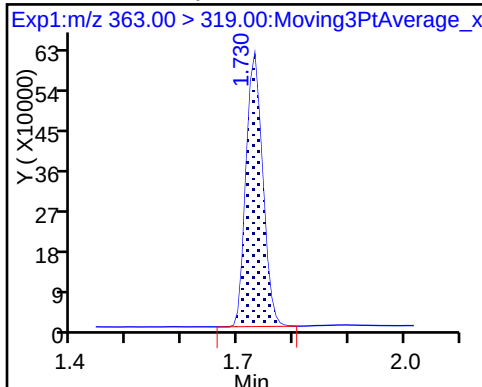
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

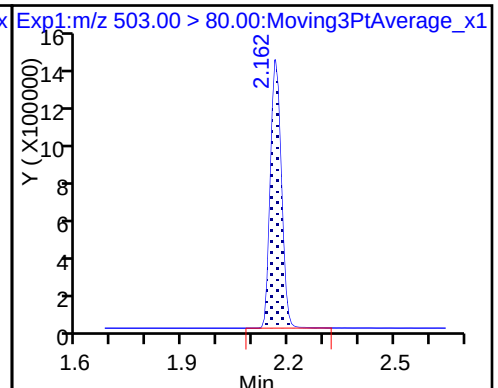
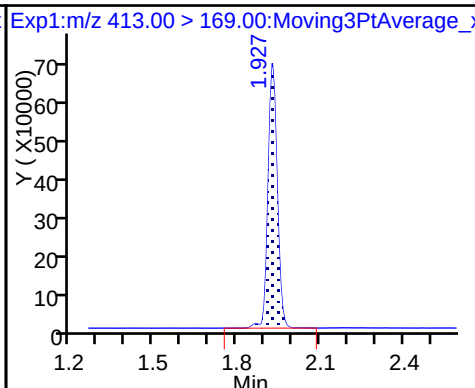
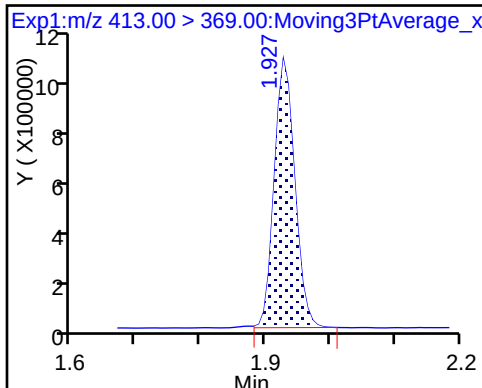
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

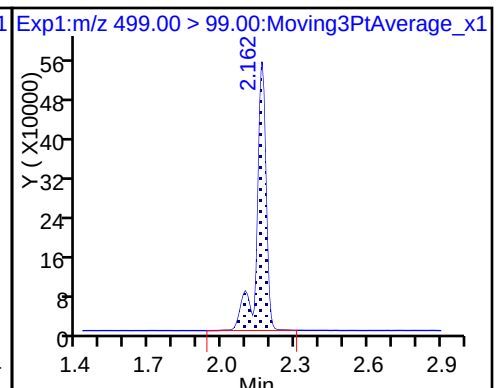
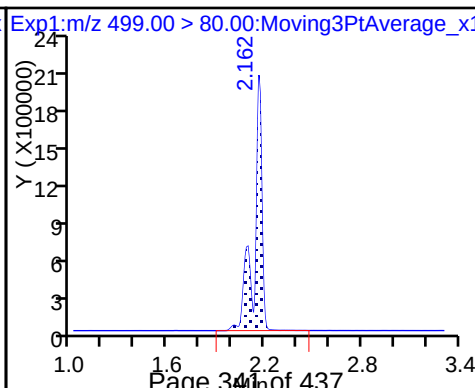
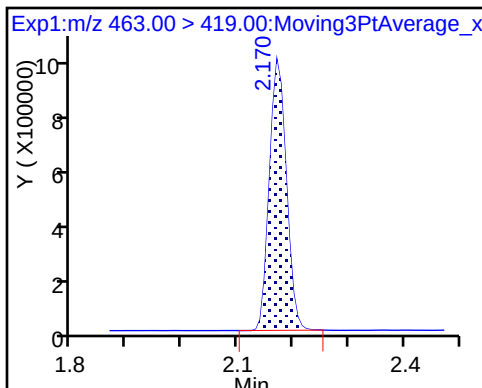
* 7 13C4 PFOS



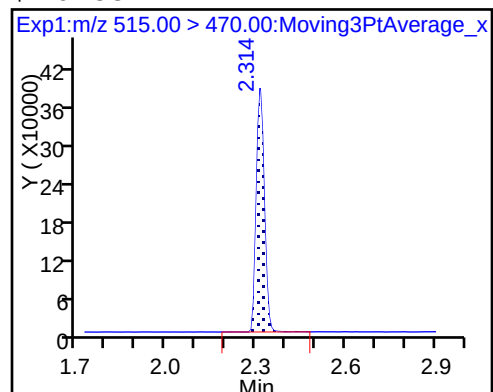
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173119/23 Calibration Date: 07/08/2017 16:06
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_060.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9068		45.2	44.4	1.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.069		5.09	4.97	2.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.296		14.1	15.1	-7.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.8767		9.55	10.0	-4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9916		19.5	20.1	-3.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8343		9.80	9.68	1.2	30.0
13C2 PFHxA	Ave	1.136	1.252		11.0	10.0	10.2	30.0
13C2 PFDA	Ave	0.8395	0.8420		10.0	10.0	0.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173120/23 Calibration Date: 07/08/2017 16:06
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_060.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9068		45.2	44.4	1.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.069		5.09	4.97	2.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.296		14.1	15.1	-7.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.8767		9.55	10.0	-4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9916		19.5	20.1	-3.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8343		9.80	9.68	1.2	30.0
13C2 PFHxA	Ave	1.136	1.252		11.0	10.0	10.2	30.0
13C2 PFDA	Ave	0.8395	0.8420		10.0	10.0	0.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 16:06:04 ALS Bottle#: 3 Worklist Smp#: 23
 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\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:40:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	4026710	45.2		2602	
298.90 > 99.00	1.426	1.404	0.022	1.000	3218146		1.25(0.00-0.00)	2267	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1018766	11.0		6674	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.691	0.031	1.000	432877	5.09		81.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1958824	14.1		844	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.878	0.042		813808	10.0		3938	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.879	0.041	1.000	716281	9.55		65.6	
413.00 > 169.00	1.920	1.879	0.041	1.000	485721		1.47(0.00-0.00)	776	
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.117	0.038		2869074	28.7		4324	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.124	0.038	1.000	657128	9.80		92.8	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	1995586	19.5		2293	M
499.00 > 99.00	2.155	2.147	0.008	1.000	433968		4.60(0.00-0.00)	864	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.281	0.025	1.000	685254	10.0		1390	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 16:06:04 ALS Bottle#: 3 Worklist Smp#: 23
 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\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:40:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	4026710	45.2		2602	
298.90 > 99.00	1.426	1.404	0.022	1.000	3218146		1.25(0.00-0.00)	2267	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	1018766	11.0		6674	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.691	0.031	1.000	432877	5.09		81.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1958824	14.1		844	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.878	0.042		813808	10.0		3938	
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413.00 > 369.00	1.920	1.879	0.041	1.000	716281	9.55		65.6	
413.00 > 169.00	1.920	1.879	0.041	1.000	485721		1.47(0.00-0.00)	776	
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.117	0.038		2869074	28.7		4324	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.124	0.038	1.000	657128	9.80		92.8	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	1995586	19.5		2293	M
499.00 > 99.00	2.155	2.147	0.008	1.000	433968		4.60(0.00-0.00)	864	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.281	0.025	1.000	685254	10.0		1390	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00022

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d

Injection Date: 08-Jul-2017 16:06:04

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

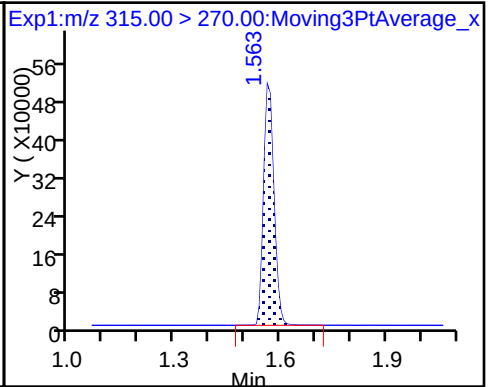
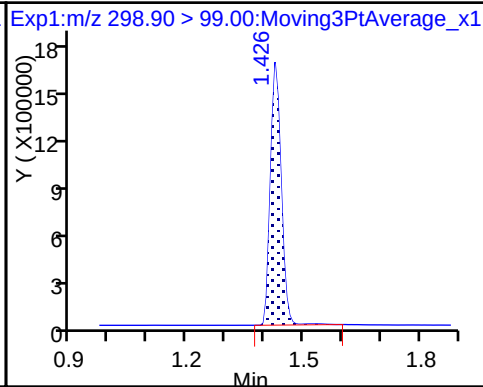
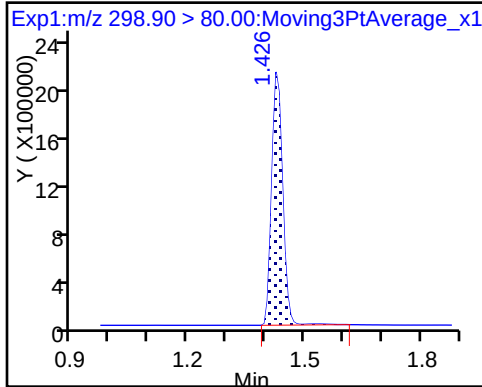
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

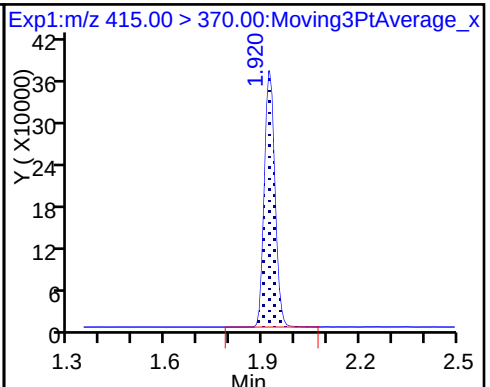
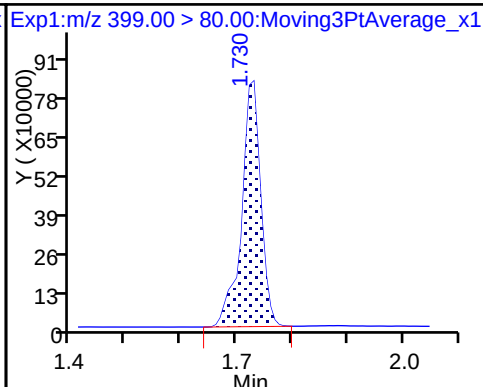
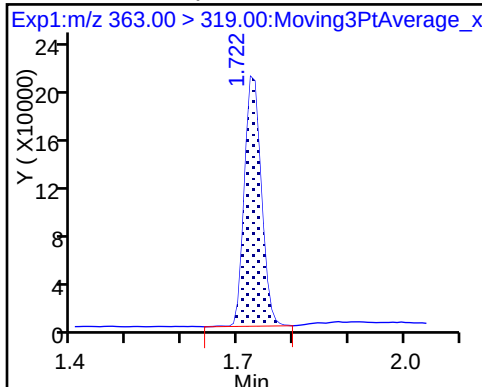
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

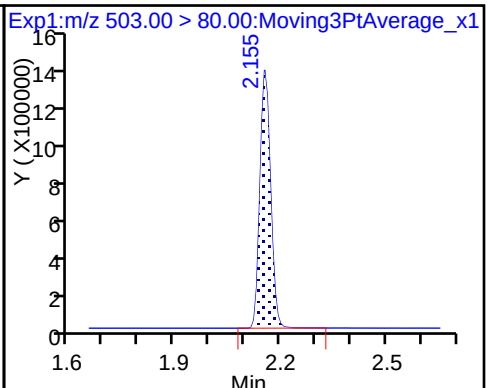
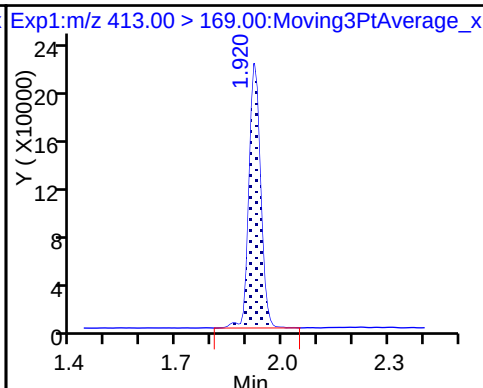
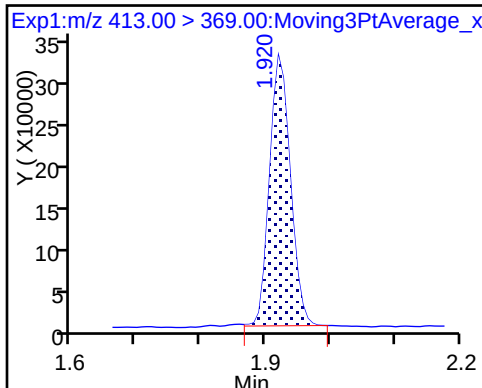
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

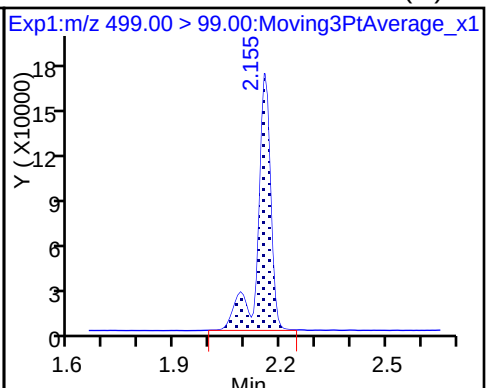
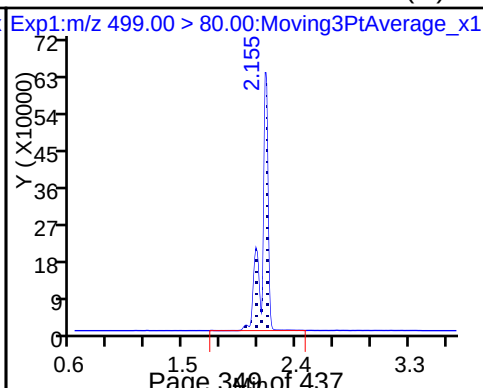
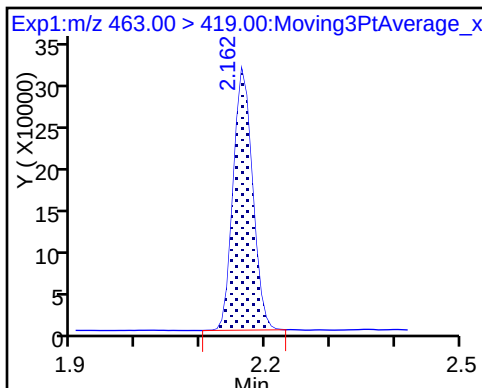
* 7 13C4 PFOS



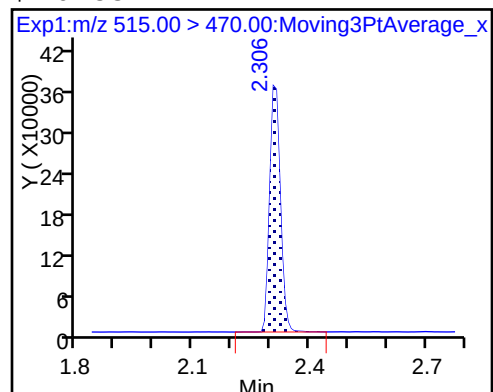
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d

Injection Date: 08-Jul-2017 16:06:04

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

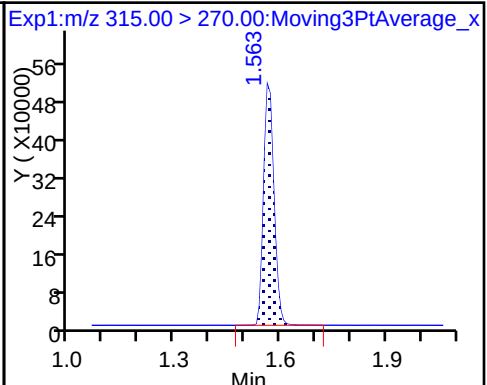
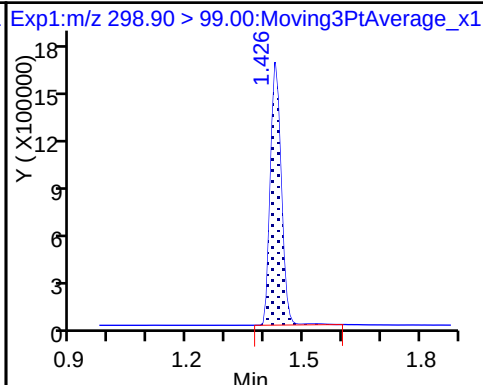
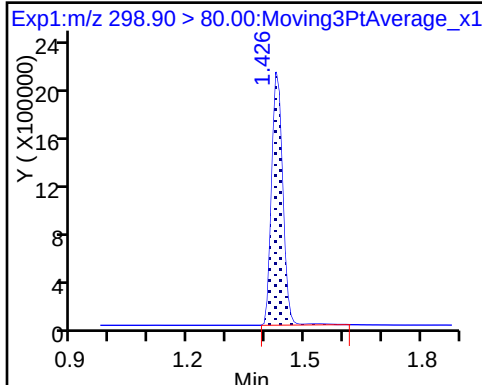
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

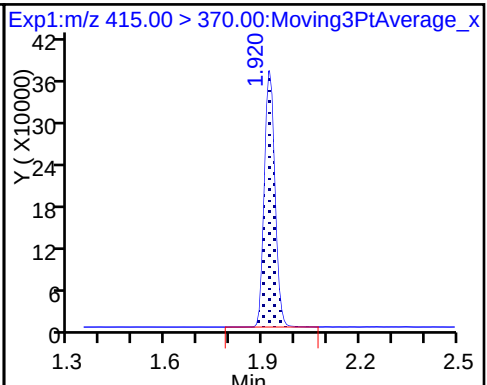
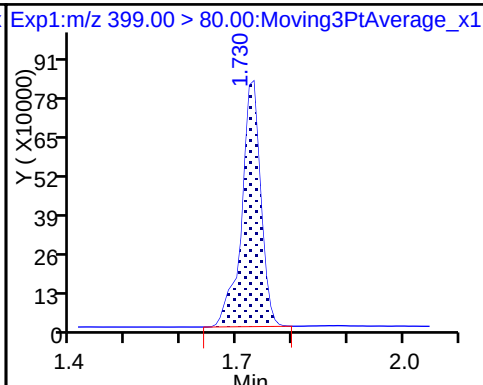
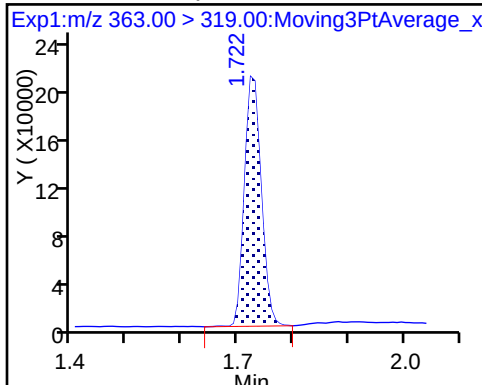
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

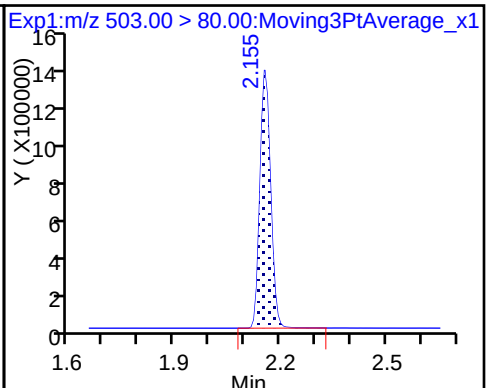
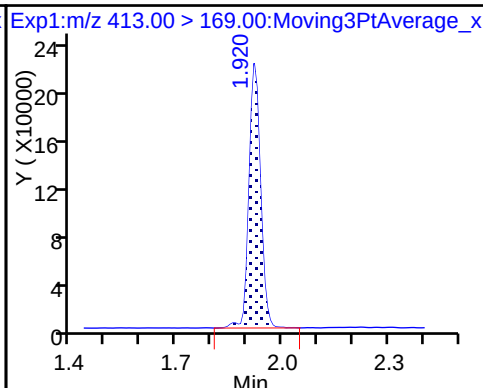
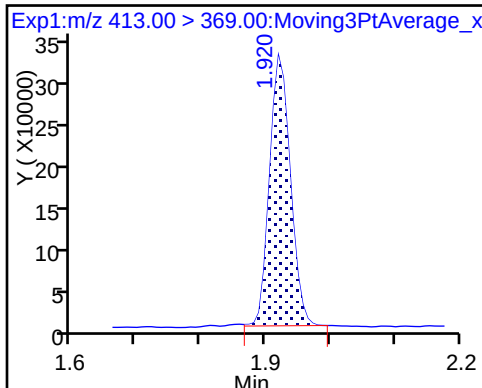
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

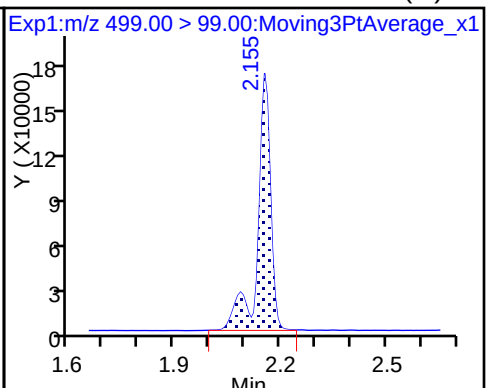
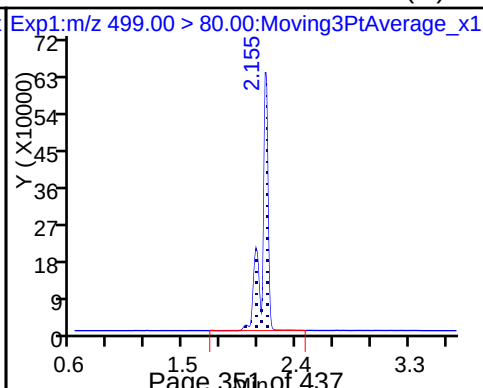
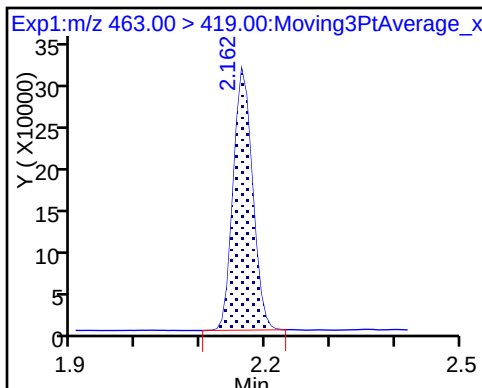
* 7 13C4 PFOS



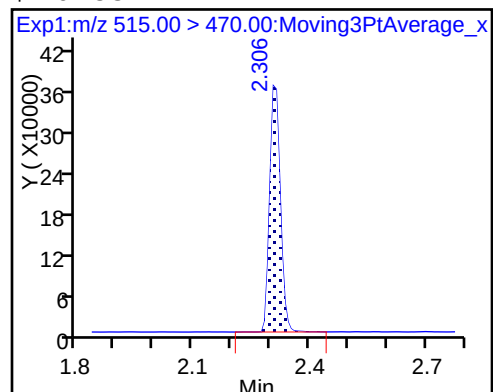
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento

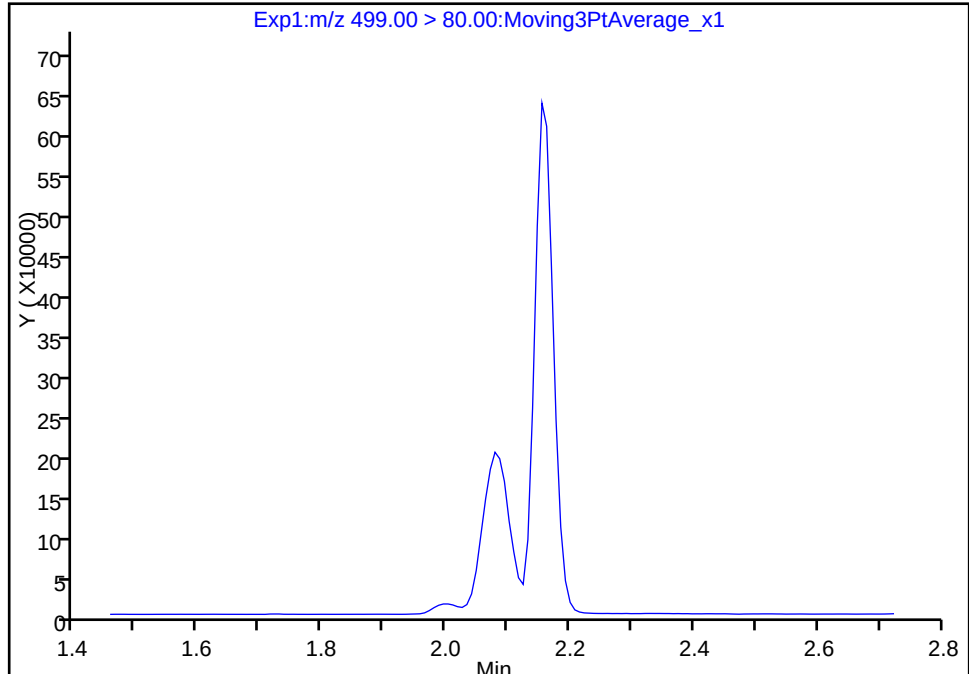
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Injection Date: 08-Jul-2017 16:06:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

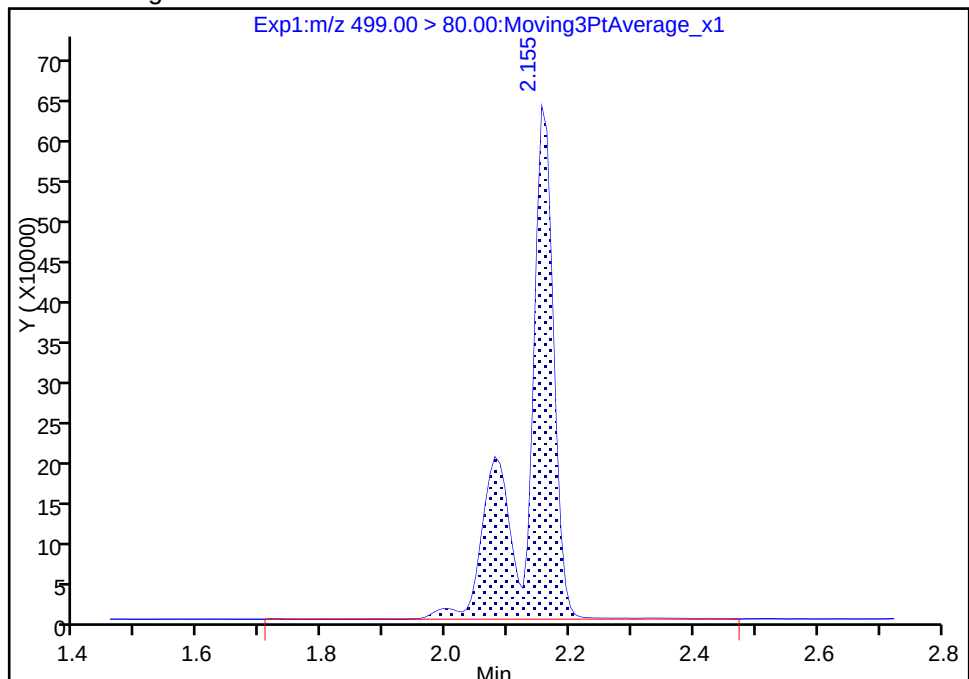
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.15
Area: 1995586
Amount: 19.478746
Amount Units: ng/ml

TestAmerica Sacramento

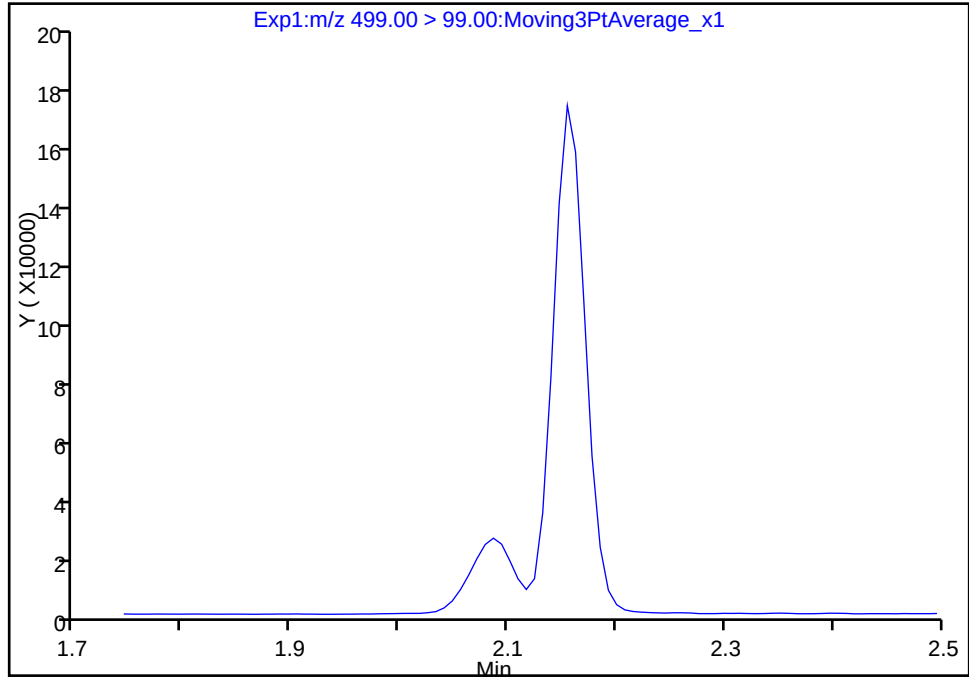
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d
Injection Date: 08-Jul-2017 16:06:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

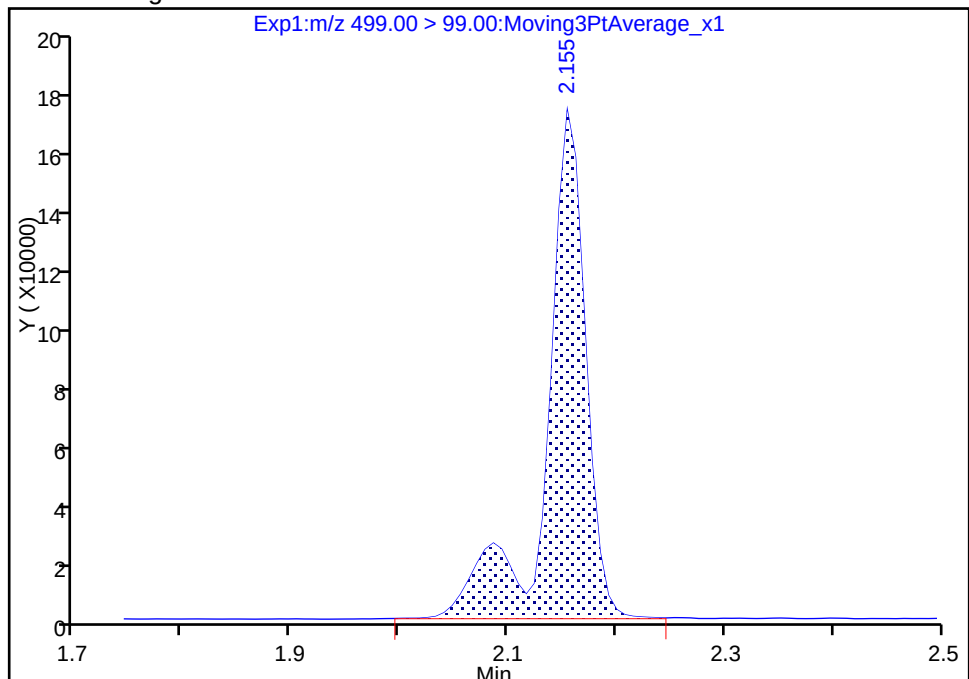
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 433968
Amount: 19.478746
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:40:40

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

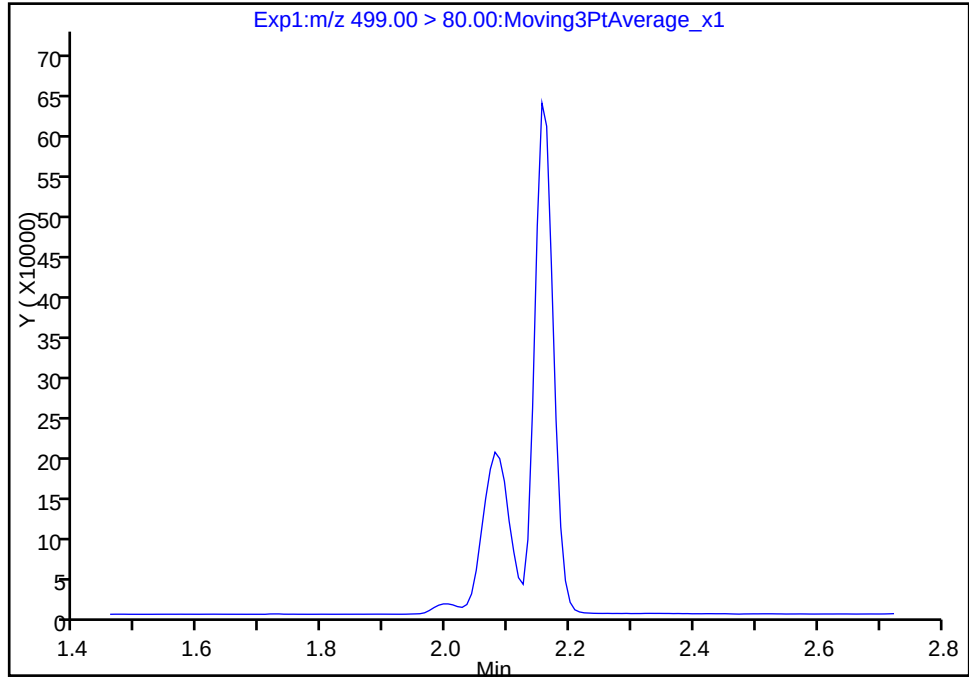
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d
Injection Date: 08-Jul-2017 16:06:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

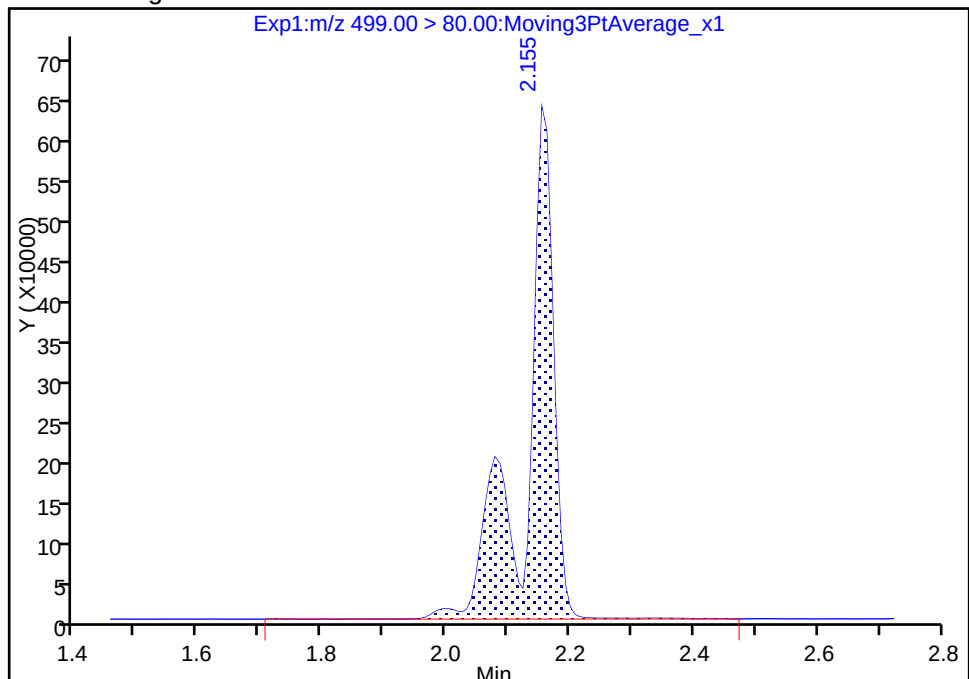
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1995586
Amount: 19.478746
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:40:40

