



**Off-base Drinking Water Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Figure, SDG 320-24179**

Ault Field

Naval Air Station Whidbey Island

Oak Harbor, Washington

February 2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Sacramento

880 Riverside Parkway

West Sacramento, CA 95605

Tel: (916)373-5600

TestAmerica Job ID: 320-24179-1

Client Project/Site: Whidbey Island

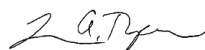
For:

CH2M Hill Constructors, Inc.

1100 NE Circle Blvd

Corvallis, Oregon 97330

Attn: Tiffany Hill



Authorized for release by:

12/19/2016 8:57:55 AM

Laura Turpen, Project Manager I

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LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Qualifiers

LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Case Narrative

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Job ID: 320-24179-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE

Client: CH2M Hill Constructors, Inc.

Project: Whidbey Island

Report Number: 320-24179-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Sacramento attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

TestAmerica utilizes USEPA approved methods and DOD QSM, where applicable, in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

All parameters for which TestAmerica Sacramento has certification were evaluated to the QSM specified reporting convention or to the client specified format if different from QSM. Parameters not certified under QSM, if any, were evaluated to the detection limit (DL) and include qualified results where applicable.

The sample(s) that contain constituents flagged with U are undetected. The result associated with this flag is the limit of detection (LOD).

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 12/08/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.5 C.

An extended TAT was requested by the client via an email on December 8. Samples received on December 8 and 9 were requested to have a due date of December 19, 2016.

PFOA/PFOS

Samples WI-AF-3RW23-1216 (320-24179-1), WI-AF-3FB23-1216 (320-24179-2), WI-AF-3RW24-1216 (320-24179-3), WI-AF-3RW24P-1216 (320-24179-4), WI-AF-3FB24-1216 (320-24179-5), WI-AF-3RW25-1216 (320-24179-6), WI-AF-3FB25-1216 (320-24179-7), WI-AF-3RW26-1216 (320-24179-8), WI-AF-3FB26-1216 (320-24179-9), WI-AF-3RW27-1216 (320-24179-10), WI-AF-3FB27-1216 (320-24179-11), WI-AF-3RW28-1216 (320-24179-12), WI-AF-3FB28-1216 (320-24179-13), WI-AF-3RW29-1216

Case Narrative

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Job ID: 320-24179-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

(320-24179-14) and WI-AF-3FB29-1216 (320-24179-15) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/09/2016 and analyzed on 12/16/2016.

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

Detection Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3RW23-1216

Lab Sample ID: 320-24179-1

☐ No Detections.

Client Sample ID: WI-AF-3FB23-1216

Lab Sample ID: 320-24179-2

☐ No Detections.

Client Sample ID: WI-AF-3RW24-1216

Lab Sample ID: 320-24179-3

☐ No Detections.

Client Sample ID: WI-AF-3RW24P-1216

Lab Sample ID: 320-24179-4

☐ No Detections.

Client Sample ID: WI-AF-3FB24-1216

Lab Sample ID: 320-24179-5

☐ No Detections.

Client Sample ID: WI-AF-3RW25-1216

Lab Sample ID: 320-24179-6

☐ No Detections.

Client Sample ID: WI-AF-3FB25-1216

Lab Sample ID: 320-24179-7

☐ No Detections.

Client Sample ID: WI-AF-3RW26-1216

Lab Sample ID: 320-24179-8

☐ No Detections.

Client Sample ID: WI-AF-3FB26-1216

Lab Sample ID: 320-24179-9

☐ No Detections.

Client Sample ID: WI-AF-3RW27-1216

Lab Sample ID: 320-24179-10

☐ No Detections.

Client Sample ID: WI-AF-3FB27-1216

Lab Sample ID: 320-24179-11

☐ No Detections.

Client Sample ID: WI-AF-3RW28-1216

Lab Sample ID: 320-24179-12

☐ No Detections.

Client Sample ID: WI-AF-3FB28-1216

Lab Sample ID: 320-24179-13

☐ No Detections.

Client Sample ID: WI-AF-3RW29-1216

Lab Sample ID: 320-24179-14

☐ No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB29-1216

Lab Sample ID: 320-24179-15

☐ No Detections.

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This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3RW23-1216

Date Collected: 12/05/16 10:45

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.014	ug/L	—	12/09/16 18:50	12/16/16 00:47	1
Perfluorooctanoic acid (PFOA)	0.022	U M	0.027	0.0085	ug/L	—	12/09/16 18:50	12/16/16 00:47	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L	—	12/09/16 18:50	12/16/16 00:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130				12/09/16 18:50	12/16/16 00:47	1
13C2 PFDA	94		70 - 130				12/09/16 18:50	12/16/16 00:47	1

Client Sample ID: WI-AF-3FB23-1216

Date Collected: 12/05/16 10:46

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.015	ug/L	—	12/09/16 18:50	12/16/16 02:16	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0090	ug/L	—	12/09/16 18:50	12/16/16 02:16	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L	—	12/09/16 18:50	12/16/16 02:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				12/09/16 18:50	12/16/16 02:16	1
13C2 PFDA	93		70 - 130				12/09/16 18:50	12/16/16 02:16	1

Client Sample ID: WI-AF-3RW24-1216

Date Collected: 12/06/16 09:05

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.014	ug/L	—	12/09/16 18:50	12/16/16 02:45	1
Perfluorooctanoic acid (PFOA)	0.021	U M	0.027	0.0084	ug/L	—	12/09/16 18:50	12/16/16 02:45	1
Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.042	ug/L	—	12/09/16 18:50	12/16/16 02:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130				12/09/16 18:50	12/16/16 02:45	1
13C2 PFDA	97		70 - 130				12/09/16 18:50	12/16/16 02:45	1

Client Sample ID: WI-AF-3RW24P-1216

Date Collected: 12/06/16 09:10

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.014	ug/L	—	12/09/16 18:50	12/16/16 03:15	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.0082	ug/L	—	12/09/16 18:50	12/16/16 03:15	1
Perfluorobutanesulfonic acid (PFBS)	0.096	U	0.12	0.041	ug/L	—	12/09/16 18:50	12/16/16 03:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130				12/09/16 18:50	12/16/16 03:15	1
13C2 PFDA	82		70 - 130				12/09/16 18:50	12/16/16 03:15	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB24-1216

Date Collected: 12/06/16 09:06

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.044	U	0.055	0.014	ug/L	—	12/09/16 18:50	12/16/16 03:45	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0086	ug/L	—	12/09/16 18:50	12/16/16 03:45	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L	—	12/09/16 18:50	12/16/16 03:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				12/09/16 18:50	12/16/16 03:45	1
13C2 PFDA	94		70 - 130				12/09/16 18:50	12/16/16 03:45	1

Client Sample ID: WI-AF-3RW25-1216

Date Collected: 12/06/16 09:15

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-6

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L	—	12/09/16 18:50	12/16/16 05:13	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L	—	12/09/16 18:50	12/16/16 05:13	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L	—	12/09/16 18:50	12/16/16 05:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	81		70 - 130				12/09/16 18:50	12/16/16 05:13	1
13C2 PFDA	77		70 - 130				12/09/16 18:50	12/16/16 05:13	1

Client Sample ID: WI-AF-3FB25-1216

Date Collected: 12/06/16 09:16

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-7

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.014	ug/L	—	12/09/16 18:50	12/16/16 05:43	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0083	ug/L	—	12/09/16 18:50	12/16/16 05:43	1
Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.042	ug/L	—	12/09/16 18:50	12/16/16 05:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130				12/09/16 18:50	12/16/16 05:43	1
13C2 PFDA	89		70 - 130				12/09/16 18:50	12/16/16 05:43	1

Client Sample ID: WI-AF-3RW26-1216

Date Collected: 12/06/16 10:30

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-8

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L	—	12/09/16 18:50	12/16/16 06:13	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L	—	12/09/16 18:50	12/16/16 06:13	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L	—	12/09/16 18:50	12/16/16 06:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130				12/09/16 18:50	12/16/16 06:13	1
13C2 PFDA	94		70 - 130				12/09/16 18:50	12/16/16 06:13	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB26-1216

Lab Sample ID: 320-24179-9

Date Collected: 12/06/16 10:31

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.013	ug/L	—	12/09/16 18:50	12/16/16 06:42	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.0082	ug/L	—	12/09/16 18:50	12/16/16 06:42	1
Perfluorobutanesulfonic acid (PFBS)	0.095	U	0.12	0.041	ug/L	—	12/09/16 18:50	12/16/16 06:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	83		70 - 130				12/09/16 18:50	12/16/16 06:42	1
13C2 PFDA	81		70 - 130				12/09/16 18:50	12/16/16 06:42	1

Client Sample ID: WI-AF-3RW27-1216

Lab Sample ID: 320-24179-10

Date Collected: 12/06/16 10:40

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L	—	12/09/16 18:50	12/16/16 07:12	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L	—	12/09/16 18:50	12/16/16 07:12	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L	—	12/09/16 18:50	12/16/16 07:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130				12/09/16 18:50	12/16/16 07:12	1
13C2 PFDA	92		70 - 130				12/09/16 18:50	12/16/16 07:12	1

Client Sample ID: WI-AF-3FB27-1216

Lab Sample ID: 320-24179-11

Date Collected: 12/06/16 10:41

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L	—	12/09/16 18:50	12/16/16 07:41	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L	—	12/09/16 18:50	12/16/16 07:41	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L	—	12/09/16 18:50	12/16/16 07:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				12/09/16 18:50	12/16/16 07:41	1
13C2 PFDA	88		70 - 130				12/09/16 18:50	12/16/16 07:41	1

Client Sample ID: WI-AF-3RW28-1216

Lab Sample ID: 320-24179-12

Date Collected: 12/06/16 15:35

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.014	ug/L	—	12/09/16 18:50	12/16/16 08:11	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L	—	12/09/16 18:50	12/16/16 08:11	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L	—	12/09/16 18:50	12/16/16 08:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	81		70 - 130				12/09/16 18:50	12/16/16 08:11	1
13C2 PFDA	78		70 - 130				12/09/16 18:50	12/16/16 08:11	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB28-1216

Lab Sample ID: 320-24179-13

Date Collected: 12/06/16 15:36

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.014	ug/L	—	12/09/16 18:50	12/16/16 08:41	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0084	ug/L	—	12/09/16 18:50	12/16/16 08:41	1
Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.042	ug/L	—	12/09/16 18:50	12/16/16 08:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130				12/09/16 18:50	12/16/16 08:41	1
13C2 PFDA	97		70 - 130				12/09/16 18:50	12/16/16 08:41	1

Client Sample ID: WI-AF-3RW29-1216

Lab Sample ID: 320-24179-14

Date Collected: 12/06/16 17:05

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L	—	12/09/16 18:50	12/16/16 09:10	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L	—	12/09/16 18:50	12/16/16 09:10	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L	—	12/09/16 18:50	12/16/16 09:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130				12/09/16 18:50	12/16/16 09:10	1
13C2 PFDA	92		70 - 130				12/09/16 18:50	12/16/16 09:10	1

Client Sample ID: WI-AF-3FB29-1216

Lab Sample ID: 320-24179-15

Date Collected: 12/06/16 17:06

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.015	ug/L	—	12/09/16 18:50	12/16/16 09:40	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0092	ug/L	—	12/09/16 18:50	12/16/16 09:40	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L	—	12/09/16 18:50	12/16/16 09:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130				12/09/16 18:50	12/16/16 09:40	1
13C2 PFDA	90		70 - 130				12/09/16 18:50	12/16/16 09:40	1

Surrogate Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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 PFDA (70-130)
320-24179-1	WI-AF-3RW23-1216	95	94
320-24179-1 MS	WI-AF-3RW23-1216	91	93
320-24179-1 MSD	WI-AF-3RW23-1216	101	96
320-24179-2	WI-AF-3FB23-1216	91	93
320-24179-3	WI-AF-3RW24-1216	100	97
320-24179-4	WI-AF-3RW24P-1216	86	82
320-24179-5	WI-AF-3FB24-1216	91	94
320-24179-6	WI-AF-3RW25-1216	81	77
320-24179-7	WI-AF-3FB25-1216	87	89
320-24179-8	WI-AF-3RW26-1216	95	94
320-24179-9	WI-AF-3FB26-1216	83	81
320-24179-10	WI-AF-3RW27-1216	97	92
320-24179-11	WI-AF-3FB27-1216	91	88
320-24179-12	WI-AF-3RW28-1216	81	78
320-24179-13	WI-AF-3FB28-1216	96	97
320-24179-14	WI-AF-3RW29-1216	89	92
320-24179-15	WI-AF-3FB29-1216	92	90
LCS 320-141539/2-A	Lab Control Sample	98	97
MB 320-141539/1-A	Method Blank	105	105

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C2 PFDA = 13C2 PFDA

QC Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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

Lab Sample ID: MB 320-141539/1-A

Matrix: Water

Analysis Batch: 142414

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141539

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.048	U	0.060	0.016	ug/L		12/09/16 18:50	12/15/16 23:48	1
Perfluorooctanoic acid (PFOA)	0.024	U	0.030	0.0094	ug/L		12/09/16 18:50	12/15/16 23:48	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/09/16 18:50	12/15/16 23:48	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	105		70 - 130				12/09/16 18:50	12/15/16 23:48	1
13C2 PFDA	105		70 - 130				12/09/16 18:50	12/15/16 23:48	1

Lab Sample ID: LCS 320-141539/2-A

Matrix: Water

Analysis Batch: 142414

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141539

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.300	0.245		ug/L		82	70 - 130
Perfluorooctanoic acid (PFOA)	0.152	0.129		ug/L		85	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.673	0.511		ug/L		76	70 - 130
Surrogate	%Recovery	LCS Qualifier	Limits				
13C2 PFHxA	98		70 - 130				
13C2 PFDA	97		70 - 130				

Lab Sample ID: 320-24179-1 MS

Matrix: Water

Analysis Batch: 142438

Client Sample ID: WI-AF-3RW23-1216

Prep Type: Total/NA

Prep Batch: 141539

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.150	0.106		ug/L		70	70 - 130
Perfluorooctanoic acid (PFOA)	0.022	U M	0.0759	0.0539		ug/L		71	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.336	0.248		ug/L		74	70 - 130
Surrogate	%Recovery	MS Qualifier	Limits						
13C2 PFHxA	91		70 - 130						
13C2 PFDA	93		70 - 130						

Lab Sample ID: 320-24179-1 MSD

Matrix: Water

Analysis Batch: 142414

Client Sample ID: WI-AF-3RW23-1216

Prep Type: Total/NA

Prep Batch: 141539

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.159	0.120		ug/L		75	70 - 130	14	30
Perfluorooctanoic acid (PFOA)	0.022	U M	0.0804	0.0621		ug/L		77	70 - 130	17	30
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.356	0.303		ug/L		85	70 - 130	18	30

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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

Lab Sample ID: 320-24179-1 MSD

Matrix: Water

Analysis Batch: 142414

Client Sample ID: WI-AF-3RW23-1216

Prep Type: Total/NA

Prep Batch: 141539

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
13C2 PFHxA	101		70 - 130
13C2 PFDA	96		70 - 130

QC Association Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

LCMS

Prep Batch: 141539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-1	WI-AF-3RW23-1216	Total/NA	Water	537	
320-24179-2	WI-AF-3FB23-1216	Total/NA	Water	537	
320-24179-3	WI-AF-3RW24-1216	Total/NA	Water	537	
320-24179-4	WI-AF-3RW24P-1216	Total/NA	Water	537	
320-24179-5	WI-AF-3FB24-1216	Total/NA	Water	537	
320-24179-6	WI-AF-3RW25-1216	Total/NA	Water	537	
320-24179-7	WI-AF-3FB25-1216	Total/NA	Water	537	
320-24179-8	WI-AF-3RW26-1216	Total/NA	Water	537	
320-24179-9	WI-AF-3FB26-1216	Total/NA	Water	537	
320-24179-10	WI-AF-3RW27-1216	Total/NA	Water	537	
320-24179-11	WI-AF-3FB27-1216	Total/NA	Water	537	
320-24179-12	WI-AF-3RW28-1216	Total/NA	Water	537	
320-24179-13	WI-AF-3FB28-1216	Total/NA	Water	537	
320-24179-14	WI-AF-3RW29-1216	Total/NA	Water	537	
320-24179-15	WI-AF-3FB29-1216	Total/NA	Water	537	
MB 320-141539/1-A	Method Blank	Total/NA	Water	537	
LCS 320-141539/2-A	Lab Control Sample	Total/NA	Water	537	
320-24179-1 MS	WI-AF-3RW23-1216	Total/NA	Water	537	
320-24179-1 MSD	WI-AF-3RW23-1216	Total/NA	Water	537	

Analysis Batch: 142414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-1	WI-AF-3RW23-1216	Total/NA	Water	537	141539
320-24179-2	WI-AF-3FB23-1216	Total/NA	Water	537	141539
320-24179-3	WI-AF-3RW24-1216	Total/NA	Water	537	141539
320-24179-4	WI-AF-3RW24P-1216	Total/NA	Water	537	141539
320-24179-5	WI-AF-3FB24-1216	Total/NA	Water	537	141539
MB 320-141539/1-A	Method Blank	Total/NA	Water	537	141539
LCS 320-141539/2-A	Lab Control Sample	Total/NA	Water	537	141539
320-24179-1 MSD	WI-AF-3RW23-1216	Total/NA	Water	537	141539

Analysis Batch: 142415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-6	WI-AF-3RW25-1216	Total/NA	Water	537	141539
320-24179-7	WI-AF-3FB25-1216	Total/NA	Water	537	141539
320-24179-8	WI-AF-3RW26-1216	Total/NA	Water	537	141539
320-24179-9	WI-AF-3FB26-1216	Total/NA	Water	537	141539
320-24179-10	WI-AF-3RW27-1216	Total/NA	Water	537	141539
320-24179-11	WI-AF-3FB27-1216	Total/NA	Water	537	141539
320-24179-12	WI-AF-3RW28-1216	Total/NA	Water	537	141539
320-24179-13	WI-AF-3FB28-1216	Total/NA	Water	537	141539
320-24179-14	WI-AF-3RW29-1216	Total/NA	Water	537	141539
320-24179-15	WI-AF-3FB29-1216	Total/NA	Water	537	141539

Analysis Batch: 142438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-1 MS	WI-AF-3RW23-1216	Total/NA	Water	537	141539

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3RW23-1216

Date Collected: 12/05/16 10:45

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			277 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142414	12/16/16 00:47	CBW	TAL SAC

Client Sample ID: WI-AF-3FB23-1216

Date Collected: 12/05/16 10:46

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			262.3 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142414	12/16/16 02:16	CBW	TAL SAC

Client Sample ID: WI-AF-3RW24-1216

Date Collected: 12/06/16 09:05

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			281.4 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142414	12/16/16 02:45	CBW	TAL SAC

Client Sample ID: WI-AF-3RW24P-1216

Date Collected: 12/06/16 09:10

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			286.9 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142414	12/16/16 03:15	CBW	TAL SAC

Client Sample ID: WI-AF-3FB24-1216

Date Collected: 12/06/16 09:06

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			272.5 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142414	12/16/16 03:45	CBW	TAL SAC

Client Sample ID: WI-AF-3RW25-1216

Date Collected: 12/06/16 09:15

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			265 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 05:13	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB25-1216

Lab Sample ID: 320-24179-7

Date Collected: 12/06/16 09:16

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			282.6 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 05:43	CBW	TAL SAC

Client Sample ID: WI-AF-3RW26-1216

Lab Sample ID: 320-24179-8

Date Collected: 12/06/16 10:30

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			264.6 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 06:13	CBW	TAL SAC

Client Sample ID: WI-AF-3FB26-1216

Lab Sample ID: 320-24179-9

Date Collected: 12/06/16 10:31

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			288.2 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 06:42	CBW	TAL SAC

Client Sample ID: WI-AF-3RW27-1216

Lab Sample ID: 320-24179-10

Date Collected: 12/06/16 10:40

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			259.1 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 07:12	CBW	TAL SAC

Client Sample ID: WI-AF-3FB27-1216

Lab Sample ID: 320-24179-11

Date Collected: 12/06/16 10:41

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			264.8 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 07:41	CBW	TAL SAC

Client Sample ID: WI-AF-3RW28-1216

Lab Sample ID: 320-24179-12

Date Collected: 12/06/16 15:35

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			269 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 08:11	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB28-1216

Lab Sample ID: 320-24179-13

Date Collected: 12/06/16 15:36

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			281.4 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 08:41	CBW	TAL SAC

Client Sample ID: WI-AF-3RW29-1216

Lab Sample ID: 320-24179-14

Date Collected: 12/06/16 17:05

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			258.4 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 09:10	CBW	TAL SAC

Client Sample ID: WI-AF-3FB29-1216

Lab Sample ID: 320-24179-15

Date Collected: 12/06/16 17:06

Matrix: Water

Date Received: 12/08/16 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			256.5 mL	1.00 mL	141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1			142415	12/16/16 09:40	CBW	TAL SAC

Laboratory References:

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

Certification Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Analysis Method	Prep Method	Matrix	Analyte	

Method Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24179-1	WI-AF-3RW23-1216	Water	12/05/16 10:45	12/08/16 10:00
320-24179-2	WI-AF-3FB23-1216	Water	12/05/16 10:46	12/08/16 10:00
320-24179-3	WI-AF-3RW24-1216	Water	12/06/16 09:05	12/08/16 10:00
320-24179-4	WI-AF-3RW24P-1216	Water	12/06/16 09:10	12/08/16 10:00
320-24179-5	WI-AF-3FB24-1216	Water	12/06/16 09:06	12/08/16 10:00
320-24179-6	WI-AF-3RW25-1216	Water	12/06/16 09:15	12/08/16 10:00
320-24179-7	WI-AF-3FB25-1216	Water	12/06/16 09:16	12/08/16 10:00
320-24179-8	WI-AF-3RW26-1216	Water	12/06/16 10:30	12/08/16 10:00
320-24179-9	WI-AF-3FB26-1216	Water	12/06/16 10:31	12/08/16 10:00
320-24179-10	WI-AF-3RW27-1216	Water	12/06/16 10:40	12/08/16 10:00
320-24179-11	WI-AF-3FB27-1216	Water	12/06/16 10:41	12/08/16 10:00
320-24179-12	WI-AF-3RW28-1216	Water	12/06/16 15:35	12/08/16 10:00
320-24179-13	WI-AF-3FB28-1216	Water	12/06/16 15:36	12/08/16 10:00
320-24179-14	WI-AF-3RW29-1216	Water	12/06/16 17:05	12/08/16 10:00
320-24179-15	WI-AF-3FB29-1216	Water	12/06/16 17:06	12/08/16 10:00

West Sacramento, CA 95605
phone 916.373.5600 fax

TestAmerica Laboratories, Inc.

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

Client Contact		Project Manager: Katie Tipping		Site Contact: Eric Epple		Date: 12/7/2016	
Tiffany Hill		Tel/Fax: (757) 671-6258		Lab Contact: Laura Turpen		Carrier: FedEx	
Project Chemist		Analysis Turnaround Time		Filtered Sample (Y/N)		COC No: 6	
1100 NE Circle Blvd Site 300 Corvallis, OR 97330		☒ CALENDAR DAYS ☐ WORKING DAYS		Performance MS / MSD (Y / N)		Sampler: 2 of 2 COCs	
(541) 768-3109		TAT if different from Below _____ 7-Day _____		USEPA Method 537 (PFOA, PFOS, and PFBs)		For Lab Use Only:	
(541) 908-3794		☐ 2 weeks		N		Walk-in Client:	
Project Name: CTO-08		☐ 1 week		N		Lab Sampling:	
Site: NAS Whidbey Island		☐ 2 days		N		Job / SDG No.:	
P O #: 100067106050 - 679580 06 F.I.F.S		☐ 1 day		N			
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Sample Specific Notes:	
WI-AF-3FB27-1216	12/06/16	1041	G	DW	2		
WI-AF-3RW28-1216	12/06/16	1535	G	DW	2		
WI-AF-3FB28-1216	12/06/16	1536	G	DW	2		
WI-AF-3RW29-1216	12/06/16	1705	G	DW	2		
WI-AF-3FB29-1216	12/06/16	1706	G	DW	2		
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.							
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown						☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months	
Special Instructions/QC Requirements & Comments:							
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 3.0		Therm ID No: 12	
Relinquished by: Eric Epple		Company: CH2M		Received by: Guy A. Turpen		Date/Time: 12/8/16	
Relinquished by:		Company:		Received by:		Date/Time: 1000	
Relinquished by:		Company:		Received in Laboratory by:		Date/Time:	

Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-24179-1

Login Number: 24179

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

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?	N/A	
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	

ANALYTICAL REPORT

Job Number: 320-24179-1

Job Description: Whidbey Island

For:

CH2M Hill Constructors, Inc.

1100 NE Circle Blvd

Corvallis, OR 97330

Attention: Tiffany Hill



Approved for release.
Laura Turpen
Project Manager I
12/19/2016 8:58 AM

Laura Turpen, Project Manager I
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12/19/2016

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Definitions/Glossary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Qualifiers

LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

CASE NARRATIVE

Client: CH2M Hill Constructors, Inc.

Project: Whidbey Island

Report Number: 320-24179-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Sacramento attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

TestAmerica utilizes USEPA approved methods and DOD QSM, where applicable, in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

All parameters for which TestAmerica Sacramento has certification were evaluated to the QSM specified reporting convention or to the client specified format if different from QSM. Parameters not certified under QSM, if any, were evaluated to the detection limit (DL) and include qualified results where applicable.

The sample(s) that contain constituents flagged with U are undetected. The result associated with this flag is the limit of detection (LOD).

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 12/08/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 1.5 C.

An extended TAT was requested by the client via an email on December 8. Samples received on December 8 and 9 were requested to have a due date of December 19, 2016.

PFOA/PFOS

Samples WI-AF-3RW23-1216 (320-24179-1), WI-AF-3FB23-1216 (320-24179-2), WI-AF-3RW24-1216 (320-24179-3), WI-AF-3RW24P-1216 (320-24179-4), WI-AF-3FB24-1216 (320-24179-5), WI-AF-3RW25-1216 (320-24179-6), WI-AF-3FB25-1216 (320-24179-7), WI-AF-3RW26-1216 (320-24179-8), WI-AF-3FB26-1216 (320-24179-9), WI-AF-3RW27-1216 (320-24179-10), WI-AF-3FB27-1216 (320-24179-11), WI-AF-3RW28-1216 (320-24179-12), WI-AF-3FB28-1216 (320-24179-13), WI-AF-3RW29-1216 (320-24179-14) and WI-AF-3FB29-1216 (320-24179-15) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 12/09/2016 and analyzed on 12/16/2016.

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

Detection Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3RW23-1216

Lab Sample ID: 320-24179-1

☐ No Detections.

Client Sample ID: WI-AF-3FB23-1216

Lab Sample ID: 320-24179-2

☐ No Detections.

Client Sample ID: WI-AF-3RW24-1216

Lab Sample ID: 320-24179-3

☐ No Detections.

Client Sample ID: WI-AF-3RW24P-1216

Lab Sample ID: 320-24179-4

☐ No Detections.

Client Sample ID: WI-AF-3FB24-1216

Lab Sample ID: 320-24179-5

☐ No Detections.

Client Sample ID: WI-AF-3RW25-1216

Lab Sample ID: 320-24179-6

☐ No Detections.

Client Sample ID: WI-AF-3FB25-1216

Lab Sample ID: 320-24179-7

☐ No Detections.

Client Sample ID: WI-AF-3RW26-1216

Lab Sample ID: 320-24179-8

☐ No Detections.

Client Sample ID: WI-AF-3FB26-1216

Lab Sample ID: 320-24179-9

☐ No Detections.

Client Sample ID: WI-AF-3RW27-1216

Lab Sample ID: 320-24179-10

☐ No Detections.

Client Sample ID: WI-AF-3FB27-1216

Lab Sample ID: 320-24179-11

☐ No Detections.

Client Sample ID: WI-AF-3RW28-1216

Lab Sample ID: 320-24179-12

☐ No Detections.

Client Sample ID: WI-AF-3FB28-1216

Lab Sample ID: 320-24179-13

☐ No Detections.

Client Sample ID: WI-AF-3RW29-1216

Lab Sample ID: 320-24179-14

☐ No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB29-1216

Lab Sample ID: 320-24179-15

 No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3RW23-1216

Date Collected: 12/05/16 10:45

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.014	ug/L	—	12/09/16 18:50	12/16/16 00:47	1
Perfluorooctanoic acid (PFOA)	0.022	U M	0.027	0.0085	ug/L	—	12/09/16 18:50	12/16/16 00:47	1
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.043	ug/L	—	12/09/16 18:50	12/16/16 00:47	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130				12/09/16 18:50	12/16/16 00:47	1
13C2 PFDA	94		70 - 130				12/09/16 18:50	12/16/16 00:47	1

Client Sample ID: WI-AF-3FB23-1216

Date Collected: 12/05/16 10:46

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.015	ug/L	—	12/09/16 18:50	12/16/16 02:16	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0090	ug/L	—	12/09/16 18:50	12/16/16 02:16	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L	—	12/09/16 18:50	12/16/16 02:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				12/09/16 18:50	12/16/16 02:16	1
13C2 PFDA	93		70 - 130				12/09/16 18:50	12/16/16 02:16	1

Client Sample ID: WI-AF-3RW24-1216

Date Collected: 12/06/16 09:05

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.014	ug/L	—	12/09/16 18:50	12/16/16 02:45	1
Perfluorooctanoic acid (PFOA)	0.021	U M	0.027	0.0084	ug/L	—	12/09/16 18:50	12/16/16 02:45	1
Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.042	ug/L	—	12/09/16 18:50	12/16/16 02:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130				12/09/16 18:50	12/16/16 02:45	1
13C2 PFDA	97		70 - 130				12/09/16 18:50	12/16/16 02:45	1

Client Sample ID: WI-AF-3RW24P-1216

Date Collected: 12/06/16 09:10

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.014	ug/L	—	12/09/16 18:50	12/16/16 03:15	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.0082	ug/L	—	12/09/16 18:50	12/16/16 03:15	1
Perfluorobutanesulfonic acid (PFBS)	0.096	U	0.12	0.041	ug/L	—	12/09/16 18:50	12/16/16 03:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130				12/09/16 18:50	12/16/16 03:15	1
13C2 PFDA	82		70 - 130				12/09/16 18:50	12/16/16 03:15	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB24-1216

Date Collected: 12/06/16 09:06

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.044	U	0.055	0.014	ug/L		12/09/16 18:50	12/16/16 03:45	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0086	ug/L		12/09/16 18:50	12/16/16 03:45	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/09/16 18:50	12/16/16 03:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				12/09/16 18:50	12/16/16 03:45	1
13C2 PFDA	94		70 - 130				12/09/16 18:50	12/16/16 03:45	1

Client Sample ID: WI-AF-3RW25-1216

Date Collected: 12/06/16 09:15

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-6

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/09/16 18:50	12/16/16 05:13	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/09/16 18:50	12/16/16 05:13	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/09/16 18:50	12/16/16 05:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	81		70 - 130				12/09/16 18:50	12/16/16 05:13	1
13C2 PFDA	77		70 - 130				12/09/16 18:50	12/16/16 05:13	1

Client Sample ID: WI-AF-3FB25-1216

Date Collected: 12/06/16 09:16

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-7

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.014	ug/L		12/09/16 18:50	12/16/16 05:43	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0083	ug/L		12/09/16 18:50	12/16/16 05:43	1
Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.042	ug/L		12/09/16 18:50	12/16/16 05:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130				12/09/16 18:50	12/16/16 05:43	1
13C2 PFDA	89		70 - 130				12/09/16 18:50	12/16/16 05:43	1

Client Sample ID: WI-AF-3RW26-1216

Date Collected: 12/06/16 10:30

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-8

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/09/16 18:50	12/16/16 06:13	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/09/16 18:50	12/16/16 06:13	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/09/16 18:50	12/16/16 06:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130				12/09/16 18:50	12/16/16 06:13	1
13C2 PFDA	94		70 - 130				12/09/16 18:50	12/16/16 06:13	1

TestAmerica Sacramento

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB26-1216

Lab Sample ID: 320-24179-9

Date Collected: 12/06/16 10:31

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.013	ug/L		12/09/16 18:50	12/16/16 06:42	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.0082	ug/L		12/09/16 18:50	12/16/16 06:42	1
Perfluorobutanesulfonic acid (PFBS)	0.095	U	0.12	0.041	ug/L		12/09/16 18:50	12/16/16 06:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	83		70 - 130				12/09/16 18:50	12/16/16 06:42	1
13C2 PFDA	81		70 - 130				12/09/16 18:50	12/16/16 06:42	1

Client Sample ID: WI-AF-3RW27-1216

Lab Sample ID: 320-24179-10

Date Collected: 12/06/16 10:40

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L		12/09/16 18:50	12/16/16 07:12	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/09/16 18:50	12/16/16 07:12	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/09/16 18:50	12/16/16 07:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130				12/09/16 18:50	12/16/16 07:12	1
13C2 PFDA	92		70 - 130				12/09/16 18:50	12/16/16 07:12	1

Client Sample ID: WI-AF-3FB27-1216

Lab Sample ID: 320-24179-11

Date Collected: 12/06/16 10:41

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.015	ug/L		12/09/16 18:50	12/16/16 07:41	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.0089	ug/L		12/09/16 18:50	12/16/16 07:41	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.045	ug/L		12/09/16 18:50	12/16/16 07:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				12/09/16 18:50	12/16/16 07:41	1
13C2 PFDA	88		70 - 130				12/09/16 18:50	12/16/16 07:41	1

Client Sample ID: WI-AF-3RW28-1216

Lab Sample ID: 320-24179-12

Date Collected: 12/06/16 15:35

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.014	ug/L		12/09/16 18:50	12/16/16 08:11	1
Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.0088	ug/L		12/09/16 18:50	12/16/16 08:11	1
Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.044	ug/L		12/09/16 18:50	12/16/16 08:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	81		70 - 130				12/09/16 18:50	12/16/16 08:11	1
13C2 PFDA	78		70 - 130				12/09/16 18:50	12/16/16 08:11	1

Client Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB28-1216

Lab Sample ID: 320-24179-13

Date Collected: 12/06/16 15:36

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.014	ug/L		12/09/16 18:50	12/16/16 08:41	1
Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.0084	ug/L		12/09/16 18:50	12/16/16 08:41	1
Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.042	ug/L		12/09/16 18:50	12/16/16 08:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130				12/09/16 18:50	12/16/16 08:41	1
13C2 PFDA	97		70 - 130				12/09/16 18:50	12/16/16 08:41	1

Client Sample ID: WI-AF-3RW29-1216

Lab Sample ID: 320-24179-14

Date Collected: 12/06/16 17:05

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.015	ug/L		12/09/16 18:50	12/16/16 09:10	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0091	ug/L		12/09/16 18:50	12/16/16 09:10	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/09/16 18:50	12/16/16 09:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130				12/09/16 18:50	12/16/16 09:10	1
13C2 PFDA	92		70 - 130				12/09/16 18:50	12/16/16 09:10	1

Client Sample ID: WI-AF-3FB29-1216

Lab Sample ID: 320-24179-15

Date Collected: 12/06/16 17:06

Matrix: Water

Date Received: 12/08/16 10:00

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.015	ug/L		12/09/16 18:50	12/16/16 09:40	1
Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.0092	ug/L		12/09/16 18:50	12/16/16 09:40	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.046	ug/L		12/09/16 18:50	12/16/16 09:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130				12/09/16 18:50	12/16/16 09:40	1
13C2 PFDA	90		70 - 130				12/09/16 18:50	12/16/16 09:40	1

Default Detection Limits

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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

Prep: 537

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	0.14	0.048	ug/L	537
Perfluorooctanesulfonic acid (PFOS)	0.060	0.016	ug/L	537
Perfluorooctanoic acid (PFOA)	0.030	0.0094	ug/L	537

Surrogate Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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)
320-24179-1	WI-AF-3RW23-1216	95	94
320-24179-1 MS	WI-AF-3RW23-1216	91	93
320-24179-1 MSD	WI-AF-3RW23-1216	101	96
320-24179-2	WI-AF-3FB23-1216	91	93
320-24179-3	WI-AF-3RW24-1216	100	97
320-24179-4	WI-AF-3RW24P-1216	86	82
320-24179-5	WI-AF-3FB24-1216	91	94
320-24179-6	WI-AF-3RW25-1216	81	77
320-24179-7	WI-AF-3FB25-1216	87	89
320-24179-8	WI-AF-3RW26-1216	95	94
320-24179-9	WI-AF-3FB26-1216	83	81
320-24179-10	WI-AF-3RW27-1216	97	92
320-24179-11	WI-AF-3FB27-1216	91	88
320-24179-12	WI-AF-3RW28-1216	81	78
320-24179-13	WI-AF-3FB28-1216	96	97
320-24179-14	WI-AF-3RW29-1216	89	92
320-24179-15	WI-AF-3FB29-1216	92	90
LCS 320-141539/2-A	Lab Control Sample	98	97
MB 320-141539/1-A	Method Blank	105	105

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C2 PFDA = 13C2 PFDA

QC Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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

Lab Sample ID: MB 320-141539/1-A

Matrix: Water

Analysis Batch: 142414

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 141539

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	0.048	U	0.060	0.016	ug/L		12/09/16 18:50	12/15/16 23:48	1
Perfluorooctanoic acid (PFOA)	0.024	U	0.030	0.0094	ug/L		12/09/16 18:50	12/15/16 23:48	1
Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.048	ug/L		12/09/16 18:50	12/15/16 23:48	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	105		70 - 130				12/09/16 18:50	12/15/16 23:48	1
13C2 PFDA	105		70 - 130				12/09/16 18:50	12/15/16 23:48	1

Lab Sample ID: LCS 320-141539/2-A

Matrix: Water

Analysis Batch: 142414

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 141539

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.300	0.245		ug/L		82	70 - 130
Perfluorooctanoic acid (PFOA)	0.152	0.129		ug/L		85	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.673	0.511		ug/L		76	70 - 130
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
13C2 PFHxA	98		70 - 130				
13C2 PFDA	97		70 - 130				

Lab Sample ID: 320-24179-1 MS

Matrix: Water

Analysis Batch: 142438

Client Sample ID: WI-AF-3RW23-1216

Prep Type: Total/NA

Prep Batch: 141539

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.150	0.106		ug/L		70	70 - 130
Perfluorooctanoic acid (PFOA)	0.022	U M	0.0759	0.0539		ug/L		71	70 - 130
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.336	0.248		ug/L		74	70 - 130
Surrogate	MS %Recovery	MS Qualifier	Limits						
13C2 PFHxA	91		70 - 130						
13C2 PFDA	93		70 - 130						

Lab Sample ID: 320-24179-1 MSD

Matrix: Water

Analysis Batch: 142414

Client Sample ID: WI-AF-3RW23-1216

Prep Type: Total/NA

Prep Batch: 141539

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.159	0.120		ug/L		75	70 - 130	14	30
Perfluorooctanoic acid (PFOA)	0.022	U M	0.0804	0.0621		ug/L		77	70 - 130	17	30
Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.356	0.303		ug/L		85	70 - 130	18	30

TestAmerica Sacramento

QC Sample Results

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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

Lab Sample ID: 320-24179-1 MSD

Matrix: Water

Analysis Batch: 142414

Client Sample ID: WI-AF-3RW23-1216

Prep Type: Total/NA

Prep Batch: 141539

Surrogate	MSD	MSD	Limits
	%Recovery	Qualifier	
<i>13C2 PFHxA</i>	101		70 - 130
<i>13C2 PFDA</i>	96		70 - 130

QC Association Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

LCMS

Prep Batch: 141539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-1	WI-AF-3RW23-1216	Total/NA	Water	537	
320-24179-2	WI-AF-3FB23-1216	Total/NA	Water	537	
320-24179-3	WI-AF-3RW24-1216	Total/NA	Water	537	
320-24179-4	WI-AF-3RW24P-1216	Total/NA	Water	537	
320-24179-5	WI-AF-3FB24-1216	Total/NA	Water	537	
320-24179-6	WI-AF-3RW25-1216	Total/NA	Water	537	
320-24179-7	WI-AF-3FB25-1216	Total/NA	Water	537	
320-24179-8	WI-AF-3RW26-1216	Total/NA	Water	537	
320-24179-9	WI-AF-3FB26-1216	Total/NA	Water	537	
320-24179-10	WI-AF-3RW27-1216	Total/NA	Water	537	
320-24179-11	WI-AF-3FB27-1216	Total/NA	Water	537	
320-24179-12	WI-AF-3RW28-1216	Total/NA	Water	537	
320-24179-13	WI-AF-3FB28-1216	Total/NA	Water	537	
320-24179-14	WI-AF-3RW29-1216	Total/NA	Water	537	
320-24179-15	WI-AF-3FB29-1216	Total/NA	Water	537	
MB 320-141539/1-A	Method Blank	Total/NA	Water	537	
LCS 320-141539/2-A	Lab Control Sample	Total/NA	Water	537	
320-24179-1 MS	WI-AF-3RW23-1216	Total/NA	Water	537	
320-24179-1 MSD	WI-AF-3RW23-1216	Total/NA	Water	537	

Analysis Batch: 142414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-1	WI-AF-3RW23-1216	Total/NA	Water	537	141539
320-24179-2	WI-AF-3FB23-1216	Total/NA	Water	537	141539
320-24179-3	WI-AF-3RW24-1216	Total/NA	Water	537	141539
320-24179-4	WI-AF-3RW24P-1216	Total/NA	Water	537	141539
320-24179-5	WI-AF-3FB24-1216	Total/NA	Water	537	141539
MB 320-141539/1-A	Method Blank	Total/NA	Water	537	141539
LCS 320-141539/2-A	Lab Control Sample	Total/NA	Water	537	141539
320-24179-1 MSD	WI-AF-3RW23-1216	Total/NA	Water	537	141539

Analysis Batch: 142415

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-6	WI-AF-3RW25-1216	Total/NA	Water	537	141539
320-24179-7	WI-AF-3FB25-1216	Total/NA	Water	537	141539
320-24179-8	WI-AF-3RW26-1216	Total/NA	Water	537	141539
320-24179-9	WI-AF-3FB26-1216	Total/NA	Water	537	141539
320-24179-10	WI-AF-3RW27-1216	Total/NA	Water	537	141539
320-24179-11	WI-AF-3FB27-1216	Total/NA	Water	537	141539
320-24179-12	WI-AF-3RW28-1216	Total/NA	Water	537	141539
320-24179-13	WI-AF-3FB28-1216	Total/NA	Water	537	141539
320-24179-14	WI-AF-3RW29-1216	Total/NA	Water	537	141539
320-24179-15	WI-AF-3FB29-1216	Total/NA	Water	537	141539

Analysis Batch: 142438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-24179-1 MS	WI-AF-3RW23-1216	Total/NA	Water	537	141539

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3RW23-1216

Date Collected: 12/05/16 10:45

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142414	12/16/16 00:47	CBW	TAL SAC

Client Sample ID: WI-AF-3FB23-1216

Date Collected: 12/05/16 10:46

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142414	12/16/16 02:16	CBW	TAL SAC

Client Sample ID: WI-AF-3RW24-1216

Date Collected: 12/06/16 09:05

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142414	12/16/16 02:45	CBW	TAL SAC

Client Sample ID: WI-AF-3RW24P-1216

Date Collected: 12/06/16 09:10

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142414	12/16/16 03:15	CBW	TAL SAC

Client Sample ID: WI-AF-3FB24-1216

Date Collected: 12/06/16 09:06

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142414	12/16/16 03:45	CBW	TAL SAC

Client Sample ID: WI-AF-3RW25-1216

Date Collected: 12/06/16 09:15

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 05:13	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB25-1216

Date Collected: 12/06/16 09:16

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 05:43	CBW	TAL SAC

Client Sample ID: WI-AF-3RW26-1216

Date Collected: 12/06/16 10:30

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 06:13	CBW	TAL SAC

Client Sample ID: WI-AF-3FB26-1216

Date Collected: 12/06/16 10:31

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 06:42	CBW	TAL SAC

Client Sample ID: WI-AF-3RW27-1216

Date Collected: 12/06/16 10:40

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 07:12	CBW	TAL SAC

Client Sample ID: WI-AF-3FB27-1216

Date Collected: 12/06/16 10:41

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 07:41	CBW	TAL SAC

Client Sample ID: WI-AF-3RW28-1216

Date Collected: 12/06/16 15:35

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 08:11	CBW	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Client Sample ID: WI-AF-3FB28-1216

Date Collected: 12/06/16 15:36

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 08:41	CBW	TAL SAC

Client Sample ID: WI-AF-3RW29-1216

Date Collected: 12/06/16 17:05

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 09:10	CBW	TAL SAC

Client Sample ID: WI-AF-3FB29-1216

Date Collected: 12/06/16 17:06

Date Received: 12/08/16 10:00

Lab Sample ID: 320-24179-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			141539	12/09/16 18:50	JER	TAL SAC
Total/NA	Analysis	537		1	142415	12/16/16 09:40	CBW	TAL SAC

Laboratory References:

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

Certification Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Laboratory: TestAmerica Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Analysis Method	Prep Method	Matrix	Analyte	

Method Summary

Client: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

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: CH2M Hill Constructors, Inc.
Project/Site: Whidbey Island

TestAmerica Job ID: 320-24179-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-24179-1	WI-AF-3RW23-1216	Water	12/05/16 10:45	12/08/16 10:00
320-24179-2	WI-AF-3FB23-1216	Water	12/05/16 10:46	12/08/16 10:00
320-24179-3	WI-AF-3RW24-1216	Water	12/06/16 09:05	12/08/16 10:00
320-24179-4	WI-AF-3RW24P-1216	Water	12/06/16 09:10	12/08/16 10:00
320-24179-5	WI-AF-3FB24-1216	Water	12/06/16 09:06	12/08/16 10:00
320-24179-6	WI-AF-3RW25-1216	Water	12/06/16 09:15	12/08/16 10:00
320-24179-7	WI-AF-3FB25-1216	Water	12/06/16 09:16	12/08/16 10:00
320-24179-8	WI-AF-3RW26-1216	Water	12/06/16 10:30	12/08/16 10:00
320-24179-9	WI-AF-3FB26-1216	Water	12/06/16 10:31	12/08/16 10:00
320-24179-10	WI-AF-3RW27-1216	Water	12/06/16 10:40	12/08/16 10:00
320-24179-11	WI-AF-3FB27-1216	Water	12/06/16 10:41	12/08/16 10:00
320-24179-12	WI-AF-3RW28-1216	Water	12/06/16 15:35	12/08/16 10:00
320-24179-13	WI-AF-3FB28-1216	Water	12/06/16 15:36	12/08/16 10:00
320-24179-14	WI-AF-3RW29-1216	Water	12/06/16 17:05	12/08/16 10:00
320-24179-15	WI-AF-3FB29-1216	Water	12/06/16 17:06	12/08/16 10:00

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Instrument ID: A6 Analysis Batch Number: 140688Lab Sample ID: STD 320-140688/2 IC Client Sample ID: _____Date Analyzed: 12/05/16 17:26 Lab File ID: 05DEC2016A6A_004.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.37	Split Peak	barnettj	12/06/16 10:00
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/06/16 10:00

Lab Sample ID: STD 320-140688/3 IC Client Sample ID: _____Date Analyzed: 12/05/16 17:55 Lab File ID: 05DEC2016A6A_005.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.38	Split Peak	barnettj	12/06/16 10:03
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/06/16 10:03

Lab Sample ID: CCV 320-140688/9 CCVL Client Sample ID: _____Date Analyzed: 12/05/16 20:53 Lab File ID: 05DEC2016A6A_011.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.38	Split Peak	barnettj	12/06/16 10:08
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/06/16 10:08

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Instrument ID: A6 Analysis Batch Number: 142223Lab Sample ID: CCV 320-142223/2 CCVL Client Sample ID: _____Date Analyzed: 12/15/16 08:03 Lab File ID: 15DEC2016A6A_002.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid	19.38	Split Peak	barnettj	12/15/16 15:05
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	barnettj	12/15/16 15:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Instrument ID: A6 Analysis Batch Number: 142414Lab Sample ID: 320-24179-1 Client Sample ID: WI-AF-3RW23-1216Date Analyzed: 12/16/16 00:47 Lab File ID: 15DEC2016A6A_035.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.05	Split Peak	westendor fc	12/16/16 10:43

Lab Sample ID: 320-24179-3 Client Sample ID: WI-AF-3RW24-1216Date Analyzed: 12/16/16 02:45 Lab File ID: 15DEC2016A6A_039.d GC Column: Acquity ID: 2.1 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	20.05	Assign Peak	westendor fc	12/16/16 10:45

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutane Sulfonate	3366 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
.LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutane Sulfonate	89.76 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
..LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537-PFOS_00006	0.4 mL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00002	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537-PFBS_00002	0.0102 g	Perfluorobutane Sulfonate	2040 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2040 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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537-PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
...LC537-PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
..LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537-PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
...LC537-PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
..LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537-PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
...LC537-PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537-PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
...LC537-PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537-PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
...LC537-PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-ICV_00017	01/13/17	08/09/16	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00018	200 uL	13C2-PFOA	10 ng/mL
.LC537-IS_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C4 PFOS	28.68 ng/mL
..LCM2PFOA_00004	03/19/17		Wellington Laboratories, Lot M2PFOA0312		LCMPFOS_00013	300 uL	13C2-PFOA	0.5 ug/mL
...LCMPFOS_00013	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C4 PFOS	1.434 ug/mL
LC537-ICV_00017	01/13/17	08/09/16	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00017	500 uL	13C2 PFDA	50 ug/mL
					LC537ICIM_00013	25 uL	13C2 PFHxA	47.8 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	10 ng/mL
							Perfluorooctanoic acid (PFOA)	114.77 ng/mL
							Perfluorooctanoic acid (PFOA)	25.0965 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	27.2389 ng/mL
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA 00008	100 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA 00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			LCMPFHxA 00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA 00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LC537ICIM_00013	02/05/17	08/09/16	Methanol, Lot 090285	25 mL	LC537-PFBS2_00005	0.5 mL	13C2 PFHxA	50 ug/mL
					LC537-PFOA2_00007	0.13 mL	Perfluorobutanesulfonic acid (PFBS)	45.908 ug/mL
					LC537-PFOS2_00005	0.22 mL	Perfluorooctanoic acid (PFOA)	10.0386 ug/mL
..LC537-PFBS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537_PFBS2_00001	0.023 g	Perfluorooctanesulfonic acid (PFOS)	10.8956 ug/mL
...LC537_PFBS2_00001	08/09/17	Santa Cruz Biotechnology, Lot H0112			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	2295.4 ug/mL
..LC537-PFOA2_00007	07/25/17	08/05/16	Methanol, Lot 090285	10 mL	LC537 PFOA2_00001	0.0195 g	Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
...LC537 PFOA2_00001	07/25/17	Afla Aesar, Lot D24Y026			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	1930.5 ug/mL
..LC537-PFOS2_00005	03/01/17	02/29/16	Methanol, Lot 090285	10 mL	LC537_PFOS2_00001	0.0159 g	Perfluorooctanoic acid (PFOA)	0.99 g/g
...LC537_PFOS2_00001	07/26/17	Sigma, Lot BCBF5116V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	1238.13 ug/mL
LC537-IS_00026	03/19/17	12/05/16	Methanol, Lot 090285	10000 uL	LCM2PFOA 00003	100 uL	Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
.LCM2PFOA 00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LCMPFOS 00018	300 uL	13C2-PFOA	0.5 ug/mL
.LCMPFOS 00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	1.434 ug/mL
					(Purchased Reagent)		13C2-PFOA	50 ug/mL
					(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L1_00015	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
					LC537-MSP_00012	24.4 uL	13C4 PFOS	28.68 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	8.76058 ng/mL
							Perfluoroheptanoic acid	0.993847 ng/mL
							Perfluorohexanesulfonic acid	2.9532 ng/mL
							Perfluorononanoic acid	1.91737 ng/mL
							Perfluorooctanoic acid (PFOA)	1.9793 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	3.91048 ng/mL
					LC537-SU_00017	250 uL	13C2 PFDA	10 ng/mL
.LC537-IS_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA 00004	100 uL	13C2 PFHxA	10 ng/mL
..LCM2PFOA 00004	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LCMPFOS 00013	300 uL	13C2-PFOA	0.5 ug/mL
..LCMPFOS 00013	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	1.434 ug/mL
.LC537-MSP_00012	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	200 uL	13C2-PFOA	50 ug/mL
							13C4 PFOS	47.8 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	1795.2 ng/mL
							Perfluoroheptanoic acid	203.657 ng/mL
							Perfluorohexanesulfonic acid	605.164 ng/mL
							Perfluorononanoic acid	392.904 ng/mL
							Perfluorooctanoic acid (PFOA)	405.594 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	801.328 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpa_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpa_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
....LC537 PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
..LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
....LC537 PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
....LC537 PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00014	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	34 uL	Perfluorobutanesulfonic acid (PFBS)	22.8888 ng/mL
							Perfluoroheptanoic acid	2.59663 ng/mL
							Perfluorohexanesulfonic acid	7.71585 ng/mL
							Perfluorononanoic acid	5.00953 ng/mL
							Perfluorooctanoic acid (PFOA)	5.17132 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	10.2169 ng/mL
					LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
....LC537 PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
..LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
....LC537 PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
....LC537 PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
..LC537-IS_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2-PFOA	0.5 ug/mL
..LCM2PFOA_00004	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LCMPFOS_00013	300 uL	13C4 PFOS	1.434 ug/mL
..LCMPFOS_00013	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00013	01/22/21	Wellington Laboratories, Lot MPFOS0116			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00016	01/28/17	11/07/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	67 uL	Perfluorobutanesulfonic acid (PFBS)	45.1044 ng/mL
							Perfluoroheptanoic acid	5.11689 ng/mL
							Perfluorohexanesulfonic acid	15.2048 ng/mL
							Perfluorononanoic acid	9.87171 ng/mL
							Perfluorooctanoic acid (PFOA)	10.1905 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1334 ng/mL
..LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537-IS_00024	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
..LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
...LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537_PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00024	03/19/17	11/03/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00003	100 uL	13C2-PFOA	0.5 ug/mL
..LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL
...LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00020	04/07/17	10/07/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			LCMPFHxA_00009	100 uL	13C2 PFDA	0.2 ug/mL
...LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFDA	50 ug/mL
LC537-L4_00015	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	135 uL	Perfluorobutanesulfonic acid (PFBS)	90.882 ng/mL
							Perfluoroheptanoic acid	10.3101 ng/mL
							Perfluorohexanesulfonic acid	30.6364 ng/mL
							Perfluorononanoic acid	19.8908 ng/mL
							Perfluorooctanoic acid (PFOA)	20.5332 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.5672 ng/mL
					LC537-IS_00018	100 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00017	250 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24179-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
							Perfluoroheptanoic acid	10.1829 ug/mL
							Perfluorohexanesulfonic acid	30.2582 ug/mL
							Perfluorononanoic acid	19.6452 ug/mL
							Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537-PFOS_00006	0.4 mL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
							Perfluoroheptanoic acid	1018.29 ug/mL
							Perfluorohexanesulfonic acid	1008.61 ug/mL
							Perfluorononanoic acid	982.26 ug/mL
....LC537-PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS_00008	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
....LC537 PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00008	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00009	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
....LC537 PFOA_00002	11/04/18		Fluka, Lot SZBD308XV		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00006	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17		Fluka, Lot SZBC222XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00018	01/13/17	07/13/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00004	100 uL	13C2-PFOA	0.5 ug/mL
..LCM2PFOA_00004	03/19/17		Wellington Laboratories, Lot M2PFOA0312		LCMPFOS_00013	300 uL	13C4 PFOS	1.434 ug/mL
...LCMPFOS_00013	01/22/21		Wellington Laboratories, Lot MPFOS0116		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00017	01/19/17	07/19/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00008	08/19/20		Wellington Laboratories, Lot MPFDA0815		LCMPFHxA_00009	100 uL	13C2 PFDA	0.2 ug/mL
...LCMPFHxA_00009	04/09/20		Wellington Laboratories, Lot MPFHxA0415		(Purchased Reagent)		13C2 PFHxA	0.2 ug/mL
LC537-L5_00017	01/28/17	11/07/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	200 uL	Perfluorobutanesulfonic acid (PFBS)	134.64 ng/mL
							Perfluoroheptanoic acid	15.2743 ng/mL
							Perfluorohexanesulfonic acid	45.3873 ng/mL
							Perfluorononanoic acid	29.4678 ng/mL
							Perfluorooctanoic acid (PFOA)	30.4196 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0996 ng/mL
					LC537-IS_00024	100 uL	13C2-PFOA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-SU_00020	250 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00010	01/28/17	07/28/16	Methanol, Lot 090285	10000 uL	LC537SPIM_00012	375 uL	Perfluorobutanesulfonic acid (PFBS)	3366 ng/mL
							Perfluoroheptanoic acid	381.857 ng/mL
							Perfluorohexanesulfonic acid	1134.68 ng/mL
							Perfluorononanoic acid	736.695 ng/mL
							Perfluorooctanoic acid (PFOA)	760.489 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	1502.49 ng/mL
..LC537SPIM_00012	01/28/17	07/28/16	Methanol, Lot 104453	10 mL	LC537-PFBS_00006	0.44 mL	Perfluorobutanesulfonic acid (PFBS)	89.76 ug/mL
					LC537-PFHpA_00010	0.1 mL	Perfluoroheptanoic acid	10.1829 ug/mL
					LC537-PFHxS_00008	0.3 mL	Perfluorohexanesulfonic acid	30.2582 ug/mL
					LC537-PFNA_00008	0.2 mL	Perfluorononanoic acid	19.6452 ug/mL
					LC537-PFOA_00009	0.098 mL	Perfluorooctanoic acid (PFOA)	20.2797 ug/mL
					LC537-PFOS_00006	0.4 mL	Perfluorooctanesulfonic acid (PFOS)	40.0664 ug/mL
...LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutanesulfonic acid (PFBS)	2040 ug/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
...LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537_PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
...LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
...LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537_PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
....LC537_PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
....LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00024	03/19/17	11/03/16	Methanol, Lot 090285	10000 uL	LCM2PFOA_00003	100 uL	13C2-PFOA	0.5 ug/mL
					LCMPFOS_00018	300 uL	13C4 PFOS	1.434 ug/mL
..LCM2PFOA_00003	03/19/17	Wellington Laboratories, Lot M2PFOA0312			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00018	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00020	04/07/17	10/07/16	Methanol, Lot 104453	25000 uL	LCMPFDA_00008	100 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00009	100 uL	13C2 PFHxA	0.2 ug/mL
..LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L6_00014	01/13/17	07/28/16	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00010	265 uL	Perfluorobutanesulfonic acid (PFBS)	178.398 ng/mL
							Perfluoroheptanoic acid	20.2384 ng/mL
							Perfluorohexanesulfonic acid	60.1382 ng/mL
							Perfluorononanoic acid	39.0448 ng/mL
							Perfluorooctanoic acid (PFOA)	40.3059 ng/mL

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.:

12/19/2016

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluoroheptanoic acid	203.657 ng/mL
							Perfluorohexanesulfonic acid	605.164 ng/mL
							Perfluorononanoic acid	392.904 ng/mL
							Perfluorooctanoic acid (PFOA)	405.594 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	801.328 ng/mL
.LC537SPIM_00013	03/14/17	09/14/16	Methanol, Lot 104453	10000 uL	LC537-PFBS_00006	440 uL	Perfluorobutane Sulfonate	89760 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	89760 ng/mL
					LC537-PFHpA_00010	100 uL	Perfluoroheptanoic acid	10182.9 ng/mL
					LC537-PFHxS_00008	300 uL	Perfluorohexanesulfonic acid	30258.2 ng/mL
					LC537-PFNA_00008	200 uL	Perfluorononanoic acid	19645.2 ng/mL
					LC537-PFOA_00009	98 uL	Perfluorooctanoic acid (PFOA)	20279.7 ng/mL
					LC537-PFOS_00006	400 uL	Perfluorooctanesulfonic acid (PFOS)	40066.4 ng/mL
..LC537-PFBS_00006	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537_PFBS_00002	0.0102 g	Perfluorobutane Sulfonate	2040 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2040 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_00010	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFHpA_00002	0.0072 g	Perfluoroheptanoic acid	1018.29 ug/mL
...LC537 PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid	0.99 g/g
..LC537-PFHxS_00008	07/28/17	07/28/16	Methanol, Lot 090285	5.5 mL	LC537 PFHxS_00002	0.0061 g	Perfluorohexanesulfonic acid	1008.61 ug/mL
...LC537 PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid	0.9094 g/g
..LC537-PFNA_00008	07/28/17	07/28/16	Methanol, Lot 090285	5 mL	LC537 PFNA_00002	0.0051 g	Perfluorononanoic acid	982.26 ug/mL
...LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid	0.963 g/g
..LC537-PFOA_00009	07/28/17	07/28/16	Methanol, Lot 090285	7 mL	LC537 PFOA_00002	0.0145 g	Perfluorooctanoic acid (PFOA)	2069.36 ug/mL
...LC537 PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00006	07/28/17	07/28/16	Methanol, Lot 090285	6 mL	LC537_PFOS_00002	0.0066 g	Perfluorooctanesulfonic acid (PFOS)	1001.66 ug/mL
...LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00024	06/05/17	12/05/16	Methanol, Lot 104453	20000 uL	LCMPFDA_00008	80 uL	13C2 PFDA	0.2 ug/mL
					LCMPFHxA_00009	80 uL	13C2 PFHxA	0.2 ug/mL
.LCMPFDA_00008	08/19/20	Wellington Laboratories, Lot MPFDA0815			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00009	04/09/20	Wellington Laboratories, Lot MPFHxA0415			(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFB_00002

4/1/15 SPV

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Nonafluorobutane-1-sulfonic acid - 97%

Product Number:

562629

Batch Number:

MKBP8842V

Brand:

ALDRICH

CAS Number:

375-73-5

MDL Number:

MFCD01320794

Formula:

C₄HF₉O₃S

Formula Weight:

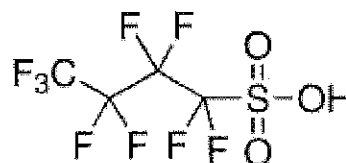
300.10 g/mol

Storage Temperature:

Store at 2 - 8 °C

Quality Release Date:

11 OCT 2013



PFBS

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

Jamie Gleason

Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

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

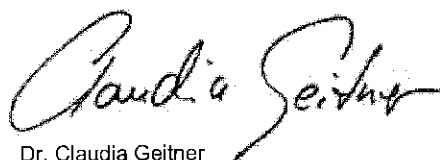
LC537_PFHpA_00002

Certificate of Analysis

Product Name: PERFLUOROHEPTANOIC ACID
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

PFHpA

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



Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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_PFHxS_00002

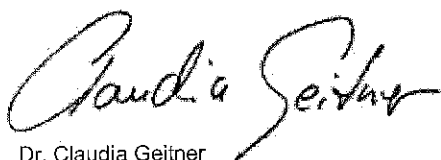
r: 4/1/15 stw

Certificate of Analysis

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

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



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_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_PFOA_00002

11/3/2015 2

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

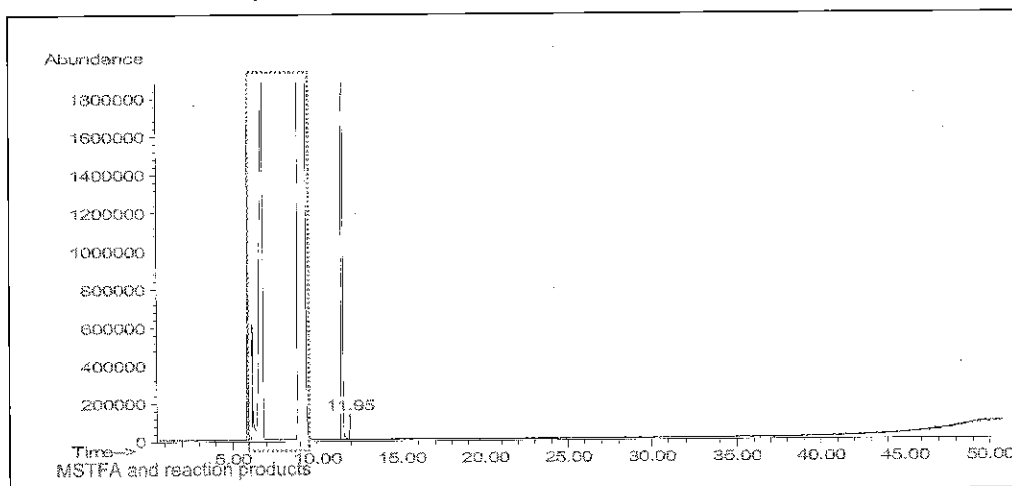
- The expiry date is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliquot portions of the substance, the person handling the substance must assure, that the integrity of the substance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

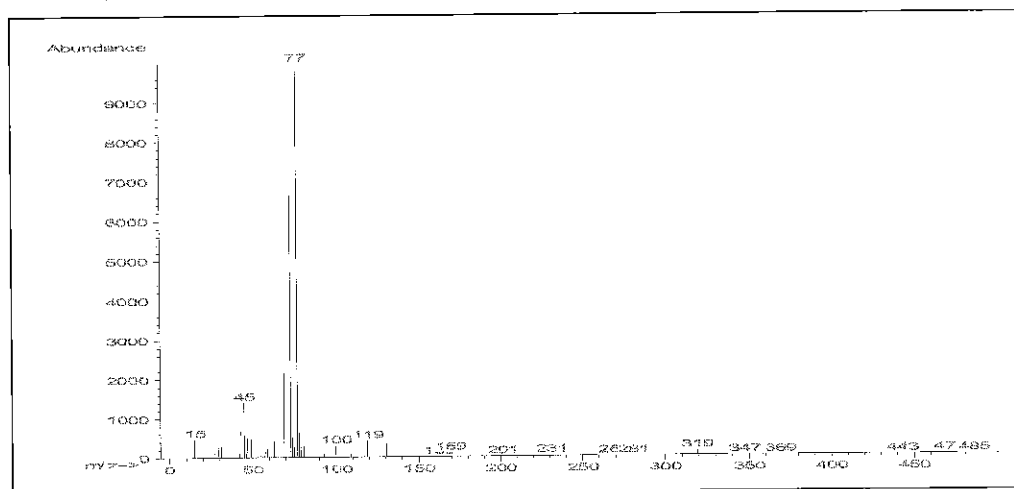
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GC/MS-Method**Analytical Department****Article:** Pentadecafluorooctanoic acid OEKANAL**Article-No.:** 33824**Batch:** SZBD308XV**Column:** XTI-5 (Restek); 30 m; fs cap.; I.D.:0.25 mm; 1 µm df**Injector:** Split mode**Injection:** approx. 1 µl of reaction 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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Email: saleschina@alfa-asia.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

$$\text{P.W.-Correction: } \frac{538.22 - 39.10 + 1.01}{538.22} = \frac{500.13}{538.22} = 0.92923$$

Purity = 91.06%

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

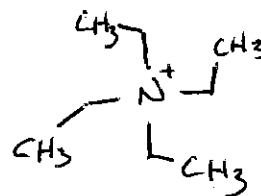
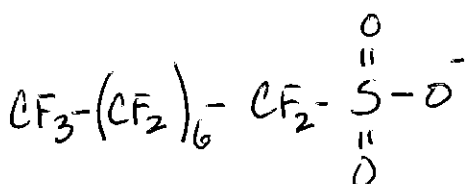
E. Schwarz

Edeltraud Schwarzler, Manager
Quality Control
Buchs, Switzerland

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

~~79.46%~~ det 7-26-12

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



	$C_8F_{17}SO_3 + H$
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	-
	500.125

$C_8H_{20}N$
96.088
-
-
-
20.160
14.007
130.255
→

Sigma-Aldrich warrants, that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice for additional terms and conditions of sale. The values given on the 'Certificate of Analysis' are the results determined at the time of analysis.

