



**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 J26004-1**

*Naval Air Station Whidbey Island
Oak Harbor, Washington*

June 2019

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

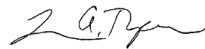
ANALYTICAL REPORT

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TestAmerica Sacramento
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West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-26004-1
Client Project/Site: Whidbey Island

For:
CH2M Hill Constructors, Inc.
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Corvallis, Oregon 97330

Attn: Tiffany Hill



Authorized for release by:
3/2/2017 12:32:38 PM

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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: 320-26004-1

Qualifiers

LCMS

| Qualifier | Qualifier Description |
|-----------|---|
| M | Manual integrated compound. |
| U | Undetected at the Limit of Detection. |
| Q | One or more quality control criteria failed. |
| J | Estimated: The analyte was positively identified; the quantitation is an estimation |

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: 320-26004-1

Job ID: 320-26004-1

Laboratory: TestAmerica Sacramento

Narrative

CASE NARRATIVE **Client: CH2M Hill Constructors, Inc.**

Project: Whidbey Island

Report Number: 320-26004-1

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 02/23/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.8 C.

PFOA/PFOS

Samples WI-AF-1RW27-0217 (320-26004-1), WI-AF-1FB27-0217 (320-26004-2), WI-AF-1RW28-0217 (320-26004-3), WI-AF-1FB28-0217 (320-26004-4), WI-AF-1RW29-0217 (320-26004-5), WI-AF-1FB29-0217 (320-26004-6), WI-AF-1RW30-0217 (320-26004-7), WI-AF-1FB30-0217 (320-26004-8), WI-AF-1RW31-0217 (320-26004-9) and WI-AF-1FB31-0217 (320-26004-10) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 02/24/2017 and analyzed on 02/28/2017 and 03/01/2017.

13C2 PFHxA failed the surrogate recovery criteria low for WI-AF-1RW28-0217 (320-26004-3). Re-analysis was performed with concurring results. The original analysis has been reported.

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

Case Narrative

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

TestAmerica Job ID: 320-26004-1

Job ID: 320-26004-1 (Continued)

Laboratory: TestAmerica Sacramento (Continued)

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Detection Summary

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW27-0217

Lab Sample ID: 320-26004-1

No Detections.

Client Sample ID: WI-AF-1FB27-0217

Lab Sample ID: 320-26004-2

No Detections.

Client Sample ID: WI-AF-1RW28-0217

Lab Sample ID: 320-26004-3

| Analyte | Result | Qualifier | LOQ | DL | Unit | Dil Fac | D | Method | Prep Type |
|-------------------------------|--------|-----------|-------|--------|------|---------|---|--------|-----------|
| Perfluorooctanoic acid (PFOA) | 0.032 | | 0.030 | 0.0096 | ug/L | 1 | | 537 | Total/NA |

Client Sample ID: WI-AF-1FB28-0217

Lab Sample ID: 320-26004-4

No Detections.

Client Sample ID: WI-AF-1RW29-0217

Lab Sample ID: 320-26004-5

No Detections.

Client Sample ID: WI-AF-1FB29-0217

Lab Sample ID: 320-26004-6

No Detections.

Client Sample ID: WI-AF-1RW30-0217

Lab Sample ID: 320-26004-7

No Detections.

Client Sample ID: WI-AF-1FB30-0217

Lab Sample ID: 320-26004-8

No Detections.

Client Sample ID: WI-AF-1RW31-0217

Lab Sample ID: 320-26004-9

No Detections.

Client Sample ID: WI-AF-1FB31-0217

Lab Sample ID: 320-26004-10

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: 320-26004-1

Client Sample ID: WI-AF-1RW27-0217

Lab Sample ID: 320-26004-1

Date Collected: 02/20/17 12:50

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.023 | U | 0.029 | 0.0092 | ug/L | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U M | 0.14 | 0.046 | ug/L | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 73 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| 13C2 PFDA | 72 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1FB27-0217

Lab Sample ID: 320-26004-2

Date Collected: 02/20/17 12:51

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.023 | U | 0.029 | 0.0092 | ug/L | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 80 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| 13C2 PFDA | 73 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW28-0217

Lab Sample ID: 320-26004-3

Date Collected: 02/20/17 14:22

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.049 | U M | 0.061 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.032 | | 0.030 | 0.0096 | ug/L | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 62 | Q | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| 13C2 PFDA | 72 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1FB28-0217

Lab Sample ID: 320-26004-4

Date Collected: 02/20/17 14:23

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.015 | ug/L | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0094 | ug/L | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 73 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| 13C2 PFDA | 75 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW29-0217

Lab Sample ID: 320-26004-5

Date Collected: 02/20/17 14:51

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0095 | ug/L | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| 13C2 PFDA | 71 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1FB29-0217

Lab Sample ID: 320-26004-6

Date Collected: 02/20/17 14:52

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0093 | ug/L | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 81 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| 13C2 PFDA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW30-0217

Lab Sample ID: 320-26004-7

Date Collected: 02/20/17 15:25

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|--------|-----------|-------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0093 | ug/L | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|------------|-----------|-----------|----------|----------------|----------------|---------|
| 13C2 PFHxA | 71 | | 70 - 130 | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| 13C2 PFDA | 70 | | 70 - 130 | 02/24/17 13:19 | 02/28/17 17:48 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1FB30-0217

Lab Sample ID: 320-26004-8

Date Collected: 02/20/17 15:26

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.015 | ug/L | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0094 | ug/L | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 75 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| 13C2 PFDA | 77 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW31-0217

Lab Sample ID: 320-26004-9

Date Collected: 02/20/17 15:45

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.061 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0095 | ug/L | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| 13C2 PFDA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1FB31-0217

Lab Sample ID: 320-26004-10

Date Collected: 02/20/17 15:46

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.023 | U | 0.029 | 0.0092 | ug/L | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 77 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| 13C2 PFDA | 71 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |

Surrogate Summary

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

TestAmerica Job ID: 320-26004-1

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

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

| Lab Sample ID | Client Sample ID | Percent Surrogate Recovery (Acceptance Limits) | |
|---------------------|--------------------|--|----------------------|
| | | 3C2 PFHx (70-130) | 3C2 PFDA (70-130) |
| 320-26004-1 | WI-AF-1RW27-0217 | 73 | 72 |
| 320-26004-2 | WI-AF-1FB27-0217 | 80 | 73 |
| 320-26004-3 | WI-AF-1RW28-0217 | 62 Q | 72 |
| 320-26004-4 | WI-AF-1FB28-0217 | 73 | 75 |
| 320-26004-5 | WI-AF-1RW29-0217 | 74 | 71 |
| 320-26004-6 | WI-AF-1FB29-0217 | 81 | 74 |
| 320-26004-7 | WI-AF-1RW30-0217 | 71 | 70 |
| 320-26004-7 MS | WI-AF-1RW30-0217 | 72 | 78 |
| 320-26004-7 MSD | WI-AF-1RW30-0217 | 76 | 78 |
| 320-26004-8 | WI-AF-1FB30-0217 | 75 | 77 |
| 320-26004-9 | WI-AF-1RW31-0217 | 74 | 74 |
| 320-26004-10 | WI-AF-1FB31-0217 | 77 | 71 |
| LLCS 320-152123/2-A | Lab Control Sample | 83 | 76 |
| MB 320-152123/1-A | Method Blank | 76 | 72 |

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: 320-26004-1

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

Lab Sample ID: MB 320-152123/1-A

Matrix: Water

Analysis Batch: 152592

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 152123

| 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 | | 02/24/17 13:19 | 02/28/17 17:13 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0094 | ug/L | | 02/24/17 13:19 | 02/28/17 17:13 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 17:13 | 1 |

| Surrogate | MB %Recovery | MB Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|------------|--------------|--------------|----------|----------------|----------------|---------|
| 13C2 PFHxA | 76 | | 70 - 130 | 02/24/17 13:19 | 02/28/17 17:13 | 1 |
| 13C2 PFDA | 72 | | 70 - 130 | 02/24/17 13:19 | 02/28/17 17:13 | 1 |

Lab Sample ID: LLCS 320-152123/2-A

Matrix: Water

Analysis Batch: 152592

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 152123

| Analyte | Spike Added | LLCS Result | LLCS Qualifier | Unit | D | %Rec | Limits |
|-------------------------------------|-------------|-------------|----------------|------|---|------|----------|
| Perfluorooctanesulfonic acid (PFOS) | 0.0400 | 0.0303 | J | ug/L | | 76 | 50 - 150 |
| Perfluorooctanoic acid (PFOA) | 0.0195 | 0.0140 | J | ug/L | | 72 | 50 - 150 |
| Perfluorobutanesulfonic acid (PFBS) | 0.0883 | 0.0839 | J | ug/L | | 95 | 50 - 150 |

| Surrogate | LLCS %Recovery | LLCS Qualifier | Limits |
|------------|----------------|----------------|----------|
| 13C2 PFHxA | 83 | | 70 - 130 |
| 13C2 PFDA | 76 | | 70 - 130 |

Lab Sample ID: 320-26004-7 MS

Matrix: Water

Analysis Batch: 152592

Client Sample ID: WI-AF-1RW30-0217

Prep Type: Total/NA

Prep Batch: 152123

| Analyte | Sample Result | Sample Qualifier | Spike Added | MS Result | MS Qualifier | Unit | D | %Rec | Limits |
|-------------------------------------|---------------|------------------|-------------|-----------|--------------|------|---|------|----------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.160 | 0.131 | M | ug/L | | 82 | 70 - 130 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.0781 | 0.0565 | | ug/L | | 72 | 70 - 130 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.359 | 0.298 | | ug/L | | 83 | 70 - 130 |

| Surrogate | MS %Recovery | MS Qualifier | Limits |
|------------|--------------|--------------|----------|
| 13C2 PFHxA | 72 | | 70 - 130 |
| 13C2 PFDA | 78 | | 70 - 130 |

Lab Sample ID: 320-26004-7 MSD

Matrix: Water

Analysis Batch: 152593

Client Sample ID: WI-AF-1RW30-0217

Prep Type: Total/NA

Prep Batch: 152123

| Analyte | Sample Result | Sample Qualifier | Spike Added | MSD Result | MSD Qualifier | Unit | D | %Rec | Limits | RPD | Limit |
|-------------------------------------|---------------|------------------|-------------|------------|---------------|------|---|------|----------|-----|-------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.161 | 0.132 | | ug/L | | 82 | 70 - 130 | 0 | 30 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.0786 | 0.0584 | | ug/L | | 74 | 70 - 130 | 3 | 30 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.361 | 0.294 | | ug/L | | 81 | 70 - 130 | 1 | 30 |