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

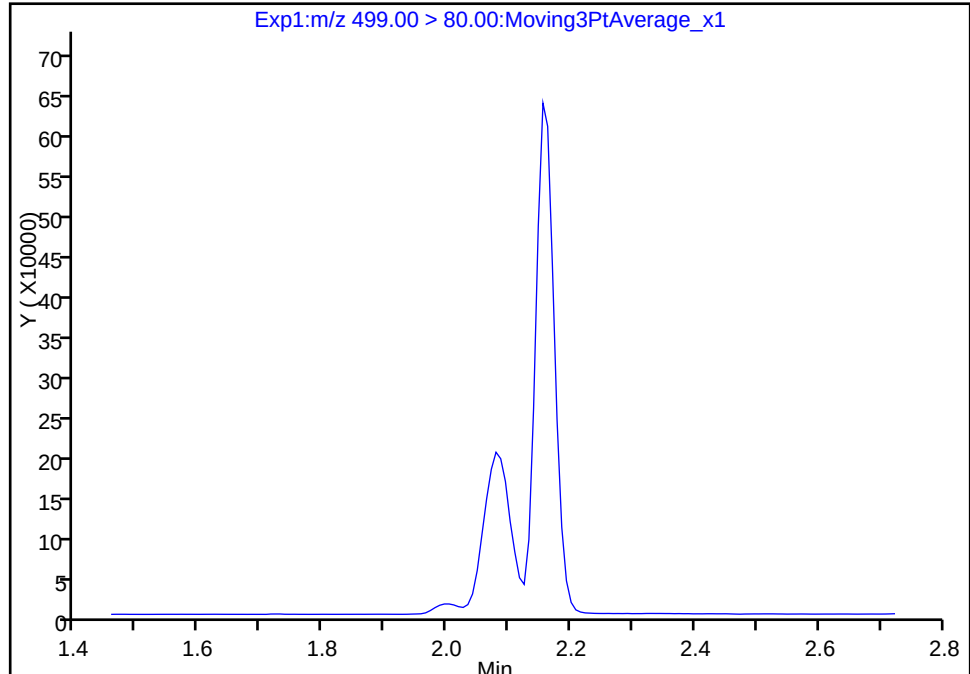
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Injection Date: 08-Jul-2017 16:06:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

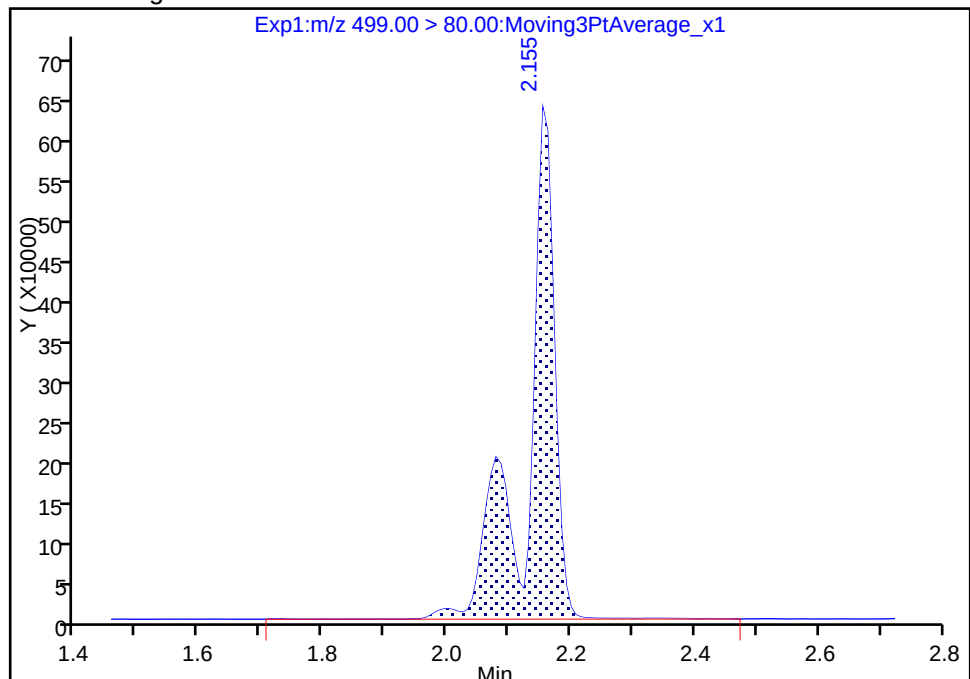
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.15
Area: 1995586
Amount: 19.478746
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 10:40:25

Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

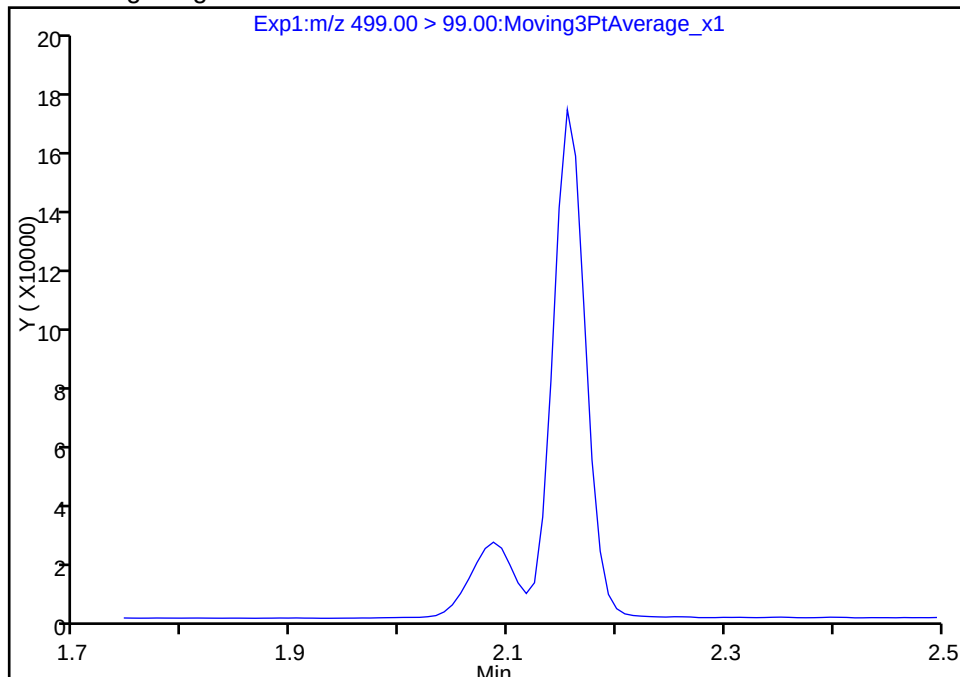
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d
Injection Date: 08-Jul-2017 16:06:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

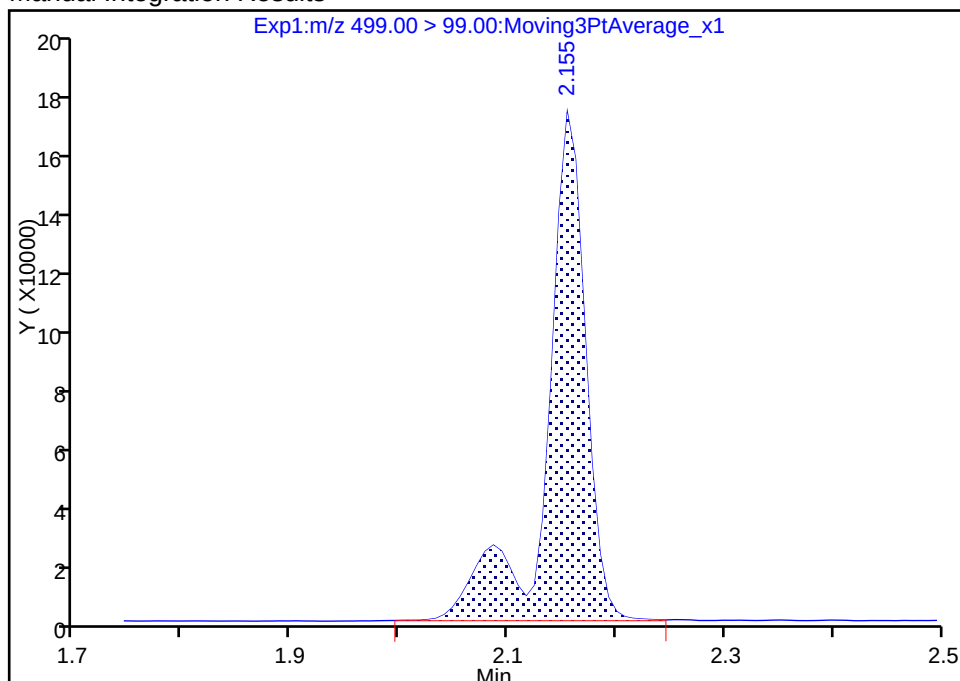
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 433968
Amount: 19.478746
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:40:40

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

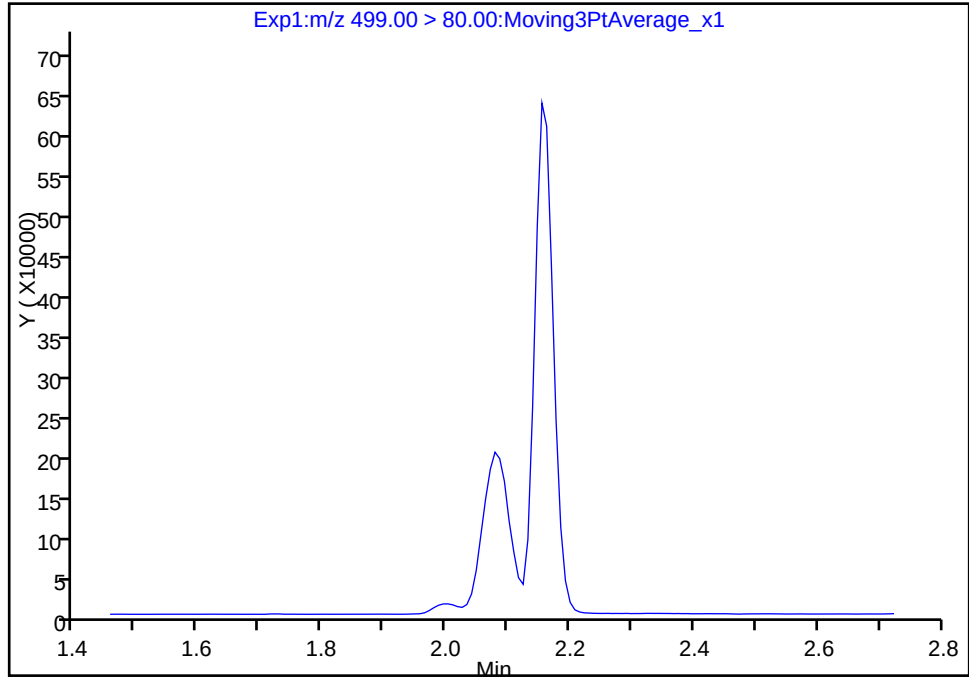
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_060.d
Injection Date: 08-Jul-2017 16:06:04 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

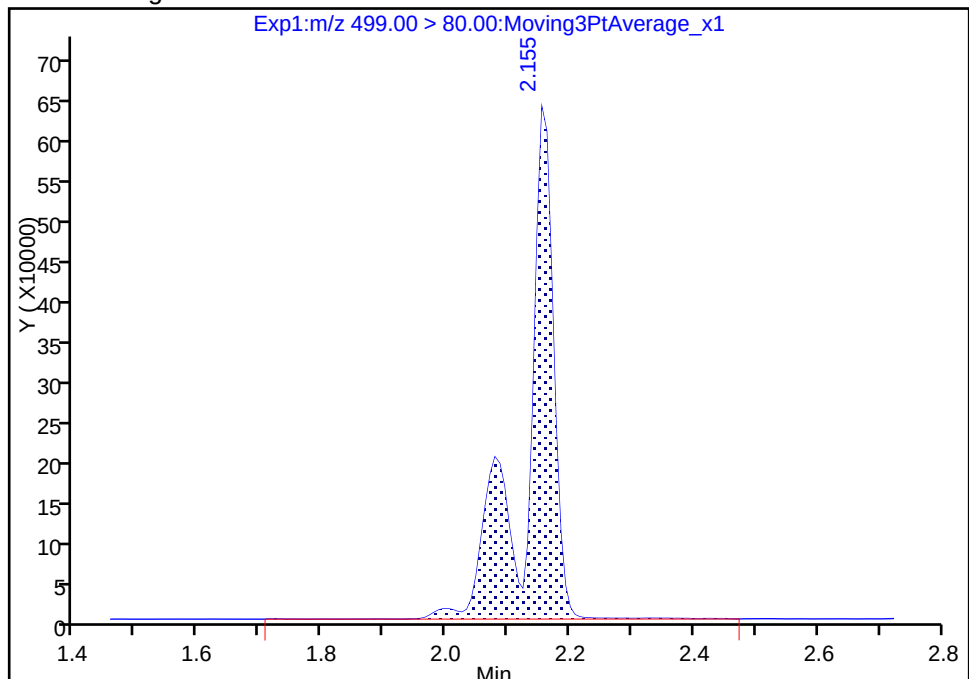
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1995586
Amount: 19.478746
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:40:40

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173120/31 Calibration Date: 07/08/2017 16:44
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_068.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8052		120	133	-9.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.055		15.0	14.9	0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.368		44.3	45.1	-1.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9210		29.9	30.0	-0.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.037		60.8	60.0	1.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.7941		27.8	28.9	-3.6	30.0
13C2 PFHxA	Ave	1.136	1.250		11.0	10.0	10.1	30.0
13C2 PFDA	Ave	0.8395	0.8122		9.67	10.0	-3.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_068.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Jul-2017 16:44:02 ALS Bottle#: 5 Worklist Smp#: 31
 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\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:50 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d

Column 1 : Det: EXP1

Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:06:27

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.404	0.015	1.000	10316994	119.7		4155	
298.90 > 99.00	1.419	1.404	0.015	1.000	8544817		1.21(0.00-0.00)	4119	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.539	0.016	1.000	992298	11.0		6041	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.691	0.024	1.000	1243108	15.0		250	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.692	0.030	1.000	5963582	44.3		2666	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.878	0.034		793606	10.0		4186	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.879	0.033	1.000	2190431	29.9		203	
413.00 > 169.00	1.912	1.879	0.033	1.000	1493731		1.47(0.00-0.00)	2311	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.117	0.030		2772993	28.7		4293	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.124	0.031	1.000	1820729	27.8		185	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	6019018	60.8		5026	
499.00 > 99.00	2.147	2.147	0.0	1.000	1344547		4.48(0.00-0.00)	2359	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.281	0.025	1.000	644536	9.67		1403	

Reagents:

LC537-L5_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_068.d

Injection Date: 08-Jul-2017 16:44:02

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

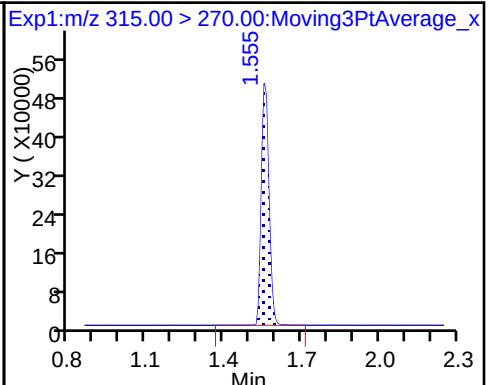
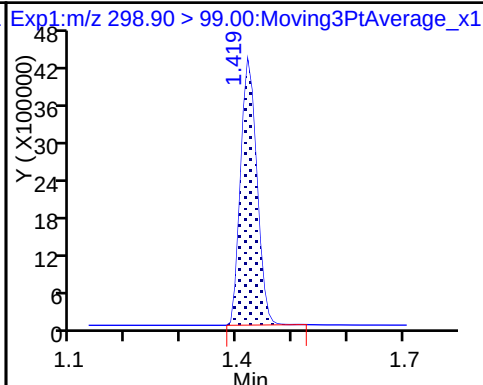
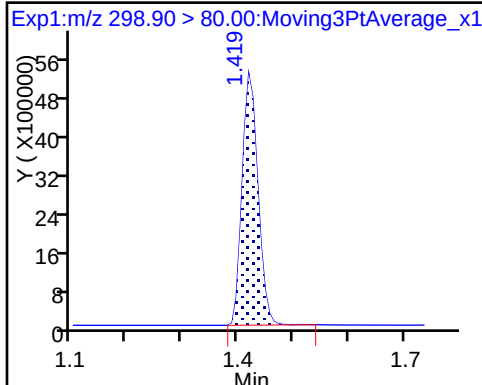
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

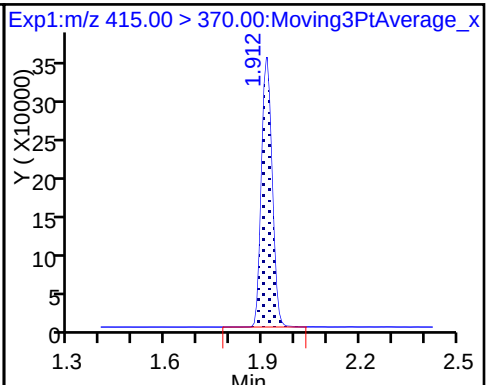
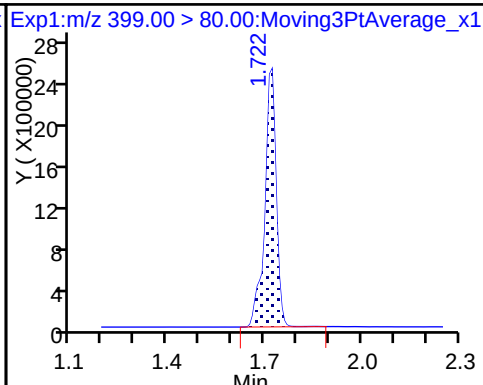
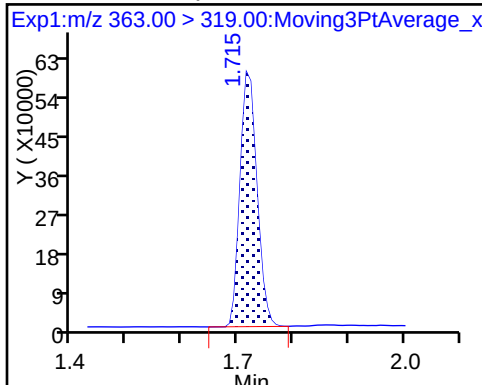
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

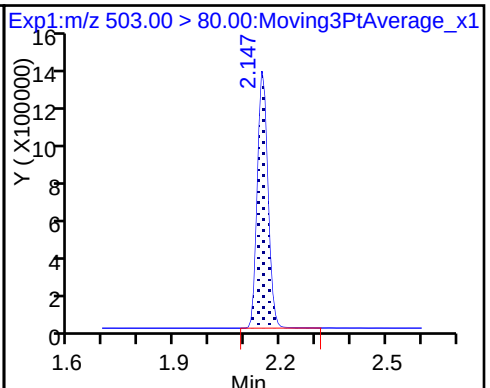
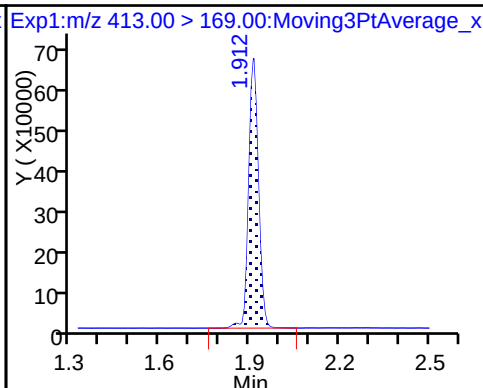
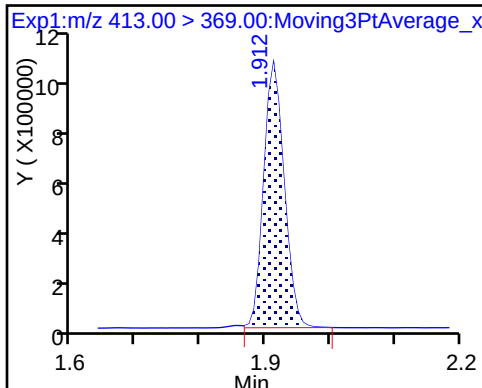
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

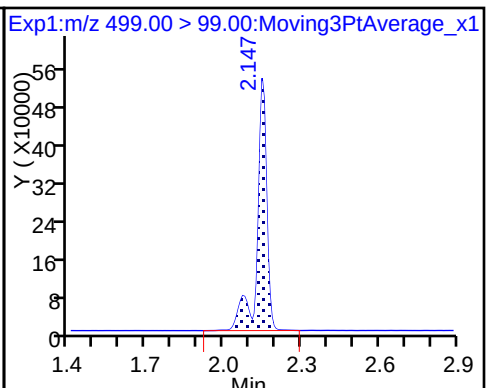
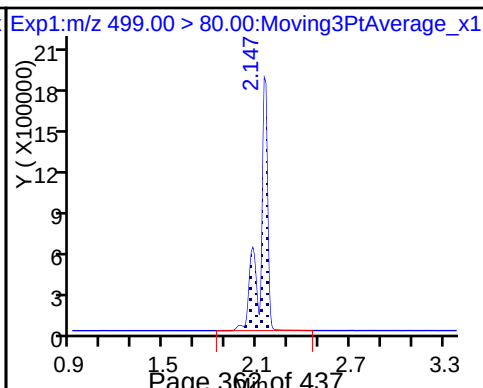
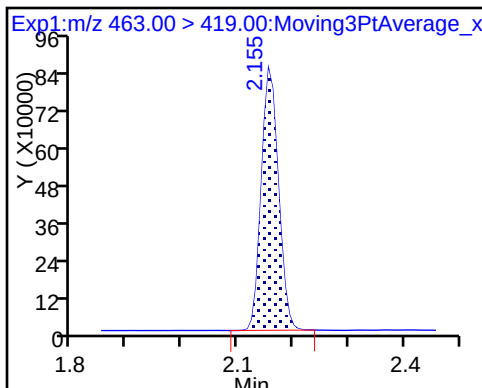
* 7 13C4 PFOS



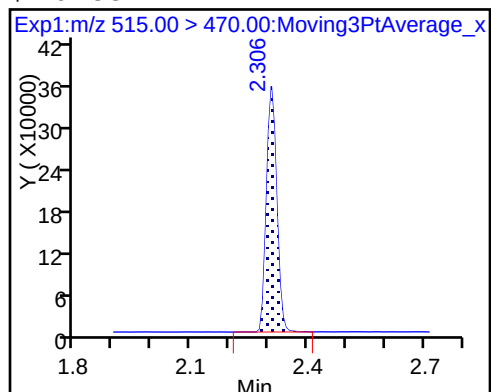
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-171856/1-A
 Matrix: Water Lab File ID: 2017.07.08_537A_040.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 14:31
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173118 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	96		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_040.d
 Lims ID: MB 320-171856/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 08-Jul-2017 14:31:13 ALS Bottle#: 28 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-171856/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:39:17

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.571 1.539 0.031 1.000 961883 9.57 5686

* 6 13C2-PFOA

415.00 > 370.00 1.935 1.878 0.057 884557 10.0 3855

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2856148 28.7 4043

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 673932 9.08 1379

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_040.d

Injection Date: 08-Jul-2017 14:31:13

Instrument ID: A8_N

Lims ID: MB 320-171856/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

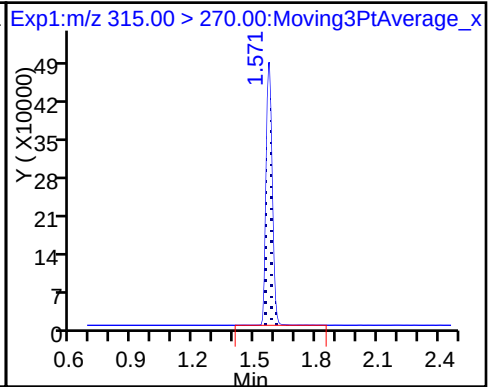
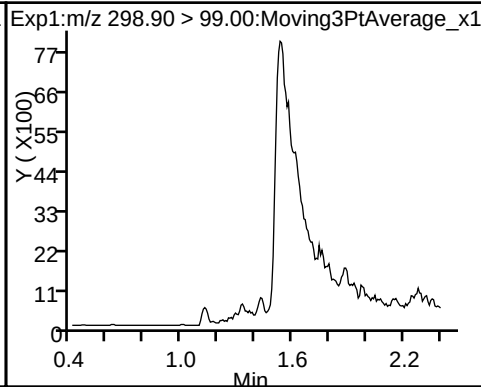
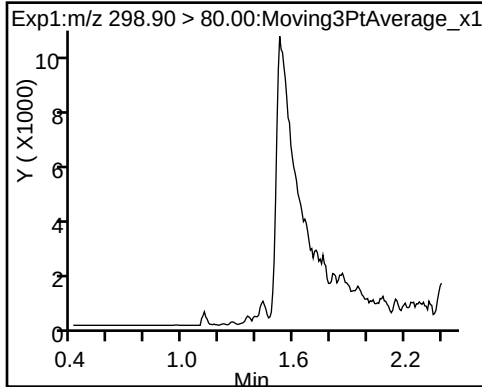
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

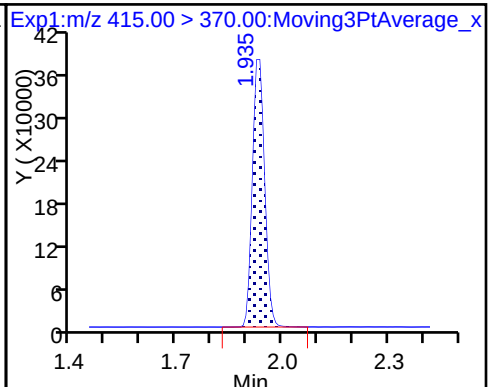
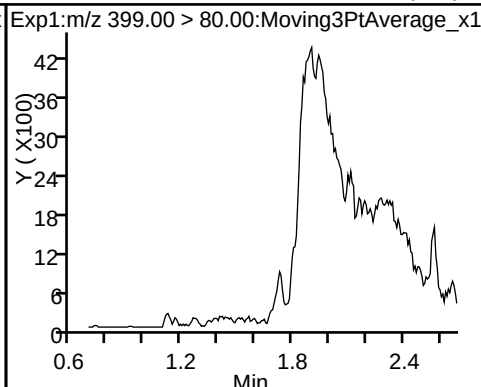
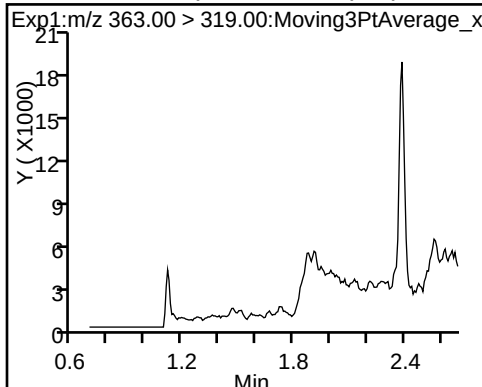
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

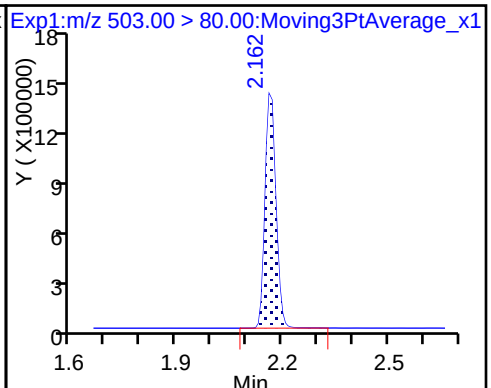
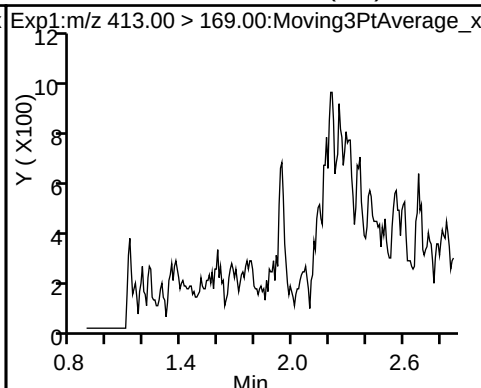
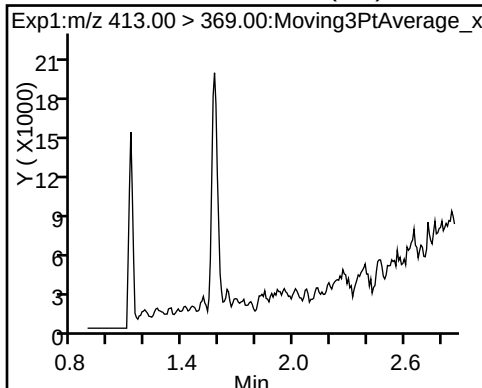
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

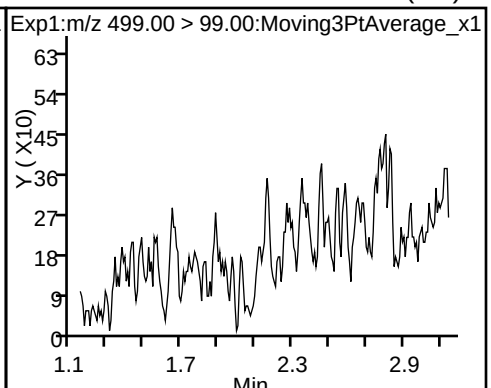
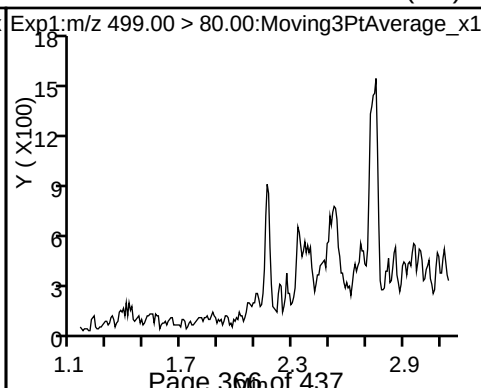
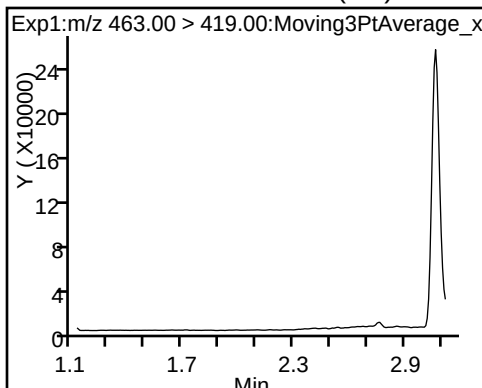
* 7 13C4 PFOS



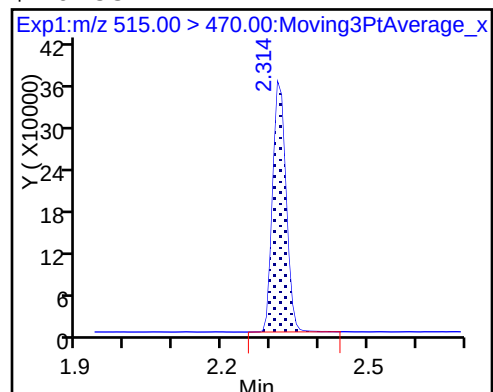
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_040.d
Lims ID: MB 320-171856/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Jul-2017 14:31:13 ALS Bottle#: 28 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-171856/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:39:17

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.57	95.71
\$ 10 13C2 PFDA	10.0	9.08	90.75

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-171866/1-A
 Matrix: Water Lab File ID: 2017.07.08_537A_033.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 06/30/2017 09:34
 Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 13:58
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173117 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_033.d
 Lims ID: MB 320-171866/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 08-Jul-2017 13:58:00 ALS Bottle#: 23 Worklist Smp#: 33
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-171866/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:11:48

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags

\$ 2 13C2 PFHxA

315.00 > 270.00 1.563 1.539 0.024 1.000 986293 9.55 5457

* 6 13C2-PFOA

415.00 > 370.00 1.927 1.878 0.049 909159 10.0 3266

* 7 13C4 PFOS

503.00 > 80.00 2.162 2.117 0.045 2877414 28.7 3960

\$ 10 13C2 PFDA

515.00 > 470.00 2.314 2.281 0.033 1.000 704433 9.23 1491

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_033.d

Injection Date: 08-Jul-2017 13:58:00

Instrument ID: A8_N

Lims ID: MB 320-171866/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 33

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

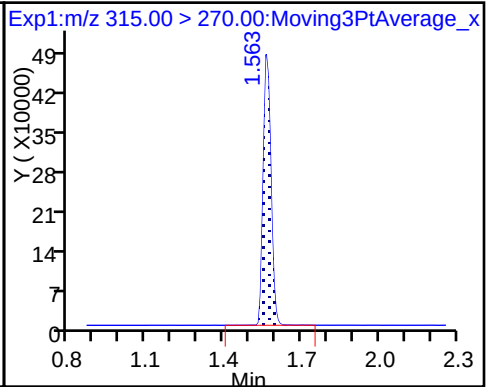
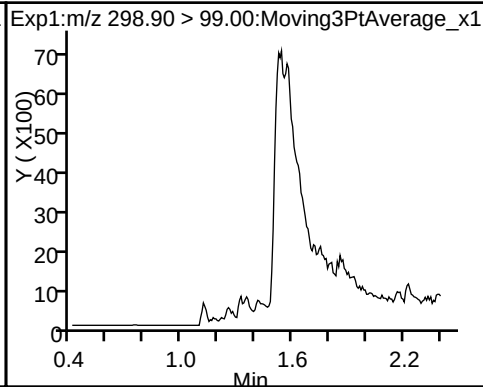
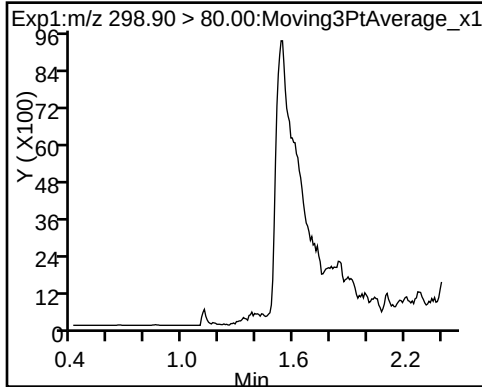
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