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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Reagent

LCM2PFOA_00003



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

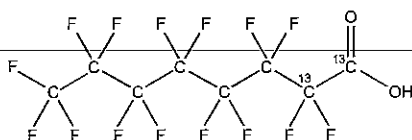
M2PFOA

LOT NUMBER:

M2PFOA0312

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

Not available

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

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

416.05

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

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

03/19/2012

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

03/19/2017

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:

01/09/2013
(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.

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

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.

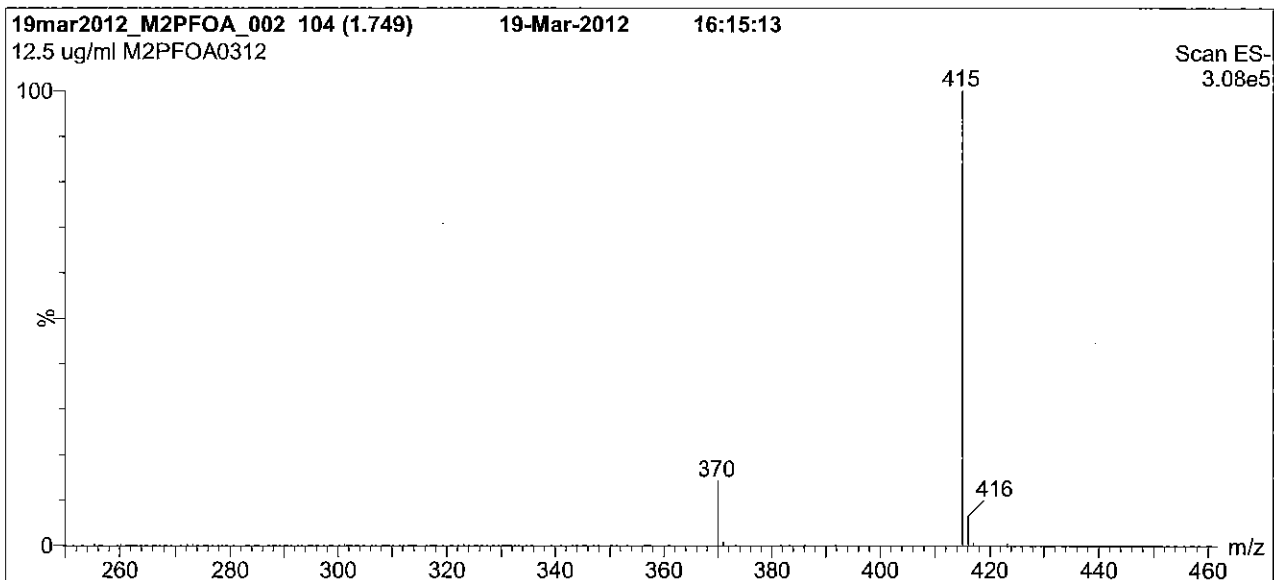
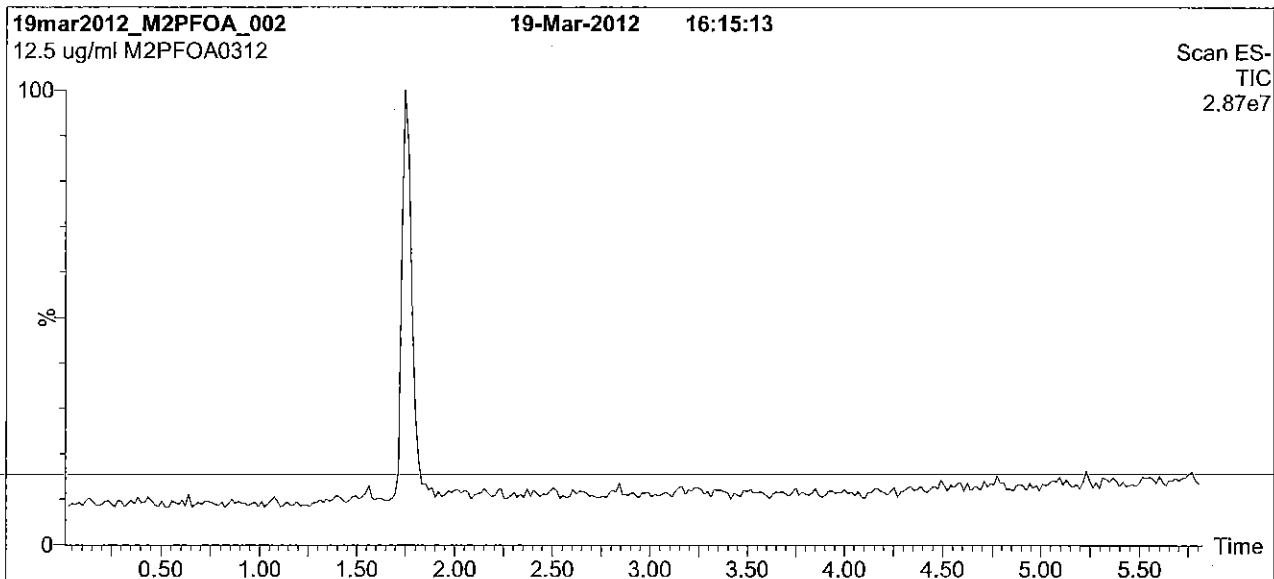
QUALITY MANAGEMENT:

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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: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 6.5 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

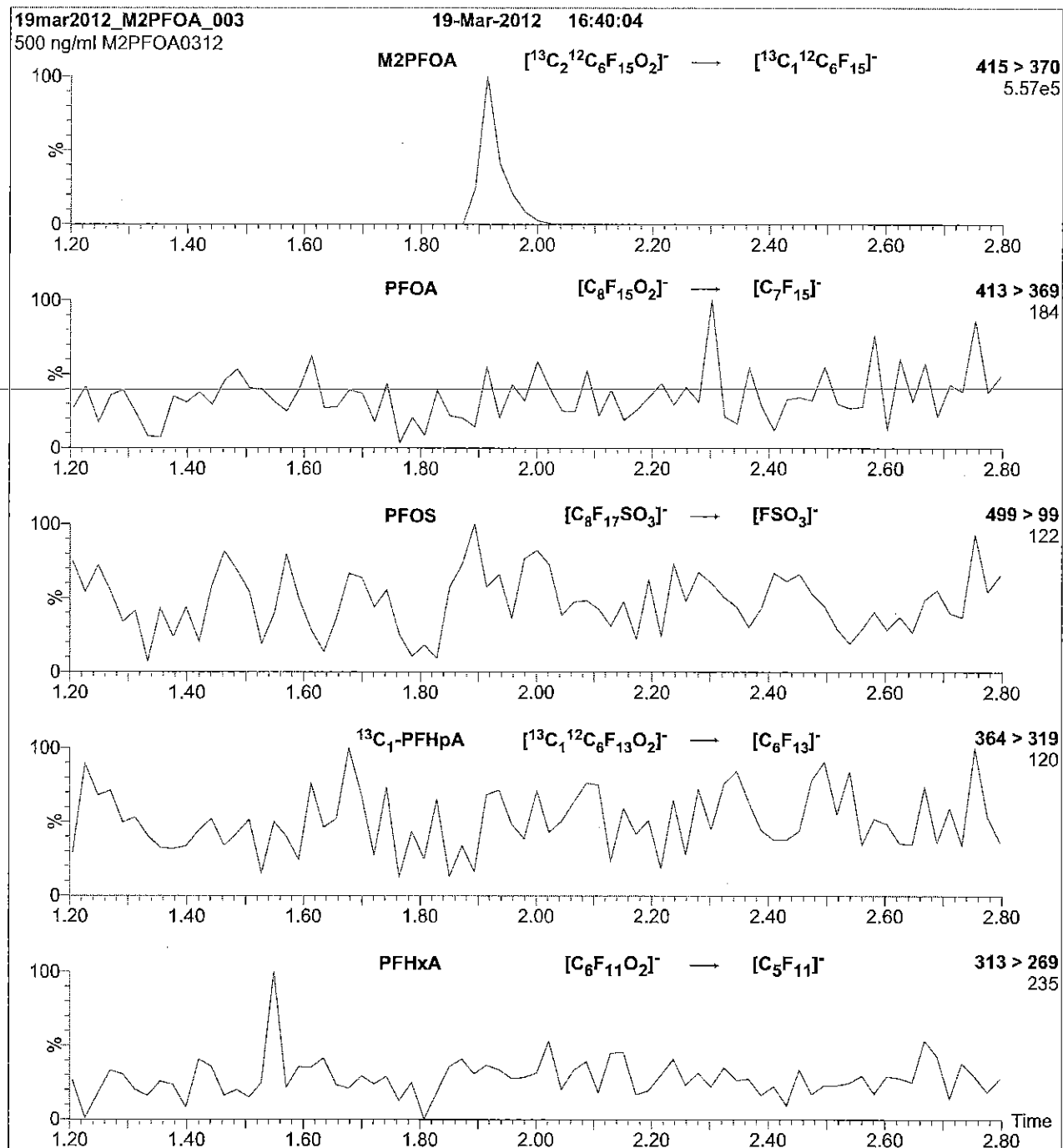
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 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 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 11

Reagent

LCM2PFOA_00004



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

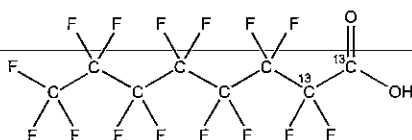
M2PFOA

LOT NUMBER:

M2PFOA0312

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

Not available

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

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

416.05

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

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

03/19/2012

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

03/19/2017

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:

01/09/2013
(mm/dd/yyyy)

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INTENDED USE:

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HAZARDS:

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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.

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

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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:

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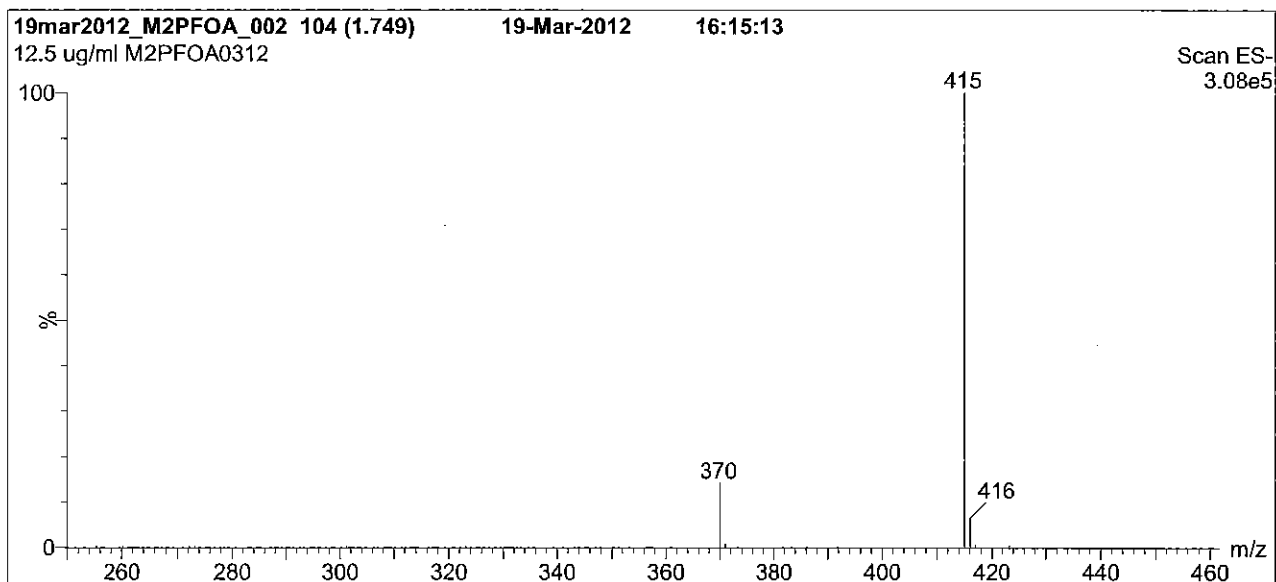
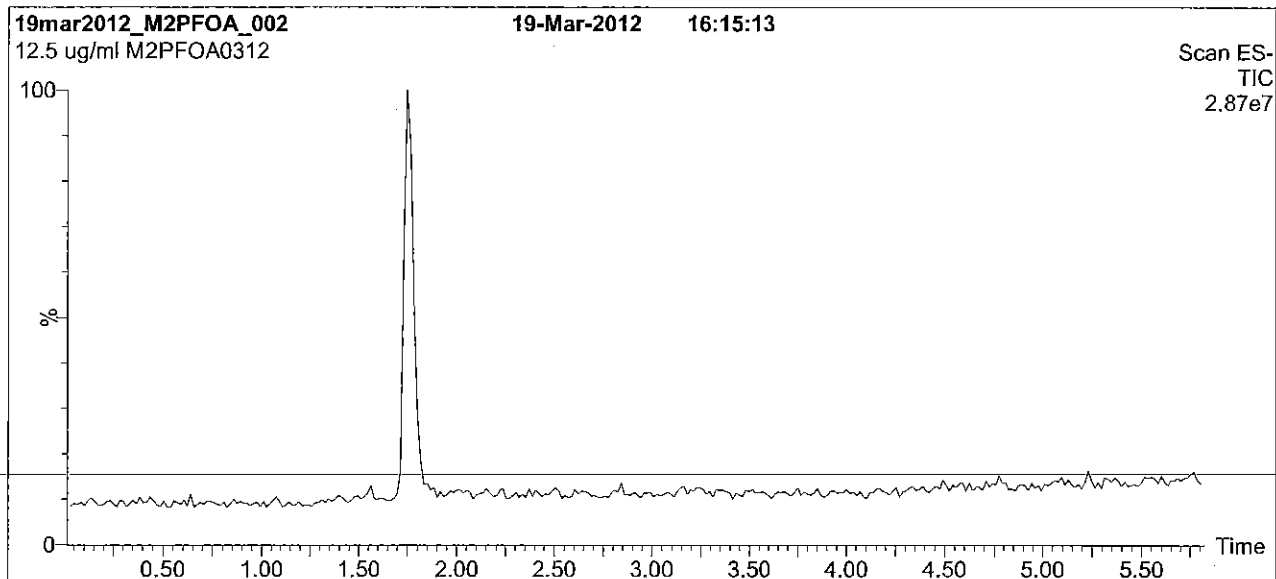
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Figure 1: M2PFOA; LC/MS Data (TIC and Mass Spectrum)



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: 60% (80:20 MeOH:ACN) / 40% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 6.5 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

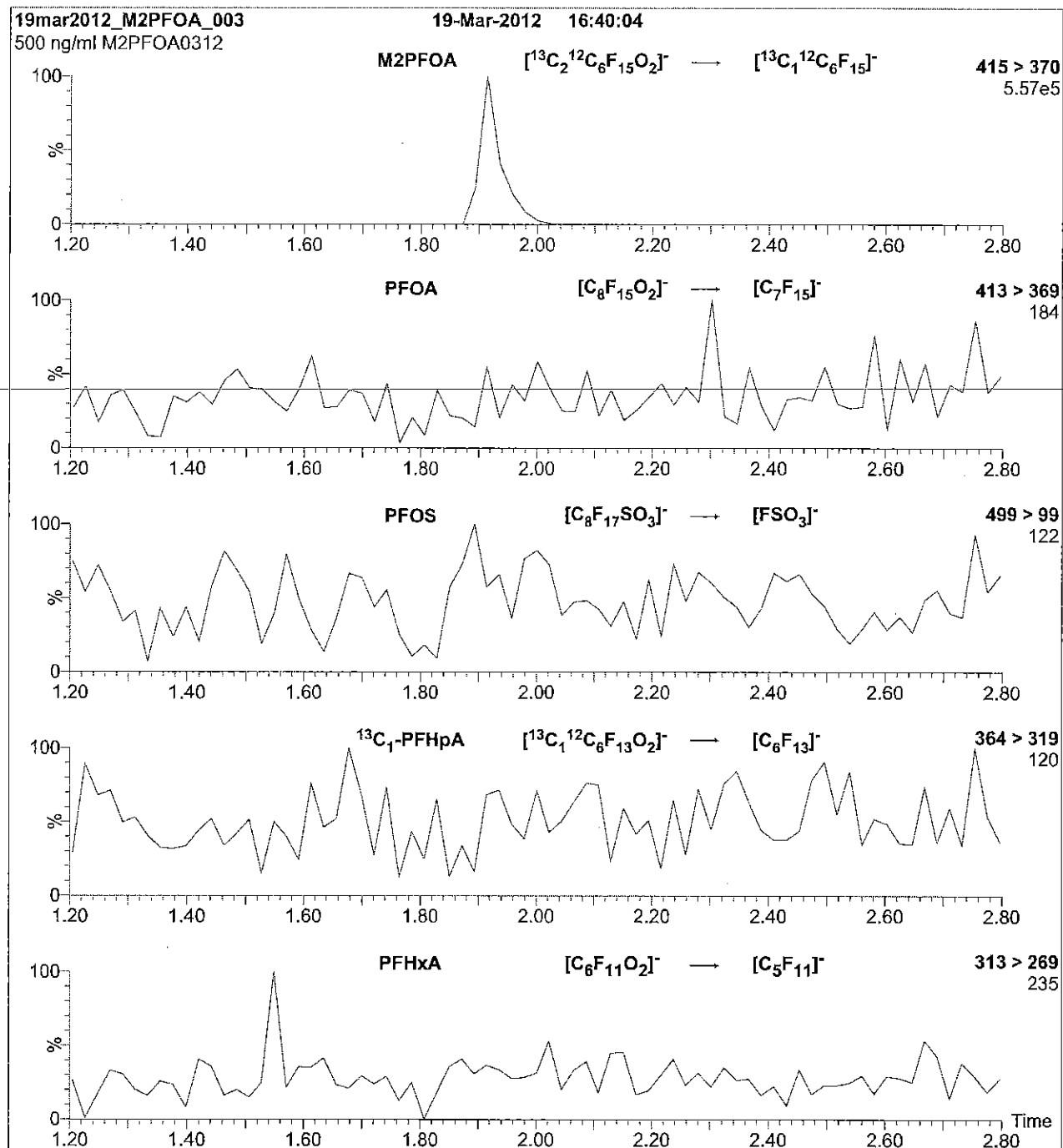
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (250 - 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 70% (80:20 MeOH:ACN) / 30% H_2O
(both with 10 mM NH_4OAc buffer)

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

MS Parameters

Collision Gas (mbar) = $3.35\text{e-}3$
Collision Energy (eV) = 11

Reagent

LCMPFDA_00008



605243

ID: LCMPPFDA_00008

Exp: 08/19/20 Pp'd: CBW

13C2-Perfluorodecanoic acid

Rec. 3/29/16 JRB ✓



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

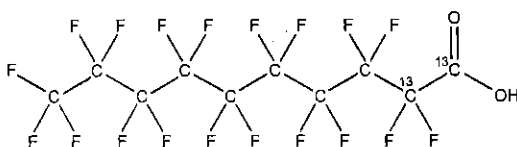
MPFDA

LOT NUMBER:

MPFDA0815

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

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₈H₁₉O₂**CONCENTRATION:**

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

516.07

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99% ¹³C(1,2-¹³C₂)**LAST TESTED:** (mm/dd/yyyy)

08/19/2015

EXPIRY DATE: (mm/dd/yyyy)

08/19/2020

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 ¹³C₁-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/21/2015

(mm/dd/yyyy)

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INTENDED USE:

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HAZARDS:

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

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.

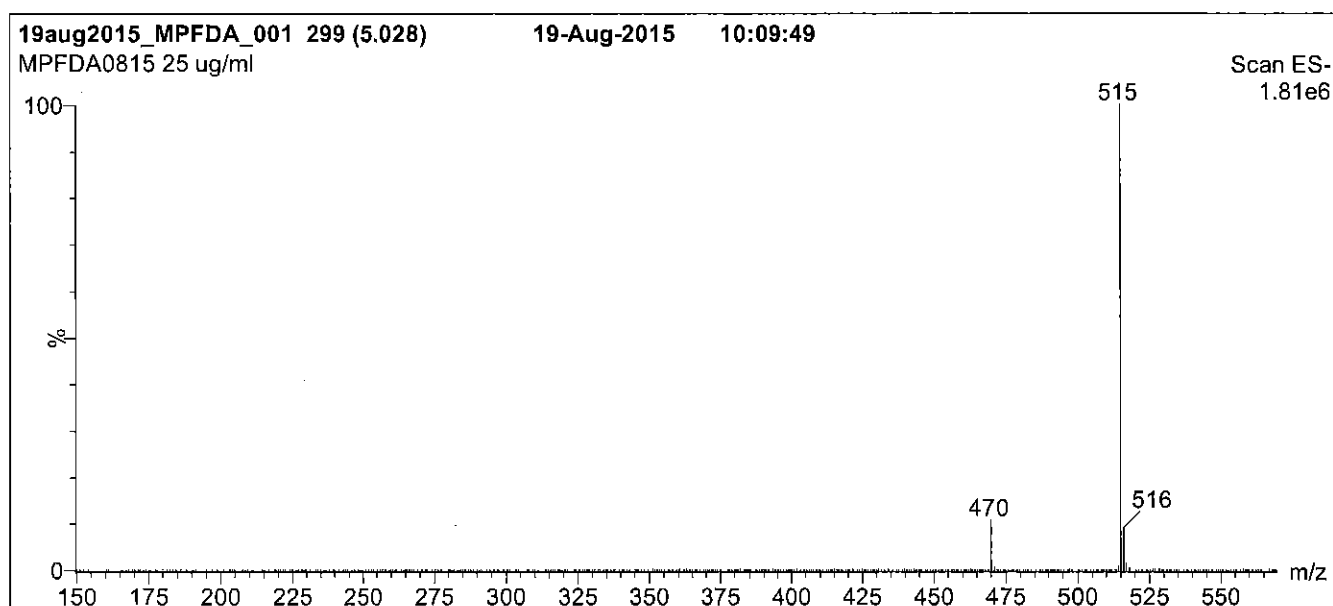
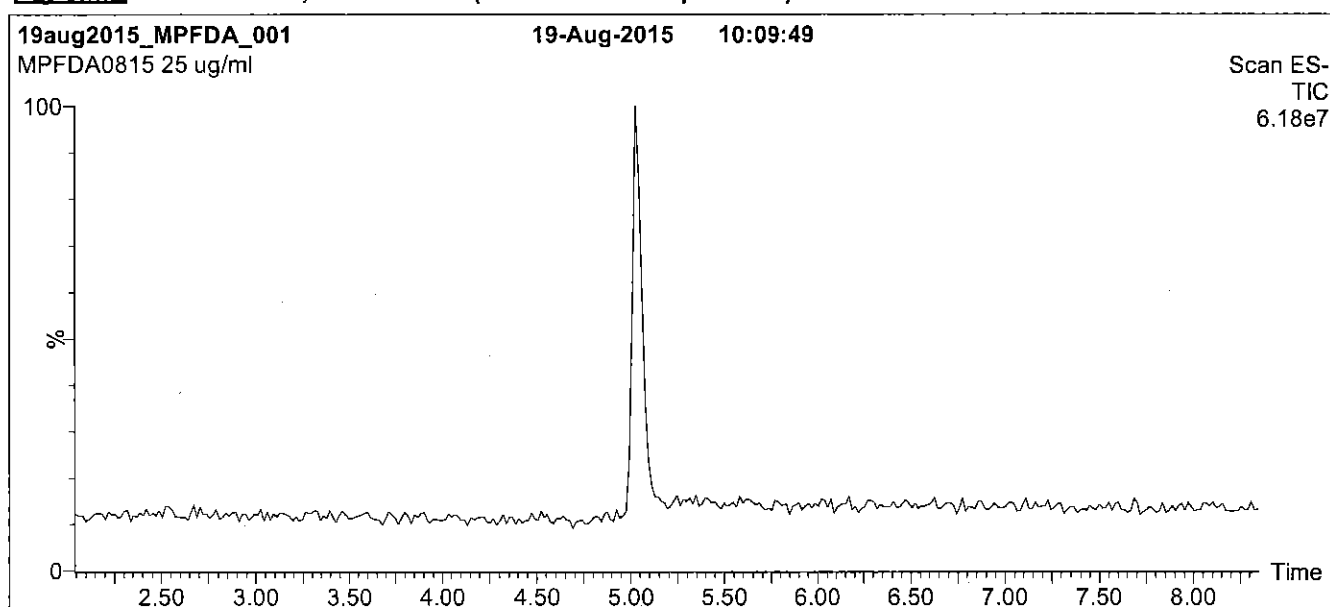
QUALITY MANAGEMENT:

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: 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 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

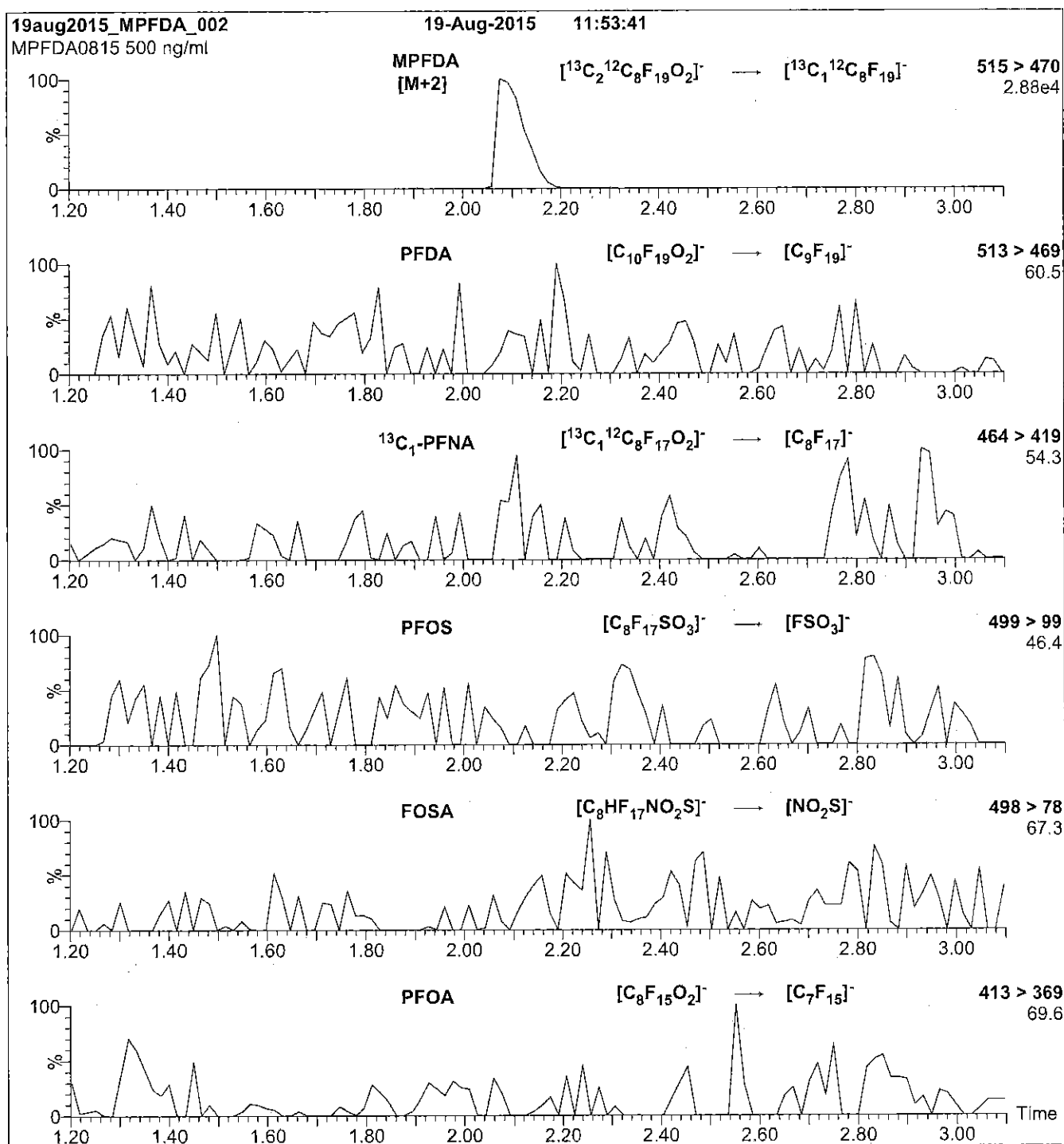
Flow: 300 μ l/min

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) = 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) = 3.35e-3
Collision Energy (eV) = 13

Reagent

LCMPFHxA_00009



605244

ID: LCMPFHxA_00009

Exp: 04/09/20 Prod: CBW

13C2-Perfluorohexanoic ac

Rec. 3/29/16 JRB ✓



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CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

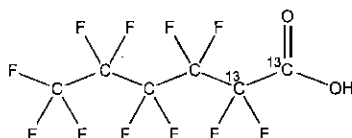
MPFHxA

LOT NUMBER:

MPFHxA0415

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

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₄HF₁₁O₂**MOLECULAR WEIGHT:**

316.04

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99%¹³C(1,2-¹³C₂)**LAST TESTED:** (mm/dd/yyyy)

04/09/2015

EXPIRY DATE: (mm/dd/yyyy)

04/09/2020

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: 04/14/2015

(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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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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LIMITED WARRANTY:

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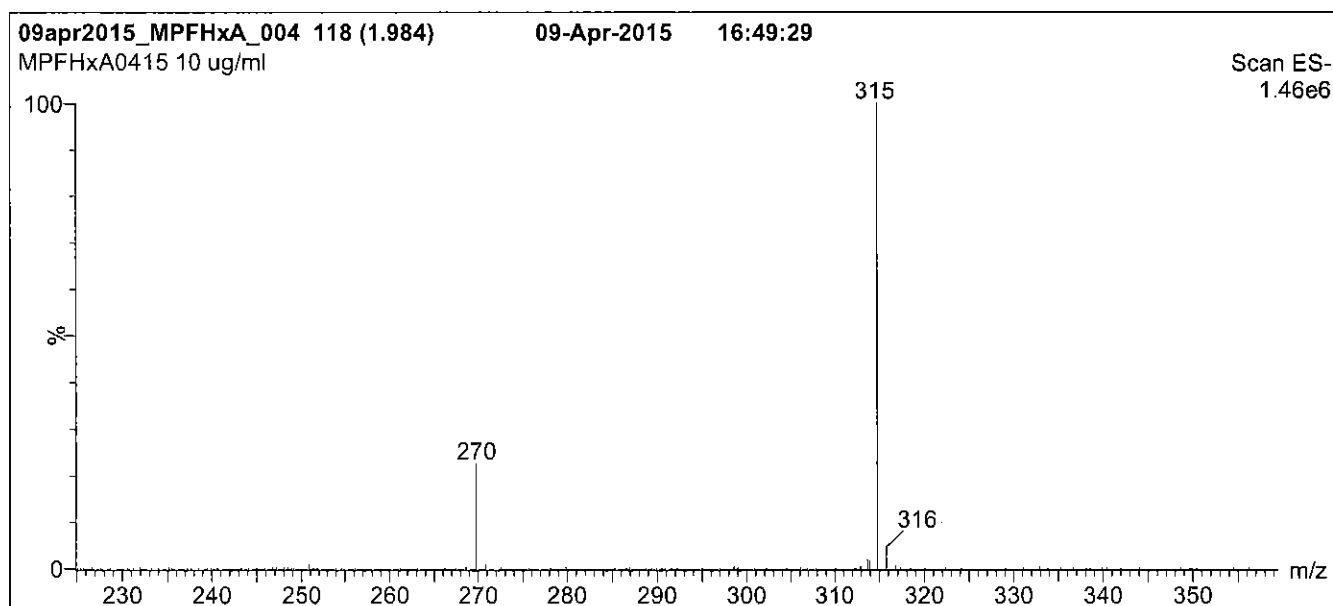
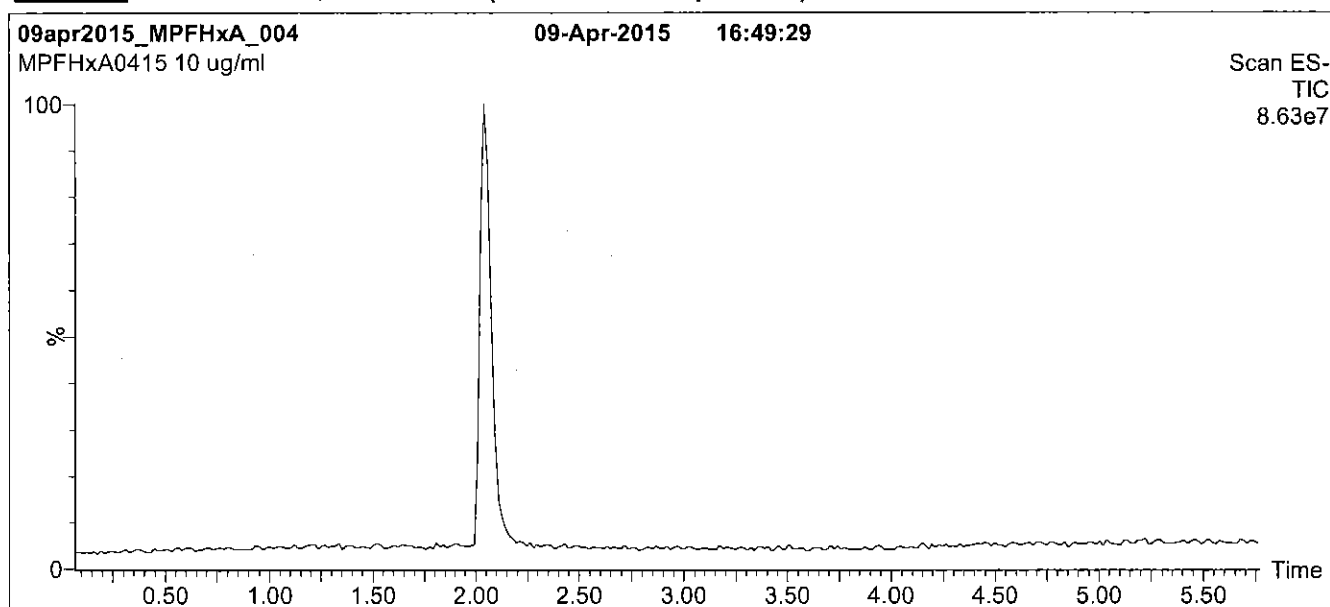
QUALITY MANAGEMENT:

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



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions over 0.5 min.
Time: 10 min

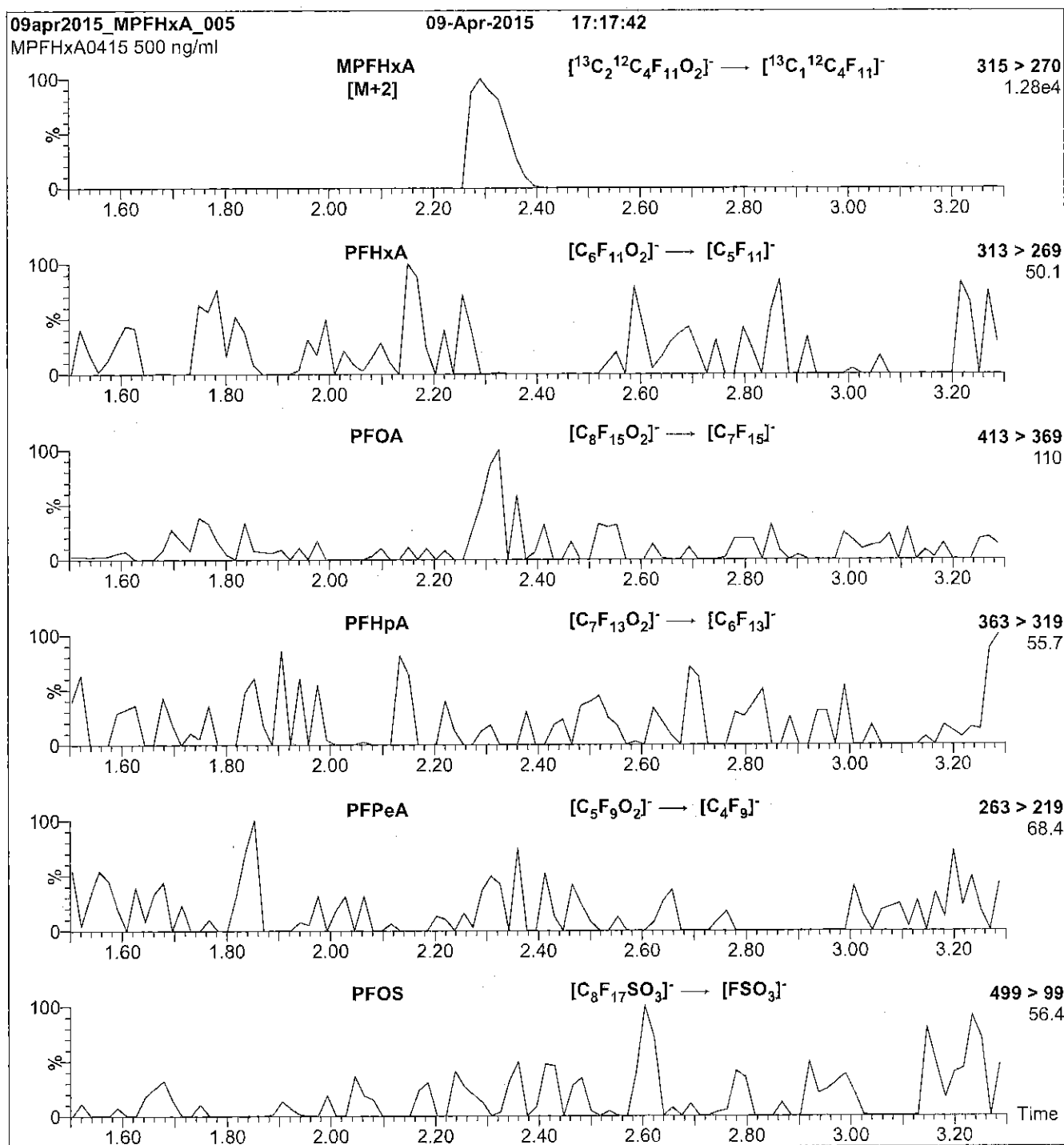
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 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) = 3.20e-3
Collision Energy (eV) = 10

Reagent

LCMPFOS_00013



WELLINGTON
LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

605227
ID: LCMFOS_00012
Exp: 01/22/21 Prpd: CBW
13C4-Perfluorooctanesulfo

Rec 3/29/16 JRB ✓
606228
ID: LCMFOS_00013
Exp: 01/22/21 Prpd: CBW
13C4-Perfluorooctanesulfo

PRODUCT CODE:

MPFOS

LOT NUMBER:

MPFOS0116

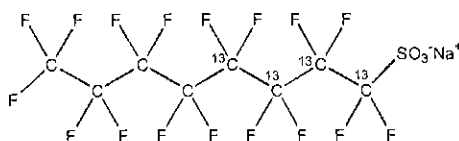
COMPOUND:

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
(1,2,3,4-¹³C₄)

LAST TESTED: (mm/dd/yyyy)

01/22/2016

EXPIRY DATE: (mm/dd/yyyy)

01/22/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 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: 02/01/2016

(mm/dd/yyyy)

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

INTENDED USE:

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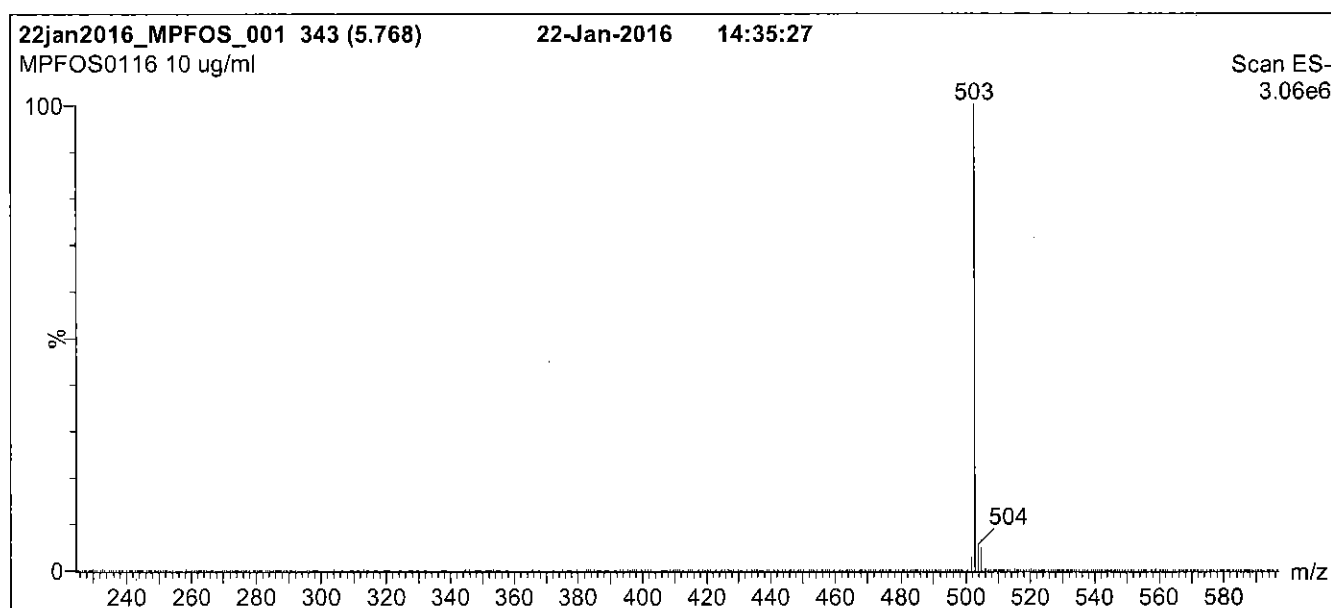
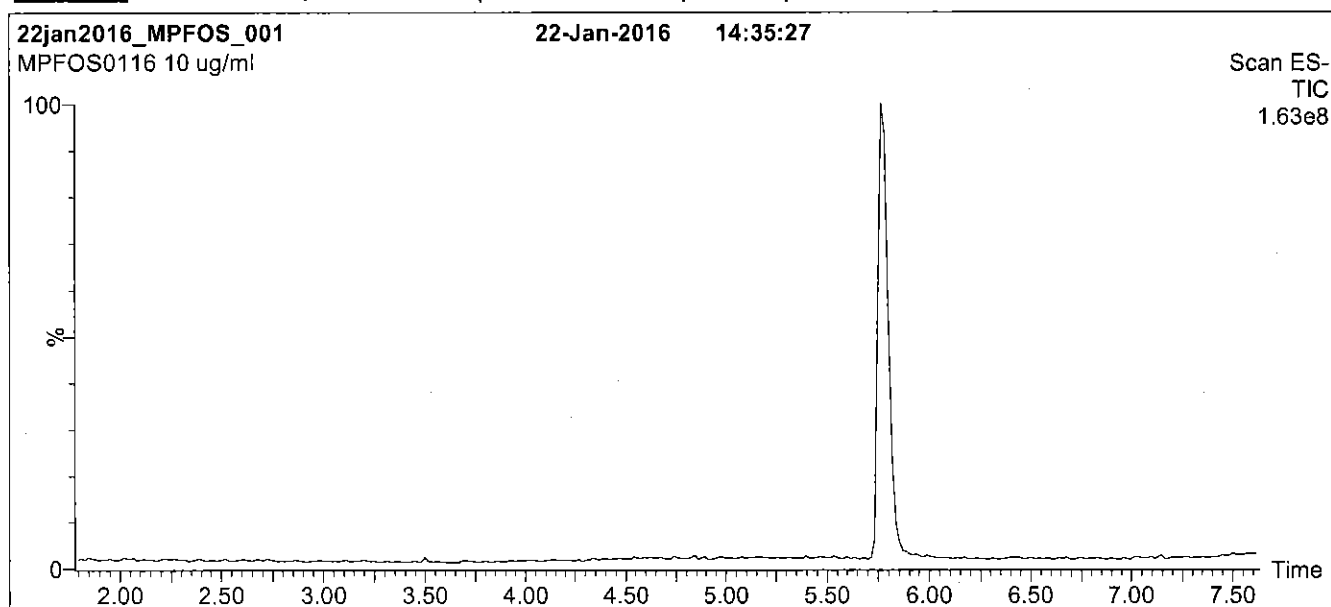
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions in 0.5 min.
Time: 10 min

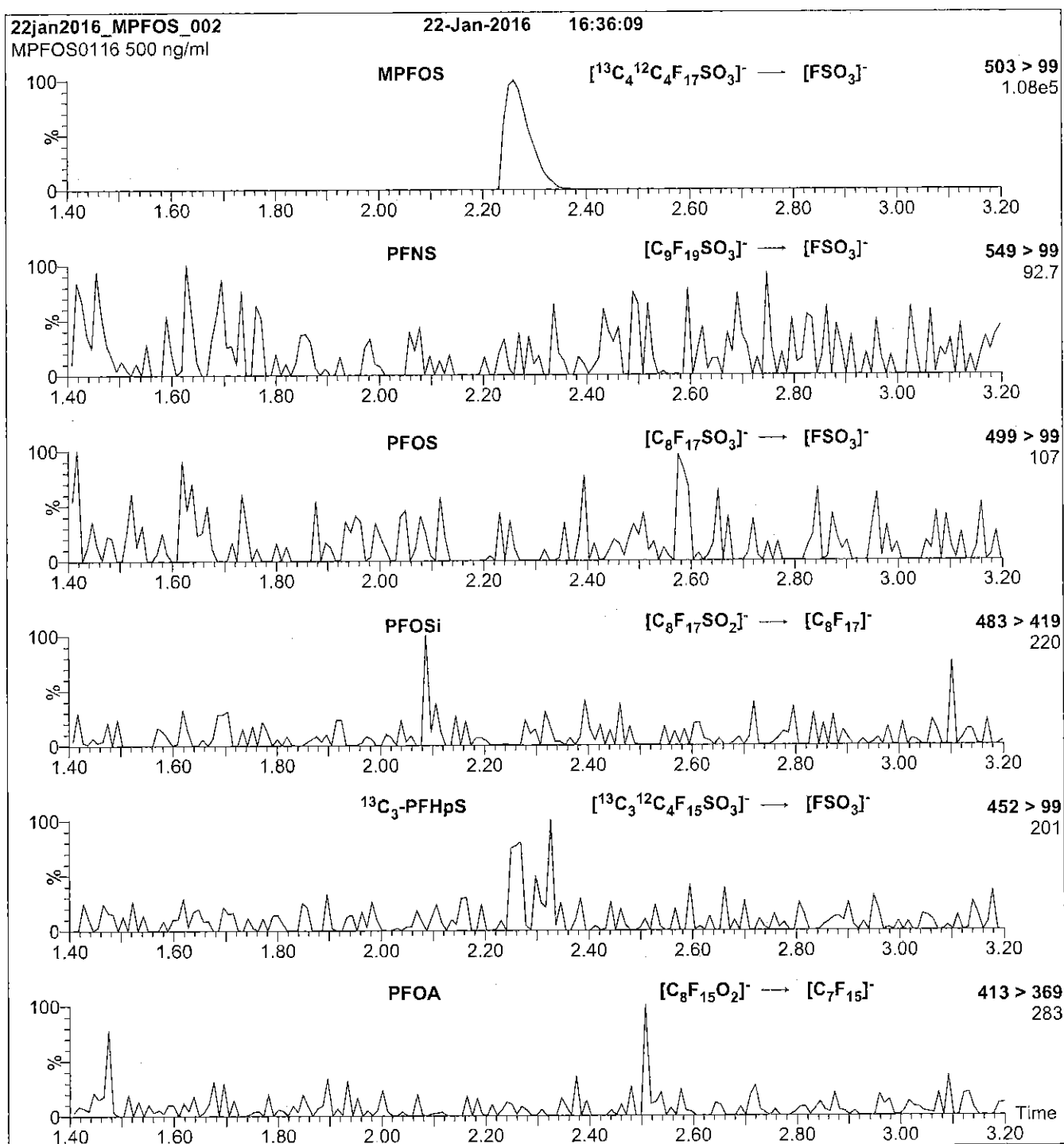
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 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) = 3.70e-3
Collision Energy (eV) = 40

Reagent

LCMPFOS_00018

R: SBC 9/22/16

738686
ID: LCMFOS_00018
Exp: 08/03/21 Prod: SBC
13C4-Perfluorooctanesulfo



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFOS

LOT NUMBER:

MPFOS0816

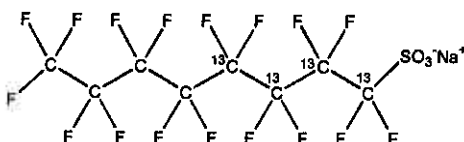
COMPOUND:

Sodium perfluoro-1-[1,2,3,4-¹³C]₄octanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₄¹²C₄F₁₇SO₃Na

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)

47.8 ± 2.4 µg/ml (MPFOS anion)

CHEMICAL PURITY:

>98%

LAST TESTED: (mm/dd/yyyy)

08/03/2016

EXPIRY DATE: (mm/dd/yyyy)

08/03/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

MOLECULAR WEIGHT:

526.08

SOLVENT(S):

Methanol

ISOTOPIC PURITY:

≥99% ¹³C
(1,2,3,4-¹³C₄)

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-[1,2,3-¹³C]₃heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/05/2016

(mm/dd/yyyy)

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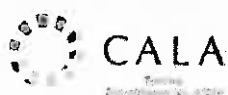
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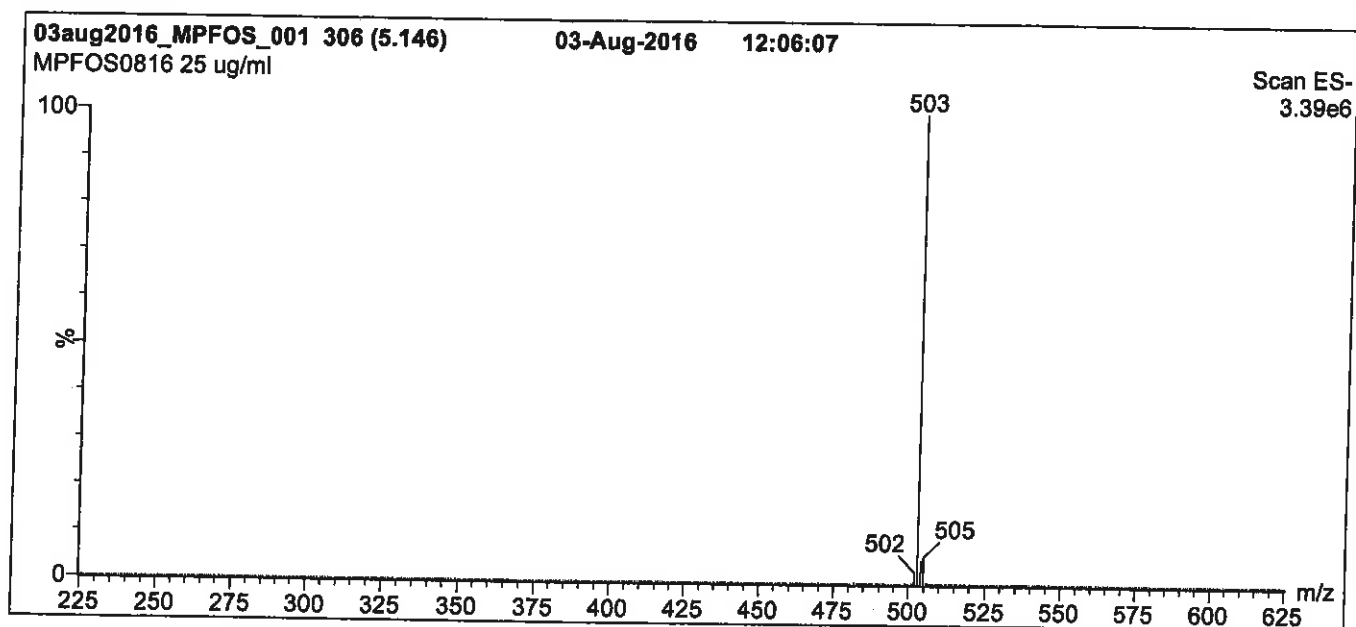
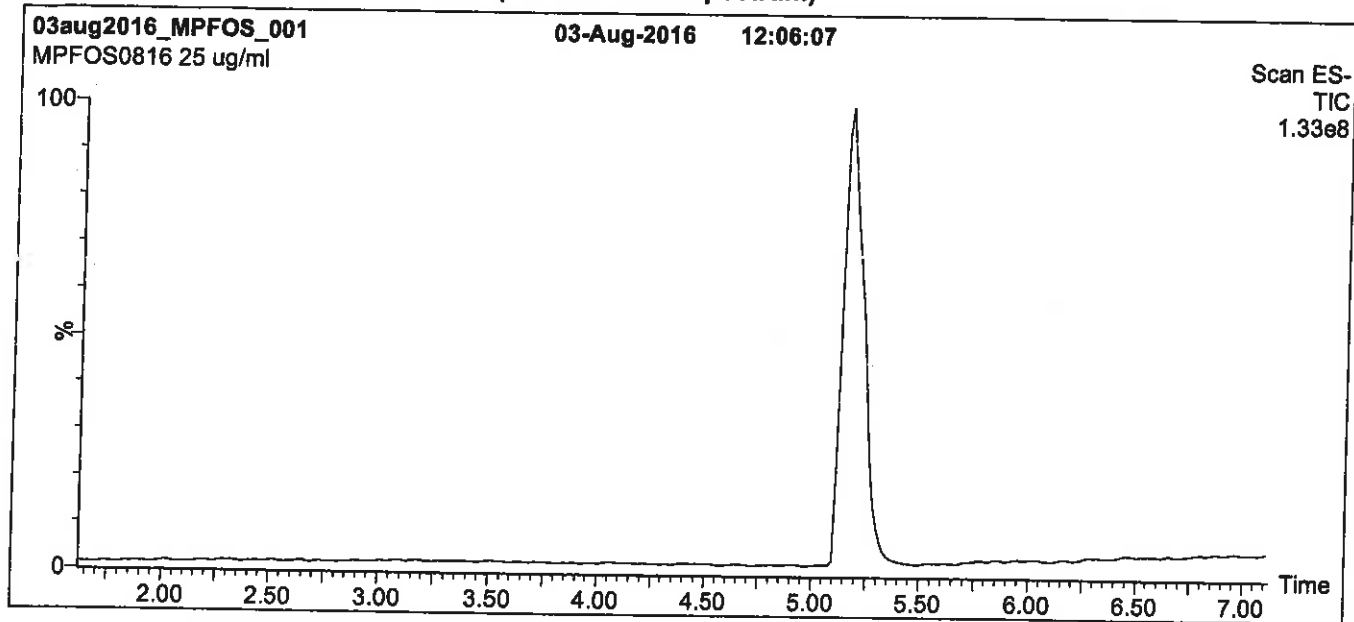
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Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

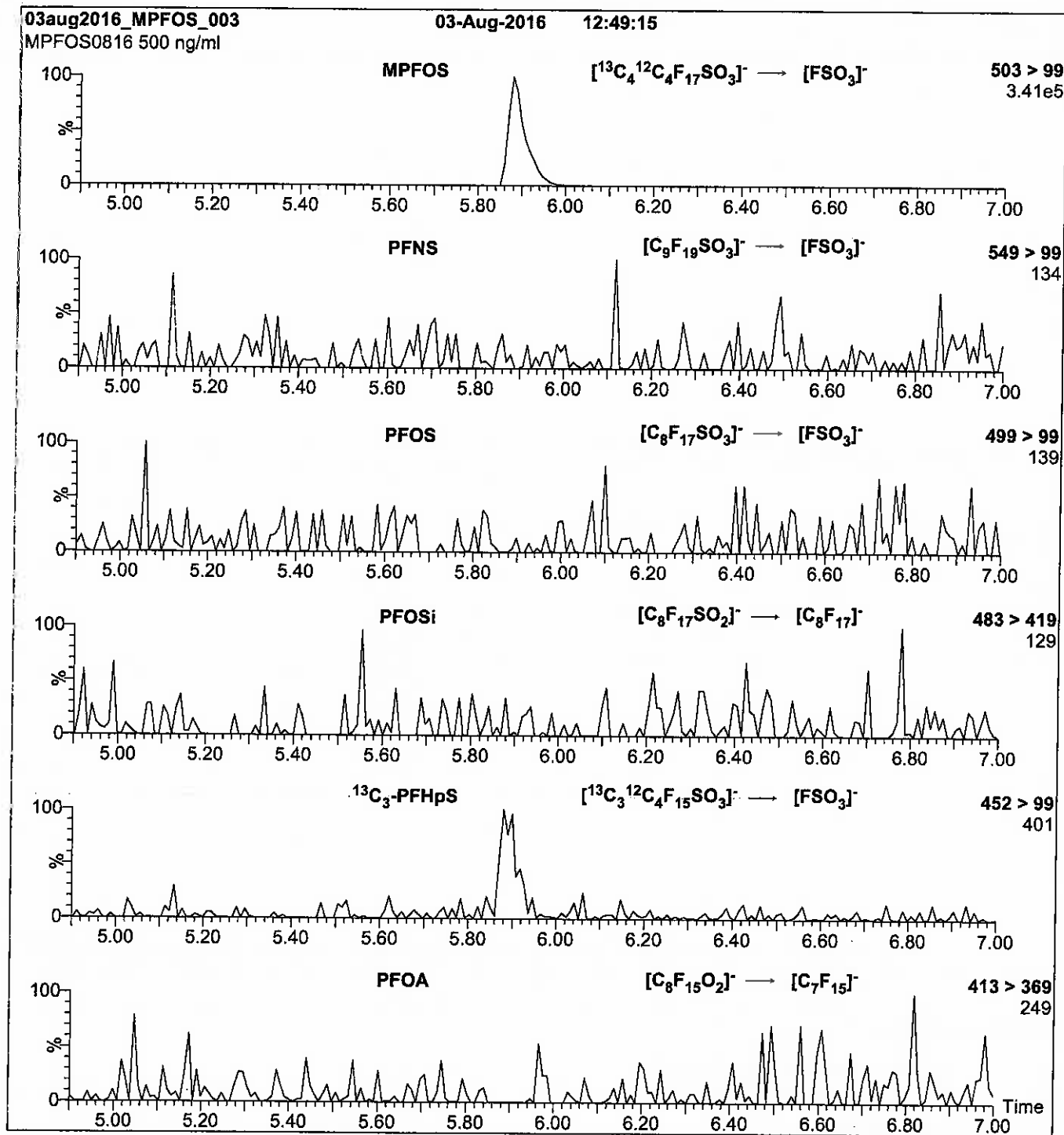
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Method 537 DOD

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): Acquity ID: 2.1 (mm)

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WI-AF-3RW23-1216	320-24179-1	95	94
WI-AF-3FB23-1216	320-24179-2	91	93
WI-AF-3RW24-1216	320-24179-3	100	97
WI-AF-3RW24P-1216	320-24179-4	86	82
WI-AF-3FB24-1216	320-24179-5	91	94
WI-AF-3RW25-1216	320-24179-6	81	77
WI-AF-3FB25-1216	320-24179-7	87	89
WI-AF-3RW26-1216	320-24179-8	95	94
WI-AF-3FB26-1216	320-24179-9	83	81
WI-AF-3RW27-1216	320-24179-10	97	92
WI-AF-3FB27-1216	320-24179-11	91	88
WI-AF-3RW28-1216	320-24179-12	81	78
WI-AF-3FB28-1216	320-24179-13	96	97
WI-AF-3RW29-1216	320-24179-14	89	92
WI-AF-3FB29-1216	320-24179-15	92	90
	MB 320-141539/1-A	105	105
	LCS 320-141539/2-A	98	97
WI-AF-3RW23-1216 MS	320-24179-1 MS	91	93
WI-AF-3RW23-1216 MSD	320-24179-1 MSD	101	96

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.: 320-24179-1
SDG No.: _____
Matrix: Water Level: Low Lab File ID: 15DEC2016A6A_034.d
Lab ID: LCS 320-141539/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	0.300	0.245	82	70-130	
Perfluorooctanoic acid (PFOA)	0.152	0.129	85	70-130	
Perfluorobutanesulfonic acid (PFBS)	0.673	0.511	76	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 15DEC2016A6A_083.d
 Lab ID: 320-24179-1 MS Client ID: WI-AF-3RW23-1216 MS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	0.150	0.043 U	0.106	70	70-130	
Perfluorooctanoic acid (PFOA)	0.0759	0.022 U	0.0539	71	70-130	
Perfluorobutanesulfonic acid (PFBS)	0.336	0.099 U	0.248	74	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 15DEC2016A6A_037.d
 Lab ID: 320-24179-1 MSD Client ID: WI-AF-3RW23-1216 MSD