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-26004-1

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

Lab Sample ID: 320-26004-7 MSD

Matrix: Water

Analysis Batch: 152593

Client Sample ID: WI-AF-1RW30-0217

Prep Type: Total/NA

Prep Batch: 152123

| Surrogate | MSD | | Limits |
|------------|-----------|-----------|----------|
| | %Recovery | Qualifier | |
| 13C2 PFHxA | 76 | | 70 - 130 |
| 13C2 PFDA | 78 | | 70 - 130 |

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QC Association Summary

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

TestAmerica Job ID: 320-26004-1

LCMS

Prep Batch: 152123

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------------|--------------------|-----------|--------|--------|------------|
| 320-26004-1 | WI-AF-1RW27-0217 | Total/NA | Water | 537 | |
| 320-26004-2 | WI-AF-1FB27-0217 | Total/NA | Water | 537 | |
| 320-26004-3 | WI-AF-1RW28-0217 | Total/NA | Water | 537 | |
| 320-26004-4 | WI-AF-1FB28-0217 | Total/NA | Water | 537 | |
| 320-26004-5 | WI-AF-1RW29-0217 | Total/NA | Water | 537 | |
| 320-26004-6 | WI-AF-1FB29-0217 | Total/NA | Water | 537 | |
| 320-26004-7 | WI-AF-1RW30-0217 | Total/NA | Water | 537 | |
| 320-26004-8 | WI-AF-1FB30-0217 | Total/NA | Water | 537 | |
| 320-26004-9 | WI-AF-1RW31-0217 | Total/NA | Water | 537 | |
| 320-26004-10 | WI-AF-1FB31-0217 | Total/NA | Water | 537 | |
| MB 320-152123/1-A | Method Blank | Total/NA | Water | 537 | |
| LLCS 320-152123/2-A | Lab Control Sample | Total/NA | Water | 537 | |
| 320-26004-7 MS | WI-AF-1RW30-0217 | Total/NA | Water | 537 | |
| 320-26004-7 MSD | WI-AF-1RW30-0217 | Total/NA | Water | 537 | |

Analysis Batch: 152592

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------------|--------------------|-----------|--------|--------|------------|
| 320-26004-1 | WI-AF-1RW27-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-2 | WI-AF-1FB27-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-3 | WI-AF-1RW28-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-5 | WI-AF-1RW29-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-6 | WI-AF-1FB29-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-7 | WI-AF-1RW30-0217 | Total/NA | Water | 537 | 152123 |
| MB 320-152123/1-A | Method Blank | Total/NA | Water | 537 | 152123 |
| LLCS 320-152123/2-A | Lab Control Sample | Total/NA | Water | 537 | 152123 |
| 320-26004-7 MS | WI-AF-1RW30-0217 | Total/NA | Water | 537 | 152123 |

Analysis Batch: 152593

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|------------------|-----------|--------|--------|------------|
| 320-26004-9 | WI-AF-1RW31-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-10 | WI-AF-1FB31-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-7 MSD | WI-AF-1RW30-0217 | Total/NA | Water | 537 | 152123 |

Analysis Batch: 152753

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------|------------------|-----------|--------|--------|------------|
| 320-26004-4 | WI-AF-1FB28-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-8 | WI-AF-1FB30-0217 | Total/NA | Water | 537 | 152123 |

Lab Chronicle

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW27-0217

Lab Sample ID: 320-26004-1

Date Collected: 02/20/17 12:50

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 256.3 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152592 | 02/28/17 17:22 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB27-0217

Lab Sample ID: 320-26004-2

Date Collected: 02/20/17 12:51

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 255.4 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152592 | 02/28/17 17:26 | JRB | TAL SAC |

Client Sample ID: WI-AF-1RW28-0217

Lab Sample ID: 320-26004-3

Date Collected: 02/20/17 14:22

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 246.5 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152592 | 02/28/17 17:31 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB28-0217

Lab Sample ID: 320-26004-4

Date Collected: 02/20/17 14:23

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 250.5 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152753 | 03/01/17 15:30 | JRB | TAL SAC |

Client Sample ID: WI-AF-1RW29-0217

Lab Sample ID: 320-26004-5

Date Collected: 02/20/17 14:51

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 248.5 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152592 | 02/28/17 17:40 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB29-0217

Lab Sample ID: 320-26004-6

Date Collected: 02/20/17 14:52

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 253.8 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152592 | 02/28/17 17:44 | JRB | TAL SAC |

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW30-0217

Lab Sample ID: 320-26004-7

Date Collected: 02/20/17 15:25

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 252.3 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152592 | 02/28/17 17:48 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB30-0217

Lab Sample ID: 320-26004-8

Date Collected: 02/20/17 15:26

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 251.5 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152753 | 03/01/17 15:35 | JRB | TAL SAC |

Client Sample ID: WI-AF-1RW31-0217

Lab Sample ID: 320-26004-9

Date Collected: 02/20/17 15:45

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 247.9 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152593 | 02/28/17 18:10 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB31-0217

Lab Sample ID: 320-26004-10

Date Collected: 02/20/17 15:46

Matrix: Water

Date Received: 02/23/17 09:55

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 255.8 mL | 1 mL | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | | | 152593 | 02/28/17 18:15 | JRB | 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: 320-26004-1

Laboratory: TestAmerica Sacramento

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|--------------------|---------------|------------|------------------|-----------------|
| Alaska (UST) | State Program | 10 | UST-055 | 12-18-17 |
| Arizona | State Program | 9 | AZ0708 | 08-11-17 |
| Arkansas DEQ | State Program | 6 | 88-0691 | 06-17-17 |
| California | State Program | 9 | 2897 | 01-31-18 |
| Colorado | State Program | 8 | CA00044 | 08-31-17 |
| Connecticut | State Program | 1 | PH-0691 | 06-30-17 |
| Florida | NELAP | 4 | E87570 | 06-30-17 |
| Hawaii | State Program | 9 | N/A | 01-31-17 * |
| Illinois | NELAP | 5 | 200060 | 03-17-18 |
| Kansas | NELAP | 7 | E-10375 | 10-31-17 |
| L-A-B | DoD ELAP | | L2468 | 01-20-18 |
| Louisiana | NELAP | 6 | 30612 | 06-30-17 |
| Maine | State Program | 1 | CA0004 | 04-18-18 |
| Michigan | State Program | 5 | 9947 | 01-31-18 |
| Nevada | State Program | 9 | CA00044 | 07-31-17 |
| New Jersey | NELAP | 2 | CA005 | 06-30-17 |
| New York | NELAP | 2 | 11666 | 04-01-17 |
| Oregon | NELAP | 10 | 4040 | 01-28-18 |
| Pennsylvania | NELAP | 3 | 68-01272 | 03-31-17 |
| Texas | NELAP | 6 | T104704399 | 07-31-17 |
| US Fish & Wildlife | Federal | | LE148388-0 | 10-31-17 |
| USDA | Federal | | P330-11-00436 | 12-30-17 |
| USEPA UCMR | Federal | 1 | CA00044 | 11-06-18 |
| Utah | NELAP | 8 | CA00044 | 02-28-17 * |
| Virginia | NELAP | 3 | 460278 | 03-14-17 |
| West Virginia (DW) | State Program | 3 | 9930C | 12-31-17 |
| Wyoming | State Program | 8 | 8TMS-L | 01-29-17 * |

* Certification renewal pending - certification considered valid.

TestAmerica Sacramento

Method Summary

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

TestAmerica Job ID: 320-26004-1

| 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

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Sample Summary

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

TestAmerica Job ID: 320-26004-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 320-26004-1 | WI-AF-1RW27-0217 | Water | 02/20/17 12:50 | 02/23/17 09:55 |
| 320-26004-2 | WI-AF-1FB27-0217 | Water | 02/20/17 12:51 | 02/23/17 09:55 |
| 320-26004-3 | WI-AF-1RW28-0217 | Water | 02/20/17 14:22 | 02/23/17 09:55 |
| 320-26004-4 | WI-AF-1FB28-0217 | Water | 02/20/17 14:23 | 02/23/17 09:55 |
| 320-26004-5 | WI-AF-1RW29-0217 | Water | 02/20/17 14:51 | 02/23/17 09:55 |
| 320-26004-6 | WI-AF-1FB29-0217 | Water | 02/20/17 14:52 | 02/23/17 09:55 |
| 320-26004-7 | WI-AF-1RW30-0217 | Water | 02/20/17 15:25 | 02/23/17 09:55 |
| 320-26004-8 | WI-AF-1FB30-0217 | Water | 02/20/17 15:26 | 02/23/17 09:55 |
| 320-26004-9 | WI-AF-1RW31-0217 | Water | 02/20/17 15:45 | 02/23/17 09:55 |
| 320-26004-10 | WI-AF-1FB31-0217 | Water | 02/20/17 15:46 | 02/23/17 09:55 |

West Sacramento, CA 95605
Phone: 916.373.5600 Fax:

Regulatory Program: DW NPDES RCRA Other:

Project Manager: **Kobie Tippin** Site Contact: **Mike Wilmer** Date: **2/20/2017**

Tel/Fax: **757-671-0258** Lab Contact: **Laura Wilmer** Carrier: **Eda Ex**

Company Name: **CH2M HILL** Client Contact: **Mike Wilmer**

Address: **1000 N. GARDNER BLVD STE 300**

City/State/Zip: **CORVALLIS, OR 97330**

Phone: **541-766-3104**

Fax: **541-908-3794**

Project Name: **OTO-08**

Site: **NAS Whiskey Island**


P O # **1000 U710 U050 - U79580.06.PI.FS**

Analysis Turnaround Time: **7 Day**

CALENDAR DAYS: WORKING DAYS:

TAT if different from Below: **7 Day**

2 weeks 1 week 2 days 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) | Sample Specific Notes: |
|-----------------------|-------------|-------------|------------------------------|--------|------------|-----------------------|----------------------|--|
| WL-AF-1RW27-0217 | 2/20/17 | 1250 | G | DW | 2 | N | X |  320-26004 Chain of Custody |
| WL-AF-1FB27-0217 | 2/20/17 | 1251 | G | DW | 2 | N | X | |
| WL-AF-1RW28-0217 | 2/20/17 | 1422 | G | DW | 2 | N | X | |
| WL-AF-1FB28-0217 | 2/20/17 | 1423 | G | DW | 2 | N | X | |
| WL-AF-1RW29-0217 | 2/20/17 | 1457 | G | DW | 2 | N | X | |
| WL-AF-1FB29-0217 | 2/20/17 | 1452 | G | DW | 2 | N | X | |
| WL-AF-1RW30-0217 | 2/20/17 | 1525 | G | DW | 2 | N | X | |
| WL-AF-1RW30-0217-MJ | 2/20/17 | 1525 | G | DW | 2 | N | X | |
| WL-AF-1RW30-0217-MSD | 2/20/17 | 1525 | G | DW | 2 | N | X | |
| WL-AF-1FB30-0217 | 2/20/17 | 1526 | G | DW | 2 | N | X | |
| WL-AF-1RW31-0217 | 2/20/17 | 1545 | G | DW | 2 | N | X | |
| WL-AF-1FB31-0217 | 2/20/17 | 1546 | G | DW | 2 | N | X | |

Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other: **1X2MA**

Possible Hazard Identification: 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

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month):

Return to Client Disposal by Lab Archive for _____ Months

Cooler Temp. (°C): Obs'd: **0.8°C** Corr'd: **0.8°C** Therm ID No.: **AK121**

Company: **CH2M** Received by: **Laura Wilmer** Date/Time: **2/20/17 14:00**

Company: **TAWS** Received by: **TAWS** Date/Time: **2/23/17 9:55**

Company: _____ Received in Laboratory by: _____ Date/Time: _____



Login Sample Receipt Checklist

Client: CH2M Hill Constructors, Inc.

Job Number: 320-26004-1

Login Number: 26004
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

| Question | Answer | Comment |
|--|--------|---------|
| Radioactivity wasn't checked or is <=/ background as measured by a survey meter. | True | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | N/A | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | 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 <6mm (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: 320-26004-1

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
3/2/2017 12:32 PM

Laura Turpen, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4414
laura.turpen@testamericainc.com
03/02/2017

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Definitions/Glossary

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

TestAmerica Job ID: 320-26004-1

Qualifiers

LCMS

| Qualifier | Qualifier Description |
|-----------|---|
| M | Manual integrated compound. |
| U | Undetected at the Limit of Detection. |
| Q | One or more quality control criteria failed. |
| J | Estimated: The analyte was positively identified; the quantitation is an estimation |

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: 320-26004-1

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 02/23/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 0.8 C.

PFOA/PFOS

Samples WI-AF-1RW27-0217 (320-26004-1), WI-AF-1FB27-0217 (320-26004-2), WI-AF-1RW28-0217 (320-26004-3), WI-AF-1FB28-0217 (320-26004-4), WI-AF-1RW29-0217 (320-26004-5), WI-AF-1FB29-0217 (320-26004-6), WI-AF-1RW30-0217 (320-26004-7), WI-AF-1FB30-0217 (320-26004-8), WI-AF-1RW31-0217 (320-26004-9) and WI-AF-1FB31-0217 (320-26004-10) were analyzed for PFOA/PFOS in accordance with 537. The samples were prepared on 02/24/2017 and analyzed on 02/28/2017 and 03/01/2017.

13C2 PFHxA failed the surrogate recovery criteria low for WI-AF-1RW28-0217 (320-26004-3). Re-analysis was performed with concurring results. The original analysis has been reported.

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

Detection Summary

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW27-0217

Lab Sample ID: 320-26004-1

No Detections.

Client Sample ID: WI-AF-1FB27-0217

Lab Sample ID: 320-26004-2

No Detections.

Client Sample ID: WI-AF-1RW28-0217

Lab Sample ID: 320-26004-3

| Analyte | Result | Qualifier | LOQ | DL | Unit | Dil | Fac | D | Method | Prep Type |
|-------------------------------|--------|-----------|-------|--------|------|-----|-----|---|--------|-----------|
| Perfluorooctanoic acid (PFOA) | 0.032 | | 0.030 | 0.0096 | ug/L | 1 | | | 537 | Total/NA |

Client Sample ID: WI-AF-1FB28-0217

Lab Sample ID: 320-26004-4

No Detections.

Client Sample ID: WI-AF-1RW29-0217

Lab Sample ID: 320-26004-5

No Detections.

Client Sample ID: WI-AF-1FB29-0217

Lab Sample ID: 320-26004-6

No Detections.

Client Sample ID: WI-AF-1RW30-0217

Lab Sample ID: 320-26004-7

No Detections.

Client Sample ID: WI-AF-1FB30-0217

Lab Sample ID: 320-26004-8

No Detections.

Client Sample ID: WI-AF-1RW31-0217

Lab Sample ID: 320-26004-9

No Detections.

Client Sample ID: WI-AF-1FB31-0217

Lab Sample ID: 320-26004-10

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW27-0217

Date Collected: 02/20/17 12:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-1

Matrix: Water

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.023 | U | 0.029 | 0.0092 | ug/L | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U M | 0.14 | 0.046 | ug/L | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 73 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |
| 13C2 PFDA | 72 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:22 | 1 |

Client Sample ID: WI-AF-1FB27-0217

Date Collected: 02/20/17 12:51

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-2

Matrix: Water

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.023 | U | 0.029 | 0.0092 | ug/L | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 80 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |
| 13C2 PFDA | 73 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:26 | 1 |

Client Sample ID: WI-AF-1RW28-0217

Date Collected: 02/20/17 14:22

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-3

Matrix: Water

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|--------------------------------------|--------------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.049 | U M | 0.061 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.032 | | 0.030 | 0.0096 | ug/L | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 62 | Q | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |
| 13C2 PFDA | 72 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:31 | 1 |

Client Sample ID: WI-AF-1FB28-0217

Date Collected: 02/20/17 14:23

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-4

Matrix: Water

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|-----------|-----------|----------|--------|------|---|----------------|----------------|---------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.015 | ug/L | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0094 | ug/L | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 73 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |
| 13C2 PFDA | 75 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:30 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW29-0217

Lab Sample ID: 320-26004-5

Date Collected: 02/20/17 14:51

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|------------------|------------------|---------------|--------|------|---|-----------------|-----------------|----------------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0095 | ug/L | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |
| 13C2 PFDA | 71 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:40 | 1 |

Client Sample ID: WI-AF-1FB29-0217

Lab Sample ID: 320-26004-6

Date Collected: 02/20/17 14:52

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|------------------|------------------|---------------|--------|------|---|-----------------|-----------------|----------------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0093 | ug/L | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 81 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |
| 13C2 PFDA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:44 | 1 |

Client Sample ID: WI-AF-1RW30-0217

Lab Sample ID: 320-26004-7

Date Collected: 02/20/17 15:25

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|------------------|------------------|---------------|--------|------|---|-----------------|-----------------|----------------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0093 | ug/L | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 71 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |
| 13C2 PFDA | 70 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 17:48 | 1 |

Client Sample ID: WI-AF-1FB30-0217

Lab Sample ID: 320-26004-8

Date Collected: 02/20/17 15:26

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|------------------|------------------|---------------|--------|------|---|-----------------|-----------------|----------------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.015 | ug/L | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0094 | ug/L | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 75 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |
| 13C2 PFDA | 77 | | 70 - 130 | | | | 02/24/17 13:19 | 03/01/17 15:35 | 1 |

Client Sample Results

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW31-0217

Lab Sample ID: 320-26004-9

Date Collected: 02/20/17 15:45

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|------------------|------------------|---------------|--------|------|---|-----------------|-----------------|----------------|
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.061 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0095 | ug/L | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |
| 13C2 PFDA | 74 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:10 | 1 |

Client Sample ID: WI-AF-1FB31-0217

Lab Sample ID: 320-26004-10

Date Collected: 02/20/17 15:46

Matrix: Water

Date Received: 02/23/17 09:55

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

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|------------------|------------------|---------------|--------|------|---|-----------------|-----------------|----------------|
| Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.015 | ug/L | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.023 | U | 0.029 | 0.0092 | ug/L | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.047 | ug/L | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| Surrogate | %Recovery | Qualifier | Limits | | | | Prepared | Analyzed | Dil Fac |
| 13C2 PFHxA | 77 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |
| 13C2 PFDA | 71 | | 70 - 130 | | | | 02/24/17 13:19 | 02/28/17 18:15 | 1 |

Default Detection Limits

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

TestAmerica Job ID: 320-26004-1

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: 320-26004-1

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) |
| 320-26004-1 | WI-AF-1RW27-0217 | 73 | 72 |
| 320-26004-2 | WI-AF-1FB27-0217 | 80 | 73 |
| 320-26004-3 | WI-AF-1RW28-0217 | 62 Q | 72 |
| 320-26004-4 | WI-AF-1FB28-0217 | 73 | 75 |
| 320-26004-5 | WI-AF-1RW29-0217 | 74 | 71 |
| 320-26004-6 | WI-AF-1FB29-0217 | 81 | 74 |
| 320-26004-7 | WI-AF-1RW30-0217 | 71 | 70 |
| 320-26004-7 MS | WI-AF-1RW30-0217 | 72 | 78 |
| 320-26004-7 MSD | WI-AF-1RW30-0217 | 76 | 78 |
| 320-26004-8 | WI-AF-1FB30-0217 | 75 | 77 |
| 320-26004-9 | WI-AF-1RW31-0217 | 74 | 74 |
| 320-26004-10 | WI-AF-1FB31-0217 | 77 | 71 |
| LLCS 320-152123/2-A | Lab Control Sample | 83 | 76 |
| MB 320-152123/1-A | Method Blank | 76 | 72 |