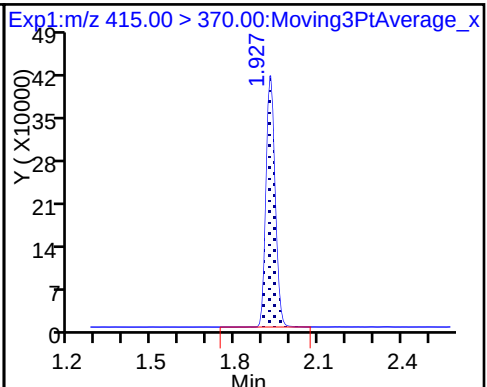
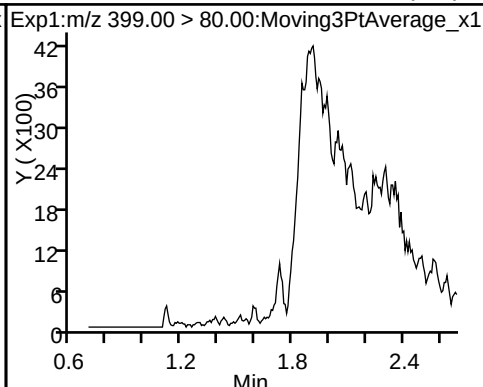
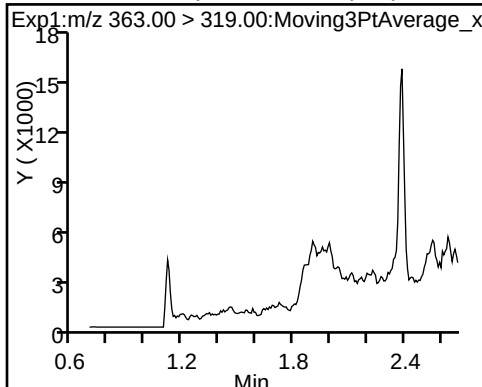
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

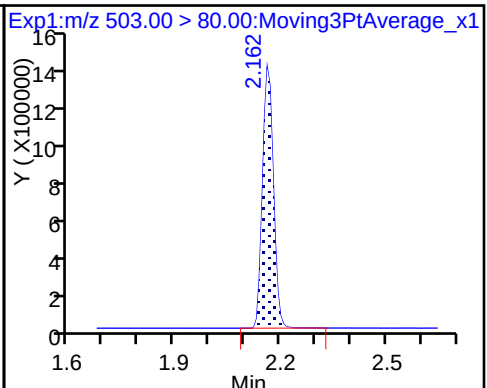
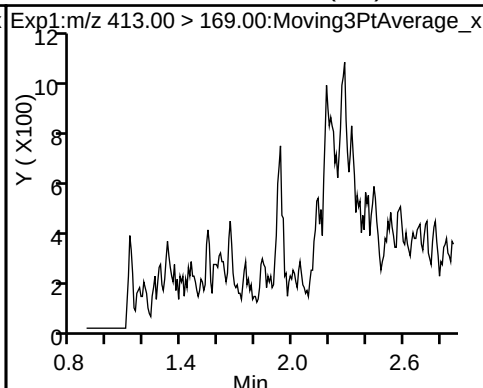
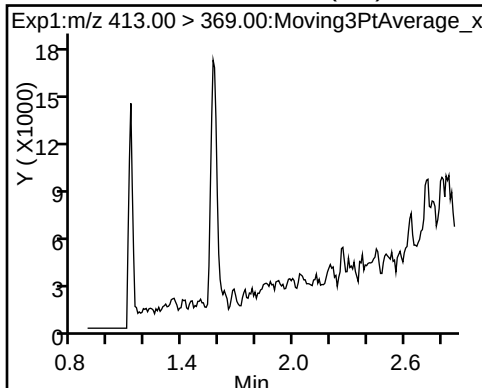
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

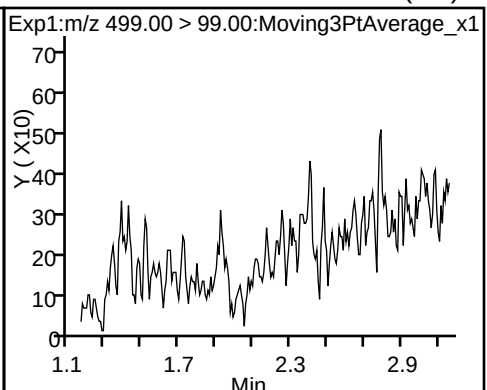
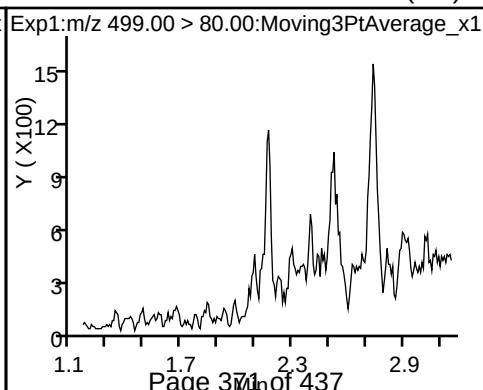
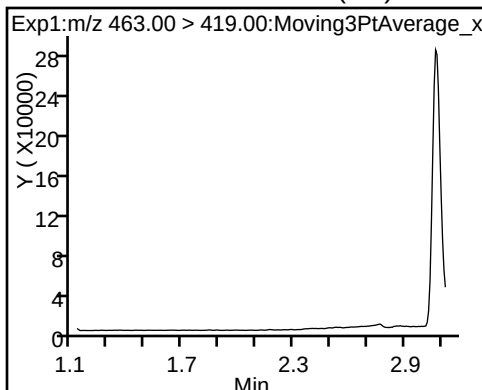
* 7 13C4 PFOS



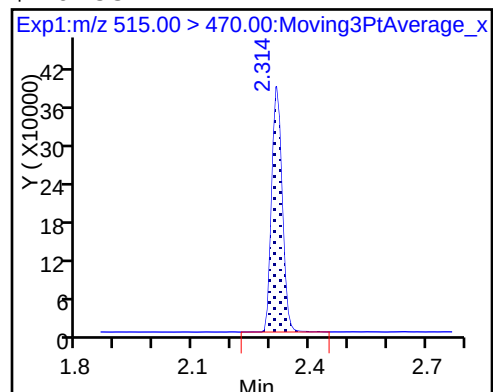
9 Perfluorononanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_033.d
Lims ID: MB 320-171866/1-A
Client ID:
Sample Type: MB
Inject. Date: 08-Jul-2017 13:58:00 ALS Bottle#: 23 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-171866/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:11:48

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.55	95.48
\$ 10 13C2 PFDA	10.0	9.23	92.29

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: LCS 320-171856/2-A

Matrix: Water Lab File ID: 2017.07.08_537A_041.d

Analysis Method: 537 Date Collected: _____

Extraction Method: 537 Date Extracted: 06/30/2017 09:25

Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 14:35

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

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

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

Analysis Batch No.: 173118 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	292		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	147		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	134		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	202		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	78.2		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	570		90	36	16

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_041.d
 Lims ID: LCS 320-171856/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 08-Jul-2017 14:35:58 ALS Bottle#: 29 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-171856/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:39:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	13100809	142.4		4038	
298.90 > 99.00	1.426	1.404	0.022	1.000	10528152		1.24(0.00-0.00)	3350	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	1003437	10.2		4947	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	1776227	19.6		300	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	7271729	50.6		3364	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		868743	10.0		3989	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	2948249	36.8		237	
413.00 > 169.00	1.927	1.879	0.048	1.000	1993525		1.48(0.00-0.00)	2520	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2960574	28.7		4337	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	2398072	33.5		106	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	7707201	72.9		6123	
499.00 > 99.00	2.162	2.147	0.015	1.000	1693568		4.55(0.00-0.00)	2220	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	710345	9.74		1686	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_041.d

Injection Date: 08-Jul-2017 14:35:58

Instrument ID: A8_N

Lims ID: LCS 320-171856/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

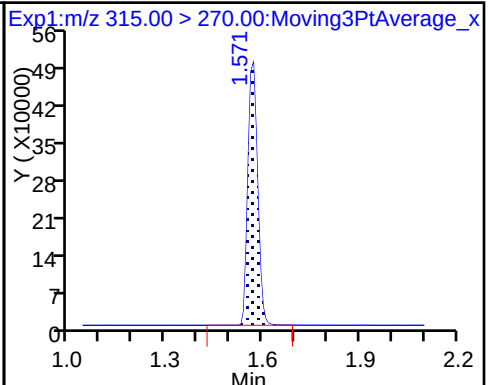
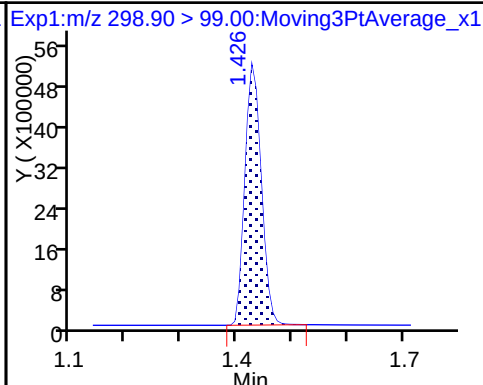
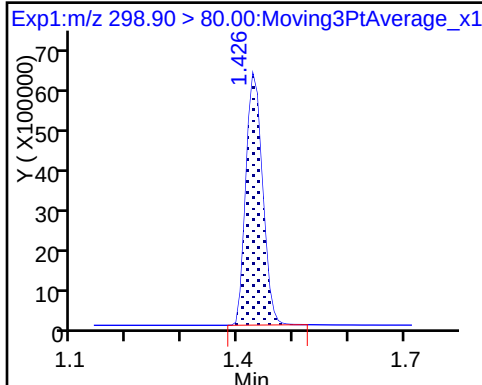
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

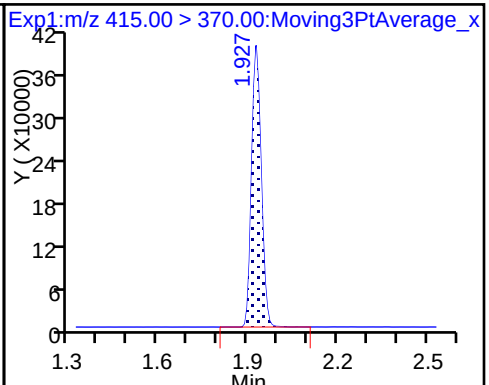
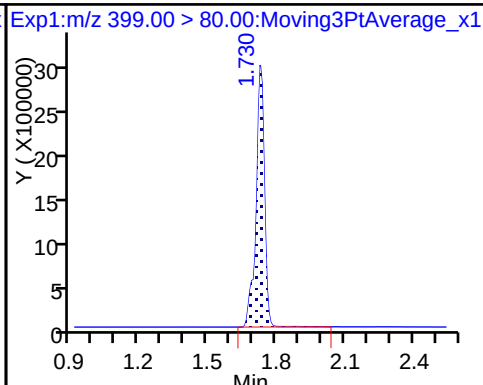
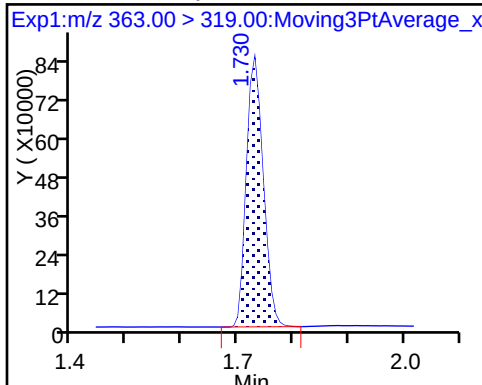
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

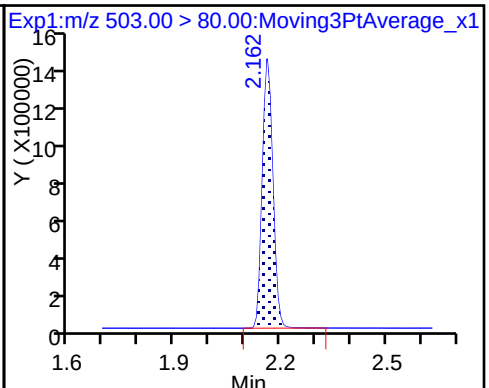
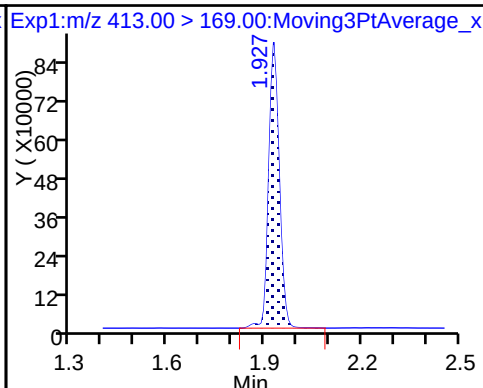
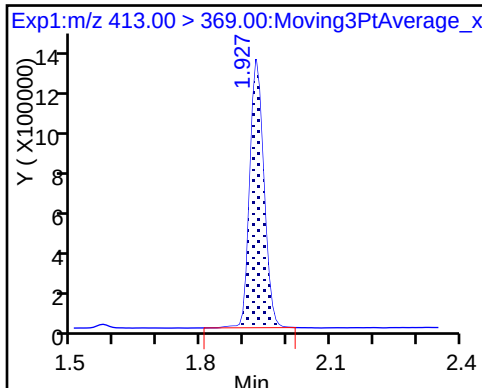
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

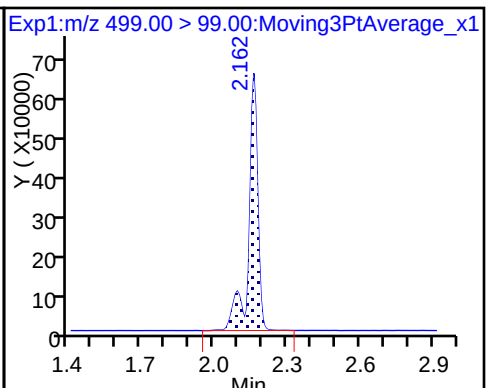
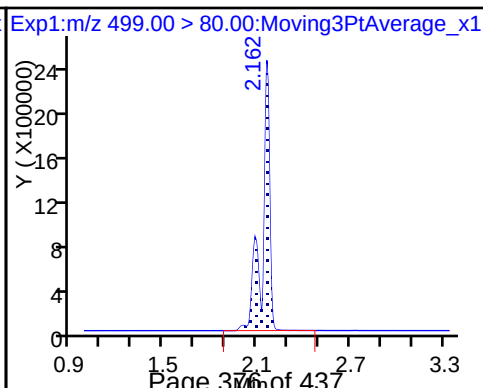
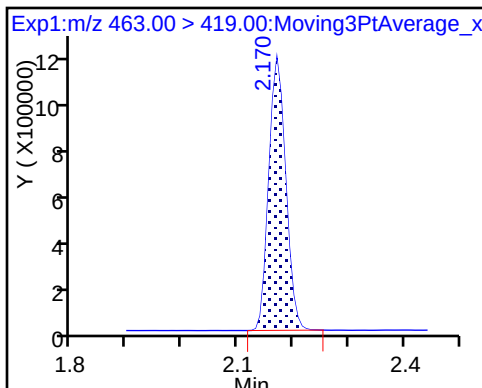
* 7 13C4 PFOS



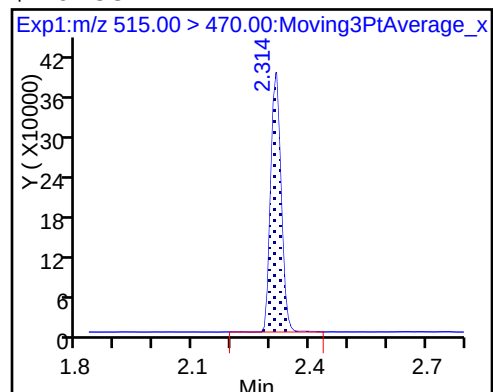
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_041.d
Lims ID: LCS 320-171856/2-A
Client ID:
Sample Type: LCS
Inject. Date: 08-Jul-2017 14:35:58 ALS Bottle#: 29 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-171856/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:06:42 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:39:51

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	101.66
\$ 10 13C2 PFDA	10.0	9.74	97.40

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCS 320-171866/2-A
 Matrix: Water Lab File ID: 2017.07.08_537A_034.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 06/30/2017 09:34
 Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 14:02
 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.: 173117 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	40.1		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20.2		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	19.7	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	28.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	10.9		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	89.2	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_034.d
 Lims ID: LLCS 320-171866/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 08-Jul-2017 14:02:44 ALS Bottle#: 24 Worklist Smp#: 34
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-171866/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:12:14

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.404	0.030	1.000	2064772	22.3		784	
298.90 > 99.00	1.426	1.404	0.022	0.995	1670515		1.24(0.00-0.00)	713	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.539	0.031	1.000	1049459	10.4		5671	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	253492	2.73		44.0	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1047364	7.23		429	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		886884	10.0		3726	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	411872	5.04		34.6	
413.00 > 169.00	1.927	1.879	0.048	1.000	281982		1.46(0.00-0.00)	388	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2980404	28.7		4156	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	359728	4.92		14.2	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.162	0.008	1.000	1065753	10.0		1170	
499.00 > 99.00	2.162	2.162	0.0	0.996	245442		4.34(0.00-0.00)	435	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	706149	9.48		1449	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_034.d

Injection Date: 08-Jul-2017 14:02:44

Instrument ID: A8_N

Lims ID: LLCS 320-171866/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 34

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

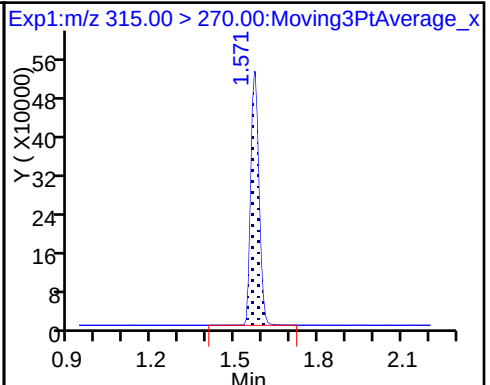
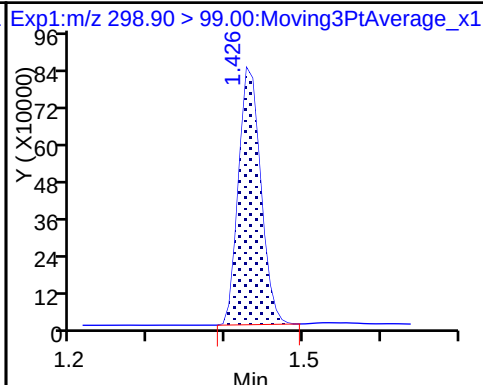
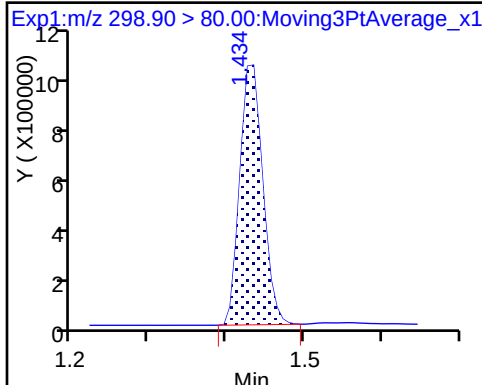
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

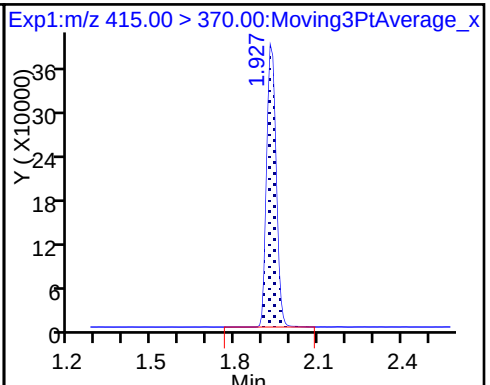
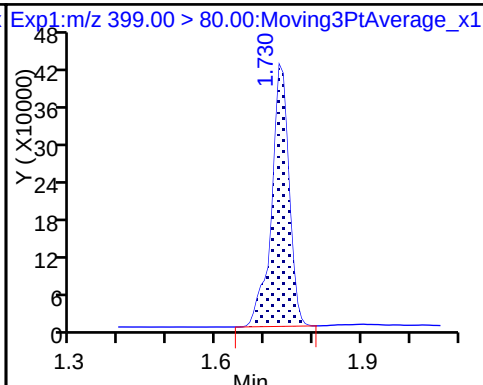
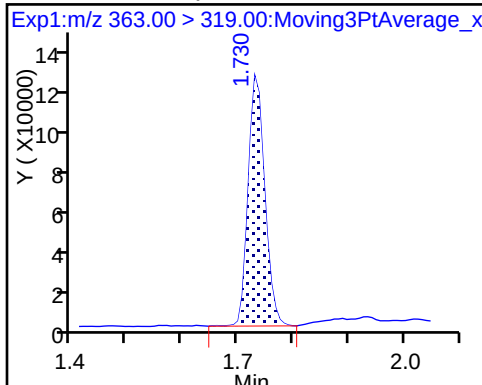
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

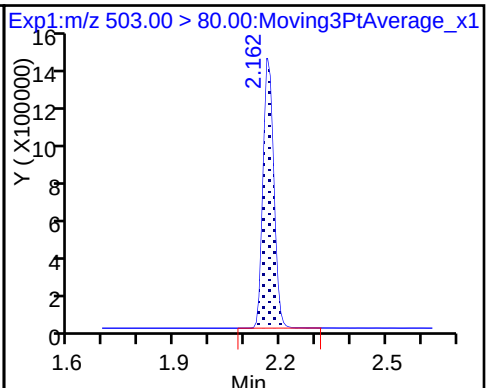
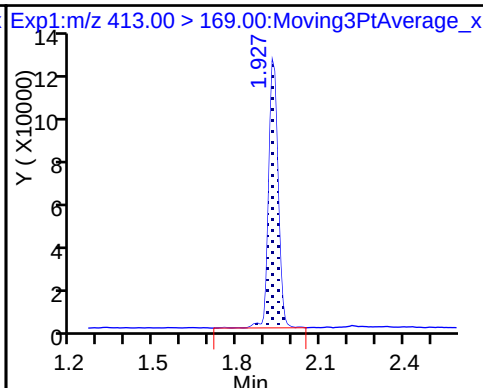
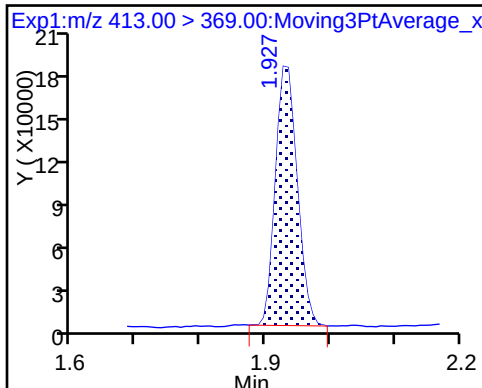
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

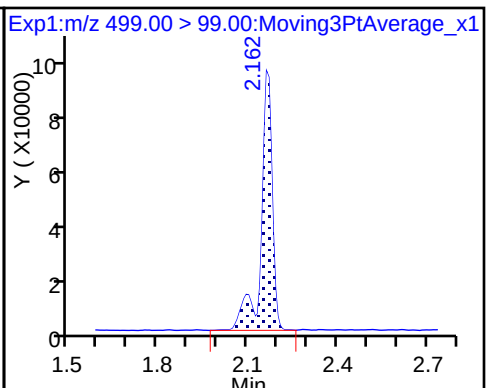
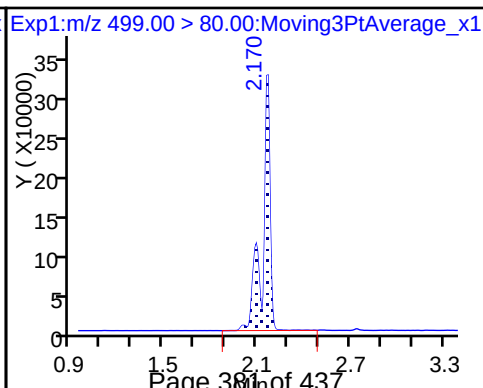
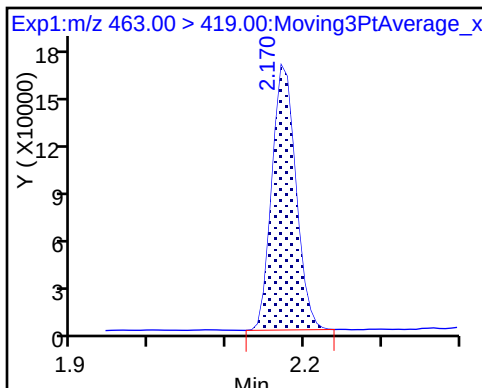
* 7 13C4 PFOS



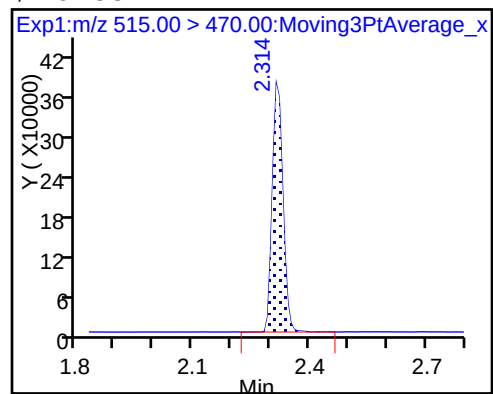
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_034.d
Lims ID: LLCS 320-171866/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 08-Jul-2017 14:02:44 ALS Bottle#: 24 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-171866/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:12:14

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.4	104.15
\$ 10 13C2 PFDA	10.0	9.48	94.84

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCSD 320-171866/3-A
 Matrix: Water Lab File ID: 2017.07.08_537A_035.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 06/30/2017 09:34
 Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 14:07
 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.: 173117 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	41.4		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	21.2		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20.4	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	28.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	11.7		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	92.6		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_035.d
 Lims ID: LLCSD 320-171866/3-A
 Client ID:
 Sample Type: LLCSD
 Inject. Date: 08-Jul-2017 14:07:29 ALS Bottle#: 25 Worklist Smp#: 35
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcsd 320-171866/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:12:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	2131573	23.1		817	
298.90 > 99.00	1.426	1.404	0.022	1.000	1657690		1.29(0.00-0.00)	687	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	980790	9.70		4918	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	271918	2.92		46.5	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1039846	7.22		461	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		889644	10.0		3843	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	433720	5.29		37.1	
413.00 > 169.00	1.927	1.879	0.048	1.000	280981		1.54(0.00-0.00)	393	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2963885	28.7		4299	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	373492	5.09		13.5	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.162	0.0	1.000	1094850	10.3		1298	
499.00 > 99.00	2.162	2.162	0.0	1.000	239735		4.57(0.00-0.00)	428	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	702110	9.40		1455	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_035.d

Injection Date: 08-Jul-2017 14:07:29

Instrument ID: A8_N

Lims ID: LLCSD 320-171866/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 35

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

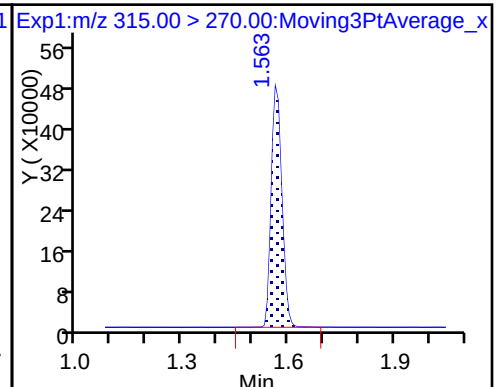
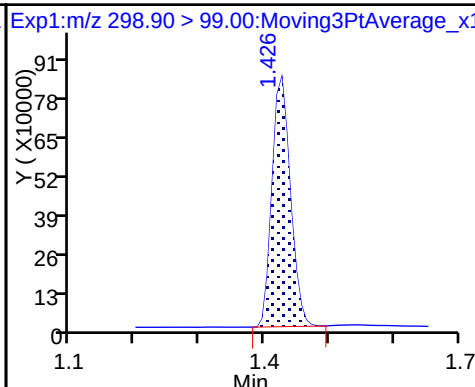
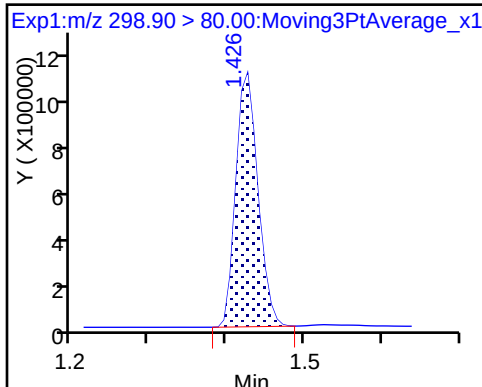
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

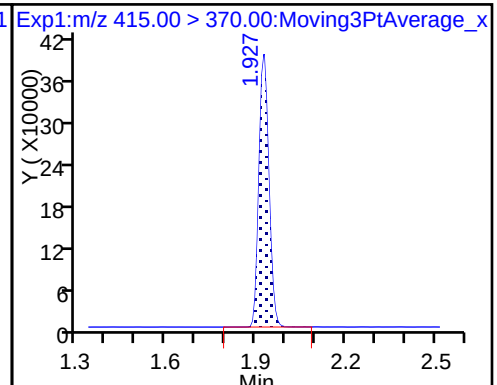
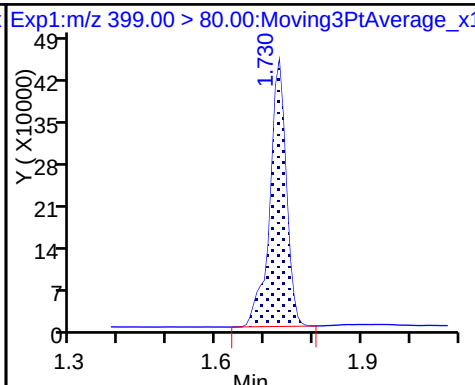
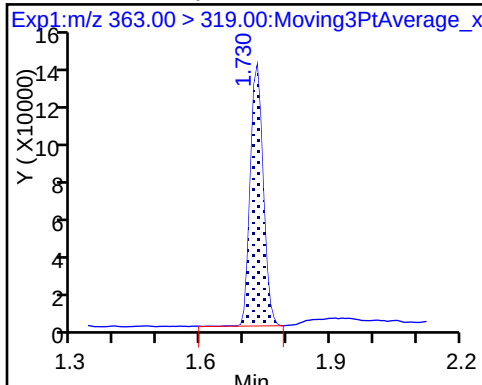
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

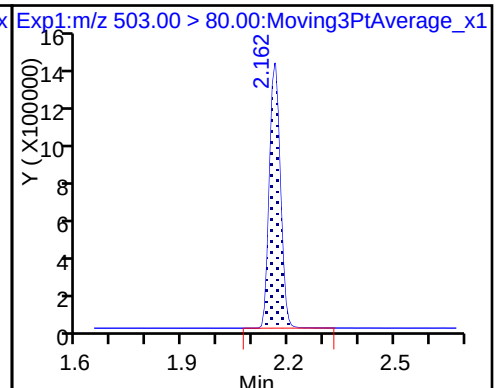
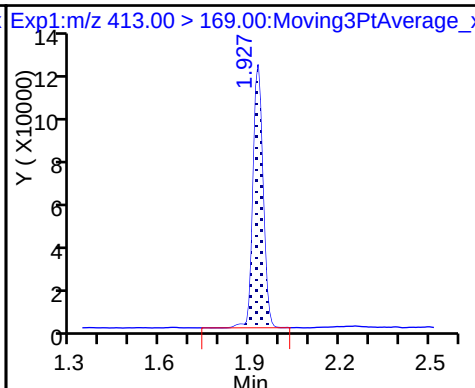
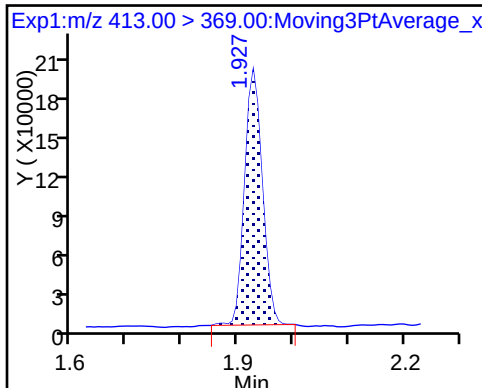
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

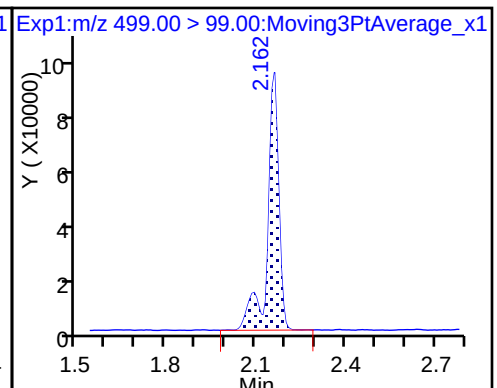
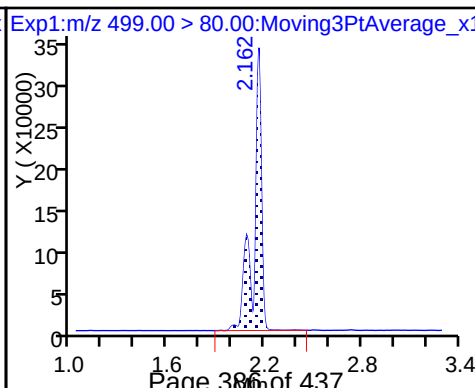
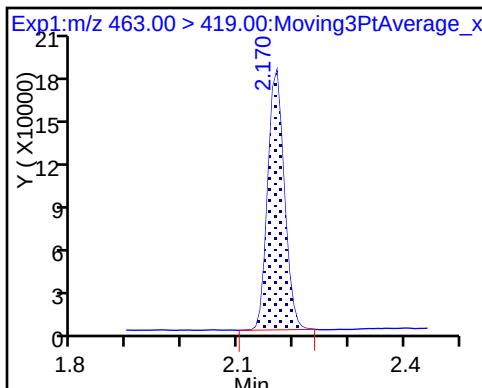
* 7 13C4 PFOS



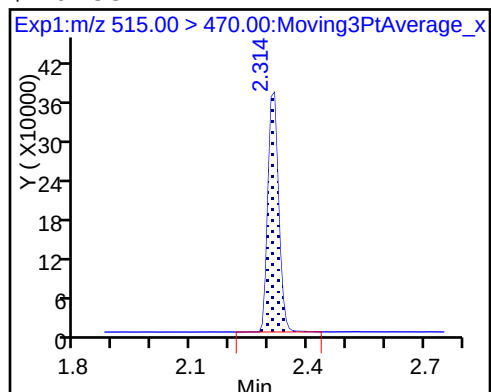
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\2017.07.08_537A_035.d
Lims ID: LLCSD 320-171866/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 08-Jul-2017 14:07:29 ALS Bottle#: 25 Worklist Smp#: 35
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-171866/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 10:14:39 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:12:38

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.70	97.03
\$ 10 13C2 PFDA	10.0	9.40	94.00

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3460 LMS</u>	Lab Sample ID: <u>320-29300-7 LMS</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_051.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 11:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.4 (mL)</u>	Date Analyzed: <u>07/08/2017 15:23</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>173119</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	41.7	M	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	23.6	M	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	18.7	J	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	30.7		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	12.5		9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	97.5		87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	79		70-130
STL00996	13C2 PFDA	89		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_051.d
 Lims ID: 320-29300-A-7-D LMS
 Client ID:
 Sample Type: LMS
 Inject. Date: 08-Jul-2017 15:23:23 ALS Bottle#: 37 Worklist Smp#: 14
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-7-d lms
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:50:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	2180961	25.1		672	
298.90 > 99.00	1.426	1.404	0.022	1.000	1703232		1.28(0.00-0.00)	793	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	757001	7.94		4275	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.691	0.031	1.000	282771	3.22		37.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1073148	7.90		436	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.878	0.049		839476	10.0		3817	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	470565	6.08		36.9	M
413.00 > 169.00	1.927	1.879	0.048	1.000	338036		1.39(0.00-0.00)	478	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2796351	28.7		3008	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	332554	4.81		27.3	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	1072907	10.7		760	M
499.00 > 99.00	2.162	2.147	0.015	1.000	226248		4.74(0.00-0.00)	342	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	629613	8.93		1445	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_051.d