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	0.159	0.120	75	14	30	70-130	
Perfluorooctanoic acid (PFOA)	0.0804	0.0621	77	17	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	0.356	0.303	85	18	30	70-130	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab File ID: 15DEC2016A6A_033.d Lab Sample ID: MB 320-141539/1-A
 Matrix: Water Date Extracted: 12/09/2016 18:50
 Instrument ID: A6 Date Analyzed: 12/15/2016 23:48
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-141539/2-A	15DEC2016A6 A 034.d	12/16/2016 00:17
WI-AF-3RW23-1216	320-24179-1	15DEC2016A6 A 035.d	12/16/2016 00:47
WI-AF-3RW23-1216 MSD	320-24179-1 MSD	15DEC2016A6 A 037.d	12/16/2016 01:46
WI-AF-3FB23-1216	320-24179-2	15DEC2016A6 A 038.d	12/16/2016 02:16
WI-AF-3RW24-1216	320-24179-3	15DEC2016A6 A 039.d	12/16/2016 02:45
WI-AF-3RW24P-1216	320-24179-4	15DEC2016A6 A 040.d	12/16/2016 03:15
WI-AF-3FB24-1216	320-24179-5	15DEC2016A6 A 041.d	12/16/2016 03:45
WI-AF-3RW25-1216	320-24179-6	15DEC2016A6 A 044.d	12/16/2016 05:13
WI-AF-3FB25-1216	320-24179-7	15DEC2016A6 A 045.d	12/16/2016 05:43
WI-AF-3RW26-1216	320-24179-8	15DEC2016A6 A 046.d	12/16/2016 06:13
WI-AF-3FB26-1216	320-24179-9	15DEC2016A6 A 047.d	12/16/2016 06:42
WI-AF-3RW27-1216	320-24179-10	15DEC2016A6 A 048.d	12/16/2016 07:12
WI-AF-3FB27-1216	320-24179-11	15DEC2016A6 A 049.d	12/16/2016 07:41
WI-AF-3RW28-1216	320-24179-12	15DEC2016A6 A 050.d	12/16/2016 08:11
WI-AF-3FB28-1216	320-24179-13	15DEC2016A6 A 051.d	12/16/2016 08:41
WI-AF-3RW29-1216	320-24179-14	15DEC2016A6 A 052.d	12/16/2016 09:10
WI-AF-3FB29-1216	320-24179-15	15DEC2016A6 A 053.d	12/16/2016 09:40
WI-AF-3RW23-1216 MS	320-24179-1 MS	15DEC2016A6 A 083.d	12/17/2016 00:27

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Instrument ID: A6 Calibration Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.1 (mm) Calibration End Date: 12/05/2016 19:54
 Calibration ID: 26888

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		965911	20.05	2046916	20.67		
UPPER LIMIT		1448867	20.55	3070374	21.17		
LOWER LIMIT		482956	19.55	1023458	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCV 320-140688/9		1025187	20.05	2358079	20.67		
CCVL							
ICV 320-140688/11		877210	20.05	2015178	20.67		
CCV 320-142223/2		615516	20.04	1606471	20.67		
CCVL							
MB 320-141539/1-A		672512	20.05	1812931	20.67		
LCS 320-141539/2-A		738657	20.05	1848817	20.67		
320-24179-1	WI-AF-3RW23-1216	728849	20.05	2066187	20.67		
320-24179-1 MSD	WI-AF-3RW23-1216 MSD	622147	20.05	1691207	20.67		
320-24179-2	WI-AF-3FB23-1216	687610	20.05	1860361	20.67		
320-24179-3	WI-AF-3RW24-1216	663089	20.04	1883848	20.67		
320-24179-4	WI-AF-3RW24P-1216	744664	20.05	1953571	20.67		
320-24179-5	WI-AF-3FB24-1216	681310	20.05	1869098	20.68		
320-24179-6	WI-AF-3RW25-1216	758225	20.05	2004015	20.68		
320-24179-7	WI-AF-3FB25-1216	722915	20.05	1957129	20.67		
320-24179-8	WI-AF-3RW26-1216	682817	20.04	1785462	20.67		
320-24179-9	WI-AF-3FB26-1216	803719	20.04	2027034	20.67		
320-24179-10	WI-AF-3RW27-1216	685918	20.04	1835525	20.66		
320-24179-11	WI-AF-3FB27-1216	744471	20.04	1942202	20.67		
320-24179-12	WI-AF-3RW28-1216	811097	20.05	2202314	20.67		
320-24179-13	WI-AF-3FB28-1216	700992	20.04	1970159	20.67		
320-24179-14	WI-AF-3RW29-1216	714561	20.04	1959537	20.66		
320-24179-15	WI-AF-3FB29-1216	735535	20.04	1989332	20.67		
320-24179-1 MS	WI-AF-3RW23-1216 MS	699187	20.02	1792763	20.64		

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.: 320-24179-1
 SDG No.: _____
 Sample No.: CCV 320-142414/31 Date Analyzed: 12/15/2016 22:49
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 15DEC2016A6A_031.d Heated Purge: (Y/N) N
 Calibration ID: 26888

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	801241	20.04	1693587	20.66		
UPPER LIMIT	1121737	20.54	2371022	21.16		
LOWER LIMIT	560869	19.54	1185511	20.16		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-141539/1-A		672512	20.05	1812931	20.67	
LCS 320-141539/2-A		738657	20.05	1848817	20.67	
320-24179-1	WI-AF-3RW23-1216	728849	20.05	2066187	20.67	
320-24179-1 MSD	WI-AF-3RW23-1216 MSD	622147	20.05	1691207	20.67	
320-24179-2	WI-AF-3FB23-1216	687610	20.05	1860361	20.67	
320-24179-3	WI-AF-3RW24-1216	663089	20.04	1883848	20.67	
320-24179-4	WI-AF-3RW24P-1216	744664	20.05	1953571	20.67	
320-24179-5	WI-AF-3FB24-1216	681310	20.05	1869098	20.68	

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.: 320-24179-1
 SDG No.: _____
 Sample No.: CCV 320-142414/42 Date Analyzed: 12/16/2016 04:14
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 15DEC2016A6A_042.d Heated Purge: (Y/N) N
 Calibration ID: 26888

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	752740	20.05	1679157	20.67		
UPPER LIMIT	1053836	20.55	2350820	21.17		
LOWER LIMIT	526918	19.55	1175410	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-141539/1-A		672512	20.05	1812931	20.67	
LCS 320-141539/2-A		738657	20.05	1848817	20.67	
320-24179-1	WI-AF-3RW23-1216	728849	20.05	2066187	20.67	
320-24179-1 MSD	WI-AF-3RW23-1216 MSD	622147	20.05	1691207	20.67	
320-24179-2	WI-AF-3FB23-1216	687610	20.05	1860361	20.67	
320-24179-3	WI-AF-3RW24-1216	663089	20.04	1883848	20.67	
320-24179-4	WI-AF-3RW24P-1216	744664	20.05	1953571	20.67	
320-24179-5	WI-AF-3FB24-1216	681310	20.05	1869098	20.68	

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.: 320-24179-1
 SDG No.: _____
 Sample No.: CCV 320-142415/42 Date Analyzed: 12/16/2016 04:14
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 15DEC2016A6A_042.d Heated Purge: (Y/N) N
 Calibration ID: 26888

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	752740	20.05	1679157	20.67		
UPPER LIMIT	1053836	20.55	2350820	21.17		
LOWER LIMIT	526918	19.55	1175410	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-24179-6	WI-AF-3RW25-1216	758225	20.05	2004015	20.68	
320-24179-7	WI-AF-3FB25-1216	722915	20.05	1957129	20.67	
320-24179-8	WI-AF-3RW26-1216	682817	20.04	1785462	20.67	
320-24179-9	WI-AF-3FB26-1216	803719	20.04	2027034	20.67	
320-24179-10	WI-AF-3RW27-1216	685918	20.04	1835525	20.66	
320-24179-11	WI-AF-3FB27-1216	744471	20.04	1942202	20.67	
320-24179-12	WI-AF-3RW28-1216	811097	20.05	2202314	20.67	
320-24179-13	WI-AF-3FB28-1216	700992	20.04	1970159	20.67	
320-24179-14	WI-AF-3RW29-1216	714561	20.04	1959537	20.66	
320-24179-15	WI-AF-3FB29-1216	735535	20.04	1989332	20.67	

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.: 320-24179-1
 SDG No.: _____
 Sample No.: CCV 320-142415/54 Date Analyzed: 12/16/2016 10:09
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 15DEC2016A6A_054.d Heated Purge: (Y/N) N
 Calibration ID: 26888

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	731703	20.05	1650692	20.67		
UPPER LIMIT	1024384	20.55	2310969	21.17		
LOWER LIMIT	512192	19.55	1155484	20.17		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-24179-6	WI-AF-3RW25-1216	758225	20.05	2004015	20.68	
320-24179-7	WI-AF-3FB25-1216	722915	20.05	1957129	20.67	
320-24179-8	WI-AF-3RW26-1216	682817	20.04	1785462	20.67	
320-24179-9	WI-AF-3FB26-1216	803719	20.04	2027034	20.67	
320-24179-10	WI-AF-3RW27-1216	685918	20.04	1835525	20.66	
320-24179-11	WI-AF-3FB27-1216	744471	20.04	1942202	20.67	
320-24179-12	WI-AF-3RW28-1216	811097	20.05	2202314	20.67	
320-24179-13	WI-AF-3FB28-1216	700992	20.04	1970159	20.67	
320-24179-14	WI-AF-3RW29-1216	714561	20.04	1959537	20.66	
320-24179-15	WI-AF-3FB29-1216	735535	20.04	1989332	20.67	

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.: 320-24179-1
 SDG No.: _____
 Sample No.: CCV 320-142438/78 Date Analyzed: 12/16/2016 21:59
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 15DEC2016A6A_078.d Heated Purge: (Y/N) N
 Calibration ID: 26888

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	720626	20.02	1618458	20.64		
UPPER LIMIT	1008876	20.52	2265841	21.14		
LOWER LIMIT	504438	19.52	1132921	20.14		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-24179-1 MS	WI-AF-3RW23-1216 MS		699187	20.02	1792763	20.64

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.: 320-24179-1
 SDG No.: _____
 Sample No.: CCV 320-142438/83 Date Analyzed: 12/17/2016 03:55
 Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm)
 Lab File ID (Standard): 15DEC2016A6A_090.d Heated Purge: (Y/N) N
 Calibration ID: 26888

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	953918	20.02	1886125	20.64		
UPPER LIMIT	1335485	20.52	2640575	21.14		
LOWER LIMIT	667743	19.52	1320288	20.14		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-24179-1 MS	WI-AF-3RW23-1216 MS		699187	20.02	1792763	20.64

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

Area Limit = 70%-140% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW23-1216 Lab Sample ID: 320-24179-1
 Matrix: Water Lab File ID: 15DEC2016A6A_035.d
 Analysis Method: 537 Date Collected: 12/05/2016 10:45
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 277(mL) Date Analyzed: 12/16/2016 00:47
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U M	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_035.d
 Lims ID: 320-24179-A-1-A
 Client ID: WI-AF-3RW23-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 00:47:27 ALS Bottle#: 20 Worklist Smp#: 35
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-1-A
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:43:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	-----------	-----------	-----------	----------	-----------------	-----	-------

1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.599 17.595 0.004 1.000 19062 0.3772 15.6
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.585 18.576 0.009 1.000 803518 9.45 25827
 4 Perfluoroheptanoic acid M
 363.0 > 319.0 19.380 19.380 0.0 1.000 870 0.009823 1.7 M
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.035 0.012 728849 10.0 19020
 6 Perfluorooctanoic acid M
 413.0 > 369.0 20.047 20.035 0.012 1.000 867 0.0114 0.6 M
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.655 0.012 2066187 28.7 23956
 9 Perfluorononanoic acid
 463.0 > 419.0 20.738 20.738 0.0 1.000 4615 0.0558 40.9
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.480 21.462 0.018 1.000 599483 9.39 18925

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_035.d

Injection Date: 16-Dec-2016 00:47:27

Instrument ID: A6

Lims ID: 320-24179-A-1-A

Lab Sample ID: 320-24179-1

Client ID: WI-AF-3RW23-1216

Operator ID: CBW

ALS Bottle#: 20

Worklist Smp#: 35

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

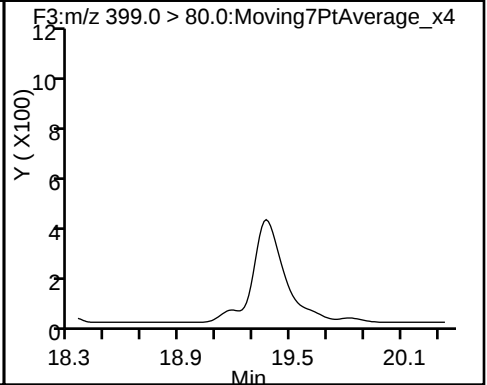
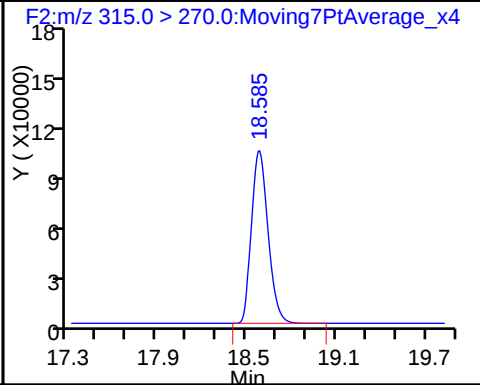
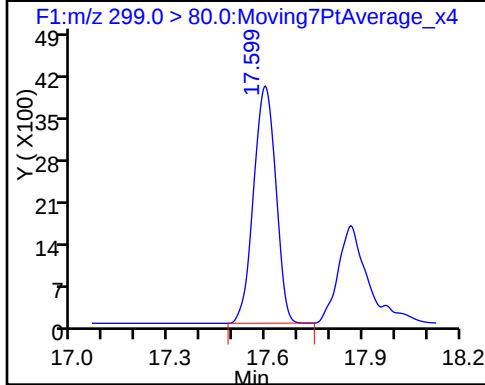
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

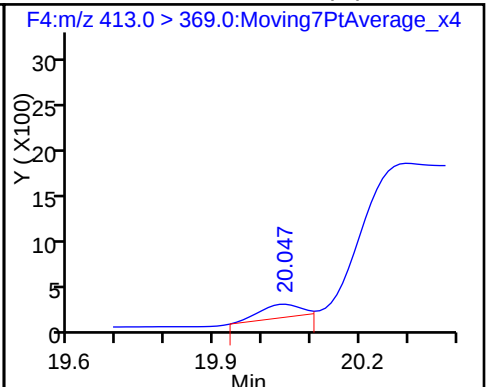
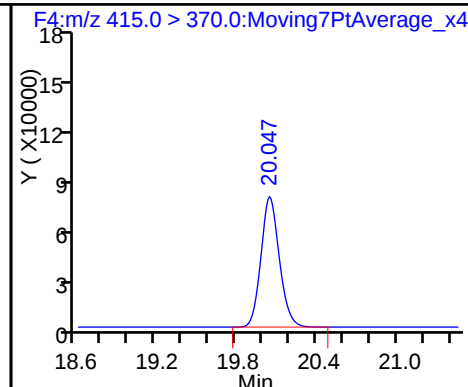
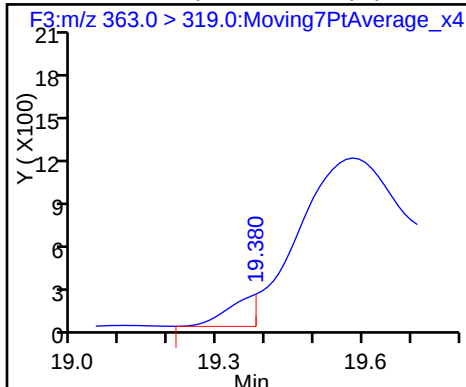
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (M)

* 5 13C2-PFOA

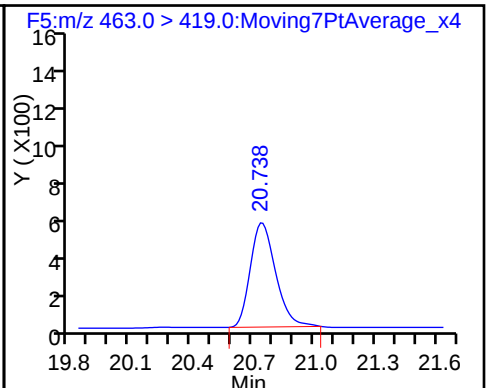
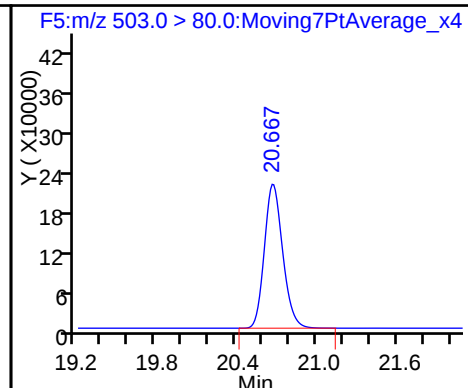
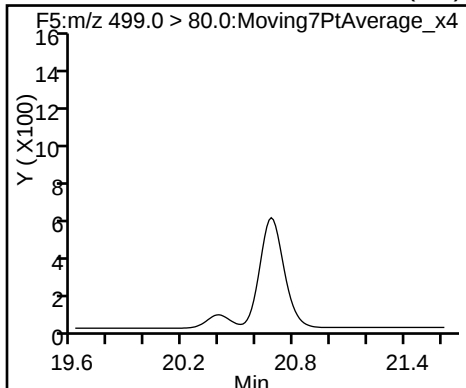
6 Perfluorooctanoic acid (M)



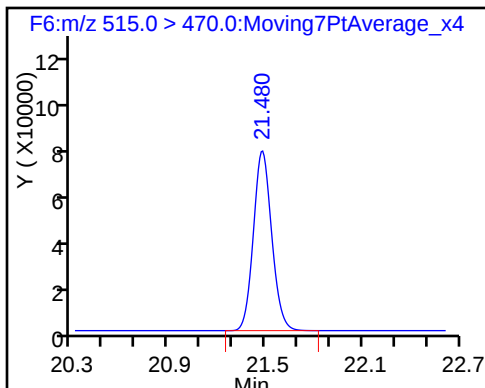
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_035.d
Lims ID: 320-24179-A-1-A
Client ID: WI-AF-3RW23-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 00:47:27 ALS Bottle#: 20 Worklist Smp#: 35
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-1-A
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:43:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.45	94.51
\$ 10 13C2 PFDA	10.0	9.39	93.86

TestAmerica Sacramento

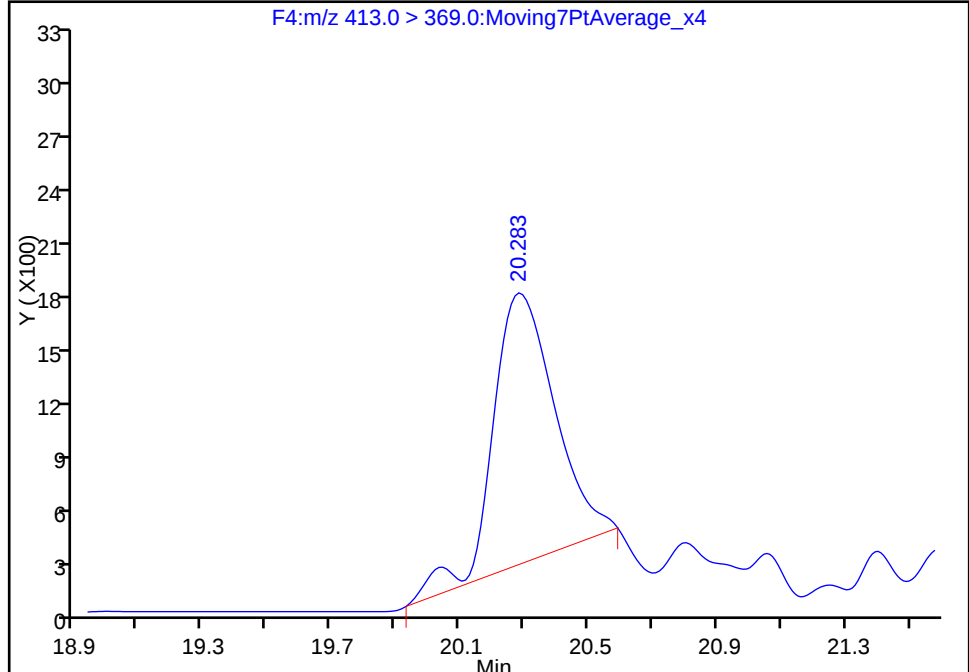
Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_035.d
Injection Date: 16-Dec-2016 00:47:27 Instrument ID: A6
Lims ID: 320-24179-A-1-A Lab Sample ID: 320-24179-1
Client ID: WI-AF-3RW23-1216
Operator ID: CBW ALS Bottle#: 20 Worklist Smp#: 35
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

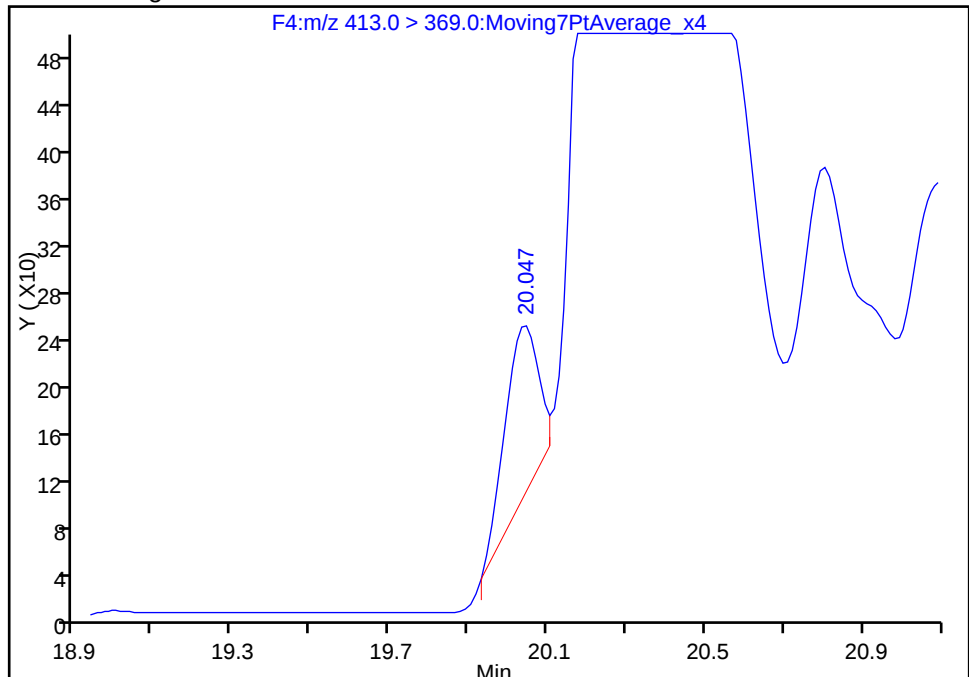
RT: 20.28
Area: 20225
Amount: 0.266711
Amount Units: ng/ml

Processing Integration Results



RT: 20.05
Area: 867
Amount: 0.011433
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Dec-2016 10:43:57

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB23-1216 Lab Sample ID: 320-24179-2
 Matrix: Water Lab File ID: 15DEC2016A6A_038.d
 Analysis Method: 537 Date Collected: 12/05/2016 10:46
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 262.3 (mL) Date Analyzed: 12/16/2016 02:16
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0090
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_038.d
 Lims ID: 320-24179-A-2-A
 Client ID: WI-AF-3FB23-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 02:16:16 ALS Bottle#: 23 Worklist Smp#: 38
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-2-A
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:44:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.589 17.595 -0.006 1.000 1154 0.0254 1.2
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.585 18.576 0.009 1.000 731906 9.12 23887
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.035 0.012 687610 10.0 14463
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.655 0.012 1860361 28.7 27611
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.471 21.462 0.009 1.000 562659 9.34 17829

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_038.d

Injection Date: 16-Dec-2016 02:16:16

Instrument ID: A6

Lims ID: 320-24179-A-2-A

Lab Sample ID: 320-24179-2

Client ID: WI-AF-3FB23-1216

Operator ID: CBW

ALS Bottle#: 23

Worklist Smp#: 38

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

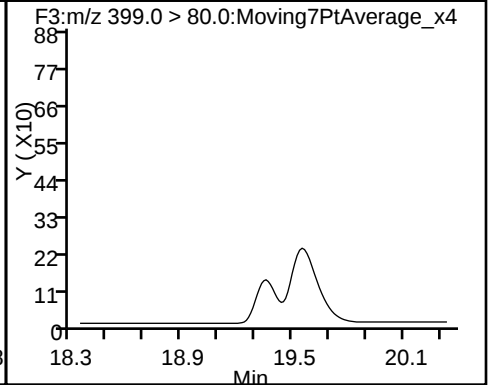
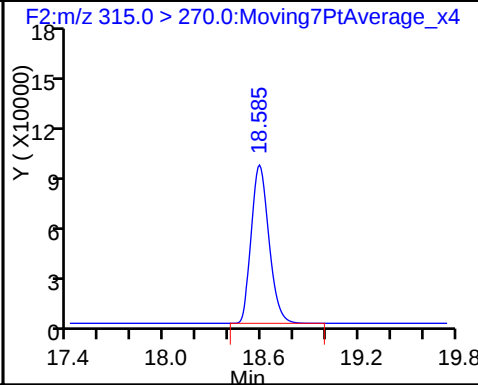
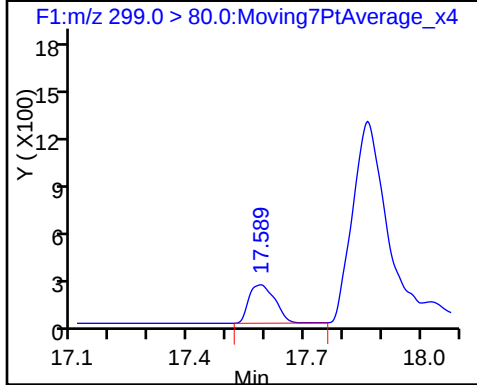
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

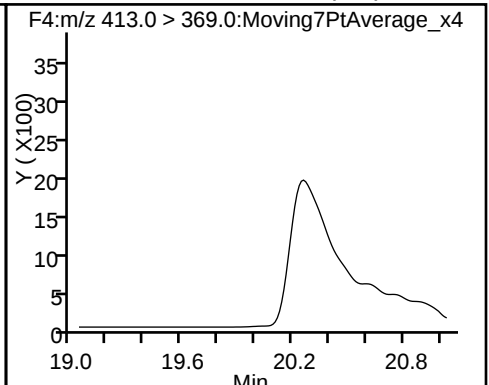
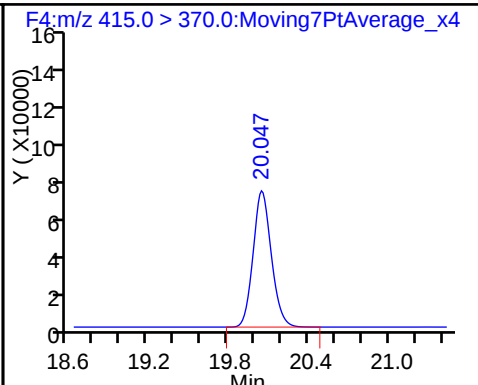
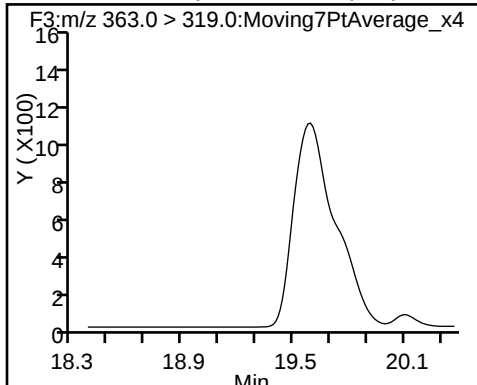
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

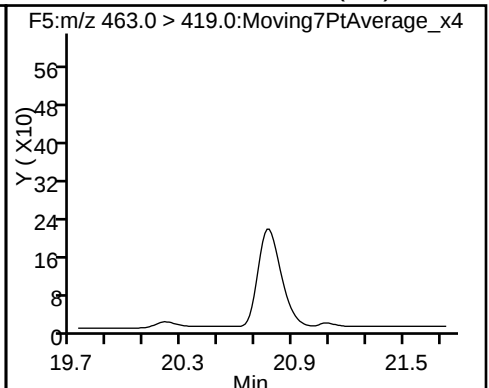
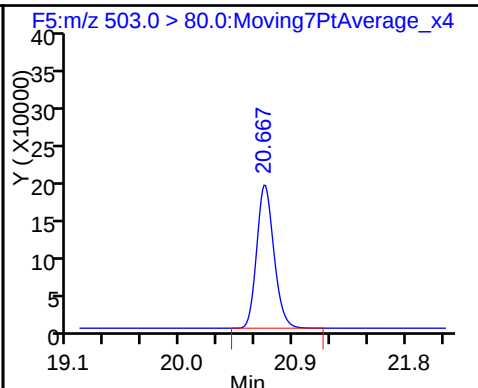
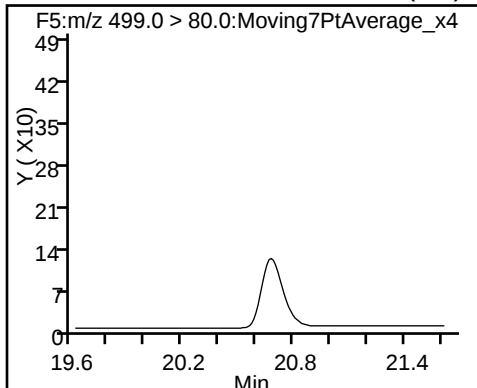
6 Perfluorooctanoic acid (ND)



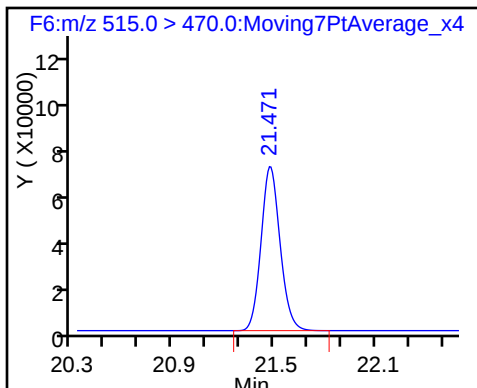
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_038.d
Lims ID: 320-24179-A-2-A
Client ID: WI-AF-3FB23-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 02:16:16 ALS Bottle#: 23 Worklist Smp#: 38
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-2-A
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:44:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.12	91.25
\$ 10 13C2 PFDA	10.0	9.34	93.38

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW24-1216 Lab Sample ID: 320-24179-3
 Matrix: Water Lab File ID: 15DEC2016A6A_039.d
 Analysis Method: 537 Date Collected: 12/06/2016 09:05
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 281.4 (mL) Date Analyzed: 12/16/2016 02:45
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U M	0.027	0.021	0.0084
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.098	0.042

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_039.d
 Lims ID: 320-24179-A-3-A
 Client ID: WI-AF-3RW24-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 02:45:53 ALS Bottle#: 24 Worklist Smp#: 39
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-3-A
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:45:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.576 0.0 1.000 770301 9.96 24982

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.035 0.0 663089 10.0 17464

6 Perfluorooctanoic acid

413.0 > 369.0 20.047 20.035 0.012 1.000 85 0.001232 0.1 M

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.655 0.012 1883848 28.7 48898

\$ 10 13C2 PFDA

515.0 > 470.0 21.462 21.462 0.0 1.000 565752 9.74 17952

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_039.d

Injection Date: 16-Dec-2016 02:45:53

Instrument ID: A6

Lims ID: 320-24179-A-3-A

Lab Sample ID: 320-24179-3

Client ID: WI-AF-3RW24-1216

Operator ID: CBW

ALS Bottle#: 24

Worklist Smp#: 39

Injection Vol: 10.0 ul

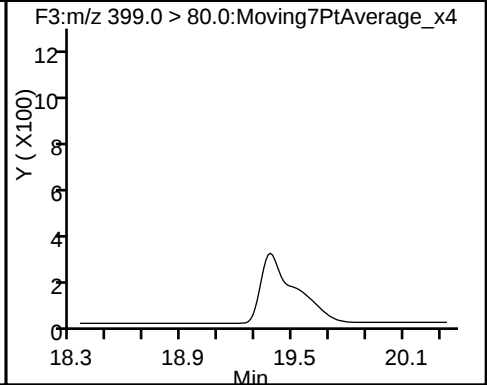
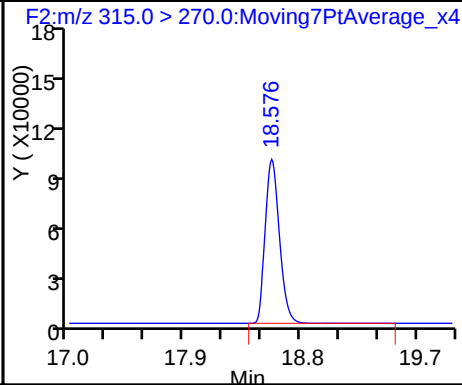
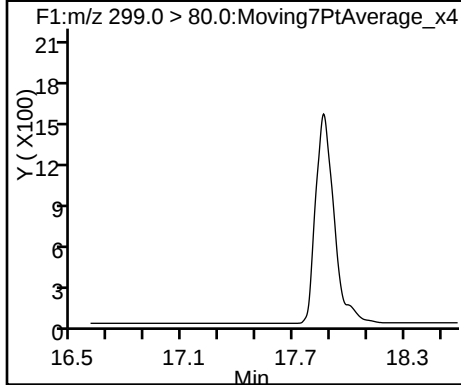
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

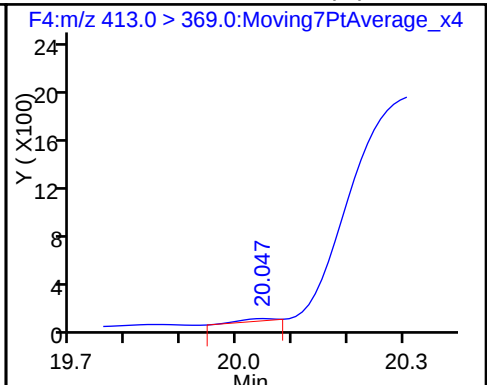
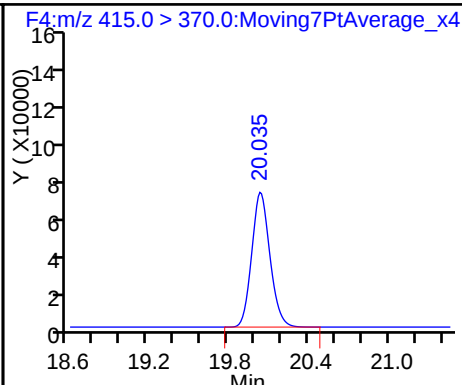
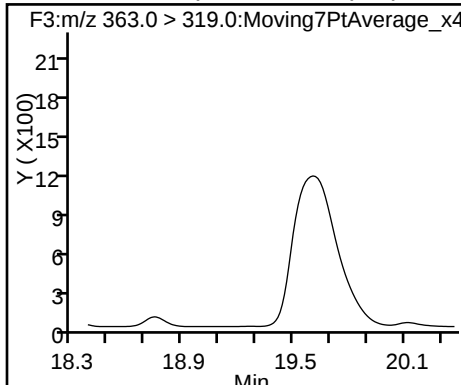
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

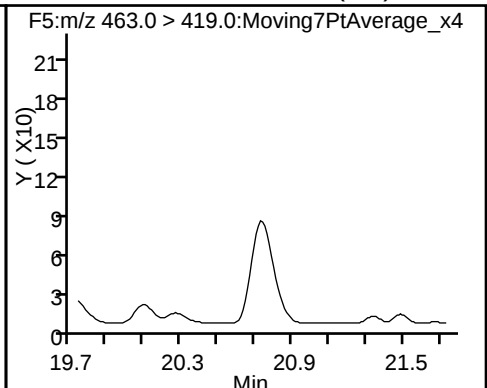
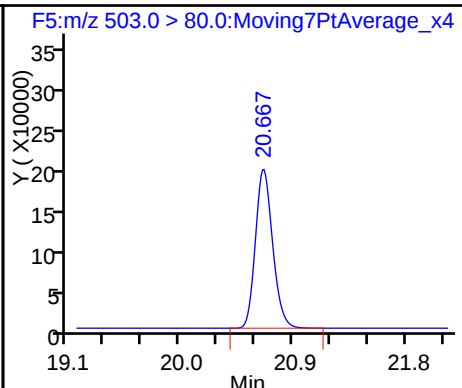
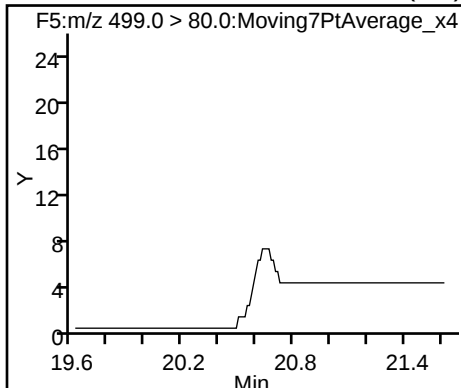
6 Perfluorooctanoic acid (M)



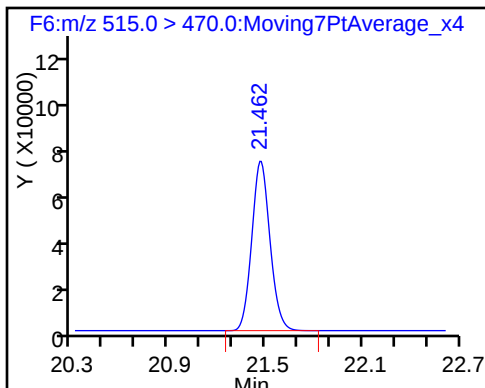
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_039.d
Lims ID: 320-24179-A-3-A
Client ID: WI-AF-3RW24-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 02:45:53 ALS Bottle#: 24 Worklist Smp#: 39
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-3-A
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:45:15

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.96	99.59
\$ 10 13C2 PFDA	10.0	9.74	97.37

TestAmerica Sacramento

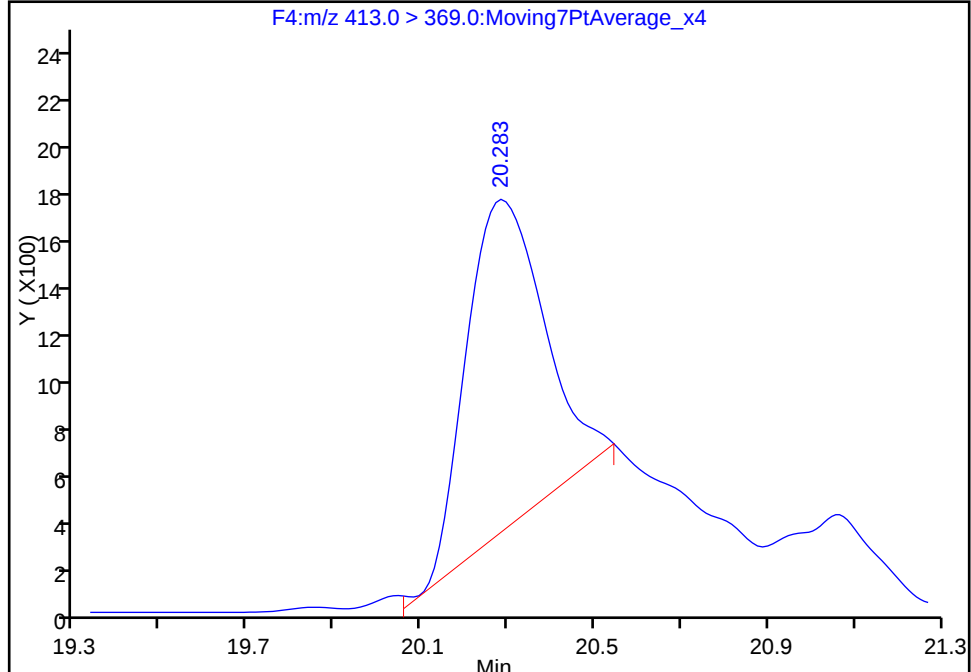
Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_039.d
Injection Date: 16-Dec-2016 02:45:53 Instrument ID: A6
Lims ID: 320-24179-A-3-A Lab Sample ID: 320-24179-3
Client ID: WI-AF-3RW24-1216
Operator ID: CBW ALS Bottle#: 24 Worklist Smp#: 39
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

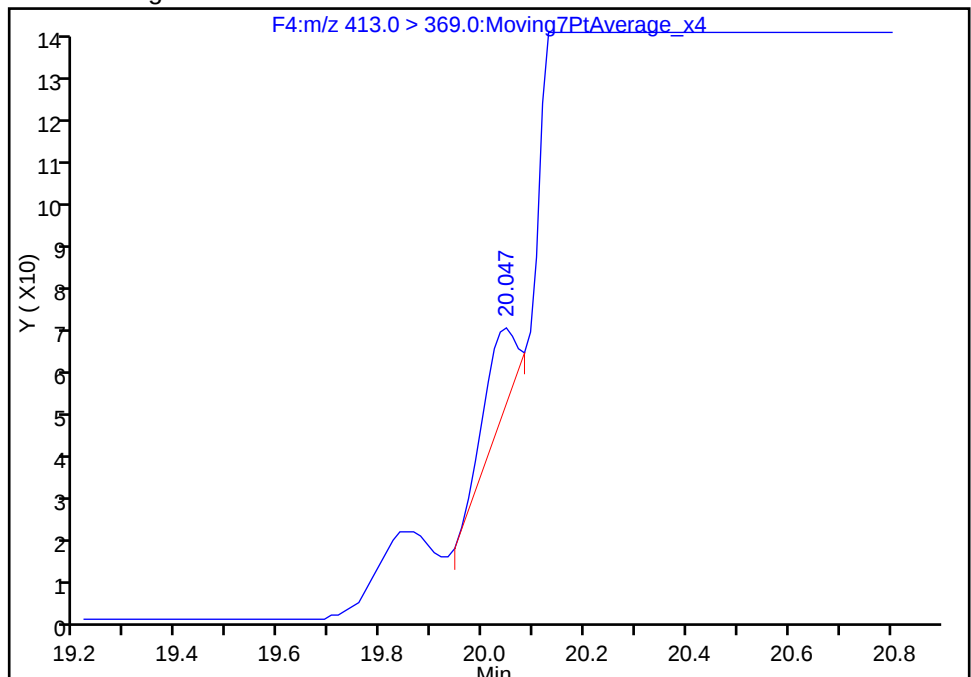
RT: 20.28
Area: 17184
Amount: 0.249082
Amount Units: ng/ml

Processing Integration Results



RT: 20.05
Area: 85
Amount: 0.001232
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 16-Dec-2016 10:45:15

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW24P-1216 Lab Sample ID: 320-24179-4
 Matrix: Water Lab File ID: 15DEC2016A6A_040.d
 Analysis Method: 537 Date Collected: 12/06/2016 09:10
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 286.9(mL) Date Analyzed: 12/16/2016 03:15
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.042	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.021	0.0082
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.096	U	0.12	0.096	0.041

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	82		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_040.d
 Lims ID: 320-24179-A-4-A
 Client ID: WI-AF-3RW24P-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 03:15:31 ALS Bottle#: 25 Worklist Smp#: 40
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-4-A
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.585 18.576 0.009 1.000 743994 8.56 24075

* 5 13C2-PFOA

415.0 > 370.0 20.047 20.035 0.012 744664 10.0 77738

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.655 0.012 1953571 28.7 40498

\$ 10 13C2 PFDA

515.0 > 470.0 21.480 21.462 0.018 1.000 534470 8.19 17029

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_040.d

Injection Date: 16-Dec-2016 03:15:31

Instrument ID: A6

Lims ID: 320-24179-A-4-A

Lab Sample ID: 320-24179-4

Client ID: WI-AF-3RW24P-1216

Operator ID: CBW

ALS Bottle#: 25

Worklist Smp#: 40

Injection Vol: 10.0 ul

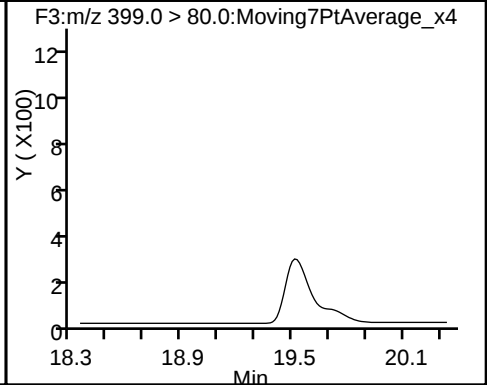
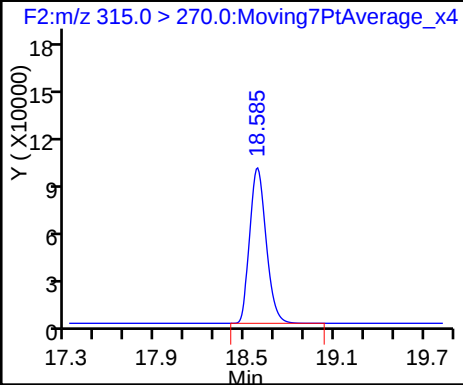
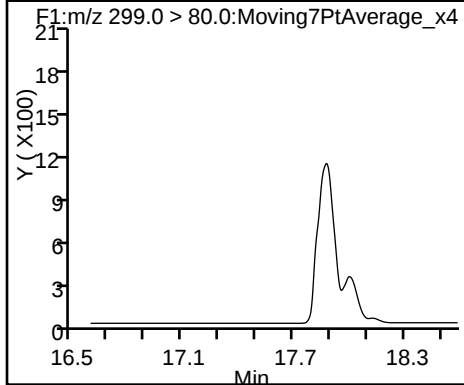
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

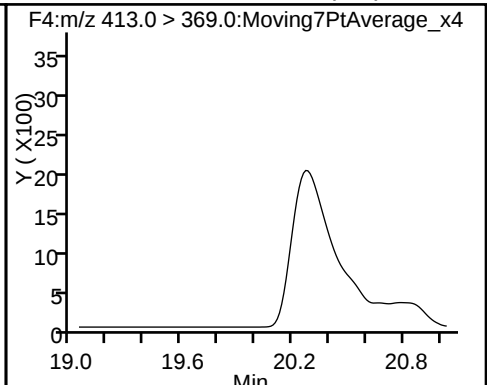
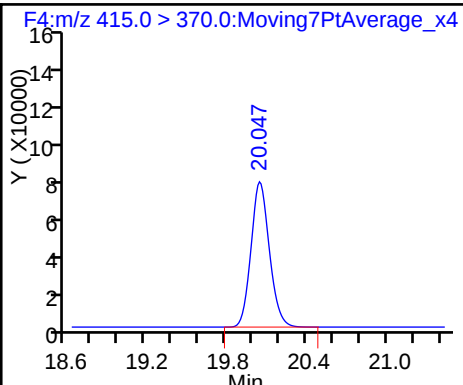
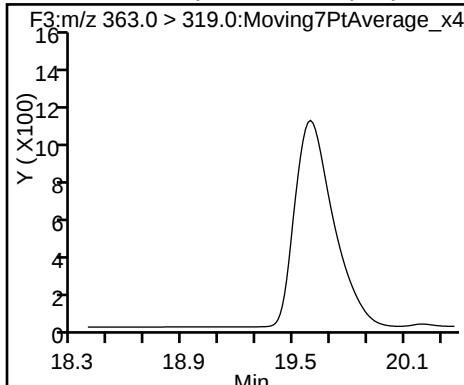
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

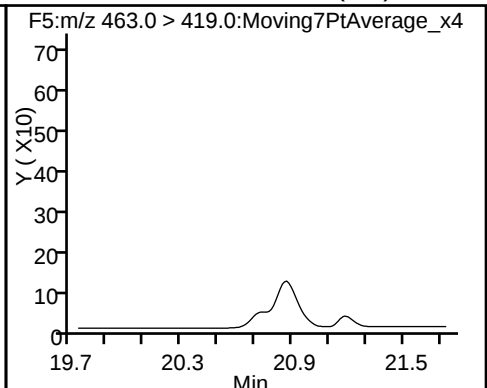
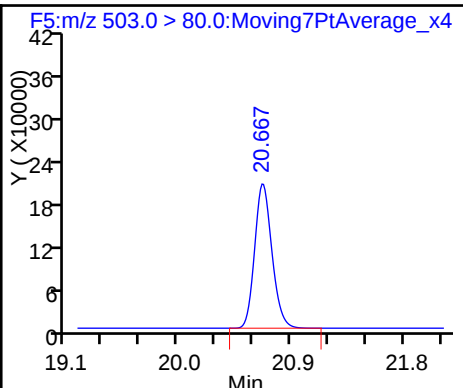
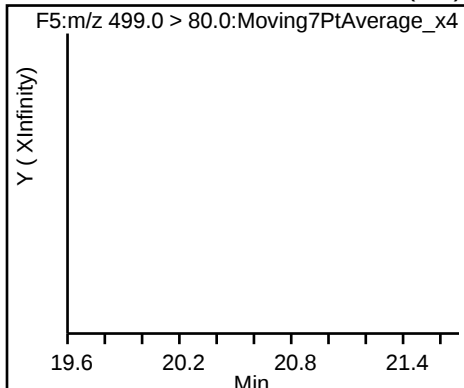
6 Perfluorooctanoic acid (ND)



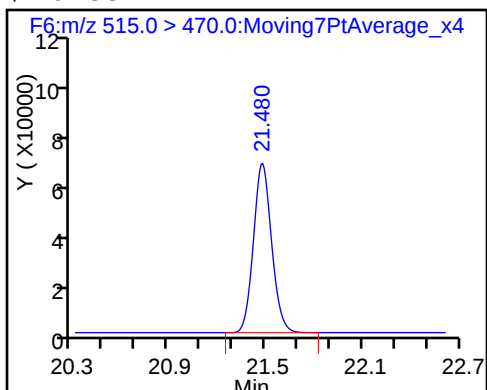
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_040.d
Lims ID: 320-24179-A-4-A
Client ID: WI-AF-3RW24P-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 03:15:31 ALS Bottle#: 25 Worklist Smp#: 40
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-4-A
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.56	85.65
\$ 10 13C2 PFDA	10.0	8.19	81.91

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB24-1216 Lab Sample ID: 320-24179-5
 Matrix: Water Lab File ID: 15DEC2016A6A_041.d
 Analysis Method: 537 Date Collected: 12/06/2016 09:06
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 272.5 (mL) Date Analyzed: 12/16/2016 03:45
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.044	U	0.055	0.044	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0086
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_041.d
 Lims ID: 320-24179-A-5-A
 Client ID: WI-AF-3FB24-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 03:45:06 ALS Bottle#: 26 Worklist Smp#: 41
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-5-A
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.585 18.576 0.009 1.000 719281 9.05 23340

* 5 13C2-PFOA

415.0 > 370.0 20.047 20.035 0.012 681310 10.0 17772

* 8 13C4 PFOS

503.0 > 80.0 20.679 20.655 0.024 1869098 28.7 48664

\$ 10 13C2 PFDA

515.0 > 470.0 21.480 21.462 0.018 1.000 562996 9.43 17771

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_041.d

Injection Date: 16-Dec-2016 03:45:06

Instrument ID: A6

Lims ID: 320-24179-A-5-A

Lab Sample ID: 320-24179-5

Client ID: WI-AF-3FB24-1216

Operator ID: CBW

ALS Bottle#: 26

Worklist Smp#: 41

Injection Vol: 10.0 ul

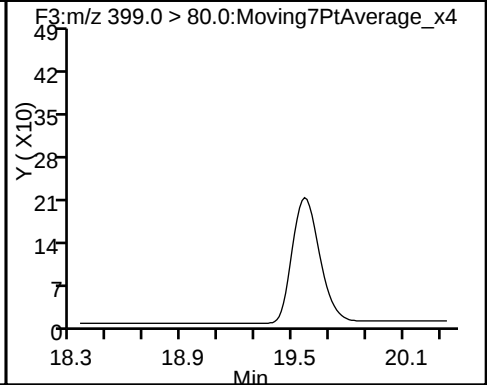
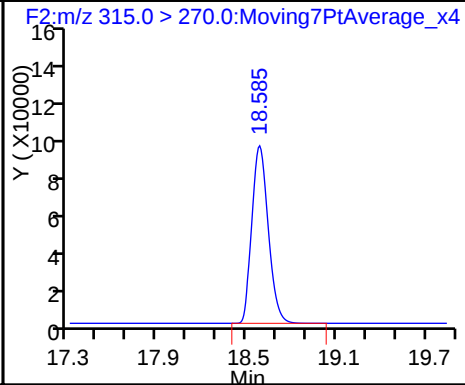
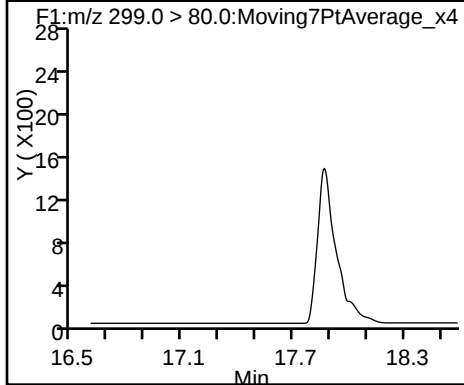
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

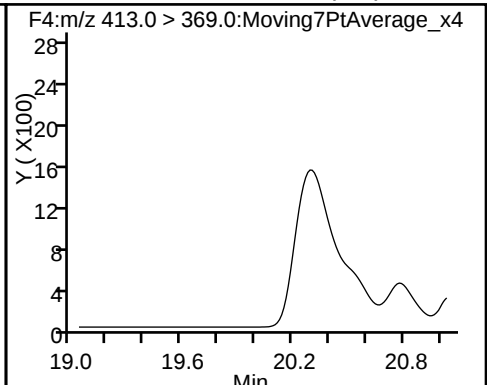
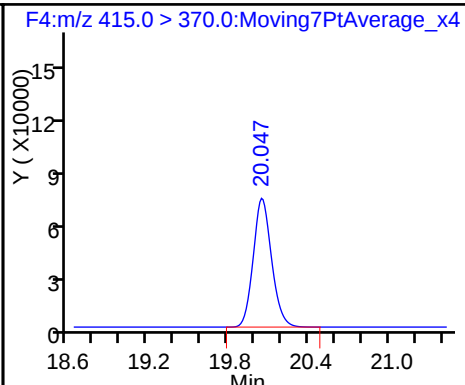
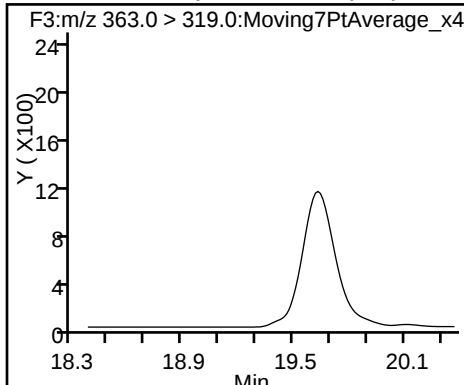
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

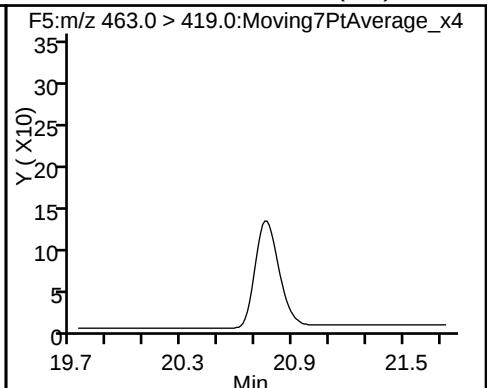
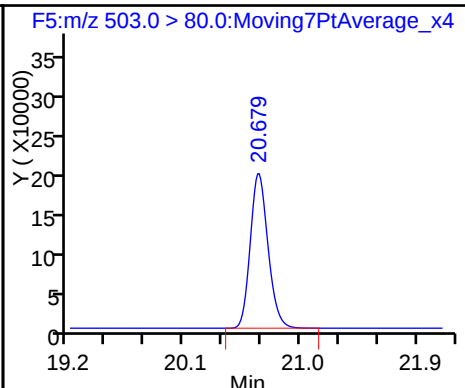
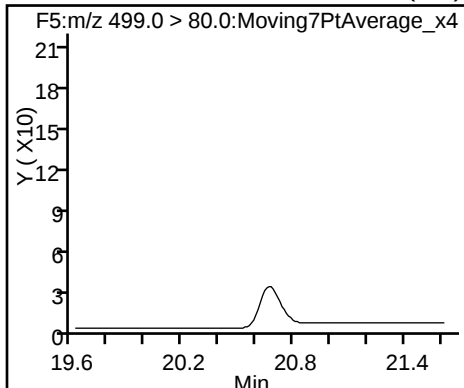
6 Perfluorooctanoic acid (ND)



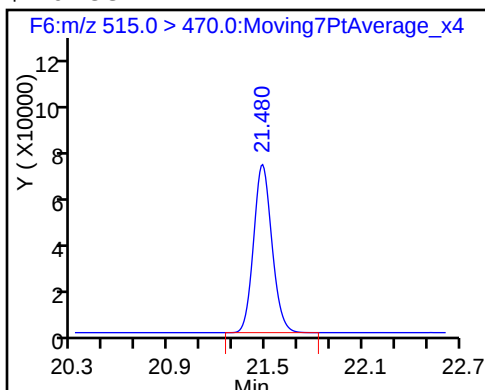
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_041.d
Lims ID: 320-24179-A-5-A
Client ID: WI-AF-3FB24-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 03:45:06 ALS Bottle#: 26 Worklist Smp#: 41
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-5-A
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:19

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.05	90.50
\$ 10 13C2 PFDA	10.0	9.43	94.30

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW25-1216 Lab Sample ID: 320-24179-6
 Matrix: Water Lab File ID: 15DEC2016A6A_044.d
 Analysis Method: 537 Date Collected: 12/06/2016 09:15
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 265 (mL) Date Analyzed: 12/16/2016 05:13
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	77		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_044.d
 Lims ID: 320-24179-A-6-A
 Client ID: WI-AF-3RW25-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 05:13:50 ALS Bottle#: 27 Worklist Smp#: 44
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-6-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.585 18.585 0.0 1.000 717418 8.11 23151

* 5 13C2-PFOA

415.0 > 370.0 20.047 20.047 0.0 758225 10.0 19899

* 8 13C4 PFOS

503.0 > 80.0 20.679 20.667 0.012 2004015 28.7 34580

\$ 10 13C2 PFDA

515.0 > 470.0 21.480 21.480 0.0 1.000 514664 7.75 16440

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_044.d

Injection Date: 16-Dec-2016 05:13:50

Instrument ID: A6

Lims ID: 320-24179-A-6-A

Lab Sample ID: 320-24179-6

Client ID: WI-AF-3RW25-1216

Operator ID: CBW

ALS Bottle#: 27

Worklist Smp#: 44

Injection Vol: 10.0 ul

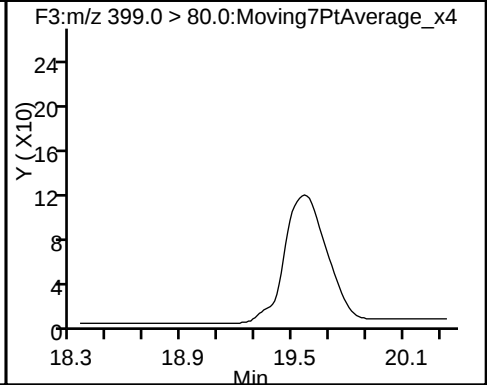
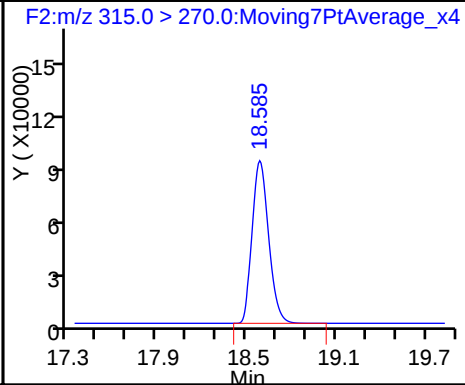
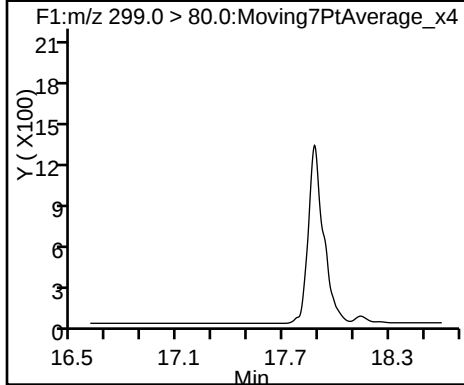
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

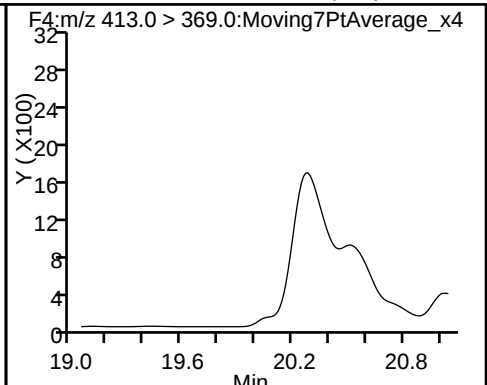
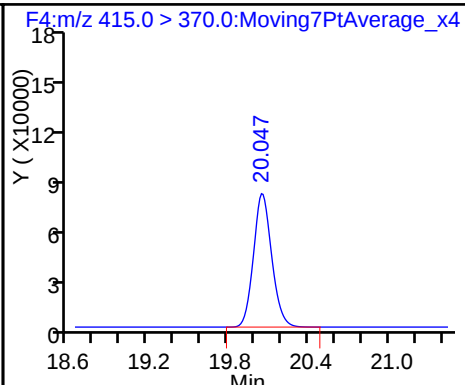
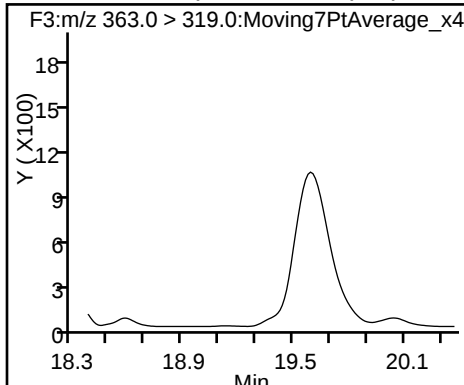
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

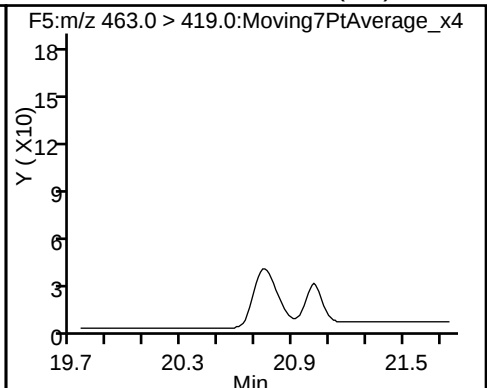
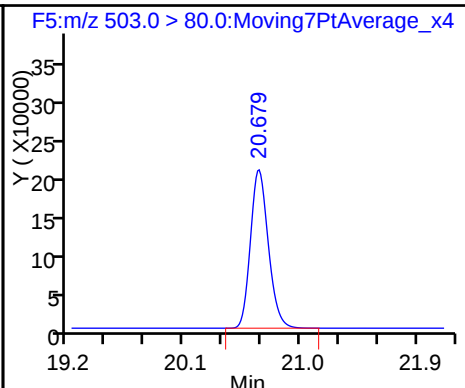
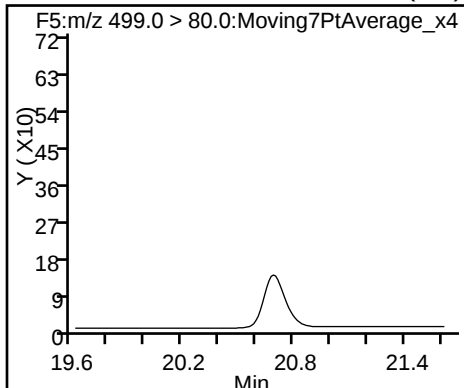
6 Perfluorooctanoic acid (ND)



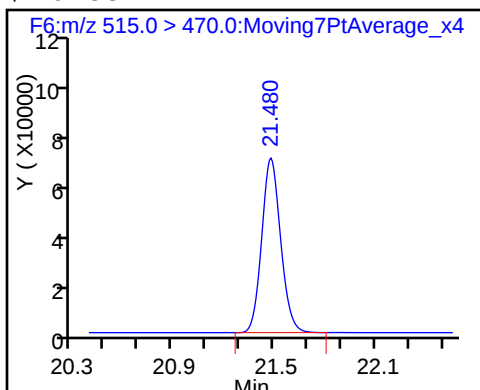
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_044.d
Lims ID: 320-24179-A-6-A
Client ID: WI-AF-3RW25-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 05:13:50 ALS Bottle#: 27 Worklist Smp#: 44
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-6-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:45