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: 320-26004-1

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

Lab Sample ID: MB 320-152123/1-A
Matrix: Water
Analysis Batch: 152592

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152123

| Analyte | MB | MB | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-------------------------------------|--------|-----------|-------|--------|------|---|----------------|----------------|---------|
| | Result | Qualifier | | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.060 | 0.016 | ug/L | | 02/24/17 13:19 | 02/28/17 17:13 | 1 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.0094 | ug/L | | 02/24/17 13:19 | 02/28/17 17:13 | 1 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.048 | ug/L | | 02/24/17 13:19 | 02/28/17 17:13 | 1 |

| Surrogate | MB | MB | Limits | Prepared | Analyzed | Dil Fac |
|------------|-----------|-----------|----------|----------------|----------------|---------|
| | %Recovery | Qualifier | | | | |
| 13C2 PFHxA | 76 | | 70 - 130 | 02/24/17 13:19 | 02/28/17 17:13 | 1 |
| 13C2 PFDA | 72 | | 70 - 130 | 02/24/17 13:19 | 02/28/17 17:13 | 1 |

Lab Sample ID: LLCS 320-152123/2-A
Matrix: Water
Analysis Batch: 152592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152123

| Analyte | Spike Added | LLCS | LLCS | Unit | D | %Rec | Limits |
|-------------------------------------|-------------|--------|-----------|------|---|------|----------|
| | | Result | Qualifier | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 0.0400 | 0.0303 | J | ug/L | | 76 | 50 - 150 |
| Perfluorooctanoic acid (PFOA) | 0.0195 | 0.0140 | J | ug/L | | 72 | 50 - 150 |
| Perfluorobutanesulfonic acid (PFBS) | 0.0883 | 0.0839 | J | ug/L | | 95 | 50 - 150 |

| Surrogate | LLCS | LLCS | Limits |
|------------|-----------|-----------|----------|
| | %Recovery | Qualifier | |
| 13C2 PFHxA | 83 | | 70 - 130 |
| 13C2 PFDA | 76 | | 70 - 130 |

Lab Sample ID: 320-26004-7 MS
Matrix: Water
Analysis Batch: 152592

Client Sample ID: WI-AF-1RW30-0217
Prep Type: Total/NA
Prep Batch: 152123

| Analyte | Sample | Sample | Spike Added | MS | MS | Unit | D | %Rec | Limits |
|-------------------------------------|--------|-----------|-------------|--------|-----------|------|---|------|----------|
| | Result | Qualifier | | Result | Qualifier | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.160 | 0.131 | M | ug/L | | 82 | 70 - 130 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.0781 | 0.0565 | | ug/L | | 72 | 70 - 130 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.359 | 0.298 | | ug/L | | 83 | 70 - 130 |

| Surrogate | MS | MS | Limits |
|------------|-----------|-----------|----------|
| | %Recovery | Qualifier | |
| 13C2 PFHxA | 72 | | 70 - 130 |
| 13C2 PFDA | 78 | | 70 - 130 |

Lab Sample ID: 320-26004-7 MSD
Matrix: Water
Analysis Batch: 152593

Client Sample ID: WI-AF-1RW30-0217
Prep Type: Total/NA
Prep Batch: 152123

| Analyte | Sample | Sample | Spike Added | MSD | MSD | Unit | D | %Rec | Limits | RPD | Limit |
|-------------------------------------|--------|-----------|-------------|--------|-----------|------|---|------|----------|-----|-------|
| | Result | Qualifier | | Result | Qualifier | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.161 | 0.132 | | ug/L | | 82 | 70 - 130 | 0 | 30 |
| Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.0786 | 0.0584 | | ug/L | | 74 | 70 - 130 | 3 | 30 |
| Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.361 | 0.294 | | ug/L | | 81 | 70 - 130 | 1 | 30 |

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-26004-1

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

Lab Sample ID: 320-26004-7 MSD

Matrix: Water

Analysis Batch: 152593

Client Sample ID: WI-AF-1RW30-0217

Prep Type: Total/NA

Prep Batch: 152123

| <i>Surrogate</i> | <i>MSD</i> <i>%Recovery</i> | <i>MSD</i> <i>Qualifier</i> | <i>Limits</i> |
|-------------------|--------------------------------|--------------------------------|---------------|
| <i>13C2 PFHxA</i> | 76 | | 70 - 130 |
| <i>13C2 PFDA</i> | 78 | | 70 - 130 |

QC Association Summary

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

TestAmerica Job ID: 320-26004-1

LCMS

Prep Batch: 152123

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------------|--------------------|-----------|--------|--------|------------|
| 320-26004-1 | WI-AF-1RW27-0217 | Total/NA | Water | 537 | |
| 320-26004-2 | WI-AF-1FB27-0217 | Total/NA | Water | 537 | |
| 320-26004-3 | WI-AF-1RW28-0217 | Total/NA | Water | 537 | |
| 320-26004-4 | WI-AF-1FB28-0217 | Total/NA | Water | 537 | |
| 320-26004-5 | WI-AF-1RW29-0217 | Total/NA | Water | 537 | |
| 320-26004-6 | WI-AF-1FB29-0217 | Total/NA | Water | 537 | |
| 320-26004-7 | WI-AF-1RW30-0217 | Total/NA | Water | 537 | |
| 320-26004-8 | WI-AF-1FB30-0217 | Total/NA | Water | 537 | |
| 320-26004-9 | WI-AF-1RW31-0217 | Total/NA | Water | 537 | |
| 320-26004-10 | WI-AF-1FB31-0217 | Total/NA | Water | 537 | |
| MB 320-152123/1-A | Method Blank | Total/NA | Water | 537 | |
| LLCS 320-152123/2-A | Lab Control Sample | Total/NA | Water | 537 | |
| 320-26004-7 MS | WI-AF-1RW30-0217 | Total/NA | Water | 537 | |
| 320-26004-7 MSD | WI-AF-1RW30-0217 | Total/NA | Water | 537 | |

Analysis Batch: 152592

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------------|--------------------|-----------|--------|--------|------------|
| 320-26004-1 | WI-AF-1RW27-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-2 | WI-AF-1FB27-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-3 | WI-AF-1RW28-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-5 | WI-AF-1RW29-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-6 | WI-AF-1FB29-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-7 | WI-AF-1RW30-0217 | Total/NA | Water | 537 | 152123 |
| MB 320-152123/1-A | Method Blank | Total/NA | Water | 537 | 152123 |
| LLCS 320-152123/2-A | Lab Control Sample | Total/NA | Water | 537 | 152123 |
| 320-26004-7 MS | WI-AF-1RW30-0217 | Total/NA | Water | 537 | 152123 |

Analysis Batch: 152593

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|-----------------|------------------|-----------|--------|--------|------------|
| 320-26004-9 | WI-AF-1RW31-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-10 | WI-AF-1FB31-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-7 MSD | WI-AF-1RW30-0217 | Total/NA | Water | 537 | 152123 |

Analysis Batch: 152753

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------|------------------|-----------|--------|--------|------------|
| 320-26004-4 | WI-AF-1FB28-0217 | Total/NA | Water | 537 | 152123 |
| 320-26004-8 | WI-AF-1FB30-0217 | Total/NA | Water | 537 | 152123 |

Lab Chronicle

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW27-0217

Date Collected: 02/20/17 12:50

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-1

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152592 | 02/28/17 17:22 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB27-0217

Date Collected: 02/20/17 12:51

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-2

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152592 | 02/28/17 17:26 | JRB | TAL SAC |

Client Sample ID: WI-AF-1RW28-0217

Date Collected: 02/20/17 14:22

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-3

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152592 | 02/28/17 17:31 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB28-0217

Date Collected: 02/20/17 14:23

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-4

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152753 | 03/01/17 15:30 | JRB | TAL SAC |

Client Sample ID: WI-AF-1RW29-0217

Date Collected: 02/20/17 14:51

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-5

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152592 | 02/28/17 17:40 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB29-0217

Date Collected: 02/20/17 14:52

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-6

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152592 | 02/28/17 17:44 | JRB | TAL SAC |

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-26004-1

Client Sample ID: WI-AF-1RW30-0217

Date Collected: 02/20/17 15:25

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-7

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152592 | 02/28/17 17:48 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB30-0217

Date Collected: 02/20/17 15:26

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-8

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152753 | 03/01/17 15:35 | JRB | TAL SAC |

Client Sample ID: WI-AF-1RW31-0217

Date Collected: 02/20/17 15:45

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-9

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152593 | 02/28/17 18:10 | JRB | TAL SAC |

Client Sample ID: WI-AF-1FB31-0217

Date Collected: 02/20/17 15:46

Date Received: 02/23/17 09:55

Lab Sample ID: 320-26004-10

Matrix: Water

| Prep Type | Batch Type | Batch Method | Run | Dilution Factor | Batch Number | Prepared or Analyzed | Analyst | Lab |
|-----------|------------|--------------|-----|-----------------|--------------|----------------------|---------|---------|
| Total/NA | Prep | 537 | | | 152123 | 02/24/17 13:19 | KMK | TAL SAC |
| Total/NA | Analysis | 537 | | 1 | 152593 | 02/28/17 18:15 | JRB | 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: 320-26004-1

Laboratory: TestAmerica Sacramento

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

| Authority | Program | EPA Region | Certification ID | Expiration Date |
|--------------------|---------------|------------|------------------|-----------------|
| Alaska (UST) | State Program | 10 | UST-055 | 12-18-17 |
| Arizona | State Program | 9 | AZ0708 | 08-11-17 |
| Arkansas DEQ | State Program | 6 | 88-0691 | 06-17-17 |
| California | State Program | 9 | 2897 | 01-31-18 |
| Colorado | State Program | 8 | CA00044 | 08-31-17 |
| Connecticut | State Program | 1 | PH-0691 | 06-30-17 |
| Florida | NELAP | 4 | E87570 | 06-30-17 |
| Hawaii | State Program | 9 | N/A | 01-31-17 * |
| Illinois | NELAP | 5 | 200060 | 03-17-18 |
| Kansas | NELAP | 7 | E-10375 | 10-31-17 |
| L-A-B | DoD ELAP | | L2468 | 01-20-18 |
| Louisiana | NELAP | 6 | 30612 | 06-30-17 |
| Maine | State Program | 1 | CA0004 | 04-18-18 |
| Michigan | State Program | 5 | 9947 | 01-31-18 |
| Nevada | State Program | 9 | CA00044 | 07-31-17 |
| New Jersey | NELAP | 2 | CA005 | 06-30-17 |
| New York | NELAP | 2 | 11666 | 04-01-17 |
| Oregon | NELAP | 10 | 4040 | 01-28-18 |
| Pennsylvania | NELAP | 3 | 68-01272 | 03-31-17 |
| Texas | NELAP | 6 | T104704399 | 07-31-17 |
| US Fish & Wildlife | Federal | | LE148388-0 | 10-31-17 |
| USDA | Federal | | P330-11-00436 | 12-30-17 |
| USEPA UCMR | Federal | 1 | CA00044 | 11-06-18 |
| Utah | NELAP | 8 | CA00044 | 02-28-17 * |
| Virginia | NELAP | 3 | 460278 | 03-14-17 |
| West Virginia (DW) | State Program | 3 | 9930C | 12-31-17 |
| Wyoming | State Program | 8 | 8TMS-L | 01-29-17 * |

* Certification renewal pending - certification considered valid.