Injection Date: 08-Jul-2017 15:23:23

Instrument ID: A8_N

Lims ID: 320-29300-A-7-D LMS

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

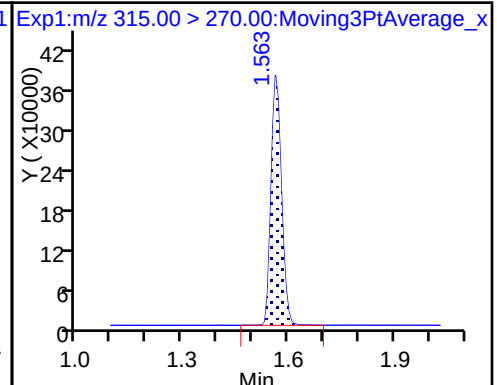
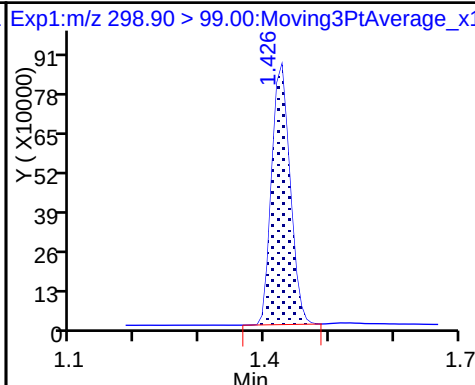
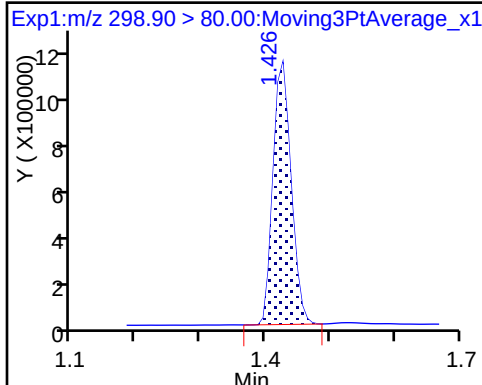
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

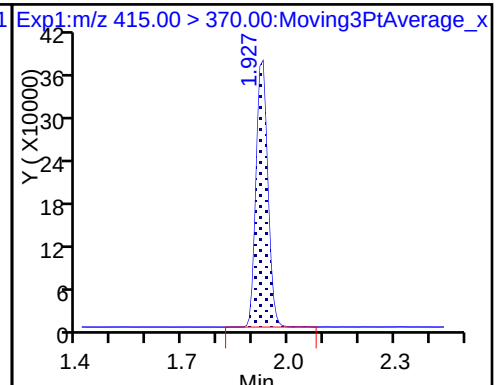
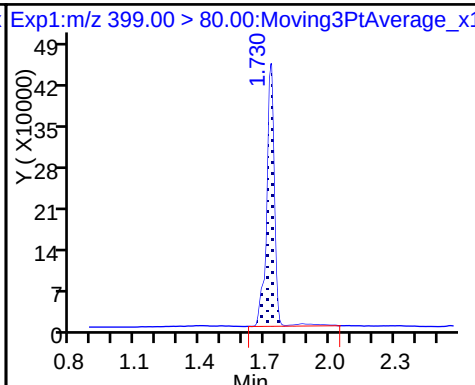
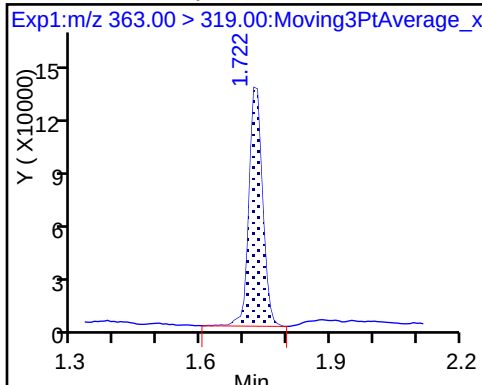
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

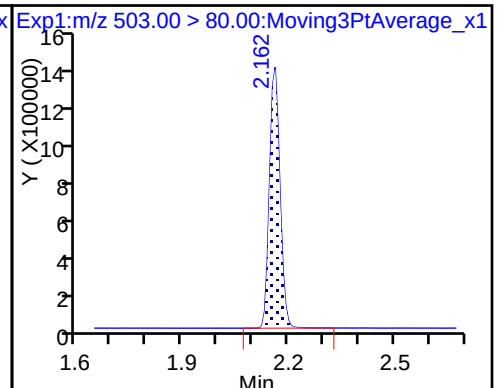
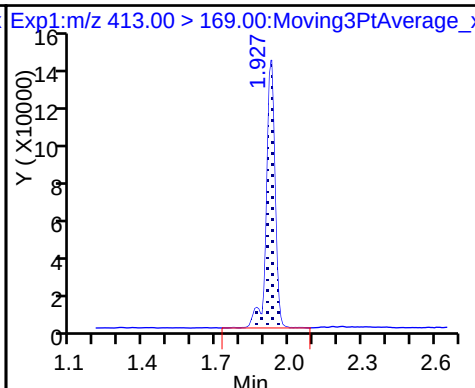
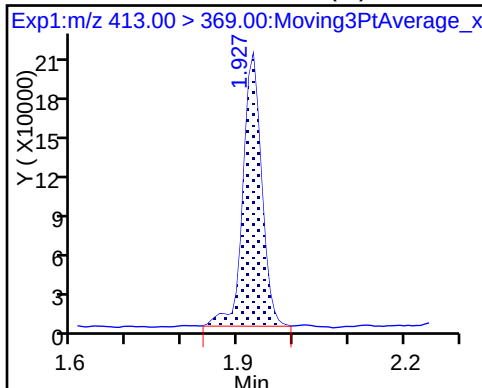
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

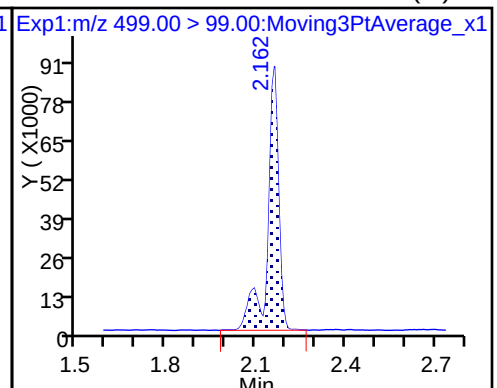
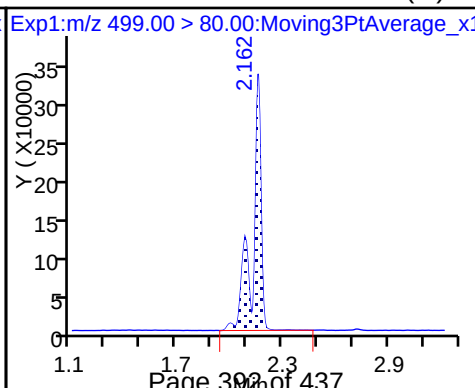
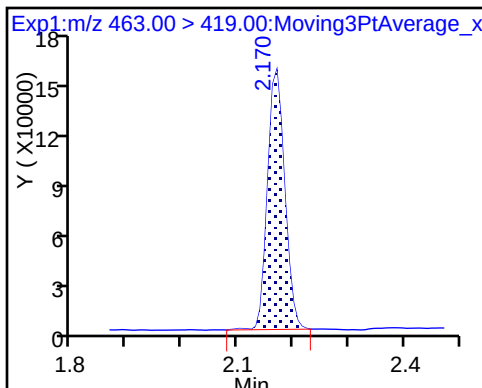
* 7 13C4 PFOS



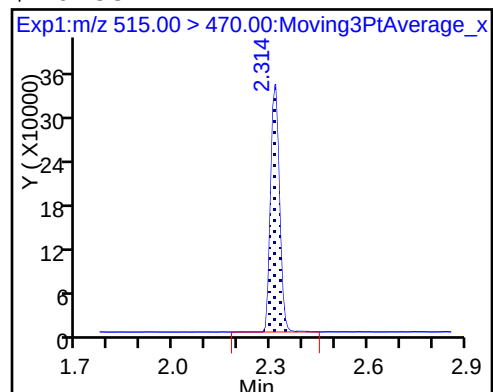
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_051.d
Lims ID: 320-29300-A-7-D LMS
Client ID:
Sample Type: LMS
Inject. Date: 08-Jul-2017 15:23:23 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-7-d lms
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:50:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	7.94	79.37
\$ 10 13C2 PFDA	10.0	8.93	89.34

TestAmerica Sacramento

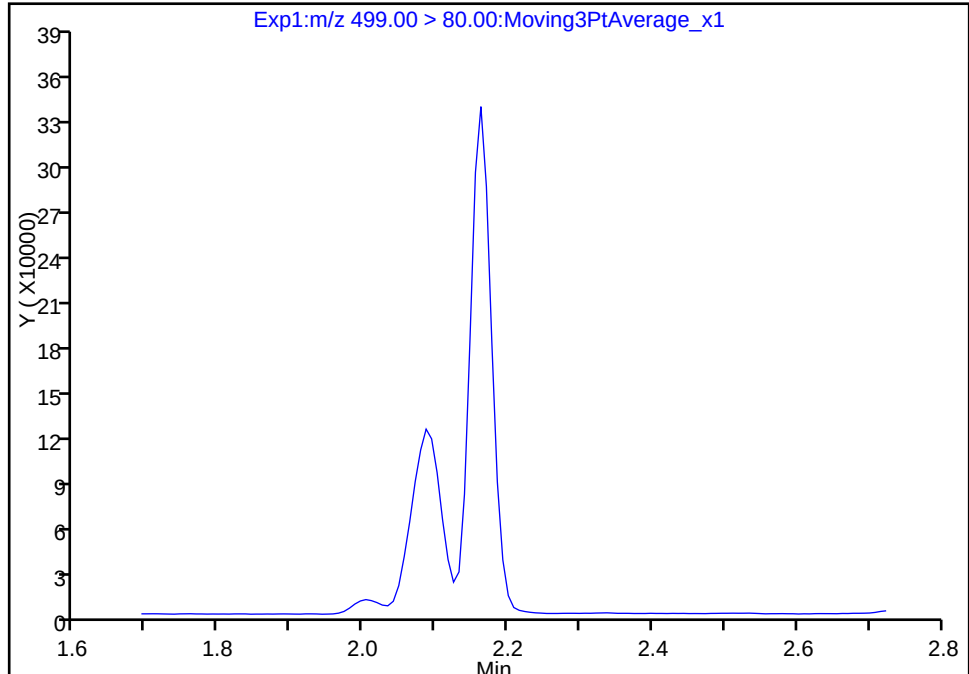
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Injection Date: 08-Jul-2017 15:23:23 Instrument ID: A8_N
Lims ID: 320-29300-A-7-D LMS
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

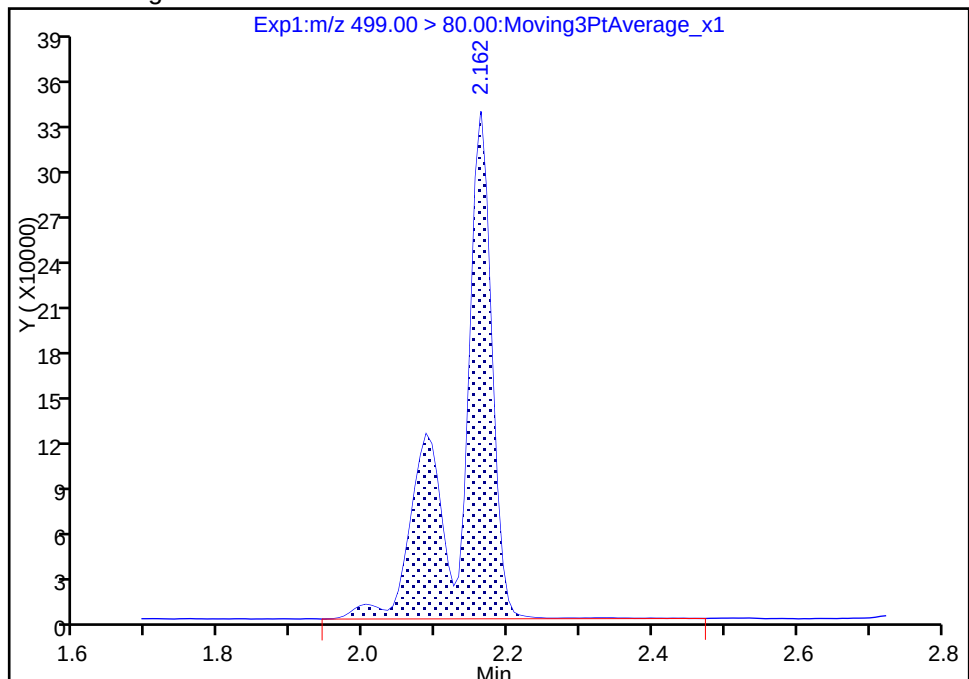
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.16
Area: 1072907
Amount: 10.744908
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:49:19

Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

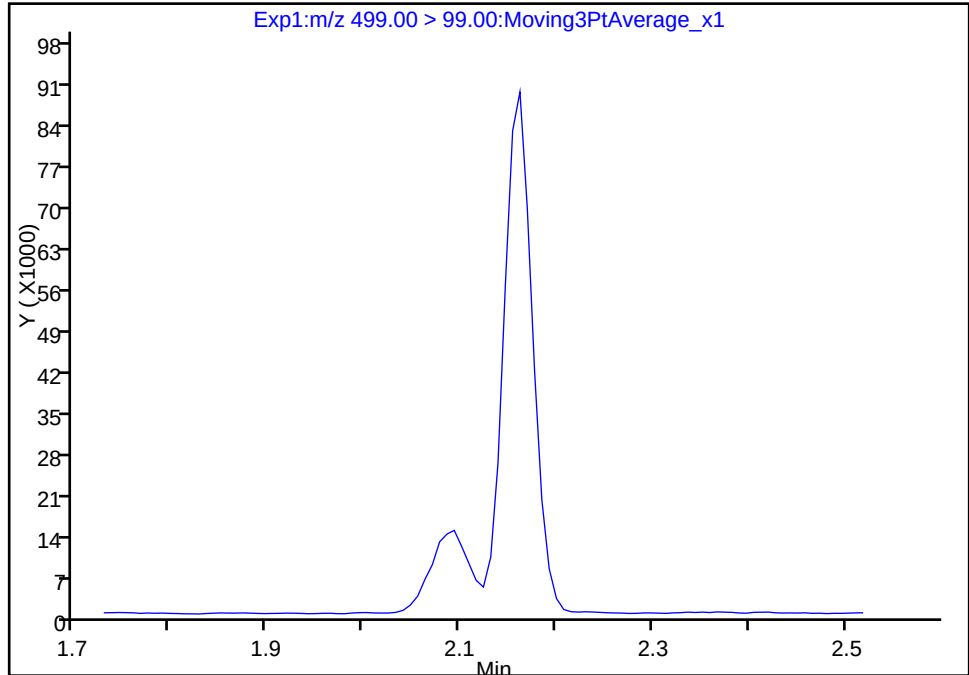
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Injection Date: 08-Jul-2017 15:23:23 Instrument ID: A8_N
Lims ID: 320-29300-A-7-D LMS
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

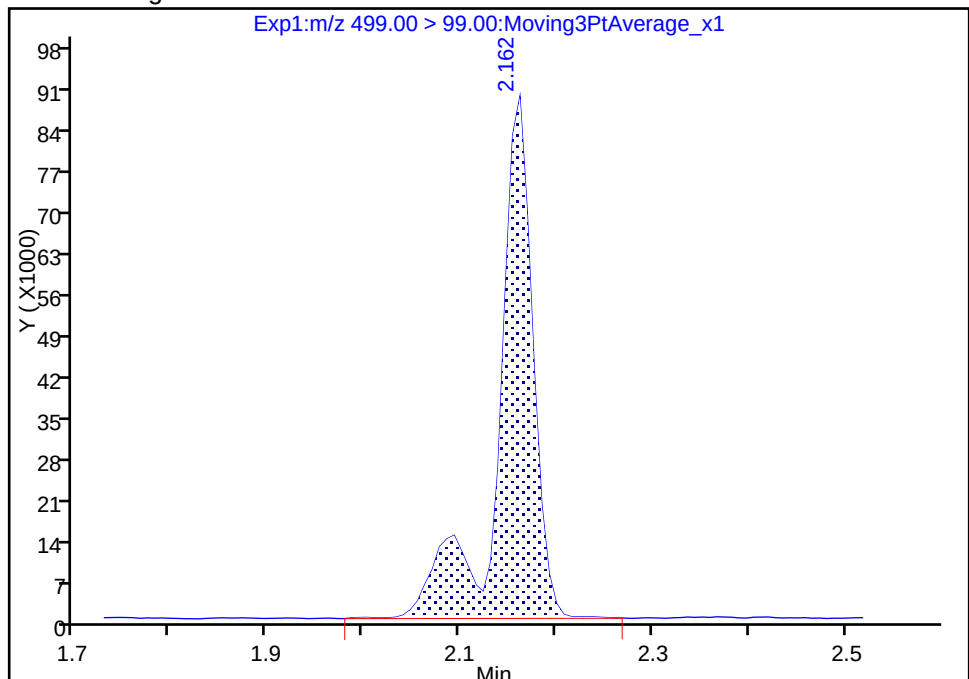
Signal: 2

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.16
Area: 226248
Amount: 10.744908
Amount Units: ng/ml

Reviewer: barnettj, 10-Jul-2017 10:49:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

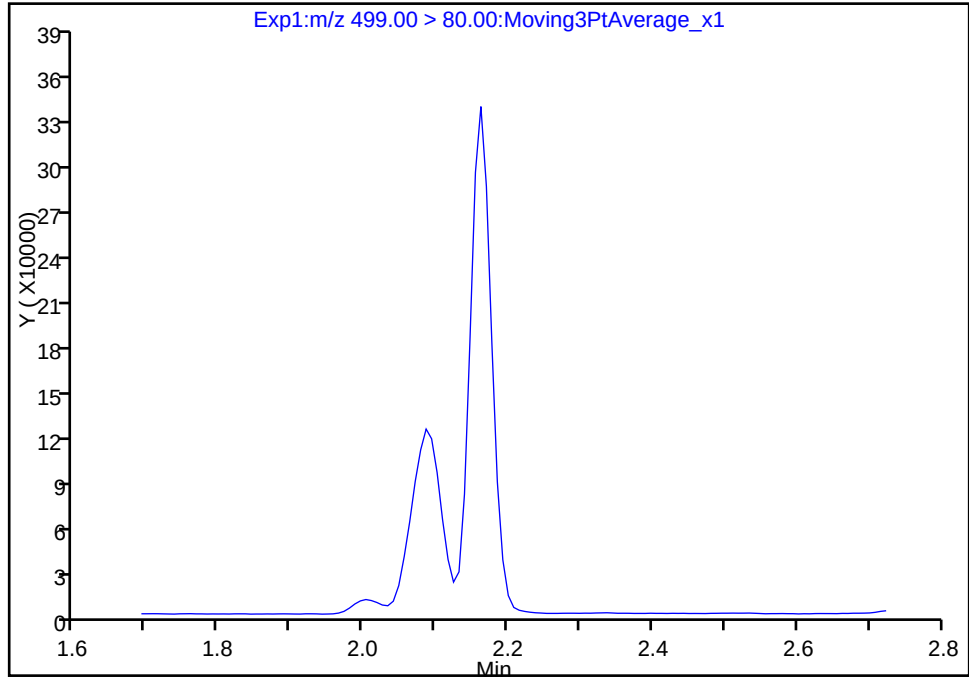
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Injection Date: 08-Jul-2017 15:23:23 Instrument ID: A8_N
Lims ID: 320-29300-A-7-D LMS
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

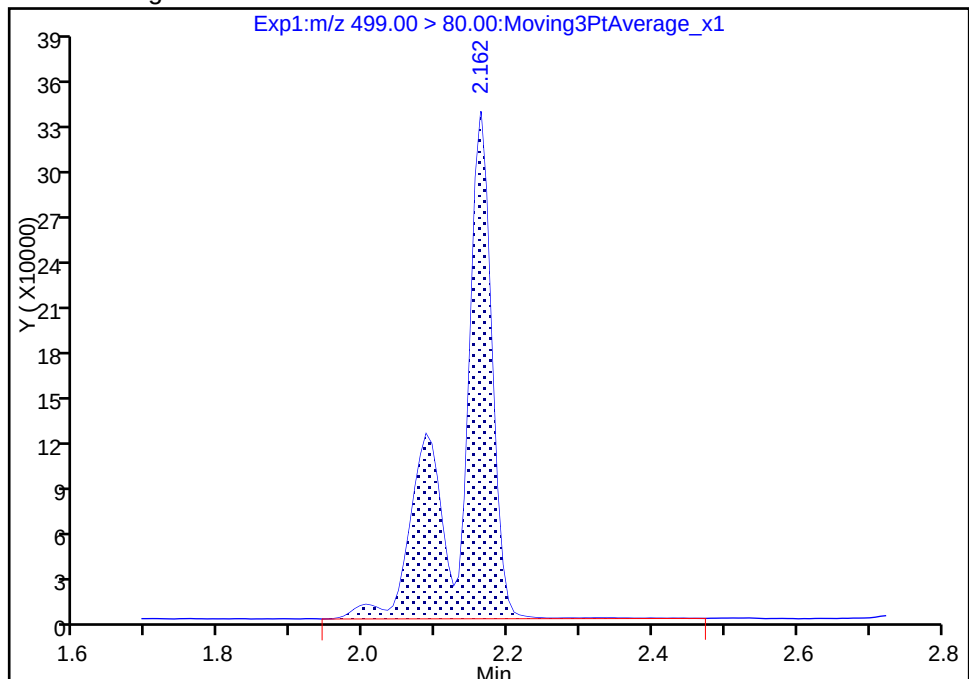
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.16
Area: 1072907
Amount: 10.744908
Amount Units: ng/ml



Reviewer: barnettj, 10-Jul-2017 10:49:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

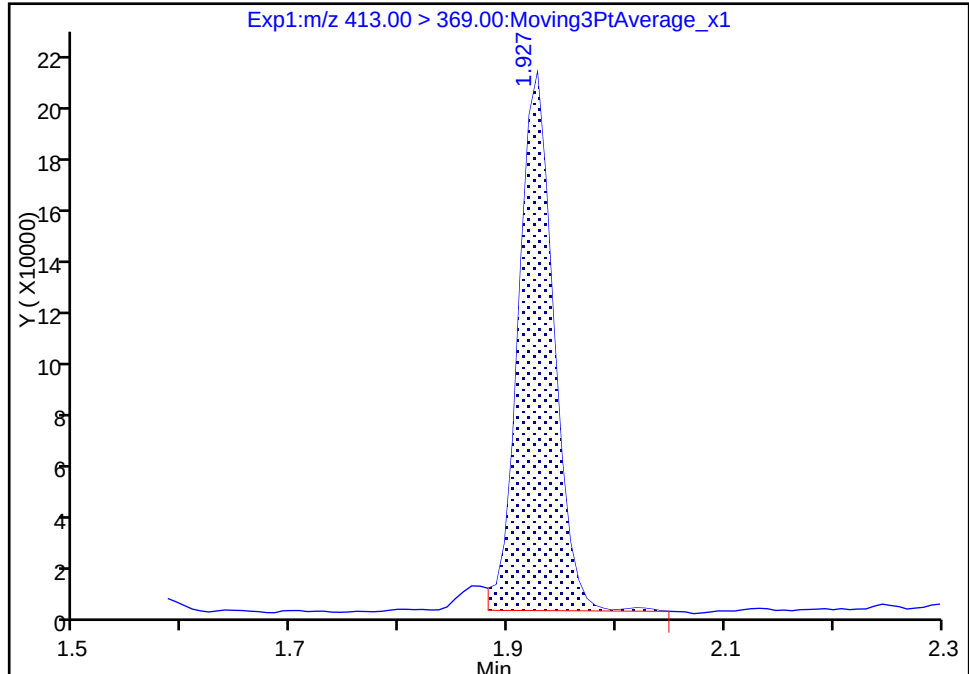
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Injection Date: 08-Jul-2017 15:23:23 Instrument ID: A8_N
Lims ID: 320-29300-A-7-D LMS
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 14
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

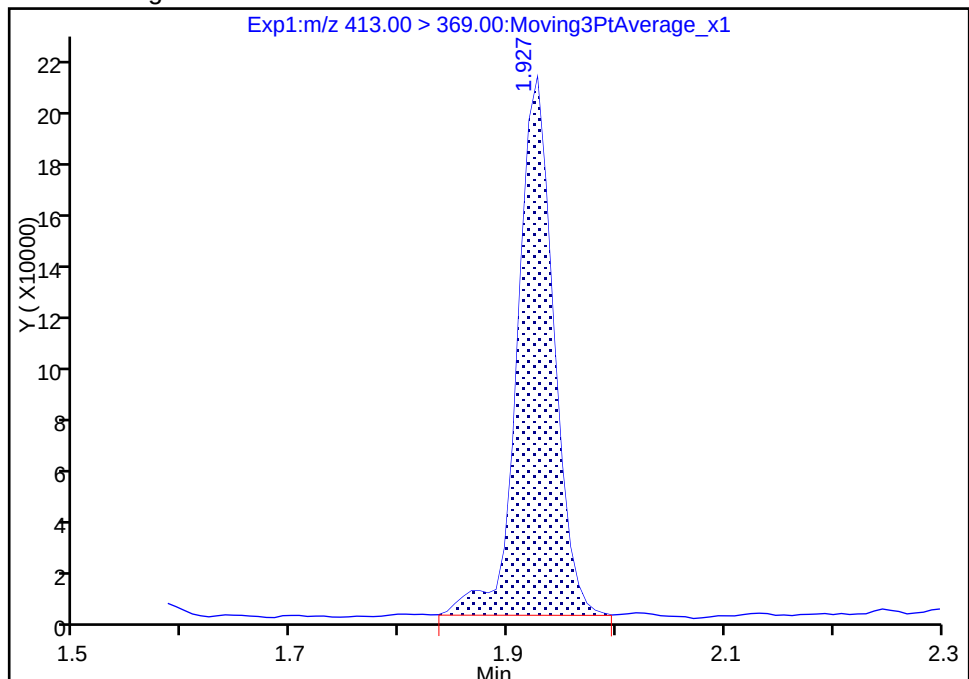
RT: 1.93
Area: 457301
Amount: 5.910299
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 470565
Amount: 6.081727
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:49:58
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 398 of 437

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3460 LMSD Lab Sample ID: 320-29300-7 LMSD
 Matrix: Water Lab File ID: 2017.07.08_537A_052.d
 Analysis Method: 537 Date Collected: 06/19/2017 11:30
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 252.3(mL) Date Analyzed: 07/08/2017 15:28
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	41.4		40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	28.4	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20.3	J	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	30.5		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	13.4		9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	98.9		89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_052.d
 Lims ID: 320-29300-A-7-E LMSD
 Client ID:
 Sample Type: LMSD
 Inject. Date: 08-Jul-2017 15:28:08 ALS Bottle#: 38 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-7-e lmsd
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:50:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.404	0.022	1.000	2147563	25.0		651	
298.90 > 99.00	1.426	1.404	0.022	1.000	1634235		1.31(0.00-0.00)	757	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.539	0.024	1.000	778532	8.33		4361	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.691	0.039	1.000	290413	3.38		42.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.692	0.038	1.000	1035617	7.70		330	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.878	0.042		822170	10.0		3770	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.879	0.048	1.000	543037	7.17		46.1	M
413.00 > 169.00	1.927	1.879	0.048	1.000	351303		1.55(0.00-0.00)	464	M
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.117	0.045		2769101	28.7		2865	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.124	0.046	1.000	347309	5.13		28.8	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.147	0.015	1.000	1033646	10.5		695	
499.00 > 99.00	2.162	2.147	0.015	1.000	217756		4.75(0.00-0.00)	320	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.281	0.033	1.000	655420	9.50		1420	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_052.d

Injection Date: 08-Jul-2017 15:28:08

Instrument ID: A8_N

Lims ID: 320-29300-A-7-E LMSD

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

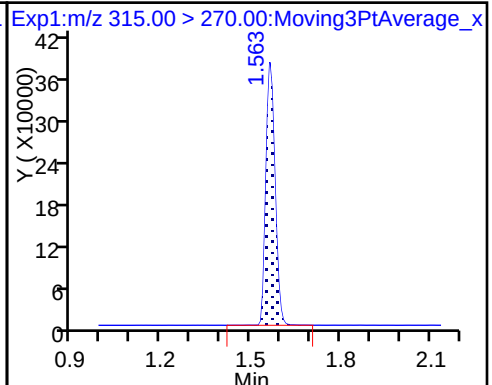
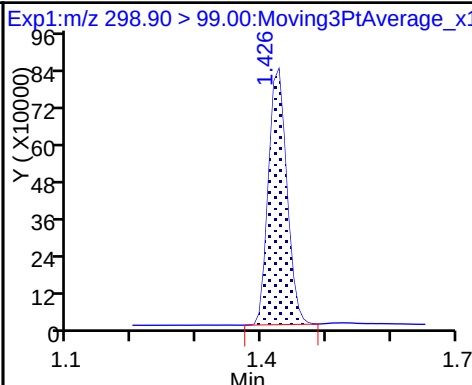
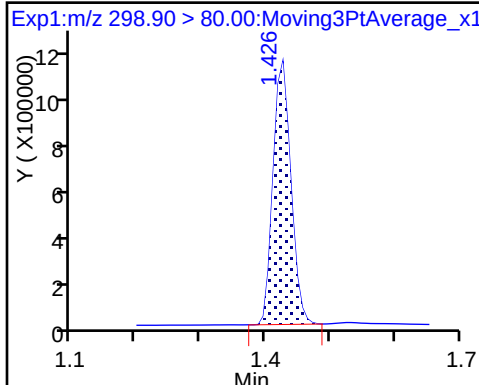
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

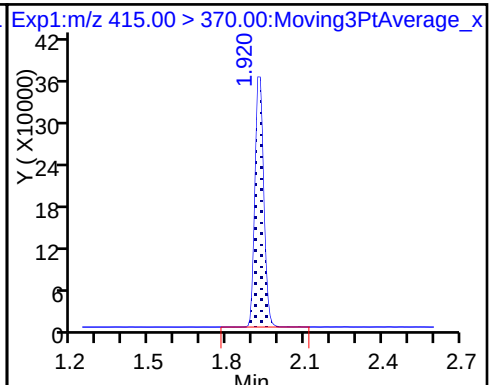
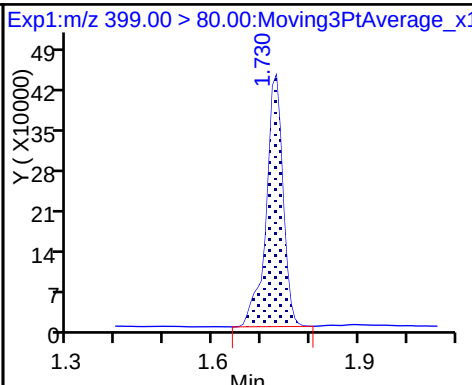
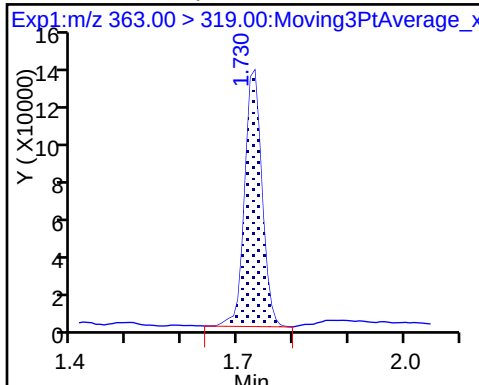
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

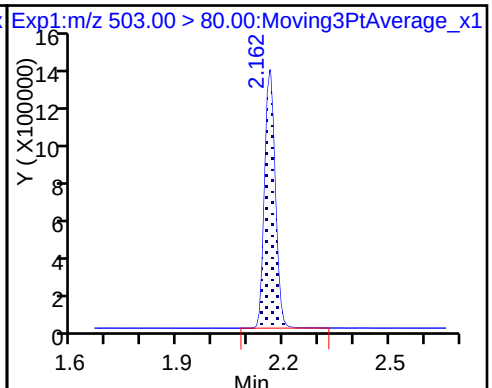
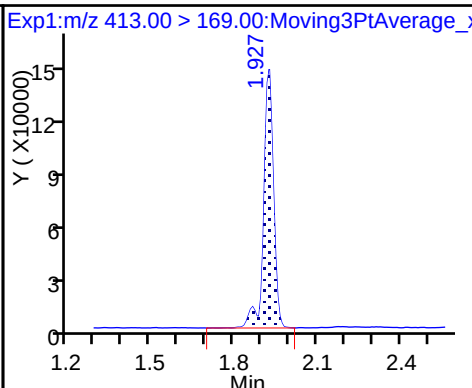
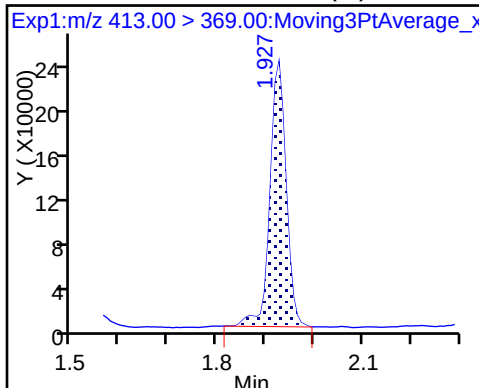
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

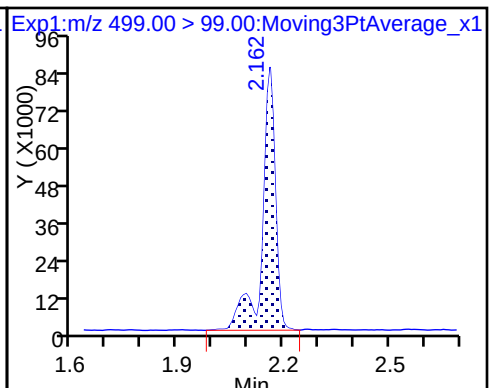
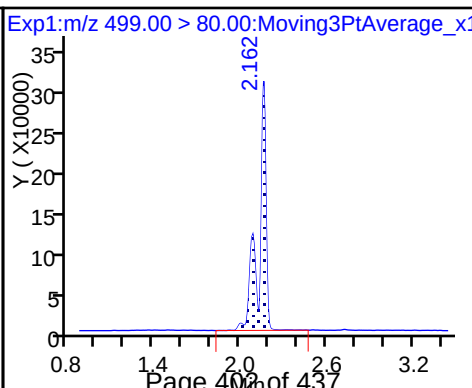
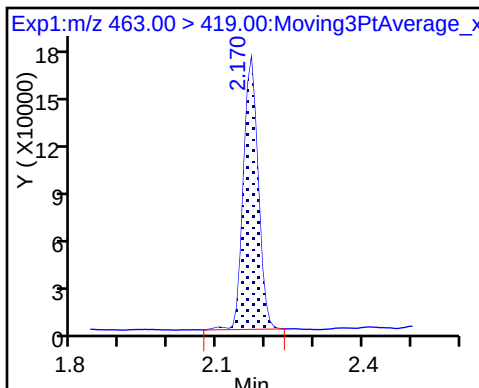
* 7 13C4 PFOS



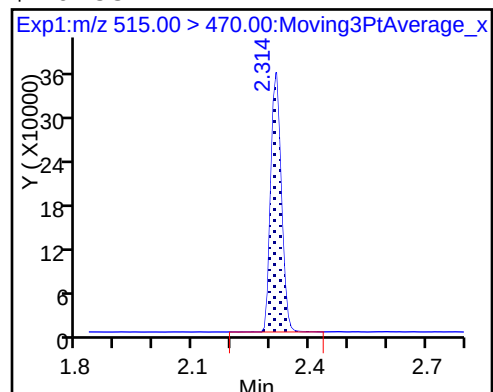
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_052.d
Lims ID: 320-29300-A-7-E LMSD
Client ID:
Sample Type: LMSD
Inject. Date: 08-Jul-2017 15:28:08 ALS Bottle#: 38 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-29300-a-7-e lmsd
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 10-Jul-2017 11:07:07 Calib Date: 05-Jul-2017 20:13:46
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
Column 1 : Det: EXP1
Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 10:50:50