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.11	81.11
\$ 10 13C2 PFDA	10.0	7.75	77.46

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB25-1216 Lab Sample ID: 320-24179-7
 Matrix: Water Lab File ID: 15DEC2016A6A_045.d
 Analysis Method: 537 Date Collected: 12/06/2016 09:16
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 282.6(mL) Date Analyzed: 12/16/2016 05:43
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.042	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0083
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.097	0.042

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	89		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_045.d
 Lims ID: 320-24179-A-7-A
 Client ID: WI-AF-3FB25-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 05:43:26 ALS Bottle#: 28 Worklist Smp#: 45
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-7-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.585 18.585 0.0 1.000 737097 8.74 23928

* 5 13C2-PFOA

415.0 > 370.0 20.047 20.047 0.0 722915 10.0 19024

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 1957129 28.7 51208

\$ 10 13C2 PFDA

515.0 > 470.0 21.480 21.480 0.0 1.000 563188 8.89 18011

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_045.d

Injection Date: 16-Dec-2016 05:43:26

Instrument ID: A6

Lims ID: 320-24179-A-7-A

Lab Sample ID: 320-24179-7

Client ID: WI-AF-3FB25-1216

Operator ID: CBW

ALS Bottle#: 28

Worklist Smp#: 45

Injection Vol: 10.0 ul

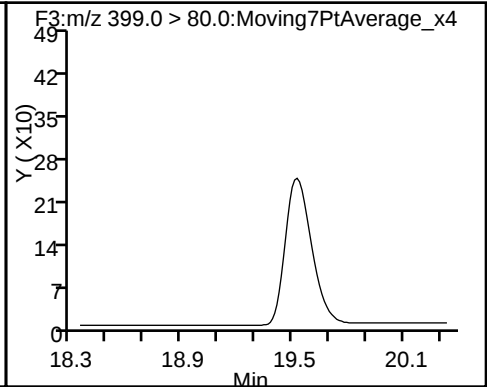
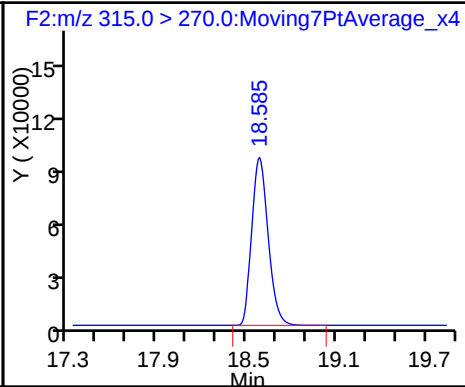
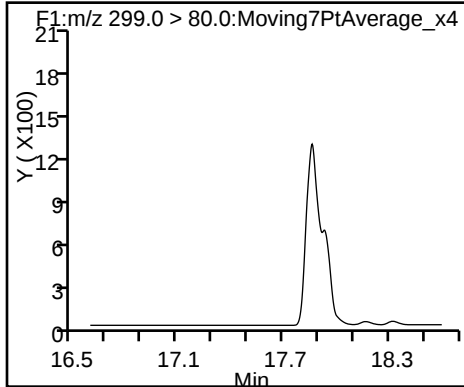
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

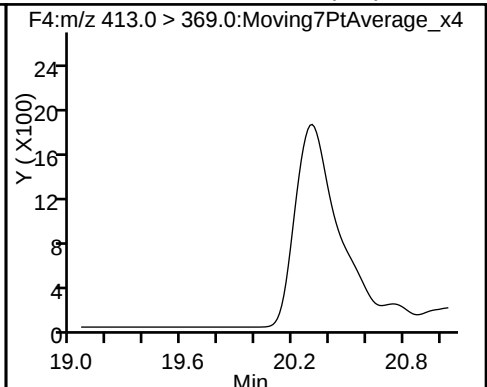
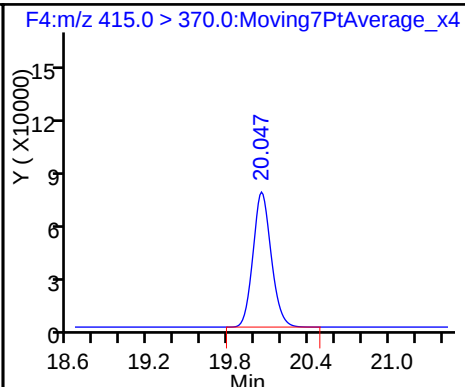
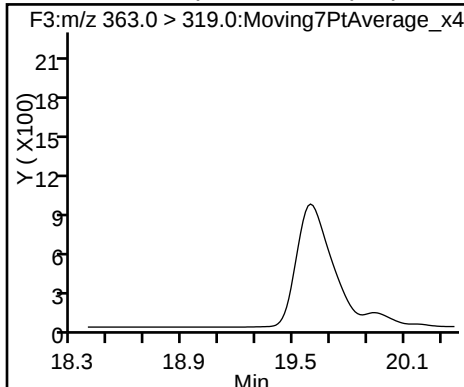
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

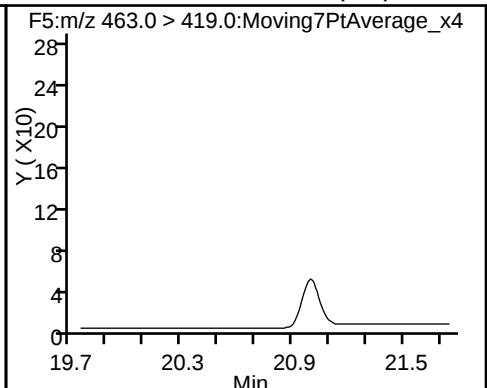
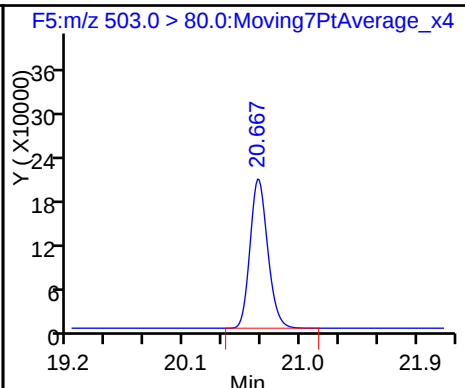
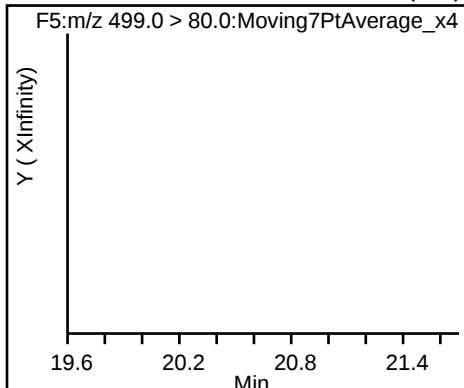
6 Perfluorooctanoic acid (ND)



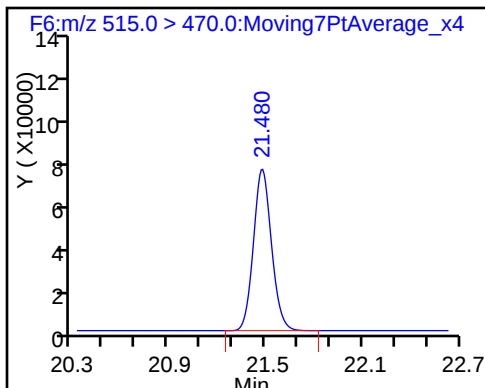
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_045.d
Lims ID: 320-24179-A-7-A
Client ID: WI-AF-3FB25-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 05:43:26 ALS Bottle#: 28 Worklist Smp#: 45
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-7-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.74	87.41
\$ 10 13C2 PFDA	10.0	8.89	88.90

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW26-1216 Lab Sample ID: 320-24179-8
 Matrix: Water Lab File ID: 15DEC2016A6A_046.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:30
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 264.6(mL) Date Analyzed: 12/16/2016 06:13
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_046.d
 Lims ID: 320-24179-A-8-A
 Client ID: WI-AF-3RW26-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 06:13:02 ALS Bottle#: 29 Worklist Smp#: 46
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-8-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 758707 9.53 24883

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 682817 10.0 17732

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 1785462 28.7 46751

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.480 -0.009 1.000 563594 9.42 17640

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_046.d

Injection Date: 16-Dec-2016 06:13:02

Instrument ID: A6

Lims ID: 320-24179-A-8-A

Lab Sample ID: 320-24179-8

Client ID: WI-AF-3RW26-1216

Operator ID: CBW

ALS Bottle#: 29

Worklist Smp#: 46

Injection Vol: 10.0 ul

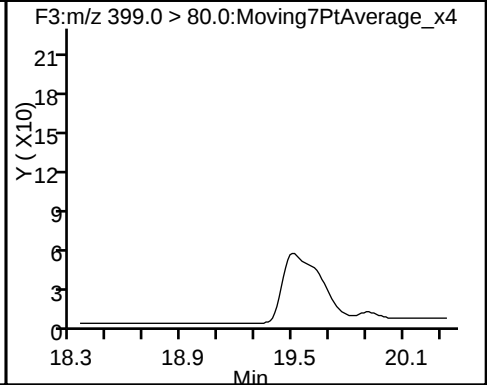
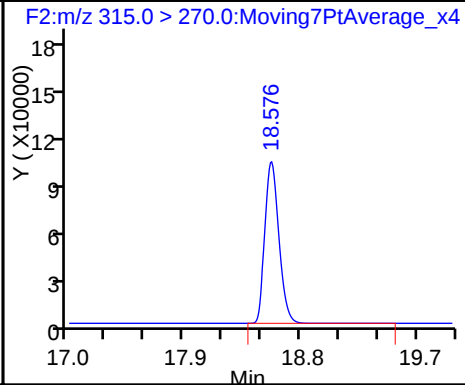
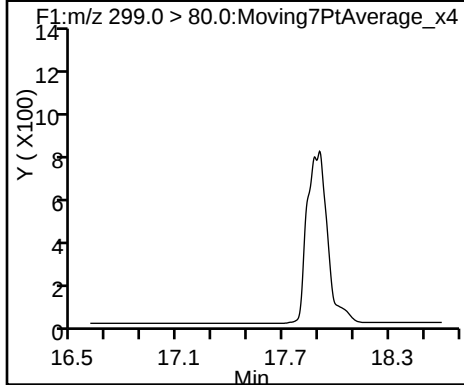
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

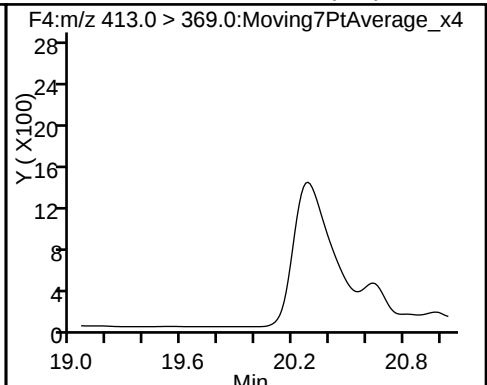
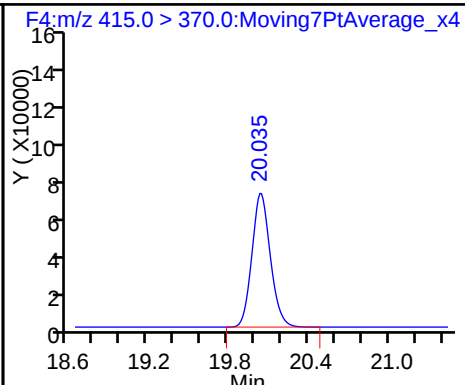
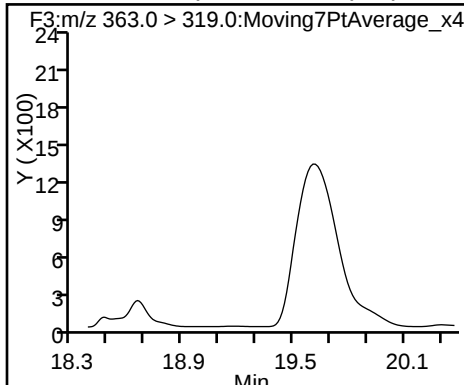
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

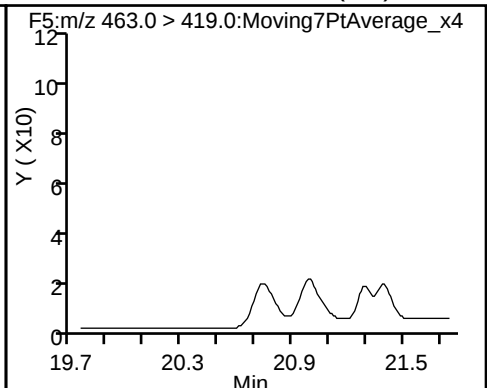
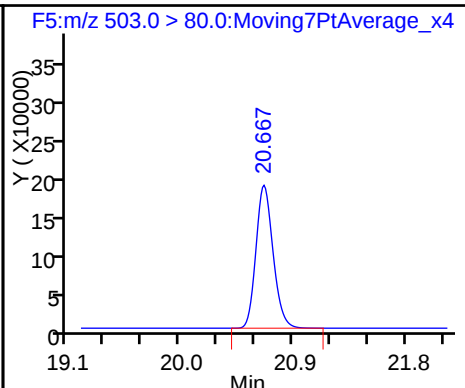
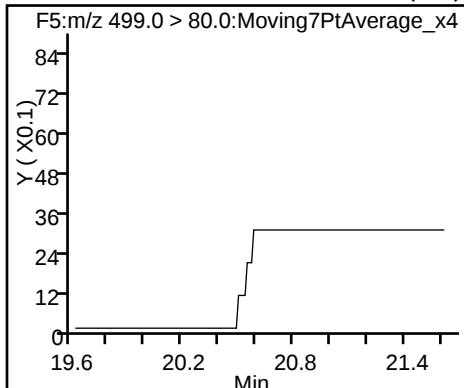
6 Perfluorooctanoic acid (ND)



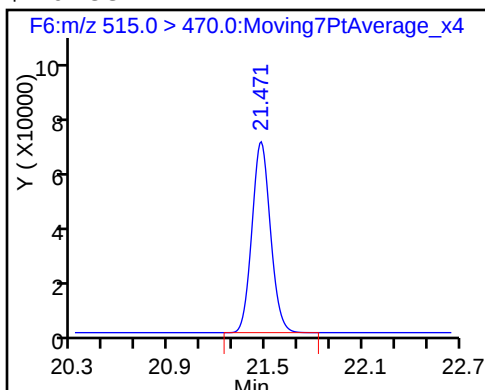
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_046.d
Lims ID: 320-24179-A-8-A
Client ID: WI-AF-3RW26-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 06:13:02 ALS Bottle#: 29 Worklist Smp#: 46
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-8-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.53	95.25
\$ 10 13C2 PFDA	10.0	9.42	94.19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB26-1216 Lab Sample ID: 320-24179-9
 Matrix: Water Lab File ID: 15DEC2016A6A_047.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:31
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 288.2 (mL) Date Analyzed: 12/16/2016 06:42
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.042	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.021	0.0082
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.095	U	0.12	0.095	0.041

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	81		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_047.d
 Lims ID: 320-24179-A-9-A
 Client ID: WI-AF-3FB26-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 06:42:37 ALS Bottle#: 30 Worklist Smp#: 47
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-9-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:25

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 777790 8.30 25510

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 803719 10.0 20906

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 2027034 28.7 52357

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.480 -0.009 1.000 572331 8.13 18168

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_047.d

Injection Date: 16-Dec-2016 06:42:37

Instrument ID: A6

Lims ID: 320-24179-A-9-A

Lab Sample ID: 320-24179-9

Client ID: WI-AF-3FB26-1216

Operator ID: CBW

ALS Bottle#: 30

Worklist Smp#: 47

Injection Vol: 10.0 ul

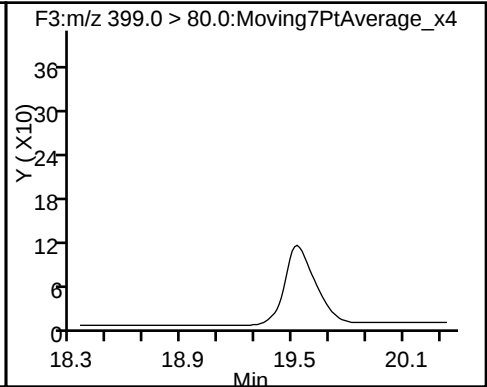
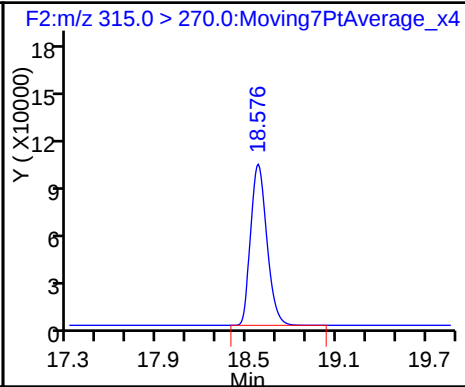
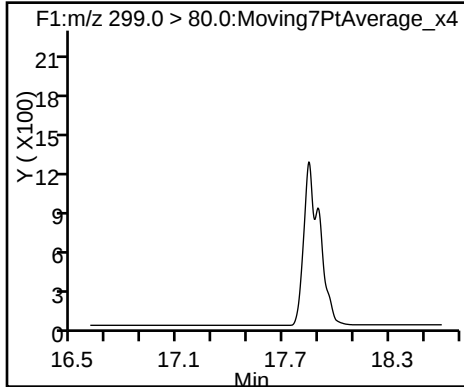
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

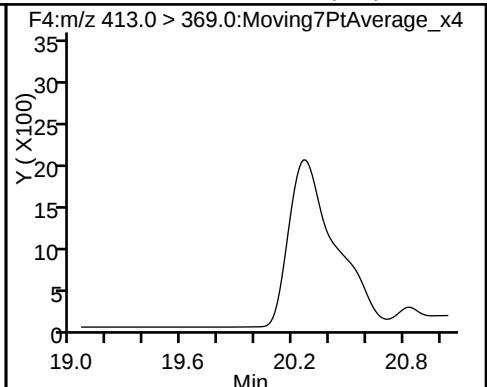
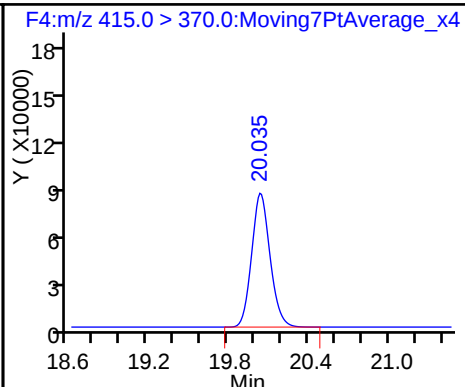
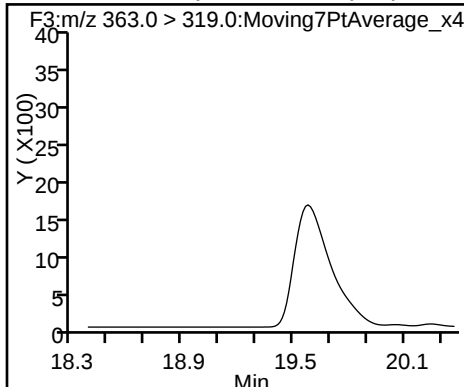
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

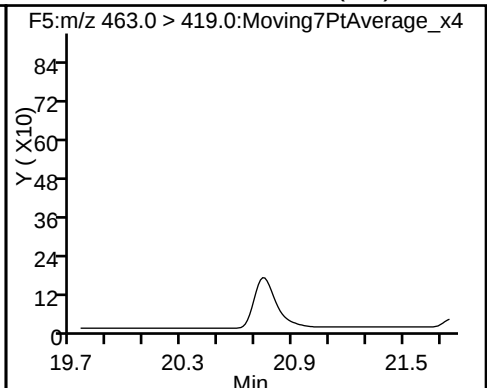
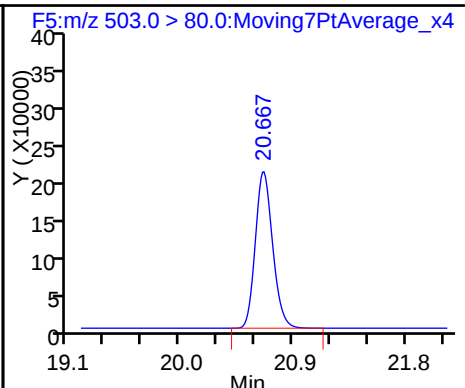
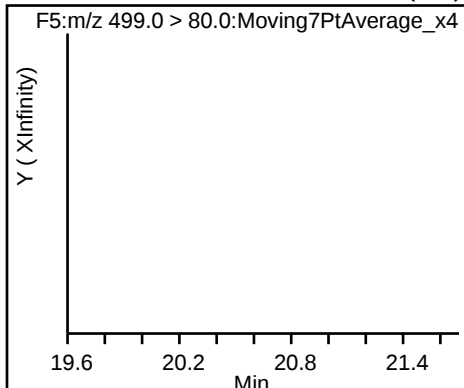
6 Perfluorooctanoic acid (ND)



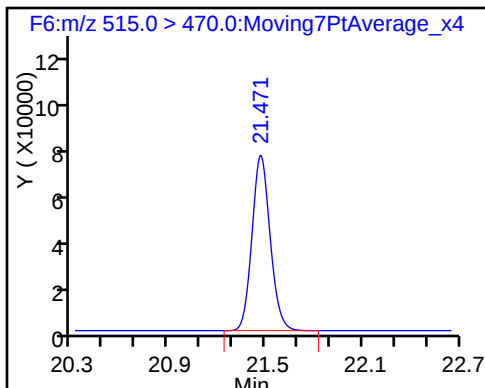
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_047.d
Lims ID: 320-24179-A-9-A
Client ID: WI-AF-3FB26-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 06:42:37 ALS Bottle#: 30 Worklist Smp#: 47
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-9-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:25

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.30	82.96
\$ 10 13C2 PFDA	10.0	8.13	81.26

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW27-1216 Lab Sample ID: 320-24179-10
 Matrix: Water Lab File ID: 15DEC2016A6A_048.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:40
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 259.1 (mL) Date Analyzed: 12/16/2016 07:12
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0091
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_048.d
 Lims ID: 320-24179-A-10-A
 Client ID: WI-AF-3RW27-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 07:12:13 ALS Bottle#: 31 Worklist Smp#: 48
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-10-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:38

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 777549 9.72 25368

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 685918 10.0 17739

* 8 13C4 PFOS

503.0 > 80.0 20.655 20.667 -0.012 1835525 28.7 38213

\$ 10 13C2 PFDA

515.0 > 470.0 21.462 21.480 -0.018 1.000 555232 9.24 17469

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_048.d

Injection Date: 16-Dec-2016 07:12:13

Instrument ID: A6

Lims ID: 320-24179-A-10-A

Lab Sample ID: 320-24179-10

Client ID: WI-AF-3RW27-1216

Operator ID: CBW

ALS Bottle#: 31

Worklist Smp#: 48

Injection Vol: 10.0 ul

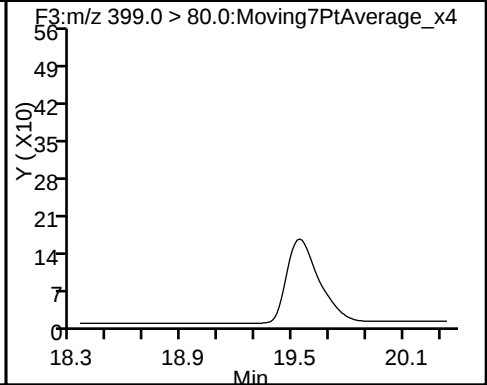
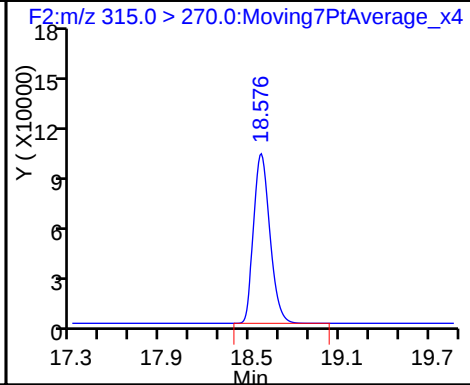
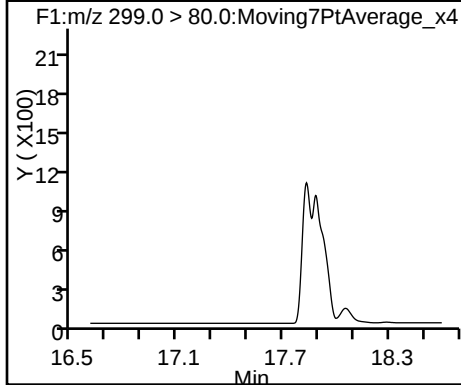
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

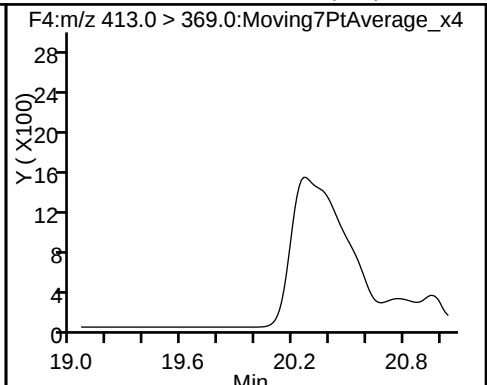
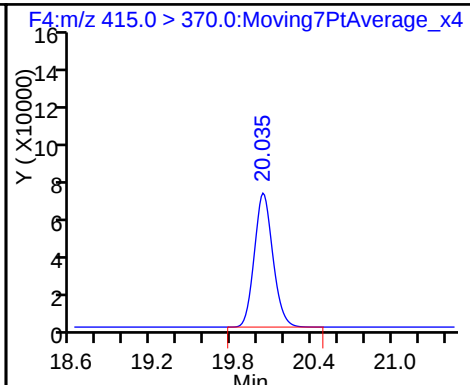
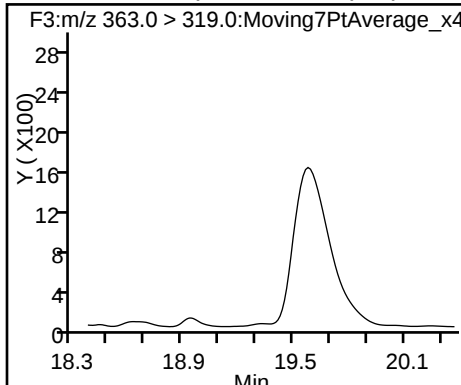
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

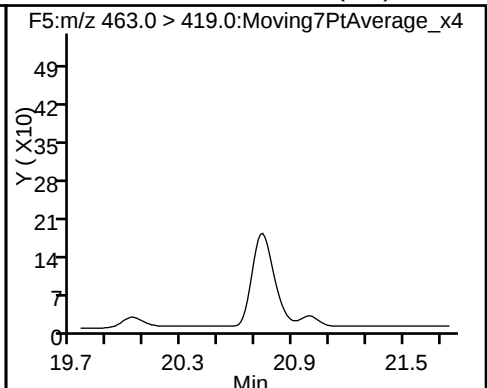
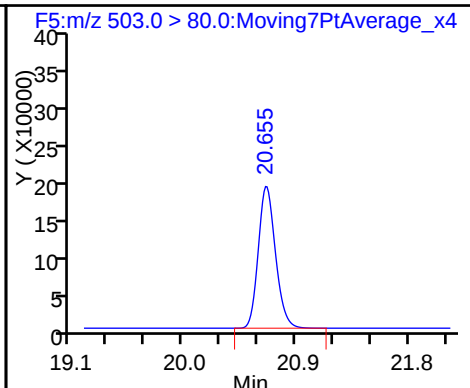
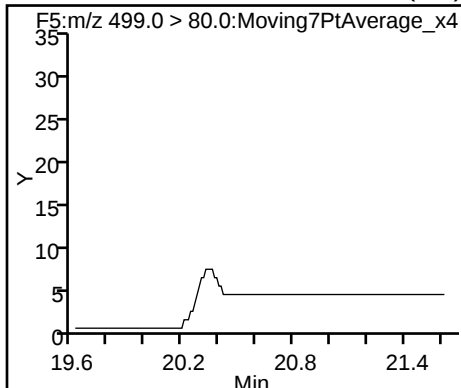
6 Perfluorooctanoic acid (ND)



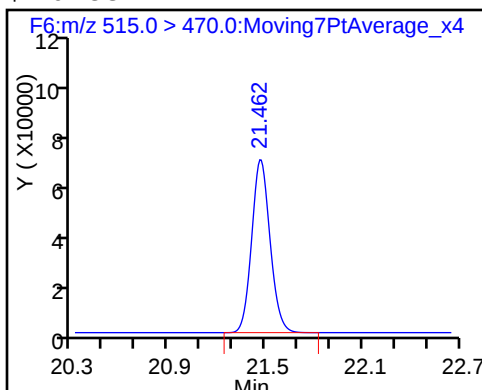
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_048.d
Lims ID: 320-24179-A-10-A
Client ID: WI-AF-3RW27-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 07:12:13 ALS Bottle#: 31 Worklist Smp#: 48
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-10-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:38

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.72	97.18
\$ 10 13C2 PFDA	10.0	9.24	92.38

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB27-1216 Lab Sample ID: 320-24179-11
 Matrix: Water Lab File ID: 15DEC2016A6A_049.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:41
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 264.8 (mL) Date Analyzed: 12/16/2016 07:41
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	88		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_049.d
 Lims ID: 320-24179-A-11-A
 Client ID: WI-AF-3FB27-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 07:41:51 ALS Bottle#: 32 Worklist Smp#: 49
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-11-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 792304 9.12 25784

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 744471 10.0 19488

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 1942202 28.7 50618

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.480 -0.009 1.000 575304 8.82 17962

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_049.d

Injection Date: 16-Dec-2016 07:41:51

Instrument ID: A6

Lims ID: 320-24179-A-11-A

Lab Sample ID: 320-24179-11

Client ID: WI-AF-3FB27-1216

Operator ID: CBW

ALS Bottle#: 32

Worklist Smp#: 49

Injection Vol: 10.0 ul

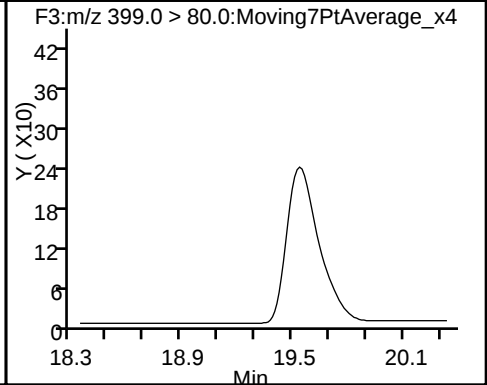
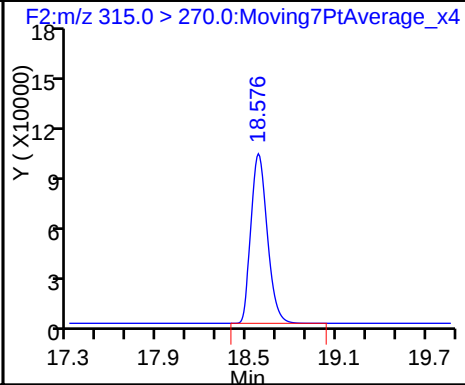
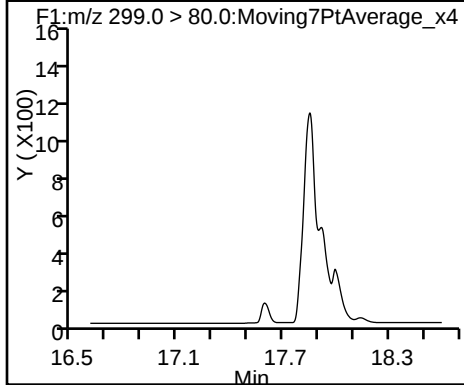
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

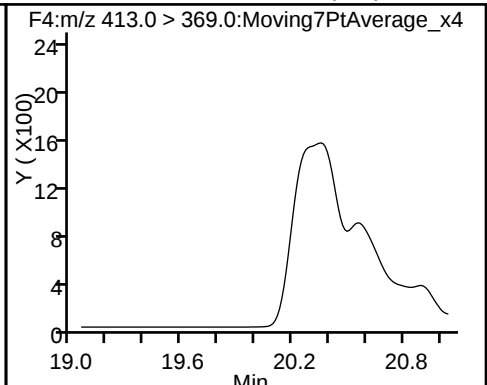
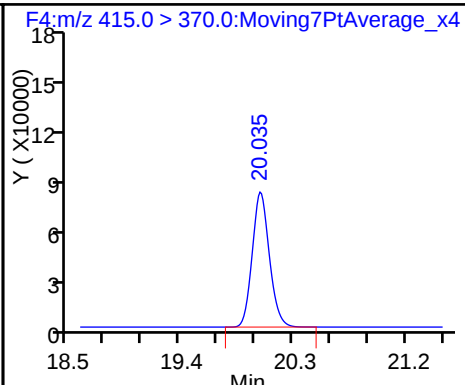
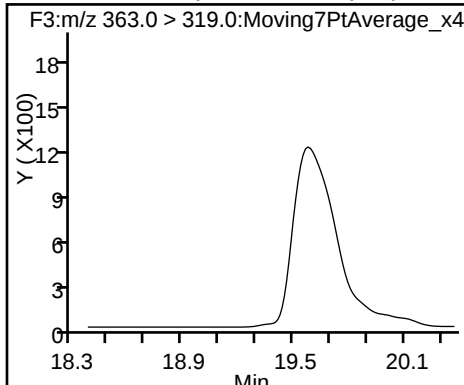
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

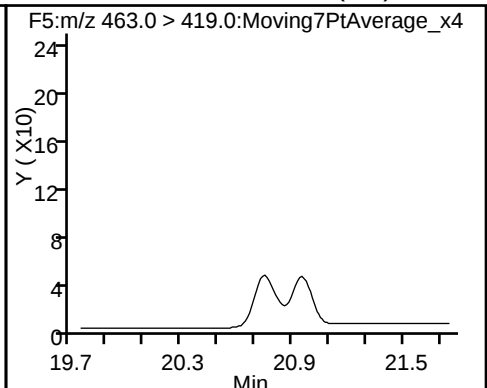
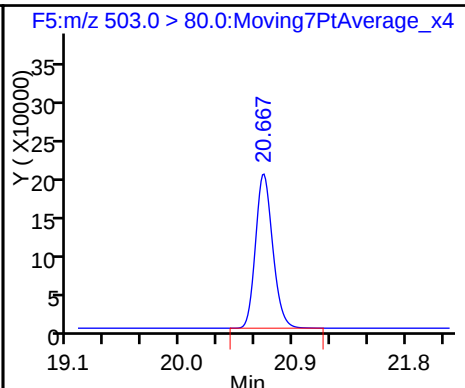
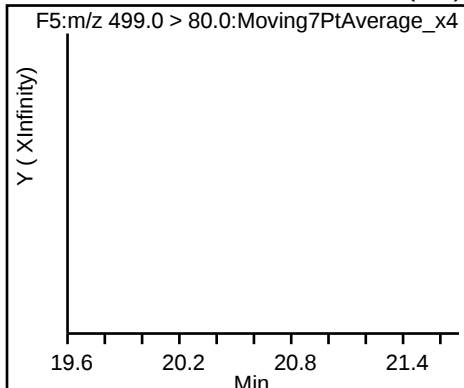
6 Perfluorooctanoic acid (ND)



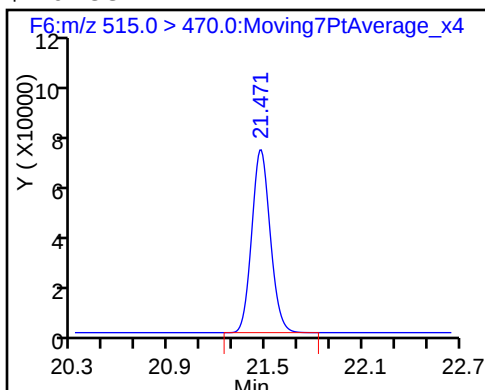
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_049.d
Lims ID: 320-24179-A-11-A
Client ID: WI-AF-3FB27-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 07:41:51 ALS Bottle#: 32 Worklist Smp#: 49
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-11-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:52:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.12	91.23
\$ 10 13C2 PFDA	10.0	8.82	88.19

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW28-1216 Lab Sample ID: 320-24179-12
 Matrix: Water Lab File ID: 15DEC2016A6A_050.d
 Analysis Method: 537 Date Collected: 12/06/2016 15:35
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 269(mL) Date Analyzed: 12/16/2016 08:11
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	78		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_050.d
 Lims ID: 320-24179-A-12-A
 Client ID: WI-AF-3RW28-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 08:11:28 ALS Bottle#: 33 Worklist Smp#: 50
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-12-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:53:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 767975 8.12 19948

* 5 13C2-PFOA

415.0 > 370.0 20.047 20.047 0.0 811097 10.0 21110

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 2202314 28.7 22965

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.480 -0.009 1.000 553853 7.79 17482

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_050.d

Injection Date: 16-Dec-2016 08:11:28

Instrument ID: A6

Lims ID: 320-24179-A-12-A

Lab Sample ID: 320-24179-12

Client ID: WI-AF-3RW28-1216

Operator ID: CBW

ALS Bottle#: 33

Worklist Smp#: 50

Injection Vol: 10.0 ul

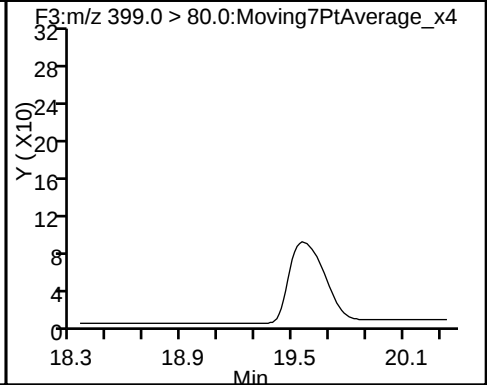
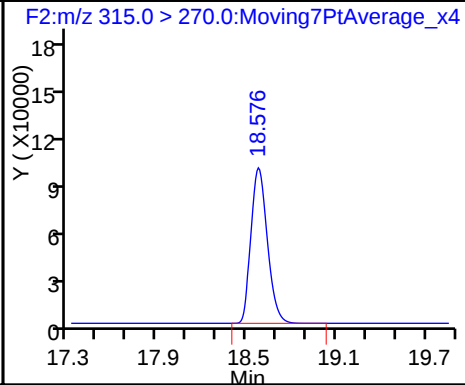
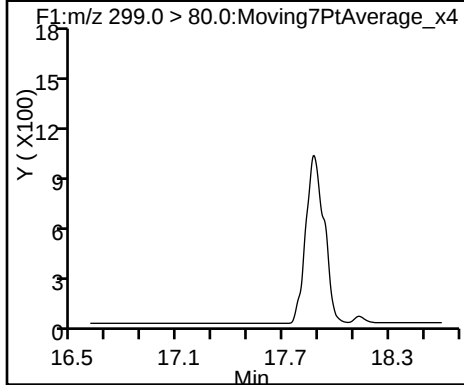
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

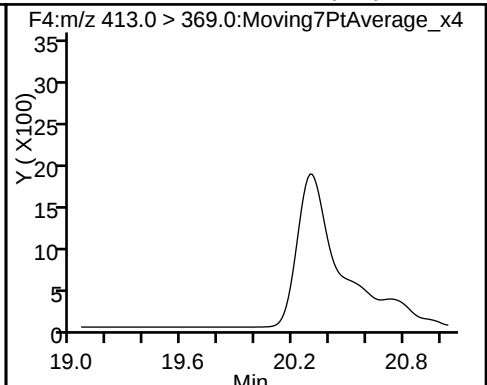
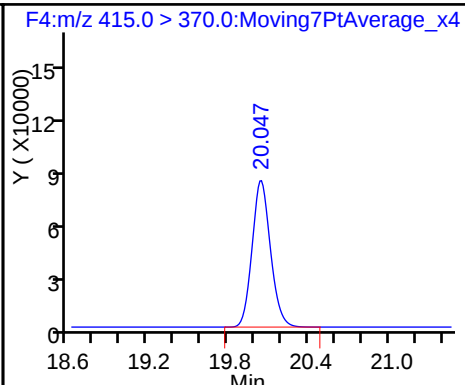
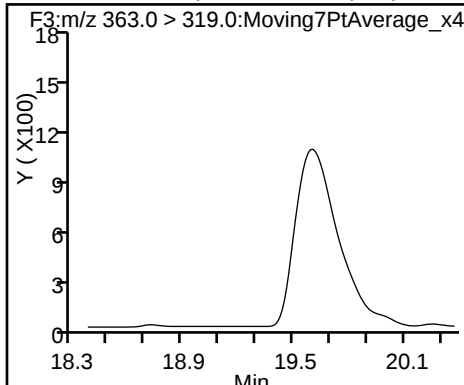
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

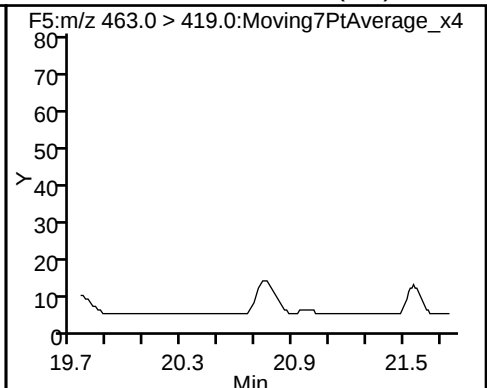
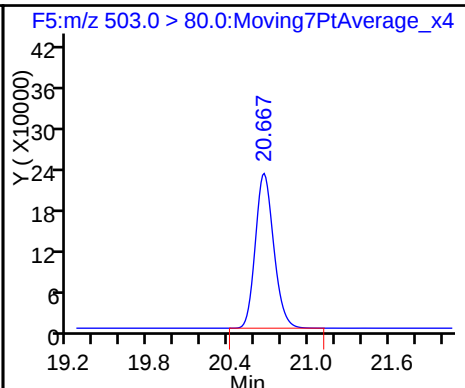
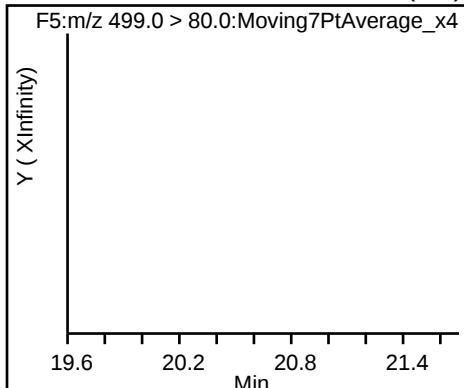
6 Perfluorooctanoic acid (ND)



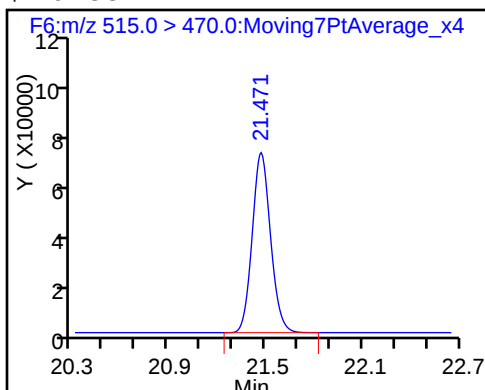
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_050.d
Lims ID: 320-24179-A-12-A
Client ID: WI-AF-3RW28-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 08:11:28 ALS Bottle#: 33 Worklist Smp#: 50
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-12-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:53:02

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.12	81.17
\$ 10 13C2 PFDA	10.0	7.79	77.93

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB28-1216 Lab Sample ID: 320-24179-13
 Matrix: Water Lab File ID: 15DEC2016A6A_051.d
 Analysis Method: 537 Date Collected: 12/06/2016 15:36
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 281.4 (mL) Date Analyzed: 12/16/2016 08:41
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0084
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.098	0.042

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

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_051.d
 Lims ID: 320-24179-A-13-A
 Client ID: WI-AF-3FB28-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 08:41:03 ALS Bottle#: 34 Worklist Smp#: 51
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-13-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 11:11:04 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 11:10:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 781417 9.56 25228

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 700992 10.0 18252

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 1970159 28.7 29278

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.480 -0.009 1.000 593596 9.66 18777

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_051.d

Injection Date: 16-Dec-2016 08:41:03

Instrument ID: A6

Lims ID: 320-24179-A-13-A

Lab Sample ID: 320-24179-13

Client ID: WI-AF-3FB28-1216

Operator ID: CBW

ALS Bottle#: 34

Worklist Smp#: 51

Injection Vol: 10.0 ul

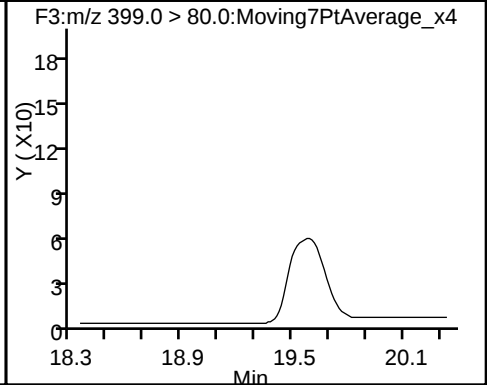
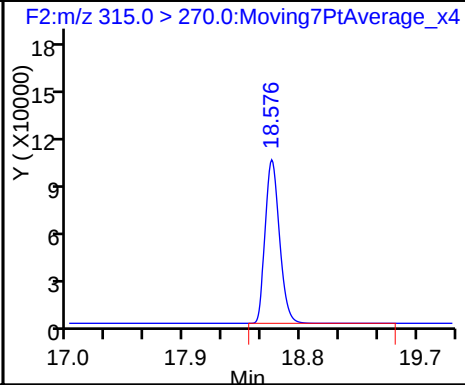
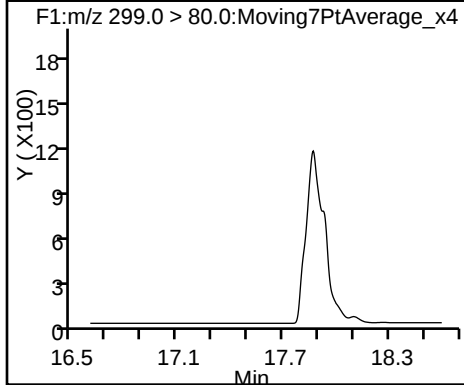
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

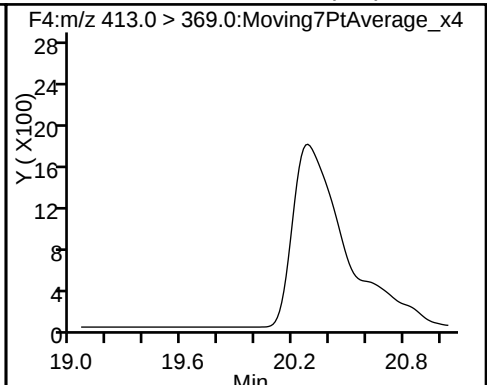
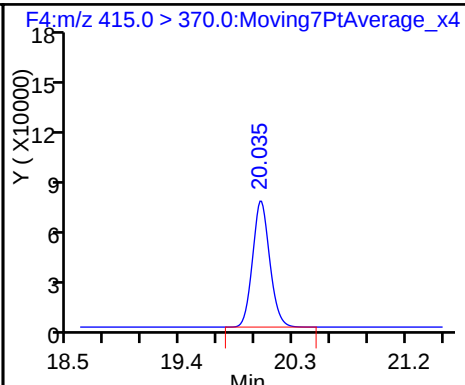
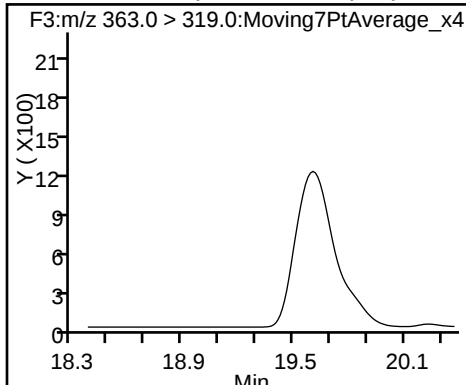
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

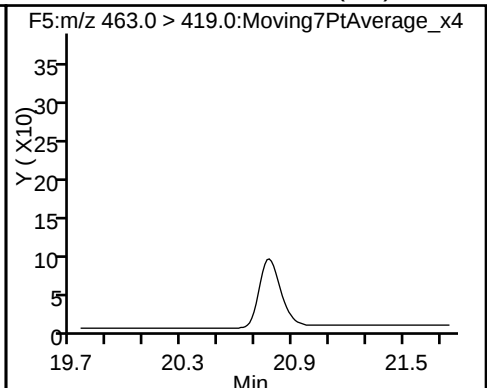
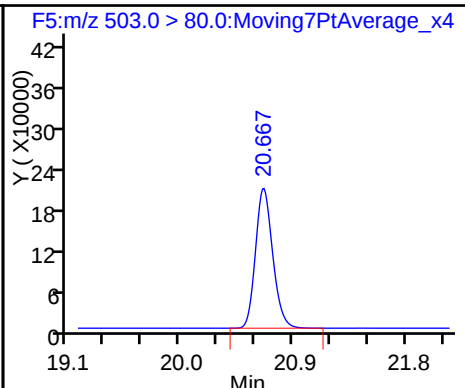
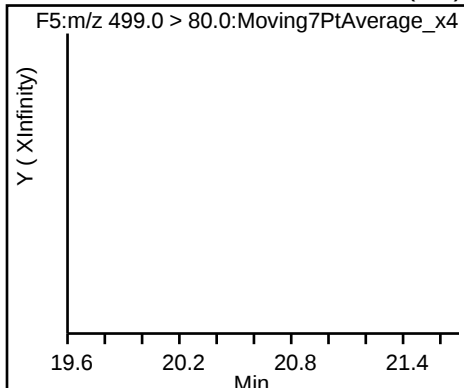
6 Perfluorooctanoic acid (ND)



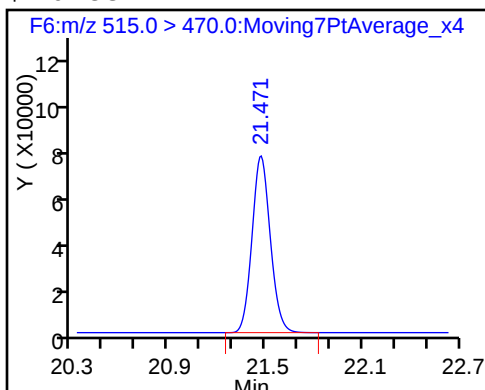
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_051.d
Lims ID: 320-24179-A-13-A
Client ID: WI-AF-3FB28-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 08:41:03 ALS Bottle#: 34 Worklist Smp#: 51
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-13-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 11:11:04 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 11:10:40

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.56	95.56
\$ 10 13C2 PFDA	10.0	9.66	96.64

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW29-1216 Lab Sample ID: 320-24179-14
 Matrix: Water Lab File ID: 15DEC2016A6A_052.d
 Analysis Method: 537 Date Collected: 12/06/2016 17:05
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 258.4 (mL) Date Analyzed: 12/16/2016 09:10
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0091
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	92		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_052.d
 Lims ID: 320-24179-A-14-A
 Client ID: WI-AF-3RW29-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 09:10:38 ALS Bottle#: 35 Worklist Smp#: 52
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-14-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 11:11:04 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 11:10:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	-----------	-----------	-----------	----------	-----------------	-----	-------

\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 742387 8.91 24200

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 714561 10.0 18575

* 8 13C4 PFOS

503.0 > 80.0 20.655 20.667 -0.012 1959537 28.7 33939

\$ 10 13C2 PFDA

515.0 > 470.0 21.462 21.480 -0.018 1.000 575055 9.18 18018

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_052.d

Injection Date: 16-Dec-2016 09:10:38

Instrument ID: A6

Lims ID: 320-24179-A-14-A

Lab Sample ID: 320-24179-14

Client ID: WI-AF-3RW29-1216

Operator ID: CBW

ALS Bottle#: 35

Worklist Smp#: 52

Injection Vol: 10.0 ul

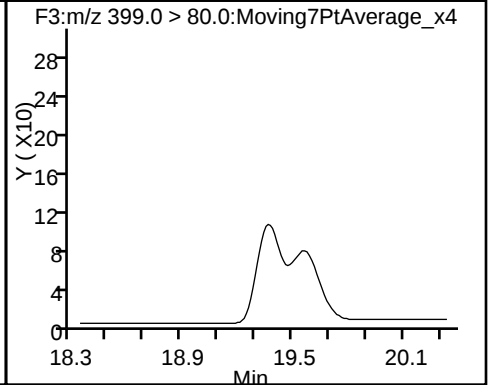
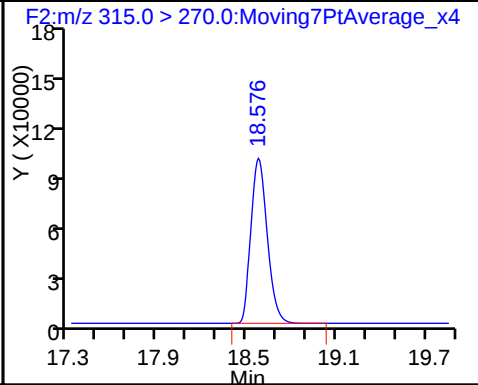
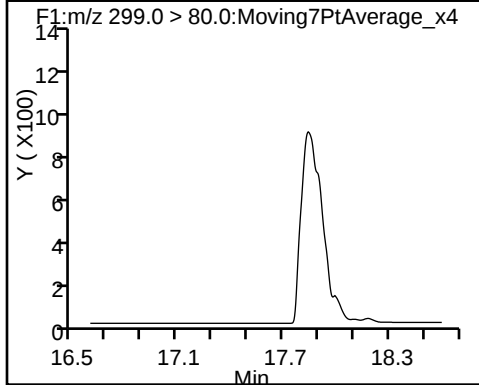
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

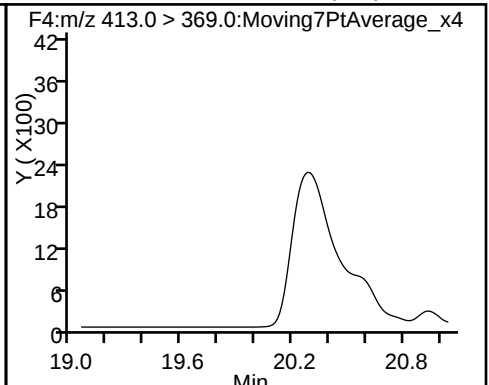
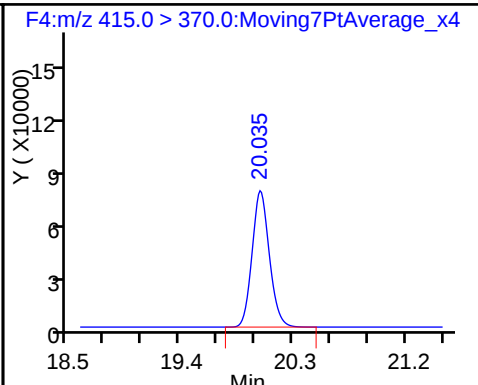
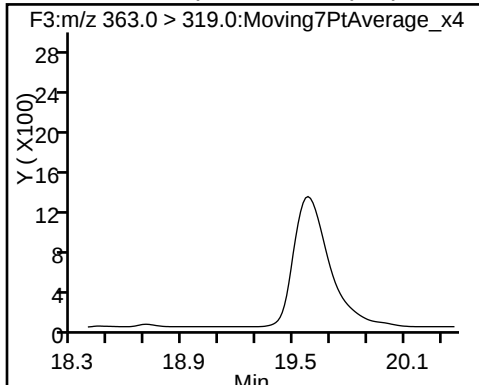
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

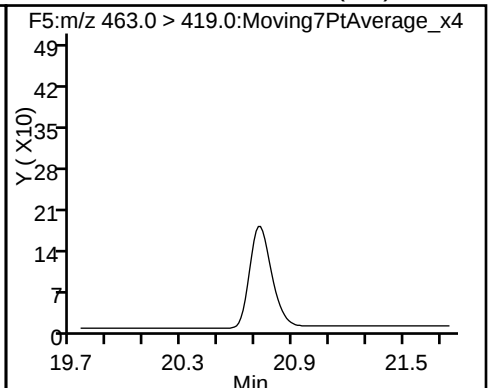
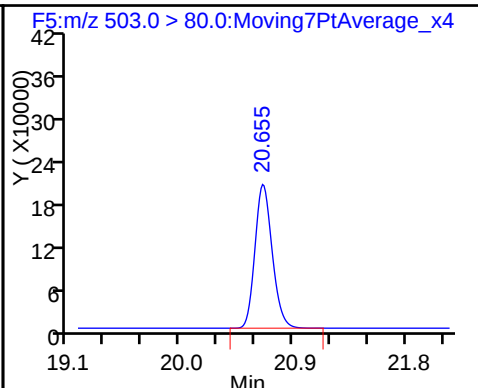
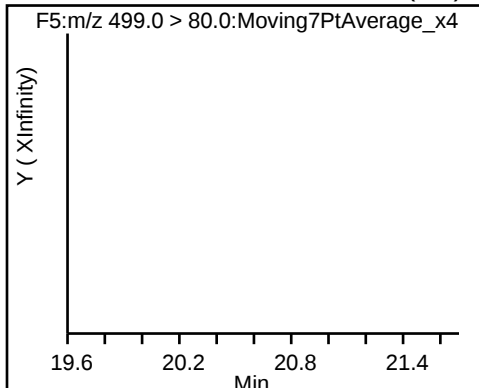
6 Perfluorooctanoic acid (ND)



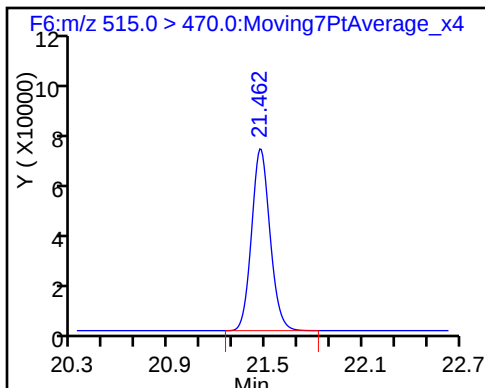
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_052.d
Lims ID: 320-24179-A-14-A
Client ID: WI-AF-3RW29-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 09:10:38 ALS Bottle#: 35 Worklist Smp#: 52
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-14-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 11:11:04 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 11:10:53

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.91	89.06
\$ 10 13C2 PFDA	10.0	9.18	91.84

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB29-1216 Lab Sample ID: 320-24179-15
 Matrix: Water Lab File ID: 15DEC2016A6A_053.d
 Analysis Method: 537 Date Collected: 12/06/2016 17:06
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 256.5 (mL) Date Analyzed: 12/16/2016 09:40
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	90		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_053.d
 Lims ID: 320-24179-A-15-A
 Client ID: WI-AF-3FB29-1216
 Sample Type: Client
 Inject. Date: 16-Dec-2016 09:40:14 ALS Bottle#: 36 Worklist Smp#: 53
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-a-15-a
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 11:11:04 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 11:11:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.576 18.585 -0.009 1.000 785648 9.16 25464

* 5 13C2-PFOA

415.0 > 370.0 20.035 20.047 -0.012 735535 10.0 19071

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.667 0.0 1989332 28.7 51685

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.480 -0.009 1.000 581258 9.02 18380

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_053.d

Injection Date: 16-Dec-2016 09:40:14

Instrument ID: A6

Lims ID: 320-24179-A-15-A

Lab Sample ID: 320-24179-15

Client ID: WI-AF-3FB29-1216

Operator ID: CBW

ALS Bottle#: 36

Worklist Smp#: 53

Injection Vol: 10.0 ul

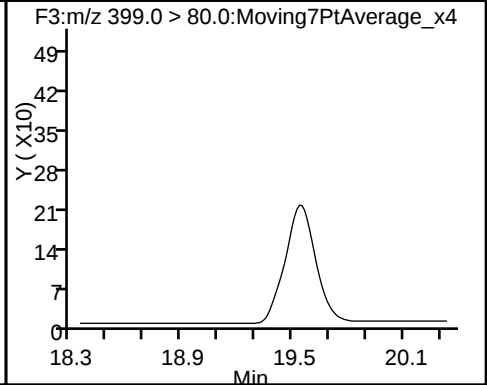
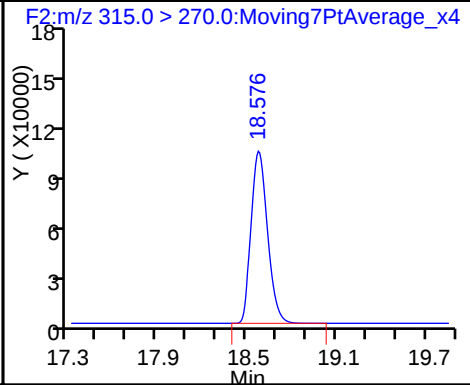
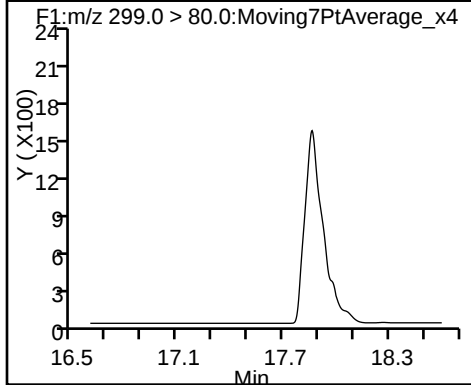
Dil. Factor: 1.0000

Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

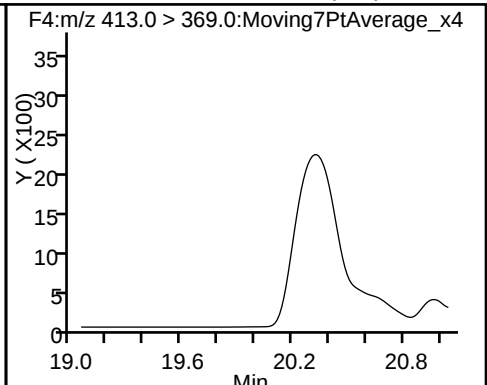
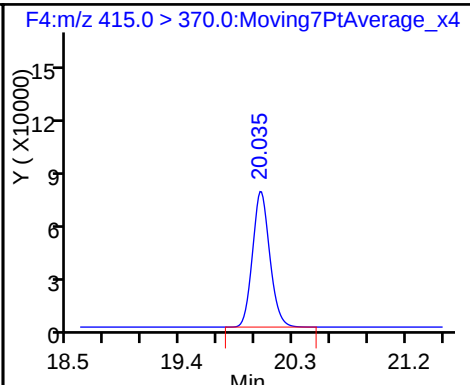
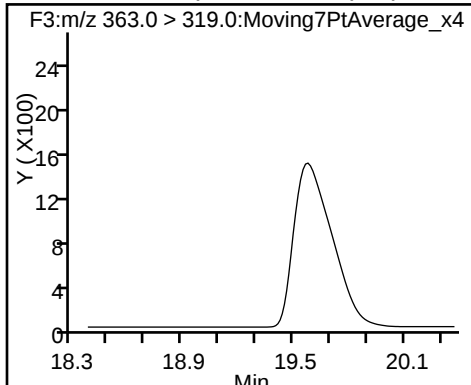
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

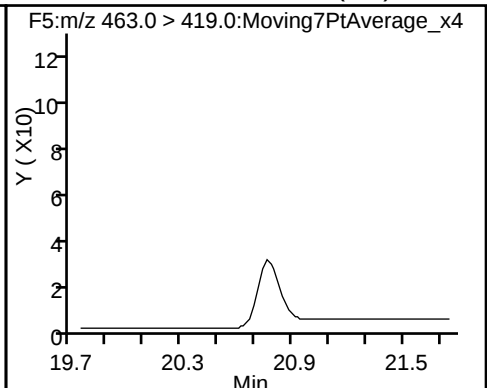
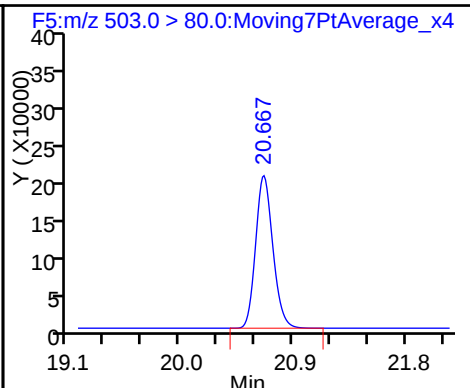
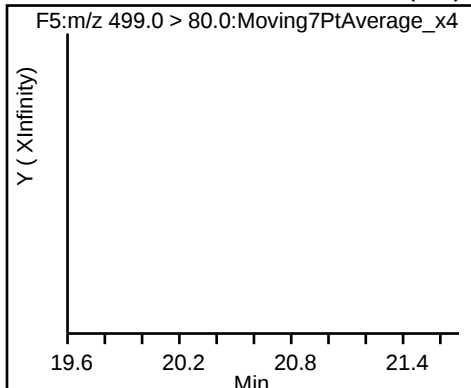
6 Perfluorooctanoic acid (ND)