Method Summary

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

TestAmerica Job ID: 320-26004-1

| 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: 320-26004-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 320-26004-1 | WI-AF-1RW27-0217 | Water | 02/20/17 12:50 | 02/23/17 09:55 |
| 320-26004-2 | WI-AF-1FB27-0217 | Water | 02/20/17 12:51 | 02/23/17 09:55 |
| 320-26004-3 | WI-AF-1RW28-0217 | Water | 02/20/17 14:22 | 02/23/17 09:55 |
| 320-26004-4 | WI-AF-1FB28-0217 | Water | 02/20/17 14:23 | 02/23/17 09:55 |
| 320-26004-5 | WI-AF-1RW29-0217 | Water | 02/20/17 14:51 | 02/23/17 09:55 |
| 320-26004-6 | WI-AF-1FB29-0217 | Water | 02/20/17 14:52 | 02/23/17 09:55 |
| 320-26004-7 | WI-AF-1RW30-0217 | Water | 02/20/17 15:25 | 02/23/17 09:55 |
| 320-26004-8 | WI-AF-1FB30-0217 | Water | 02/20/17 15:26 | 02/23/17 09:55 |
| 320-26004-9 | WI-AF-1RW31-0217 | Water | 02/20/17 15:45 | 02/23/17 09:55 |
| 320-26004-10 | WI-AF-1FB31-0217 | Water | 02/20/17 15:46 | 02/23/17 09:55 |

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152592

Lab Sample ID: CCV 320-152592/15 CCVIS Client Sample ID: _____

Date Analyzed: 02/28/17 17:09 Lab File ID: 2017.02.28_537_015.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.28 | Missed Peak | barnettj | 03/01/17 13:17 |

Lab Sample ID: 320-26004-1 Client Sample ID: WI-AF-1RW27-0217

Date Analyzed: 02/28/17 17:22 Lab File ID: 2017.02.28C_537_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorobutanesulfonic acid (PFBS) | 1.54 | Missed Peak | barnettj | 03/01/17 13:45 |

Lab Sample ID: 320-26004-3 Client Sample ID: WI-AF-1RW28-0217

Date Analyzed: 02/28/17 17:31 Lab File ID: 2017.02.28C_537_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.19 | Missed Peak | barnettj | 03/01/17 13:45 |

Lab Sample ID: 320-26004-7 MS Client Sample ID: WI-AF-1RW30-0217 MS

Date Analyzed: 02/28/17 17:53 Lab File ID: 2017.02.28C_537_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.28 | Missed Peak | barnettj | 03/01/17 13:45 |

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152592

Lab Sample ID: CCV 320-152592/26 CCVIS Client Sample ID: _____

Date Analyzed: 02/28/17 17:57 Lab File ID: 2017.02.28C_537_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.28 | Missed Peak | barnettj | 03/01/17 13:45 |

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152593

Lab Sample ID: CCV 320-152593/26 CCVIS Client Sample ID: _____

Date Analyzed: 02/28/17 17:57 Lab File ID: 2017.02.28C_537_011.d GC Column: GeminiC18 3x1 ID: 3 (mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.28 | Missed Peak | barnettj | 03/01/17 13:45 |

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152685

Lab Sample ID: IC 320-152685/3 Client Sample ID: _____

Date Analyzed: 03/01/17 12:47 Lab File ID: 2017.03.01_537CURVE_003.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.25 | Missed Peak | barnettj | 03/01/17 14:25 |

Lab Sample ID: IC 320-152685/4 Client Sample ID: _____

Date Analyzed: 03/01/17 12:51 Lab File ID: 2017.03.01_537CURVE_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.25 | Missed Peak | barnettj | 03/01/17 14:25 |

Lab Sample ID: IC 320-152685/5 Client Sample ID: _____

Date Analyzed: 03/01/17 12:56 Lab File ID: 2017.03.01_537CURVE_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.25 | Missed Peak | barnettj | 03/01/17 14:25 |

Lab Sample ID: CCVL 320-152685/10 Client Sample ID: _____

Date Analyzed: 03/01/17 13:18 Lab File ID: 2017.03.01_537CURVE_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.23 | Missed Peak | barnettj | 03/01/17 14:25 |

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152685

Lab Sample ID: ICV 320-152685/12 Client Sample ID: _____

Date Analyzed: 03/01/17 13:27 Lab File ID: 2017.03.01_537CURVE_012.d GC Column: GeminiC18 3x1 ID: 3 (mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.22 | Missed Peak | barnettj | 03/01/17 14:25 |

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 152753

Lab Sample ID: CCV 320-152753/2 CCVIS Client Sample ID: _____

Date Analyzed: 03/01/17 15:17 Lab File ID: 2017.03.01A_537_002.d GC Column: GeminiC18 3x1 ID: 3 (mm)