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.33	83.34
\$ 10 13C2 PFDA	10.0	9.50	94.96

TestAmerica Sacramento

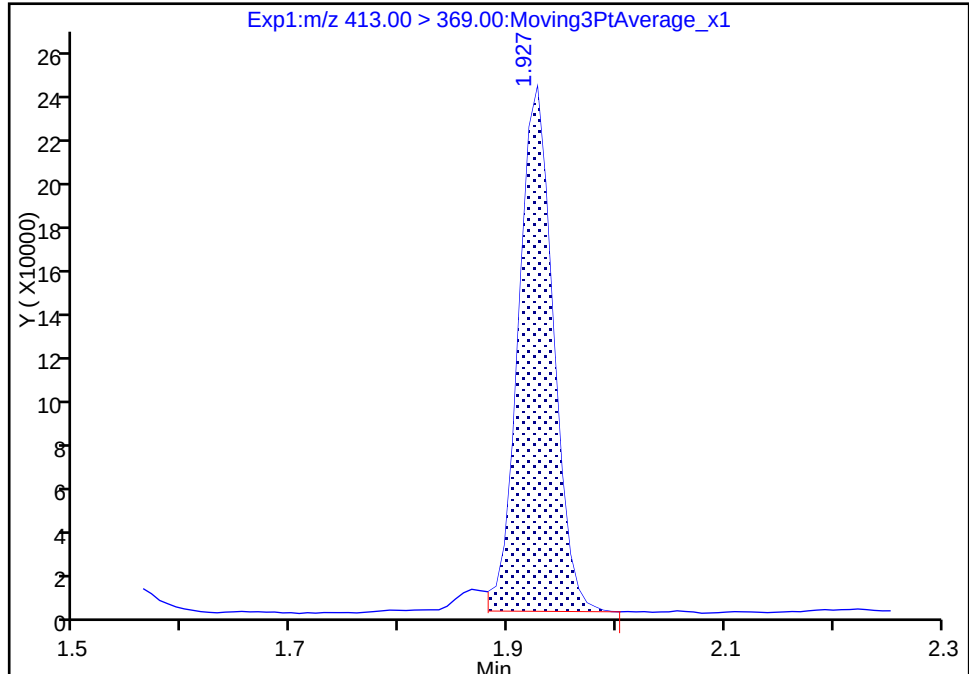
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_052.d
Injection Date: 08-Jul-2017 15:28:08 Instrument ID: A8_N
Lims ID: 320-29300-A-7-E LMSD
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

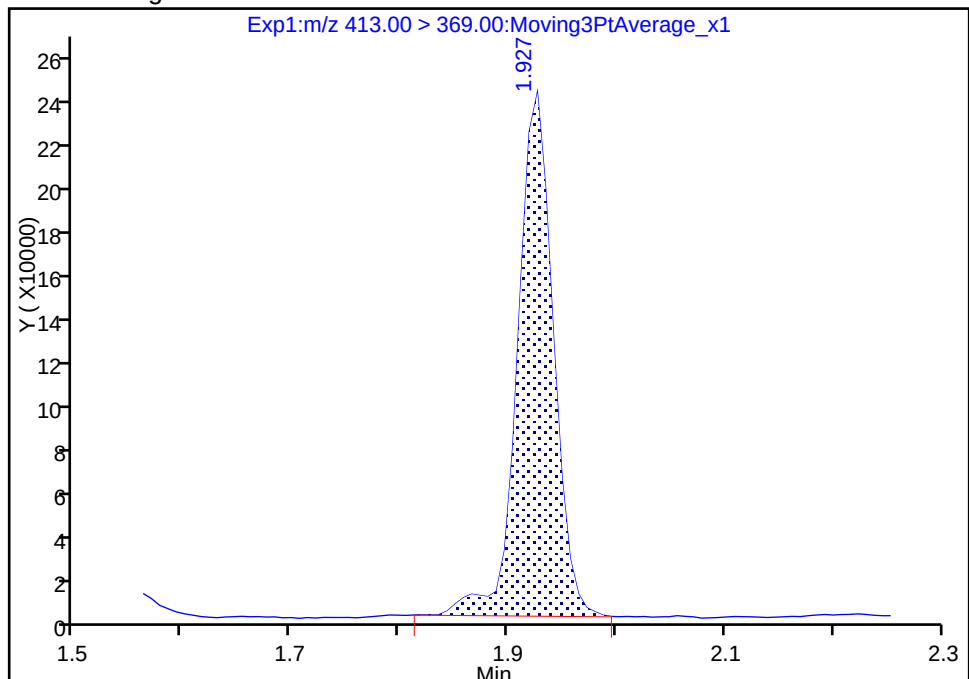
RT: 1.93
Area: 525057
Amount: 6.928838
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 543037
Amount: 7.166109
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 10-Jul-2017 10:50:41
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 405 of 437

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/05/2017 19:50Analysis Batch Number: 172646 End Date: 07/05/2017 20:32

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-172646/4		07/05/2017 19:50	1	2017.07.05_537C URVE 004.d	GeminiC18 3x100 3(mm)
IC 320-172646/5		07/05/2017 19:54	1	2017.07.05_537C URVE 005.d	GeminiC18 3x100 3(mm)
IC 320-172646/6		07/05/2017 19:59	1	2017.07.05_537C URVE 006.d	GeminiC18 3x100 3(mm)
IC 320-172646/7 ICISAV		07/05/2017 20:04	1	2017.07.05_537C URVE 007.d	GeminiC18 3x100 3(mm)
IC 320-172646/8		07/05/2017 20:09	1	2017.07.05_537C URVE 008.d	GeminiC18 3x100 3(mm)
IC 320-172646/9		07/05/2017 20:13	1	2017.07.05_537C URVE 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/05/2017 20:18	1		GeminiC18 3x100 3(mm)
CCVL 320-172646/11		07/05/2017 20:23	1	2017.07.05_537C URVE 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/05/2017 20:28	1		GeminiC18 3x100 3(mm)
ICV 320-172646/13		07/05/2017 20:32	1	2017.07.05_537C URVE 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_NStart Date: 07/08/2017 11:40Analysis Batch Number: 173114End Date: 07/08/2017 12:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-173114/4		07/08/2017 11:40	1	2017.07.08_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-173114/5 CCVIS		07/08/2017 11:45	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 11:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 11:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 11:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:13	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:18	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:23	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:32	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:37	1		GeminiC18 3x100 3(mm)
CCV 320-173114/17 CCVIS		07/08/2017 12:42	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/08/2017 13:39Analysis Batch Number: 173117 End Date: 07/08/2017 14:21

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173117/29 CCVIS		07/08/2017 13:39	1	2017.07.08_537A 029.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 13:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 13:48	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 13:53	1		GeminiC18 3x100 3(mm)
MB 320-171866/1-A		07/08/2017 13:58	1	2017.07.08_537A 033.d	GeminiC18 3x100 3(mm)
LLCS 320-171866/2-A		07/08/2017 14:02	1	2017.07.08_537A 034.d	GeminiC18 3x100 3(mm)
LLCSD 320-171866/3-A		07/08/2017 14:07	1	2017.07.08_537A 035.d	GeminiC18 3x100 3(mm)
320-29300-21		07/08/2017 14:12	1	2017.07.08_537A 036.d	GeminiC18 3x100 3(mm)
320-29300-22		07/08/2017 14:16	1	2017.07.08_537A 037.d	GeminiC18 3x100 3(mm)
CCV 320-173117/38 CCVIS		07/08/2017 14:21	1	2017.07.08_537A 038.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/08/2017 14:21Analysis Batch Number: 173118 End Date: 07/08/2017 15:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173118/1 CCVIS		07/08/2017 14:21	1	2017.07.08_537A 038.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 14:26	1		GeminiC18 3x100 3(mm)
MB 320-171856/1-A		07/08/2017 14:31	1	2017.07.08_537A 040.d	GeminiC18 3x100 3(mm)
LCS 320-171856/2-A		07/08/2017 14:35	1	2017.07.08_537A 041.d	GeminiC18 3x100 3(mm)
320-29300-1		07/08/2017 14:40	1	2017.07.08_537A 042.d	GeminiC18 3x100 3(mm)
320-29300-2		07/08/2017 14:45	1	2017.07.08_537A 043.d	GeminiC18 3x100 3(mm)
320-29300-3		07/08/2017 14:50	1	2017.07.08_537A 044.d	GeminiC18 3x100 3(mm)
320-29300-4		07/08/2017 14:54	1	2017.07.08_537A 045.d	GeminiC18 3x100 3(mm)
320-29300-5		07/08/2017 14:59	1	2017.07.08_537A 046.d	GeminiC18 3x100 3(mm)
320-29300-6		07/08/2017 15:04	1	2017.07.08_537A 047.d	GeminiC18 3x100 3(mm)
CCV 320-173118/11 CCVIS		07/08/2017 15:09	1	2017.07.08_537A 048.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_NStart Date: 07/08/2017 15:09Analysis Batch Number: 173119End Date: 07/08/2017 16:06

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173119/11 CCVIS		07/08/2017 15:09	1	2017.07.08_537A 048.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 15:13	1		GeminiC18 3x100 3(mm)
320-29300-7		07/08/2017 15:18	1	2017.07.08_537A 050.d	GeminiC18 3x100 3(mm)
320-29300-7 LMS		07/08/2017 15:23	1	2017.07.08_537A 051.d	GeminiC18 3x100 3(mm)
320-29300-7 LMSD		07/08/2017 15:28	1	2017.07.08_537A 052.d	GeminiC18 3x100 3(mm)
320-29300-8		07/08/2017 15:32	1	2017.07.08_537A 053.d	GeminiC18 3x100 3(mm)
320-29300-9		07/08/2017 15:37	1	2017.07.08_537A 054.d	GeminiC18 3x100 3(mm)
320-29300-10		07/08/2017 15:42	1	2017.07.08_537A 055.d	GeminiC18 3x100 3(mm)
320-29300-11		07/08/2017 15:47	1	2017.07.08_537A 056.d	GeminiC18 3x100 3(mm)
320-29300-12		07/08/2017 15:51	1	2017.07.08_537A 057.d	GeminiC18 3x100 3(mm)
320-29300-13		07/08/2017 15:56	1	2017.07.08_537A 058.d	GeminiC18 3x100 3(mm)
320-29300-14		07/08/2017 16:01	1	2017.07.08_537A 059.d	GeminiC18 3x100 3(mm)
CCV 320-173119/23 CCVIS		07/08/2017 16:06	1	2017.07.08_537A 060.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/08/2017 16:06Analysis Batch Number: 173120 End Date: 07/08/2017 16:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173120/23 CCVIS		07/08/2017 16:06	1	2017.07.08_537A 060.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 16:10	1		GeminiC18 3x100 3(mm)
320-29300-15		07/08/2017 16:15	1	2017.07.08_537A 062.d	GeminiC18 3x100 3(mm)
320-29300-16		07/08/2017 16:20	1	2017.07.08_537A 063.d	GeminiC18 3x100 3(mm)
320-29300-17		07/08/2017 16:25	1	2017.07.08_537A 064.d	GeminiC18 3x100 3(mm)
320-29300-18		07/08/2017 16:29	1	2017.07.08_537A 065.d	GeminiC18 3x100 3(mm)
320-29300-19		07/08/2017 16:34	1	2017.07.08_537A 066.d	GeminiC18 3x100 3(mm)
320-29300-20		07/08/2017 16:39	1	2017.07.08_537A 067.d	GeminiC18 3x100 3(mm)
CCV 320-173120/31 CCVIS		07/08/2017 16:44	1	2017.07.08_537A 068.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171856 Batch Start Date: 06/30/17 09:24 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/06/17 20:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00017
MB 320-171856/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-171856/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-29300-A-1	WGNA-061917-RW-3493	537, 537	T	284.21 g	27.78 g	256.4 mL	1.00 mL	7 SU	
320-29300-A-2	WGNA-061917-FRB-3493	537, 537	T	280.78 g	27.24 g	253.5 mL	1.00 mL	7 SU	
320-29300-A-3	WGNA-061917-RW-3283	537, 537	T	285.35 g	27.75 g	257.6 mL	1.00 mL	7 SU	
320-29300-A-4	WGNA-061917-FRB-3283	537, 537	T	283.02 g	27.06 g	256 mL	1.00 mL	7 SU	
320-29300-A-5	WGNA-061917-RW-0386	537, 537	T	284.02 g	28.20 g	255.8 mL	1.00 mL	7 SU	
320-29300-A-6	WGNA-061917-FRB-0386	537, 537	T	282.45 g	27.81 g	254.6 mL	1.00 mL	7 SU	
320-29300-A-7	WGNA-061917-RW-3460	537, 537	T	282.85 g	28.15 g	254.7 mL	1.00 mL	7 SU	
320-29300-A-7 LMS	WGNA-061917-RW-3460	537, 537	T	285.24 g	27.81 g	257.4 mL	1.00 mL	7 SU	
320-29300-A-7 LMSD	WGNA-061917-RW-3460	537, 537	T	280.73 g	28.48 g	252.3 mL	1.00 mL	7 SU	
320-29300-A-8	WGNA-061917-FRB-3460	537, 537	T	278.73 g	27.30 g	251.4 mL	1.00 mL	7 SU	
320-29300-A-9	WGNA-061917-RW-3118A	537, 537	T	283.90 g	27.71 g	256.2 mL	1.00 mL	7 SU	
320-29300-A-10	WGNA-061917-FRB-3118A	537, 537	T	283.62 g	27.89 g	255.7 mL	1.00 mL	7 SU	
320-29300-A-11	WGNA-061917-RW-3556	537, 537	T	286.19 g	28.32 g	257.9 mL	1.00 mL	7 SU	
320-29300-A-12	WGNA-061917-FRB-3556	537, 537	T	287.39 g	27.32 g	260.1 mL	1.00 mL	7 SU	
320-29300-A-13	WGNA-061917-RW-0335	537, 537	T	280.16 g	28.44 g	251.7 mL	1.00 mL	7 SU	
320-29300-A-14	WGNA-061917-FRB-0335	537, 537	T	284.93 g	27.39 g	257.5 mL	1.00 mL	7 SU	
320-29300-A-15	WGNA-061917-RW-3882	537, 537	T	292.61 g	27.59 g	265 mL	1.00 mL	7 SU	
320-29300-A-16	WGNA-061917-FRB-3882	537, 537	T	284.26 g	27.05 g	257.2 mL	1.00 mL	7 SU	
320-29300-A-17	WGNA-061917-RW-382	537, 537	T	286.04 g	27.63 g	258.4 mL	1.00 mL	7 SU	
320-29300-A-18	WGNA-061917-FRB-3382	537, 537	T	281.85 g	27.32 g	254.5 mL	1.00 mL	7 SU	

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171856 Batch Start Date: 06/30/17 09:24 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/06/17 20:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00017
320-29300-A-19	WGNA-061917-DUP01	537, 537	T	288.80 g	28.04 g	260.8 mL	1.00 mL	7 SU	
320-29300-A-20	WGNA-061917-RW-0143	537, 537	T	287.72 g	27.64 g	260.1 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00044	LC537-LSP 00020	LC537-SU 00044	AnalysisComment		
MB 320-171856/1		537, 537		100 uL		100 uL	ch nd		
LCS 320-171856/2		537, 537		100 uL		100 uL	ch nd		
320-29300-A-1	WGNA-061917-RW-3493	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-2	WGNA-061917-FRB-3493	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-3	WGNA-061917-RW-3283	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-4	WGNA-061917-FRB-3283	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-5	WGNA-061917-RW-0386	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-6	WGNA-061917-FRB-0386	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-7	WGNA-061917-RW-3460	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-7 LMS	WGNA-061917-RW-3460	537, 537	T	100 uL	100 uL	100 uL	ch nd		
320-29300-A-7 LMSD	WGNA-061917-RW-3460	537, 537	T	100 uL	100 uL	100 uL	ch nd		
320-29300-A-8	WGNA-061917-FRB-3460	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-9	WGNA-061917-RW-3118A	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-10	WGNA-061917-FRB-3118A	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-11	WGNA-061917-RW-3556	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-12	WGNA-061917-FRB-3556	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-13	WGNA-061917-RW-0335	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-14	WGNA-061917-FRB-0335	537, 537	T	100 uL		100 uL	ch nd		

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171856 Batch Start Date: 06/30/17 09:24 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/06/17 20:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00044	LC537-LSP 00020	LC537-SU 00044	AnalysisComment		
320-29300-A-15	WGNA-061917-RW-3882	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-16	WGNA-061917-FRB-3882	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-17	WGNA-061917-RW-3882	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-18	WGNA-061917-FRB-3382	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-19	WGNA-061917-DUP01	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-20	WGNA-061917-RW-0143	537, 537	T	100 uL		100 uL	ch nd		

Batch Notes	
Batch Comment	IS:975029
Manifold ID	3,4
Methanol ID	968518
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	NSH
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	NSH
SPE Cartridge ID	6357081-01
Trizma ID	SLBR4303V
Reagent Water ID	6/27/17

Basis	Basis Description
T	Total/NA

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171866 Batch Start Date: 06/30/17 09:34 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/07/17 18:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00044
MB 320-171866/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-171866/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-171866/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-29300-A-21	WGNA-061917-FRB-0143	537, 537	T	287.66 g	27.34 g	260.3 mL	1.00 mL	7 SU	100 uL
320-29300-A-22	WGNA-061917-RW-3118B	537, 537	T	279.89 g	28.07 g	251.8 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00020	LC537-SU 00044	AnalysisComment			
MB 320-171866/1		537, 537			100 uL	ch nd			
LLCS 320-171866/2		537, 537		100 uL	100 uL	ch nd			
LLCSD 320-171866/3		537, 537		100 uL	100 uL	ch nd			
320-29300-A-21	WGNA-061917-FRB-0143	537, 537	T		100 uL	ch nd			
320-29300-A-22	WGNA-061917-RW-3118B	537, 537	T		100 uL	ch nd			

Batch Notes	
Batch Comment	IS:
Methanol ID	936834
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	NSH
Analyst ID - IS Reagent Drop Witness	JNS
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	NSH
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	NSH
SPE Cartridge ID	6357081-01
Trizma ID	SLBR4303V
Reagent Water ID	6/27/17

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.: 320-29300-1

SDG No.: _____

Batch Number: 171866 Batch Start Date: 06/30/17 09:34 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/07/17 18:15

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: 29300 Instrument ID & Date: 7-8-17 ICAL Batch: 172646
 Extraction Batch: 171866 Worklist #: 45208 TALS Batch: 173117

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 7-10-17

2nd Level Reviewer / Date: Murray 7/11/2017

NCM # and Comments: _____

A8

Instrument ID & Date: 7-5-17 Worklist#: 45099

ICAL Batch: 172646, 172647 Calibration ID number: 32198, 32199

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 Quadratic (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".			✓	
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (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 7-6-17

2nd Level Reviewer / Date: CBW 7/6/17

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08JUL2017_537A

Worklist Number: 45208

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 173114	LC 537 CS ICAL Raw Batch: 173115
# 1 RB	# 1 RB	# 1 RB
# 2 RB	# 2 RB	# 2 RB
# 3 RB	# 3 RB	# 3 RB
# 4 CCVL	# 4 CCVL	# 4 CCVL
# 5 CCV L5	# 5 CCV L5	# 5 CCV L5
# 6 RB	# 6 RB	# 6 RB
# 7 MB 320-172426/1-A	# 7 MB 320-172426/1-A	
# 8 LCS 320-172426/2-A	# 8 LCS 320-172426/2-A	
# 9 LCSD 320-172426/3-A	# 9 LCSD 320-172426/3-A	
#10 280-98633-C-9-A	#10 280-98633-C-9-A	
#11 280-98633-A-12-A	#11 280-98633-A-12-A	
#12 320-29346-A-1-A	#12 320-29346-A-1-A	
#13 320-29346-A-2-A	#13 320-29346-A-2-A	
#14 320-29346-A-3-A	#14 320-29346-A-3-A	
#15 320-29346-B-4-A	#15 320-29346-B-4-A	
#16 320-29346-A-5-A	#16 320-29346-A-5-A	
#17 CCV L3	#17 CCV L3	

QC Batch: 2	LC 537 ICAL Raw Batch: 173116
#17 CCV L3	#17 CCV L3
#18 RB	#18 RB
#19 320-29346-A-6-A	#19 320-29346-A-6-A
#20 320-29346-A-7-A	#20 320-29346-A-7-A
#21 320-29346-B-8-A	#21 320-29346-B-8-A
#22 320-29346-A-9-A	#22 320-29346-A-9-A
#23 320-29346-A-10-A	#23 320-29346-A-10-A
#24 320-29346-A-11-A	#24 320-29346-A-11-A
#25 320-29346-A-12-A	#25 320-29346-A-12-A
#26 320-29346-B-13-A	#26 320-29346-B-13-A
#27 320-29346-A-14-A	#27 320-29346-A-14-A
#28 320-29346-A-15-A	#28 320-29346-A-15-A
#29 CCV L5	#29 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 173117
#29 CCV L5	#29 CCV L5
#30 RB	#30 RB
#31 320-29346-A-16-A	#31 320-29346-A-16-A
#32 320-29346-A-17-A	#32 320-29346-A-17-A
#33 MB 320-171866/1-A	#33 MB 320-171866/1-A
#34 LLCS 320-171866/2-A	#34 LLCS 320-171866/2-A
#35 LLCSD 320-171866/3-A	#35 LLCSD 320-171866/3-A
#36 320-29300-A-21-A	#36 320-29300-A-21-A
#37 320-29300-A-22-A	#37 320-29300-A-22-A
#38 CCV L3	#38 CCV L3
#39 RB	#39 RB

Aqueous Extraction Analysis Sheet

AB 7/8/17

(To Accompany Samples to Instruments)

Batch Number: 320-171866

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:34:00AM

Method Code: 320-537_Prep-320

Batch End: 7/7/2017 6:15:00PM

Extraction of Perfluorinated Alkyl Acids

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-320-171866/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
2 LLCS-320-171866/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
3 LLCSD-320-171866/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
4 320-29300-A-21 (537_DOD5)	N/A (320-29300-1)	287.66 g	260.3 mL	7			6/27/17	16_Days	4	ch nd	
		27.34 g	1.00 mL								
5 320-29300-A-22 (537_DOD5)	N/A (320-29300-1)	279.89 g	251.8 mL	7			6/27/17	16_Days	4	ch nd	
		28.07 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171866

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:34:00AM

Method Code: 320-537_Prep-320

Batch End:

Batch Notes

Manifold ID 9

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-01

Methanol ID 936834

Reagent Water ID 6/27/17

Pipette ID MD05306

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop NSH

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop NSH

Witness

Analyst ID - IS Reagent Drop NSH

Analyst ID - IS Reagent Drop JNS

Witness

Batch Comment IS:

975029

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171866

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:34:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-171866/1	LC537-SU_00044	100 uL	1.00 mL	ce8 6-30-17	NSH 6-30-17
LLCS 320-171866/2	LC537-LSP_00020	100 uL	1.00 mL	↓	↓
LLCS 320-171866/2	LC537-SU_00044	100 uL	1.00 mL		
LLCSD 320-171866/3	LC537-LSP_00020	100 uL	1.00 mL		
LLCSD 320-171866/3	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-21	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-22	LC537-SU_00044	100 uL	1.00 mL	↓	↓

Other Reagents:

Reagent

Amount/Units

Lot#:

Page 422 of 437

Preparation Batch Number(s): 171866 Test: 537

Earliest Holding Time: 7-3-17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	✓
All necessary NCMs filed (including holding time)	/	✓
Method/sample/login/QAS checked and correct	/	✓
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 correctly in TALS	/	✓
All additional information transcribed into TALS is correct and raw data is attached	/	✓
Comments are transcribed correctly in TALS	/	✓
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	/	✓
All spike amounts correct and added to necessary samples and QC	/	✓
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	/	✓

1st Level Reviewer: NSH Date: 7/7/17
 2nd Level Reviewer: [Signature] Date: 7/07/17
 Comments: _____

Method 537 CCV/Data Review Checklist

A8

Job No: 29300 Instrument ID & Date: 7-8-17 ICAL Batch: 172646
 Extraction Batch: 171856 Worklist #: 45209 TALS Batch: 173118, 173119, 173120

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 ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICAL and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____			✓	✓
5. All target compounds in MB < 1/3 RL ? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?			✓	✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 7-10-17 2nd Level Reviewer / Date: newly 7/11/2017

NCM # and Comments: _____

A8

Instrument ID & Date: 7-5-17 Worklist#: 45099

ICAL Batch: 172646, 172647 Calibration ID number: 32198, 32199

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 Quadratic (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".			✓	
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (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 7-6-17

2nd Level Reviewer / Date: CBW 7/6/17

NCM # and Comments:

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08JUL2017_537B

Worklist Number: 45209

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 173118
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-171856/1-A	# 3 MB 320-171856/1-A
# 4 LCS 320-171856/2-A	# 4 LCS 320-171856/2-A
# 5 320-29300-A-1-A	# 5 320-29300-A-1-A
# 6 320-29300-A-2-A	# 6 320-29300-A-2-A
# 7 320-29300-A-3-A	# 7 320-29300-A-3-A
# 8 320-29300-A-4-A	# 8 320-29300-A-4-A
# 9 320-29300-A-5-A	# 9 320-29300-A-5-A
#10 320-29300-A-6-A	#10 320-29300-A-6-A
#11 CCV L5	#11 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 173119
#11 CCV L5	#11 CCV L5
#12 RB	#12 RB
#13 320-29300-A-7-A	#13 320-29300-A-7-A
#14 320-29300-A-7-D LMS	#14 320-29300-A-7-D LMS
#15 320-29300-A-7-E LMSD	#15 320-29300-A-7-E LMSD
#16 320-29300-A-8-A	#16 320-29300-A-8-A
#17 320-29300-A-9-A	#17 320-29300-A-9-A
#18 320-29300-A-10-A	#18 320-29300-A-10-A
#19 320-29300-A-11-A	#19 320-29300-A-11-A
#20 320-29300-A-12-A	#20 320-29300-A-12-A
#21 320-29300-A-13-A	#21 320-29300-A-13-A
#22 320-29300-A-14-A	#22 320-29300-A-14-A
#23 CCV L3	#23 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 173120	LC 537 CS ICAL Raw Batch: 173127
#23 CCV L3	#23 CCV L3	
#24 RB	#24 RB	
#25 320-29300-A-15-A	#25 320-29300-A-15-A	
#26 320-29300-A-16-A	#26 320-29300-A-16-A	
#27 320-29300-A-17-A	#27 320-29300-A-17-A	
#28 320-29300-A-18-A	#28 320-29300-A-18-A	
#29 320-29300-A-19-A	#29 320-29300-A-19-A	
#30 320-29300-A-20-A	#30 320-29300-A-20-A	
#31 CCV L5	#31 CCV L5	#31 CCV L5

QC Batch: 4	LC 537 ICAL Raw Batch: 173121	LC 537 CS ICAL Raw Batch: 173128
#31 CCV L5	#31 CCV L5	#31 CCV L5
#32 RB	#32 RB	#32 RB
#33 MB 320-172419/1-A		#33 MB 320-172419/1-A
#34 LLCS 320-172419/2-A		#34 LLCS 320-172419/2-A
#35 LLCSD 320-172419/3-A		#35 LLCSD 320-172419/3-A
#36 320-29313-A-1-A		#36 320-29313-A-1-A
#37 320-29313-A-1-B MS		#37 320-29313-A-1-B MS
#38 320-29313-A-1-C MSD		#38 320-29313-A-1-C MSD

QC Batch: 4	LC 537 ICAL Raw Batch: 173121	LC 537 CS ICAL Raw Batch: 173128
#39 320-29313-A-2-A #40 320-29313-A-3-A #41 320-29313-A-4-A #42 320-29315-A-1-A #43 CCV L3		#39 320-29313-A-2-A #40 320-29313-A-3-A #41 320-29313-A-4-A #42 320-29315-A-1-A #43 CCV L3

QC Batch: 5	LC 537 CS ICAL Raw Batch: 173129
#43 CCV L3 #44 RB #45 320-29315-A-1-B MS #46 320-29315-A-1-C MSD #47 320-29315-A-2-A #48 320-29315-A-3-A #49 320-29315-A-4-A #50 CCV L5 #51 RB	#43 CCV L3 #44 RB #45 320-29315-A-1-B MS #46 320-29315-A-1-C MSD #47 320-29315-A-2-A #48 320-29315-A-3-A #49 320-29315-A-4-A #50 CCV L5 #51 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171856

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Method Code: 320-537_Prep-320

Batch End: 7/6/2017 8:35:00PM

Extraction of Perfluorinated Alkyl Acids

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-320-171856/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
2 LCS-320-171856/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
3 320-29300-A-1 (537_DOD5)	N/A (320-29300-1)	284.21 g	256.4 mL	7			6/27/17	16_Days	4	ch nd	
		27.78 g	1.00 mL								
4 320-29300-A-2 (537_DOD5)	N/A (320-29300-1)	280.78 g	253.5 mL	7			6/27/17	16_Days	4	ch nd	
		27.24 g	1.00 mL								
5 320-29300-A-3 (537_DOD5)	N/A (320-29300-1)	285.35 g	257.6 mL	7			6/27/17	16_Days	4	ch nd	
		27.75 g	1.00 mL								
6 320-29300-A-4 (537_DOD5)	N/A (320-29300-1)	283.02 g	256 mL	7			6/27/17	16_Days	4	ch nd	
		27.06 g	1.00 mL								
7 320-29300-A-5 (537_DOD5)	N/A (320-29300-1)	284.02 g	255.8 mL	7			6/27/17	16_Days	4	ch nd	
		28.20 g	1.00 mL								
8 320-29300-A-6 (537_DOD5)	N/A (320-29300-1)	282.45 g	254.6 mL	7			6/27/17	16_Days	4	ch nd	
		27.81 g	1.00 mL								
9 320-29300-A-7 (537_DOD5)	N/A (320-29300-1)	282.85 g	254.7 mL	7			6/27/17	16_Days	4	ch nd	
		28.15 g	1.00 mL								
10 320-29300-A-7~LMS (537_DOD5)	N/A (320-29300-1)	285.24 g	257.4 mL	7			6/27/17	16_Days	4	ch nd	
		27.81 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171856

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Method Code: 320-537_Prep-320

Batch End: 7/6/2017 8:35:00PM

11	320-29300-A-7~LMSD (537_DOD5)	N/A (320-29300-1)	280.73 g 28.48 g	252.3 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
12	320-29300-A-8 (537_DOD5)	N/A (320-29300-1)	278.73 g 27.30 g	251.4 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
13	320-29300-A-9 (537_DOD5)	N/A (320-29300-1)	283.90 g 27.71 g	256.2 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
14	320-29300-A-10 (537_DOD5)	N/A (320-29300-1)	283.62 g 27.89 g	255.7 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
15	320-29300-A-11 (537_DOD5)	N/A (320-29300-1)	286.19 g 28.32 g	257.9 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
16	320-29300-A-12 (537_DOD5)	N/A (320-29300-1)	287.39 g 27.32 g	260.1 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
17	320-29300-A-13 (537_DOD5)	N/A (320-29300-1)	280.16 g 28.44 g	251.7 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
18	320-29300-A-14 (537_DOD5)	N/A (320-29300-1)	284.93 g 27.39 g	257.5 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
19	320-29300-A-15 (537_DOD5)	N/A (320-29300-1)	292.61 g 27.59 g	265 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
20	320-29300-A-16 (537_DOD5)	N/A (320-29300-1)	284.26 g 27.05 g	257.2 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
21	320-29300-A-17 (537_DOD5)	N/A (320-29300-1)	286.04 g 27.63 g	258.4 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	
22	320-29300-A-18 (537_DOD5)	N/A (320-29300-1)	281.85 g 27.32 g	254.5 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171856

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Method Code: 320-537_Prep-320

Batch End: 7/6/2017 8:35:00PM

23	320-29300-A-19 (537_DOD5)	N/A (320-29300-1)	288.80 g	260.8 mL	7		6/27/17	16_Days	4	ch nd	
			28.04 g	1.00 mL							
24	320-29300-A-20 (537_DOD5)	N/A (320-29300-1)	287.72 g	260.1 mL	7		6/27/17	16_Days	4	ch nd	
			27.64 g	1.00 mL							

Batch Notes

Manifold ID 3,4

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-01

Methanol ID 968518

Reagent Water ID 6/27/17

Pipette ID MD05306

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop NSH

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop NSH

Witness

Analyst ID - IS Reagent Drop VPM

Analyst ID - IS Reagent Drop JER

Witness

Batch Comment IS:975029

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171856

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-171856/1	LC537-SU_00044	100 uL	1.00 mL	CS 6-30-17	NSH 6-30-17
LCS 320-171856/2	LC537-HSP_00017	100 uL	1.00 mL		
LCS 320-171856/2	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-1	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-2	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-3	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-4	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-5	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-6	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-7	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-7 LMS	LC537-LSP_00020	100 uL	1.00 mL		
320-29300-A-7 LMS	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-7 LMSD	LC537-LSP_00020	100 uL	1.00 mL		
320-29300-A-7 LMSD	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-8	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-9	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-10	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-11	LC537-SU_00044	100 uL	1.00 mL		

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-171856

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Method Code: 320-537_Prep-320

Batch End:

320-29300-A-12	LC537-SU_00044	100 uL	1.00 mL	CS 6-30-17	NSH 6-30-17
320-29300-A-13	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-14	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-15	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-16	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-17	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-18	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-19	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-20	LC537-SU_00044	100 uL	1.00 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s): 171856 Test: 5320005
 Earliest Holding Time: 7-3-17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	/
All necessary NCMs filed (including holding time)	NA	NA
Method/sample/login/QAS checked and correct	/	/
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 correctly in TALS	/	/
All additional information transcribed into TALS is correct and raw data is attached	/	/
Comments are transcribed correctly in TALS	/	/
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	/	/
All spike amounts correct and added to necessary samples and QC	/	/
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	/	/

1st Level Reviewer: VAM Date: 7/6/17
 2nd Level Reviewer: [Signature] Date: 7/6/17
 Comments: _____

Shipping and Receiving Documents

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.
Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Andy Frebowitz		Site Contact: Mary Kay Bond		Date: 6/19/2017		COC No:	
TetraTech		Tel/Fax:		Lab Contact: Dave Alltucker		Carrier: Fed Ex		1 of 2 COCs	
234 Mall Boulevard Suite 260		Analysis Turnaround Time		 320-29300 Chain of Custody		Filtered Sample (Y/N) Perform MS/MSD (Y/N) EPA 537 UCMR3		Sampler: Andy Frebowitz, Mary Kay Bond	
King of Prussia, PA 19406		☐ CALENDAR DAYS ☐ WORKING DAYS						For Lab Use Only:	
610-382-1174		TAT if different from Below:						Walk-in Client:	
610-491-9688		☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling:	
Project Name: WGNA Willow Grove								Job / SDG No.:	
Site: Willow Grove									
P O # 112G08005-WE04									

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	EPA 537 UCMR3	Sample Specific Notes:
WGNA-061917-RW-3493	6/19/2017	8:40	G	DW	2	N	Y		
WGNA-061917-FRB-3493	6/19/2017	8:35	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3283	6/19/2017	9:15	G	DW	2	N	Y		
WGNA-061917-FRB-3283	6/19/2017	9:10	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-0386	6/19/2017	9:55	G	DW	2	N	Y		
WGNA-061917-FRB-0386	6/19/2017	9:50	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3460	6/19/2017	11:30	G	DW	6	N	Y		MS/MSD
WGNA-061917-FRB-3460	6/19/2017	11:25	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3118A	6/19/2017	13:30	G	DW	2	N	Y		
WGNA-061917-FRB-3118A	6/19/2017	13:20	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3556	6/19/2017	13:55	G	DW	2	N	Y		
WGNA-061917-FRB-3556	6/19/2017	15:50	G	BLK	2	N	Y		Field Reagent Blank

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months	
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown			
Special Instructions/QC Requirements & Comments: Fed Ex tracking number: 6612 1992 6030			

Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 3.8 Corr'd: —		Therm ID No.: AR-1	
Relinquished by: MK Bond		Company: Tetra Tech		Date/Time: 6/19/17 18:00		Received by: [Signature]	
		Company:		Date/Time:		Received by:	
		Company:		Date/Time:		Received in Laboratory by:	
		Company:		Date/Time:		Company:	
		Company:		Date/Time:		Date/Time:	

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

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

TestAmerica Laboratories, Inc.