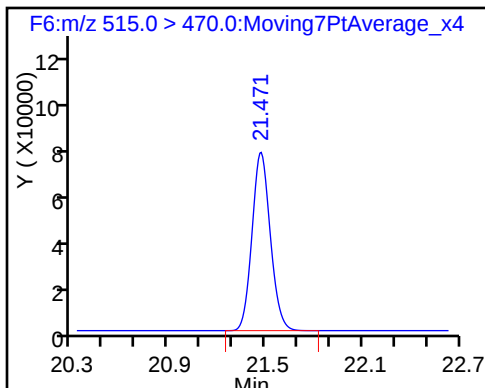
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_053.d
Lims ID: 320-24179-A-15-A
Client ID: WI-AF-3FB29-1216
Sample Type: Client
Inject. Date: 16-Dec-2016 09:40:14 ALS Bottle#: 36 Worklist Smp#: 53
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-a-15-a
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 11:11:04 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 11:11:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.16	91.57
\$ 10 13C2 PFDA	10.0	9.02	90.18

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

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1 Analy Batch No.: 140688

SDG No.: _____

Instrument ID: A6 GC Column: Acquity ID: 2.1 (mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/05/2016 17:26 Calibration End Date: 12/05/2016 19:54 Calibration ID: 26888

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_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)	0.7247 0.6563	0.6525	0.7178	0.7256	0.7321	Ave		0.7015				5.2		30.0			
Perfluorohexanesulfonic acid	0.8344 0.8930	0.7757	0.9290	0.9478	1.0082	Ave		0.8980				9.3		30.0			
Perfluoroheptanoic acid	1.4137 1.1078	1.1891	1.2161	1.1975	1.1665	Ave		1.2151				8.6		30.0			
Perfluorooctanoic acid (PFOA)	0.9720 1.0610	0.9049	1.0674	1.1235	1.1136	Ave		1.0404				8.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8855 1.0951	0.9020	1.0711	1.0966	1.2136	Ave		1.0440				12.1		30.0			
Perfluorononanoic acid	0.9735 1.1655	0.9961	1.1929	1.2321	1.2453	Ave		1.1342				10.5		30.0			
13C2 PFHxA	1.0366 1.2091	1.0515	1.1929	1.2298	1.2791	Ave		1.1665				8.5		30.0			
13C2 PFDA	0.8084 0.9456	0.7439	0.8674	0.9054	0.9868	Ave		0.8763				10.2		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.: 320-24179-1 Analy Batch No.: 140688

SDG No.: _____

Instrument ID: A6 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/05/2016 17:26 Calibration End Date: 12/05/2016 19:54 Calibration ID: 26888

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_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	437563 7753569	1227165	2489398	4401661	6630132	8.76 178	22.9	45.1	90.9	135
Perfluorohexanesulfonic acid	PFOS	Ave	169827 3556638	491809	1086082	1938237	3077974	2.95 60.1	7.72	15.2	30.6	45.4
Perfluoroheptanoic acid	13PF OA	Ave	126557 2032288	324913	658044	1121930	1727957	0.994 20.2	2.60	5.12	10.3	15.3
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	173304 3876381	492431	1150281	2096404	3285195	1.98 40.3	5.17	10.2	20.5	30.4
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	238662 5775285	757269	1658139	2969550	4906017	3.91 79.6	10.2	20.1	40.6	60.1
Perfluorononanoic acid	13PF OA	Ave	168128 4124664	525061	1245341	2227031	3558831	1.92 39.0	5.01	9.87	19.9	29.5
13C2 PFHxA	13PF OA	Ave	933751 1095977	1106485	1261522	1117585	1240474	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	728204 857144	782778	917302	822787	957025	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.: 320-24179-1 Analy Batch No.: 140688

SDG No.: _____

Instrument ID: A6 GC Column: Acquity ID: 2.1(mm) Heated Purge: (Y/N) N

Calibration Start Date: 12/05/2016 17:26 Calibration End Date: 12/05/2016 19:54 Calibration ID: 26888

Calibration Files:

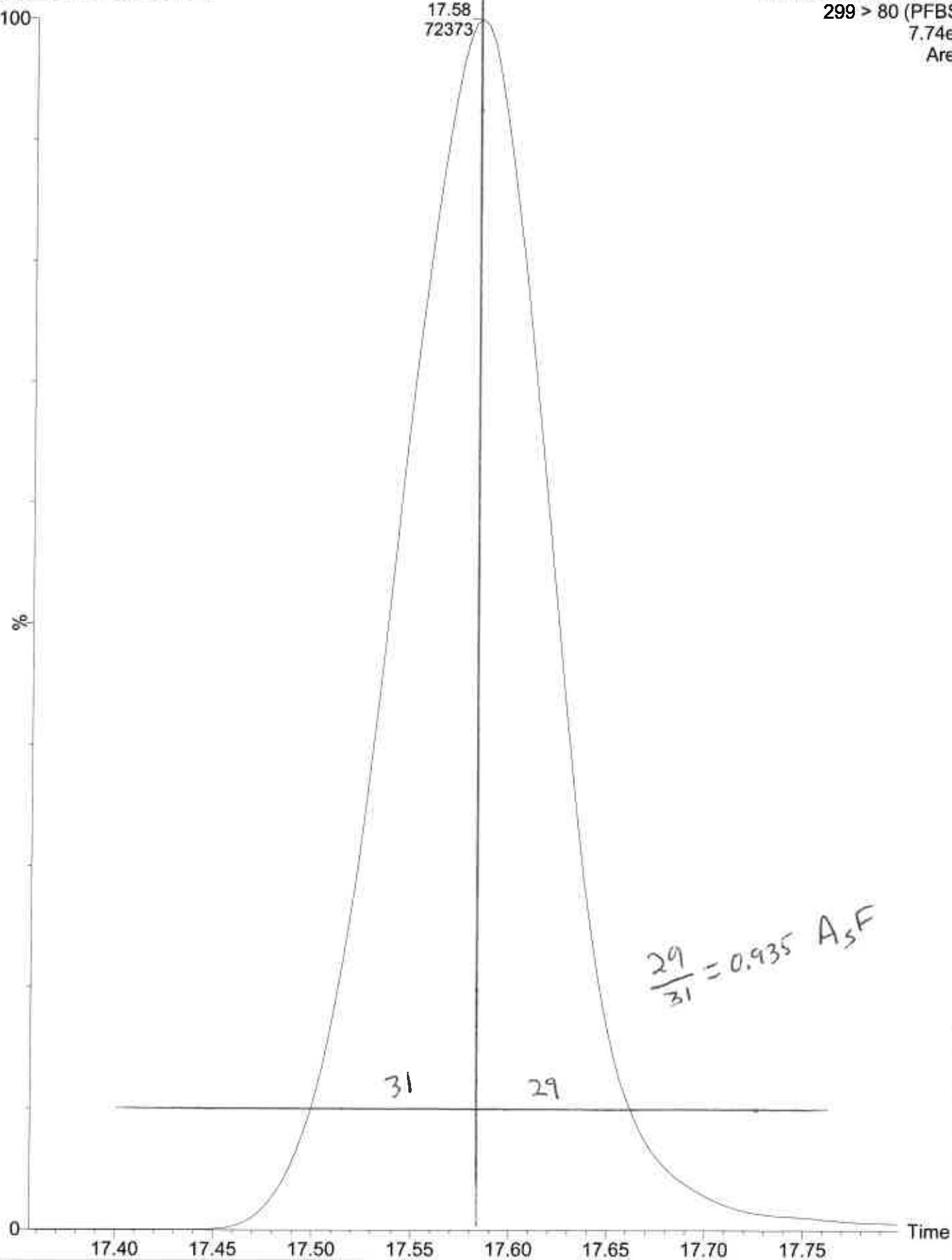
LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 320-140688/2	05DEC2016A6A_004.d
Level 2	STD 320-140688/3	05DEC2016A6A_005.d
Level 3	STD 320-140688/4	05DEC2016A6A_006.d
Level 4	STD 320-140688/5	05DEC2016A6A_007.d
Level 5	STD 320-140688/6	05DEC2016A6A_008.d
Level 6	STD 320-140688/7	05DEC2016A6A_009.d

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)	3.3	-7.0	2.3	3.4	4.4	-6.4	50	50	50	50	50	50
Perfluorohexanesulfonic acid	-7.1	-13.6	3.4	5.5	12.3	-0.6	50	50	50	50	50	50
Perfluoroheptanoic acid	16.3	-2.1	0.1	-1.5	-4.0	-8.8	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-6.6	-13.0	2.6	8.0	7.0	2.0	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-15.2	-13.6	2.6	5.0	16.2	4.9	50	50	50	50	50	50
Perfluorononanoic acid	-14.2	-12.2	5.2	8.6	9.8	2.8	50	50	50	50	50	50
13C2 PFHxA	-11.1	-9.9	2.3	5.4	9.7	3.7	30	30	30	30	30	30
13C2 PFDA	-7.7	-15.1	-1.0	3.3	12.6	7.9	30	30	30	30	30	30

L4

05DEC2016A6A_007 Sm (Mn, 2x3)

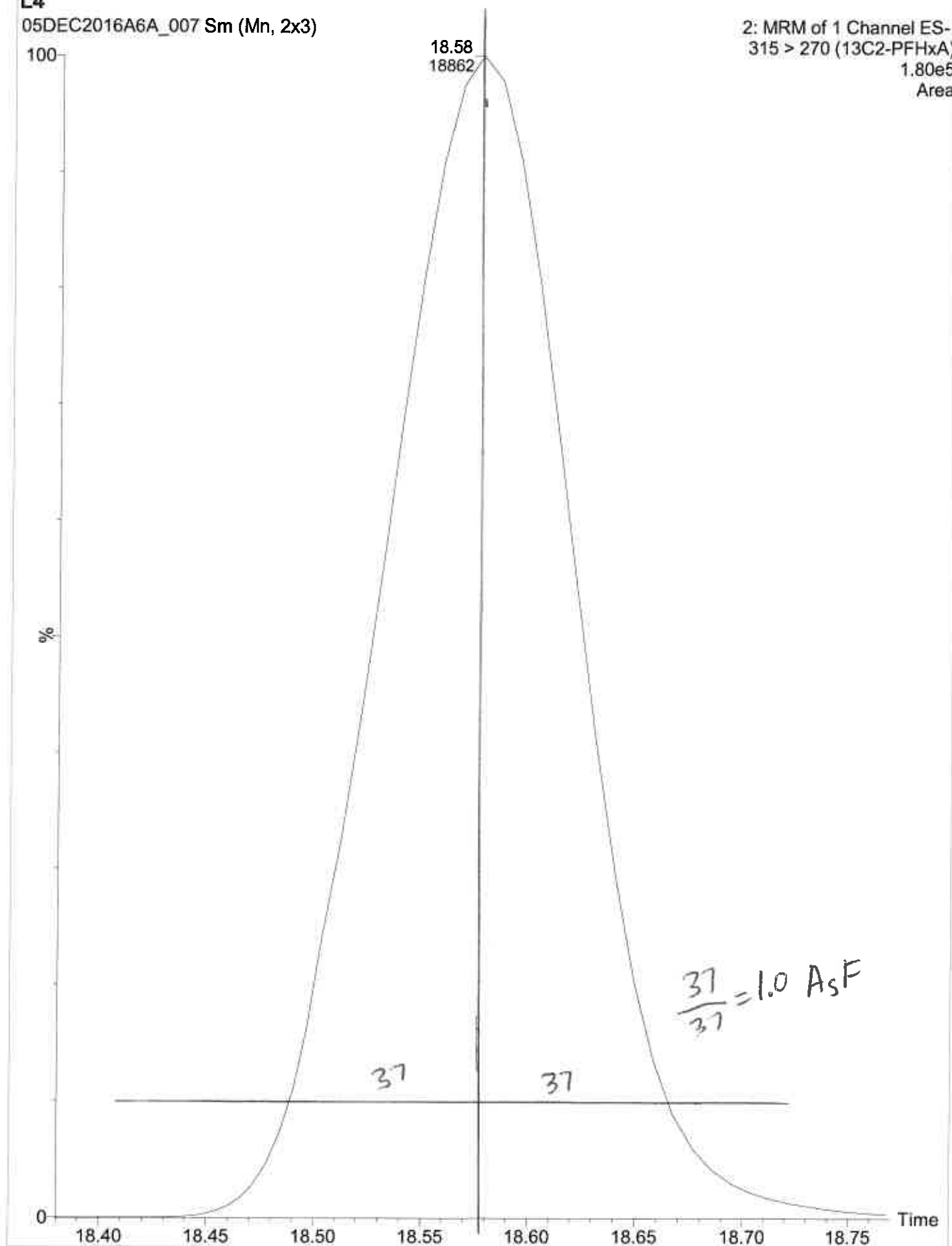
1: MRM of 1 Channel ES-
299 > 80 (PFBS)
7.74e5
Area



L4

05DEC2016A6A_007 Sm (Mn, 2x3)

2: MRM of 1 Channel ES-
315 > 270 (13C2-PFHxA)
1.80e5
Area



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_004.d
 Lims ID: STD L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 05-Dec-2016 17:26:03 ALS Bottle#: 1 Worklist Smp#: 2
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: STD L1 L1
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 06-Dec-2016 10:00:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.576	17.581	-0.005	1.000	437563	9.05	466	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.567	18.567	0.0	1.000	933751	8.89	30467	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.332	19.342	-0.010	1.000	169827	2.74	4140	
4 Perfluoroheptanoic acid								M
363.0 > 319.0	19.368	19.378	-0.010	1.000	126557	1.16	45.1	M
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		900764	10.0	23392	
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.047	20.047	0.0	1.000	173304	1.85	35.0	M
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.619	20.619	0.0	1.000	238662	3.32	2941	
* 8 13C4 PFOS								
503.0 > 80.0	20.667	20.669	-0.002		1976615	28.7	40886	
9 Perfluorononanoic acid								
463.0 > 419.0	20.738	20.748	-0.010	1.000	168128	1.65	6043	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.471	21.474	-0.003	1.000	728204	9.23	22953	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00015

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_004.d

Injection Date: 05-Dec-2016 17:26:03

Instrument ID: A6

Lims ID: STD L1

Client ID:

Operator ID: CBW

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

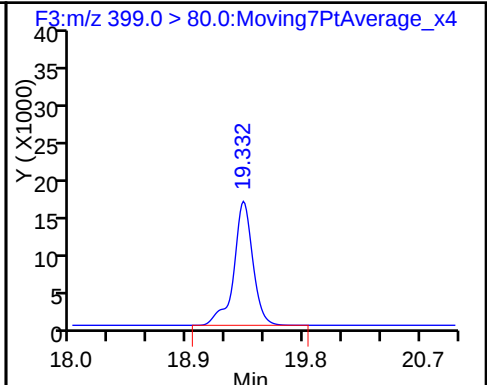
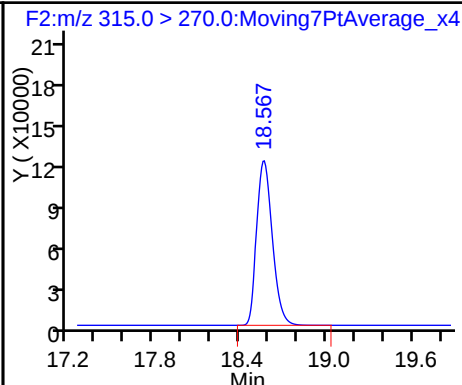
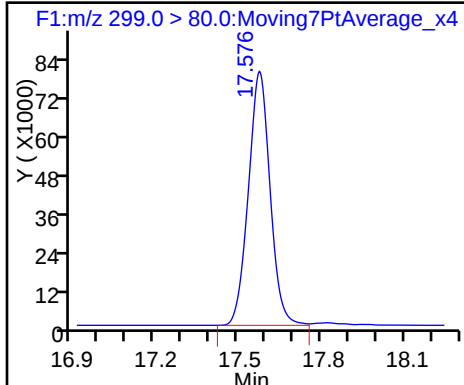
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

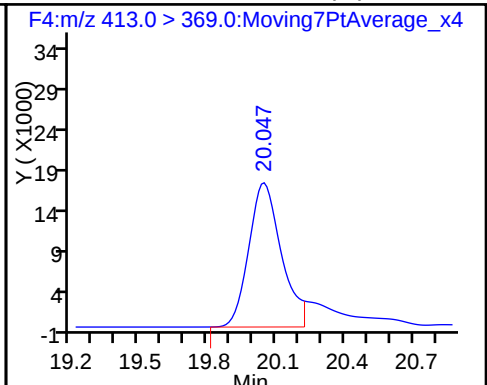
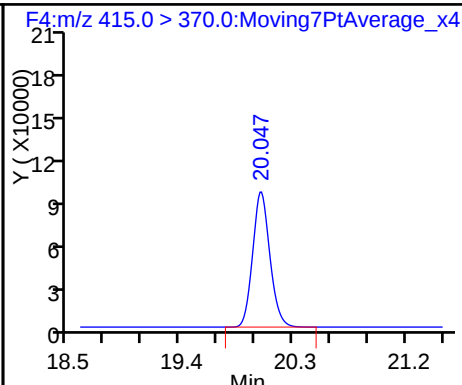
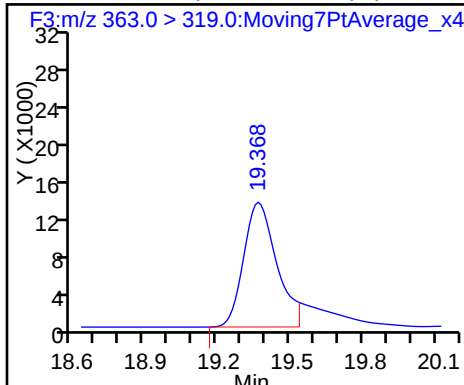
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

* 5 13C2-PFOA

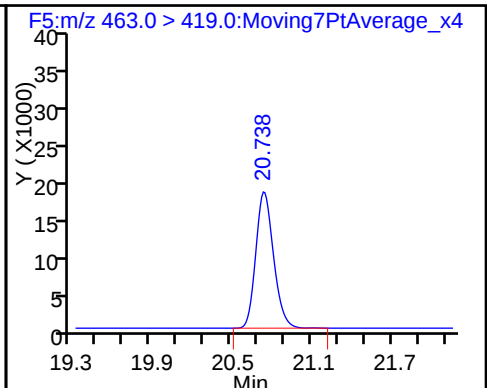
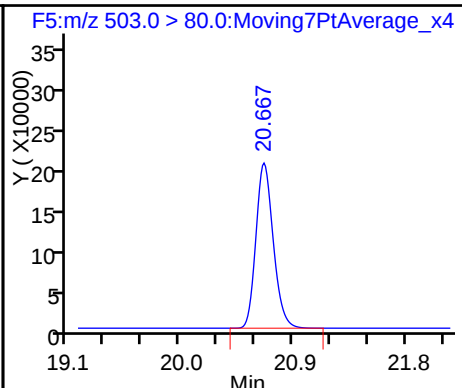
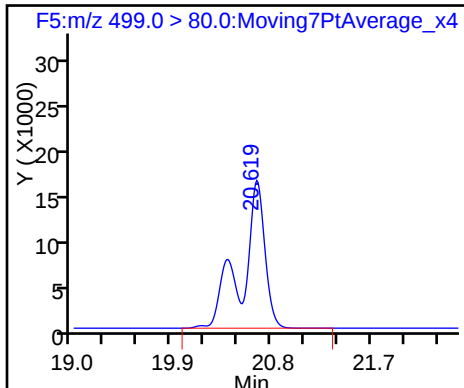
6 Perfluorooctanoic acid (M)



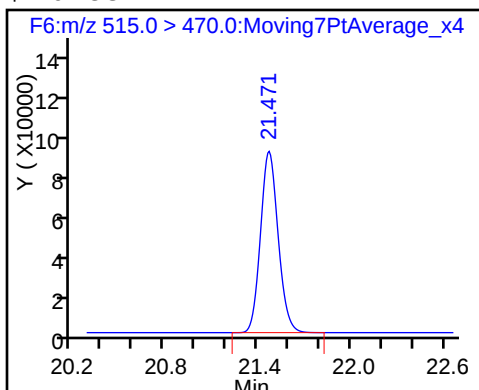
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

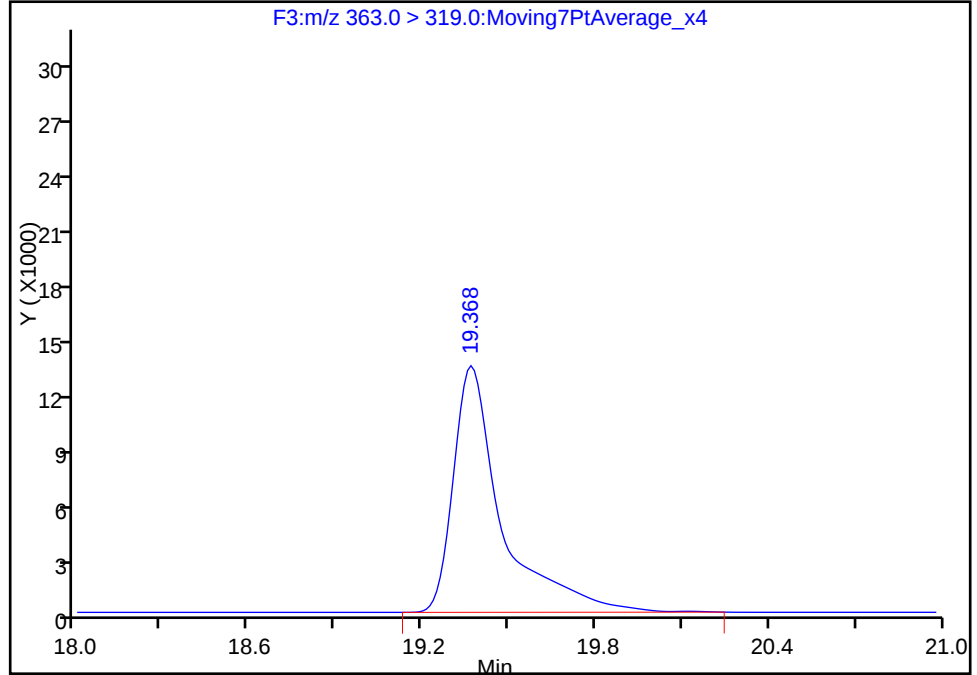
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_004.d
Injection Date: 05-Dec-2016 17:26:03 Instrument ID: A6
Lims ID: STD L1
Client ID:
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

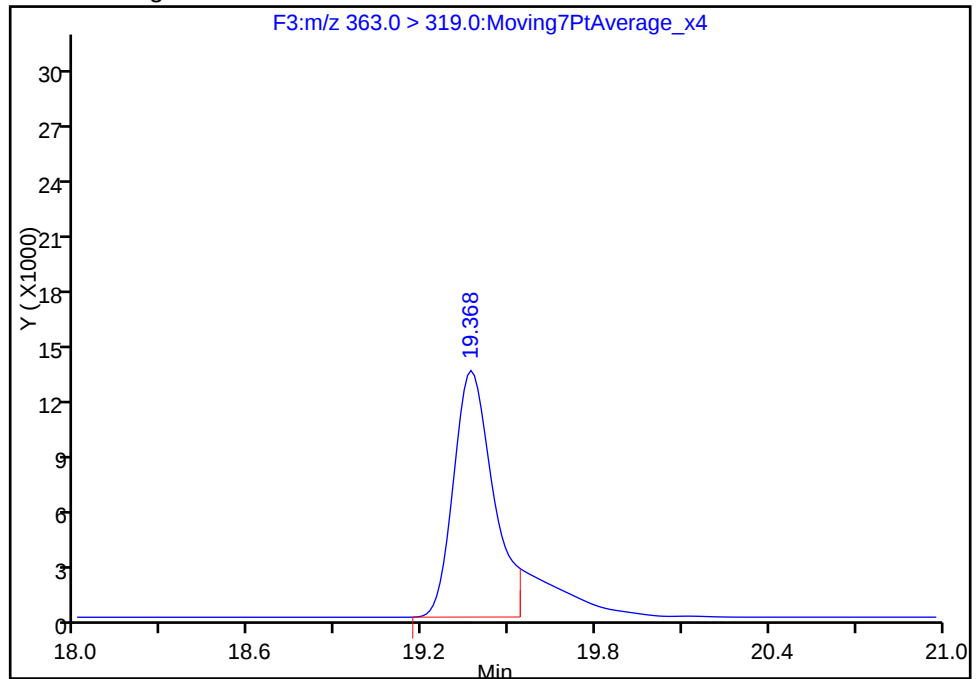
RT: 19.37
Area: 155591
Amount: 1.476072
Amount Units: ng/ml

Processing Integration Results



RT: 19.37
Area: 126557
Amount: 1.156251
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:00:02

Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

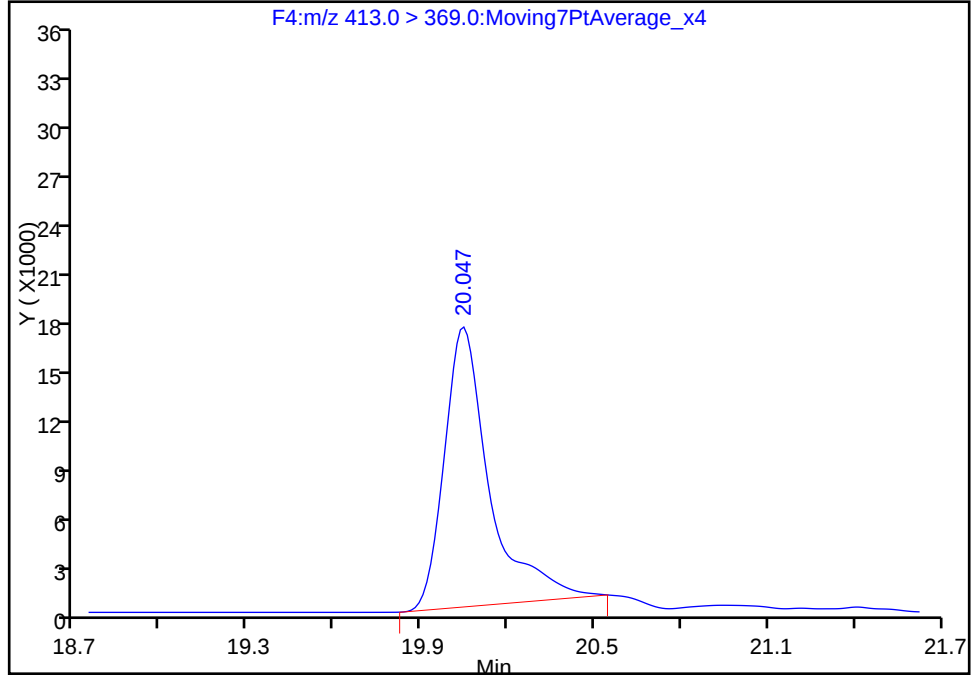
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Injection Date: 05-Dec-2016 17:26:03 Instrument ID: A6
Lims ID: STD L1
Client ID:
Operator ID: CBW ALS Bottle#: 1 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

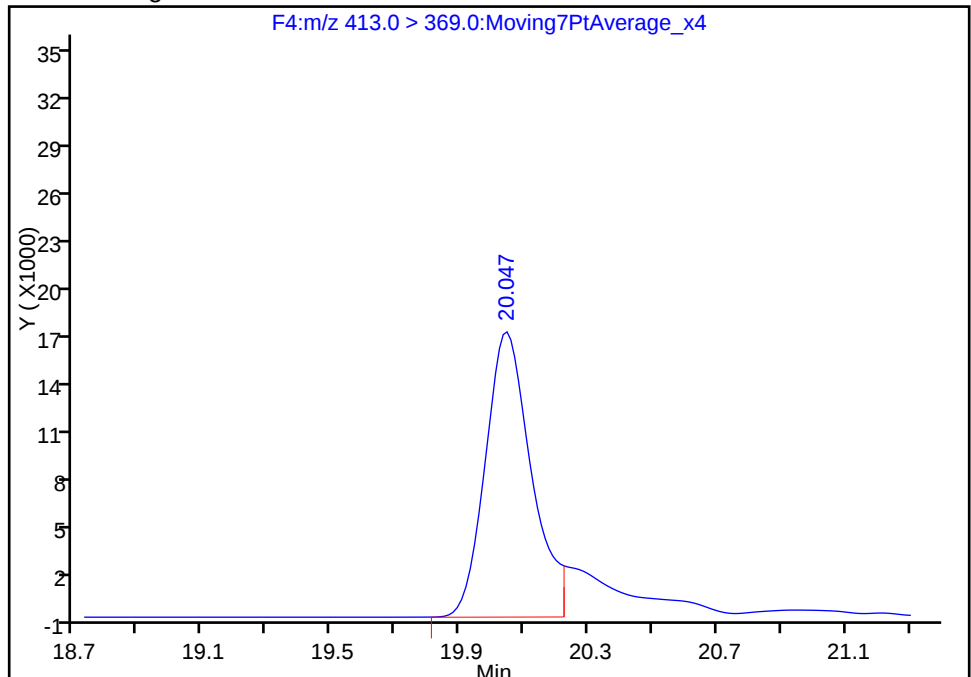
RT: 20.05
Area: 186490
Amount: 1.959453
Amount Units: ng/ml

Processing Integration Results



RT: 20.05
Area: 173304
Amount: 1.849212
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:00:02
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_005.d
 Lims ID: STD L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 05-Dec-2016 17:55:38 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: STD L2 L2
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:35 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 06-Dec-2016 09:58:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.582	17.581	0.001	1.000	1227165	21.3	5055	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.567	18.567	0.0	1.000	1106485	9.01	35678	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.344	19.342	0.002	1.000	491809	6.67	11495	
4 Perfluoroheptanoic acid								M
363.0 > 319.0	19.380	19.378	0.002	1.000	324913	2.54	155	M
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		1052273	10.0	27645	
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.047	20.047	0.0	1.000	492431	4.50	100	M
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.619	20.619	0.0	1.000	757269	8.83	8449	
* 8 13C4 PFOS								
503.0 > 80.0	20.667	20.669	-0.002		2356620	28.7	30757	
9 Perfluorononanoic acid								
463.0 > 419.0	20.750	20.748	0.002	1.000	525061	4.40	13911	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.480	21.474	0.006	1.000	782778	8.49	24678	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00014

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_005.d

Injection Date: 05-Dec-2016 17:55:38

Instrument ID: A6

Lims ID: STD L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

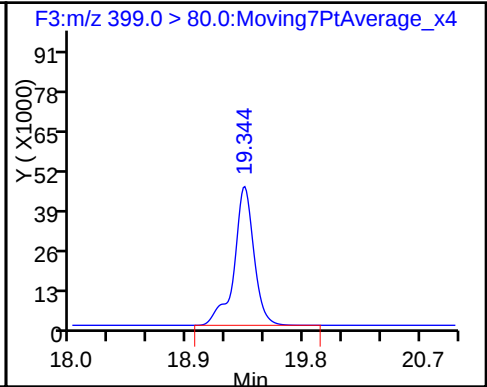
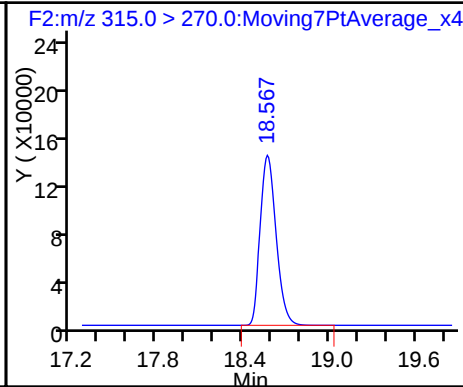
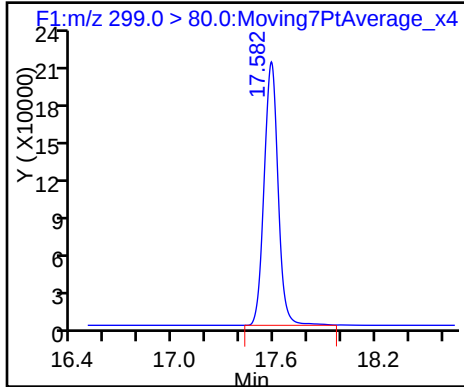
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

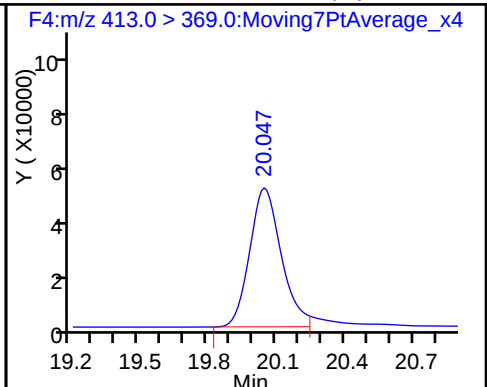
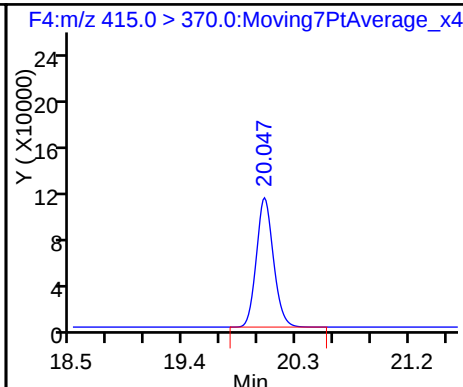
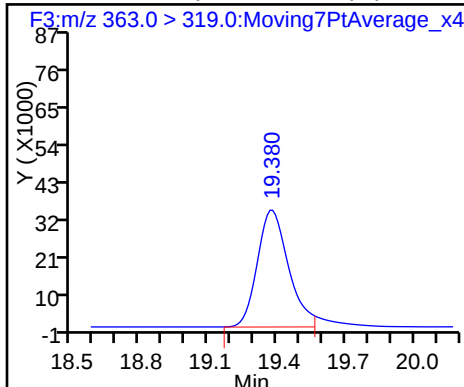
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

* 5 13C2-PFOA

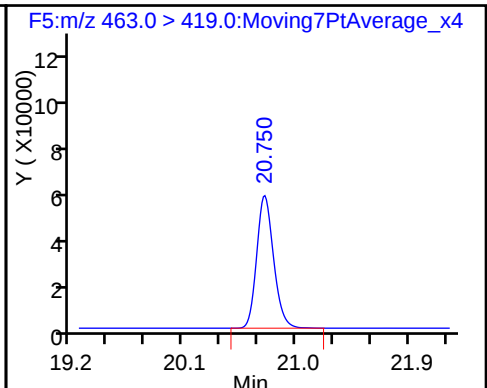
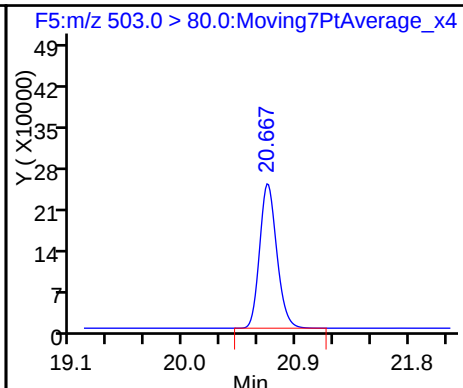
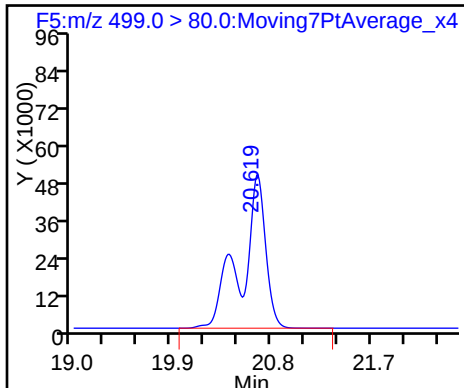
6 Perfluorooctanoic acid (M)



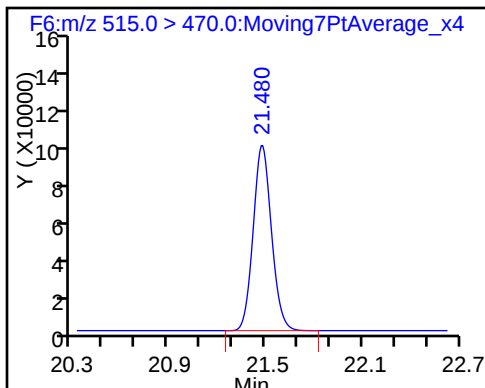
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

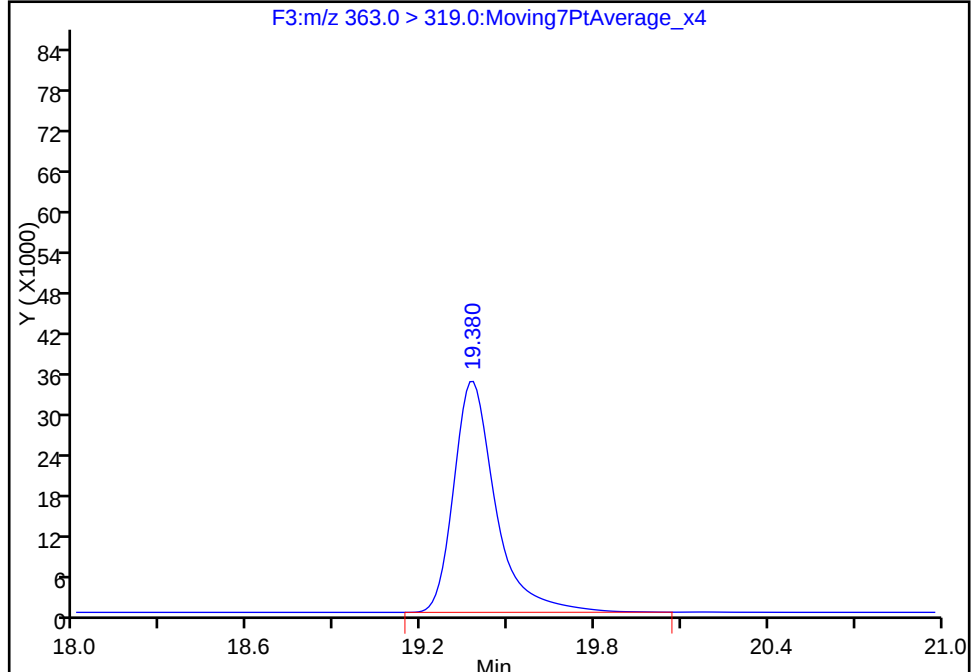
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Injection Date: 05-Dec-2016 17:55:38 Instrument ID: A6
Lims ID: STD L2
Client ID:
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

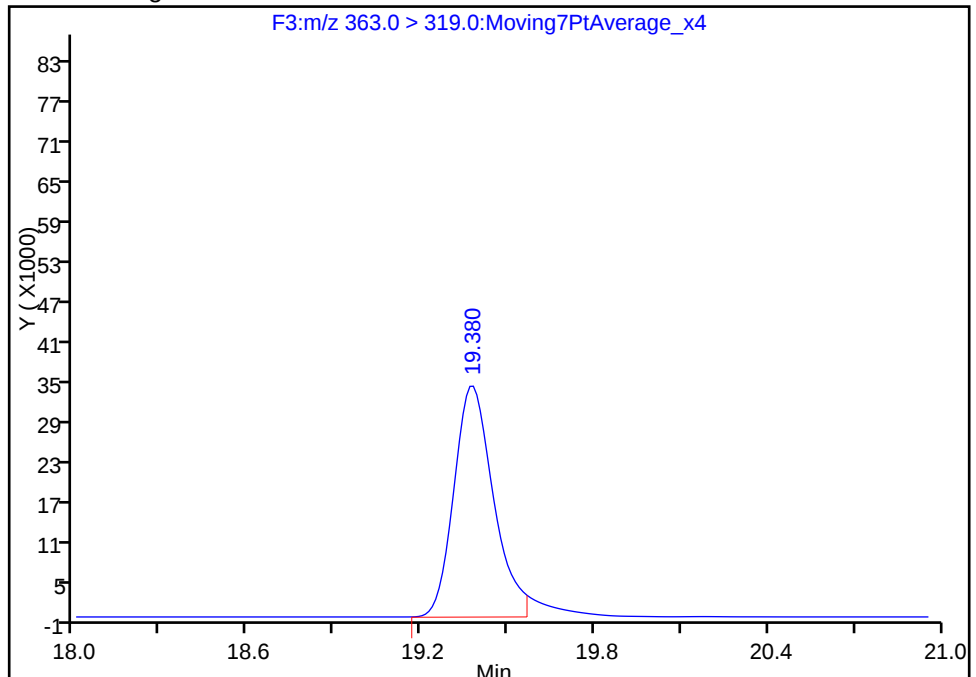
RT: 19.38
Area: 344811
Amount: 2.670013
Amount Units: ng/ml

Processing Integration Results



RT: 19.38
Area: 324913
Amount: 2.541065
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:03:30
Audit Action: Manually Integrated

Audit Reason: Split Peak
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12/19/2016

TestAmerica Sacramento

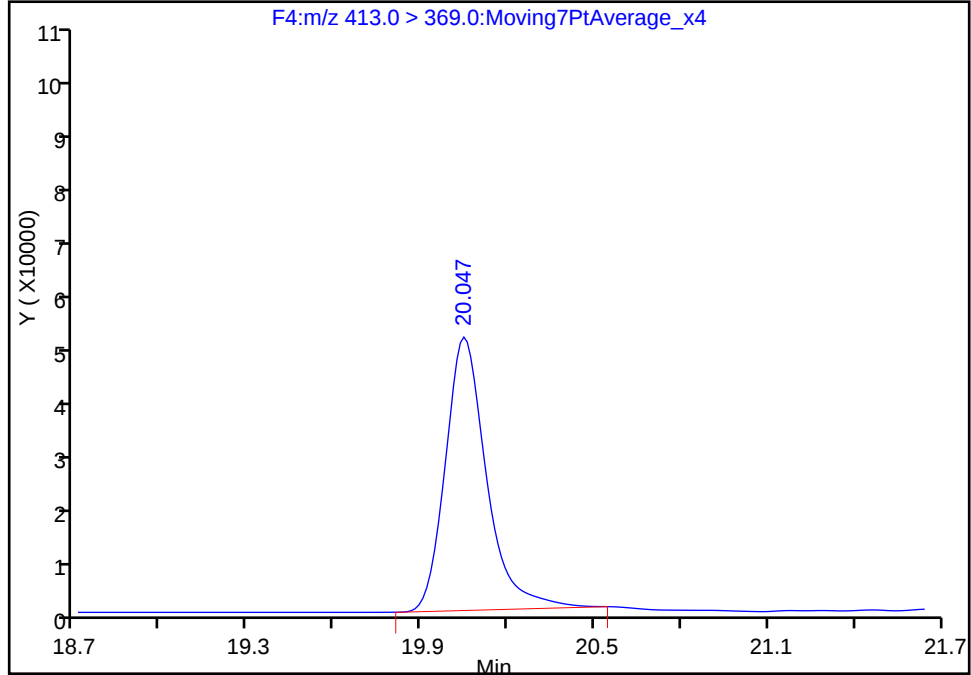
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_005.d
Injection Date: 05-Dec-2016 17:55:38 Instrument ID: A6
Lims ID: STD L2
Client ID:
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 3
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

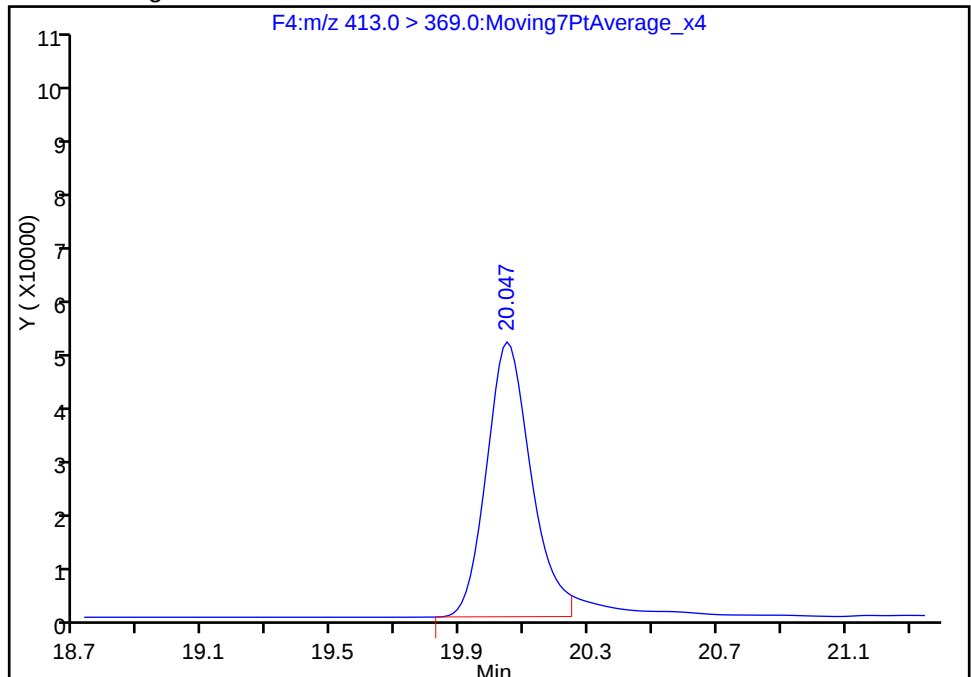
RT: 20.05
Area: 504990
Amount: 4.595586
Amount Units: ng/ml

Processing Integration Results



RT: 20.05
Area: 492431
Amount: 4.497863
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:03:30
Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_006.d
 Lims ID: STD L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 05-Dec-2016 18:25:13 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: STD L3 L3
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:36 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 06-Dec-2016 09:58:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.582 17.581 0.001 1.000 2489398 46.2 1804
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.567 18.567 0.0 1.000 1261522 10.2 40506
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.342 0.002 1.000 1086082 15.7 25400
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.380 19.378 0.002 1.000 658044 5.12 4774
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.047 0.0 1057506 10.0 27287
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.047 20.047 0.0 1.000 1150281 10.5 429
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 1658139 20.7 19019
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.669 -0.002 2205243 28.7 57142
 9 Perfluorononanoic acid
 463.0 > 419.0 20.750 20.748 0.002 1.000 1245341 10.4 13210
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.471 21.474 -0.003 1.000 917302 9.90 28753

Reagents:

LC537-L3_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_006.d

Injection Date: 05-Dec-2016 18:25:13

Instrument ID: A6

Lims ID: STD L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

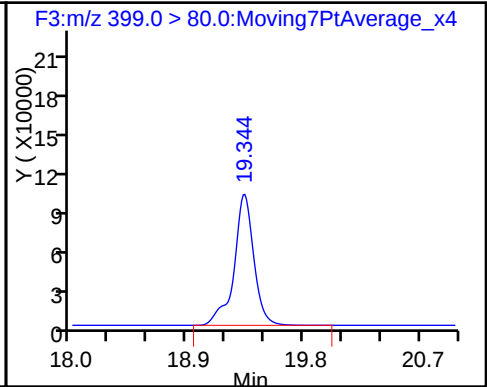
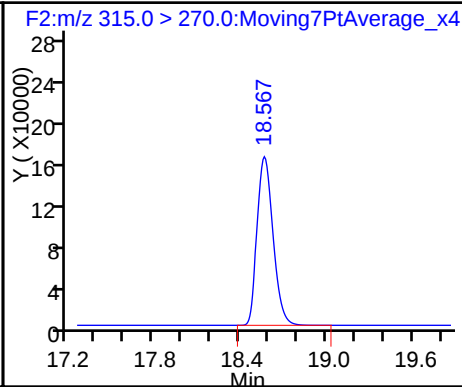
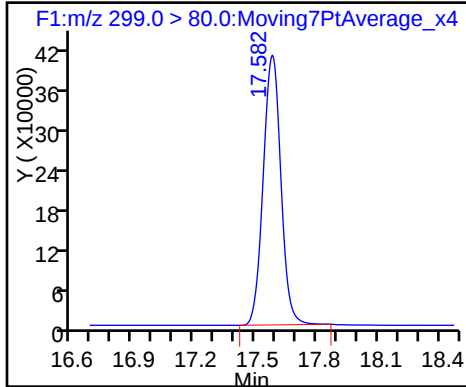
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

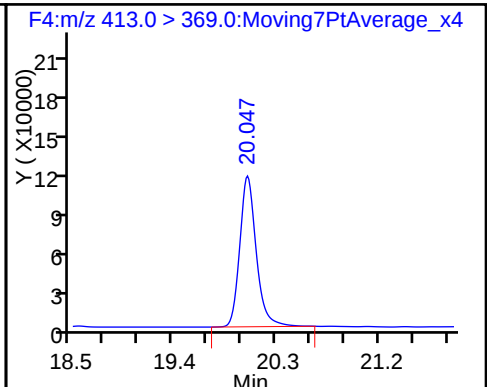
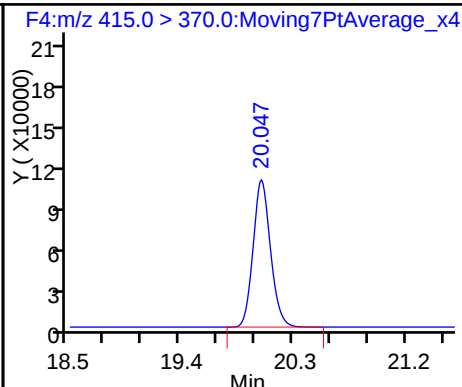
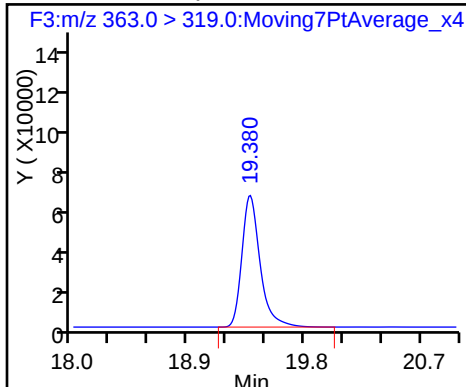
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

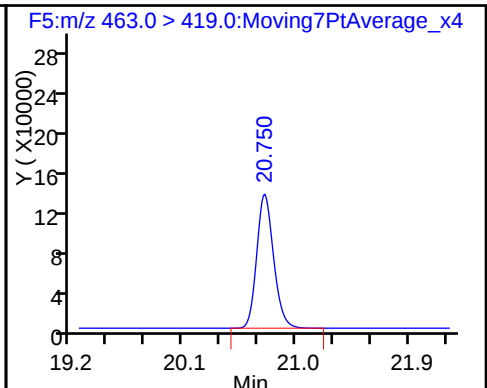
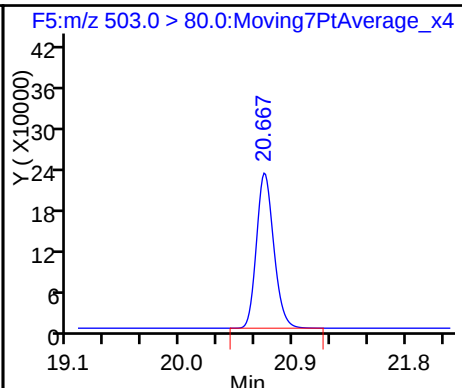
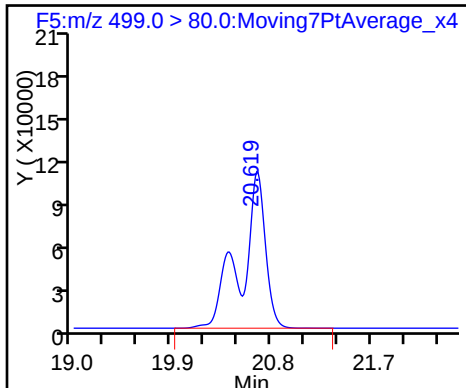
6 Perfluorooctanoic acid



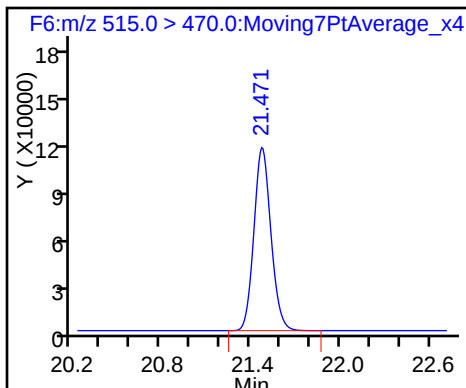
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_007.d
 Lims ID: STD L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 05-Dec-2016 18:54:48 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: STD L4 L4
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:37 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 13:43:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.579 17.581 -0.002 1.000 4401661 94.0 2768
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.567 18.567 0.0 1.000 1117585 10.5 28676
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.342 0.002 1.000 1938237 32.3 25196
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.380 19.378 0.002 1.000 1121930 10.2 12796
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.047 0.0 908727 10.0 23744
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.047 20.047 0.0 1.000 2096404 22.2 516
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 2969550 42.6 9704
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.669 -0.002 1914415 28.7 28032
 9 Perfluorononanoic acid
 463.0 > 419.0 20.750 20.748 0.002 1.000 2227031 21.6 23494
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.471 21.474 -0.003 1.000 822787 10.3 25796

Reagents:

LC537-L4_00015 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_007.d

Injection Date: 05-Dec-2016 18:54:48

Instrument ID: A6

Lims ID: STD L4

Client ID:

Operator ID: CBW

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

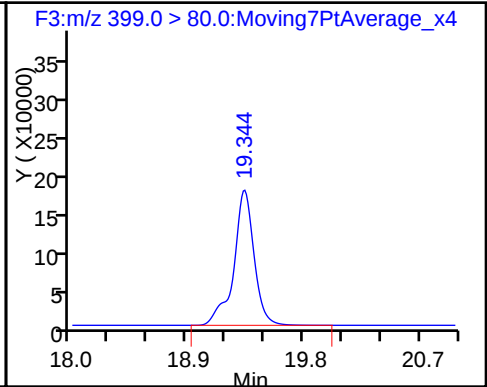
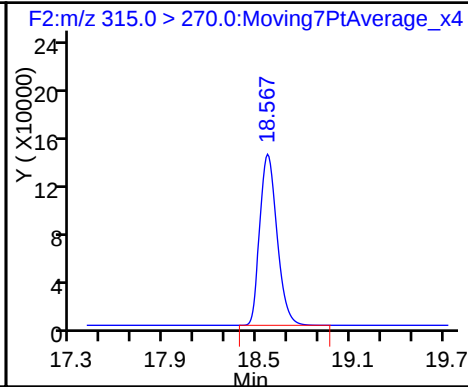
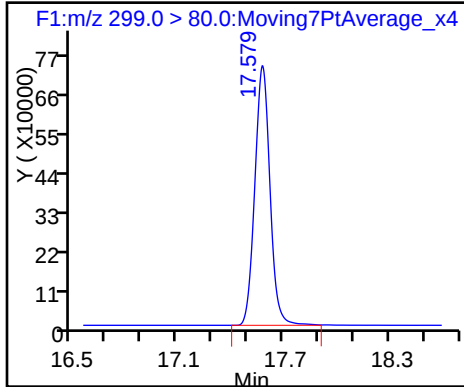
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

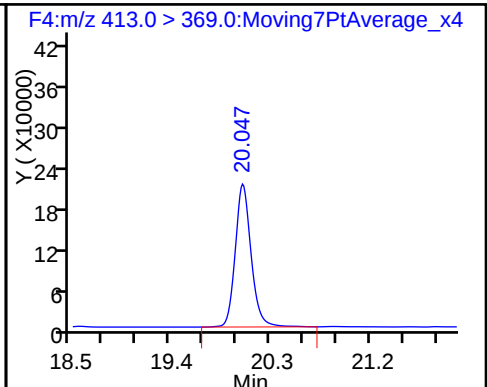
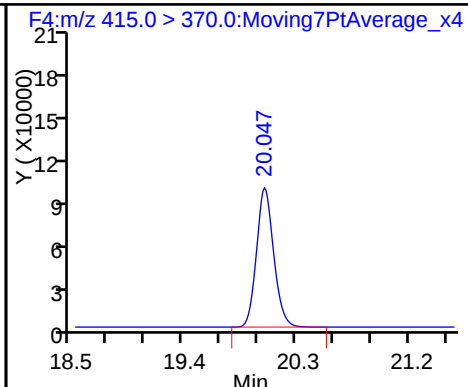
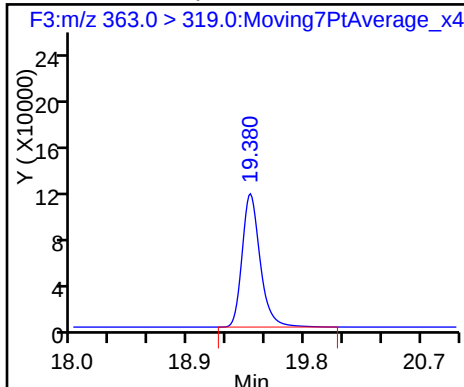
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

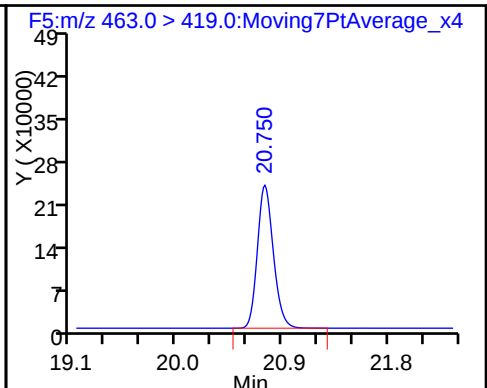
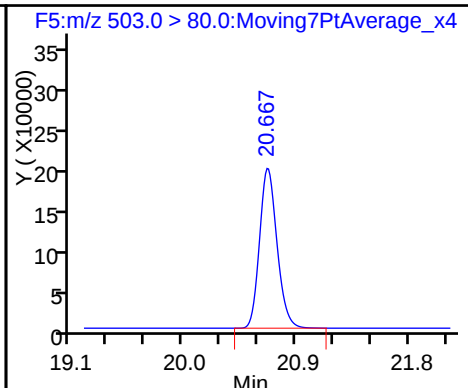
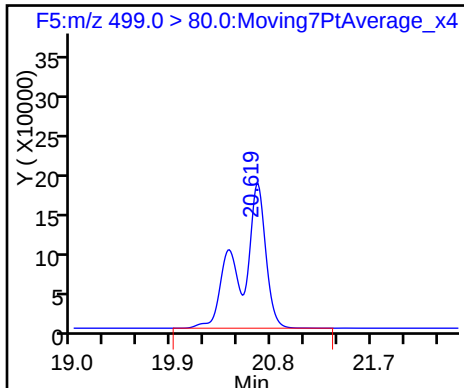
6 Perfluorooctanoic acid



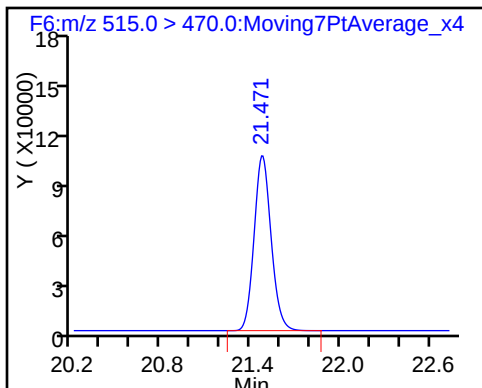
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_008.d
 Lims ID: STD L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 05-Dec-2016 19:24:23 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: STD L5 L5
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:38 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.582	17.581	0.001	1.000	6630132	140.5	3208	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.567	18.567	0.0	1.000	1240474	11.0	39454	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.344	19.342	0.002	1.000	3077974	51.0	14553	
4 Perfluoroheptanoic acid								
363.0 > 319.0	19.380	19.378	0.002	1.000	1727957	14.7	6886	
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		969779	10.0	24964	
6 Perfluorooctanoic acid								
413.0 > 369.0	20.047	20.047	0.0	1.000	3285195	32.6	1114	
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.620	20.619	0.001	1.000	4906017	69.9	10146	
* 8 13C4 PFOS								
503.0 > 80.0	20.679	20.669	0.010		1929192	28.7	32805	
9 Perfluorononanoic acid								
463.0 > 419.0	20.750	20.748	0.002	1.000	3558831	32.4	16307	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.480	21.474	0.006	1.000	957025	11.3	30231	

Reagents:

LC537-L5_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_008.d

Injection Date: 05-Dec-2016 19:24:23

Instrument ID: A6

Lims ID: STD L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

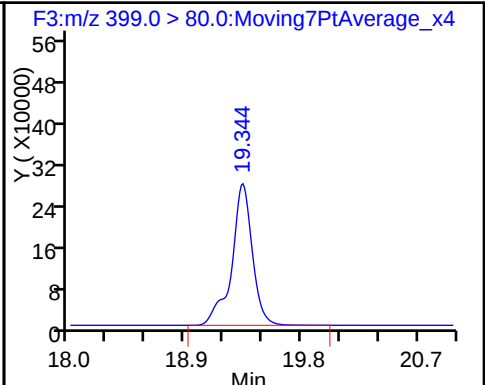
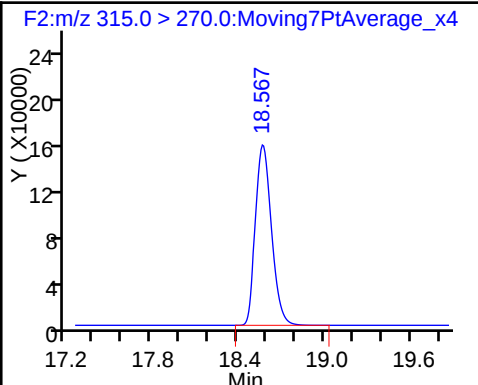
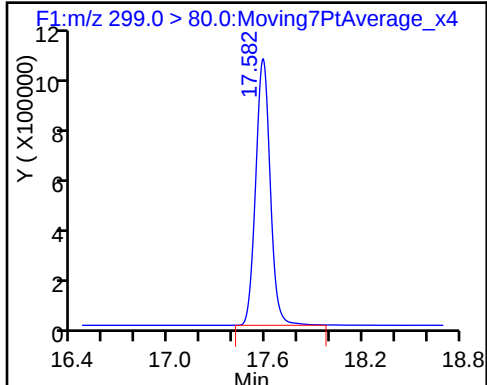
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

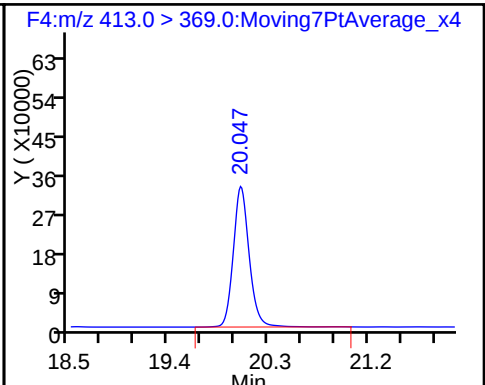
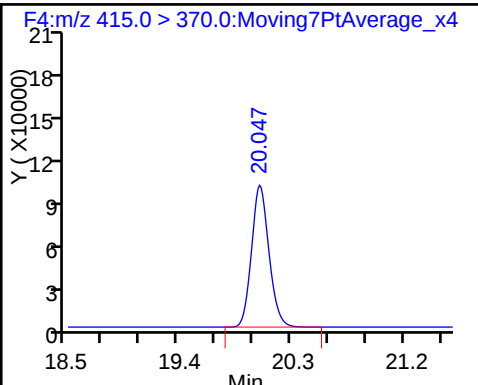
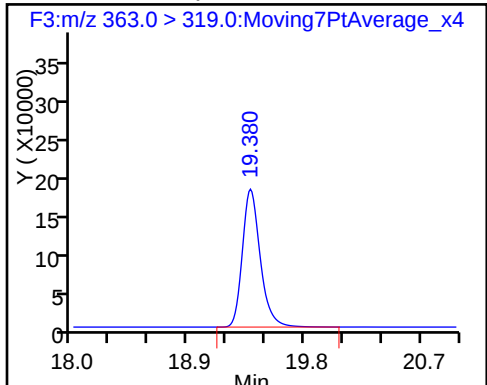
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