| COMPOUND NAME | RETENTION TIME | MANUAL INTEGRATION | | |
|-------------------------------------|----------------|--------------------|----------|----------------|
| | | REASON | ANALYST | DATE |
| Perfluorooctanesulfonic acid (PFOS) | 2.25 | Missed Peak | barnettj | 03/01/17 15:38 |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|------------------------|----------|---|----------------------|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| LC537-ICV_00019 | 03/01/17 | 12/20/16 | MeOH/H2O, Lot 067374 | 10 mL | LC537-IS_00028 | 200 uL | 13C2-PFOA | 10 ng/mL |
| .LC537-IS_00028 | 06/19/17 | 12/19/16 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL |
| ..LCM2PFOA_00005 | 06/19/18 | Wellington Laboratories, Lot M2PFOA0613 | | | 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-ICV_00019 | 03/01/17 | 12/20/16 | MeOH/H2O, Lot 067374 | 10 mL | LC537-SU_00027 | 500 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | LC537ICIM_00014 | 25 uL | 13C2 PFHxA | 10 ng/mL |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 114.77 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 25.0232 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 27.2389 ng/mL |
| .LC537-SU_00027 | 06/19/17 | 12/19/16 | Methanol, Lot 104453 | 20000 uL | LCMPFDA_00008 | 80 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LCMPFDA_00008 | 08/19/20 | Wellington Laboratories, Lot MPFDA0815 | | | LCMPFHxA_00009 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| ..LCMPFHxA_00009 | 04/09/20 | Wellington Laboratories, Lot MPFHxA0415 | | | (Purchased Reagent) | | 13C2 PFDA | 50 ug/mL |
| ..LC537ICIM_00014 | 03/01/17 | 12/20/16 | Methanol, Lot 090285 | 25 mL | LC537-PFBS2_00005 | 0.5 mL | 13C2 PFHxA | 50 ug/mL |
| | | | | | LC537-PFOA2_00008 | 0.142 mL | Perfluorobutanesulfonic acid (PFBS) | 45.908 ug/mL |
| | | | | | LC537-PFOS2_00005 | 0.22 mL | Perfluorooctanoic acid (PFOA) | 10.0093 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_00008 | 07/25/17 | 12/20/16 | Methanol, Lot 090285 | 10 mL | LC537_PFOA2_00001 | 0.0178 g | Perfluorobutanesulfonic acid (PFBS) | 0.998 g/g |
| ...LC537_PFOA2_00001 | 07/25/17 | Afla Aesar, Lot D24Y026 | | | (Purchased Reagent) | | Perfluorooctanoic acid (PFOA) | 1762.2 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-ICV_00020 | 07/25/17 | 02/21/17 | MeOH/H2O, Lot 067374 | 10 mL | LC537-IS_00031 | 200 uL | Perfluorooctanesulfonic acid (PFOS) | 0.7787 g/g |
| .LC537-IS_00031 | 07/31/17 | 01/31/17 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 10 ng/mL |
| ..LCM2PFOA_00005 | 06/19/18 | Wellington Laboratories, Lot M2PFOA0613 | | | LCMPFOS_00019 | 300 uL | 13C4 PFOS | 28.68 ng/mL |
| ..LCMPFOS_00019 | 08/03/21 | Wellington Laboratories, Lot MPFOS0816 | | | (Purchased Reagent) | | 13C2-PFOA | 50 ug/mL |
| LC537-ICV_00020 | 07/25/17 | 02/21/17 | MeOH/H2O, Lot 067374 | 10 mL | LC537-SU_00030 | 500 uL | 13C4 PFOS | 47.8 ug/mL |
| | | | | | LC537ICIM_00015 | 20 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 100.676 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 20.0186 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 20.6936 ng/mL |
| .LC537-SU_00030 | 07/31/17 | 01/31/17 | Methanol, Lot 104453 | 20000 uL | LCMPFDA_00012 | 80 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LCMPFDA_00012 | 09/30/21 | Wellington Laboratories, Lot MPFDA0916 | | | LCMPFHxA_00013 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| | | | | | (Purchased Reagent) | | 13C2 PFDA | 50 ug/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration | | |
|-------------------------------------|---------------|---|----------------------|----------------------|-------------------------------|---------------|-------------------------------------|---------------|------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | | | |
| ..LCMPFHxA_00013 | 04/08/21 | Wellington Laboratories, Lot MPFHxA0416 | | | (Purchased Reagent) | | 13C2 PFHxA | 50 ug/mL | | |
| .LC537ICIM_00015 | 07/25/17 | 02/21/17 | Methanol, Lot 090285 | 25 mL | LC537-PFBS2_00007 | 0.55 mL | Perfluorobutanesulfonic acid (PFBS) | 50.3381 ug/mL | | |
| | | | | | LC537-PFOA2_00008 | 0.142 mL | Perfluorooctanoic acid (PFOA) | 10.0093 ug/mL | | |
| | | | | | LC537-PFOS2_00007 | 0.21 mL | Perfluorooctanesulfonic acid (PFOS) | 10.3468 ug/mL | | |
| ..LC537-PFBS2_00007 | 08/09/17 | 02/20/17 | Methanol, Lot 090285 | 8.2 mL | LC537_PFBS2_00001 | 0.0188 g | Perfluorobutanesulfonic acid (PFBS) | 2288.1 ug/mL | | |
| ...LC537_PFBS2_00001 | 08/09/17 | Santa Cruz Biotechnology, Lot H0112 | | | (Purchased Reagent) | | Perfluorobutanesulfonic acid (PFBS) | 0.998 g/g | | |
| ..LC537-PFOA2_00008 | 07/25/17 | 12/20/16 | Methanol, Lot 090285 | 10 mL | LC537_PFOA2_00001 | 0.0178 g | Perfluorooctanoic acid (PFOA) | 1762.2 ug/mL | | |
| ...LC537_PFOA2_00001 | 07/25/17 | Afla Aesar, Lot D24Y026 | | | (Purchased Reagent) | | Perfluorooctanoic acid (PFOA) | 0.99 g/g | | |
| ..LC537-PFOS2_00007 | 07/26/17 | 02/20/17 | Methanol, Lot 090285 | 11 mL | LC537_PFOS2_00001 | 0.0174 g | Perfluorooctanesulfonic acid (PFOS) | 1231.76 ug/mL | | |
| ...LC537_PFOS2_00001 | 07/26/17 | Sigma, Lot BCBF5116V | | | (Purchased Reagent) | | Perfluorooctanesulfonic acid (PFOS) | 0.7787 g/g | | |
| LC537-IS_00030 | 07/17/17 | 01/17/17 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL | | |
| | | | | | LCMPFOS_00018 | 300 uL | 13C4 PFOS | 1.434 ug/mL | | |
| .LCM2PFOA_00005 | 06/19/18 | Wellington Laboratories, Lot M2PFOA0613 | | | (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-L1_00017 | 06/14/17 | 12/23/16 | MeOH/H2O, Lot 090285 | 5 mL | LC537-IS_00028 | 100 uL | 13C2-PFOA | 10 ng/mL | | |
| | | | | | LC537-MSP_00017 | 25 uL | 13C4 PFOS | 28.68 ng/mL | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 8.976 ng/mL | | |
| | | | | | | | Perfluoroheptanoic acid | 0.99 ng/mL | | |
| | | | | | | | Perfluorohexanesulfonic acid | 3.02582 ng/mL | | |
| | | | | | | | Perfluorononanoic acid | 2.07415 ng/mL | | |
| | | | | | Perfluorooctanoic acid (PFOA) | 1.95189 ng/mL | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 4.00664 ng/mL | | | | | | | | | |
| LC537-SU_00026 | 250 uL | 13C2 PFDA | 10 ng/mL | | | | | | | |
| .LC537-IS_00028 | 06/19/17 | 12/19/16 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL | | |
| | | | | | LCMPFOS_00018 | 300 uL | 13C4 PFOS | 1.434 ug/mL | | |
| ..LCM2PFOA_00005 | 06/19/18 | Wellington Laboratories, Lot M2PFOA0613 | | | (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-MSP_00017 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 200 uL | Perfluorobutanesulfonic acid (PFBS) | 1795.2 ng/mL | | |
| | | | | | | | Perfluoroheptanoic acid | 198 ng/mL | | |
| | | | | | | | Perfluorohexanesulfonic acid | 605.164 ng/mL | | |
| | | | | | | | Perfluorononanoic acid | 414.831 ng/mL | | |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 390.378 ng/mL | | |
| Perfluorooctanesulfonic acid (PFOS) | 801.328 ng/mL | | | | | | | | | |
| ..LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL | | |
| | | | | | | | LC537-PFHxA_00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | | | LC537-PFHxA_00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-----------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| | | | | | LC537-PFNA_00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | LC537-PFOA_00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | 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_00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537_PFHpA_00002 | 0.0568 g | Perfluoroheptanoic acid | 990 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_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537_PFNA_00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
|LC537_PFNA_00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ...LC537-PFOA_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537_PFOA_00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00026 | 06/14/17 | 12/16/16 | Methanol, Lot 104453 | 20000 uL | LC537-SU_00025 | 10000 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LC537-SU_00025 | 06/14/17 | 12/14/16 | Methanol, Lot 104453 | 10000 uL | LCMPFDA_00008 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| ...LCMPFDA_00008 | 08/19/20 | | Wellington Laboratories, Lot MPFDA0815 | | LCMPFHxA_00009 | 80 uL | 13C2 PFDA | 0.4 ug/mL |
|LCMPFHxA_00009 | 04/09/20 | | Wellington Laboratories, Lot MPFHxA0415 | | (Purchased Reagent) | | 13C2 PFHxA | 0.4 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-L2_00015 | 05/21/17 | 12/19/16 | MeOH/H2O, Lot 090285 | 5 mL | LC537-IS_00028 | 100 uL | 13C2-PFOA | 10 ng/mL |
| .LC537-IS_00028 | 06/19/17 | 12/19/16 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C4 PFOS | 28.68 ng/mL |
| ..LCM2PFOA_00005 | 06/19/18 | | Wellington Laboratories, Lot M2PFOA0613 | | 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 |
|LCMPFOS_00018 | 08/03/21 | | Wellington Laboratories, Lot MPFOS0816 | | (Purchased Reagent) | | 13C2-PFOA | 50 ug/mL |
| LC537-L2_00015 | 05/21/17 | 12/19/16 | MeOH/H2O, Lot 090285 | 5 mL | LC537-HSP_00013 | 34 uL | Perfluorobutanesulfonic acid (PFBS) | 22.8888 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 4.97733 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 10.2169 ng/mL |
| | | | | | LC537-SU_00026 | 250 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| .LC537-HSP_00013 | 05/21/17 | 11/21/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00017 | 375 uL | Perfluorobutanesulfonic acid (PFBS) | 3366 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 731.96 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 1502.49 ng/mL |
| ..LC537SPIM_00017 | 05/21/17 | 11/21/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL |
| | | | | | LC537-PFOA_00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | Perfluorooctanesulfonic acid (PFOS) | 40.0664 ug/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-----------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| ...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-PFOA_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537_PFOA_00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00026 | 06/14/17 | 12/16/16 | Methanol, Lot 104453 | 20000 uL | LC537-SU_00025 | 10000 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LC537-SU_00025 | 06/14/17 | 12/14/16 | Methanol, Lot 104453 | 10000 uL | LCMPFDA_00008 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| ...LCMPFDA_00008 | 08/19/20 | | Wellington Laboratories, Lot MPFDA0815 | | LCMPFHxA_00009 | 80 uL | 13C2 PFDA | 0.4 ug/mL |
| ...LCMPFHxA_00009 | 04/09/20 | | Wellington Laboratories, Lot MPFHxA0415 | | (Purchased Reagent) | | 13C2 PFHxA | 50 ug/mL |
| LC537-L2_00016 | 06/14/17 | 12/23/16 | MeOH/H2O, Lot 090285 | 5 mL | LC537-HSP_00014 | 34 uL | Perfluorobutanesulfonic acid (PFBS) | 22.8888 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 2.5245 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 7.71585 ng/mL |
| | | | | | | | Perfluorononanoic acid | 5.28909 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 4.97733 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 10.2169 ng/mL |
| | | | | | LC537-IS_00028 | 100 uL | 13C2-PFOA | 10 ng/mL |
| | | | | | LC537-SU_00026 | 250 uL | 13C4 PFOS | 28.68 ng/mL |
| | | | | | | | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| .LC537-HSP_00014 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 375 uL | Perfluorobutanesulfonic acid (PFBS) | 3366 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 371.25 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 1134.68 ng/mL |
| | | | | | | | Perfluorononanoic acid | 777.808 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 731.96 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 1502.49 ng/mL |
| ..LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL |
| | | | | | LC537-PFHpA_00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | LC537-PFHxS_00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |
| | | | | | LC537-PFNA_00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | LC537-PFOA_00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | 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_00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537_PFHpA_00002 | 0.0568 g | Perfluoroheptanoic acid | 990 ug/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-----------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
|LC537 PFHpA 00002 | 04/01/18 | | Aldrich, Lot 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 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA 00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
|LC537 PFNA 00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ...LC537-PFOA 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA 00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00028 | 06/19/17 | 12/19/16 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA 00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL |
| ..LCM2PFOA 00005 | 06/19/18 | | Wellington Laboratories, Lot M2PFOA0613 | | (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_00026 | 06/14/17 | 12/16/16 | Methanol, Lot 104453 | 20000 uL | LC537-SU_00025 | 10000 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LC537-SU_00025 | 06/14/17 | 12/14/16 | Methanol, Lot 104453 | 10000 uL | LCMPFDA 00008 | 80 uL | 13C2 PFDA | 0.4 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-L3_00019 | 06/14/17 | 01/20/17 | MeOH/H2O, Lot 090285 | 5 mL | LC537-HSP_00014 | 67 uL | Perfluorobutanesulfonic acid (PFBS) | 45.1044 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 4.97475 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 15.2048 ng/mL |
| | | | | | | | Perfluorononanoic acid | 10.4226 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 9.80826 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 20.1334 ng/mL |
| | | | | | LC537-IS_00030 | 100 uL | 13C2-PFOA | 10 ng/mL |
| | | | | | | | 13C4 PFOS | 28.68 ng/mL |
| | | | | | LC537-SU_00029 | 250 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| .LC537-HSP_00014 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 375 uL | Perfluorobutanesulfonic acid (PFBS) | 3366 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 371.25 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 1134.68 ng/mL |
| | | | | | | | Perfluorononanoic acid | 777.808 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 731.96 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 1502.49 ng/mL |
| ..LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL |
| | | | | | LC537-PFHpA 00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | LC537-PFHxS 00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |
| | | | | | LC537-PFNA 00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | LC537-PFOA_00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-------------------------------------|---------------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| | | | | | LC537-PFOS_00006 | 400 uL | 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_00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537 PFHpA_00002 | 0.0568 g | Perfluoroheptanoic acid | 990 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_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA_00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
| ...LC537 PFNA_00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ...LC537-PFOA_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA_00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00030 | 07/17/17 | 01/17/17 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL |
| ..LCM2PFOA_00005 | 06/19/18 | | Wellington Laboratories, Lot M2PFOA0613 | | 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_00029 | 07/17/17 | 01/17/17 | Methanol, Lot 104453 | 20000 uL | LCMPFDA_00012 | 80 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LCMPFDA_00012 | 09/30/21 | | Wellington Laboratories, Lot MPFDA0916 | | LCMPFHxA_00013 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| ..LCMPFHxA_00013 | 04/08/21 | | Wellington Laboratories, Lot MPFHxA0416 | | (Purchased Reagent) | | 13C2 PFDA | 50 ug/mL |
| LC537-L4_00017 | 06/14/17 | 12/23/16 | MeOH/H2O, Lot 090285 | 5 mL | LC537-HSP_00014 | 135 uL | Perfluorobutanesulfonic acid (PFBS) | 90.882 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 10.0238 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 30.6364 ng/mL |
| | | | | | | | Perfluorononanoic acid | 21.0008 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 19.7629 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 40.5672 ng/mL |
| LC537-IS_00028 | 100 uL | 13C2-PFOA | 10 ng/mL | | | | | |
| LC537-SU_00026 | 250 uL | 13C4 PFOS | 28.68 ng/mL | | | | | |
| .LC537-HSP_00014 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 375 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 3366 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 371.25 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 1134.68 ng/mL |
| Perfluorononanoic acid | 777.808 ng/mL | | | | | | | |
| Perfluorooctanoic acid (PFOA) | 731.96 ng/mL | | | | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 1502.49 ng/mL | | | | | | | |
| ..LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL |
| | | | | | LC537-PFHpA_00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-----------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| | | | | | LC537-PFHxS_00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |
| | | | | | LC537-PFNA_00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | LC537-PFOA_00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | 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_00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537 PFHpA_00002 | 0.0568 g | Perfluoroheptanoic acid | 990 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_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA_00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
| ...LC537 PFNA_00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ...LC537-PFOA_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA_00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00028 | 06/19/17 | 12/19/16 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL |
| ..LCM2PFOA_00005 | 06/19/18 | | Wellington Laboratories, Lot M2PFOA0613 | | 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_00026 | 06/14/17 | 12/16/16 | Methanol, Lot 104453 | 20000 uL | LC537-SU_00025 | 10000 uL | 13C2 PFDA | 0.2 ug/mL |
| ..LC537-SU_00025 | 06/14/17 | 12/14/16 | Methanol, Lot 104453 | 10000 uL | LCMPFDA_00008 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| ..LCMPFDA_00008 | 08/19/20 | | Wellington Laboratories, Lot MPFDA0815 | | LCMPFHxA_00009 | 80 uL | 13C2 PFDA | 0.4 ug/mL |
| ..LCMPFHxA_00009 | 04/09/20 | | Wellington Laboratories, Lot MPFHxA0415 | | (Purchased Reagent) | | 13C2 PFHxA | 0.4 ug/mL |
| LC537-L5_00020 | 06/14/17 | 01/20/17 | MeOH/H2O, Lot 090285 | 5 mL | LC537-HSP_00014 | 200 uL | Perfluorobutanesulfonic acid (PFBS) | 134.64 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 14.85 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 45.3873 ng/mL |
| | | | | | | | Perfluorononanoic acid | 31.1123 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 29.2784 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 60.0996 ng/mL |
| | | | | | LC537-IS_00030 | 100 uL | 13C2-PFOA | 10 ng/mL |
| | | | | | | | 13C4 PFOS | 28.68 ng/mL |
| | | | | | LC537-SU_00029 | 250 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| .LC537-HSP_00014 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 375 uL | Perfluorobutanesulfonic acid (PFBS) | 3366 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 371.25 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 1134.68 ng/mL |
| | | | | | | | Perfluorononanoic acid | 777.808 ng/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-----------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 731.96 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 1502.49 ng/mL |
| ..LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL |
| | | | | | LC537-PFHpA_00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | LC537-PFHxS_00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |
| | | | | | LC537-PFNA_00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | LC537-PFOA_00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | 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_00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537 PFHpA 00002 | 0.0568 g | Perfluoroheptanoic acid | 990 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_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA 00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
|LC537 PFNA 00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ...LC537-PFOA_00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA 00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00030 | 07/17/17 | 01/17/17 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA_00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL |
| | | | | | LCMPFOS_00018 | 300 uL | 13C4 PFOS | 1.434 ug/mL |
| ..LCM2PFOA_00005 | 06/19/18 | | Wellington Laboratories, Lot M2PFOA0613 | | (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_00029 | 07/17/17 | 01/17/17 | Methanol, Lot 104453 | 20000 uL | LCMPFDA_00012 | 80 uL | 13C2 PFDA | 0.2 ug/mL |
| | | | | | LCMPFHxA_00013 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| ..LCMPFDA_00012 | 09/30/21 | | Wellington Laboratories, Lot MPFDA0916 | | (Purchased Reagent) | | 13C2 PFDA | 50 ug/mL |
| ..LCMPFHxA_00013 | 04/08/21 | | Wellington Laboratories, Lot MPFHxA0416 | | (Purchased Reagent) | | 13C2 PFHxA | 50 ug/mL |
| LC537-L6_00016 | 06/14/17 | 12/23/16 | MeOH/H2O, Lot 090285 | 5 mL | LC537-HSP_00014 | 265 uL | Perfluorobutanesulfonic acid (PFBS) | 178.398 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 19.6763 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 60.1382 ng/mL |
| | | | | | | | Perfluorononanoic acid | 41.2238 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 38.7939 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 79.632 ng/mL |
| | | | | | LC537-IS_00028 | 100 uL | 13C2-PFOA | 10 ng/mL |
| | | | | | | | 13C4 PFOS | 28.68 ng/mL |
| | | | | | LC537-SU_00026 | 250 uL | 13C2 PFDA | 10 ng/mL |
| | | | | | | | 13C2 PFHxA | 10 ng/mL |
| .LC537-HSP_00014 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 375 uL | Perfluorobutanesulfonic acid (PFBS) | 3366 ng/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.:

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|------------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| | | | | | | | Perfluoroheptanoic acid | 371.25 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 1134.68 ng/mL |
| | | | | | | | Perfluorononanoic acid | 777.808 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 731.96 ng/mL |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 1502.49 ng/mL |
| ..LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL |
| | | | | | LC537-PFHpA 00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | LC537-PFHxS 00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |
| | | | | | LC537-PFNA 00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | LC537-PFOA 00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | 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 00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537 PFHpA 00002 | 0.0568 g | Perfluoroheptanoic acid | 990 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 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA 00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
|LC537 PFNA 00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ..LC537-PFOA 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA 00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00028 | 06/19/17 | 12/19/16 | Methanol, Lot 090285 | 10000 uL | LCM2PFOA 00005 | 100 uL | 13C2-PFOA | 0.5 ug/mL |
| | | | | | LCMPFOS 00018 | 300 uL | 13C4 PFOS | 1.434 ug/mL |
| ..LCM2PFOA 00005 | 06/19/18 | | Wellington Laboratories, Lot M2PFOA0613 | | (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_00026 | 06/14/17 | 12/16/16 | Methanol, Lot 104453 | 20000 uL | LC537-SU_00025 | 10000 uL | 13C2 PFDA | 0.2 ug/mL |
| | | | | | | | 13C2 PFHxA | 0.2 ug/mL |
| ..LC537-SU_00025 | 06/14/17 | 12/14/16 | Methanol, Lot 104453 | 10000 uL | LCMPFDA 00008 | 80 uL | 13C2 PFDA | 0.4 ug/mL |
| | | | | | LCMPFHxA 00009 | 80 uL | 13C2 PFHxA | 0.4 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-LSP_00017 | 06/22/17 | 01/04/17 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00021 | 50 uL | Perfluorobutane Sulfonate | 441.709 ng/mL |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 441.709 ng/mL |
| | | | | | | | Perfluoroheptanoic acid | 49.5 ng/mL |
| | | | | | | | Perfluorohexanesulfonic acid | 150.304 ng/mL |
| | | | | | | | Perfluorononanoic acid | 103.708 ng/mL |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 97.5946 ng/mL |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration | | |
|------------------------|----------|----------------------|------------------------|----------------------|---------------------|--------------|-------------------------------------|---------------|-------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | | | |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 200.165 ng/mL | | |
| .LC537SPIM_00021 | 06/22/17 | 01/04/17 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00007 | 440 uL | Perfluorobutane Sulfonate | 88.3417 ug/mL | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 88.3417 ug/mL | | |
| | | | | | | | LC537-PFHpA 00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | | | LC537-PFHxS 00009 | 150 uL | Perfluorohexanesulfonic acid | 30.0607 ug/mL |
| | | | | | | | LC537-PFNA 00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | | | LC537-PFOA 00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00007 | 400 uL | Perfluorooctanesulfonic acid (PFOS) | 40.0329 ug/mL | | |
| ..LC537-PFBS_00007 | 01/04/18 | 01/04/17 | Methanol, Lot 090285 | 51.5 mL | LC537_PFBS_00002 | 0.1034 g | Perfluorobutane Sulfonate | 2007.77 ug/mL | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 2007.77 ug/mL | | |
| ...LC537_PFBS_00002 | 04/01/18 | Sigma, Lot MKBP8842V | | | (Purchased Reagent) | | Perfluorobutane Sulfonate | 1 g/g | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 1 g/g | | |
| ..LC537-PFHpA 00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537 PFHpA 00002 | 0.0568 g | Perfluoroheptanoic acid | 990 ug/mL | | |
| ..LC537 PFHpA 00002 | 04/01/18 | | Aldrich, Lot BCM2579V | | (Purchased Reagent) | | Perfluoroheptanoic acid | 0.99 g/g | | |
| ..LC537-PFHxS 00009 | 01/04/18 | 01/04/17 | Methanol, Lot 090285 | 54 mL | LC537 PFHxS 00002 | 0.119 g | Perfluorohexanesulfonic acid | 2004.05 ug/mL | | |
| ..LC537 PFHxS 00002 | 04/01/18 | | Sigma, Lot BCBL3545V | | (Purchased Reagent) | | Perfluorohexanesulfonic acid | 0.9094 g/g | | |
| ..LC537-PFNA 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA 00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL | | |
| ..LC537 PFNA 00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g | | |
| ..LC537-PFOA 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA 00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 ug/mL | | |
| ..LC537 PFOA 00002 | 11/04/18 | | Fluka, Lot SZBD308XV | | (Purchased Reagent) | | Perfluorooctanoic acid (PFOA) | 0.999 g/g | | |
| ..LC537-PFOS_00007 | 08/09/17 | 01/04/17 | Methanol, Lot 090285 | 48.95 mL | LC537_PFOS_00002 | 0.0538 g | Perfluorooctanesulfonic acid (PFOS) | 1000.82 ug/mL | | |
| ...LC537_PFOS_00002 | 08/09/17 | | Fluka, Lot SZBC222XV | | (Purchased Reagent) | | Perfluorooctanesulfonic acid (PFOS) | 0.9106 g/g | | |
| LC537-MSP_00017 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 10000 uL | LC537SPIM_00018 | 200 uL | Perfluorobutane Sulfonate | 1795.2 ng/mL | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 1795.2 ng/mL | | |
| | | | | | | | Perfluoroheptanoic acid | 198 ng/mL | | |
| | | | | | | | Perfluorohexanesulfonic acid | 605.164 ng/mL | | |
| | | | | | | | Perfluorononanoic acid | 414.831 ng/mL | | |
| | | | | | | | Perfluorooctanoic acid (PFOA) | 390.378 ng/mL | | |
| | | | | | | | Perfluorooctanesulfonic acid (PFOS) | 801.328 ng/mL | | |
| .LC537SPIM_00018 | 06/22/17 | 12/22/16 | Methanol, Lot 104453 | 10000 uL | LC537-PFBS_00006 | 440 uL | Perfluorobutane Sulfonate | 89.76 ug/mL | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 89.76 ug/mL | | |
| | | | | | | | LC537-PFHpA 00013 | 100 uL | Perfluoroheptanoic acid | 9.9 ug/mL |
| | | | | | | | LC537-PFHxS 00008 | 300 uL | Perfluorohexanesulfonic acid | 30.2582 ug/mL |
| | | | | | | | LC537-PFNA 00011 | 200 uL | Perfluorononanoic acid | 20.7415 ug/mL |
| | | | | | | | LC537-PFOA 00011 | 100 uL | Perfluorooctanoic acid (PFOA) | 19.5189 ug/mL |
| | | | | | LC537-PFOS_00006 | 400 uL | 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 | Perfluorobutane Sulfonate | 2040 ug/mL | | |