[illegible]

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-29300-1

Login Number: 29300

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	

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","30","ng/L","J","6.6","DL","","TRG","","","39","LOQ","YES","-99","","256.4","1.00","16","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","22","ng/L","M","2.7","DL","","TRG","","","20","LOQ","YES","-99","","256.4","1.00","7.8","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","16","ng/L","J","5.4","DL","","TRG","","","29","LOQ","YES","-99","","256.4","1.00","12","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","256.4","1.00","35","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","6.8","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","256.4","1.00","3.9","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U M","7.8","DL","","TRG","","","23","LOQ","YES","-99","","256.4","1.00","20","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","STL00993","13C2 PFHxA","35","ng/L","","-99","DL","","SURRE","90","","-99","LOQ","YES","39.0","","256.4","1.00","0","","

"WGNA-061917-RW-3493","537","RES","320-29300-1","TALSAC","STL00996","13C2 PFDA","35","ng/L","","-99","DL","","SURRE","91","","-99","LOQ","YES","39.0","","256.4","1.00","0","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","255.7","1.00","16","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","255.7","1.00","7.8","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","255.7","1.00","12","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","255.7","1.00","35","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","255.7","1.00","3.9","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","255.7","1.00","20","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","STL00993","13C2 PFHxA","39","ng/L","","-99","DL","","SURRE","99","","-99","LOQ","YES","39.1","","255.7","1.00","0","","

"WGNA-061917-FRB-3118A","537","RES","320-29300-10","TALSAC","STL00996","13C2 PFDA","36","ng/L","","-99","DL","","SURRE","93","","-99","LOQ","YES","39.1","","255.7","1.00","0","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","17","ng/L","J","6.6","DL","","TRG","","","39","LOQ","YES","-99","","257.9","1.00","16","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","14","ng/L","J M","2.7","DL","","TRG","","","19","LOQ","YES","-99","","257.9","1.00","7.8","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","257.9","1.00","12","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","257.9","1.00","35","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.8","ng/L","J","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","257.9","1.00","3.9","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","257.9","1.00","19","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","STL00993","13C2 PFHxA","33","ng/L","","-99","DL","","SURRE","84","","-99","LOQ","YES","38.8","","257.9","1.00","0","","

"WGNA-061917-RW-3556","537","RES","320-29300-11","TALSAC","STL00996","13C2 PFDA","37","ng/L","","-99","DL","","SURRE","96","","-99","LOQ","YES","38.8","","257.9","1.00","0","","

"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES","-99","","260.1","1.00","15","","

"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","260.1","1.00","7.7","","

"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS),"12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","260.1","1.00","12",""
"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","15","DL","","TRG","","","87","LOQ","YES","-99","","260.1","1.00","35",""
"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.8","ng/L","U","1.8","DL","","TRG","","","9.6","LOQ","YES","-99","","260.1","1.00","3.8",""
"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","260.1","1.00","19",""
"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","STL00993","13C2
PFHxA),"38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.4","","260.1","1.00","0",""
"WGNA-061917-FRB-3556","537","RES","320-29300-12","TALSAC","STL00996","13C2
PFDA),"35","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","38.4","","260.1","1.00","0",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"22","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.7","1.00","16",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"28","ng/L","M","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.7","1.00","7.9",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"8.5","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.7","1.00","12",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","251.7","1.00","36",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"7.1","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.7","1.00","4.0",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U M","7.9","DL","","TRG","","","24","LOQ","YES","-99","","251.7","1.00","20",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","STL00993","13C2
PFHxA),"37","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","39.7","","251.7","1.00","0",""
"WGNA-061917-RW-0335","537","RES","320-29300-13","TALSAC","STL00996","13C2
PFDA),"39","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","39.7","","251.7","1.00","0",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","257.5","1.00","16",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.8","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","257.5","1.00","7.8",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","257.5","1.00","12",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","257.5","1.00","35",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.9","ng/L","U","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","257.5","1.00","3.9",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","257.5","1.00","19",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","STL00993","13C2
PFHxA),"40","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","38.8","","257.5","1.00","0",""
"WGNA-061917-FRB-0335","537","RES","320-29300-14","TALSAC","STL00996","13C2
PFDA),"36","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","38.8","","257.5","1.00","0",""
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"28","ng/L","J","6.4","DL","","TRG","","","38","LOQ","YES","-99","","265","1.00","15",""
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.9","ng/L","J M","2.6","DL","","TRG","","","19","LOQ","YES","-99","","265","1.00","7.5",""
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"10","ng/L","J","5.2","DL","","TRG","","","28","LOQ","YES","-99","","265","1.00","11",""
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"34","ng/L","U","15","DL","","TRG","","","85","LOQ","YES","-99","","265","1.00","34",""
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.7","ng/L","J","1.8","DL","","TRG","","","9.4","LOQ","YES","-99","","265","1.00","3.8",""
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA),"19","ng/L","U","7.5","DL","","","TRG","","","23","LOQ","YES",-99","","265","1.00","19","","
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","","SURRE","89","","-99","LOQ","YES","37.7","","265","1.00","0","","
"WGNA-061917-RW-3882","537","RES","320-29300-15","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","","SURRE","96","","-99","LOQ","YES","37.7","","265","1.00","0","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.6","DL","","","TRG","","","39","LOQ","YES",-99","","257.2","1.00","16","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","","TRG","","","19","LOQ","YES",-99","","257.2","1.00","7.8","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","","TRG","","","29","LOQ","YES",-99","","257.2","1.00","12","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","","TRG","","","87","LOQ","YES",-99","","257.2","1.00","35","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","","TRG","","","9.7","LOQ","YES",-99","","257.2","1.00","3.9","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.8","DL","","","TRG","","","23","LOQ","YES",-99","","257.2","1.00","19","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","STL00993","13C2
PFHxA","43","ng/L","","-99","DL","","","SURRE","110","","-99","LOQ","YES","38.9","","257.2","1.00","0","","
"WGNA-061917-FRB-3882","537","RES","320-29300-16","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","","SURRE","97","","-99","LOQ","YES","38.9","","257.2","1.00","0","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","14","ng/L","J M","6.6","DL","","","TRG","","","39","LOQ","YES",-99","","258.4","1.00","15","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","17","ng/L","J M","2.7","DL","","","TRG","","","19","LOQ","YES",-99","","258.4","1.00","7.7","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.1","ng/L","J","5.3","DL","","","TRG","","","29","LOQ","YES",-99","","258.4","1.00","12","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","","TRG","","","87","LOQ","YES",-99","","258.4","1.00","35","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.7","ng/L","J M","1.8","DL","","","TRG","","","9.7","LOQ","YES",-99","","258.4","1.00","3.9","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","","TRG","","","23","LOQ","YES",-99","","258.4","1.00","19","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","","SURRE","98","","-99","LOQ","YES","38.7","","258.4","1.00","0","","
"WGNA-061917-RW-3382","537","RES","320-29300-17","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","","SURRE","99","","-99","LOQ","YES","38.7","","258.4","1.00","0","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","","TRG","","","39","LOQ","YES",-99","","254.5","1.00","16","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.8","DL","","","TRG","","","20","LOQ","YES",-99","","254.5","1.00","7.9","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","","TRG","","","29","LOQ","YES",-99","","254.5","1.00","12","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","","TRG","","","88","LOQ","YES",-99","","254.5","1.00","35","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","","TRG","","","9.8","LOQ","YES",-99","","254.5","1.00","3.9","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","","TRG","","","24","LOQ","YES",-99","","254.5","1.00","20","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","","SURRE","99","","-99","LOQ","YES","39.3","","254.5","1.00","0","","
"WGNA-061917-FRB-3382","537","RES","320-29300-18","TALSAC","STL00996","13C2
PFDA","35","ng/L","","-99","DL","","","SURRE","90","","-99","LOQ","YES","39.3","","254.5","1.00","0","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"48","ng/L","M","6.5","DL","","TRG","","","38","LOQ","YES",-99","","260.8","1.00","15","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"24","ng/L","M","2.7","DL","","TRG","","","19","LOQ","YES",-99","","260.8","1.00","7.7","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"41","ng/L","","5.3","DL","","TRG","","","29","LOQ","YES",-99","","260.8","1.00","12","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","15","DL","","TRG","","","86","LOQ","YES",-99","","260.8","1.00","35","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.9","ng/L","J","1.8","DL","","TRG","","","9.6","LOQ","YES",-99","","260.8","1.00","3.8","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES",-99","","260.8","1.00","19","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.3","","260.8","1.00","0","","
"WGNA-061917-DUP01","537","RES","320-29300-19","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.3","","260.8","1.00","0","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES",-99","","253.5","1.00","16","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99","","253.5","1.00","7.9","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES",-99","","253.5","1.00","12","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES",-99","","253.5","1.00","36","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.9","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES",-99","","253.5","1.00","3.9","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES",-99","","253.5","1.00","20","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","39.4","","253.5","1.00","0","","
"WGNA-061917-FRB-3493","537","RES","320-29300-2","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","39.4","","253.5","1.00","0","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"48","ng/L","","6.5","DL","","TRG","","","38","LOQ","YES",-99","","260.1","1.00","15","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"25","ng/L","M","2.7","DL","","TRG","","","19","LOQ","YES",-99","","260.1","1.00","7.7","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"44","ng/L","","5.3","DL","","TRG","","","29","LOQ","YES",-99","","260.1","1.00","12","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","15","DL","","TRG","","","87","LOQ","YES",-99","","260.1","1.00","35","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"5.2","ng/L","J","1.8","DL","","TRG","","","9.6","LOQ","YES",-99","","260.1","1.00","3.8","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES",-99","","260.1","1.00","19","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","38.4","","260.1","1.00","0","","
"WGNA-061917-RW-0143","537","RES","320-29300-20","TALSAC","STL00996","13C2
PFDA","35","ng/L","","-99","DL","","SURR","91","","-99","LOQ","YES","38.4","","260.1","1.00","0","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES",-99","","260.3","1.00","15","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES",-99","","260.3","1.00","7.7","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES",-99","","260.3","1.00","12","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","35","ng/L","U","15","DL","","","TRG","","","86","LOQ","YES",-99","","260.3","1.00","35","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","","TRG","","","9.6","LOQ","YES",-99","","260.3","1.00","3.8","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","","TRG","","","23","LOQ","YES",-99","","260.3","1.00","19","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","","-99","DL","","","SURR","99","","","-99","LOQ","YES","38.4","","260.3","1.00","0","","
"WGNA-061917-FRB-0143","537","RES","320-29300-21","TALSAC","STL00996","13C2
PFDA","36","ng/L","","","-99","DL","","","SURR","94","","","-99","LOQ","YES","38.4","","260.3","1.00","0","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","28","ng/L","J","6.8","DL","","","TRG","","","40","LOQ","YES",-99","","251.8","1.00","16","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","23","ng/L","M","2.8","DL","","","TRG","","","20","LOQ","YES",-99","","251.8","1.00","7.9","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","5.9","ng/L","J","5.5","DL","","","TRG","","","30","LOQ","YES",-99","","251.8","1.00","12","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","","TRG","","","89","LOQ","YES",-99","","251.8","1.00","36","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.7","ng/L","J","1.9","DL","","","TRG","","","9.9","LOQ","YES",-99","","251.8","1.00","4.0","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U M","7.9","DL","","","TRG","","","24","LOQ","YES",-99","","251.8","1.00","20","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","","-99","DL","","","SURR","93","","","-99","LOQ","YES","39.7","","251.8","1.00","0","","
"WGNA-061917-RW-3118B","537","RES","320-29300-22","TALSAC","STL00996","13C2
PFDA","39","ng/L","","","-99","DL","","","SURR","99","","","-99","LOQ","YES","39.7","","251.8","1.00","0","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","20","ng/L","J","6.6","DL","","","TRG","","","39","LOQ","YES",-99","","257.6","1.00","16","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","20","ng/L","M","2.7","DL","","","TRG","","","19","LOQ","YES",-99","","257.6","1.00","7.8","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.9","ng/L","J","5.3","DL","","","TRG","","","29","LOQ","YES",-99","","257.6","1.00","12","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","23","ng/L","J","16","DL","","","TRG","","","87","LOQ","YES",-99","","257.6","1.00","35","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.3","ng/L","J","1.8","DL","","","TRG","","","9.7","LOQ","YES",-99","","257.6","1.00","3.9","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U M","7.8","DL","","","TRG","","","23","LOQ","YES",-99","","257.6","1.00","19","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","","-99","DL","","","SURR","89","","","-99","LOQ","YES","38.8","","257.6","1.00","0","","
"WGNA-061917-RW-3283","537","RES","320-29300-3","TALSAC","STL00996","13C2
PFDA","36","ng/L","","","-99","DL","","","SURR","93","","","-99","LOQ","YES","38.8","","257.6","1.00","0","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.6","DL","","","TRG","","","39","LOQ","YES",-99","","256","1.00","16","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","U","2.7","DL","","","TRG","","","20","LOQ","YES",-99","","256","1.00","7.8","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","","TRG","","","29","LOQ","YES",-99","","256","1.00","12","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","","TRG","","","88","LOQ","YES",-99","","256","1.00","35","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","","TRG","","","9.8","LOQ","YES",-99","","256","1.00","3.9","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","","TRG","","","23","LOQ","YES",-99","","256","1.00","20","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","STL00993","13C2

PFHxA","41","ng/L","","-99","DL","","SURRE","104","","-99","LOQ","YES","39.1","","256","1.00","0","","
"WGNA-061917-FRB-3283","537","RES","320-29300-4","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURRE","95","","-99","LOQ","YES","39.1","","256","1.00","0","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","31","ng/L","J M","6.6","DL","","TRG","","","39","LOQ","YES","-99","","255.8","1.00","16","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","M","2.7","DL","","TRG","","","20","LOQ","YES","-99","","255.8","1.00","7.8","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","21","ng/L","J","5.4","DL","","TRG","","","29","LOQ","YES","-99","","255.8","1.00","12","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","18","ng/L","J","16","DL","","TRG","","","88","LOQ","YES","-99","","255.8","1.00","35","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","255.8","1.00","3.9","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","255.8","1.00","20","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURRE","87","","-99","LOQ","YES","39.1","","255.8","1.00","0","","
"WGNA-061917-RW-0386","537","RES","320-29300-5","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURRE","92","","-99","LOQ","YES","39.1","","255.8","1.00","0","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","254.6","1.00","16","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.9","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","254.6","1.00","7.9","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.6","1.00","12","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.6","1.00","35","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.6","1.00","3.9","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","254.6","1.00","20","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURRE","98","","-99","LOQ","YES","39.3","","254.6","1.00","0","","
"WGNA-061917-FRB-0386","537","RES","320-29300-6","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURRE","93","","-99","LOQ","YES","39.3","","254.6","1.00","0","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","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","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","3.6","ng/L","J M","2.7","DL","","TRG","","","20","LOQ","YES","-99","","254.7","1.00","7.9","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U M","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.7","1.00","12","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.7","1.00","35","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","2.0","ng/L","J M","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.7","1.00","3.9","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","254.7","1.00","20","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURRE","86","","-99","LOQ","YES","39.3","","254.7","1.00","0","","
"WGNA-061917-RW-3460","537","RES","320-29300-7","TALSAC","STL00996","13C2
PFDA","36","ng/L","","-99","DL","","SURRE","92","","-99","LOQ","YES","39.3","","254.7","1.00","0","","
"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","41.7","ng/L","M","6.6","DL","","SPK","107","","39","LOQ","YES","38.9","WGNA-061917-RW-
3460","257.4","1.00","16",,"

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","23.6","ng/L","M","2.7","DL","","SPK","103","","19","LOQ","YES","19.4","WGNA-061917-RW-3460","257.4","1.00","7.8",,""

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","30.7","ng/L","","5.3","DL","","SPK","105","","29","LOQ","YES","29.2","WGNA-061917-RW-3460","257.4","1.00","12",,""

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","97.5","ng/L","","16","DL","","SPK","114","","87","LOQ","YES","85.8","WGNA-061917-RW-3460","257.4","1.00","35",,""

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","12.5","ng/L","","1.8","DL","","SPK","109","","9.7","LOQ","YES","9.62","WGNA-061917-RW-3460","257.4","1.00","3.9",,""

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18.7","ng/L","J","7.8","DL","","SPK","100","","23","LOQ","YES","18.7","WGNA-061917-RW-3460","257.4","1.00","19",,""

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","STL00993","13C2 PFHxA","30.8","ng/L","","-99","DL","","SURRE","79","","-99","LOQ","YES","38.9","WGNA-061917-RW-3460","257.4","1.00","0",,""

"WGNA-061917-RW-3460MS","537","RES","320-29300-7MS","TALSAC","STL00996","13C2 PFDA","34.7","ng/L","","-99","DL","","SURRE","89","","-99","LOQ","YES","38.9","WGNA-061917-RW-3460","257.4","1.00","0",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","41.4","ng/L","","6.7","DL","","SPK","104","1","40","LOQ","YES","39.7","WGNA-061917-RW-3460","252.3","1.00","16",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","28.4","ng/L","M","2.8","DL","","SPK","125","18","20","LOQ","YES","19.8","WGNA-061917-RW-3460","252.3","1.00","7.9",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","30.5","ng/L","","5.4","DL","","SPK","102","1","30","LOQ","YES","29.8","WGNA-061917-RW-3460","252.3","1.00","12",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","98.9","ng/L","","16","DL","","SPK","113","1","89","LOQ","YES","87.5","WGNA-061917-RW-3460","252.3","1.00","36",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","13.4","ng/L","","1.9","DL","","SPK","116","7","9.9","LOQ","YES","9.81","WGNA-061917-RW-3460","252.3","1.00","4.0",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20.3","ng/L","J","7.9","DL","","SPK","106","8","24","LOQ","YES","19.1","WGNA-061917-RW-3460","252.3","1.00","20",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","STL00993","13C2 PFHxA","33.0","ng/L","","-99","DL","","SURRE","83","","-99","LOQ","YES","39.6","WGNA-061917-RW-3460","252.3","1.00","0",,""

"WGNA-061917-RW-3460MSD","537","RES","320-29300-7MSD","TALSAC","STL00996","13C2 PFDA","37.6","ng/L","","-99","DL","","SURRE","95","","-99","LOQ","YES","39.6","WGNA-061917-RW-3460","252.3","1.00","0",,""

"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.4","1.00","16",,""

"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.4","1.00","8.0",,""

"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.4","1.00","12",,""

"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","251.4","1.00","36",,""

"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","375-85-9","Perfluoroheptanoic acid

(PFHpA),"4.0","ng/L","U","1.9","DL","","","TRG","","","9.9","LOQ","YES",-99","","251.4","1.00","4.0","","
"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.0","DL","","","TRG","","","24","LOQ","YES",-99","","251.4","1.00","20","","
"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","","-99","DL","","","SURR","99","","","-99","LOQ","YES","39.8","","251.4","1.00","0","","
"WGNA-061917-FRB-3460","537","RES","320-29300-8","TALSAC","STL00996","13C2
PFDA","36","ng/L","","","-99","DL","","","SURR","92","","","-99","LOQ","YES","39.8","","251.4","1.00","0","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"28","ng/L","J","6.6","DL","","","TRG","","","39","LOQ","YES",-99","","256.2","1.00","16","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"21","ng/L","M","2.7","DL","","","TRG","","","20","LOQ","YES",-99","","256.2","1.00","7.8","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"6.0","ng/L","J","5.4","DL","","","TRG","","","29","LOQ","YES",-99","","256.2","1.00","12","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","16","DL","","","TRG","","","88","LOQ","YES",-99","","256.2","1.00","35","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"6.5","ng/L","J","1.9","DL","","","TRG","","","9.8","LOQ","YES",-99","","256.2","1.00","3.9","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U M","7.8","DL","","","TRG","","","23","LOQ","YES",-99","","256.2","1.00","20","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","","-99","DL","","","SURR","91","","","-99","LOQ","YES","39.0","","256.2","1.00","0","","
"WGNA-061917-RW-3118A","537","RES","320-29300-9","TALSAC","STL00996","13C2
PFDA","38","ng/L","","","-99","DL","","","SURR","96","","","-99","LOQ","YES","39.0","","256.2","1.00","0","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"292","ng/L","","","6.8","DL","","","SPK","97","","","40","LOQ","YES","300","","250","1.00","16","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"147","ng/L","","","2.8","DL","","","SPK","98","","","20","LOQ","YES","150","","250","1.00","8.0","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"202","ng/L","","","5.5","DL","","","SPK","90","","","30","LOQ","YES","225","","250","1.00","12","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"570","ng/L","","","16","DL","","","SPK","86","","","90","LOQ","YES","663","","250","1.00","36","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"78.2","ng/L","","","1.9","DL","","","SPK","105","","","10","LOQ","YES","74.3","","250","1.00","4.0","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"134","ng/L","","","8.0","DL","","","SPK","93","","","24","LOQ","YES","144","","250","1.00","20","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","STL00993","13C2
PFHxA","40.7","ng/L","","","-99","DL","","","SURR","102","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"LCS 320-171856/2-A","537","RES","LCS 320-171856/2-A","TALSAC","STL00996","13C2
PFDA","39.0","ng/L","","","-99","DL","","","SURR","97","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS),"40.1","ng/L","","","6.8","DL","","","SPK","100","","","40","LOQ","YES","40.0","","250","1.00","16","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"20.2","ng/L","","","2.8","DL","","","SPK","101","","","20","LOQ","YES","20.0","","250","1.00","8.0","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"28.9","ng/L","J","5.5","DL","","","SPK","96","","","30","LOQ","YES","30.1","","250","1.00","12","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"89.2","ng/L","J","16","DL","","","SPK","101","","","90","LOQ","YES","88.3","","250","1.00","36","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"10.9","ng/L","","","1.9","DL","","","SPK","110","","","10","LOQ","YES","9.90","","250","1.00","4.0","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19.7","ng/L","J","8.0","DL","","","SPK","102","","","24","LOQ","YES","19.3","","250","1.00","20","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","STL00993","13C2
PFHxA","41.7","ng/L","","","-99","DL","","","SURR","104","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"LLCS 320-171866/2-A","537","RES","LLCS 320-171866/2-A","TALSAC","STL00996","13C2

PFDA","37.9","ng/L","",-99","DL","","SURRE","95","",-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","41.4","ng/L","","6.8","DL","","SPK","103","3","40","LOQ","YES","40.0","LLCS 320-171866/2-
A","250","1.00","16",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21.2","ng/L","","2.8","DL","","SPK","106","5","20","LOQ","YES","20.0","LLCS 320-171866/2-
A","250","1.00","8.0",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","28.9","ng/L","J","5.5","DL","","SPK","96","0.2","30","LOQ","YES","30.1","LLCS 320-171866/2-
A","250","1.00","12",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic
acid (PFBS)","92.6","ng/L","","16","DL","","SPK","105","4","90","LOQ","YES","88.3","LLCS 320-171866/2-
A","250","1.00","36",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","11.7","ng/L","","1.9","DL","","SPK","118","7","10","LOQ","YES","9.90","LLCS 320-171866/2-
A","250","1.00","4.0",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20.4","ng/L","J","8.0","DL","","SPK","106","3","24","LOQ","YES","19.3","LLCS 320-171866/2-
A","250","1.00","20",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","STL00993","13C2
PFHxA","38.8","ng/L","",-99","DL","","SURRE","97","7","-99","LOQ","YES","40.0","LLCS 320-171866/2-
A","250","1.00","0",""
"LLCSD 320-171866/3-A","537","RES","LLCSD 320-171866/3-A","TALSAC","STL00996","13C2
PFDA","37.6","ng/L","",-99","DL","","SURRE","94","0.9","-99","LOQ","YES","40.0","LLCS 320-171866/2-
A","250","1.00","0",""
"MB 320-171856/1-A","537","RES","MB 320-171856/1-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 320-171856/1-A","537","RES","MB 320-171856/1-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 320-171856/1-A","537","RES","MB 320-171856/1-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 320-171856/1-A","537","RES","MB 320-171856/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-171856/1-A","537","RES","MB 320-171856/1-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 320-171856/1-A","537","RES","MB 320-171856/1-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 320-171856/1-A","537","RES","MB 320-171856/1-A","TALSAC","STL00993","13C2
PFHxA","38.3","ng/L","",-99","DL","","SURRE","96","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-171856/1-A","537","RES","MB 320-171856/1-A","TALSAC","STL00996","13C2
PFDA","36.3","ng/L","",-99","DL","","SURRE","91","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-171866/1-A","537","RES","MB 320-171866/1-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 320-171866/1-A","537","RES","MB 320-171866/1-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 320-171866/1-A","537","RES","MB 320-171866/1-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 320-171866/1-A","537","RES","MB 320-171866/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-171866/1-A","537","RES","MB 320-171866/1-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 320-171866/1-A","537","RES","MB 320-171866/1-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 320-171866/1-A","537","RES","MB 320-171866/1-A","TALSAC","STL00993","13C2

PFHxA","38.2","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-171866/1-A","537","RES","MB 320-171866/1-A","TALSAC","STL00996","13C2
PFDA","36.9","ng/L","","-99","DL","","SURR","92","","-99","LOQ","YES","40.0","","250","1.00","0",""
"Unknown","Unknown","WGNA-061917-RW-3493","06/19/2017 08:40","AQ","320-29300-
1","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:40","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3118A","06/19/2017 13:20","AQ","320-29300-
10","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:42","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3556","06/19/2017 13:55","AQ","320-29300-
11","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:47","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3556","06/19/2017 15:50","AQ","320-29300-
12","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:51","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-0335","06/19/2017 14:45","AQ","320-29300-
13","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:56","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-0335","06/19/2017 14:40","AQ","320-29300-
14","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:01","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3882","06/19/2017 15:30","AQ","320-29300-
15","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:15","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173120","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3882","06/19/2017 15:25","AQ","320-29300-
16","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:20","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173120","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3382","06/19/2017 16:00","AQ","320-29300-
17","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:25","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173120","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3382","06/19/2017 14:55","AQ","320-29300-
18","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:29","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173120","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-DUP01","06/19/2017 07:00","AQ","320-29300-
19","FD","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:34","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173120","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3493","06/19/2017 08:35","AQ","320-29300-
2","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:45","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-0143","06/19/2017 10:25","AQ","320-29300-
20","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
16:39","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-

173120","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-0143","06/19/2017 10:30","AQ","320-29300-
21","NM","","3.80","537","METHOD","RES","06/30/2017 09:34","07/08/2017
14:12","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171866","320-171866","NA","320-
173117","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3118B","06/19/2017 13:30","AQ","320-29300-
22","NM","","3.80","537","METHOD","RES","06/30/2017 09:34","07/08/2017
14:16","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171866","320-171866","NA","320-
173117","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3283","06/19/2017 09:15","AQ","320-29300-
3","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:50","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3283","06/19/2017 09:10","AQ","320-29300-
4","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:54","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-0386","06/19/2017 09:55","AQ","320-29300-
5","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:59","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-0386","06/19/2017 09:50","AQ","320-29300-
6","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:04","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3460","06/19/2017 11:30","AQ","320-29300-
7","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:18","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3460MS","06/19/2017 11:30","AQ","320-29300-
7MS","MS","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:23","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3460MSD","06/19/2017 11:30","AQ","320-29300-
7MSD","MSD","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:28","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-FRB-3460","06/19/2017 11:25","AQ","320-29300-
8","FB","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:32","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","WGNA-061917-RW-3118A","06/19/2017 13:30","AQ","320-29300-
9","NM","","3.80","537","METHOD","RES","06/30/2017 09:25","07/08/2017
15:37","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173119","320-29300-1","06/21/2017 09:10","06/22/2017 16:35",""
"Unknown","Unknown","LCS 320-171856/2-A","","AQ","LCS 320-171856/2-
A","LCS","","-99","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:35","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/30/2017 09:25","06/22/2017 16:35",""
"Unknown","Unknown","LLCS 320-171866/2-A","","AQ","LLCS 320-171866/2-
A","LCS","","-99","537","METHOD","RES","06/30/2017 09:34","07/08/2017
14:02","TALSAC","COA","WET","NA","1","NA","NA","","100","320-171866","320-171866","NA","320-
173117","320-29300-1","06/30/2017 09:34","06/22/2017 16:35",""
"Unknown","Unknown","LLCSD 320-171866/3-A","","AQ","LLCSD 320-171866/3-

A","LCSD","",-99","537","METHOD","RES","06/30/2017 09:34","07/08/2017
14:07","TALSAC","COA","WET","NA","1","NA","NA","",,"100","320-171866","320-171866","NA","320-
173117","320-29300-1","06/30/2017 09:34","06/22/2017 16:35",""
"Unknown","Unknown","MB 320-171856/1-A","",,"AQ","MB 320-171856/1-
A","MB","",-99","537","METHOD","RES","06/30/2017 09:25","07/08/2017
14:31","TALSAC","COA","WET","NA","1","NA","NA","",,"100","320-171856","320-171856","NA","320-
173118","320-29300-1","06/30/2017 09:25","06/22/2017 16:35",""
"Unknown","Unknown","MB 320-171866/1-A","",,"AQ","MB 320-171866/1-
A","MB","",-99","537","METHOD","RES","06/30/2017 09:34","07/08/2017
13:58","TALSAC","COA","WET","NA","1","NA","NA","",,"100","320-171866","320-171866","NA","320-
173117","320-29300-1","06/30/2017 09:34","06/22/2017 16:35",""



TETRA TECH

INTERNAL CORRESPONDENCE

TO: ANDY FREBOWITZ **DATE:** JULY 24, 2017
FROM: MEGAN RITCHIE **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-29300-1
SAMPLES: 22/Aqueous/PFAS

WGNA-061917-RW-3493	WGNA-061917-FRB-3493
WGNA-061917-RW-3283	WGNA-061917-FRB-3283
WGNA-061917-RW-0386	WGNA-061917-FRB-0386
WGNA-061917-RW-3460	WGNA-061917-FRB-3460
WGNA-061917-RW-3118A	WGNA-061917-FRB-3118A
WGNA-061917-RW-3556	WGNA-061917-FRB-3556
WGNA-061917-RW-0335	WGNA-061917-FRB-0335
WGNA-061917-RW-3882	WGNA-061917-FRB-3882
WGNA-061917-RW-3382	WGNA-061917-FRB-3382
WGNA-061917-RW-0143	WGNA-061917-FRB-0143
WGNA-061917-RW-3118B	WGNA-061917-DUP01

Overview

The sample set for NAS JRB Willow Grove, SDG 320-29300-1 consisted of twelve (12) drinking water samples (designated -RW-) and ten (10) field reagent blanks (designated -FRB-). All samples were analyzed for polyfluoroalkyl substances (PFAS). One (1) field duplicate pair (WGNA-061917-RW-0143 / WGNA-061917-DUP01) was included in this SDG.

The samples were collected by Tetra Tech, Inc. on June 19, 2017 and analyzed by Test America, Inc. All analyses were conducted in accordance with EPA Method 537 analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, LC/MS/MS tuning, initial/continuing calibrations, laboratory method/preparation/field blanks, surrogate spike recoveries, laboratory control sample / laboratory control sample duplicate recoveries, internal standard areas and recoveries, matrix spike / matrix spike duplicate results, field duplicate results, 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).

Additional Comments

PFAS compounds were not detected in the FRBs contained in this SDG.

Detected results reported below the LOQ but above the Method Detection Limit (MDL) were qualified as estimated, (J). Non-detected results were reported to the LOD.

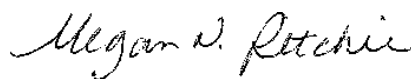
FRB sample WGNA-061917-FRB-3118A is associated with both samples WGNA-061917-RW-3118A and WGNA-061917-RW-3118B. These samples were taken from the same residence. The "A" sample was collected from the pre-treatment point and the "B" sample was collected at the post-treatment point.

Executive Summary

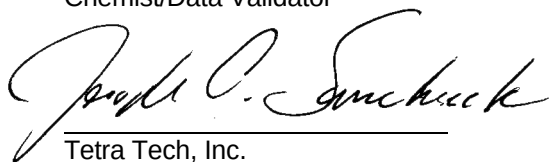
Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: Detected results below the LOQ were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017) and EPA Method 537. The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Megan Ritchie
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

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

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.