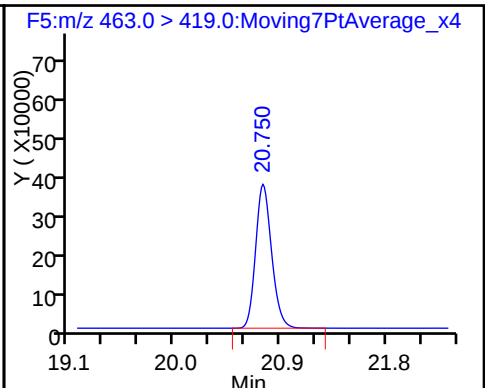
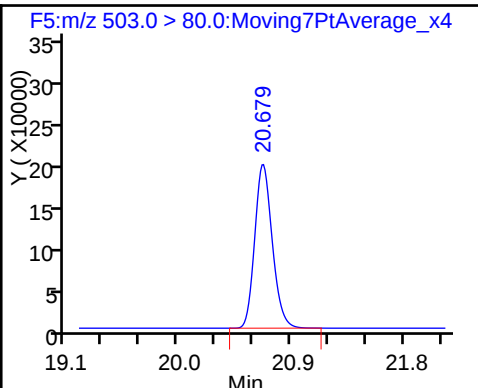
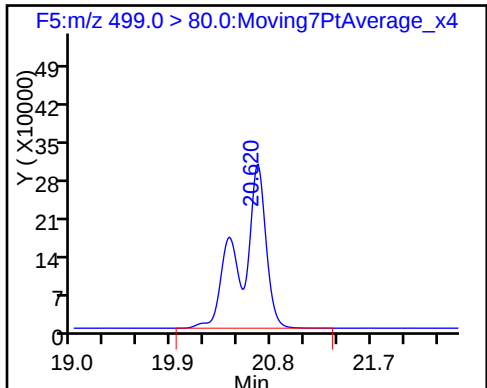
6 Perfluorooctanoic acid



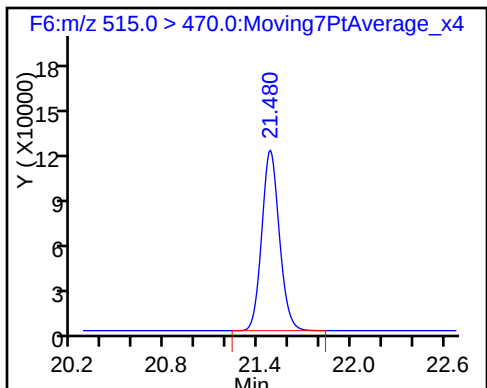
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Lims ID: STD L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 05-Dec-2016 19:54:00 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: STD L6 L6
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:39 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	-----------	-----------	-----------	----------	-----------------	-----	-------

1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.582	17.581	0.001	1.000	7753569	166.9	8570	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.567	18.567	0.0	1.000	1095977	10.4	34796	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.344	19.342	0.002	1.000	3556638	59.8	31299	
4 Perfluoroheptanoic acid								
363.0 > 319.0	19.380	19.378	0.002	1.000	2032288	18.5	6367	
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		906416	10.0	23083	
6 Perfluorooctanoic acid								
413.0 > 369.0	20.047	20.047	0.0	1.000	3876381	41.1	917	
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.619	20.619	0.0	1.000	5775285	83.5	12991	
* 8 13C4 PFOS								
503.0 > 80.0	20.667	20.669	-0.002		1899408	28.7	17628	
9 Perfluorononanoic acid								
463.0 > 419.0	20.750	20.748	0.002	1.000	4124664	40.1	17939	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.471	21.474	-0.003	1.000	857144	10.8	26862	

Reagents:

LC537-L6_00014

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d

Injection Date: 05-Dec-2016 19:54:00

Instrument ID: A6

Lims ID: STD L6

Client ID:

Operator ID: CBW

ALS Bottle#: 6

Worklist Smp#: 7

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

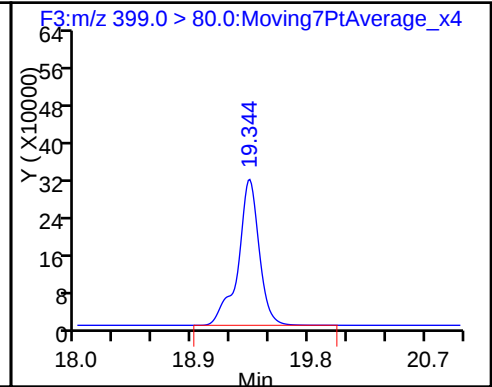
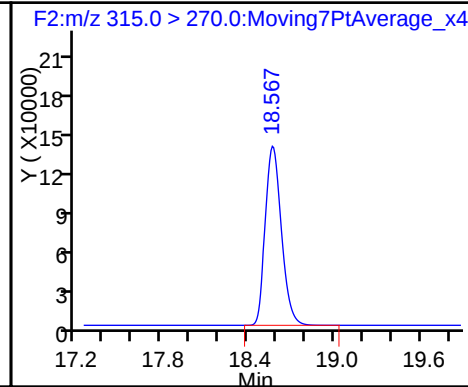
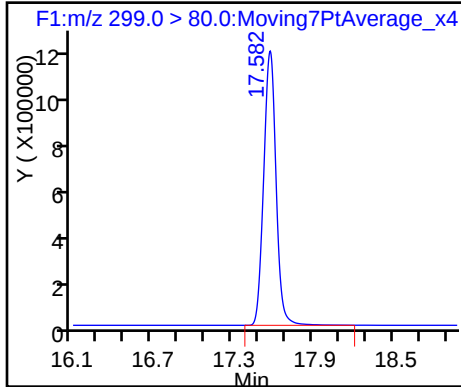
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

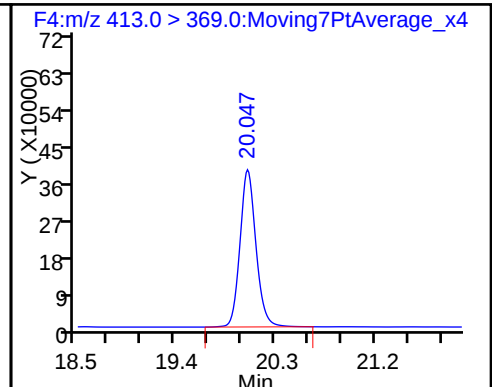
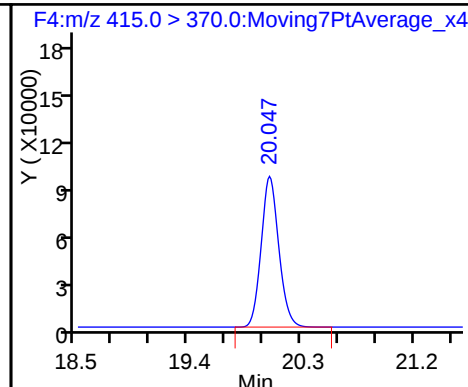
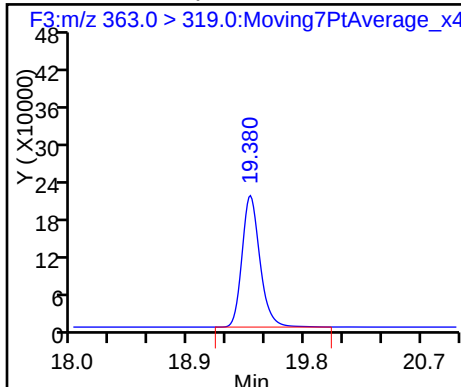
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

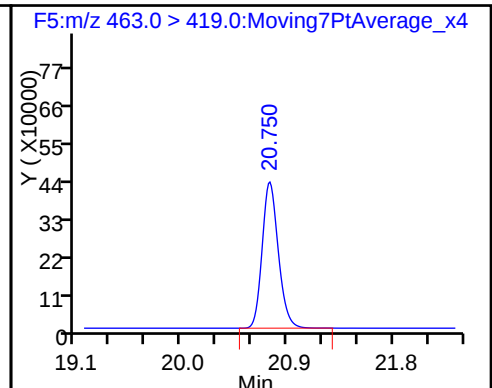
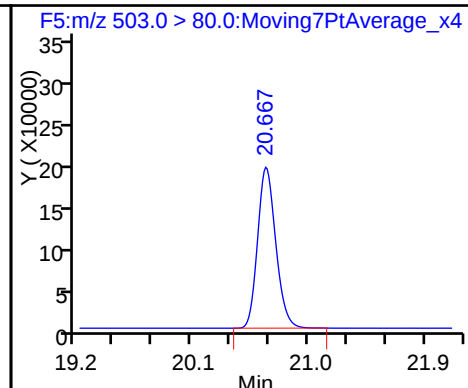
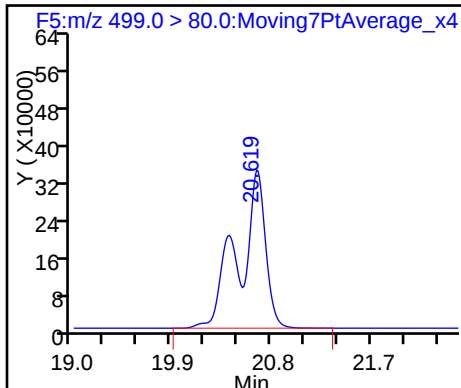
6 Perfluorooctanoic acid



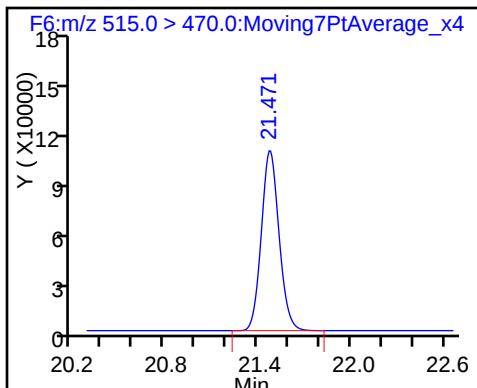
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-140688/9 Calibration Date: 12/05/2016 20:53
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 05DEC2016A6A_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	0.7015	0.6306		20.6	22.9	-10.1	50.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.7822		6.72	7.72	-12.9	50.0
Perfluoroheptanoic acid	Ave	1.215	1.239		2.65	2.60	1.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	0.9133		4.54	5.17	-12.2	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	0.8902		8.71	10.2	-14.7	50.0
Perfluorononanoic acid	Ave	1.134	1.093		4.83	5.01	-3.6	50.0
13C2 PFHxA	Ave	1.167	1.081		9.27	10.0	-7.3	30.0
13C2 PFDA	Ave	0.8763	0.8211		9.37	10.0	-6.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_011.d
 Lims ID: CCV L2
 Client ID:
 Sample Type: CCVL
 Inject. Date: 05-Dec-2016 20:53:12 ALS Bottle#: 2 Worklist Smp#: 9
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2 CCV L2
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:35:40 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 06-Dec-2016 10:08:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.586	17.581	0.005	1.000	1186753	20.6	693	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.567	18.567	0.0	1.000	1108698	9.27	35970	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.344	19.342	0.002	1.000	496197	6.72	11535	
4 Perfluoroheptanoic acid								M
363.0 > 319.0	19.380	19.378	0.002	1.000	329772	2.65	166	M
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		1025187	10.0	21492	
6 Perfluorooctanoic acid								M
413.0 > 369.0	20.047	20.047	0.0	1.000	484196	4.54	93.2	M
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.619	20.619	0.0	1.000	747766	8.71	8549	
* 8 13C4 PFOS								
503.0 > 80.0	20.667	20.669	-0.002		2358079	28.7	20478	
9 Perfluorononanoic acid								
463.0 > 419.0	20.750	20.748	0.002	1.000	561371	4.83	15032	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.471	21.474	-0.003	1.000	841818	9.37	26813	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00014

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_011.d

Injection Date: 05-Dec-2016 20:53:12

Instrument ID: A6

Lims ID: CCV L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 9

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

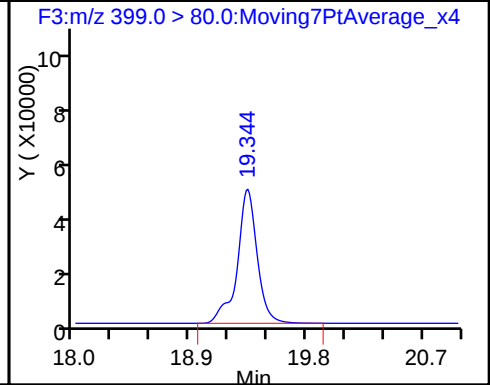
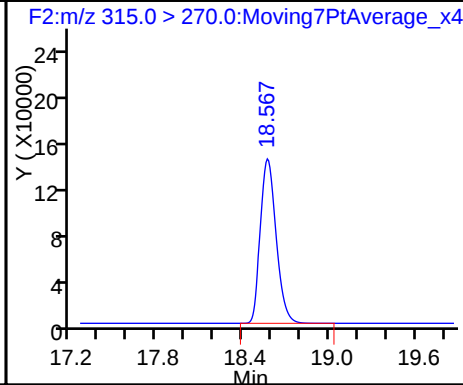
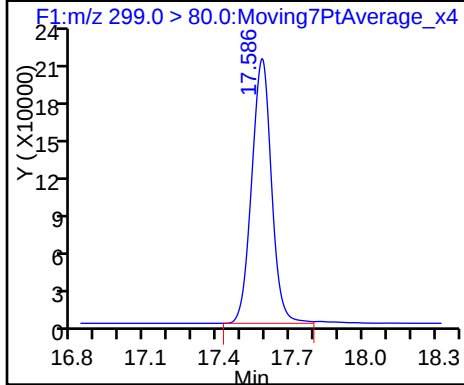
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

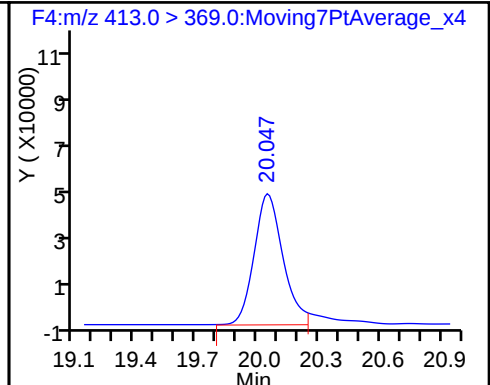
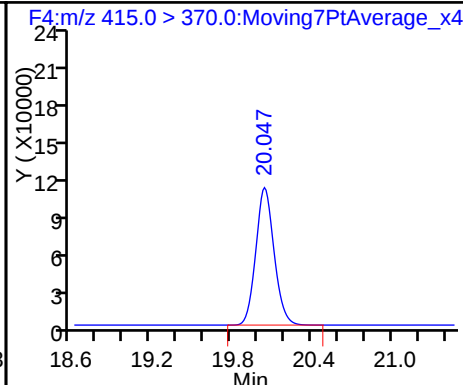
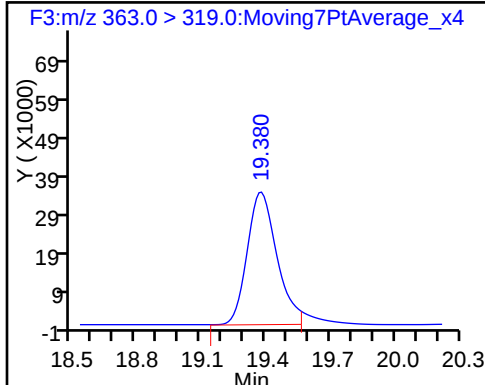
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

* 5 13C2-PFOA

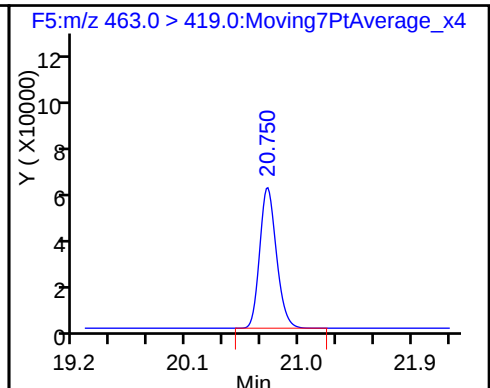
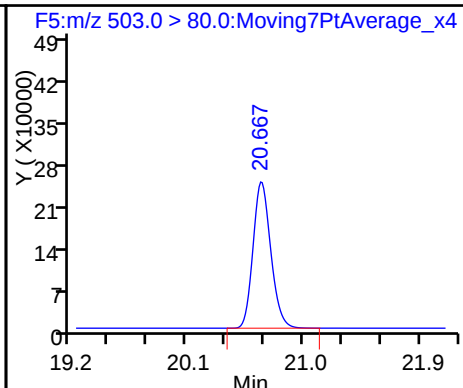
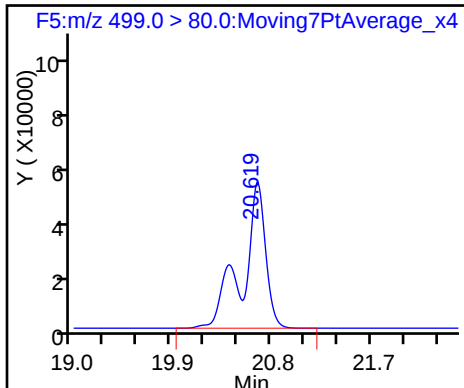
6 Perfluorooctanoic acid (M)



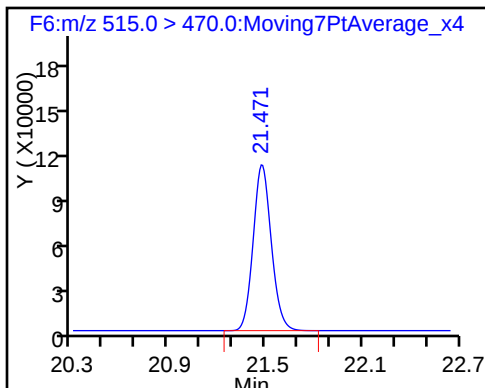
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

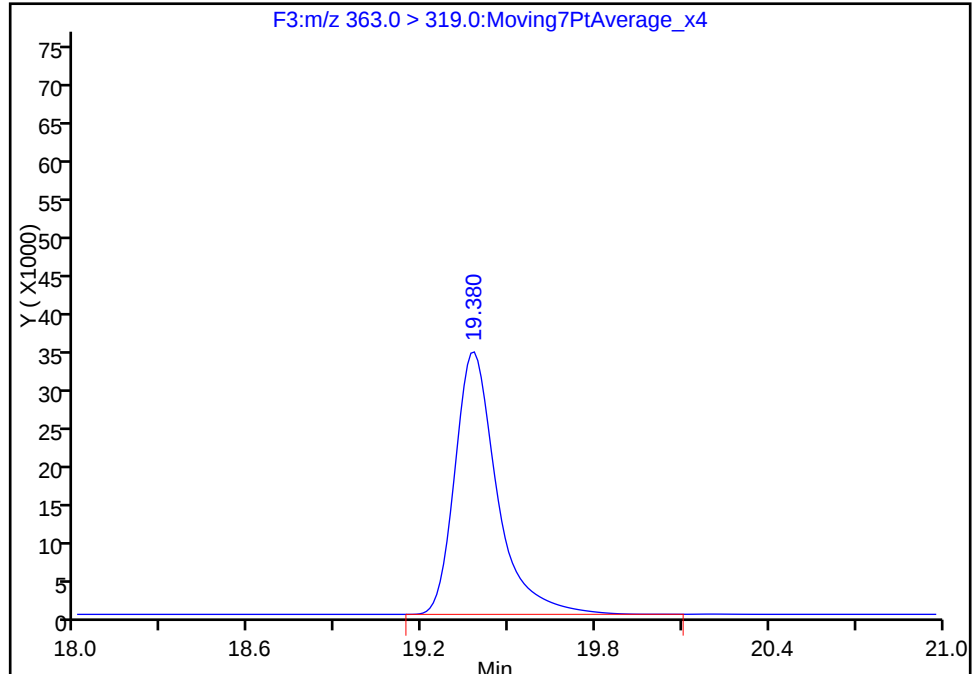
Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_011.d
Injection Date: 05-Dec-2016 20:53:12 Instrument ID: A6
Lims ID: CCV L2
Client ID:
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 9
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

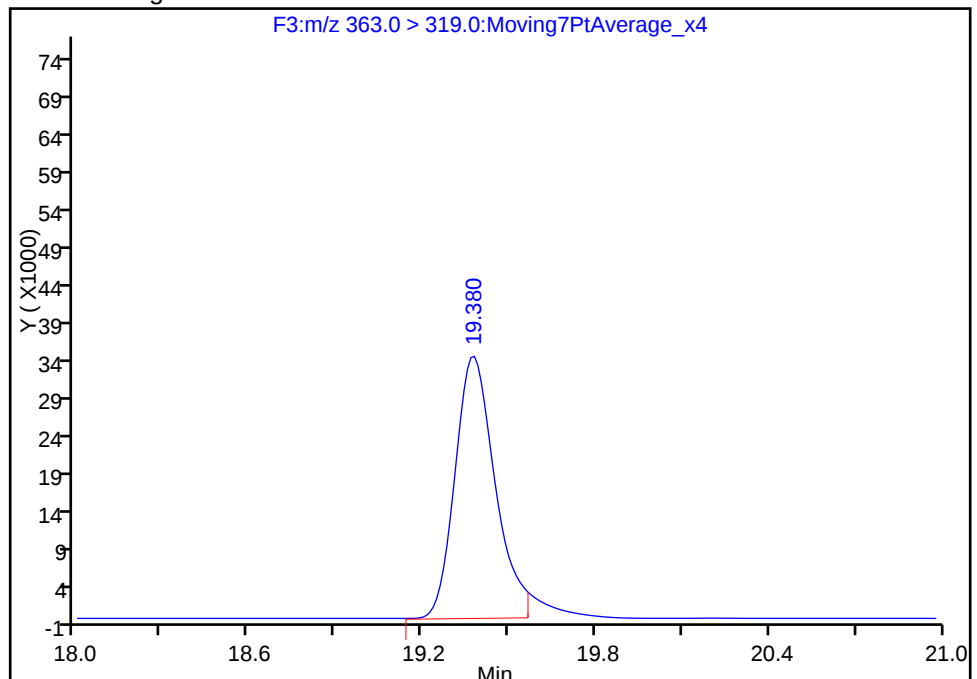
RT: 19.38
Area: 349162
Amount: 2.802857
Amount Units: ng/ml

Processing Integration Results



RT: 19.38
Area: 329772
Amount: 2.647206
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:08:33

Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

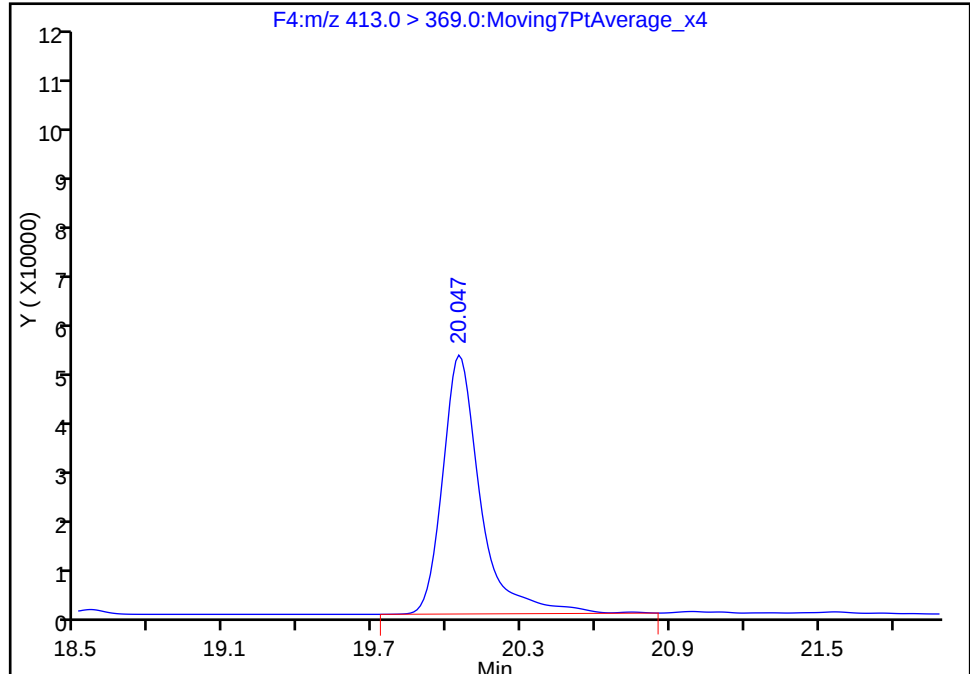
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Injection Date: 05-Dec-2016 20:53:12 Instrument ID: A6
Lims ID: CCV L2
Client ID:
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 9
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

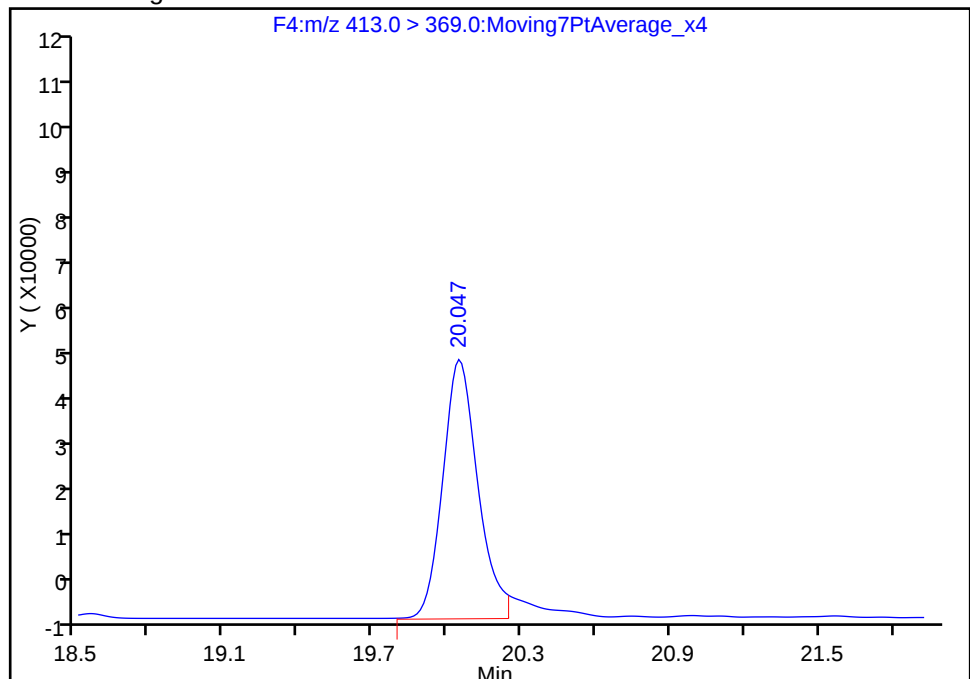
RT: 20.05
Area: 520603
Amount: 4.880820
Amount Units: ng/ml

Processing Integration Results



RT: 20.05
Area: 484196
Amount: 4.539493
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Dec-2016 10:08:33

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: ICV 320-140688/11 Calibration Date: 12/05/2016 21:52
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 05DEC2016A6A_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	0.7015	0.5756		94.2	115	-18.0	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.6976		20.6	26.5	-22.3	30.0
Perfluoroheptanoic acid	Ave	1.215	1.155		11.9	12.5	-4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	0.9604		23.2	25.1	-7.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	0.8424		22.0	27.2	-19.3	30.0
Perfluorononanoic acid	Ave	1.134	0.9316		20.6	25.1	-17.9	30.0
13C2 PFHxA	Ave	1.167	1.079		9.25	10.0	-7.5	30.0
13C2 PFDA	Ave	0.8763	0.8628		9.85	10.0	-1.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_013.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 05-Dec-2016 21:52:24 ALS Bottle#: 7 Worklist Smp#: 11
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: ICV ICV
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist:
 Method: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Dec-2016 16:53:23 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 06-Dec-2016 16:34:53

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.582	17.581	0.001	1.000	4641388	94.2	8629	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.567	18.567	0.0	1.000	946677	9.25	29673	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.344	19.342	0.002	1.000	1298107	20.6	29738	
4 Perfluoroheptanoic acid								
363.0 > 319.0	19.380	19.378	0.002	1.000	1267011	11.9	9991	
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		877210	10.0	22431	
6 Perfluorooctanoic acid								
413.0 > 369.0	20.047	20.047	0.0	1.000	2114272	23.2	647	
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.619	20.619	0.0	1.000	1612191	22.0	13496	
* 8 13C4 PFOS								
503.0 > 80.0	20.667	20.669	-0.002		2015178	28.7	51574	
9 Perfluorononanoic acid								
463.0 > 419.0	20.750	20.748	0.002	1.000	2051048	20.6	7161	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.480	21.474	0.006	1.000	756809	9.85	23714	

Reagents:

LC537-ICV_00017 Amount Added: 1.00 Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_013.d

Injection Date: 05-Dec-2016 21:52:24

Instrument ID: A6

Lims ID: ICV

Client ID:

Operator ID: CBW

ALS Bottle#: 7

Worklist Smp#: 11

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

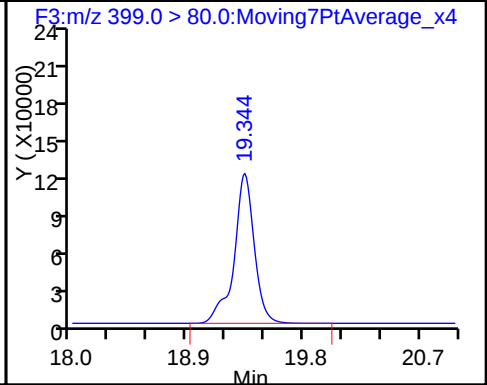
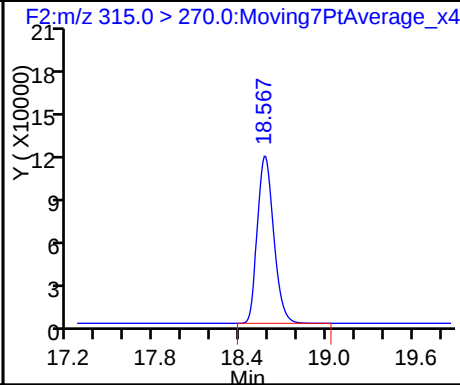
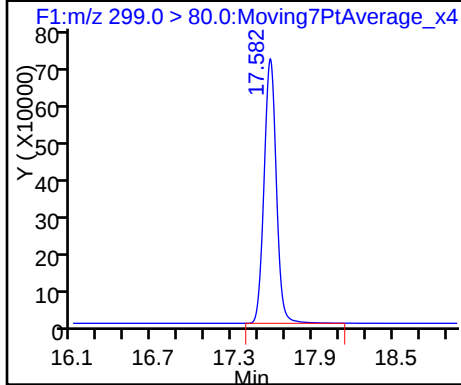
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

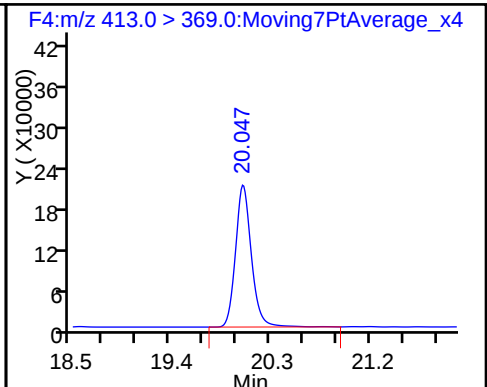
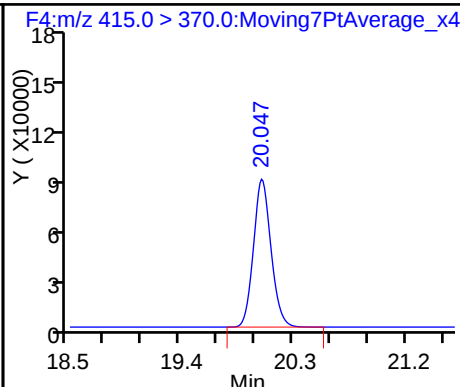
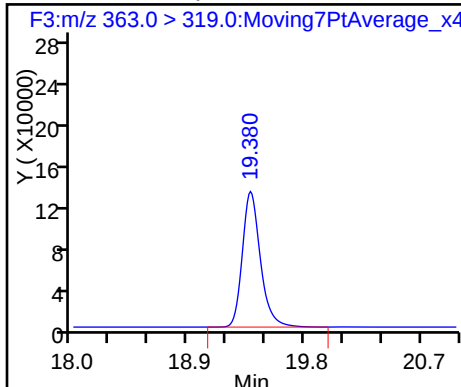
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

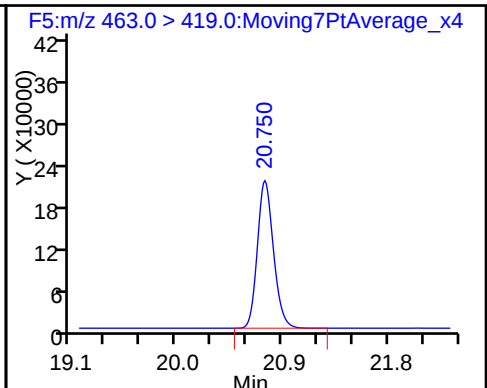
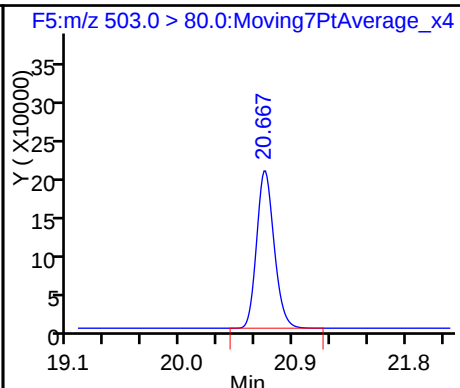
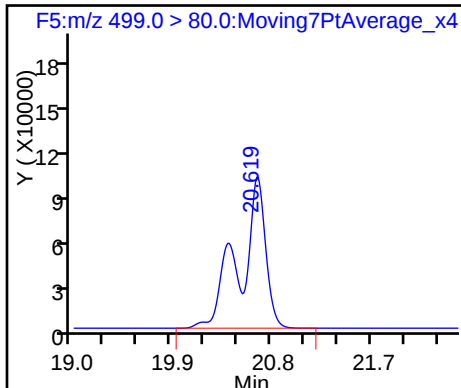
6 Perfluorooctanoic acid



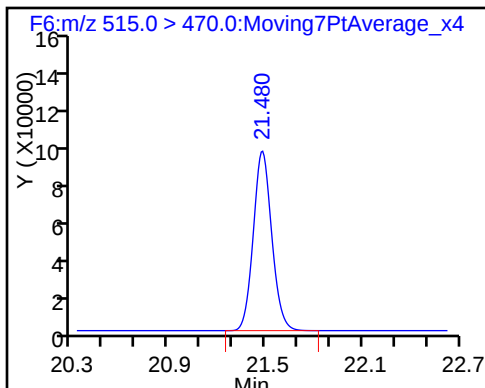
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142223/2 Calibration Date: 12/15/2016 08:03
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_002.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.6594		21.5	22.9	-6.0	50.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.7732		6.64	7.72	-13.9	50.0
Perfluoroheptanoic acid	Ave	1.215	1.277		2.73	2.60	5.1	50.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	0.9458		4.70	5.17	-9.1	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	0.8565		8.38	10.2	-18.0	50.0
Perfluorononanoic acid	Ave	1.134	1.091		4.82	5.01	-3.8	50.0
13C2 PFHxA	Ave	1.167	1.058		9.07	10.0	-9.3	30.0
13C2 PFDA	Ave	0.8763	0.8545		9.75	10.0	-2.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_002.d
 Lims ID: CCV L2
 Client ID:
 Sample Type: CCVL
 Inject. Date: 15-Dec-2016 08:03:38 ALS Bottle#: 2 Worklist Smp#: 2
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2 CCV L2
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 15-Dec-2016 15:21:12 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK005

First Level Reviewer: barnettj

Date: 15-Dec-2016 15:05:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.599 17.599 0.0 1.000 845450 21.5 510
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.585 18.585 0.0 1.000 651205 9.07 21190
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 334175 6.64 7885
 4 Perfluoroheptanoic acid M
 363.0 > 319.0 19.380 19.380 0.0 1.000 204042 2.73 115 M
 * 5 13C2-PFOA
 415.0 > 370.0 20.035 20.035 0.0 615516 10.0 64218
 6 Perfluorooctanoic acid M
 413.0 > 369.0 20.047 20.047 0.0 1.000 301061 4.70 99.5 M
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 490144 8.38 6418
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.667 0.0 1606471 28.7 33387
 9 Perfluorononanoic acid
 463.0 > 419.0 20.738 20.738 0.0 1.000 336444 4.82 9088
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.471 21.471 0.0 1.000 525960 9.75 16666

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00014

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_002.d

Injection Date: 15-Dec-2016 08:03:38

Instrument ID: A6

Lims ID: CCV L2

Client ID:

Operator ID: CBW

ALS Bottle#: 2

Worklist Smp#: 2

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

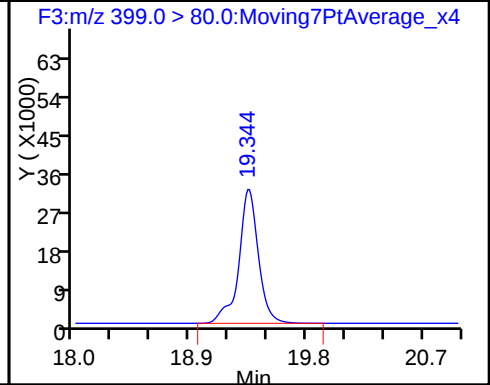
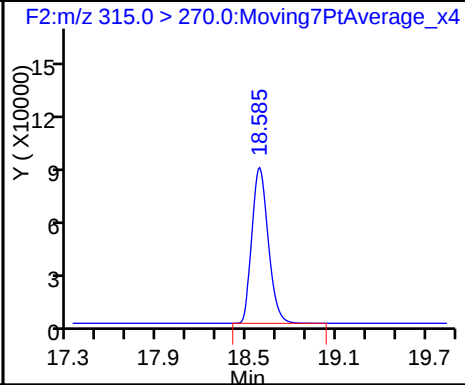
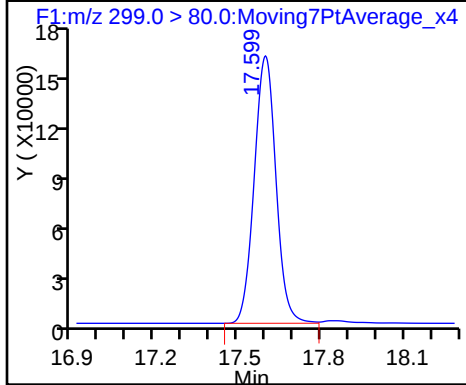
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

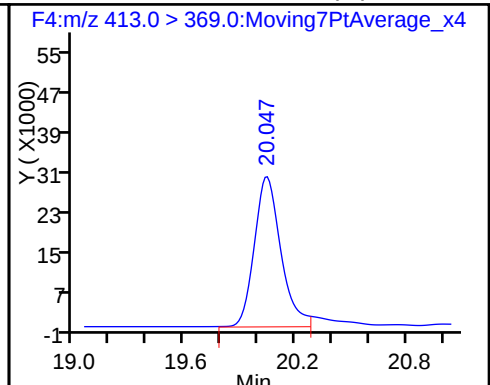
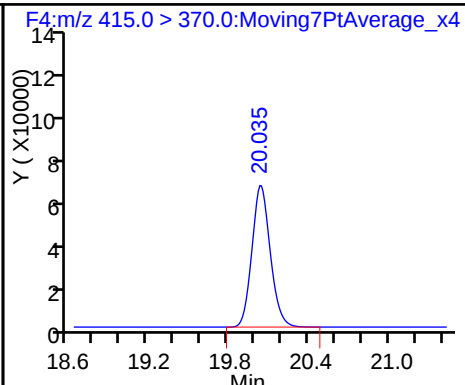
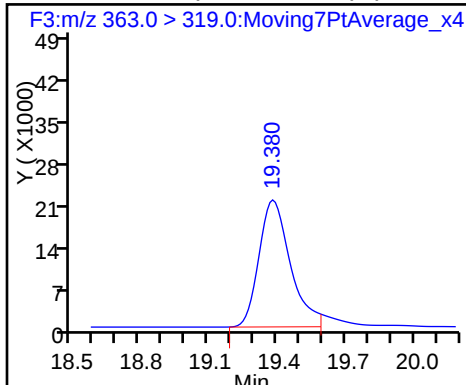
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid (M)

* 5 13C2-PFOA

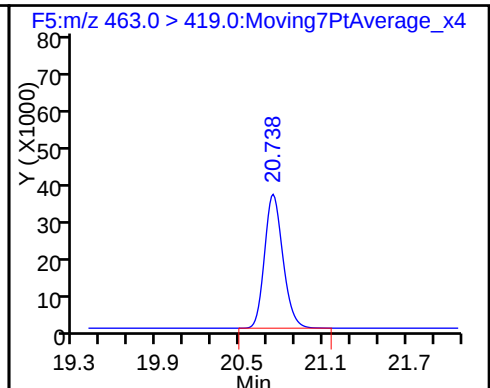
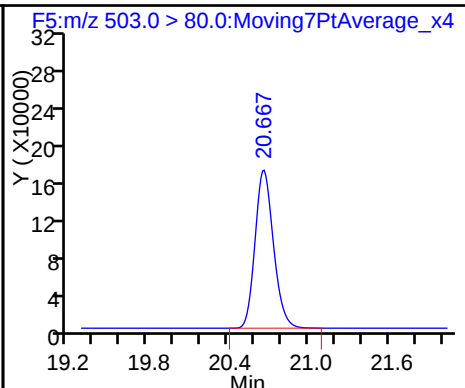
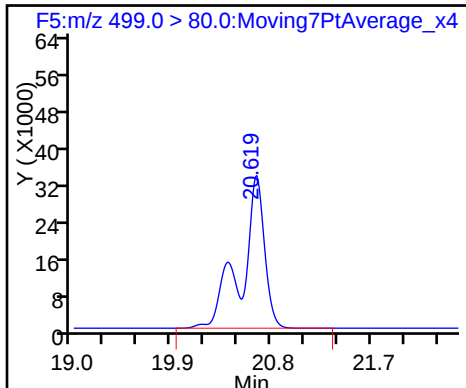
6 Perfluorooctanoic acid (M)



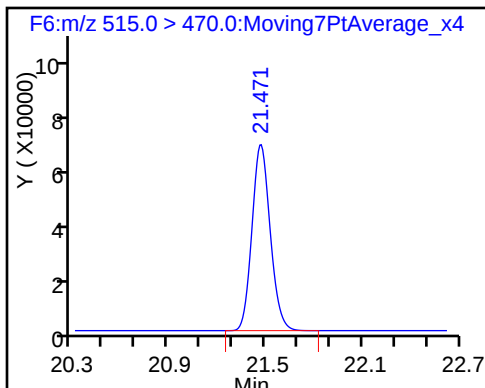
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

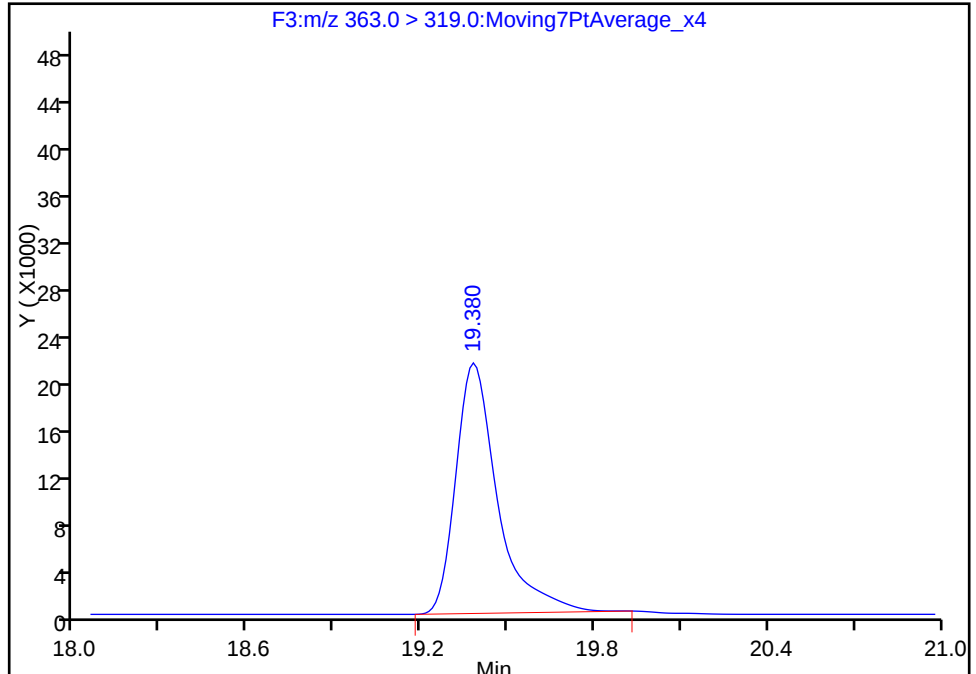
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Injection Date: 15-Dec-2016 08:03:38 Instrument ID: A6
Lims ID: CCV L2
Client ID:
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F3:MRM

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

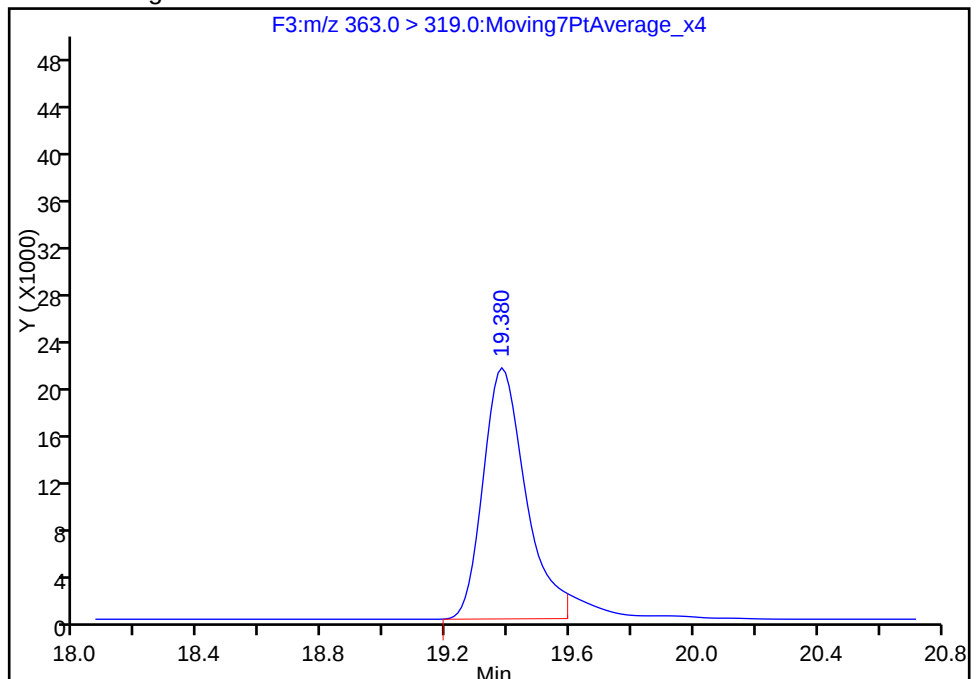
RT: 19.38
Area: 213658
Amount: 2.856649
Amount Units: ng/ml

Processing Integration Results



RT: 19.38
Area: 204042
Amount: 2.728081
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 15-Dec-2016 15:05:28

Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Sacramento

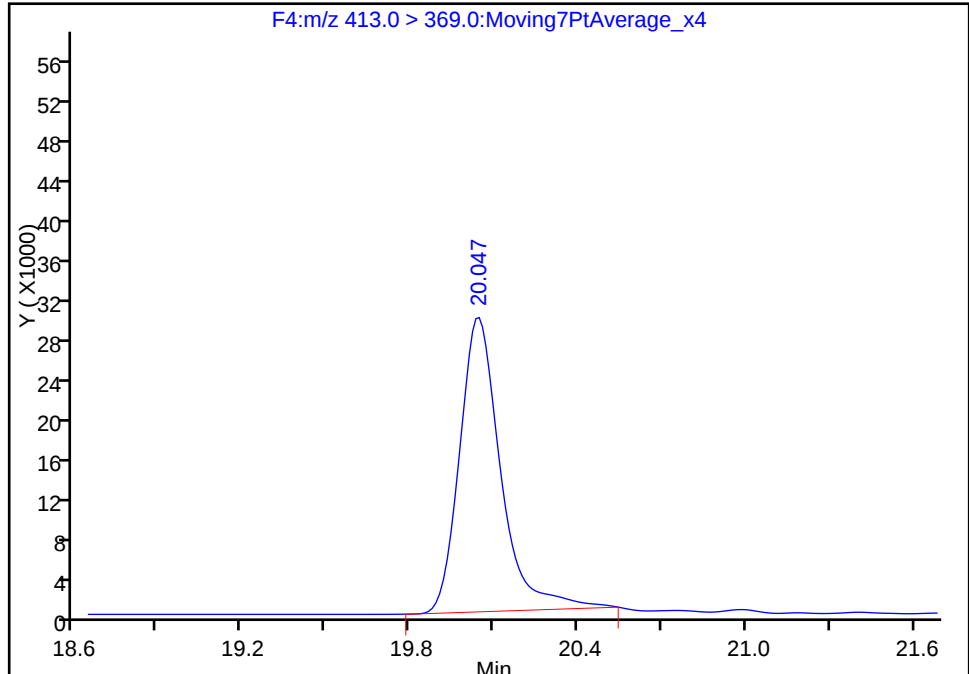
Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_002.d
Injection Date: 15-Dec-2016 08:03:38 Instrument ID: A6
Lims ID: CCV L2
Client ID:
Operator ID: CBW ALS Bottle#: 2 Worklist Smp#: 2
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Method: 537__A6 Limit Group: LC 537 ICAL
Column: Acquity BEH C18 (2.10 mm) Detector F4:MRM

6 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

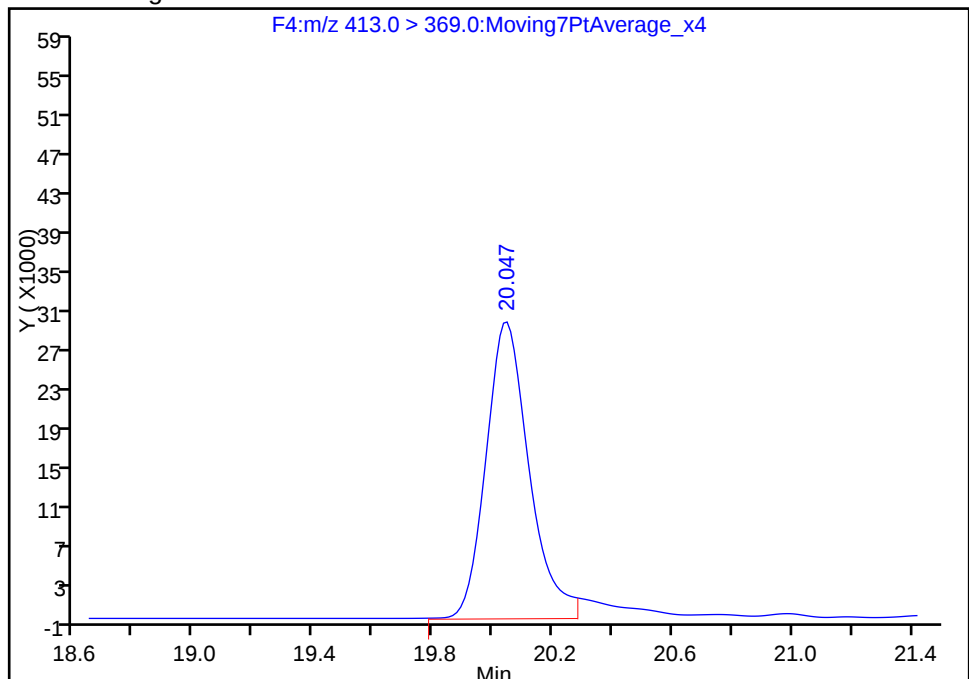
RT: 20.05
Area: 303357
Amount: 4.737006
Amount Units: ng/ml

Processing Integration Results



RT: 20.05
Area: 301061
Amount: 4.701153
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 15-Dec-2016 15:05:28
Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142414/31 Calibration Date: 12/15/2016 22:49
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7409		47.6	45.1	5.6	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9079		15.4	15.2	1.1	30.0
Perfluoroheptanoic acid	Ave	1.215	1.234		5.20	5.12	1.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.026		10.0	10.2	-1.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.120		21.6	20.1	7.2	30.0
Perfluorononanoic acid	Ave	1.134	1.189		10.3	9.87	4.8	30.0
13C2 PFHxA	Ave	1.167	1.152		9.88	10.0	-1.2	30.0
13C2 PFDA	Ave	0.8763	0.9115		10.4	10.0	4.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_031.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 15-Dec-2016 22:49:06 ALS Bottle#: 3 Worklist Smp#: 31
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3 CCV L3
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:42:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.595 17.595 0.0 1.000 1973379 47.6 817
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.576 18.576 0.0 1.000 922988 9.88 29837
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 815124 15.4 18818
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.380 19.380 0.0 1.000 505953 5.20 10412
 * 5 13C2-PFOA
 415.0 > 370.0 20.035 20.035 0.0 801241 10.0 20582
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.035 20.035 0.0 1.000 837764 10.0 644
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 1331145 21.6 17556
 * 8 13C4 PFOS
 503.0 > 80.0 20.655 20.655 0.0 1693587 28.7 17550
 9 Perfluorononanoic acid
 463.0 > 419.0 20.738 20.738 0.0 1.000 940328 10.3 19908
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.462 21.462 0.0 1.000 730349 10.4 22853

Reagents:

LC537-L3_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_031.d

Injection Date: 15-Dec-2016 22:49:06

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 31

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

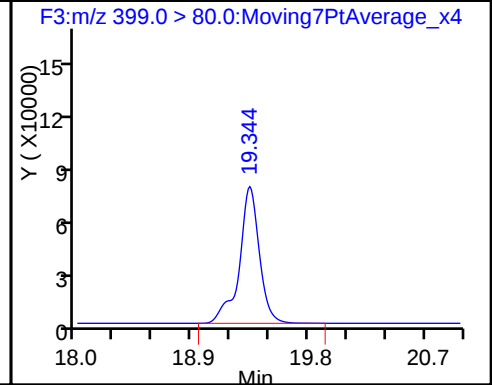
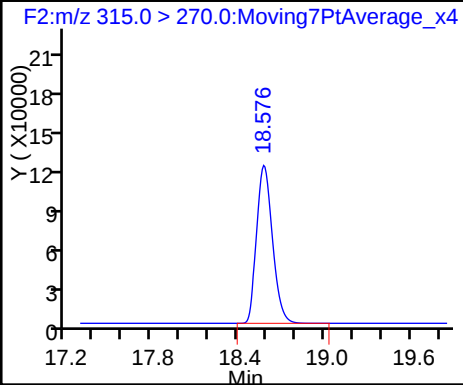
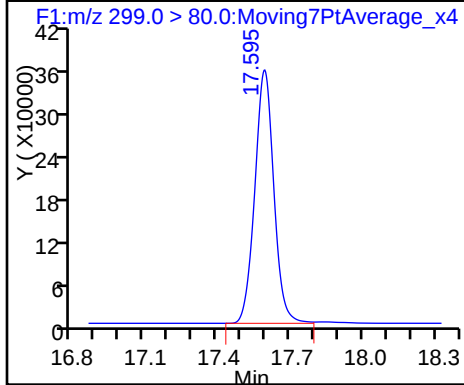
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

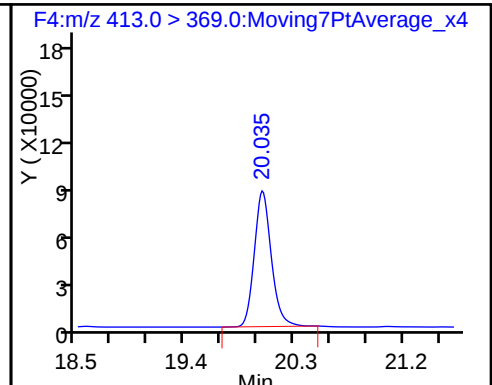
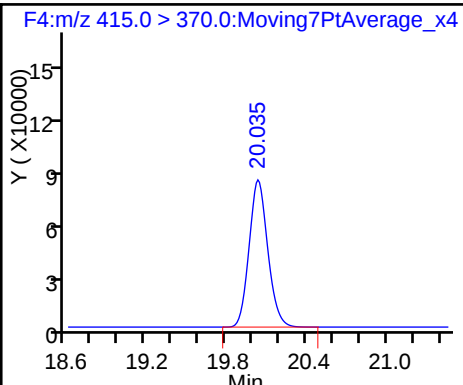
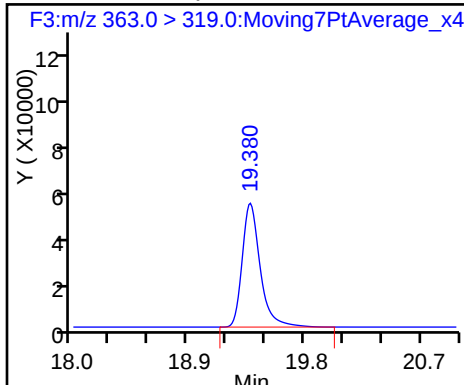
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

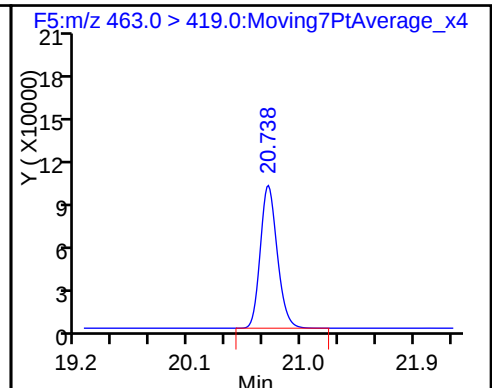
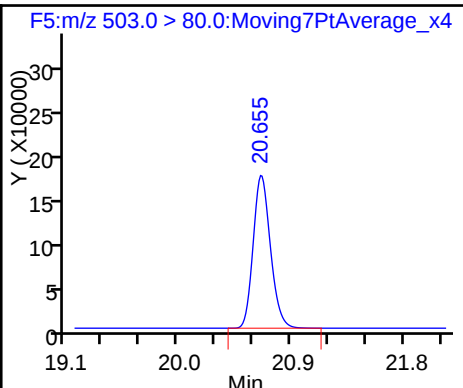
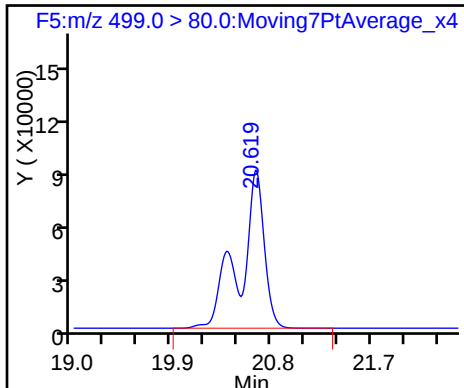
6 Perfluorooctanoic acid



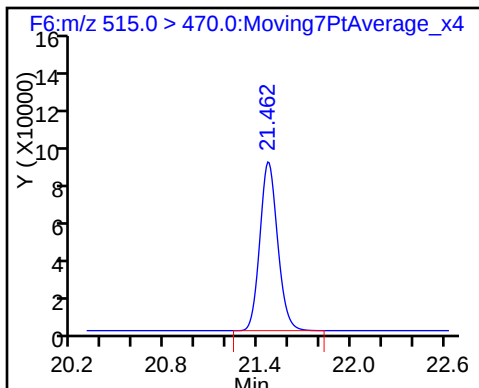
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142414/42 Calibration Date: 12/16/2016 04:14
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7449		143	135	6.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9939		50.2	45.4	10.7	30.0
Perfluoroheptanoic acid	Ave	1.215	1.231		15.5	15.3	1.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.115		32.6	30.4	7.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.212		69.8	60.1	16.1	30.0
Perfluorononanoic acid	Ave	1.134	1.256		32.6	29.5	10.8	30.0
13C2 PFHxA	Ave	1.167	1.219		10.4	10.0	4.5	30.0
13C2 PFDA	Ave	0.8763	0.9168		10.5	10.0	4.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142415/42 Calibration Date: 12/16/2016 04:14
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_042.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7449		143	135	6.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9939		50.2	45.4	10.7	30.0
Perfluoroheptanoic acid	Ave	1.215	1.231		15.5	15.3	1.3	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.115		32.6	30.4	7.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.212		69.8	60.1	16.1	30.0
Perfluorononanoic acid	Ave	1.134	1.256		32.6	29.5	10.8	30.0
13C2 PFHxA	Ave	1.167	1.219		10.4	10.0	4.5	30.0
13C2 PFDA	Ave	0.8763	0.9168		10.5	10.0	4.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_042.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Dec-2016 04:14:40 ALS Bottle#: 5 Worklist Smp#: 42
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5 CCV L5
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.599 17.599 0.0 1.000 5871619 143.0 2370
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.585 18.585 0.0 1.000 917271 10.4 29683
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 2641043 50.2 47888
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.380 19.380 0.0 1.000 1414810 15.5 8213
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.047 0.0 752740 10.0 19524
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.047 20.047 0.0 1.000 2552670 32.6 1740
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 4263386 69.8 25923
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.667 0.0 1679157 28.7 21675
 9 Perfluorononanoic acid
 463.0 > 419.0 20.750 20.750 0.0 1.000 2786907 32.6 29344
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.480 21.480 0.0 1.000 690079 10.5 21892

Reagents:

LC537-L5_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_042.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Dec-2016 04:14:40 ALS Bottle#: 5 Worklist Smp#: 42
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5 CCV L5
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:49 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:51:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	-----------	-----------	-----------	----------	-----------------	-----	-------

1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.599 17.599 0.0 1.000 5871619 143.0 2370
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.585 18.585 0.0 1.000 917271 10.4 29683
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 2641043 50.2 47888
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.380 19.380 0.0 1.000 1414810 15.5 8213
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.047 0.0 752740 10.0 19524
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.047 20.047 0.0 1.000 2552670 32.6 1740
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 4263386 69.8 25923
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.667 0.0 1679157 28.7 21675
 9 Perfluorononanoic acid
 463.0 > 419.0 20.750 20.750 0.0 1.000 2786907 32.6 29344
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.480 21.480 0.0 1.000 690079 10.5 21892

Reagents:

LC537-L5_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_042.d

Injection Date: 16-Dec-2016 04:14:40

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 42

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

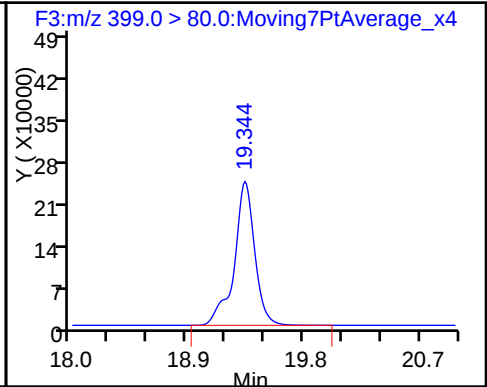
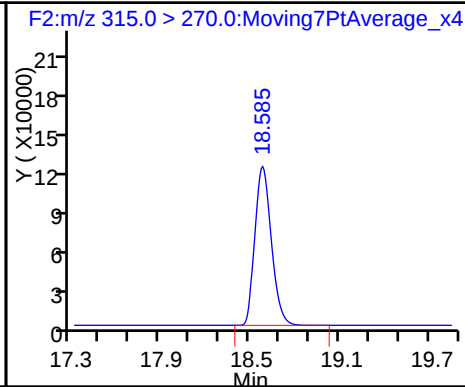
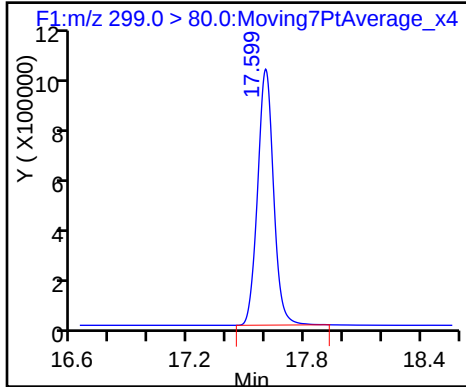
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