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 ($< 2 \times \text{IDL}$ 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: 320-29300-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-061917-DUP01			WGNA-061917-FRB-0143			WGNA-061917-FRB-0335			WGNA-061917-FRB-0386		
	LAB_ID	320-29300-19			320-29300-21			320-29300-14			320-29300-6		
	SAMP_DATE	6/19/2017			6/19/2017			6/19/2017			6/19/2017		
	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	WGNA-061917-RW-0143											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		24			7.7	U		7.8	U		7.9	U	
PERFLUOROBUTANE SULFONATE		35	U		35	U		35	U		35	U	
PERFLUOROHEPTANOIC ACID		4.9	J	P	3.8	U		3.9	U		3.9	U	
PERFLUOROHXANESULFONIC ACID		41			12	U		12	U		12	U	
PERFLUORONONANOIC ACID		19	U		19	U		19	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		48			15	U		16	U		16	U	

PROJ_NO: 08005-WE04 SDG: 320-29300-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-061917-FRB-3118A			WGNA-061917-FRB-3283			WGNA-061917-FRB-3382			WGNA-061917-FRB-3460		
	LAB_ID	320-29300-10			320-29300-4			320-29300-18			320-29300-8		
	SAMP_DATE	6/19/2017			6/19/2017			6/19/2017			6/19/2017		
	QC_TYPE	FB			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.8	U		7.8	U		7.9	U		8	U	
PERFLUOROBUTANE SULFONATE		35	U		35	U		35	U		36	U	
PERFLUOROHEPTANOIC ACID		3.9	U		3.9	U		3.9	U		4	U	
PERFLUOROHEXANESULFONIC ACID		12	U		12	U		12	U		12	U	
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		16	U		16	U		16	U	

PROJ_NO: 08005-WE04 SDG: 320-29300-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-061917-FRB-3493			WGNA-061917-FRB-3556			WGNA-061917-FRB-3882			WGNA-061917-RW-0143		
	LAB_ID	320-29300-2			320-29300-12			320-29300-16			320-29300-20		
	SAMP_DATE	6/19/2017			6/19/2017			6/19/2017			6/19/2017		
	QC_TYPE	FB			FB			FB			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.9	U		7.7	U		7.8	U		25		
PERFLUOROBUTANE SULFONATE		36	U		35	U		35	U		35	U	
PERFLUOROHEPTANOIC ACID		3.9	U		3.8	U		3.9	U		5.2	J	P
PERFLUOROHXANESULFONIC ACID		12	U		12	U		12	U		44		
PERFLUORONONANOIC ACID		20	U		19	U		19	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		16	U		15	U		16	U		48		

PROJ_NO: 08005-WE04 SDG: 320-29300-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-061917-RW-0335			WGNA-061917-RW-0386			WGNA-061917-RW-3118A			WGNA-061917-RW-3118B		
	LAB_ID	320-29300-13			320-29300-5			320-29300-9			320-29300-22		
	SAMP_DATE	6/19/2017			6/19/2017			6/19/2017			6/19/2017		
	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		28			21			21			23		
PERFLUOROBUTANE SULFONATE		36	U		18	J	P	35	U		36	U	
PERFLUOROHEPTANOIC ACID		7.1	J	P	4.1	J	P	6.5	J	P	6.7	J	P
PERFLUOROHEXANESULFONIC ACID		8.5	J	P	21	J	P	6	J	P	5.9	J	P
PERFLUORONONANOIC ACID		20	U		20	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		22	J	P	31	J	P	28	J	P	28	J	P

PROJ_NO: 08005-WE04 SDG: 320-29300-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-061917-RW-3283			WGNA-061917-RW-3382			WGNA-061917-RW-3460			WGNA-061917-RW-3493		
	LAB_ID	320-29300-3			320-29300-17			320-29300-7			320-29300-1		
	SAMP_DATE	6/19/2017			6/19/2017			6/19/2017			6/19/2017		
	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		20			17	J	P	3.6	J	P	22		
PERFLUOROBUTANE SULFONATE		23	J	P	35	U		35	U		35	U	
PERFLUOROHEPTANOIC ACID		6.3	J	P	5.7	J	P	2	J	P	6.8	J	P
PERFLUOROHXANESULFONIC ACID		7.9	J	P	6.1	J	P	12	U		16	J	P
PERFLUORONONANOIC ACID		19	U		19	U		20	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		20	J	P	14	J	P	16	U		30	J	P

PROJ_NO: 08005-WE04 SDG: 320-29300-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-061917-RW-3556			WGNA-061917-RW-3882		
	LAB_ID	320-29300-11			320-29300-15		
	SAMP_DATE	6/19/2017			6/19/2017		
	QC_TYPE	NM			NM		
	UNITS	NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		14	J	P	8.9	J	P
PERFLUOROBUTANE SULFONATE		35	U		34	U	
PERFLUOROHEPTANOIC ACID		3.8	J	P	3.7	J	P
PERFLUOROHEXANESULFONIC ACID		12	U		10	J	P
PERFLUORONONANOIC ACID		19	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		17	J	P	28	J	P

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3493 Lab Sample ID: 320-29300-1
 Matrix: Water Lab File ID: 2017.07.08_537A_042.d
 Analysis Method: 537 Date Collected: 06/19/2017 08:40
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 256.4 (mL) Date Analyzed: 07/08/2017 14:40
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173118 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	30	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	22	M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.8	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	90		70-130
STL00996	13C2 PFDA	91		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3493</u>	Lab Sample ID: <u>320-29300-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_043.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 08:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>253.5 (mL)</u>	Date Analyzed: <u>07/08/2017 14:45</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>173118</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	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3283</u>	Lab Sample ID: <u>320-29300-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_044.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 09:15</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.6(mL)</u>	Date Analyzed: <u>07/08/2017 14:50</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>173118</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	20	M	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U M	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.9	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.3	J	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	23	J	87	35	16

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3283</u>	Lab Sample ID: <u>320-29300-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_045.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 09:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>256(mL)</u>	Date Analyzed: <u>07/08/2017 14:54</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>173118</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	95		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-0386</u>	Lab Sample ID: <u>320-29300-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_046.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 09:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>255.8 (mL)</u>	Date Analyzed: <u>07/08/2017 14:59</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>173118</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	21	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	18	J	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	92		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-0386</u>	Lab Sample ID: <u>320-29300-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_047.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 09:50</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>254.6(mL)</u>	Date Analyzed: <u>07/08/2017 15:04</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>173118</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	2.7
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	98		70-130
STL00996	13C2 PFDA	93		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3460</u>	Lab Sample ID: <u>320-29300-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_050.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 11:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>254.7(mL)</u>	Date Analyzed: <u>07/08/2017 15:18</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>173119</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)	3.6	J M	20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.0	J M	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	86		70-130
STL00996	13C2 PFDA	92		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-FRB-3460 Lab Sample ID: 320-29300-8
 Matrix: Water Lab File ID: 2017.07.08_537A_053.d
 Analysis Method: 537 Date Collected: 06/19/2017 11:25
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 251.4 (mL) Date Analyzed: 07/08/2017 15:32
 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.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3118A</u>	Lab Sample ID: <u>320-29300-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_054.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 13:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>256.2 (mL)</u>	Date Analyzed: <u>07/08/2017 15:37</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>173119</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.0	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.5	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	91		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-FRB-3118A Lab Sample ID: 320-29300-10
 Matrix: Water Lab File ID: 2017.07.08_537A_055.d
 Analysis Method: 537 Date Collected: 06/19/2017 13:20
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 255.7(mL) Date Analyzed: 07/08/2017 15:42
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	93		70-130

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3556</u>	Lab Sample ID: <u>320-29300-11</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_056.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 13:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.9(mL)</u>	Date Analyzed: <u>07/08/2017 15:47</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>173119</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	14	J M	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	J	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	96		70-130

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3556</u>	Lab Sample ID: <u>320-29300-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_057.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 15:50</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>260.1 (mL)</u>	Date Analyzed: <u>07/08/2017 15:51</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>173119</u>	Units: <u>ng/L</u>

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	91		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-0335 Lab Sample ID: 320-29300-13
 Matrix: Water Lab File ID: 2017.07.08_537A_058.d
 Analysis Method: 537 Date Collected: 06/19/2017 14:45
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 251.7(mL) Date Analyzed: 07/08/2017 15:56
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173119 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	98		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-0335</u>	Lab Sample ID: <u>320-29300-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_059.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 14:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.5 (mL)</u>	Date Analyzed: <u>07/08/2017 16:01</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>173119</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	92		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Client Sample ID: WGNA-061917-RW-3882 Lab Sample ID: 320-29300-15

Matrix: Water Lab File ID: 2017.07.08_537A_062.d

Analysis Method: 537 Date Collected: 06/19/2017 15:30

Extraction Method: 537 Date Extracted: 06/30/2017 09:25

Sample wt/vol: 265 (mL) Date Analyzed: 07/08/2017 16:15

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.: 173120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	8.9	J M	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	J	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	96		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3882</u>	Lab Sample ID: <u>320-29300-16</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_063.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 15:25</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>257.2 (mL)</u>	Date Analyzed: <u>07/08/2017 16:20</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>173120</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	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	110		70-130
STL00996	13C2 PFDA	97		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-3382 Lab Sample ID: 320-29300-17
 Matrix: Water Lab File ID: 2017.07.08_537A_064.d
 Analysis Method: 537 Date Collected: 06/19/2017 16:00
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 258.4 (mL) Date Analyzed: 07/08/2017 16:25
 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.: 173120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	J M	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.1	J	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.7	J M	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	99		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-3382</u>	Lab Sample ID: <u>320-29300-18</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_065.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 14:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>254.5 (mL)</u>	Date Analyzed: <u>07/08/2017 16:29</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>173120</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	99		70-130
STL00996	13C2 PFDA	90		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-DUP01</u>	Lab Sample ID: <u>320-29300-19</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_066.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:25</u>
Sample wt/vol: <u>260.8 (mL)</u>	Date Analyzed: <u>07/08/2017 16:34</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>173120</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	48	M	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	24	M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	41		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.9	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	86	35	15

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-0143 Lab Sample ID: 320-29300-20
 Matrix: Water Lab File ID: 2017.07.08_537A_067.d
 Analysis Method: 537 Date Collected: 06/19/2017 10:25
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 260.1(mL) Date Analyzed: 07/08/2017 16:39
 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.: 173120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	48		38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	44		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.2	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	91		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-FRB-0143</u>	Lab Sample ID: <u>320-29300-21</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_036.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 10:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:34</u>
Sample wt/vol: <u>260.3(mL)</u>	Date Analyzed: <u>07/08/2017 14:12</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>173117</u>	Units: <u>ng/L</u>

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

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-29300-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-061917-RW-3118B</u>	Lab Sample ID: <u>320-29300-22</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.07.08_537A_037.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>06/19/2017 13:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>06/30/2017 09:34</u>
Sample wt/vol: <u>251.8 (mL)</u>	Date Analyzed: <u>07/08/2017 14:16</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>173117</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	23	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.9	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.7	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	99		70-130

APPENDIX C

SUPPORT DOCUMENTATION

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.
Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Andy Frebowitz		Site Contact: Mary Kay Bond		Date: 6/19/2017		COC No:	
TetraTech		Tel/Fax:		Lab Contact: Dave Alltucker		Carrier: Fed Ex		1 of 2 COCs	
234 Mall Boulevard Suite 260		Analysis Turnaround Time		 320-29300 Chain of Custody		 320-29300 Chain of Custody		Sampler: Andy Frebowitz, Mary Kay Bond	
King of Prussia, PA 19406		☐ CALENDAR DAYS ☐ WORKING DAYS						For Lab Use Only:	
610-382-1174		TAT if different from Below:						Walk-in Client:	
610-491-9688		☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day						Lab Sampling:	
Project Name: WGNA Willow Grove								Job / SDG No.:	
Site: Willow Grove									
P O # 112G08005-WE04									

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	EPA 537 UCMR3	Sample Specific Notes
WGNA-061917-RW-3493	6/19/2017	8:40	G	DW	2	N	Y		
WGNA-061917-FRB-3493	6/19/2017	8:35	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3283	6/19/2017	9:15	G	DW	2	N	Y		
WGNA-061917-FRB-3283	6/19/2017	9:10	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-0386	6/19/2017	9:55	G	DW	2	N	Y		
WGNA-061917-FRB-0386	6/19/2017	9:50	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3460	6/19/2017	11:30	G	DW	6	N	Y		MS/MSD
WGNA-061917-FRB-3460	6/19/2017	11:25	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3118A	6/19/2017	13:30	G	DW	2	N	Y		
WGNA-061917-FRB-3118A	6/19/2017	13:20	G	BLK	2	N	Y		Field Reagent Blank
WGNA-061917-RW-3556	6/19/2017	13:55	G	DW	2	N	Y		
WGNA-061917-FRB-3556	6/19/2017	15:50	G	BLK	2	N	Y		Field Reagent Blank

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other: Trizma		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months	
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown			

Special Instructions/QC Requirements & Comments: Fed Ex tracking number: 6612 1992 6030			

Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 3.8 Corr'd: —		Therm ID No.: AR-1	
Relinquished by: MK Bond		Company: Tetra Tech		Date/Time: 6/19/17 18:00		Received by: [Signature]	
		Company:		Date/Time:		Received by:	
		Company:		Date/Time:		Received in Laboratory by:	
		Company:		Date/Time:		Received by:	
		Company:		Date/Time:		Received by:	

West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

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

TestAmerica Laboratories, Inc.

[illegible]

Job Narrative
320-29300-1

Receipt

The samples were received on 6/21/2017 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

Receipt Exceptions

No analysis or hold is indicated for samples WGNA-061917-RW-0143, WGNA-061917-FRB-0143, or WGNA-061917-RW-3118B. Samples were logged in for PFAS analysis.

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 320-171866.

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

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: WGNA-061917-RW-0143 Lab Sample ID: 320-29300-20
 Matrix: Water Lab File ID: 2017.07.08_537A_067.d
 Analysis Method: 537 Date Collected: 06/19/2017 10:25
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 260.1 (mL) Date Analyzed: 07/08/2017 16:39
 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.: 173120 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	48		38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	25	M	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	44		29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.2	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	91		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\2017.07.08_537A_067.d
 Lims ID: 320-29300-A-20-A
 Client ID: WGNA-061917-RW-0143
 Sample Type: Client
 Inject. Date: 08-Jul-2017 16:39:18 ALS Bottle#: 51 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-29300-a-20-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 10-Jul-2017 11:07:36 Calib Date: 05-Jul-2017 20:13:46
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170706-45099.b\2017.07.05_537CURVE_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK015

First Level Reviewer: barnettj

Date: 10-Jul-2017 11:06:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.419	1.404	0.015	1.000	245025	2.98		81.0	
298.90 > 99.00	1.419	1.404	0.015	1.000	197181		1.24(0.00-0.00)	102	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.539	0.016	1.000	820626	9.20		4306	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.691	0.024	1.000	110104	1.34		16.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.692	0.023	1.000	1466637	11.4		448	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.878	0.026		784949	10.0		3787	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.879	0.033	1.000	468742	6.48		33.7	M
413.00 > 169.00	1.912	1.879	0.033	1.000	324220		1.45(0.00-0.00)	358	M
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.117	0.030		2644931	28.7		2120	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	1184325	12.5		470	
499.00 > 99.00	2.147	2.147	0.0	1.000	224951		5.26(0.00-0.00)	269	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.299	2.281	0.018	1.000	602467	9.14		1489	

PFOS CALCULATION Sample WGNA-061917-RW-0143

1184325 / 2644931 * (28.7 / 1.0241) = 12.5 ng/ml

12.5 * (1 mL / 0.2601 L) = 48 ng/L

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-061917-RW-3493	320-29300-1	90	91
WGNA-061917-FRB-3493	320-29300-2	97	90
WGNA-061917-RW-3283	320-29300-3	89	93
WGNA-061917-FRB-3283	320-29300-4	104	95
WGNA-061917-RW-0386	320-29300-5	87	92
WGNA-061917-FRB-0386	320-29300-6	98	93
WGNA-061917-RW-3460	320-29300-7	86	92
WGNA-061917-FRB-3460	320-29300-8	99	92
WGNA-061917-RW-3118A	320-29300-9	91	96
WGNA-061917-FRB-3118A	320-29300-10	99	93
WGNA-061917-RW-3556	320-29300-11	84	96
WGNA-061917-FRB-3556	320-29300-12	98	91
WGNA-061917-RW-0335	320-29300-13	93	98
WGNA-061917-FRB-0335	320-29300-14	102	92
WGNA-061917-RW-3882	320-29300-15	89	96
WGNA-061917-FRB-3882	320-29300-16	110	97
WGNA-061917-RW-3382	320-29300-17	98	99
WGNA-061917-FRB-3382	320-29300-18	99	90
WGNA-061917-DUP01	320-29300-19	98	98
WGNA-061917-RW-0143	320-29300-20	92	91
WGNA-061917-FRB-0143	320-29300-21	99	94
WGNA-061917-RW-3118B	320-29300-22	93	99
	MB 320-171856/1-A	96	91
	MB 320-171866/1-A	95	92
	LCS 320-171856/2-A	102	97

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
	LLCS 320-171866/2-A	104	95
WGNA-061917-RW-346 0 LMS	320-29300-7 LMS	79	89
WGNA-061917-RW-346 0 LMSD	320-29300-7 LMSD	83	95
	LLCSD 320-171866/3-A	97	94

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_041.d
 Lab ID: LCS 320-171856/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	300	292	97	70-130	
Perfluorooctanoic acid (PFOA)	150	147	98	70-130	
Perfluorononanoic acid (PFNA)	144	134	93	70-130	
Perfluorohexanesulfonic acid (PFHxS)	225	202	90	70-130	
Perfluoroheptanoic acid (PFHpA)	74.3	78.2	105	70-130	
Perfluorobutanesulfonic acid (PFBS)	663	570	86	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_034.d
 Lab ID: LLCS 320-171866/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	40.1	100	50-150	
Perfluorooctanoic acid (PFOA)	20.0	20.2	101	50-150	
Perfluorononanoic acid (PFNA)	19.3	19.7 J	102	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	28.9 J	96	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	10.9	110	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	89.2 J	101	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_051.d
 Lab ID: 320-29300-7 LMS Client ID: WGNA-061917-RW-3460 LMS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	LMS CONCENTRATION (ng/L)	LMS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	38.9	16 U	41.7	107	50-150	M
Perfluorooctanoic acid (PFOA)	19.4	3.6 J	23.6	103	50-150	M
Perfluorononanoic acid (PFNA)	18.7	20 U	18.7 J	100	50-150	
Perfluorohexanesulfonic acid (PFHxS)	29.2	12 U	30.7	105	50-150	
Perfluoroheptanoic acid (PFHpA)	9.62	2.0 J	12.5	109	50-150	
Perfluorobutanesulfonic acid (PFBS)	85.8	35 U	97.5	114	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_052.d
 Lab ID: 320-29300-7 LMSD Client ID: WGNA-061917-RW-3460 LMSD

COMPOUND	SPIKE ADDED (ng/L)	LMSD CONCENTRATION (ng/L)	LMSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	39.7	41.4	104	1	50	50-150	
Perfluorooctanoic acid (PFOA)	19.8	28.4	125	18	50	50-150	M
Perfluorononanoic acid (PFNA)	19.1	20.3 J	106	8	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	29.8	30.5	102	1	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.81	13.4	116	7	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	87.5	98.9	113	1	50	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.: 320-29300-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.07.08_537A_035.d
 Lab ID: LLCSD 320-171866/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.0	41.4	103	3	50	50-150	
Perfluorooctanoic acid (PFOA)	20.0	21.2	106	5	50	50-150	
Perfluorononanoic acid (PFNA)	19.3	20.4 J	106	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	28.9 J	96	0.2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	11.7	118	7	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	92.6	105	4	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.: 320-29300-1
SDG No.: _____
Lab File ID: 2017.07.08_537A_040.d Lab Sample ID: MB 320-171856/1-A
Matrix: Water Date Extracted: 06/30/2017 09:25
Instrument ID: A8_N Date Analyzed: 07/08/2017 14:31
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-171856/2-A	2017.07.08_537A_041.d	07/08/2017 14:35
WGNA-061917-RW-3493	320-29300-1	2017.07.08_537A_042.d	07/08/2017 14:40
WGNA-061917-FRB-3493	320-29300-2	2017.07.08_537A_043.d	07/08/2017 14:45
WGNA-061917-RW-3283	320-29300-3	2017.07.08_537A_044.d	07/08/2017 14:50
WGNA-061917-FRB-3283	320-29300-4	2017.07.08_537A_045.d	07/08/2017 14:54
WGNA-061917-RW-0386	320-29300-5	2017.07.08_537A_046.d	07/08/2017 14:59
WGNA-061917-FRB-0386	320-29300-6	2017.07.08_537A_047.d	07/08/2017 15:04
WGNA-061917-RW-3460	320-29300-7	2017.07.08_537A_050.d	07/08/2017 15:18
WGNA-061917-RW-3460 LMS	320-29300-7 LMS	2017.07.08_537A_051.d	07/08/2017 15:23
WGNA-061917-RW-3460 LMSD	320-29300-7 LMSD	2017.07.08_537A_052.d	07/08/2017 15:28
WGNA-061917-FRB-3460	320-29300-8	2017.07.08_537A_053.d	07/08/2017 15:32
WGNA-061917-RW-3118A	320-29300-9	2017.07.08_537A_054.d	07/08/2017 15:37
WGNA-061917-FRB-3118A	320-29300-10	2017.07.08_537A_055.d	07/08/2017 15:42
WGNA-061917-RW-3556	320-29300-11	2017.07.08_537A_056.d	07/08/2017 15:47
WGNA-061917-FRB-3556	320-29300-12	2017.07.08_537A_057.d	07/08/2017 15:51
WGNA-061917-RW-0335	320-29300-13	2017.07.08_537A_058.d	07/08/2017 15:56
WGNA-061917-FRB-0335	320-29300-14	2017.07.08_537A_059.d	07/08/2017 16:01
WGNA-061917-RW-3882	320-29300-15	2017.07.08_537A_062.d	07/08/2017 16:15
WGNA-061917-FRB-3882	320-29300-16	2017.07.08_537A_063.d	07/08/2017 16:20
WGNA-061917-RW-3382	320-29300-17	2017.07.08_537A_064.d	07/08/2017 16:25
WGNA-061917-FRB-3382	320-29300-18	2017.07.08_537A_065.d	07/08/2017 16:29
WGNA-061917-DUP01	320-29300-19	2017.07.08_537A_066.d	07/08/2017 16:34

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
SDG No.: _____
Lab File ID: 2017.07.08_537A_040.d Lab Sample ID: MB 320-171856/1-A
Matrix: Water Date Extracted: 06/30/2017 09:25
Instrument ID: A8_N Date Analyzed: 07/08/2017 14:31
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-061917-RW-0143	320-29300-20	2017.07.08_ 537A 067.d	07/08/2017 16:39

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
SDG No.: _____
Lab File ID: 2017.07.08_537A_033.d Lab Sample ID: MB 320-171866/1-A
Matrix: Water Date Extracted: 06/30/2017 09:34
Instrument ID: A8_N Date Analyzed: 07/08/2017 13:58
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-171866/2-A	2017.07.08_ 537A_034.d	07/08/2017 14:02
	LLCSD 320-171866/3-A	2017.07.08_ 537A_035.d	07/08/2017 14:07
WGNA-061917-FRB-0143	320-29300-21	2017.07.08_ 537A_036.d	07/08/2017 14:12
WGNA-061917-RW-3118B	320-29300-22	2017.07.08_ 537A_037.d	07/08/2017 14:16

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-172646/11		960063	1.87	2831967	2.11		
ICV 320-172646/13		920859	1.87	2667731	2.11		
CCVL 320-173114/4		980863	1.94	3129733	2.17		
CCV 320-173117/29 CCVIS		869614	1.93	3053864	2.16		
MB 320-171866/1-A		909159	1.93	2877414	2.16		
LLCS 320-171866/2-A		886884	1.93	2980404	2.16		
LLCSD 320-171866/3-A		889644	1.93	2963885	2.16		
320-29300-21	WGNA-061917-FRB-0143	887660	1.93	2959213	2.16		
320-29300-22	WGNA-061917-RW-3118B	846898	1.93	3075458	2.16		
CCV 320-173117/38 CCVIS		860316	1.93	3010705	2.16		
CCV 320-173118/1 CCVIS		860316	1.93	3010705	2.16		
MB 320-171856/1-A		884557	1.94	2856148	2.16		
LCS 320-171856/2-A		868743	1.93	2960574	2.16		
320-29300-1	WGNA-061917-RW-3493	909874	1.93	2978841	2.16		
320-29300-2	WGNA-061917-FRB-3493	929304	1.93	2958021	2.16		
320-29300-3	WGNA-061917-RW-3283	880967	1.93	2805026	2.16		
320-29300-4	WGNA-061917-FRB-3283	861669	1.93	2850101	2.16		
320-29300-5	WGNA-061917-RW-0386	890869	1.92	2934456	2.16		
320-29300-6	WGNA-061917-FRB-0386	859503	1.93	2912151	2.16		
CCV 320-173118/11 CCVIS		849324	1.93	2879308	2.16		
CCV 320-173119/11 CCVIS		849324	1.93	2879308	2.16		
320-29300-7	WGNA-061917-RW-3460	857546	1.93	2762126	2.16		
320-29300-7 LMS	WGNA-061917-RW-3460 LMS	839476	1.93	2796351	2.16		
320-29300-7 LMSD	WGNA-061917-RW-3460 LMSD	822170	1.92	2769101	2.16		
320-29300-8	WGNA-061917-FRB-3460	844884	1.93	2709306	2.16		
320-29300-9	WGNA-061917-RW-3118A	812252	1.93	2704310	2.16		
320-29300-10	WGNA-061917-FRB-3118A	859528	1.93	2814729	2.17		

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.: 320-29300-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 07/05/2017 20:13
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		966867	1.88	2790947	2.12		
UPPER LIMIT		1450301	2.38	4186421	2.62		
LOWER LIMIT		483434	1.38	1395474	1.62		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29300-11	WGNA-061917-RW-3556	824489	1.93	2740985	2.16		
320-29300-12	WGNA-061917-FRB-3556	862733	1.92	2807629	2.16		
320-29300-13	WGNA-061917-RW-0335	850423	1.93	2889608	2.16		
320-29300-14	WGNA-061917-FRB-0335	839396	1.93	2594885	2.16		
CCV 320-173119/23 CCVIS		813808	1.92	2869074	2.16		
CCV 320-173120/23 CCVIS		813808	1.92	2869074	2.16		
320-29300-15	WGNA-061917-RW-3882	809341	1.93	2688123	2.16		
320-29300-16	WGNA-061917-FRB-3882	829383	1.90	2715624	2.15		
320-29300-17	WGNA-061917-RW-3382	817686	1.92	2793731	2.16		
320-29300-18	WGNA-061917-FRB-3382	801880	1.91	2685263	2.15		
320-29300-19	WGNA-061917-DUP01	841540	1.91	2676331	2.15		
320-29300-20	WGNA-061917-RW-0143	784949	1.90	2644931	2.15		
CCV 320-173120/31 CCVIS		793606	1.91	2772993	2.15		

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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173117/29 Date Analyzed: 07/08/2017 13:39
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_029 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	869614	1.93	3053864	2.16		
UPPER LIMIT	1217460	2.43	4275410	2.66		
LOWER LIMIT	608730	1.43	2137705	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-171866/1-A		909159	1.93	2877414	2.16	
LLCS 320-171866/2-A		886884	1.93	2980404	2.16	
LLCSD 320-171866/3-A		889644	1.93	2963885	2.16	
320-29300-21	WGNA-061917-FRB-0143	887660	1.93	2959213	2.16	
320-29300-22	WGNA-061917-RW-3118B	846898	1.93	3075458	2.16	

13PFOA = 13C2-PFOA
 13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173117/38 Date Analyzed: 07/08/2017 14:21
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_038 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	860316	1.93	3010705	2.16		
UPPER LIMIT	1204442	2.43	4214987	2.66		
LOWER LIMIT	602221	1.43	2107494	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-171866/1-A		909159	1.93	2877414	2.16	
LLCS 320-171866/2-A		886884	1.93	2980404	2.16	
LLCSD 320-171866/3-A		889644	1.93	2963885	2.16	
320-29300-21	WGNA-061917-FRB-0143	887660	1.93	2959213	2.16	
320-29300-22	WGNA-061917-RW-3118B	846898	1.93	3075458	2.16	

13PFOA = 13C2-PFOA
 13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173118/1 Date Analyzed: 07/08/2017 14:21
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_038 Heated Purge: (Y/N) N
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		860316	1.93	3010705	2.16		
UPPER LIMIT		1204442	2.43	4214987	2.66		
LOWER LIMIT		602221	1.43	2107494	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-171856/1-A		884557	1.94	2856148	2.16		
LCS 320-171856/2-A		868743	1.93	2960574	2.16		
320-29300-1	WGNA-061917-RW-3493	909874	1.93	2978841	2.16		
320-29300-2	WGNA-061917-FRB-3493	929304	1.93	2958021	2.16		
320-29300-3	WGNA-061917-RW-3283	880967	1.93	2805026	2.16		
320-29300-4	WGNA-061917-FRB-3283	861669	1.93	2850101	2.16		
320-29300-5	WGNA-061917-RW-0386	890869	1.92	2934456	2.16		
320-29300-6	WGNA-061917-FRB-0386	859503	1.93	2912151	2.16		

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173118/11 Date Analyzed: 07/08/2017 15:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_048 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	849324	1.93	2879308	2.16		
UPPER LIMIT	1189054	2.43	4031031	2.66		
LOWER LIMIT	594527	1.43	2015516	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-171856/1-A		884557	1.94	2856148	2.16	
LCS 320-171856/2-A		868743	1.93	2960574	2.16	
320-29300-1	WGNA-061917-RW-3493	909874	1.93	2978841	2.16	
320-29300-2	WGNA-061917-FRB-3493	929304	1.93	2958021	2.16	
320-29300-3	WGNA-061917-RW-3283	880967	1.93	2805026	2.16	
320-29300-4	WGNA-061917-FRB-3283	861669	1.93	2850101	2.16	
320-29300-5	WGNA-061917-RW-0386	890869	1.92	2934456	2.16	
320-29300-6	WGNA-061917-FRB-0386	859503	1.93	2912151	2.16	

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173119/11 Date Analyzed: 07/08/2017 15:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_048 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	849324	1.93	2879308	2.16		
UPPER LIMIT	1189054	2.43	4031031	2.66		
LOWER LIMIT	594527	1.43	2015516	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-29300-7	WGNA-061917-RW-3460	857546	1.93	2762126	2.16	
320-29300-7 LMS	WGNA-061917-RW-3460 LMS	839476	1.93	2796351	2.16	
320-29300-7 LMSD	WGNA-061917-RW-3460 LMSD	822170	1.92	2769101	2.16	
320-29300-8	WGNA-061917-FRB-3460	844884	1.93	2709306	2.16	
320-29300-9	WGNA-061917-RW-3118A	812252	1.93	2704310	2.16	
320-29300-10	WGNA-061917-FRB-3118A	859528	1.93	2814729	2.17	
320-29300-11	WGNA-061917-RW-3556	824489	1.93	2740985	2.16	
320-29300-12	WGNA-061917-FRB-3556	862733	1.92	2807629	2.16	
320-29300-13	WGNA-061917-RW-0335	850423	1.93	2889608	2.16	
320-29300-14	WGNA-061917-FRB-0335	839396	1.93	2594885	2.16	

13PFOA = 13C2-PFOA
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173119/23 Date Analyzed: 07/08/2017 16:06
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_060 Heated Purge: (Y/N) N
 Calibration ID: 32198

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		813808	1.92	2869074	2.16		
UPPER LIMIT		1139331	2.42	4016704	2.66		
LOWER LIMIT		569666	1.42	2008352	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-29300-7	WGNA-061917-RW-3460	857546	1.93	2762126	2.16		
320-29300-7 LMS	WGNA-061917-RW-3460 LMS	839476	1.93	2796351	2.16		
320-29300-7 LMSD	WGNA-061917-RW-3460 LMSD	822170	1.92	2769101	2.16		
320-29300-8	WGNA-061917-FRB-3460	844884	1.93	2709306	2.16		
320-29300-9	WGNA-061917-RW-3118A	812252	1.93	2704310	2.16		
320-29300-10	WGNA-061917-FRB-3118A	859528	1.93	2814729	2.17		
320-29300-11	WGNA-061917-RW-3556	824489	1.93	2740985	2.16		
320-29300-12	WGNA-061917-FRB-3556	862733	1.92	2807629	2.16		
320-29300-13	WGNA-061917-RW-0335	850423	1.93	2889608	2.16		
320-29300-14	WGNA-061917-FRB-0335	839396	1.93	2594885	2.16		

13PFOA = 13C2-PFOA
 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.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173120/23 Date Analyzed: 07/08/2017 16:06
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_060 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	813808	1.92	2869074	2.16		
UPPER LIMIT	1139331	2.42	4016704	2.66		
LOWER LIMIT	569666	1.42	2008352	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-29300-15	WGNA-061917-RW-3882	809341	1.93	2688123	2.16	
320-29300-16	WGNA-061917-FRB-3882	829383	1.90	2715624	2.15	
320-29300-17	WGNA-061917-RW-3382	817686	1.92	2793731	2.16	
320-29300-18	WGNA-061917-FRB-3382	801880	1.91	2685263	2.15	
320-29300-19	WGNA-061917-DUP01	841540	1.91	2676331	2.15	
320-29300-20	WGNA-061917-RW-0143	784949	1.90	2644931	2.15	

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Sample No.: CCV 320-173120/31 Date Analyzed: 07/08/2017 16:44
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.07.08_537A_068 Heated Purge: (Y/N) N
 Calibration ID: 32198

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	793606	1.91	2772993	2.15		
UPPER LIMIT	1111048	2.41	3882190	2.65		
LOWER LIMIT	555524	1.41	1941095	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-29300-15	WGNA-061917-RW-3882	809341	1.93	2688123	2.16	
320-29300-16	WGNA-061917-FRB-3882	829383	1.90	2715624	2.15	
320-29300-17	WGNA-061917-RW-3382	817686	1.92	2793731	2.16	
320-29300-18	WGNA-061917-FRB-3382	801880	1.91	2685263	2.15	
320-29300-19	WGNA-061917-DUP01	841540	1.91	2676331	2.15	
320-29300-20	WGNA-061917-RW-0143	784949	1.90	2644931	2.15	

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

Column used to flag values outside QC limits

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

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1 Analy Batch No.: 172646

SDG No.: _____

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

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	0.9481 0.7897	0.9454	0.9006	0.8560	0.9067	Ave		0.8911				6.7		30.0			
Perfluoroheptanoic acid (PFHpA)	1.0233 1.0518	1.1219	1.0105	1.0079	1.0586	Ave		1.0457				4.1		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4151 1.3485	1.4140	1.3485	1.3337	1.5012	Ave		1.3935				4.6		30.0			
Perfluorooctanoic acid (PFOA)	0.8653 0.9458	0.9483	0.8907	0.9155	0.9646	Ave		0.9217				4.1		30.0			
Perfluorooctanesulfonic acid (PFOS)	1.0233 0.9990	1.0180	1.0066	1.0023	1.0955	Ave		1.0241				3.5		30.0			
Perfluorononanoic acid (PFNA)	0.8166 0.8011	0.8671	0.8018	0.8165	0.8416	Ave		0.8241				3.1		30.0			
13C2 PFHxA	1.0491 1.1558	1.1981	1.1291	1.1054	1.1794	Ave		1.1362				4.8		30.0			
13C2 PFDA	0.8223 0.8325	0.8717	0.8508	0.8171	0.8428	Ave		0.8395				2.4		30.0			

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1 Analy Batch No.: 172646

SDG No.: _____

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

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	Ave	803806 14234634	1925519	3823269	7725129	11133396	8.83 176	21.2	44.4	89.4	133
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	101135 1993330	250235	490415	984967	1494114	0.990 19.7	2.38	4.97	10.0	14.9
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	408251 8271288	980019	1948018	4095579	6272381	3.01 59.7	7.21	15.1	30.4	45.1
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	172606 3617366	426873	872357	1805622	2747595	2.00 39.7	4.80	10.0	20.2	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	393122 8159668	939618	1936577	4098834	6095701	4.00 79.6	9.61	20.1	40.5	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	157013 2953507	376270	756974	1552293	2310846	1.93 38.3	4.62	9.68	19.5	28.9
13C2 PFHxA	13PF OA	Ave	1047405 1113221	1124762	1101523	1077727	1120950	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	820977 801864	818323	829957	796662	800975	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD

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

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1 Analy Batch No.: 172646

SDG No.: _____

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

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-172646/4	2017.07.05_537CURVE_004.d
Level 2	IC 320-172646/5	2017.07.05_537CURVE_005.d
Level 3	IC 320-172646/6	2017.07.05_537CURVE_006.d
Level 4	IC 320-172646/7	2017.07.05_537CURVE_007.d
Level 5	IC 320-172646/8	2017.07.05_537CURVE_008.d
Level 6	IC 320-172646/9	2017.07.05_537CURVE_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	6.4	6.1	1.1	-3.9	1.8	-11.4	50	50	50	50	50	50
Perfluoroheptanoic acid (PFHpA)	-2.1	7.3	-3.4	-3.6	1.2	0.6	50	50	50	50	50	50
Perfluorohexanesulfonic acid (PFHxS)	1.6	1.5	-3.2	-4.3	7.7	-3.2	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-6.1	2.9	-3.4	-0.7	4.7	2.6	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-0.1	-0.6	-1.7	-2.1	7.0	-2.5	50	50	50	50	50	50
Perfluorononanoic acid (PFNA)	-0.9	5.2	-2.7	-0.9	2.1	-2.8	50	50	50	50	50	50
13C2 PFHxA	-7.7	5.5	-0.6	-2.7	3.8	1.7	30	30	30	30	30	30
13C2 PFDA	-2.0	3.8	1.3	-2.7	0.4	-0.8	30	30	30	30	30	30

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-172646/11 Calibration Date: 07/05/2017 20:23
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.05_537CURVE_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9450		22.5	21.2	6.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.013		2.30	2.38	-3.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.375		7.12	7.21	-1.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9158		4.76	4.80	-0.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9585		8.99	9.61	-6.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8346		4.68	4.62	1.3	50.0
13C2 PFHxA	Ave	1.136	1.093		9.62	10.0	-3.8	30.0
13C2 PFDA	Ave	0.8395	0.8398		10.0	10.0	0.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: ICV 320-172646/13 Calibration Date: 07/05/2017 20:32
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.05_537CURVE_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9309		105	101	4.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	0.9545		9.20	10.1	-8.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.547		23.5	21.2	11.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9807		21.3	20.0	6.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.035		20.9	20.7	1.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8757		21.3	20.0	6.3	30.0
13C2 PFHxA	Ave	1.136	1.143		10.1	10.0	0.6	30.0
13C2 PFDA	Ave	0.8395	0.8348		9.94	10.0	-0.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-173114/4 Calibration Date: 07/08/2017 11:40
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9701		23.1	21.2	8.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.010		2.29	2.38	-3.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.264		6.54	7.21	-9.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9027		4.70	4.80	-2.1	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.998		9.36	9.61	-2.6	50.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.7837		4.40	4.62	-4.9	50.0
13C2 PFHxA	Ave	1.136	1.151		10.1	10.0	1.3	30.0
13C2 PFDA	Ave	0.8395	0.8172		9.73	10.0	-2.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173117/29 Calibration Date: 07/08/2017 13:39
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_029.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.7864		117	133	-11.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.036		14.7	14.9	-0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.299		42.0	45.1	-6.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9241		30.0	30.0	0.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.013		59.4	60.0	-1.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8277		29.0	28.9	0.4	30.0
13C2 PFHxA	Ave	1.136	1.211		10.7	10.0	6.6	30.0
13C2 PFDA	Ave	0.8395	0.8366		9.96	10.0	-0.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173117/38 Calibration Date: 07/08/2017 14:21
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8672		43.2	44.4	-2.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.078		5.13	4.97	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.237		13.4	15.1	-11.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9122		9.94	10.0	-1.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.011		19.9	20.1	-1.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8235		9.67	9.68	-0.0	30.0
13C2 PFHxA	Ave	1.136	1.269		11.2	10.0	11.6	30.0
13C2 PFDA	Ave	0.8395	0.8509		10.1	10.0	1.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173118/1 Calibration Date: 07/08/2017 14:21
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8672		43.2	44.4	-2.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.078		5.13	4.97	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.237		13.4	15.1	-11.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9122		9.94	10.0	-1.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.011		19.9	20.1	-1.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8235		9.67	9.68	-0.0	30.0
13C2 PFHxA	Ave	1.136	1.269		11.2	10.0	11.6	30.0
13C2 PFDA	Ave	0.8395	0.8509		10.1	10.0	1.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173118/11 Calibration Date: 07/08/2017 15:09
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8200		122	133	-8.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.001		14.2	14.9	-4.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.389		45.0	45.1	-0.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9330		30.3	30.0	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.052		61.7	60.0	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8144		28.6	28.9	-1.2	30.0
13C2 PFHxA	Ave	1.136	1.193		10.5	10.0	5.0	30.0
13C2 PFDA	Ave	0.8395	0.8307		9.89	10.0	-1.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173119/11 Calibration Date: 07/08/2017 15:09
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8200		122	133	-8.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.001		14.2	14.9	-4.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.389		45.0	45.1	-0.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9330		30.3	30.0	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.052		61.7	60.0	2.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8144		28.6	28.9	-1.2	30.0
13C2 PFHxA	Ave	1.136	1.193		10.5	10.0	5.0	30.0
13C2 PFDA	Ave	0.8395	0.8307		9.89	10.0	-1.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173119/23 Calibration Date: 07/08/2017 16:06
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_060.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9068		45.2	44.4	1.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.069		5.09	4.97	2.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.296		14.1	15.1	-7.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.8767		9.55	10.0	-4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9916		19.5	20.1	-3.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8343		9.80	9.68	1.2	30.0
13C2 PFHxA	Ave	1.136	1.252		11.0	10.0	10.2	30.0
13C2 PFDA	Ave	0.8395	0.8420		10.0	10.0	0.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173120/23 Calibration Date: 07/08/2017 16:06
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_060.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.9068		45.2	44.4	1.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.069		5.09	4.97	2.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.296		14.1	15.1	-7.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.8767		9.55	10.0	-4.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	0.9916		19.5	20.1	-3.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.8343		9.80	9.68	1.2	30.0
13C2 PFHxA	Ave	1.136	1.252		11.0	10.0	10.2	30.0
13C2 PFDA	Ave	0.8395	0.8420		10.0	10.0	0.3	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Lab Sample ID: CCV 320-173120/31 Calibration Date: 07/08/2017 16:44
 Instrument ID: A8_N Calib Start Date: 07/05/2017 19:50
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 07/05/2017 20:13
 Lab File ID: 2017.07.08_537A_068.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.8911	0.8052		120	133	-9.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	1.046	1.055		15.0	14.9	0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.394	1.368		44.3	45.1	-1.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9217	0.9210		29.9	30.0	-0.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.024	1.037		60.8	60.0	1.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.8241	0.7941		27.8	28.9	-3.6	30.0
13C2 PFHxA	Ave	1.136	1.250		11.0	10.0	10.1	30.0
13C2 PFDA	Ave	0.8395	0.8122		9.67	10.0	-3.3	30.0

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-171856/1-A
 Matrix: Water Lab File ID: 2017.07.08_537A_040.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 06/30/2017 09:25
 Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 14:31
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173118 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	96		70-130
STL00996	13C2 PFDA	91		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-171866/1-A
 Matrix: Water Lab File ID: 2017.07.08_537A_033.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 06/30/2017 09:34
 Sample wt/vol: 250 (mL) Date Analyzed: 07/08/2017 13:58
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 173117 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	92		70-130

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_NStart Date: 07/05/2017 19:50Analysis Batch Number: 172646End Date: 07/05/2017 20:32

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-172646/4		07/05/2017 19:50	1	2017.07.05_537C URVE 004.d	GeminiC18 3x100 3(mm)
IC 320-172646/5		07/05/2017 19:54	1	2017.07.05_537C URVE 005.d	GeminiC18 3x100 3(mm)
IC 320-172646/6		07/05/2017 19:59	1	2017.07.05_537C URVE 006.d	GeminiC18 3x100 3(mm)
IC 320-172646/7 ICISAV		07/05/2017 20:04	1	2017.07.05_537C URVE 007.d	GeminiC18 3x100 3(mm)
IC 320-172646/8		07/05/2017 20:09	1	2017.07.05_537C URVE 008.d	GeminiC18 3x100 3(mm)
IC 320-172646/9		07/05/2017 20:13	1	2017.07.05_537C URVE 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/05/2017 20:18	1		GeminiC18 3x100 3(mm)
CCVL 320-172646/11		07/05/2017 20:23	1	2017.07.05_537C URVE 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/05/2017 20:28	1		GeminiC18 3x100 3(mm)
ICV 320-172646/13		07/05/2017 20:32	1	2017.07.05_537C URVE 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_NStart Date: 07/08/2017 11:40Analysis Batch Number: 173114End Date: 07/08/2017 12:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-173114/4		07/08/2017 11:40	1	2017.07.08_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-173114/5 CCVIS		07/08/2017 11:45	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 11:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 11:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 11:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:13	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:18	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:23	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:27	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:32	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 12:37	1		GeminiC18 3x100 3(mm)
CCV 320-173114/17 CCVIS		07/08/2017 12:42	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/08/2017 13:39Analysis Batch Number: 173117 End Date: 07/08/2017 14:21

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173117/29 CCVIS		07/08/2017 13:39	1	2017.07.08_537A 029.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 13:43	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 13:48	1		GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 13:53	1		GeminiC18 3x100 3(mm)
MB 320-171866/1-A		07/08/2017 13:58	1	2017.07.08_537A 033.d	GeminiC18 3x100 3(mm)
LLCS 320-171866/2-A		07/08/2017 14:02	1	2017.07.08_537A 034.d	GeminiC18 3x100 3(mm)
LLCSD 320-171866/3-A		07/08/2017 14:07	1	2017.07.08_537A 035.d	GeminiC18 3x100 3(mm)
320-29300-21		07/08/2017 14:12	1	2017.07.08_537A 036.d	GeminiC18 3x100 3(mm)
320-29300-22		07/08/2017 14:16	1	2017.07.08_537A 037.d	GeminiC18 3x100 3(mm)
CCV 320-173117/38 CCVIS		07/08/2017 14:21	1	2017.07.08_537A 038.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/08/2017 14:21Analysis Batch Number: 173118 End Date: 07/08/2017 15:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173118/1 CCVIS		07/08/2017 14:21	1	2017.07.08_537A 038.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 14:26	1		GeminiC18 3x100 3(mm)
MB 320-171856/1-A		07/08/2017 14:31	1	2017.07.08_537A 040.d	GeminiC18 3x100 3(mm)
LCS 320-171856/2-A		07/08/2017 14:35	1	2017.07.08_537A 041.d	GeminiC18 3x100 3(mm)
320-29300-1		07/08/2017 14:40	1	2017.07.08_537A 042.d	GeminiC18 3x100 3(mm)
320-29300-2		07/08/2017 14:45	1	2017.07.08_537A 043.d	GeminiC18 3x100 3(mm)
320-29300-3		07/08/2017 14:50	1	2017.07.08_537A 044.d	GeminiC18 3x100 3(mm)
320-29300-4		07/08/2017 14:54	1	2017.07.08_537A 045.d	GeminiC18 3x100 3(mm)
320-29300-5		07/08/2017 14:59	1	2017.07.08_537A 046.d	GeminiC18 3x100 3(mm)
320-29300-6		07/08/2017 15:04	1	2017.07.08_537A 047.d	GeminiC18 3x100 3(mm)
CCV 320-173118/11 CCVIS		07/08/2017 15:09	1	2017.07.08_537A 048.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_NStart Date: 07/08/2017 15:09Analysis Batch Number: 173119End Date: 07/08/2017 16:06

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173119/11 CCVIS		07/08/2017 15:09	1	2017.07.08_537A 048.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 15:13	1		GeminiC18 3x100 3(mm)
320-29300-7		07/08/2017 15:18	1	2017.07.08_537A 050.d	GeminiC18 3x100 3(mm)
320-29300-7 LMS		07/08/2017 15:23	1	2017.07.08_537A 051.d	GeminiC18 3x100 3(mm)
320-29300-7 LMSD		07/08/2017 15:28	1	2017.07.08_537A 052.d	GeminiC18 3x100 3(mm)
320-29300-8		07/08/2017 15:32	1	2017.07.08_537A 053.d	GeminiC18 3x100 3(mm)
320-29300-9		07/08/2017 15:37	1	2017.07.08_537A 054.d	GeminiC18 3x100 3(mm)
320-29300-10		07/08/2017 15:42	1	2017.07.08_537A 055.d	GeminiC18 3x100 3(mm)
320-29300-11		07/08/2017 15:47	1	2017.07.08_537A 056.d	GeminiC18 3x100 3(mm)
320-29300-12		07/08/2017 15:51	1	2017.07.08_537A 057.d	GeminiC18 3x100 3(mm)
320-29300-13		07/08/2017 15:56	1	2017.07.08_537A 058.d	GeminiC18 3x100 3(mm)
320-29300-14		07/08/2017 16:01	1	2017.07.08_537A 059.d	GeminiC18 3x100 3(mm)
CCV 320-173119/23 CCVIS		07/08/2017 16:06	1	2017.07.08_537A 060.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Instrument ID: A8_N Start Date: 07/08/2017 16:06Analysis Batch Number: 173120 End Date: 07/08/2017 16:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-173120/23 CCVIS		07/08/2017 16:06	1	2017.07.08_537A 060.d	GeminiC18 3x100 3(mm)
ZZZZZ		07/08/2017 16:10	1		GeminiC18 3x100 3(mm)
320-29300-15		07/08/2017 16:15	1	2017.07.08_537A 062.d	GeminiC18 3x100 3(mm)
320-29300-16		07/08/2017 16:20	1	2017.07.08_537A 063.d	GeminiC18 3x100 3(mm)
320-29300-17		07/08/2017 16:25	1	2017.07.08_537A 064.d	GeminiC18 3x100 3(mm)
320-29300-18		07/08/2017 16:29	1	2017.07.08_537A 065.d	GeminiC18 3x100 3(mm)
320-29300-19		07/08/2017 16:34	1	2017.07.08_537A 066.d	GeminiC18 3x100 3(mm)
320-29300-20		07/08/2017 16:39	1	2017.07.08_537A 067.d	GeminiC18 3x100 3(mm)
CCV 320-173120/31 CCVIS		07/08/2017 16:44	1	2017.07.08_537A 068.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171856 Batch Start Date: 06/30/17 09:24 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/06/17 20:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00017
MB 320-171856/1		537, 537				250 mL	1.00 mL	7 SU	
LCS 320-171856/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-29300-A-1	WGNA-061917-RW-3493	537, 537	T	284.21 g	27.78 g	256.4 mL	1.00 mL	7 SU	
320-29300-A-2	WGNA-061917-FRB-3493	537, 537	T	280.78 g	27.24 g	253.5 mL	1.00 mL	7 SU	
320-29300-A-3	WGNA-061917-RW-3283	537, 537	T	285.35 g	27.75 g	257.6 mL	1.00 mL	7 SU	
320-29300-A-4	WGNA-061917-FRB-3283	537, 537	T	283.02 g	27.06 g	256 mL	1.00 mL	7 SU	
320-29300-A-5	WGNA-061917-RW-0386	537, 537	T	284.02 g	28.20 g	255.8 mL	1.00 mL	7 SU	
320-29300-A-6	WGNA-061917-FRB-0386	537, 537	T	282.45 g	27.81 g	254.6 mL	1.00 mL	7 SU	
320-29300-A-7	WGNA-061917-RW-3460	537, 537	T	282.85 g	28.15 g	254.7 mL	1.00 mL	7 SU	
320-29300-A-7 LMS	WGNA-061917-RW-3460	537, 537	T	285.24 g	27.81 g	257.4 mL	1.00 mL	7 SU	
320-29300-A-7 LMSD	WGNA-061917-RW-3460	537, 537	T	280.73 g	28.48 g	252.3 mL	1.00 mL	7 SU	
320-29300-A-8	WGNA-061917-FRB-3460	537, 537	T	278.73 g	27.30 g	251.4 mL	1.00 mL	7 SU	
320-29300-A-9	WGNA-061917-RW-3118A	537, 537	T	283.90 g	27.71 g	256.2 mL	1.00 mL	7 SU	
320-29300-A-10	WGNA-061917-FRB-3118A	537, 537	T	283.62 g	27.89 g	255.7 mL	1.00 mL	7 SU	
320-29300-A-11	WGNA-061917-RW-3556	537, 537	T	286.19 g	28.32 g	257.9 mL	1.00 mL	7 SU	
320-29300-A-12	WGNA-061917-FRB-3556	537, 537	T	287.39 g	27.32 g	260.1 mL	1.00 mL	7 SU	
320-29300-A-13	WGNA-061917-RW-0335	537, 537	T	280.16 g	28.44 g	251.7 mL	1.00 mL	7 SU	
320-29300-A-14	WGNA-061917-FRB-0335	537, 537	T	284.93 g	27.39 g	257.5 mL	1.00 mL	7 SU	
320-29300-A-15	WGNA-061917-RW-3882	537, 537	T	292.61 g	27.59 g	265 mL	1.00 mL	7 SU	
320-29300-A-16	WGNA-061917-FRB-3882	537, 537	T	284.26 g	27.05 g	257.2 mL	1.00 mL	7 SU	
320-29300-A-17	WGNA-061917-RW-382	537, 537	T	286.04 g	27.63 g	258.4 mL	1.00 mL	7 SU	
320-29300-A-18	WGNA-061917-FRB-3382	537, 537	T	281.85 g	27.32 g	254.5 mL	1.00 mL	7 SU	

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171856 Batch Start Date: 06/30/17 09:24 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/06/17 20:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00017
320-29300-A-19	WGNA-061917-DUP01	537, 537	T	288.80 g	28.04 g	260.8 mL	1.00 mL	7 SU	
320-29300-A-20	WGNA-061917-RW-0143	537, 537	T	287.72 g	27.64 g	260.1 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00044	LC537-LSP 00020	LC537-SU 00044	AnalysisComment		
MB 320-171856/1		537, 537		100 uL		100 uL	ch nd		
LCS 320-171856/2		537, 537		100 uL		100 uL	ch nd		
320-29300-A-1	WGNA-061917-RW-3493	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-2	WGNA-061917-FRB-3493	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-3	WGNA-061917-RW-3283	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-4	WGNA-061917-FRB-3283	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-5	WGNA-061917-RW-0386	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-6	WGNA-061917-FRB-0386	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-7	WGNA-061917-RW-3460	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-7 LMS	WGNA-061917-RW-3460	537, 537	T	100 uL	100 uL	100 uL	ch nd		
320-29300-A-7 LMSD	WGNA-061917-RW-3460	537, 537	T	100 uL	100 uL	100 uL	ch nd		
320-29300-A-8	WGNA-061917-FRB-3460	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-9	WGNA-061917-RW-3118A	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-10	WGNA-061917-FRB-3118A	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-11	WGNA-061917-RW-3556	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-12	WGNA-061917-FRB-3556	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-13	WGNA-061917-RW-0335	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-14	WGNA-061917-FRB-0335	537, 537	T	100 uL		100 uL	ch nd		

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171856 Batch Start Date: 06/30/17 09:24 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/06/17 20:35

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00044	LC537-LSP 00020	LC537-SU 00044	AnalysisComment		
320-29300-A-15	WGNA-061917-RW-3882	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-16	WGNA-061917-FRB-3882	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-17	WGNA-061917-RW-3882	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-18	WGNA-061917-FRB-3382	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-19	WGNA-061917-DUP01	537, 537	T	100 uL		100 uL	ch nd		
320-29300-A-20	WGNA-061917-RW-0143	537, 537	T	100 uL		100 uL	ch nd		

Batch Notes	
Batch Comment	IS:975029
Manifold ID	3,4
Methanol ID	968518
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	VPM
Analyst ID - IS Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	NSH
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	NSH
SPE Cartridge ID	6357081-01
Trizma ID	SLBR4303V
Reagent Water ID	6/27/17

Basis	Basis Description
T	Total/NA

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-29300-1

SDG No.: _____

Batch Number: 171866 Batch Start Date: 06/30/17 09:34 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/07/17 18:15

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00044
MB 320-171866/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-171866/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-171866/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-29300-A-21	WGNA-061917-FRB-0143	537, 537	T	287.66 g	27.34 g	260.3 mL	1.00 mL	7 SU	100 uL
320-29300-A-22	WGNA-061917-RW-3118B	537, 537	T	279.89 g	28.07 g	251.8 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00020	LC537-SU 00044	AnalysisComment			
MB 320-171866/1		537, 537			100 uL	ch nd			
LLCS 320-171866/2		537, 537		100 uL	100 uL	ch nd			
LLCSD 320-171866/3		537, 537		100 uL	100 uL	ch nd			
320-29300-A-21	WGNA-061917-FRB-0143	537, 537	T		100 uL	ch nd			
320-29300-A-22	WGNA-061917-RW-3118B	537, 537	T		100 uL	ch nd			

Batch Notes	
Batch Comment	IS:
Methanol ID	936834
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	NSH
Analyst ID - IS Reagent Drop Witness	JNS
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	NSH
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	NSH
SPE Cartridge ID	6357081-01
Trizma ID	SLBR4303V
Reagent Water ID	6/27/17

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.: 320-29300-1

SDG No.: _____

Batch Number: 171866 Batch Start Date: 06/30/17 09:34 Batch Analyst: Branscum, CassieBatch Method: 537 Batch End Date: 07/07/17 18:15

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: 29300 Instrument ID & Date: 7-8-17 ICAL Batch: 172646
 Extraction Batch: 171866 Worklist #: 45208 TALS Batch: 173117

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 7-10-17

2nd Level Reviewer / Date: Murray 7/11/2017

NCM # and Comments: _____

A8

Instrument ID & Date: 7-5-17 Worklist#: 45099

ICAL Batch: 172646, 172647 Calibration ID number: 32198, 32199

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 Quadratic (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".			✓	
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (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 7-6-17

2nd Level Reviewer / Date: CBW 7/6/17

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08JUL2017_537A

Worklist Number: 45208

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45208.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 173114	LC 537 CS ICAL Raw Batch: 173115
# 1 RB	# 1 RB	# 1 RB
# 2 RB	# 2 RB	# 2 RB
# 3 RB	# 3 RB	# 3 RB
# 4 CCVL	# 4 CCVL	# 4 CCVL
# 5 CCV L5	# 5 CCV L5	# 5 CCV L5
# 6 RB	# 6 RB	# 6 RB
# 7 MB 320-172426/1-A	# 7 MB 320-172426/1-A	
# 8 LCS 320-172426/2-A	# 8 LCS 320-172426/2-A	
# 9 LCSD 320-172426/3-A	# 9 LCSD 320-172426/3-A	
#10 280-98633-C-9-A	#10 280-98633-C-9-A	
#11 280-98633-A-12-A	#11 280-98633-A-12-A	
#12 320-29346-A-1-A	#12 320-29346-A-1-A	
#13 320-29346-A-2-A	#13 320-29346-A-2-A	
#14 320-29346-A-3-A	#14 320-29346-A-3-A	
#15 320-29346-B-4-A	#15 320-29346-B-4-A	
#16 320-29346-A-5-A	#16 320-29346-A-5-A	
#17 CCV L3	#17 CCV L3	

QC Batch: 2	LC 537 ICAL Raw Batch: 173116
#17 CCV L3	#17 CCV L3
#18 RB	#18 RB
#19 320-29346-A-6-A	#19 320-29346-A-6-A
#20 320-29346-A-7-A	#20 320-29346-A-7-A
#21 320-29346-B-8-A	#21 320-29346-B-8-A
#22 320-29346-A-9-A	#22 320-29346-A-9-A
#23 320-29346-A-10-A	#23 320-29346-A-10-A
#24 320-29346-A-11-A	#24 320-29346-A-11-A
#25 320-29346-A-12-A	#25 320-29346-A-12-A
#26 320-29346-B-13-A	#26 320-29346-B-13-A
#27 320-29346-A-14-A	#27 320-29346-A-14-A
#28 320-29346-A-15-A	#28 320-29346-A-15-A
#29 CCV L5	#29 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 173117
#29 CCV L5	#29 CCV L5
#30 RB	#30 RB
#31 320-29346-A-16-A	#31 320-29346-A-16-A
#32 320-29346-A-17-A	#32 320-29346-A-17-A
#33 MB 320-171866/1-A	#33 MB 320-171866/1-A
#34 LLCSD 320-171866/2-A	#34 LLCSD 320-171866/2-A
#35 LLCSD 320-171866/3-A	#35 LLCSD 320-171866/3-A
#36 320-29300-A-21-A	#36 320-29300-A-21-A
#37 320-29300-A-22-A	#37 320-29300-A-22-A
#38 CCV L3	#38 CCV L3
#39 RB	#39 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Number: 320-171866

Method Code: 320-537_Prep-320

Batch Open: 6/30/2017 9:34:00AM

Batch End: 7/7/2017 6:15:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1					
1 MB-320-171866/1 N/A	N/A		250 mL 1.00 mL	7		N/A	N/A	N/A	ch nd	MB 320-171866/1-A
2 LLC-320-171866/2 N/A	N/A		250 mL 1.00 mL	7		N/A	N/A	N/A	ch nd	LLCS 320-171866/2-A
3 LLCSD-320-171866/3 N/A	N/A		250 mL 1.00 mL	7		N/A	N/A	N/A	ch nd	LLCSD 320-171866/3-A
4 320-29300-A-21 (537_DOD5)	N/A (320-29300-1)	287.66 g 27.34 g	260.3 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	320-29300-A-21-A
5 320-29300-A-22 (537_DOD5)	N/A (320-29300-1)	279.89 g 28.07 g	251.8 mL 1.00 mL	7		6/27/17	16_Days	4	ch nd	320-29300-A-22-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:34:00AM

Batch End:

Batch Number: 320-171866

Method Code: 320-537_Prep-320

Batch Notes

Manifold ID 9
Trizma ID SLBR4303V
SPE Cartridge ID 6357081-01
Methanol ID 936834
Reagent Water ID 6/27/17
Pipette ID MD05306
Analyst ID - TA Reagent Drop CCB
Analyst ID - TA Reagent Drop Witness NSH
Analyst ID - SU Reagent Drop CCB
Analyst ID - SU Reagent Drop Witness NSH
Analyst ID - IS Reagent Drop NSA
Analyst ID - IS Reagent Drop Witness JNS
Batch Comment IS: 975029

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Number: 320-171866

Method Code: 320-537_Prep-320

Batch Open: 6/30/2017 9:34:00AM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-171866/1	LC537-SU_00044	100 uL	1.00 mL	ce8 6-30-17	NSH 6-30-17
LLCS 320-171866/2	LC537-LSP_00020	100 uL	1.00 mL		
LLCS 320-171866/2	LC537-SU_00044	100 uL	1.00 mL		
LLCSD 320-171866/3	LC537-LSP_00020	100 uL	1.00 mL		
LLCSD 320-171866/3	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-21	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-22	LC537-SU_00044	100 uL	1.00 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s): 171866

Test: 537

Earliest Holding Time: 7-3-17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	✓
All necessary NCMs filed (including holding time)	/	✓
Method/sample/login/QAS checked and correct	/	✓
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 correctly in TALS	/	✓
All additional information transcribed into TALS is correct and raw data is attached	/	✓
Comments are transcribed correctly in TALS	/	✓
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	/	✓
All spike amounts correct and added to necessary samples and QC	/	✓
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	/	✓

1st Level Reviewer: NSH

Date: 7/7/17

2nd Level Reviewer: [Signature]

Date: 7/07/17

Comments: _____

Method 537 CCV/Data Review Checklist

A8

Job No: 29300 Instrument ID & Date: 7-8-17 ICAL Batch: 172646
 Extraction Batch: 171856 Worklist #: 45209 TALS Batch: 173118, 173119, 173120

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 ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICAL and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____			✓	✓
5. All target compounds in MB < 1/3 RL? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?			✓	✓
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 7-10-17

2nd Level Reviewer / Date: newly 7/11/2017

NCM # and Comments: _____

A8

Instrument ID & Date: 7-5-17 Worklist#: 45099

ICAL Batch: 172646, 172647 Calibration ID number: 32198, 32199

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 Quadratic (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".			✓	
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (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 7-6-17

2nd Level Reviewer / Date: CBW 7/6/17

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08JUL2017_537B

Worklist Number: 45209

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170708-45209.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 173118
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-171856/1-A	# 3 MB 320-171856/1-A
# 4 LCS 320-171856/2-A	# 4 LCS 320-171856/2-A
# 5 320-29300-A-1-A	# 5 320-29300-A-1-A
# 6 320-29300-A-2-A	# 6 320-29300-A-2-A
# 7 320-29300-A-3-A	# 7 320-29300-A-3-A
# 8 320-29300-A-4-A	# 8 320-29300-A-4-A
# 9 320-29300-A-5-A	# 9 320-29300-A-5-A
#10 320-29300-A-6-A	#10 320-29300-A-6-A
#11 CCV L5	#11 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 173119
#11 CCV L5	#11 CCV L5
#12 RB	#12 RB
#13 320-29300-A-7-A	#13 320-29300-A-7-A
#14 320-29300-A-7-D LMS	#14 320-29300-A-7-D LMS
#15 320-29300-A-7-E LMSD	#15 320-29300-A-7-E LMSD
#16 320-29300-A-8-A	#16 320-29300-A-8-A
#17 320-29300-A-9-A	#17 320-29300-A-9-A
#18 320-29300-A-10-A	#18 320-29300-A-10-A
#19 320-29300-A-11-A	#19 320-29300-A-11-A
#20 320-29300-A-12-A	#20 320-29300-A-12-A
#21 320-29300-A-13-A	#21 320-29300-A-13-A
#22 320-29300-A-14-A	#22 320-29300-A-14-A
#23 CCV L3	#23 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 173120	LC 537 CS ICAL Raw Batch: 173127
#23 CCV L3	#23 CCV L3	
#24 RB	#24 RB	
#25 320-29300-A-15-A	#25 320-29300-A-15-A	
#26 320-29300-A-16-A	#26 320-29300-A-16-A	
#27 320-29300-A-17-A	#27 320-29300-A-17-A	
#28 320-29300-A-18-A	#28 320-29300-A-18-A	
#29 320-29300-A-19-A	#29 320-29300-A-19-A	
#30 320-29300-A-20-A	#30 320-29300-A-20-A	
#31 CCV L5	#31 CCV L5	#31 CCV L5

QC Batch: 4	LC 537 ICAL Raw Batch: 173121	LC 537 CS ICAL Raw Batch: 173128
#31 CCV L5	#31 CCV L5	#31 CCV L5
#32 RB	#32 RB	#32 RB
#33 MB 320-172419/1-A		#33 MB 320-172419/1-A
#34 LLCS 320-172419/2-A		#34 LLCS 320-172419/2-A
#35 LLCSD 320-172419/3-A		#35 LLCSD 320-172419/3-A
#36 320-29313-A-1-A		#36 320-29313-A-1-A
#37 320-29313-A-1-B MS		#37 320-29313-A-1-B MS
#38 320-29313-A-1-C MSD		#38 320-29313-A-1-C MSD

QC Batch: 4	LC 537 ICAL Raw Batch: 173121	LC 537 CS ICAL Raw Batch: 173128
#39 320-29313-A-2-A #40 320-29313-A-3-A #41 320-29313-A-4-A #42 320-29315-A-1-A #43 CCV L3		#39 320-29313-A-2-A #40 320-29313-A-3-A #41 320-29313-A-4-A #42 320-29315-A-1-A #43 CCV L3

QC Batch: 5	LC 537 CS ICAL Raw Batch: 173129
#43 CCV L3 #44 RB #45 320-29315-A-1-B MS #46 320-29315-A-1-C MSD #47 320-29315-A-2-A #48 320-29315-A-3-A #49 320-29315-A-4-A #50 CCV L5 #51 RB	#43 CCV L3 #44 RB #45 320-29315-A-1-B MS #46 320-29315-A-1-C MSD #47 320-29315-A-2-A #48 320-29315-A-3-A #49 320-29315-A-4-A #50 CCV L5 #51 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Number: 320-171856

Method Code: 320-537_Prep-320

Batch Open: 6/30/2017 9:24:00AM

Batch End: 7/6/2017 8:35:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-171856/1 N/A	N/A		250 mL 1.00 mL	7	N/A	N/A	N/A	ch nd	MB 320-171856/1-A
2 LCS-320-171856/2 N/A	N/A		250 mL 1.00 mL	7	N/A	N/A	N/A	ch nd	LCS 320-171856/2-A
3 320-29300-A-1 (537_DOD5)	N/A (320-29300-1)	284.21 g 27.78 g	256.4 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-1-A
4 320-29300-A-2 (537_DOD5)	N/A (320-29300-1)	280.78 g 27.24 g	253.5 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-2-A
5 320-29300-A-3 (537_DOD5)	N/A (320-29300-1)	285.35 g 27.75 g	257.6 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-3-A
6 320-29300-A-4 (537_DOD5)	N/A (320-29300-1)	283.02 g 27.06 g	256 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-4-A
7 320-29300-A-5 (537_DOD5)	N/A (320-29300-1)	284.02 g 28.20 g	255.8 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-5-A
8 320-29300-A-6 (537_DOD5)	N/A (320-29300-1)	282.45 g 27.81 g	254.6 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-6-A
9 320-29300-A-7 (537_DOD5)	N/A (320-29300-1)	282.85 g 28.15 g	254.7 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-7-A
10 320-29300-A-7-LMS (537_DOD5)	N/A (320-29300-1)	285.24 g 27.81 g	257.4 mL 1.00 mL	7	6/27/17	16_Days	4	ch nd	320-29300-A-7-D-LMS

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Batch End: 7/6/2017 8:35:00PM

Batch Number: 320-171856

Method Code: 320-537_Prep-320

11	320-29300-A-7-LMSD (537_DOD5)	N/A (320-29300-1)	280.73 g 28.48 g	252.3 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
12	320-29300-A-8 (537_DOD5)	N/A (320-29300-1)	278.73 g 27.30 g	251.4 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
13	320-29300-A-9 (537_DOD5)	N/A (320-29300-1)	283.90 g 27.71 g	256.2 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
14	320-29300-A-10 (537_DOD5)	N/A (320-29300-1)	283.62 g 27.89 g	255.7 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
15	320-29300-A-11 (537_DOD5)	N/A (320-29300-1)	286.19 g 28.32 g	257.9 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
16	320-29300-A-12 (537_DOD5)	N/A (320-29300-1)	287.39 g 27.32 g	260.1 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
17	320-29300-A-13 (537_DOD5)	N/A (320-29300-1)	280.16 g 28.44 g	251.7 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
18	320-29300-A-14 (537_DOD5)	N/A (320-29300-1)	284.93 g 27.39 g	257.5 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
19	320-29300-A-15 (537_DOD5)	N/A (320-29300-1)	292.61 g 27.59 g	265 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
20	320-29300-A-16 (537_DOD5)	N/A (320-29300-1)	284.26 g 27.05 g	257.2 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
21	320-29300-A-17 (537_DOD5)	N/A (320-29300-1)	286.04 g 27.63 g	258.4 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	
22	320-29300-A-18 (537_DOD5)	N/A (320-29300-1)	281.85 g 27.32 g	254.5 mL 1.00 mL	7				6/27/17	16_Days	4	ch nd	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Number: 320-171856

Method Code: 320-537_Prep-320

Batch Open: 6/30/2017 9:24:00AM

Batch End: 7/6/2017 8:35:00PM

320-29300-A-19 (537_DOD5)	N/A (320-29300-1)	288.80 g	260.8 mL	7	6/27/17	16_Days	4	ch nd	
		28.04 g	1.00 mL						
320-29300-A-20 (537_DOD5)	N/A (320-29300-1)	287.72 g	260.1 mL	7	6/27/17	16_Days	4	ch nd	
		27.64 g	1.00 mL						

Batch Notes

Manifold ID 3,4
 Trizma ID SLBR4303V
 SPE Cartridge ID 6357081-01
 Methanol ID 968518
 Reagent Water ID 6/27/17
 Pipette ID MD05306
 Analyst ID - TA Reagent Drop CCB
 Analyst ID - TA Reagent Drop NSH
 Analyst ID - SU Reagent Drop CCB
 Analyst ID - SU Reagent Drop NSH
 Analyst ID - IS Reagent Drop VPM
 Analyst ID - IS Reagent Drop JER
 Batch Comment IS:975029

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Open: 6/30/2017 9:24:00AM

Batch End:

Batch Number: 320-171856

Method Code: 320-537_Prep-320

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-171856/1	LC537-SU_00044	100 uL	1.00 mL	CS 6-30-17	NSH 6-30-17
LCS 320-171856/2	LC537-HSP_00017	100 uL	1.00 mL		
LCS 320-171856/2	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-1	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-2	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-3	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-4	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-5	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-6	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-7	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-7 LMS	LC537-LSP_00020	100 uL	1.00 mL		
320-29300-A-7 LMS	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-7 LMSD	LC537-LSP_00020	100 uL	1.00 mL		
320-29300-A-7 LMSD	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-8	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-9	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-10	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-11	LC537-SU_00044	100 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Branscum, Cassie

Batch Number: 320-171856

Method Code: 320-537_Prep-320

Batch Open: 6/30/2017 9:24:00AM

Batch End:

320-29300-A-12	LC537-SU_00044	100 uL	1.00 mL	6-30-17	NSH 6-30-17
320-29300-A-13	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-14	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-15	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-16	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-17	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-18	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-19	LC537-SU_00044	100 uL	1.00 mL		
320-29300-A-20	LC537-SU_00044	100 uL	1.00 mL		

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Other Reagents:

Reagent

Amount/Units

Lot#:

Preparation Batch Number(s): 171856

Test: 5320005

Earliest Holding Time: 7-3-17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	/
All necessary NCMs filed (including holding time)	NA	NA
Method/sample/login/QAS checked and correct	/	/
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 correctly in TALS	/	/
All additional information transcribed into TALS is correct and raw data is attached	/	/
Comments are transcribed correctly in TALS	/	/
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	/	/
All spike amounts correct and added to necessary samples and QC	/	/
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	/	/

1st Level Reviewer: VAM

Date: 7/6/17

2nd Level Reviewer: [Signature]

Date: 7/6/17

Comments: _____

FIELD DUPLICATE PRECISION
SDG 320-29300-1

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >RL
PFOA	25	24	7.7	4.081632653	FALSE	TRUE	TRUE	FALSE
PFHPA	5.2	4.9	3.8	5.940594059	FALSE	FALSE	FALSE	FALSE
PFHXSA	44	41	12	7.058823529	FALSE	TRUE	TRUE	FALSE
PFOS	48	48	15	0	FALSE	TRUE	TRUE	FALSE

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