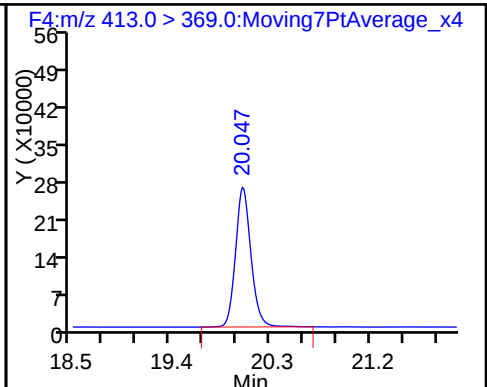
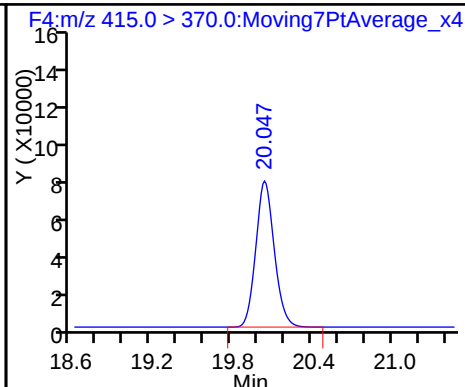
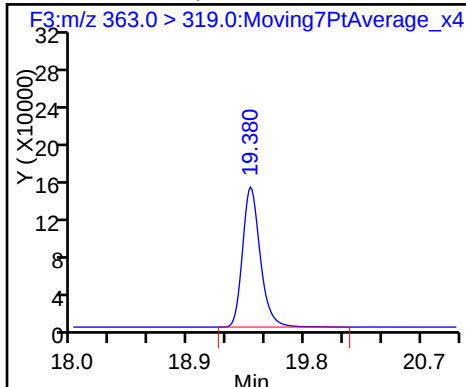
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

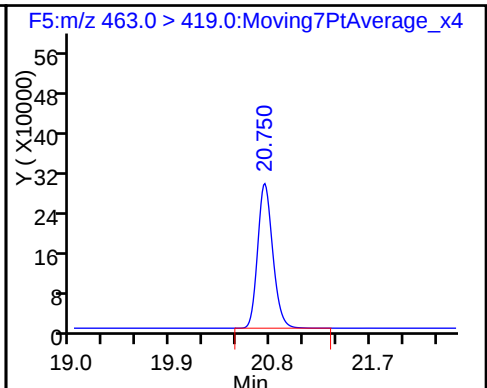
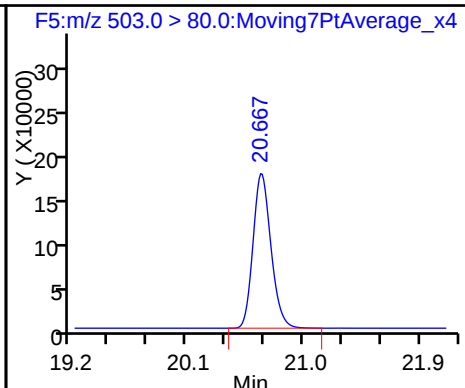
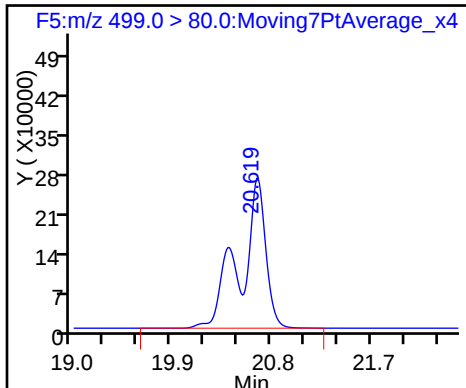
6 Perfluorooctanoic acid



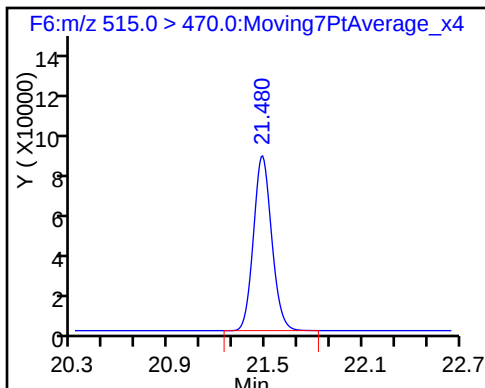
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_042.d

Injection Date: 16-Dec-2016 04:14:40

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 42

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

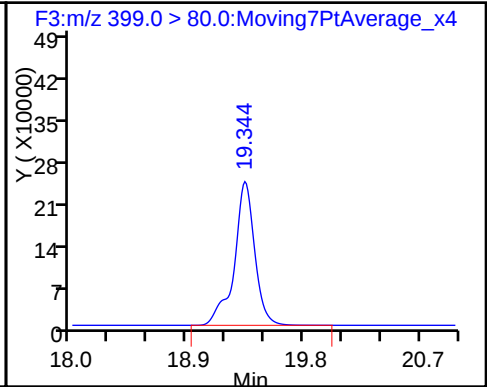
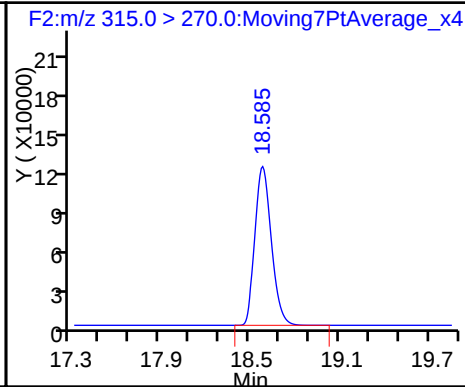
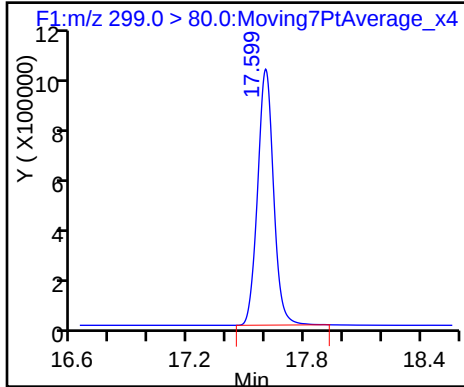
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

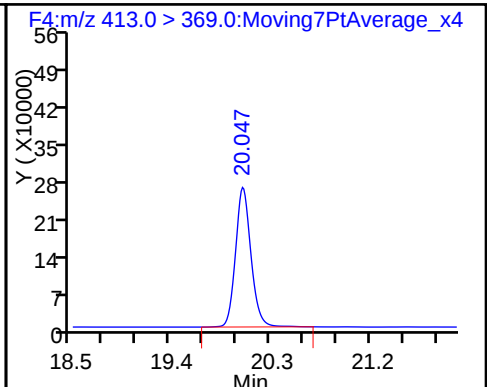
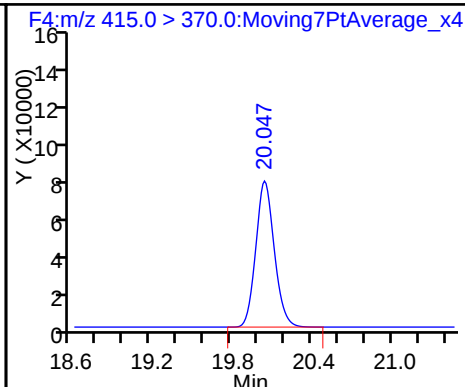
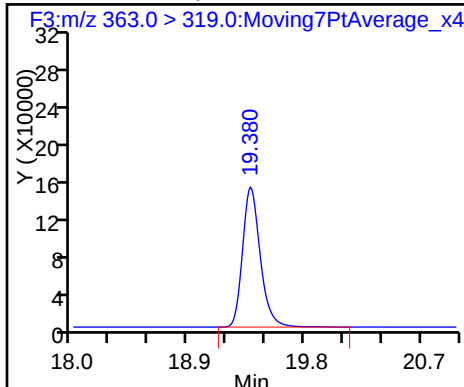
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

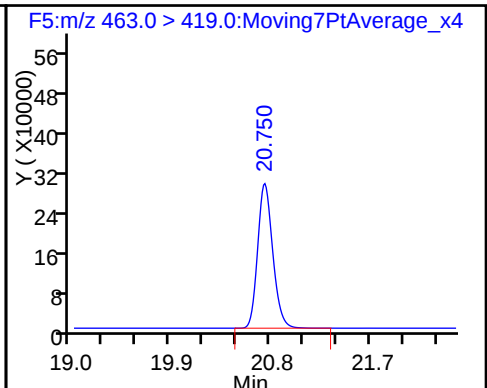
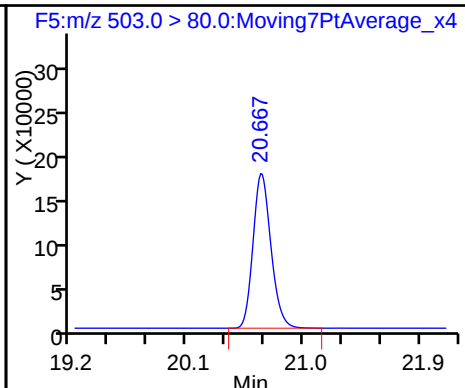
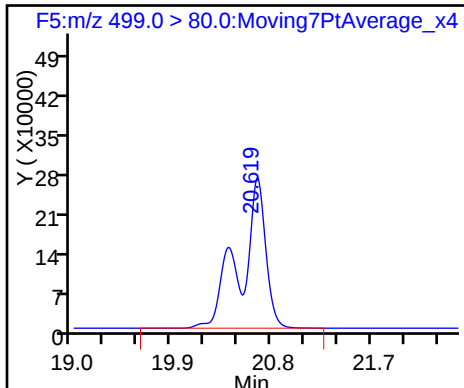
6 Perfluorooctanoic acid



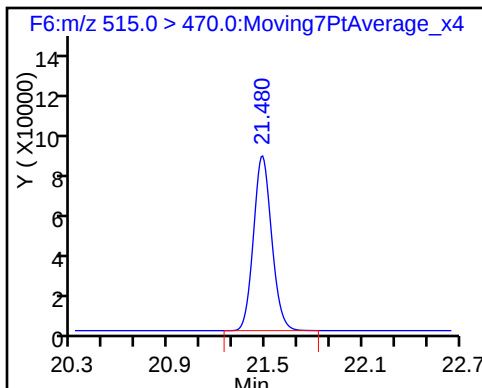
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142415/54 Calibration Date: 12/16/2016 10:09
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_054.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7458		48.0	45.1	6.3	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9493		16.1	15.2	5.7	30.0
Perfluoroheptanoic acid	Ave	1.215	1.198		5.05	5.12	-1.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.013		9.93	10.2	-2.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.095		21.1	20.1	4.9	30.0
Perfluorononanoic acid	Ave	1.134	1.159		10.1	9.87	2.1	30.0
13C2 PFHxA	Ave	1.167	1.135		9.73	10.0	-2.7	30.0
13C2 PFDA	Ave	0.8763	0.8786		10.0	10.0	0.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_054.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Dec-2016 10:09:50 ALS Bottle#: 3 Worklist Smp#: 54
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3 CCV L3
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 11:11:24 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
1 Perfluorobutanesulfonic acid								
299.0 > 80.0	17.599	17.599	0.0	1.000	1936017	48.0	779	
\$ 2 13C2 PFHxA								
315.0 > 270.0	18.585	18.585	0.0	1.000	830619	9.73	26663	
3 Perfluorohexanesulfonic acid								
399.0 > 80.0	19.344	19.344	0.0	1.000	830776	16.1	18999	
4 Perfluoroheptanoic acid								
363.0 > 319.0	19.368	19.368	0.0	1.000	448682	5.05	9146	
* 5 13C2-PFOA								
415.0 > 370.0	20.047	20.047	0.0		731703	10.0	18818	
6 Perfluorooctanoic acid								
413.0 > 369.0	20.047	20.047	0.0	1.000	755666	9.93	391	
7 Perfluorooctane sulfonic acid								
499.0 > 80.0	20.619	20.619	0.0	1.000	1268714	21.1	15103	
* 8 13C4 PFOS								
503.0 > 80.0	20.667	20.667	0.0		1650692	28.7	42534	
9 Perfluorononanoic acid								
463.0 > 419.0	20.738	20.738	0.0	1.000	836858	10.1	22174	
\$ 10 13C2 PFDA								
515.0 > 470.0	21.471	21.471	0.0	1.000	642884	10.0	20244	

Reagents:

LC537-L3_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_054.d

Injection Date: 16-Dec-2016 10:09:50

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 54

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

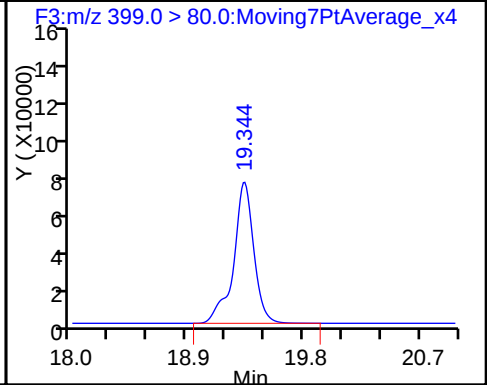
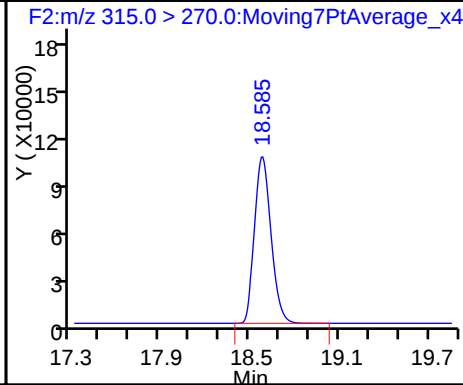
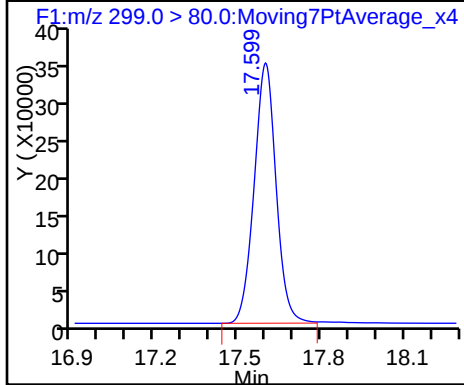
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

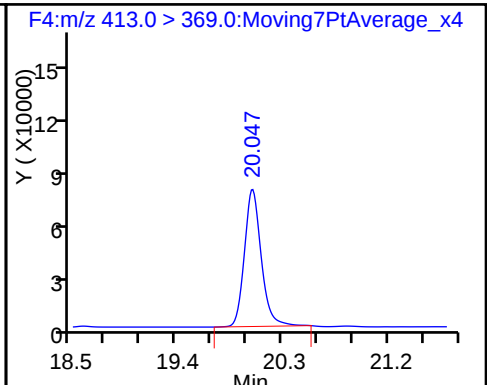
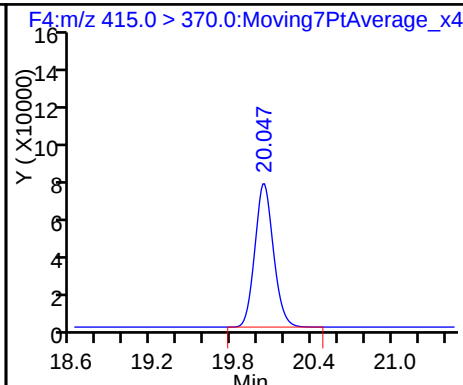
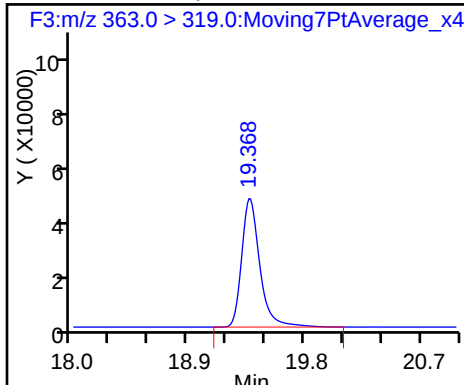
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

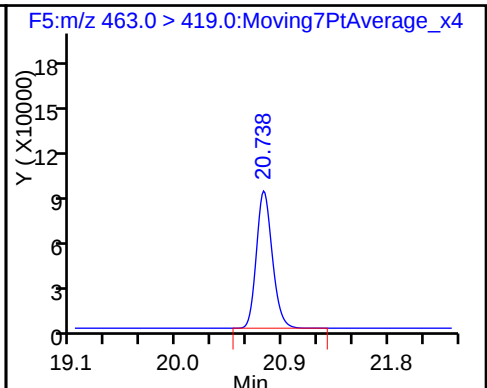
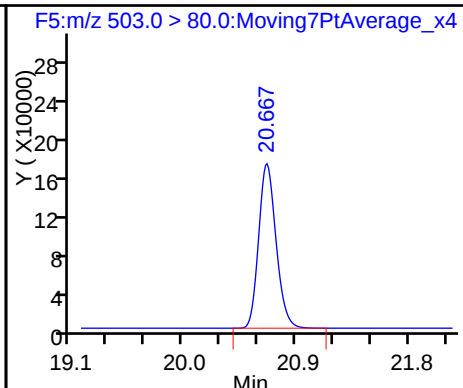
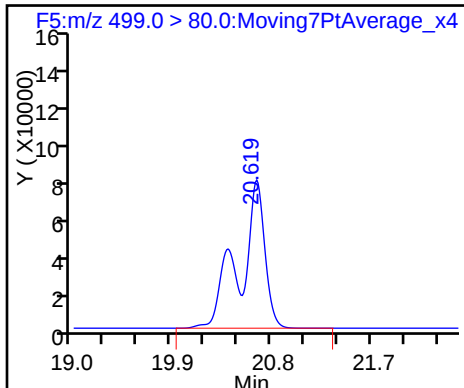
6 Perfluorooctanoic acid



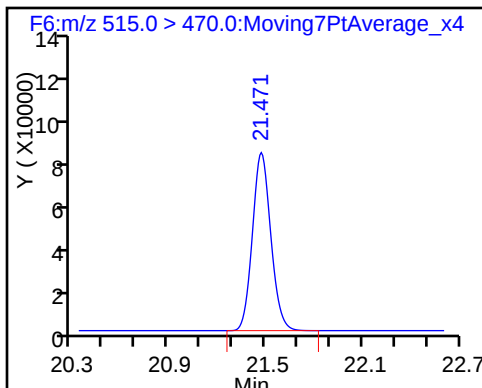
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142438/78 Calibration Date: 12/16/2016 21:59
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_078.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7590		48.8	45.1	8.2	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	0.9760		16.5	15.2	8.7	30.0
Perfluoroheptanoic acid	Ave	1.215	1.321		5.56	5.12	8.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.127		11.0	10.2	8.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.102		21.2	20.1	5.5	30.0
Perfluorononanoic acid	Ave	1.134	1.262		11.0	9.87	11.3	30.0
13C2 PFHxA	Ave	1.167	1.269		10.9	10.0	8.8	30.0
13C2 PFDA	Ave	0.8763	0.9328		10.6	10.0	6.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_078.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Dec-2016 21:59:49 ALS Bottle#: 3 Worklist Smp#: 78
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3 CCV L3
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Dec-2016 09:21:37 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK017

First Level Reviewer: westendorfc

Date: 17-Dec-2016 09:17:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	-----------	-----------	-----------	----------	-----------------	-----	-------

1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.599 17.599 0.0 1.000 1931855 48.8 702
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.576 18.576 0.0 1.000 914439 10.9 29712
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 837468 16.5 19639
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.368 19.368 0.0 1.000 487035 5.56 12265
 * 5 13C2-PFOA
 415.0 > 370.0 20.023 20.023 0.0 720626 10.0 18308
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.023 20.023 0.0 1.000 827282 11.0 359
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.643 20.643 0.0 1.000 1251843 21.2 10197
 * 8 13C4 PFOS
 503.0 > 80.0 20.643 20.643 0.0 1618458 28.7 42107
 9 Perfluorononanoic acid
 463.0 > 419.0 20.714 20.714 0.0 1.000 897779 11.0 23828
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.444 21.444 0.0 1.000 672191 10.6 21323

Reagents:

LC537-L3_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_078.d

Injection Date: 16-Dec-2016 21:59:49

Instrument ID: A6

Lims ID: CCV L3

Client ID:

Operator ID: CBW

ALS Bottle#: 3

Worklist Smp#: 78

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

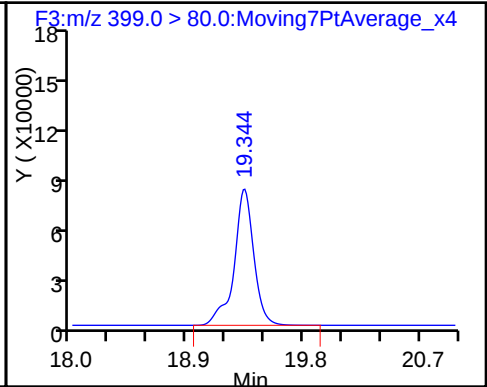
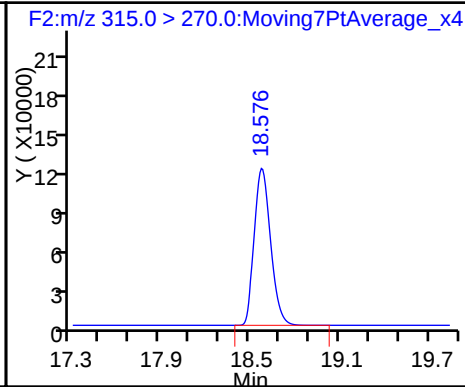
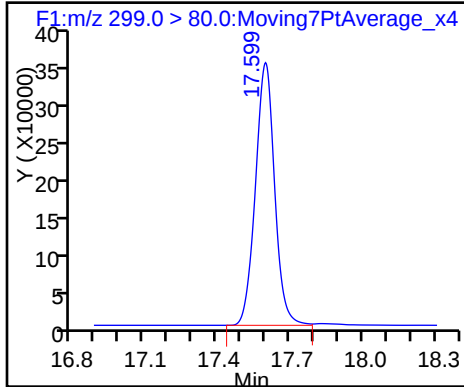
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

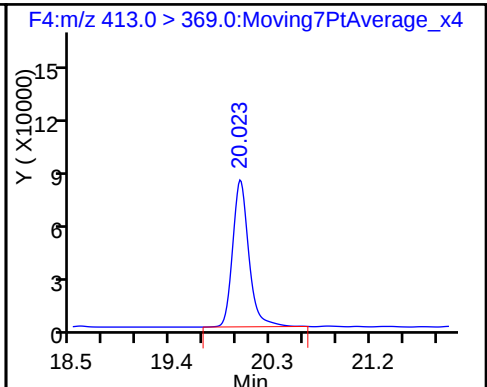
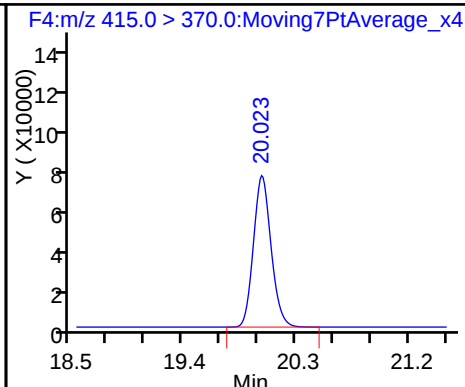
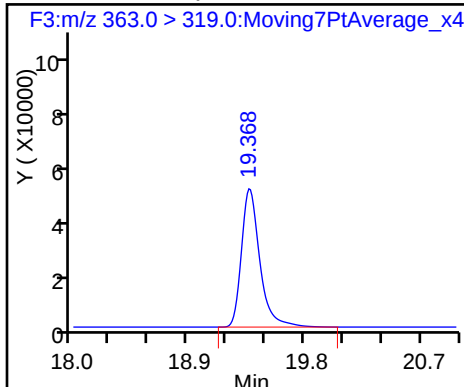
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

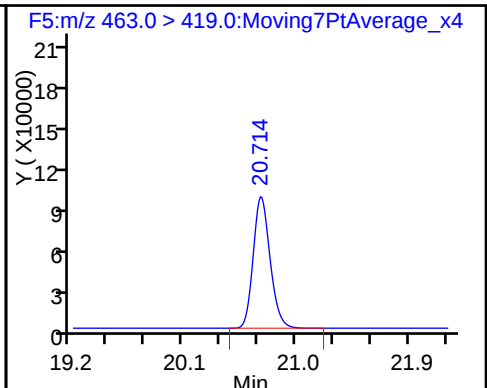
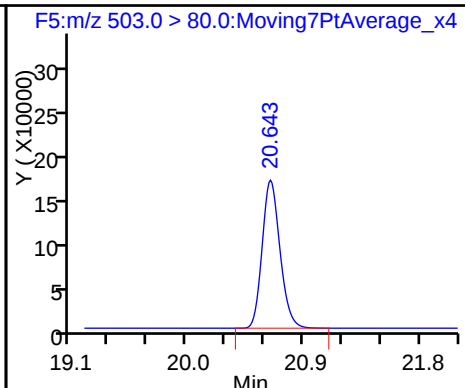
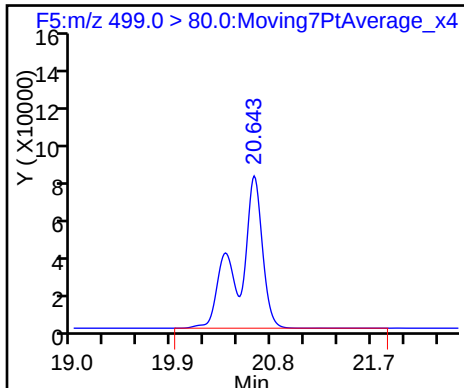
6 Perfluorooctanoic acid



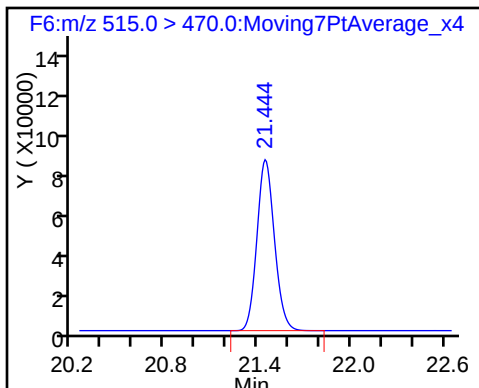
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Lab Sample ID: CCV 320-142438/83 Calibration Date: 12/17/2016 03:55
 Instrument ID: A6 Calib Start Date: 12/05/2016 17:26
 GC Column: Acquity ID: 2.10 (mm) Calib End Date: 12/05/2016 19:54
 Lab File ID: 15DEC2016A6A_090.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	Ave	0.7015	0.7216		139	135	2.9	30.0
Perfluorohexanesulfonic acid	Ave	0.8980	1.026		51.9	45.4	14.2	30.0
Perfluoroheptanoic acid	Ave	1.215	1.178		14.8	15.3	-3.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	1.040	1.101		32.2	30.4	5.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	1.044	1.247		71.8	60.1	19.4	30.0
Perfluorononanoic acid	Ave	1.134	1.216		31.6	29.5	7.2	30.0
13C2 PFHxA	Ave	1.167	1.271		10.9	10.0	9.0	30.0
13C2 PFDA	Ave	0.8763	1.025		11.7	10.0	17.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_090.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 17-Dec-2016 03:55:04 ALS Bottle#: 5 Worklist Smp#: 83
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5 CCV L5
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Sublist: chrom-537__A6*sub3
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Dec-2016 09:33:24 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK017

First Level Reviewer: westendorfc

Date: 17-Dec-2016 09:26:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
--------	----	-----------	-----------	-----------	----------	-----------------	-----	-------

1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.595 17.595 0.0 1.000 6389558 138.5 1054
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.576 18.576 0.0 1.000 1212652 10.9 38997
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.332 19.332 0.0 1.000 3062114 51.9 54928
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.368 19.368 0.0 1.000 1716646 14.8 25612
 * 5 13C2-PFOA
 415.0 > 370.0 20.023 20.023 0.0 953918 10.0 24363
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.023 20.023 0.0 1.000 3194122 32.2 1113
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.643 20.643 0.0 1.000 4927692 71.8 14455
 * 8 13C4 PFOS
 503.0 > 80.0 20.643 20.643 0.0 1886125 28.7 27667
 9 Perfluorononanoic acid
 463.0 > 419.0 20.714 20.714 0.0 1.000 3418619 31.6 32518
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.444 21.444 0.0 1.000 977582 11.7 30861

Reagents:

LC537-L5_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_090.d

Injection Date: 17-Dec-2016 03:55:04

Instrument ID: A6

Lims ID: CCV L5

Client ID:

Operator ID: CBW

ALS Bottle#: 5

Worklist Smp#: 83

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

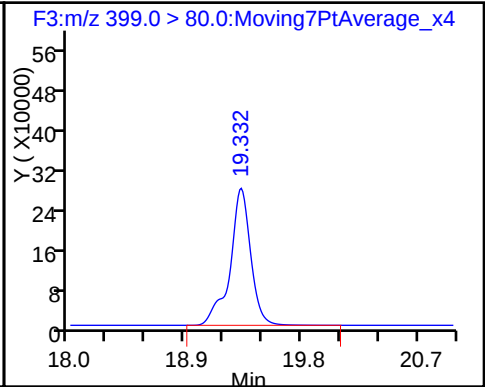
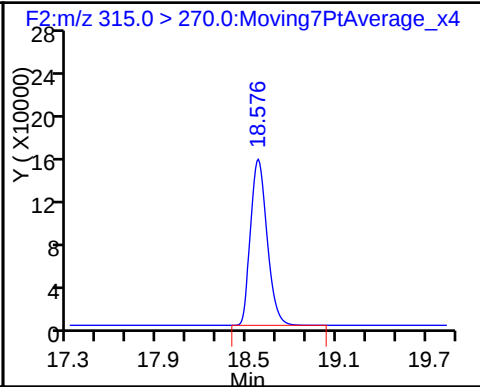
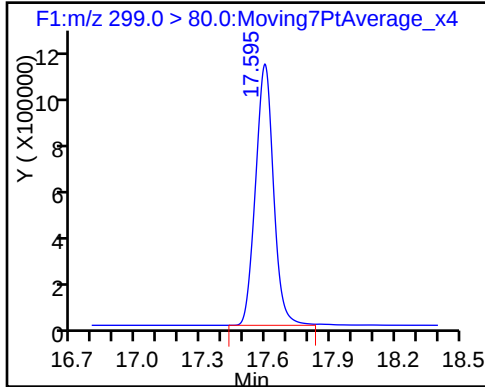
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

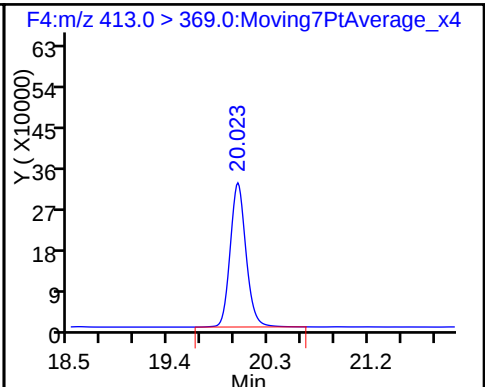
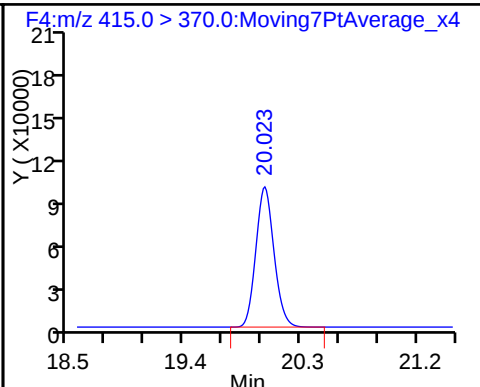
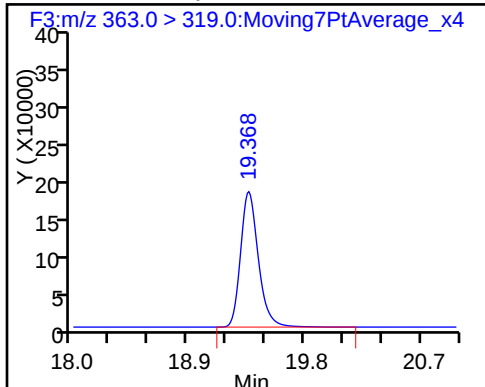
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

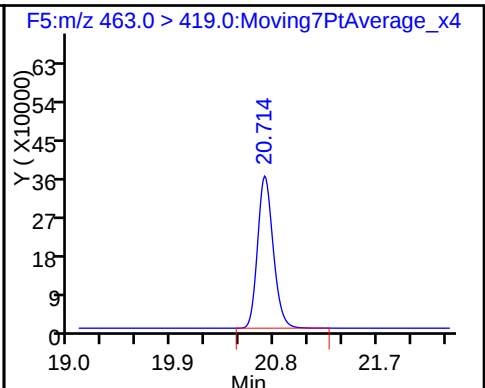
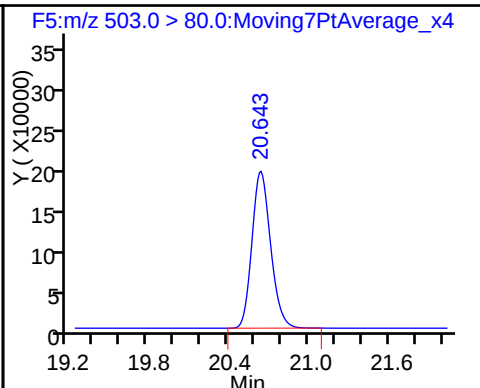
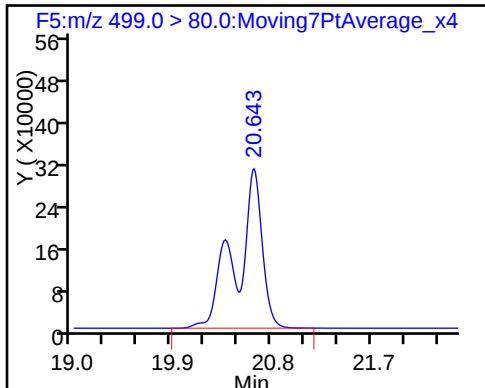
6 Perfluorooctanoic acid



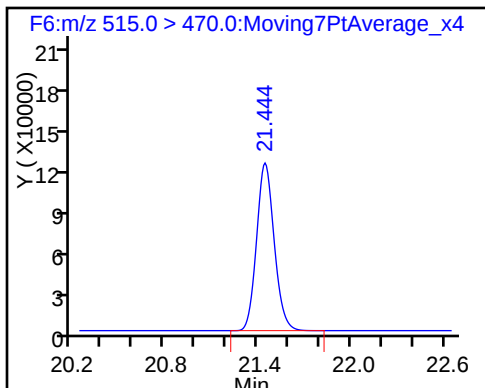
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-141539/1-A
 Matrix: Water Lab File ID: 15DEC2016A6A_033.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 250.00 (mL) Date Analyzed: 12/15/2016 23:48
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.048	U	0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.024	U	0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_033.d
 Lims ID: MB 320-141539/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 15-Dec-2016 23:48:16 ALS Bottle#: 18 Worklist Smp#: 33
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: MB 320-141539/1-A BOX 23
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:42:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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\$ 2 13C2 PFHxA

315.0 > 270.0 18.585 18.576 0.009 1.000 822694 10.5 21042

* 5 13C2-PFOA

415.0 > 370.0 20.047 20.035 0.012 672512 10.0 17438

* 8 13C4 PFOS

503.0 > 80.0 20.667 20.655 0.012 1812931 28.7 31454

\$ 10 13C2 PFDA

515.0 > 470.0 21.471 21.462 0.009 1.000 618744 10.5 19278

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_033.d

Injection Date: 15-Dec-2016 23:48:16

Instrument ID: A6

Lims ID: MB 320-141539/1-A

Client ID:

Operator ID: CBW

ALS Bottle#: 18

Worklist Smp#: 33

Injection Vol: 10.0 ul

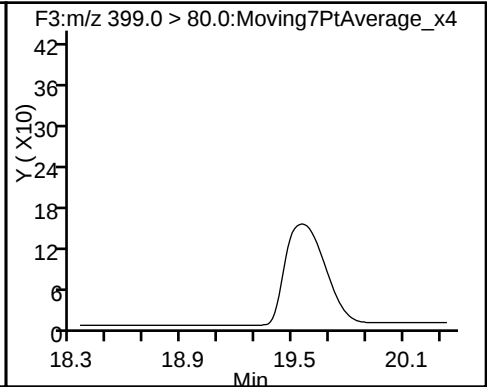
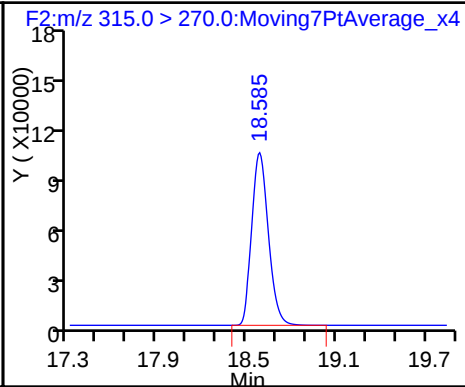
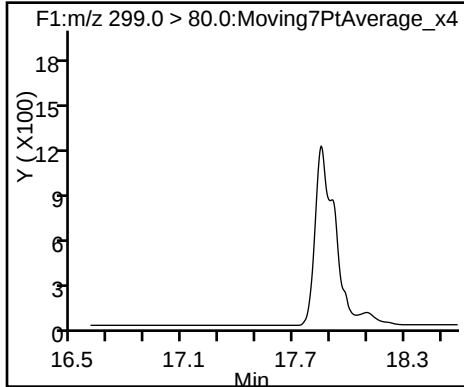
Dil. Factor: 1.0000

Method: 537_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA

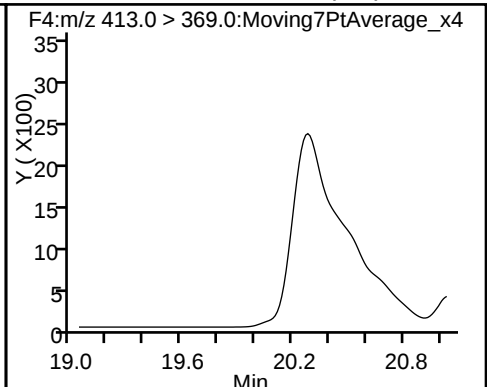
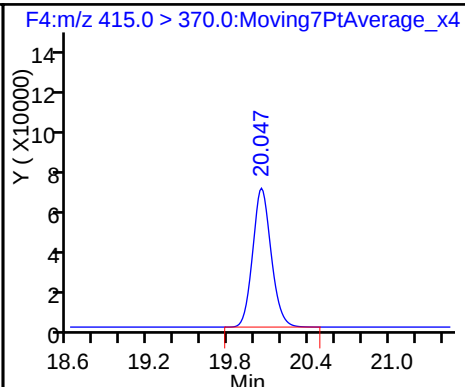
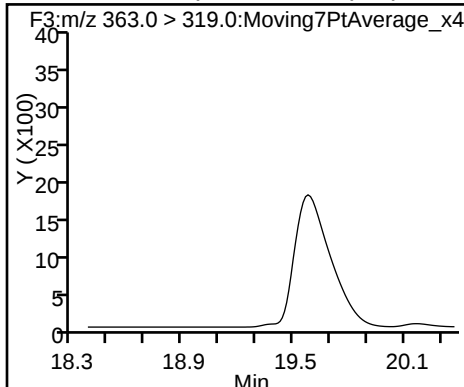
3 Perfluorohexanesulfonic acid (ND)



4 Perfluoroheptanoic acid (ND)

* 5 13C2-PFOA

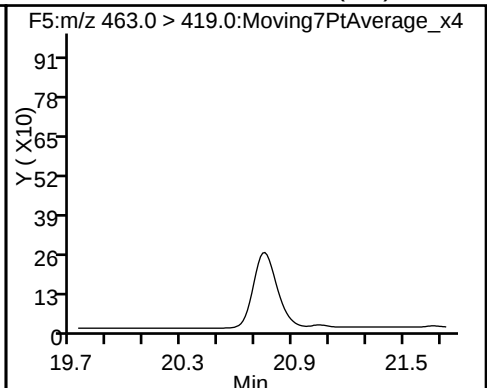
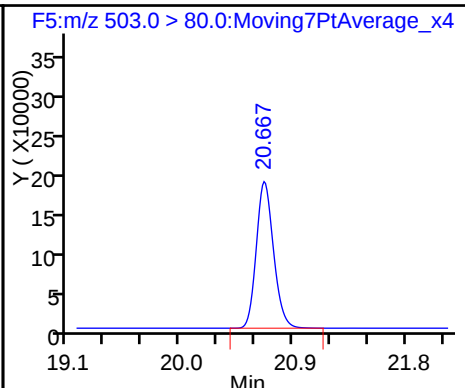
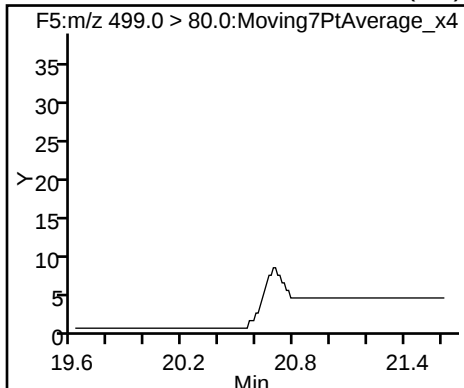
6 Perfluorooctanoic acid (ND)



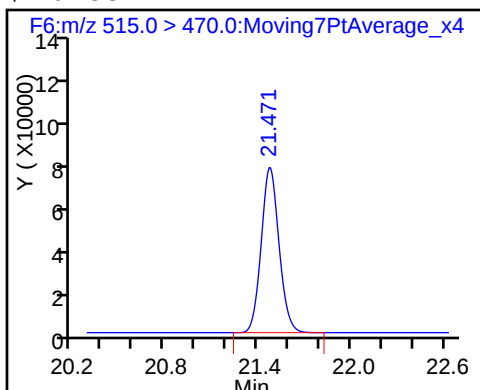
7 Perfluorooctane sulfonic acid (ND)

* 8 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_033.d
Lims ID: MB 320-141539/1-A
Client ID:
Sample Type: MB
Inject. Date: 15-Dec-2016 23:48:16 ALS Bottle#: 18 Worklist Smp#: 33
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: MB 320-141539/1-A BOX 23
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:42:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.5	104.87
\$ 10 13C2 PFDA	10.0	10.5	105.00

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-141539/2-A
 Matrix: Water Lab File ID: 15DEC2016A6A_034.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 250.00 (mL) Date Analyzed: 12/16/2016 00:17
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.245		0.060	0.048	0.016
335-67-1	Perfluorooctanoic acid (PFOA)	0.129		0.030	0.024	0.0094
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.511		0.14	0.11	0.048

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_034.d
 Lims ID: LCS 320-141539/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 16-Dec-2016 00:17:51 ALS Bottle#: 19 Worklist Smp#: 34
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: LCS 320-141539/2-A
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:43:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.595 17.595 0.0 1.000 5772381 127.7 8268
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.576 18.576 0.0 1.000 847329 9.83 27360
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 2706231 46.7 61532
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.379 19.380 -0.001 1.000 1421885 15.8 29742
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.035 0.012 738657 10.0 19184
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.047 20.035 0.012 1.000 2470533 32.1 954
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 4129705 61.4 14354
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.655 0.012 1848817 28.7 47644
 9 Perfluorononanoic acid
 463.0 > 419.0 20.750 20.738 0.012 1.000 2781973 33.2 12664
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.471 21.462 0.009 1.000 628684 9.71 19860

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_034.d

Injection Date: 16-Dec-2016 00:17:51

Instrument ID: A6

Lims ID: LCS 320-141539/2-A

Client ID:

Operator ID: CBW

ALS Bottle#: 19

Worklist Smp#: 34

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

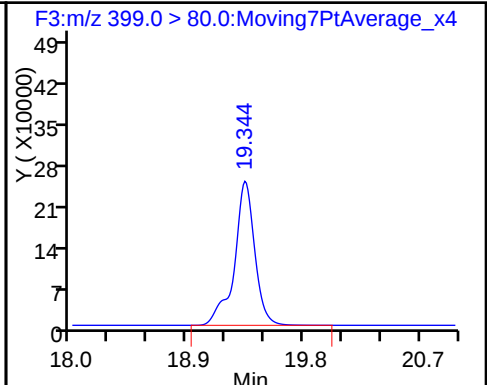
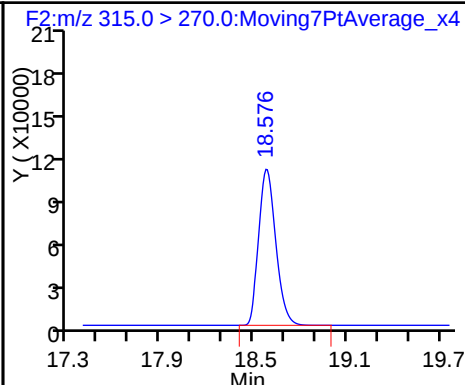
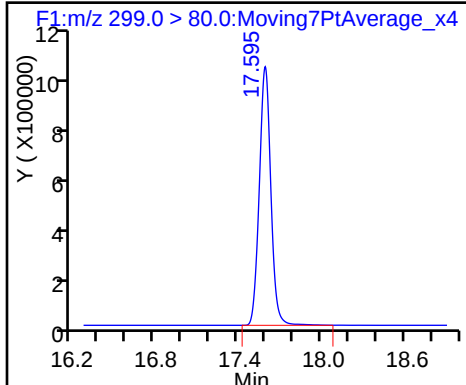
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

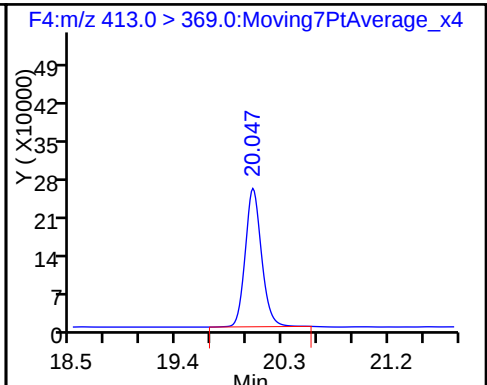
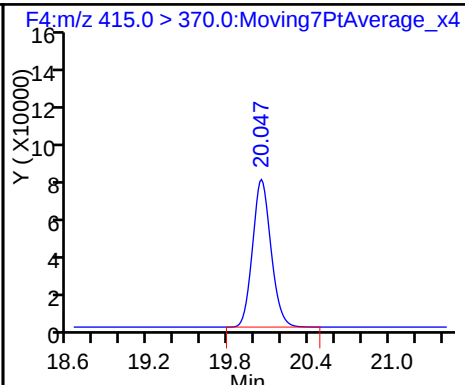
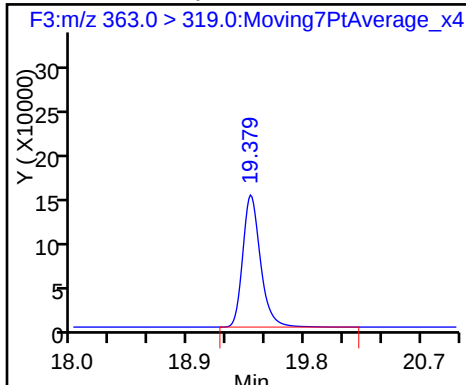
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

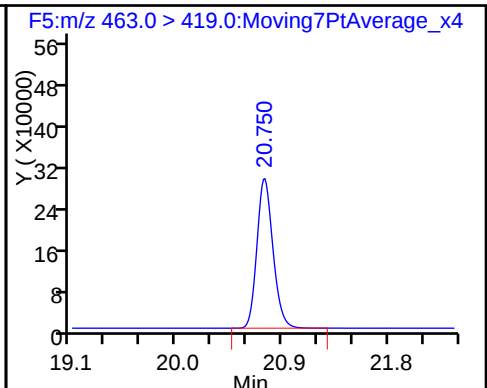
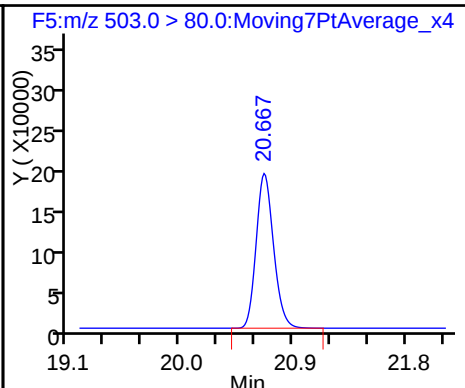
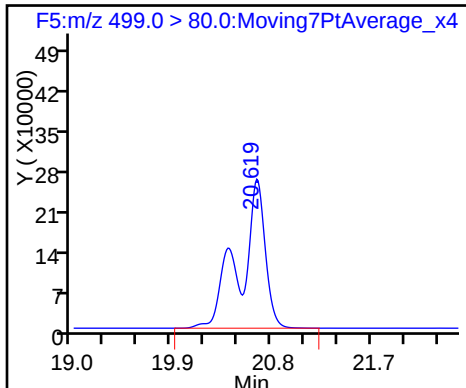
6 Perfluorooctanoic acid



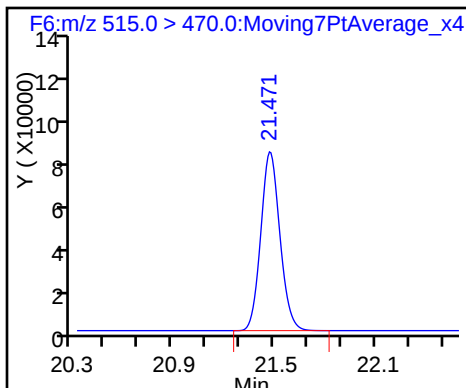
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_034.d
Lims ID: LCS 320-141539/2-A
Client ID:
Sample Type: LCS
Inject. Date: 16-Dec-2016 00:17:51 ALS Bottle#: 19 Worklist Smp#: 34
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: LCS 320-141539/2-A
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:43:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.83	98.34
\$ 10 13C2 PFDA	10.0	9.71	97.13

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW23-1216 MS Lab Sample ID: 320-24179-1 MS
 Matrix: Water Lab File ID: 15DEC2016A6A_083.d
 Analysis Method: 537 Date Collected: 12/05/2016 10:45
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 267.1 (mL) Date Analyzed: 12/17/2016 00:27
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142438 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.106		0.056	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.0539		0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.248		0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	93		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_083.d
 Lims ID: 320-24179-A-1-B MS
 Client ID: WI-AF-3RW23-1216
 Sample Type: MS
 Inject. Date: 17-Dec-2016 00:27:48 ALS Bottle#: 43 Worklist Smp#: 106
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-1-B MS
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Dec-2016 09:21:37 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK017

First Level Reviewer: westendorfc

Date: 17-Dec-2016 09:20:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.595 17.599 -0.004 1.000 2906270 66.3 1278
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.576 18.576 0.0 1.000 738311 9.05 24098
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.332 19.344 -0.012 1.000 1212646 21.6 27911
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.368 19.368 0.0 1.000 612816 7.21 1970
 * 5 13C2-PFOA
 415.0 > 370.0 20.023 20.023 0.0 699187 10.0 18006
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.023 20.023 0.0 1.000 1046518 14.4 560
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.643 20.643 0.0 1.000 1842779 28.2 29766
 * 8 13C4 PFOS
 503.0 > 80.0 20.643 20.643 0.0 1792763 28.7 8093
 9 Perfluorononanoic acid
 463.0 > 419.0 20.714 20.714 0.0 1.000 1148403 14.5 10110
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.445 21.444 0.001 1.000 567468 9.26 17775

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_083.d

Injection Date: 17-Dec-2016 00:27:48

Instrument ID: A6

Lims ID: 320-24179-A-1-B MS

Client ID: WI-AF-3RW23-1216

Operator ID: CBW

ALS Bottle#: 43

Worklist Smp#: 106

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

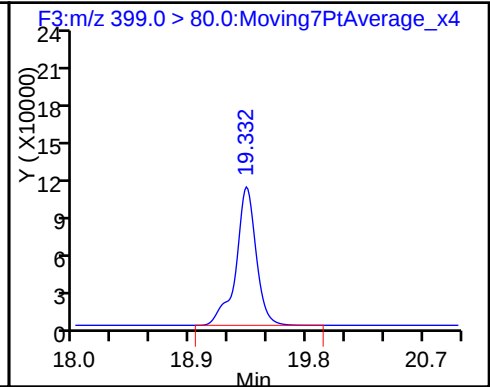
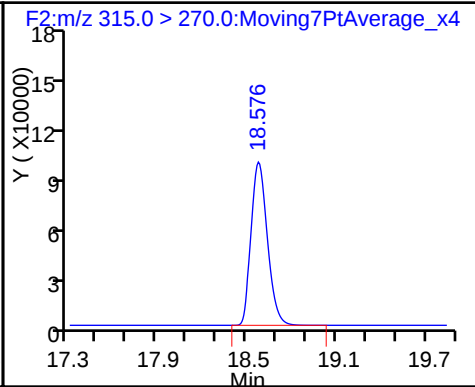
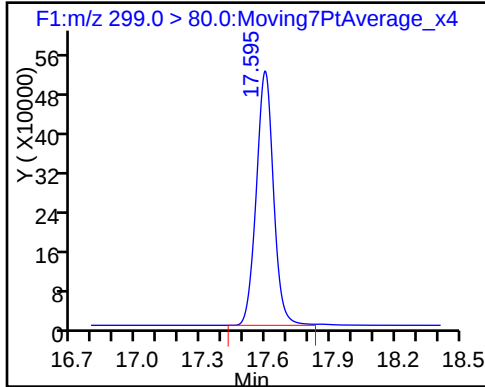
Method: 537__A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

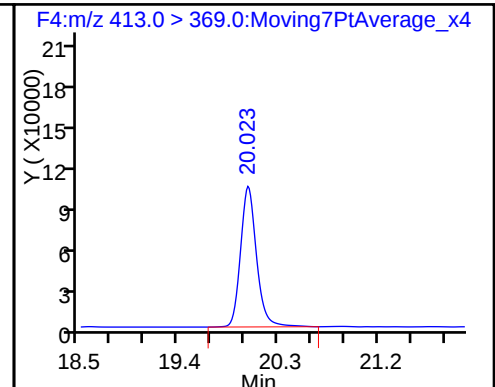
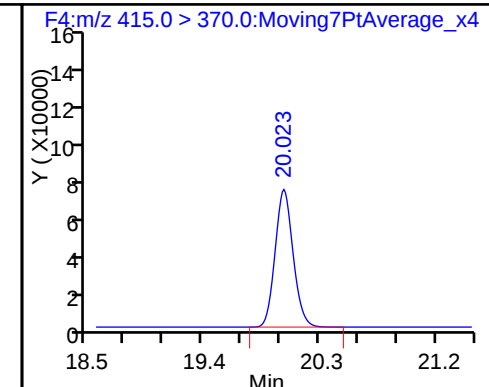
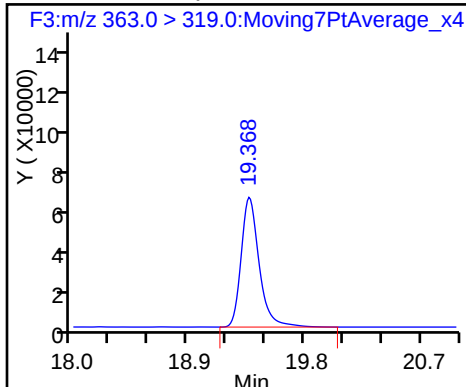
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

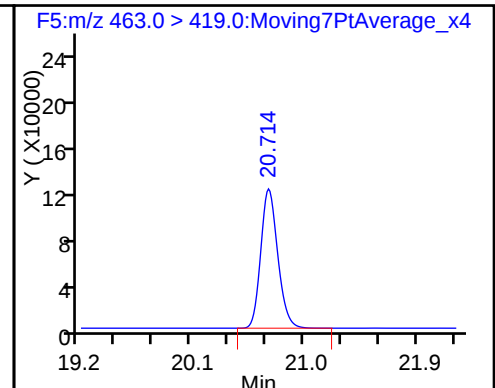
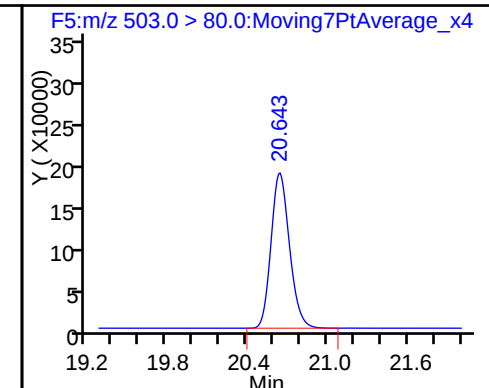
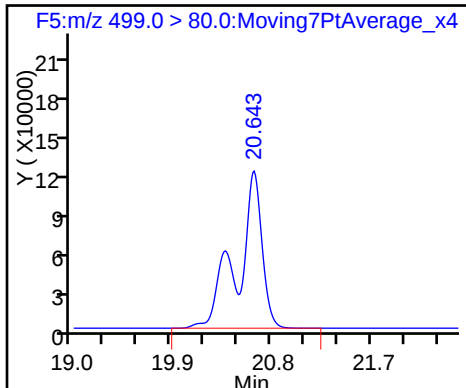
6 Perfluorooctanoic acid



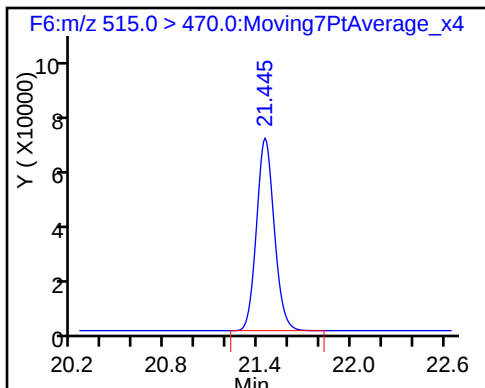
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_083.d
Lims ID: 320-24179-A-1-B MS
Client ID: WI-AF-3RW23-1216
Sample Type: MS
Inject. Date: 17-Dec-2016 00:27:48 ALS Bottle#: 43 Worklist Smp#: 106
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-1-B MS
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 17-Dec-2016 09:21:37 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK017

First Level Reviewer: westendorfc

Date: 17-Dec-2016 09:20:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.05	90.52
\$ 10 13C2 PFDA	10.0	9.26	92.62

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW23-1216 MSD Lab Sample ID: 320-24179-1 MSD
 Matrix: Water Lab File ID: 15DEC2016A6A_037.d
 Analysis Method: 537 Date Collected: 12/05/2016 10:45
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 252.1 (mL) Date Analyzed: 12/16/2016 01:46
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.120		0.060	0.048	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.0621		0.030	0.024	0.0093
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.303		0.14	0.11	0.047

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_037.d
 Lims ID: 320-24179-A-1-C MSD
 Client ID: WI-AF-3RW23-1216
 Sample Type: MSD
 Inject. Date: 16-Dec-2016 01:46:39 ALS Bottle#: 22 Worklist Smp#: 37
 Injection Vol: 10.0 ul Dil. Factor: 1.0000
 Sample Info: 320-24179-A-1-C MSD
 Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
 Operator ID: CBW Instrument ID: A6
 Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
 Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
 Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:44:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	S/N	Flags
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1 Perfluorobutanesulfonic acid
 299.0 > 80.0 17.595 17.595 0.0 1.000 3159041 76.4 1989
 \$ 2 13C2 PFHxA
 315.0 > 270.0 18.585 18.576 0.009 1.000 732937 10.1 23743
 3 Perfluorohexanesulfonic acid
 399.0 > 80.0 19.344 19.344 0.0 1.000 1303251 24.6 40064
 4 Perfluoroheptanoic acid
 363.0 > 319.0 19.380 19.380 0.0 1.000 578512 7.65 1849
 * 5 13C2-PFOA
 415.0 > 370.0 20.047 20.035 0.012 622147 10.0 16092
 6 Perfluorooctanoic acid
 413.0 > 369.0 20.047 20.035 0.012 1.000 1013552 15.7 527
 7 Perfluorooctane sulfonic acid
 499.0 > 80.0 20.619 20.619 0.0 1.000 1861308 30.2 27572
 * 8 13C4 PFOS
 503.0 > 80.0 20.667 20.655 0.012 1691207 28.7 21825
 9 Perfluorononanoic acid
 463.0 > 419.0 20.750 20.738 0.012 1.000 1127921 16.0 13270
 \$ 10 13C2 PFDA
 515.0 > 470.0 21.471 21.462 0.009 1.000 523787 9.61 16626

TestAmerica Sacramento

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_037.d

Injection Date: 16-Dec-2016 01:46:39

Instrument ID: A6

Lims ID: 320-24179-A-1-C MSD

Client ID: WI-AF-3RW23-1216

Operator ID: CBW

ALS Bottle#: 22

Worklist Smp#: 37

Injection Vol: 10.0 ul

Dil. Factor: 1.0000

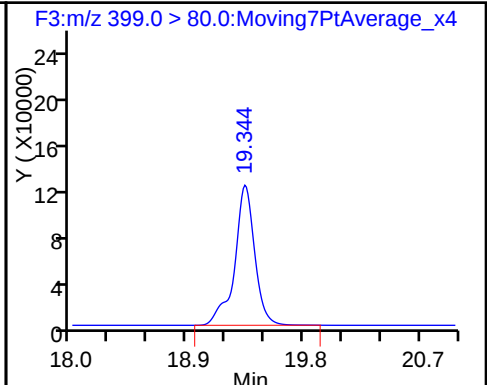
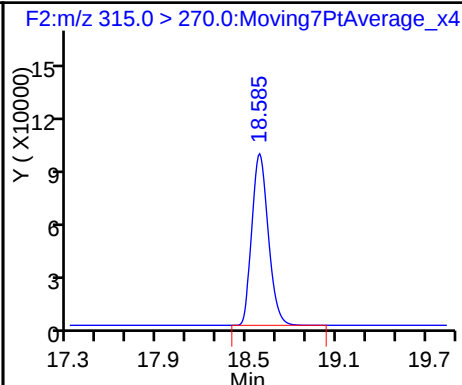
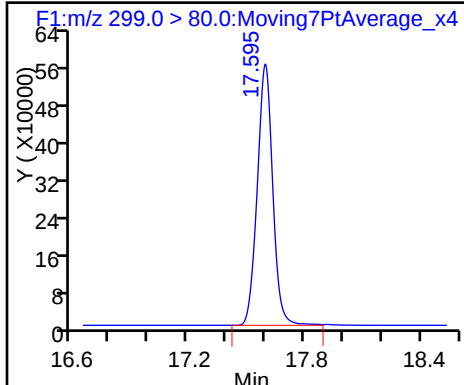
Method: 537_A6

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

\$ 2 13C2 PFHxA

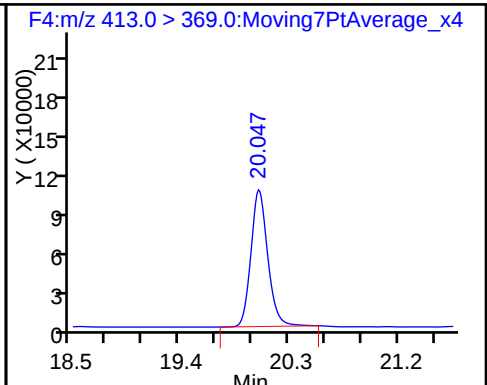
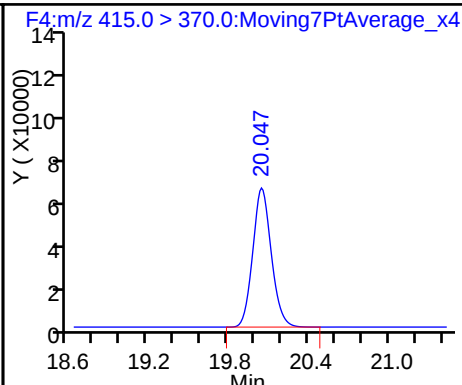
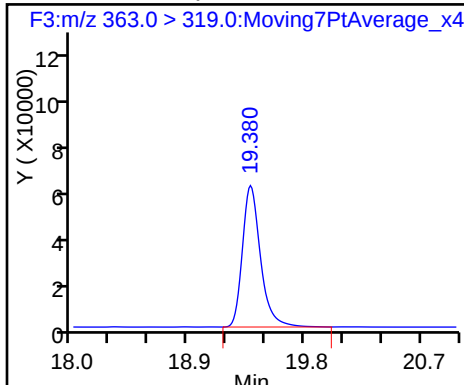
3 Perfluorohexanesulfonic acid



4 Perfluoroheptanoic acid

* 5 13C2-PFOA

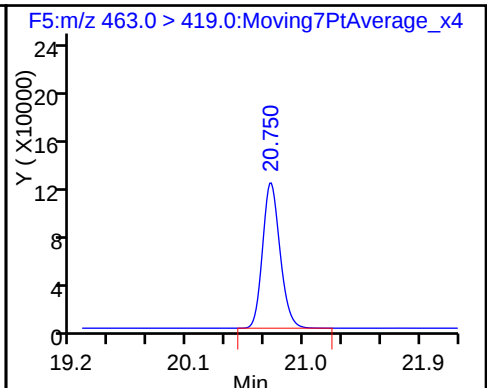
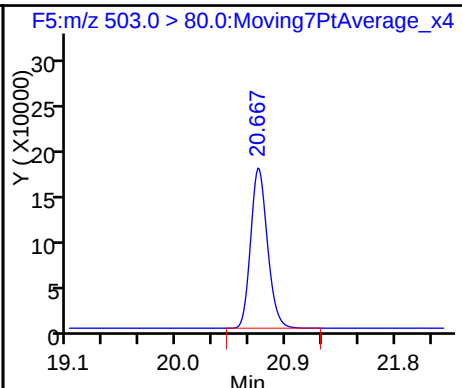
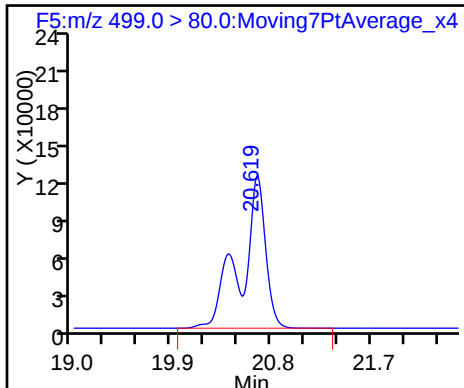
6 Perfluorooctanoic acid



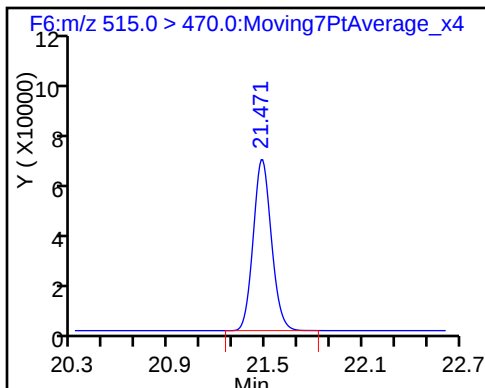
7 Perfluorooctane sulfonic acid

* 8 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\15DEC2016A6A_037.d
Lims ID: 320-24179-A-1-C MSD
Client ID: WI-AF-3RW23-1216
Sample Type: MSD
Inject. Date: 16-Dec-2016 01:46:39 ALS Bottle#: 22 Worklist Smp#: 37
Injection Vol: 10.0 ul Dil. Factor: 1.0000
Sample Info: 320-24179-A-1-C MSD
Misc. Info.: Acquity BEH 1.7um, 3X150mm T=35*C
Operator ID: CBW Instrument ID: A6
Method: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b\537__A6.m
Limit Group: LC 537 ICAL
Last Update: 16-Dec-2016 10:53:34 Calib Date: 05-Dec-2016 19:54:00
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A6\20161205-37524.b\05DEC2016A6A_009.d
Column 1 : Acquity BEH C18 (2.10 mm) Det: F1:MRM
Process Host: XAWRK028

First Level Reviewer: westendorfc

Date: 16-Dec-2016 10:44:22

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	100.99
\$ 10 13C2 PFDA	10.0	9.61	96.08

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-24179-1

SDG No.: _____

Instrument ID: A6Start Date: 12/05/2016 17:26Analysis Batch Number: 140688End Date: 12/06/2016 02:48

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 320-140688/2 IC		12/05/2016 17:26	1	05DEC2016A6A_00 4.d	Acquity 2.1 (mm)
STD 320-140688/3 IC		12/05/2016 17:55	1	05DEC2016A6A_00 5.d	Acquity 2.1 (mm)
STD 320-140688/4 IC		12/05/2016 18:25	1	05DEC2016A6A_00 6.d	Acquity 2.1 (mm)
STD 320-140688/5 ICISAV		12/05/2016 18:54	1	05DEC2016A6A_00 7.d	Acquity 2.1 (mm)
STD 320-140688/6 IC		12/05/2016 19:24	1	05DEC2016A6A_00 8.d	Acquity 2.1 (mm)
STD 320-140688/7 IC		12/05/2016 19:54	1	05DEC2016A6A_00 9.d	Acquity 2.1 (mm)
ZZZZZ		12/05/2016 20:23	1		Acquity 2.1 (mm)
CCV 320-140688/9 CCVL		12/05/2016 20:53	1	05DEC2016A6A_01 1.d	Acquity 2.1 (mm)
ZZZZZ		12/05/2016 21:22	1		Acquity 2.1 (mm)
ICV 320-140688/11		12/05/2016 21:52	1	05DEC2016A6A_01 3.d	Acquity 2.1 (mm)
ZZZZZ		12/05/2016 22:22	1		Acquity 2.1 (mm)
ZZZZZ		12/05/2016 22:51	1		Acquity 2.1 (mm)
ZZZZZ		12/05/2016 23:21	1		Acquity 2.1 (mm)
ZZZZZ		12/05/2016 23:50	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 00:20	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 00:49	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 01:19	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 01:49	1		Acquity 2.1 (mm)
ZZZZZ		12/06/2016 02:18	1		Acquity 2.1 (mm)
CCV 320-140688/21 CCVIS		12/06/2016 02:48	1		Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Instrument ID: A6 Start Date: 12/15/2016 08:03Analysis Batch Number: 142223 End Date: 12/15/2016 14:55

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-142223/2 CCVL		12/15/2016 08:03	1	15DEC2016A6A_00 2.d	Acquity 2.1(mm)
CCV 320-142223/3 CCVIS		12/15/2016 08:33	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 09:02	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 09:32	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 10:02	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 10:31	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 10:57	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 11:30	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 12:00	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 12:29	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 12:59	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 13:29	1		Acquity 2.1(mm)
ZZZZZ		12/15/2016 14:25	1		Acquity 2.1(mm)
CCV 320-142223/15 CCVIS		12/15/2016 14:55	1		Acquity 2.1(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-24179-1

SDG No.: _____

Instrument ID: A6Start Date: 12/15/2016 22:49Analysis Batch Number: 142414End Date: 12/16/2016 04:14

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-142414/31 CCVIS		12/15/2016 22:49	1	15DEC2016A6A_03 1.d	Acquity 2.1 (mm)
ZZZZZ		12/15/2016 23:18	1		Acquity 2.1 (mm)
MB 320-141539/1-A		12/15/2016 23:48	1	15DEC2016A6A_03 3.d	Acquity 2.1 (mm)
LCS 320-141539/2-A		12/16/2016 00:17	1	15DEC2016A6A_03 4.d	Acquity 2.1 (mm)
320-24179-1		12/16/2016 00:47	1	15DEC2016A6A_03 5.d	Acquity 2.1 (mm)
ZZZZZ		12/16/2016 01:17	1		Acquity 2.1 (mm)
320-24179-1 MSD		12/16/2016 01:46	1	15DEC2016A6A_03 7.d	Acquity 2.1 (mm)
320-24179-2		12/16/2016 02:16	1	15DEC2016A6A_03 8.d	Acquity 2.1 (mm)
320-24179-3		12/16/2016 02:45	1	15DEC2016A6A_03 9.d	Acquity 2.1 (mm)
320-24179-4		12/16/2016 03:15	1	15DEC2016A6A_04 0.d	Acquity 2.1 (mm)
320-24179-5		12/16/2016 03:45	1	15DEC2016A6A_04 1.d	Acquity 2.1 (mm)
CCV 320-142414/42 CCVIS		12/16/2016 04:14	1	15DEC2016A6A_04 2.d	Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-24179-1

SDG No.: _____

Instrument ID: A6Start Date: 12/16/2016 04:14Analysis Batch Number: 142415End Date: 12/16/2016 10:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-142415/42 CCVIS		12/16/2016 04:14	1	15DEC2016A6A_04 2.d	Acquity 2.1 (mm)
ZZZZZ		12/16/2016 04:44	1		Acquity 2.1 (mm)
320-24179-6		12/16/2016 05:13	1	15DEC2016A6A_04 4.d	Acquity 2.1 (mm)
320-24179-7		12/16/2016 05:43	1	15DEC2016A6A_04 5.d	Acquity 2.1 (mm)
320-24179-8		12/16/2016 06:13	1	15DEC2016A6A_04 6.d	Acquity 2.1 (mm)
320-24179-9		12/16/2016 06:42	1	15DEC2016A6A_04 7.d	Acquity 2.1 (mm)
320-24179-10		12/16/2016 07:12	1	15DEC2016A6A_04 8.d	Acquity 2.1 (mm)
320-24179-11		12/16/2016 07:41	1	15DEC2016A6A_04 9.d	Acquity 2.1 (mm)
320-24179-12		12/16/2016 08:11	1	15DEC2016A6A_05 0.d	Acquity 2.1 (mm)
320-24179-13		12/16/2016 08:41	1	15DEC2016A6A_05 1.d	Acquity 2.1 (mm)
320-24179-14		12/16/2016 09:10	1	15DEC2016A6A_05 2.d	Acquity 2.1 (mm)
320-24179-15		12/16/2016 09:40	1	15DEC2016A6A_05 3.d	Acquity 2.1 (mm)
CCV 320-142415/54 CCVIS		12/16/2016 10:09	1	15DEC2016A6A_05 4.d	Acquity 2.1 (mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Instrument ID: A6 Start Date: 12/16/2016 21:59Analysis Batch Number: 142438 End Date: 12/17/2016 03:55

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-142438/78 CCVIS		12/16/2016 21:59	1	15DEC2016A6A_07 8.d	Acquity 2.1 (mm)
ZZZZZ		12/16/2016 22:29	1		Acquity 2.1 (mm)
ZZZZZ		12/16/2016 22:58	1		Acquity 2.1 (mm)
ZZZZZ		12/16/2016 23:28	1		Acquity 2.1 (mm)
ZZZZZ		12/16/2016 23:58	1		Acquity 2.1 (mm)
320-24179-1 MS		12/17/2016 00:27	1	15DEC2016A6A_08 3.d	Acquity 2.1 (mm)
ZZZZZ		12/17/2016 00:57	1		Acquity 2.1 (mm)
ZZZZZ		12/17/2016 01:27	1		Acquity 2.1 (mm)
ZZZZZ		12/17/2016 01:56	1		Acquity 2.1 (mm)
ZZZZZ		12/17/2016 02:26	1		Acquity 2.1 (mm)
ZZZZZ		12/17/2016 02:55	1		Acquity 2.1 (mm)
ZZZZZ		12/17/2016 03:25	1		Acquity 2.1 (mm)
CCV 320-142438/83 CCVIS		12/17/2016 03:55	1	15DEC2016A6A_09 0.d	Acquity 2.1 (mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Batch Number: 141539 Batch Start Date: 12/09/16 18:50 Batch Analyst: Reed, Jonathan EBatch Method: 537 Batch End Date: 12/10/16 17:11

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-HSP 00010
MB 320-141539/1		537, 537				250.00 mL	1.00 mL	7 SU	
LCS 320-141539/2		537, 537				250.00 mL	1.00 mL	7 SU	50 uL
320-24179-A-1	WI-AF-3RW23-1216	537, 537	T	304.48 g	27.52 g	277 mL	1.00 mL	7 SU	
320-24179-A-1	WI-AF-3RW23-1216	537, 537	T	293.61 g	26.52 g	267.1 mL	1.00 mL	7 SU	
MS									
320-24179-A-1	WI-AF-3RW23-1216	537, 537	T	279.73 g	27.59 g	252.1 mL	1.00 mL	7 SU	
MSD									
320-24179-A-2	WI-AF-3FB23-1216	537, 537	T	288.74 g	26.40 g	262.3 mL	1.00 mL	7 SU	
320-24179-A-3	WI-AF-3RW24-1216	537, 537	T	308.26 g	26.86 g	281.4 mL	1.00 mL	7 SU	
320-24179-A-4	WI-AF-3RW24P-1216	537, 537	T	313.82 g	26.96 g	286.9 mL	1.00 mL	7 SU	
320-24179-A-5	WI-AF-3FB24-1216	537, 537	T	299.20 g	26.71 g	272.5 mL	1.00 mL	7 SU	
320-24179-A-6	WI-AF-3RW25-1216	537, 537	T	293.10 g	28.10 g	265 mL	1.00 mL	7 SU	
320-24179-A-7	WI-AF-3FB25-1216	537, 537	T	308.57 g	25.95 g	282.6 mL	1.00 mL	7 SU	
320-24179-A-8	WI-AF-3RW26-1216	537, 537	T	293.56 g	29.01 g	264.6 mL	1.00 mL	7 SU	
320-24179-A-9	WI-AF-3FB26-1216	537, 537	T	314.55 g	26.36 g	288.2 mL	1.00 mL	7 SU	
320-24179-A-10	WI-AF-3RW27-1216	537, 537	T	287.94 g	28.82 g	259.1 mL	1.00 mL	7 SU	
320-24179-A-11	WI-AF-3FB27-1216	537, 537	T	291.80 g	27.02 g	264.8 mL	1.00 mL	7 SU	
320-24179-A-12	WI-AF-3RW28-1216	537, 537	T	296.03 g	27.08 g	269 mL	1.00 mL	7 SU	
320-24179-A-13	WI-AF-3FB28-1216	537, 537	T	307.48 g	26.05 g	281.4 mL	1.00 mL	7 SU	
320-24179-A-14	WI-AF-3RW29-1216	537, 537	T	285.78 g	27.40 g	258.4 mL	1.00 mL	7 SU	
320-24179-A-15	WI-AF-3FB29-1216	537, 537	T	282.78 g	26.29 g	256.5 mL	1.00 mL	7 SU	

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00026	LC537-MSP 00014	LC537-SU 00024	AnalysisComment		
MB 320-141539/1		537, 537		20 uL		50 uL	Free Chlorine: ND		
LCS 320-141539/2		537, 537		20 uL		50 uL	Free Chlorine: ND		
320-24179-A-1	WI-AF-3RW23-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-1	WI-AF-3RW23-1216	537, 537	T	20 uL	50 uL	50 uL	Free Chlorine: ND		
MS									
320-24179-A-1	WI-AF-3RW23-1216	537, 537	T	20 uL	50 uL	50 uL	Free Chlorine: ND		
MSD									

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.: 320-24179-1

SDG No.: _____

Batch Number: 141539 Batch Start Date: 12/09/16 18:50 Batch Analyst: Reed, Jonathan EBatch Method: 537 Batch End Date: 12/10/16 17:11

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-IS 00026	LC537-MSP 00014	LC537-SU 00024	AnalysisComment		
320-24179-A-2	WI-AF-3FB23-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-3	WI-AF-3RW24-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-4	WI-AF-3RW24P-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-5	WI-AF-3FB24-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-6	WI-AF-3RW25-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-7	WI-AF-3FB25-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-8	WI-AF-3RW26-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-9	WI-AF-3FB26-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-10	WI-AF-3RW27-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-11	WI-AF-3FB27-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-12	WI-AF-3RW28-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-13	WI-AF-3FB28-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-14	WI-AF-3RW29-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		
320-24179-A-15	WI-AF-3FB29-1216	537, 537	T	20 uL		50 uL	Free Chlorine: ND		

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

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Batch Number: 141539 Batch Start Date: 12/09/16 18:50 Batch Analyst: Reed, Jonathan EBatch Method: 537 Batch End Date: 12/10/16 17:11

Batch Notes	
Manifold ID	5, 1
Methanol ID	789820
Pipette ID	MD05306
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	VPM
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Analyst ID - TA Reagent Drop	JER
Analyst ID - TA Reagent Drop Witness	VPM
SPE Cartridge ID	6332578-03
Trizma ID	SLBN2122V
Reagent Water ID	12/08/16

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.

Job No: 24178, 24179 Instrument ID & Date: A6 12/15/16 ICAL Batch: 140688
 Extraction Batch: 141540, 141539 Worklist #: 37850 TALS Batch: 142223, 142412, 142414, 142415, 142438

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? <u>0</u> Dilutions due to non-targets? <u>0</u>	✓			✓
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: CBW 12/16/16

2nd Level Reviewer / Date: mwaf 12/19/2016

NCM # and Comments: 73183 12/17/16

Instrument ID & Date: AL 12-5-16 Worklist#: 37524

ICAL Batch: 140688, 140689 Calibration ID number: 26888, 26889

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 12-6-16

2nd Level Reviewer / Date: R. H. 12/7/16

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 15DEC2016A_A6 537

Worklist Number: 37858

Instrument Name: A6

Chrom Method: 537_A6

Data Directory: \\ChromNA\Sacramento\ChromData\A6\20161214-37858.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 142223	LC 537 CS ICAL Raw Batch: 142224
# 1 RB	# 1 RB	# 2 CCV L2
# 2 CCV L2	# 2 CCV L2	
# 3 CCV L3	# 3 CCV L3	
# 4 RB	# 4 RB	
# 5 MB 320-141540/1-A	# 5 MB 320-141540/1-A	
# 6 LLCS 320-141540/2-A	# 6 LLCS 320-141540/2-A	
# 7 LLCSD 320-141540/3-A	# 7 LLCSD 320-141540/3-A	
# 8 320-24085-A-12-A	# 8 320-24085-A-12-A	
# 9 320-24178-A-1-A	# 9 320-24178-A-1-A	
#10 320-24178-A-2-A	#10 320-24178-A-2-A	
#11 320-24178-A-3-A	#11 320-24178-A-3-A	
#12 320-24178-A-4-A	#12 320-24178-A-4-A	
#13 320-24178-A-5-A	#13 320-24178-A-5-A	
#14 320-24178-A-6-A	#14 320-24178-A-6-A	
#15 CCV L5	#15 CCV L5	

QC Batch: 2	LC 537 ICAL Raw Batch: 142412
#15 CCV L5	#15 CCV L5
#16 RB	#16 RB
#17 320-24178-A-7-A	#17 320-24178-A-7-A
#18 320-24178-A-8-A	#18 320-24178-A-8-A
#19 320-24178-A-9-A	#19 320-24178-A-9-A
#20 320-24178-A-10-A	#20 320-24178-A-10-A
#21 320-24178-A-11-A	#21 320-24178-A-11-A
#22 320-24178-A-12-A	#22 320-24178-A-12-A
#23 320-24178-A-13-A	#23 320-24178-A-13-A
#24 CCV L3	#24 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 142413
#24 CCV L3	#24 CCV L3
#25 RB	#25 RB
#26 MB 320-136929/1-A	#26 MB 320-136929/1-A
#27 320-20510-A-1-B	#27 320-20510-A-1-B
#28 320-20510-A-2-B	#28 320-20510-A-2-B
#29 320-20510-A-3-B	#29 320-20510-A-3-B
#30 537 SPIKE QC	#30 537 SPIKE QC
#31 CCV L3	#31 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 142414
#31 CCV L3	#31 CCV L3
#32 RB	#32 RB
#33 MB 320-141539/1-A	#33 MB 320-141539/1-A
#34 LCS 320-141539/2-A	#34 LCS 320-141539/2-A
#35 320-24179-A-1-A	#35 320-24179-A-1-A
#36 320-24179-A-1-B MS	#36 320-24179-A-1-B MS
#37 320-24179-A-1-C MSD	#37 320-24179-A-1-C MSD
#38 320-24179-A-2-A	#38 320-24179-A-2-A

QC Batch: 4	LC 537 ICAL Raw Batch: 142414
#39 320-24179-A-3-A	#39 320-24179-A-3-A
#40 320-24179-A-4-A	#40 320-24179-A-4-A
#41 320-24179-A-5-A	#41 320-24179-A-5-A
#42 CCV L5	#42 CCV L5

QC Batch: 5	LC 537 ICAL Raw Batch: 142415	LC 537 CS ICAL Raw Batch: 142416
#42 CCV L5	#42 CCV L5	
#43 RB	#43 RB	
#44 320-24179-A-6-A	#44 320-24179-A-6-A	
#45 320-24179-A-7-A	#45 320-24179-A-7-A	
#46 320-24179-A-8-A	#46 320-24179-A-8-A	
#47 320-24179-A-9-A	#47 320-24179-A-9-A	
#48 320-24179-A-10-A	#48 320-24179-A-10-A	
#49 320-24179-A-11-A	#49 320-24179-A-11-A	
#50 320-24179-A-12-A	#50 320-24179-A-12-A	
#51 320-24179-A-13-A	#51 320-24179-A-13-A	
#52 320-24179-A-14-A	#52 320-24179-A-14-A	
#53 320-24179-A-15-A	#53 320-24179-A-15-A	
#54 CCV L3	#54 CCV L3	#54 CCV L3

QC Batch: 6	LC 537 ICAL Raw Batch: 142417	LC 537 CS ICAL Raw Batch: 142418
#54 CCV L3	#54 CCV L3	#54 CCV L3
#55 RB		#55 RB
#56 MB 320-141980/1-A		#56 MB 320-141980/1-A
#57 LCS 320-141980/2-A		#57 LCS 320-141980/2-A
#58 320-24284-A-1-A		#58 320-24284-A-1-A
#59 320-24284-A-2-A		#59 320-24284-A-2-A
#60 320-24284-A-3-A		#60 320-24284-A-3-A
#61 320-24284-A-3-B DU		#61 320-24284-A-3-B DU
#62 320-24284-A-3-C MS		#62 320-24284-A-3-C MS
#63 320-24284-A-4-A		#63 320-24284-A-4-A
#64 320-24284-A-5-A		#64 320-24284-A-5-A
#65 320-24284-A-6-A		#65 320-24284-A-6-A
#66 CCV L5	#66 CCV L5	#66 CCV L5

QC Batch: 7	LC 537 CS ICAL Raw Batch: 142419	LC 537 ICAL Raw Batch: 142437
#66 CCV L5	#66 CCV L5	#66 CCV L5
#67 RB		#67 RB
#68 MB 320-140189/1-A		#68 MB 320-140189/1-A
#69 LCS 320-140189/2-A		#69 LCS 320-140189/2-A
#70 LCSD 320-140189/3-A		#70 LCSD 320-140189/3-A
#71 320-23895-A-1-A		#71 320-23895-A-1-A
#72 320-23895-A-2-A		#72 320-23895-A-2-A
#73 320-23895-B-3-A		#73 320-23895-B-3-A
#74 320-23895-A-4-A		#74 320-23895-A-4-A
#75 320-23895-B-5-A		#75 320-23895-B-5-A
#76 320-23895-A-6-A		#76 320-23895-A-6-A
#77 320-23895-A-7-A		#77 320-23895-A-7-A
#78 CCV L3		#78 CCV L3

QC Batch: 8	LC 537 ICAL Raw Batch: 142438
#78 CCV L3	#78 CCV L3
#79 RB	#79 RB

QC Batch: 8	LC 537 ICAL Raw Batch: 142438
#80 320-23895-A-8-A	#80 320-23895-A-8-A
#81 320-23895-A-9-A	#81 320-23895-A-9-A
#82 320-23895-A-10-A	#82 320-23895-A-10-A
#106 320-24179-A-1-B MS	#106 320-24179-A-1-B MS
#85 MB 320-141959/1-A	#85 MB 320-141959/1-A
#86 LLCSD 320-141959/2-A	#86 LLCSD 320-141959/2-A
#87 LLCSD 320-141959/3-A	#87 LLCSD 320-141959/3-A
#88 320-24036-A-1-A	#88 320-24036-A-1-A
#89 320-24036-A-2-A	#89 320-24036-A-2-A
#90 320-24036-A-3-A	#90 320-24036-A-3-A
#83 CCV L5	#83 CCV L5

QC Batch: 9	LC 537 ICAL Raw Batch: 142651
#83 CCV L5	#83 CCV L5
#108 RB	#108 RB
#91 320-24036-A-4-A	#91 320-24036-A-4-A
#92 320-24036-A-5-A	#92 320-24036-A-5-A
#93 320-24036-A-6-A	#93 320-24036-A-6-A
#94 320-24036-A-7-A	#94 320-24036-A-7-A
#95 320-24036-A-8-A	#95 320-24036-A-8-A
#96 320-24036-A-9-A	#96 320-24036-A-9-A
#97 MB 320-142443/1-A	#97 MB 320-142443/1-A
#98 LCS 320-142443/2-A	#98 LCS 320-142443/2-A
#99 LCSD 320-142443/3-A	#99 LCSD 320-142443/3-A
#100 320-24190-B-2-A	#100 320-24190-B-2-A
#109 CCV L3	#109 CCV L3

QC Batch: 10	LC 537 ICAL Raw Batch: 142652
#109 CCV L3	#109 CCV L3
#110 RB	#110 RB
#101 320-24190-B-3-A	#101 320-24190-B-3-A
#102 320-24190-B-4-A	#102 320-24190-B-4-A
#103 320-24190-B-5-A	#103 320-24190-B-5-A
#104 320-24190-B-6-A	#104 320-24190-B-6-A
#105 320-24190-B-7-A	#105 320-24190-B-7-A
#112 CCV L5	#112 CCV L5

22 Push

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141540

Method Code: 320-537_Prep-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:59:00PM

Batch End: 12/10/2016 5:11:00PM

Screened AY 12/12/16 (NoSL needed)

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmt FinAmt	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1 Adj2					
1 MB-320-141540/1 N/A	N/A		250.00 mL 1.00 mL	7		N/A	N/A	N/A	Free Chlorine: ND	MB 320-141540/1-A
2 LLCSD-320-141540/2 N/A	N/A		250.00 mL 1.00 mL	7		N/A	N/A	N/A	Free Chlorine: ND	LLCS 320-141540/2-A
3 LLCSD-320-141540/3 N/A	N/A		250.00 mL 1.00 mL	7		N/A	N/A	N/A	Free Chlorine: ND	LLCS 320-141540/3-A
4 320-24178-A-1 (537_DOD5)	N/A (320-24178-1)	300.19 g 26.81 g	273.4 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-1-A
5 320-24178-A-2 (537_DOD5)	N/A (320-24178-1)	304.31 g 26.81 g	277.5 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-2-A
6 320-24178-A-3 (537_DOD5)	N/A (320-24178-1)	277.99 g 26.37 g	251.6 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-3-A
7 320-24178-A-4 (537_DOD5)	N/A (320-24178-1)	295.05 g 27.65 g	267.4 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-4-A
8 320-24178-A-5 (537_DOD5)	N/A (320-24178-1)	278.47 g 26.28 g	252.2 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-5-A
9 320-24178-A-6 (537_DOD5)	N/A (320-24178-1)	298.76 g 27.10 g	271.7 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-6-A
10 320-24178-A-7 (537_DOD5)	N/A (320-24178-1)	273.55 g 26.27 g	247.3 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24178-A-7-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141540

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:59:00PM

Method Code: 320-537_Prep-320

Batch End:

11	320-24178-A-8 (537_DOD5)	N/A (320-24178-1)	298.22 g 27.95 g	270.3 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND 
12	320-24178-A-9 (537_DOD5)	N/A (320-24178-1)	279.99 g 26.48 g	253.5 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND 
13	320-24178-A-10 (537_DOD5)	N/A (320-24178-1)	282.11 g 27.76 g	254.4 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND 
14	320-24178-A-11 (537_DOD5)	N/A (320-24178-1)	285.96 g 26.80 g	259.2 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND 
15	320-24178-A-12 (537_DOD5)	N/A (320-24178-1)	304.15 g 28.72 g	275.4 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND 
16	320-24178-A-13 (537_DOD5)	N/A (320-24178-1)	280.71 g 26.95 g	253.8 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND 

NUM dark orange lots of under bottom content. VPM 12/10/11

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141540

Method Code: 320-537_Prep-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:59:00PM

Batch End:

Batch Notes	
Manifold ID	1, 3
Trizma ID	SLBN2122V
SPE Cartridge ID	6332578-03
Methanol ID	789820
Reagent Water ID	12/08/16
Pipette ID	MD05306
Analyst ID - TA Reagent Drop	JER
Analyst ID - TA Reagent Drop Witness	VPM
Analyst ID - SU Reagent Drop	JER
Analyst ID - SU Reagent Drop Witness	VPM
Analyst ID - IS Reagent Drop	JER (799828) 20ul
Analyst ID - IS Reagent Drop Witness	VPM
Batch Comment	

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141540

Method Code: 320-537_Pre-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:59:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-141540/1	LC537-SU_00024	50 uL	1.00 mL	 12/9/16	VPM 12/09/16
LLCS 320-141540/2	LC537-LSP_00016	50 uL	1.00 mL		
LLCS 320-141540/2	LC537-SU_00024	50 uL	1.00 mL		
LLCSD 320-141540/3	LC537-LSP_00016	50 uL	1.00 mL		
LLCSD 320-141540/3	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-1	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-2	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-3	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-4	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-5	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-6	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-7	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-8	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-9	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-10	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-11	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-12	LC537-SU_00024	50 uL	1.00 mL		
320-24178-A-13	LC537-SU_00024	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141540

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:59:00PM

Method Code: 320-537_Prep-320

Batch End:

Reagent	Other Reagents:		Lot#:
	Amount/Units		

Preparation Batch Number(s): 141540 Test: 5320005 Rush

Earliest Holding Time: 12/20/16

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: *VPM* *[Signature]*

Date: 12/10/16

2nd Level Reviewer: *VPM*

Date: 12/10/16

Comments: _____

23

Rush

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:50:00PM

Batch End: 12/10/16 17:11

Send A4 12/10/16 (No DL needed)

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt		InitAmt FinAmt	PHs		Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
		TareWt			Rcvd	Adj1 Adj2					
1 MB-320-141539/1 N/A	N/A			250.00 mL 1.00 mL	7		N/A	N/A	N/A	Free Chlorine: ND	MB 320-141539-1-A
2 LCS-320-141539/2 N/A	N/A			250.00 mL 1.00 mL	7		N/A	N/A	N/A	Free Chlorine: ND	LCS 320-141539-2-A
3 320-24179-A-1 (537_DOD5)	N/A (320-24179-1)	304.48 g 27.52 g		277 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-1-A
4 320-24179-A-1-MS (537_DOD5)	N/A (320-24179-1)	293.61 g 26.52 g		267.1 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-1-B MS
5 320-24179-A-1-MSD (537_DOD5)	N/A (320-24179-1)	279.73 g 27.59 g		252.1 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-1-C MSD
6 320-24179-A-2 (537_DOD5)	N/A (320-24179-1)	288.74 g 26.40 g		262.3 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-2-A
7 320-24179-A-3 (537_DOD5)	N/A (320-24179-1)	308.26 g 26.86 g		281.4 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-3-A
8 320-24179-A-4 (537_DOD5)	N/A (320-24179-1)	313.82 g 26.96 g		286.9 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-4-A
9 320-24179-A-5 (537_DOD5)	N/A (320-24179-1)	299.20 g 26.71 g		272.5 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-5-A
10 320-24179-A-6 (537_DOD5)	N/A (320-24179-1)	293.10 g 28.10 g		265 mL 1.00 mL	7		12/13/16	8_Day_Rush	4	Free Chlorine: ND	320-24179-A-6-A

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:50:00PM

Batch End:

11	320-24179-A-7 (537_DOD5)	N/A (320-24179-1)	308.57 g 25.95 g	282.6 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
12	320-24179-A-8 (537_DOD5)	N/A (320-24179-1)	293.56 g 29.01 g	264.6 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
13	320-24179-A-9 (537_DOD5)	N/A (320-24179-1)	314.55 g 26.36 g	288.2 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
14	320-24179-A-10 (537_DOD5)	N/A (320-24179-1)	287.94 g 28.82 g	259.1 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
15	320-24179-A-11 (537_DOD5)	N/A (320-24179-1)	291.80 g 27.02 g	264.8 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
16	320-24179-A-12 (537_DOD5)	N/A (320-24179-1)	296.03 g 27.08 g	269 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
17	320-24179-A-13 (537_DOD5)	N/A (320-24179-1)	307.48 g 26.05 g	281.4 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
18	320-24179-A-14 (537_DOD5)	N/A (320-24179-1)	285.78 g 27.40 g	258.4 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	
19	320-24179-A-15 (537_DOD5)	N/A (320-24179-1)	282.78 g 26.29 g	256.5 mL 1.00 mL	7				12/13/16	8_Day_Rush	4	Free Chlorine: ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:50:00PM

Batch End:

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Batch Notes

Manifold ID 5, 1

Trizma ID SLBN2122V

SPE Cartridge ID 6332578-03

Methanol ID 789820

Reagent Water ID 12/08/16

Pipette ID MD05306

Analyst ID - TA Reagent Drop JER

Analyst ID - TA Reagent Drop VPM
Witness

Analyst ID - SU Reagent Drop JER

Analyst ID - SU Reagent Drop VPM
Witness

Analyst ID - IS Reagent Drop

Analyst ID - IS Reagent Drop VPM
Witness

Batch Comment

799828 (20uL)

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Batch Open: 12/9/2016 6:50:00PM

Batch End: 12/10/2016 5:11:00PM

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-141539/1	LC537-IS_00026	20 uL	1.00 mL		
MB 320-141539/1	LC537-SU_00024	50 uL	1.00 mL		
LCS 320-141539/2	LC537-HSP_00010	50 uL	1.00 mL		
LCS 320-141539/2	LC537-IS_00026	20 uL	1.00 mL		
LCS 320-141539/2	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-1	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-1	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-1 MS	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-1 MS	LC537-MSP_00014	50 uL	1.00 mL		
320-24179-A-1 MS	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-1 MSD	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-1 MSD	LC537-MSP_00014	50 uL	1.00 mL		
320-24179-A-1 MSD	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-2	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-2	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-3	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-3	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-4	LC537-IS_00026	20 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Reed, Jonathan E

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Batch Open: 12/9/2016 6:50:00PM

Batch End: 12/10/2016 5:11:00PM

320-24179-A-4	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-5	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-5	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-6	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-6	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-7	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-7	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-8	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-8	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-9	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-9	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-10	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-10	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-11	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-11	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-12	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-12	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-13	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-13	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-14	LC537-IS_00026	20 uL	1.00 mL		
320-24179-A-14	LC537-SU_00024	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:50:00PM

Batch End: 12/10/2016 5:11:00PM

320-24179-A-15	LC537-IS_00026	20 uL	1.00 mL	
320-24179-A-15	LC537-SU_00024	50 uL	1.00 mL	

Other Reagents:				
Reagent	Amount/Units			Lot#:

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141539

Method Code: 320-537_Prep-320

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:50:00PM

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-141539/1	LC537-SU_00024	50 uL	1.00 mL		VPM 12/09/16
LCS 320-141539/2	LC537-HSP_00010	50 uL	1.00 mL		
LCS 320-141539/2	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-1	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-1 MS	LC537-MSP_00014	50 uL	1.00 mL		
320-24179-A-1 MS	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-1 MSD	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-2	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-3	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-4	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-5	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-6	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-7	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-8	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-9	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-10	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-11	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-12	LC537-SU_00024	50 uL	1.00 mL		

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-141539

Analyst: Reed, Jonathan E

Batch Open: 12/9/2016 6:50:00PM

Method Code: 320-537_Prep-320

Batch End:

320-24179-A-13	LC537-SU_00024	50 uL	1.00 mL	<i>[Signature]</i>	VPM 12/09/16
320-24179-A-14	LC537-SU_00024	50 uL	1.00 mL		
320-24179-A-15	LC537-SU_00024	50 uL	1.00 mL		↓

Other Reagents:		
Reagent	Amount/Units	Lot#:

Sacramento Preparation Data Review Checklist

Preparation Batch Number(s): 141579 Test: 537-0005 (Push)
 Earliest Holding Time: 12/19/16

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: [Signature]

Date: 12/12/16

2nd Level Reviewer: VPM

Date: 12/10/16

Comments: _____

Shipping and Receiving Documents

Chain of Custody Record

TestAmerica Laboratories, Inc.

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

Client Contact	Project Manager: Katie Tippin Tel/Fax: (757) 671-6258	Site Contact: Eric Epple Lab Contact: Laura Turpen	Date: 12/7/2016 Carrier: FedEx	COC No: 15 1 of 2 COCs
Tiffany Hill				
Project Chemist				
1100 NE Circle Blvd Ste 300 Corvallis, OR 97330				
(541) 768-3109				
(541) 908-3794				
Project Name: CTO-08				
Site: NAS Whidbey Island				
P O # 100067106050 - 679580.06.FIFS				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Analysis Turnaround Time		Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	USEPA Method 537 (PFOA, PFOS, and PFBS)	Sample Specific Notes:											
						CALENDAR DAYS	WORKING DAYS															
						☒ TAT if different from Below	☐ 7-Day															
						☐ 2 weeks	☐ 1 week															
						☐ 2 days	☐ 1 day															
WI-AF-3RW23-1216	12/05/16	1045	G	DW	2			N	N	X												
WI-AF-3RW23-1216-MS	12/05/16	1045	G	DW	2			N	N	X												
WI-AF-3RW23-1216-SD	12/05/16	1045	G	DW	2			N	N	X												
WI-AF-3FB23-1216	12/05/16	1046	G	DW	2			N	N	X												
WI-AF-3RW24-1216	12/06/16	0905	G	DW	2			N	N	X												
WI-AF-3RW24P-1216	12/06/16	0910	G	DW	2			N	N	X												
WI-AF-3FB24-1216	12/06/16	0906	G	DW	2			N	N	X												
WI-AF-3RW25-1216	12/06/16	0915	G	DW	2			N	N	X												
WI-AF-3FB25-1216	12/06/16	0916	G	DW	2			N	N	X												
WI-AF-3RW26-1216	12/06/16	1030	G	DW	2			N	N	X												
WI-AF-3FB26-1216	12/06/16	1031	G	DW	2			N	N	X												
WI-AF-3RW27-1216	12/06/16	1040	G	DW	2			N	N	X												

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other Trizma

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No

Relinquished by: *Eric Epple* Date/Time: 12-7-16/1600 Company: CH2M

Relinquished by: *Eric Epple* Date/Time: 12-7-16/1600 Company: CH2M

Relinquished by: *Eric Epple* Date/Time: 12-7-16/1600 Company: CH2M

Cooler Temp. (°C): Obs'd: 2.4°C and 12/16/16 1.5°C Therm ID No.: 12-16-16

Received by: *Troy C. Turpen* Date/Time: 12/18/16 Company: THS

Received by: *Troy C. Turpen* Date/Time: 12/18/16 Company: THS

Received in Laboratory by: *Troy C. Turpen* Date/Time: 12/18/16 Company: THS

Chain of Custody Record

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

Client Contact		Project Manager: Katie Tippin		Site Contact: Eric Epple		Date: 12/7/2016		Carrier: FedEx		COC No: 6 of 2 COCs	
Tiffany Hill		Tel/Fax: (757) 671-6258		Lab Contact: Laura Turpen						Sampler:	
Project Chemist		Analysis Turnaround Time								For Lab Use Only:	
1100 NE Circle Blvd Ste 300 Corvallis, OR 97330		☒ CALENDAR DAYS ☐ WORKING DAYS								Walk-in Client:	
(541) 768-3109		TAT if different from Below _____ 7-Day _____								Lab Sampling:	
(541) 908-3794		☐ 2 weeks								Job / SDG No.:	
Project Name: CTO-08		☐ 1 week									
Site: NAS Whidbey Island		☐ 2 days									
P O # 100067106050 - 679580 06 F.I.F.S		☐ 1 day									
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y / N)	USEPA Method 537 (PFOA, PFOS, and PFBS)	Sample Specific Notes:	
WI-AF-3FB27-1216	12/06/16	1041	G	DW	2	N	N	X			
WI-AF-3RW28-1216	12/06/16	1535	G	DW	2	N	N	X			
WI-AF-3FB28-1216	12/06/16	1536	G	DW	2	N	N	X			
WI-AF-3RW29-1216	12/06/16	1705	G	DW	2	N	N	X			
WI-AF-3FB29-1216	12/06/16	1706	G	DW	2	N	N	X			
							6				
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other Trizma											
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.											
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months											
Special Instructions/QC Requirements & Comments:											
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Therm ID No.:		12/8/16	
Relinquished by: Eric Epple		Company: CH2M		Received by: Roy C. Turpen		Company: HPS		Date/Time: 12/8/16		1000	
Relinquished by:		Company:		Received by:		Company:		Date/Time:			
Relinquished by:		Company:		Received in Laboratory by:		Company:		Date/Time:			

Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-24179-1

Login Number: 24179

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

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?	N/A	
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	

Lab Sample ID	Contract_ID	DO_CTO Number	Phase	Installation_ID	Sample Name	CH2M Code	Analysis Group	Analitical Method	PRC Code	Lab Code	Lab Name	Leachate Method	Sample Basis	Extraction Method	Result Type	Lab_QC Type	Sample Medium	QC_Level	Date/Time Collected	Date_Received	Leachate Date	Leachate Time	Extraction Date	Extraction Time	Analysis Date	Analysis Time	Dilution	Run_Number	Percent Moisture	Percent Lipid	Chem Name	Analyte_ID	Analyte Value	Original Analyte Value	Result Units	Lab Qualifier	Validator
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	00:47:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.043	0.043	UG L	U	
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	00:47:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	0.022	0.022	UG L	U	M
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	00:47:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.099	0.099	UG L	U	
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	00:47:00	1	1			13C2 PFHXA	13C2 PFHXA	95		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	00:47:00	1	1			13C2 PFDA	13C2 PFDA	94		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MSD	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	01:46:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	75		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MSD	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	01:46:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	77		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MSD	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	01:46:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	85		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MSD	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	01:46:00	1	1			13C2 PFHXA	13C2 PFHXA	101		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MSD	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161216	01:46:00	1	1			13C2 PFDA	13C2 PFDA	96		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MS	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161217	00:27:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	70		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MS	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161217	00:27:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	71		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MS	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161217	00:27:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	74		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MS	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161217	00:27:00	1	1			13C2 PFHXA	13C2 PFHXA	91		PCT REC		
320-24179-1	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	MS	W	4	12/05/2016 10:45	12/08/2016			20161209	18:50:00	20161217	00:27:00	1	1			13C2 PFDA	13C2 PFDA	93		PCT REC		
320-24179-2	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:46	12/08/2016			20161209	18:50:00	20161216	02:16:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.046	0.046	UG L	U	
320-24179-2	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:46	12/08/2016			20161209	18:50:00	20161216	02:16:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	0.023	0.023	UG L	U	
320-24179-2	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:46	12/08/2016			20161209	18:50:00	20161216	02:16:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.10	0.10	UG L	U	
320-24179-2	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:46	12/08/2016			20161209	18:50:00	20161216	02:16:00	1	1			13C2 PFHXA	13C2 PFHXA	91		PCT REC		
320-24179-2	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB23-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/05/2016 10:46	12/08/2016			20161209	18:50:00	20161216	02:16:00	1	1			13C2 PFDA	13C2 PFDA	93		PCT REC		
320-24179-3	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:05	12/08/2016			20161209	18:50:00	20161216	02:45:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.043	0.043	UG L	U	
320-24179-3	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:05	12/08/2016			20161209	18:50:00	20161216	02:45:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	0.021	0.021	UG L	U	M
320-24179-3	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:05	12/08/2016			20161209	18:50:00	20161216	02:45:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.098	0.098	UG L	U	
320-24179-3	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:05	12/08/2016			20161209	18:50:00	20161216	02:45:00	1	1			13C2 PFHXA	13C2 PFHXA	100		PCT REC		
320-24179-3	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:05	12/08/2016			20161209	18:50:00	20161216	02:45:00	1	1			13C2 PFDA	13C2 PFDA	97		PCT REC		
320-24179-4	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24P-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:10	12/08/2016			20161209	18:50:00	20161216	03:15:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.042	0.042	UG L	U	
320-24179-4	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24P-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:10	12/08/2016			20161209	18:50:00	20161216	03:15:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	0.021	0.021	UG L	U	
320-24179-4	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24P-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:10	12/08/2016			20161209	18:50:00	20161216	03:15:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.096	0.096	UG L	U	
320-24179-4	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24P-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:10	12/08/2016			20161209	18:50:00	20161216	03:15:00	1	1			13C2 PFHXA	13C2 PFHXA	86		PCT REC		
320-24179-4	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW24P-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:10	12/08/2016			20161209	18:50:00	20161216	03:15:00	1	1			13C2 PFDA	13C2 PFDA	87		PCT REC		
320-24179-5	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:06	12/08/2016			20161209	18:50:00	20161216	03:45:00	1	1			Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.044	0.044	UG L	U	
320-24179-5	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:06	12/08/2016			20161209	18:50:00	20161216	03:45:00	1	1			Perfluorooctanoic acid (PFOA)	335-67-1	0.022	0.022	UG L	U	
320-24179-5	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:06	12/08/2016			20161209	18:50:00	20161216	03:45:00	1	1			Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.10	0.10	UG L	U	
320-24179-5	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:06	12/08/2016			20161209	18:50:00	20161216	03:45:00	1	1			13C2 PFHXA	13C2 PFHXA	91		PCT REC		
320-24179-5	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3FB24-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:06	12/08/2016			20161209	18:50:00	20161216	03:45:00	1	1			13C2 PFDA	13C2 PFDA	94		PCT REC		
320-24179-6	N6247016D9000	0008		WHIDBEEY ISLAND NAS	WI-AF-3RW25-1216	NONE		537	ORG	TAMER	Test America	NONE	NA	METHOD	000	REG	W	4	12/06/2016 09:15	12/08/2016			20161209	18:50:00	20161216	05:13:00	1	1	</								

Lab Sample ID	Contract ID	DO_CTO Number	Phase	Installation ID	Sample Name	GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG						000000000				5.0	0.014	0.043	0.054	320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG						000000000				5.0	0.0085	0.022	0.027	320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG						000000000				5.0	0.043	0.099	0.13	320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG		MSP	130	70		000000000				5.0	0.015	0.048	0.060	320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG		MSP	130	70		000000000				5.0	0.0093	0.024	0.030	320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG		MSP	130	70		000000000				5.0	0.047	0.11	0.14	320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG		MSA	130	70		000000000				5.0	0.015	0.045	0.056	320-24179-1	320-142438
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG		MSA	130	70		000000000				5.0	0.0088	0.022	0.028	320-24179-1	320-142438
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	TRG		MSA	130	70		000000000				5.0	0.045	0.10	0.13	320-24179-1	320-142438
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142438
320-24179-1	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142438
320-24179-2	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB23-1216	PR	TRG						000000000				5.0	0.015	0.046	0.057	320-24179-1	320-142414
320-24179-2	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB23-1216	PR	TRG						000000000				5.0	0.0090	0.023	0.029	320-24179-1	320-142414
320-24179-2	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB23-1216	PR	TRG						000000000				5.0	0.045	0.10	0.13	320-24179-1	320-142414
320-24179-2	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-2	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB23-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-3	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24-1216	PR	TRG						000000000				5.0	0.014	0.043	0.053	320-24179-1	320-142414
320-24179-3	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24-1216	PR	TRG						000000000				5.0	0.0084	0.021	0.027	320-24179-1	320-142414
320-24179-3	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24-1216	PR	TRG						000000000				5.0	0.042	0.098	0.12	320-24179-1	320-142414
320-24179-3	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-3	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-4	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24P-1216	PR	TRG						000000000				5.0	0.014	0.042	0.052	320-24179-1	320-142414
320-24179-4	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24P-1216	PR	TRG						000000000				5.0	0.0082	0.021	0.026	320-24179-1	320-142414
320-24179-4	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24P-1216	PR	TRG						000000000				5.0	0.041	0.096	0.12	320-24179-1	320-142414
320-24179-4	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24P-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-4	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW24P-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-5	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB24-1216	PR	TRG						000000000				5.0	0.014	0.044	0.055	320-24179-1	320-142414
320-24179-5	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB24-1216	PR	TRG						000000000				5.0	0.0086	0.022	0.028	320-24179-1	320-142414
320-24179-5	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB24-1216	PR	TRG						000000000				5.0	0.044	0.10	0.13	320-24179-1	320-142414
320-24179-5	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB24-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-5	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB24-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142414
320-24179-6	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW25-1216	PR	TRG						000000000				5.0	0.015	0.045	0.057	320-24179-1	320-142415
320-24179-6	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW25-1216	PR	TRG						000000000				5.0	0.0089	0.023	0.028	320-24179-1	320-142415
320-24179-6	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW25-1216	PR	TRG						000000000				5.0	0.045	0.10	0.13	320-24179-1	320-142415
320-24179-6	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW25-1216	PR	TRG						000000000				5.0				320-24179-1	320-142415
320-24179-6	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW25-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-6	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW25-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-7	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB25-1216	PR	TRG						000000000				5.0	0.014	0.042	0.053	320-24179-1	320-142415
320-24179-7	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB25-1216	PR	TRG						000000000				5.0	0.0083	0.021	0.027	320-24179-1	320-142415
320-24179-7	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB25-1216	PR	TRG						000000000				5.0	0.042	0.097	0.12	320-24179-1	320-142415
320-24179-7	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB25-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-7	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB25-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-8	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW26-1216	PR	TRG						000000000				5.0	0.015	0.045	0.057	320-24179-1	320-142415
320-24179-8	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW26-1216	PR	TRG						000000000				5.0	0.0089	0.023	0.028	320-24179-1	320-142415
320-24179-8	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW26-1216	PR	TRG						000000000				5.0	0.045	0.10	0.13	320-24179-1	320-142415
320-24179-8	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW26-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-8	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW26-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-9	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB26-1216	PR	TRG						000000000				5.0	0.013	0.042	0.052	320-24179-1	320-142415
320-24179-9	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB26-1216	PR	TRG						000000000				5.0	0.0082	0.021	0.026	320-24179-1	320-142415
320-24179-9	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB26-1216	PR	TRG						000000000				5.0	0.041	0.095	0.12	320-24179-1	320-142415
320-24179-9	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB26-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-10	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW27-1216	PR	TRG						000000000				5.0	0.015	0.046	0.058	320-24179-1	320-142415
320-24179-10	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW27-1216	PR	TRG						000000000				5.0	0.0091	0.023	0.029	320-24179-1	320-142415
320-24179-10	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW27-1216	PR	TRG						000000000				5.0	0.046	0.11	0.14	320-24179-1	320-142415
320-24179-10	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW27-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-10	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3RW27-1216	PR	SURR		SLSA	130	70		000000000				5.0				320-24179-1	320-142415
320-24179-11	N6247016D9000	0008	WHIDBEY ISLAND NAS	WI-AF-3FB27-1216	PR	TRG															

**DATA VALIDATION SUMMARY REPORT
WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 320-24179-1
Laboratory: Test America, Sacramento, California
Site: Whidbey Island, CTO-0008, Washington
Date: January 5, 2017

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-AF-3RW23-1216	320-24179-1	Water
1MS	WI-AF-3RW23-1216MS	320-24179-1MS	Water
1MSD	WI-AF-3RW23-1216MSD	320-24179-1MSD	Water
2	WI-AF-3FB23-1216	320-24179-2	Water
3	WI-AF-3RW24-1216	320-24179-3	Water
4	WI-AF-3RW24P-1216	320-24179-4	Water
5	WI-AF-3FB24-1216	320-24179-5	Water
6	WI-AF-3RW25-1216	320-24179-6	Water
7	WI-AF-3FB25-1216	320-24179-7	Water
8	WI-AF-3RW26-1216	320-24179-8	Water
9	WI-AF-3FB26-1216	320-24179-9	Water
10	WI-AF-3RW27-1216	320-24179-10	Water
11	WI-AF-3FB27-1216	320-24179-11	Water
12	WI-AF-3RW28-1216	320-24179-12	Water
13	WI-AF-3FB28-1216	320-24179-13	Water
14	WI-AF-3RW29-1216	320-24179-14	Water
15	WI-AF-3FB29-1216	320-24179-15	Water

A full data validation was performed on the analytical data for eight water samples and seven aqueous field blank samples collected on December 5-6, 2016 by CH2M HILL at the Whidbey Island site in Washington. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis
PFCs

Method References
USEPA Method 537 Rev 1.1 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM), Version 5.0 (DoD 2013) and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA “Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review,” August 2014;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Gas Chromatography/Mass Spectrometry (GC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

GC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- The field blank samples were free of contamination.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable %R and RPD values was not collected.

Laboratory Control Samples/Laboratory Control Sample Duplicates

- The LCS/LCSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

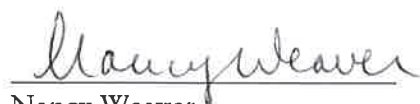
Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision was acceptable.

PFCs				
Compound	WI-AF-3RW24-1216 ug/L	WI-AF-3RW24P-1216 ug/L	RPD	Qualifier
None	ND	ND	-	-

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:



Nancy Weaver
Senior Chemist

Dated: 1/6/17

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW23-1216 Lab Sample ID: 320-24179-1
 Matrix: Water Lab File ID: 15DEC2016A6A_035.d
 Analysis Method: 537 Date Collected: 12/05/2016 10:45
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 277(mL) Date Analyzed: 12/16/2016 00:47
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.054	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U <i>M</i>	0.027	0.022	0.0085
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.099	U	0.13	0.099	0.043

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

2

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB23-1216 Lab Sample ID: 320-24179-2
 Matrix: Water Lab File ID: 15DEC2016A6A_038.d
 Analysis Method: 537 Date Collected: 12/05/2016 10:46
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 262.3 (mL) Date Analyzed: 12/16/2016 02:16
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.057	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0090
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	93		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Client Sample ID: WI-AF-3RW24-1216 Lab Sample ID: 320-24179-3

Matrix: Water Lab File ID: 15DEC2016A6A_039.d

Analysis Method: 537 Date Collected: 12/06/2016 09:05

Extraction Method: 537 Date Extracted: 12/09/2016 18:50

Sample wt/vol: 281.4 (mL) Date Analyzed: 12/16/2016 02:45

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

Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)

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

Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U <i>M</i>	0.027	0.021	0.0084
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.098	0.042

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	97		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Client Sample ID: WI-AF-3RW24P-1216 Lab Sample ID: 320-24179-4

Matrix: Water Lab File ID: 15DEC2016A6A_040.d

Analysis Method: 537 Date Collected: 12/06/2016 09:10

Extraction Method: 537 Date Extracted: 12/09/2016 18:50

Sample wt/vol: 286.9 (mL) Date Analyzed: 12/16/2016 03:15

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

Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)

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

Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.042	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.021	0.0082
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.096	U	0.12	0.096	0.041

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	82		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Client Sample ID: WI-AF-3FB24-1216 Lab Sample ID: 320-24179-5

Matrix: Water Lab File ID: 15DEC2016A6A_041.d

Analysis Method: 537 Date Collected: 12/06/2016 09:06

Extraction Method: 537 Date Extracted: 12/09/2016 18:50

Sample wt/vol: 272.5 (mL) Date Analyzed: 12/16/2016 03:45

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

Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)

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

Analysis Batch No.: 142414 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.044	U	0.055	0.044	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0086
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	94		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW25-1216 Lab Sample ID: 320-24179-6
 Matrix: Water Lab File ID: 15DEC2016A6A_044.d
 Analysis Method: 537 Date Collected: 12/06/2016 09:15
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 265(mL) Date Analyzed: 12/16/2016 05:13
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	77		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
SDG No.: _____
Client Sample ID: WI-AF-3FB25-1216 Lab Sample ID: 320-24179-7
Matrix: Water Lab File ID: 15DEC2016A6A_045.d
Analysis Method: 537 Date Collected: 12/06/2016 09:16
Extraction Method: 537 Date Extracted: 12/09/2016 18:50
Sample wt/vol: 282.6(mL) Date Analyzed: 12/16/2016 05:43
Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
% Moisture: _____ GPC Cleanup: (Y/N) N
Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.053	0.042	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0083
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.097	U	0.12	0.097	0.042

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	89		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW26-1216 Lab Sample ID: 320-24179-8
 Matrix: Water Lab File ID: 15DEC2016A6A_046.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:30
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 264.6(mL) Date Analyzed: 12/16/2016 06:13
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

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

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB26-1216 Lab Sample ID: 320-24179-9
 Matrix: Water Lab File ID: 15DEC2016A6A_047.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:31
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 288.2 (mL) Date Analyzed: 12/16/2016 06:42
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.042	U	0.052	0.042	0.013
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.026	0.021	0.0082
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.095	U	0.12	0.095	0.041

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	83		70-130
STL00996	13C2 PFDA	81		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW27-1216 Lab Sample ID: 320-24179-10
 Matrix: Water Lab File ID: 15DEC2016A6A_048.d
 Analysis Method: 537 Date Collected: 12/06/2016 10:40
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 259.1(mL) Date Analyzed: 12/16/2016 07:12
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0091
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	92		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Client Sample ID: WI-AF-3FB27-1216 Lab Sample ID: 320-24179-11

Matrix: Water Lab File ID: 15DEC2016A6A_049.d

Analysis Method: 537 Date Collected: 12/06/2016 10:41

Extraction Method: 537 Date Extracted: 12/09/2016 18:50

Sample wt/vol: 264.8 (mL) Date Analyzed: 12/16/2016 07:41

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

Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)

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

Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.057	0.045	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.028	0.023	0.0089
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.045

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	88		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3RW28-1216 Lab Sample ID: 320-24179-12
 Matrix: Water Lab File ID: 15DEC2016A6A_050.d
 Analysis Method: 537 Date Collected: 12/06/2016 15:35
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 269(mL) Date Analyzed: 12/16/2016 08:11
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 10(uL) GC Column: Acquity ID: 2.1(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.045	U	0.056	0.045	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.022	U	0.028	0.022	0.0088
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.10	U	0.13	0.10	0.044

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	81		70-130
STL00996	13C2 PFDA	78		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB28-1216 Lab Sample ID: 320-24179-13
 Matrix: Water Lab File ID: 15DEC2016A6A_051.d
 Analysis Method: 537 Date Collected: 12/06/2016 15:36
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 281.4 (mL) Date Analyzed: 12/16/2016 08:41
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.043	U	0.053	0.043	0.014
335-67-1	Perfluorooctanoic acid (PFOA)	0.021	U	0.027	0.021	0.0084
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.098	U	0.12	0.098	0.042

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

NW 4/5/17

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1

SDG No.: _____

Client Sample ID: WI-AF-3RW29-1216 Lab Sample ID: 320-24179-14

Matrix: Water Lab File ID: 15DEC2016A6A_052.d

Analysis Method: 537 Date Collected: 12/06/2016 17:05

Extraction Method: 537 Date Extracted: 12/09/2016 18:50

Sample wt/vol: 258.4 (mL) Date Analyzed: 12/16/2016 09:10

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

Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)

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

Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.046	U	0.058	0.046	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0091
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	92		70-130

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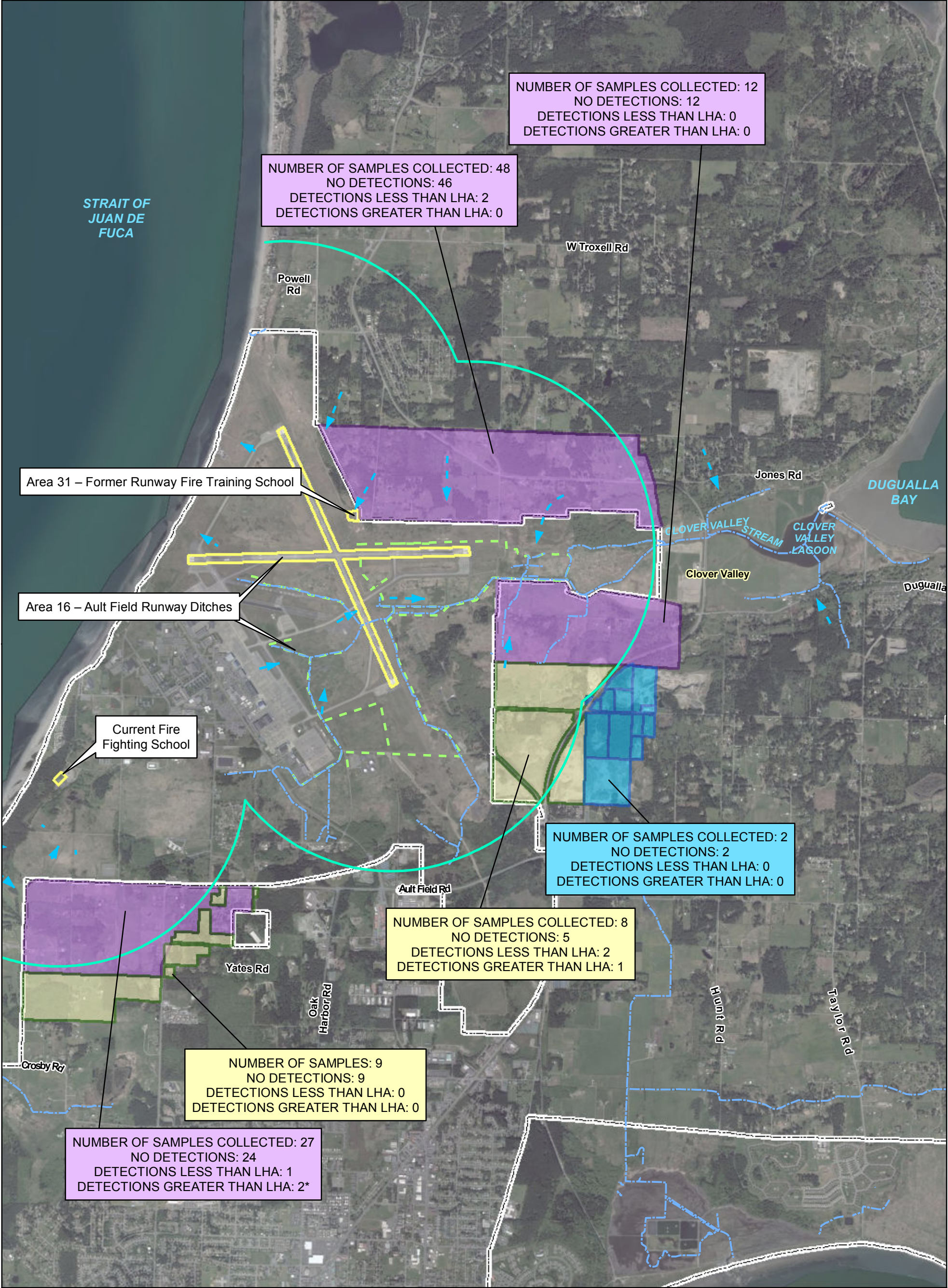
FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-24179-1
 SDG No.: _____
 Client Sample ID: WI-AF-3FB29-1216 Lab Sample ID: 320-24179-15
 Matrix: Water Lab File ID: 15DEC2016A6A_053.d
 Analysis Method: 537 Date Collected: 12/06/2016 17:06
 Extraction Method: 537 Date Extracted: 12/09/2016 18:50
 Sample wt/vol: 256.5 (mL) Date Analyzed: 12/16/2016 09:40
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 10 (uL) GC Column: Acquity ID: 2.1 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 142415 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.047	U	0.058	0.047	0.015
335-67-1	Perfluorooctanoic acid (PFOA)	0.023	U	0.029	0.023	0.0092
375-73-5	Perfluorobutanesulfonic acid (PFBS)	0.11	U	0.14	0.11	0.046

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	90		70-130

mw 1/5/17



- Legend**
- 1 Mile Zone
 - Surface Water
 - Drainage Ditch
 - Suspected Source Area
 - Phase 1 Sampling Area
 - Phase 2 Sampling Area
 - Phase 3 Sampling Area
 - Base Boundary
 - Inferred Groundwater Flow Direction

Notes:

1. Results shown on this figure are for PFOA and PFOS. See text and Table 2 for PFBS results

2. * Both results above the LHA are from the same well; the second sample collected was a confirmation sample.

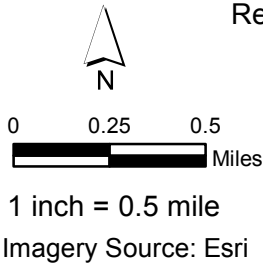


Figure 2
Results for Drinking Water Well Sampling
Near Ault Field
Naval Air Station Whidbey Island
Oak Harbor, Washington

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