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-26004-1

SDG No.: _____

| Reagent ID | Exp Date | Prep Date | Dilutant Used | Reagent Final Volume | Parent Reagent | | Analyte | Concentration |
|-----------------------|----------|-----------|---|----------------------|---------------------|--------------|-------------------------------------|---------------|
| | | | | | Reagent ID | Volume Added | | |
| | | | | | | | Perfluorobutanesulfonic acid (PFBS) | 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 00013 | 06/22/17 | 12/22/16 | Methanol, Lot 090285 | 56.8 mL | LC537 PFHpA 00002 | 0.0568 g | Perfluoroheptanoic acid | 990 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 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFNA 00002 | 0.007 g | Perfluorononanoic acid | 1037.08 ug/mL |
| ...LC537 PFNA 00002 | 04/01/18 | | TCI America, Lot QN44F | | (Purchased Reagent) | | Perfluorononanoic acid | 0.963 g/g |
| ..LC537-PFOA 00011 | 11/21/17 | 11/21/16 | Methanol, Lot 090285 | 6.5 mL | LC537 PFOA 00002 | 0.0127 g | Perfluorooctanoic acid (PFOA) | 1951.89 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_00030 | 07/31/17 | 01/31/17 | Methanol, Lot 104453 | 20000 uL | LCMPFDA 00012 | 80 uL | 13C2 PFDA | 0.2 ug/mL |
| | | | | | LCMPFHxA 00013 | 80 uL | 13C2 PFHxA | 0.2 ug/mL |
| .LCMPFDA 00012 | 09/30/21 | | Wellington Laboratories, Lot MPFDA0916 | | (Purchased Reagent) | | 13C2 PFDA | 50 ug/mL |
| .LCMPFHxA 00013 | 04/08/21 | | Wellington Laboratories, Lot MPFHxA0416 | | (Purchased Reagent) | | 13C2 PFHxA | 50 ug/mL |

Reagent

LC537_PFB_00002

#: 4/1/15 SPV

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

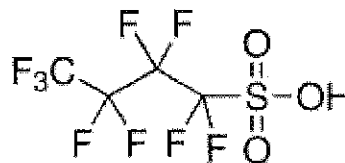
Outside USA: eurtechserv@sial.com

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, 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

R: 4/1/15 4V

Certificate of Analysis

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

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: TRIDECAFLUOROHEXANE-1-SULFONIC ACID POTASSIUM SALT
 >= 98.0 % T

Product Number: 50929

Batch Number: BCBL3545V

Brand: Aldrich

CAS Number: 3871-99-6

Formula: C₆F₁₃KO₃S

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_PENA_00002

R: 4/1/15 SKV



Certificate of Analysis

Apr 2, 2015 (JST)

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

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

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

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

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

PFNA

Reagent

LC537_PFOA_00002

3/21/15

SIGMA-ALDRICH

CERTIFICATE OF ANALYSIS

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

| |
|------------------------------------|
| Seelze, 13.11.2013/505378/13/24029 |
| Order-No.: |
| Customer-No.: |
| Order-Code: |
| Quantity: |
| Production Date: 04.Nov.2013 |
| Expiry Date: 04.Nov.2018 |

| | | |
|---------------------------------------|-------------------|------|
| Article/Product: 33824 | Batch : SZBD308XV | PFOA |
| Pentadecafluorooctanoic acid OEKANAL® | | |

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

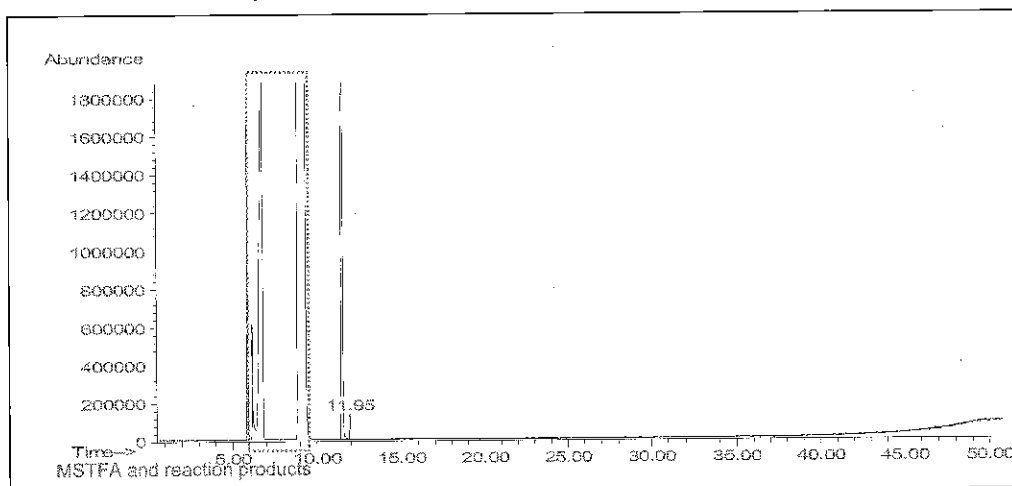
Mass range: 10-600 amu (Scan mode)

Evaluation: Purity: Total Ion Chromatogram
(MSTFA and reaction products blinded out in report)

Identity: Mass spectrum complies

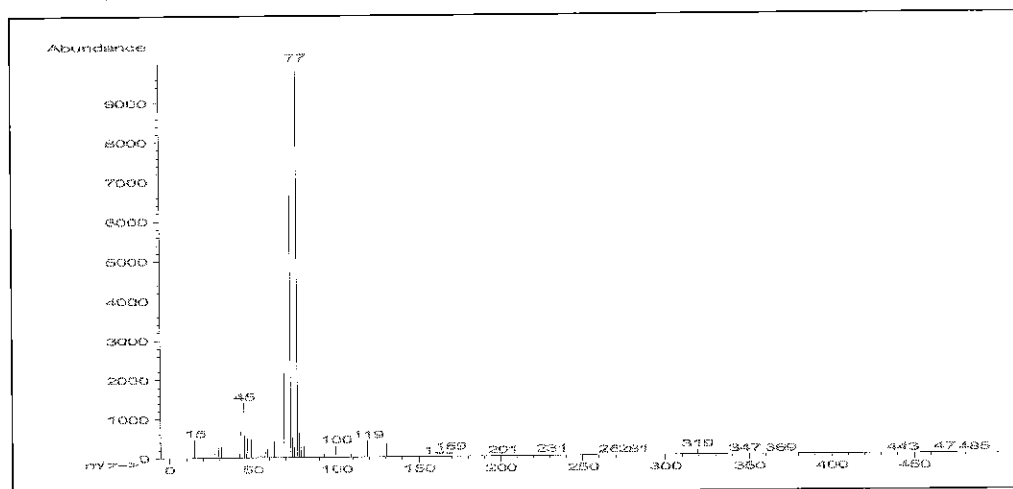
Operator: Ahrens / 2013-11-13

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: saleskorea@alfa-asia.com

Reagent

LC537_PFOs_00002

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 - <i>ex date</i> |

| | |
|--|---------------------|
| 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 | complying |
| Assay (LC-MS) | 98 % |
| Date of Analysis | 10.Aug.2012 |

FW-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: C₁₆H₂₀F₁₇NO₃S
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

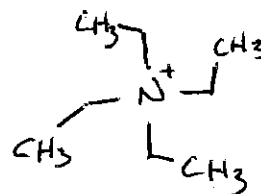
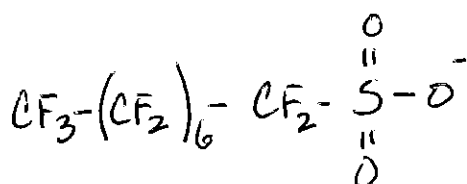
$$\text{Mw correction} = \frac{500.125}{629.37} = 0.7946$$

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

E. Schwarzler

Purity + Mw Correction = 77.87%

Edeltraud Schwärzler, Manager
Quality Control
Buchs, Switzerland



| | <u>C₈F₁₇SO₃H</u> | <u>C₈H₂₀N</u> |
|------------|---|-------------------------------------|
| C = 12.011 | 96.088 | 96.088 |
| F = 18.998 | 322.966 | - |
| S = 32.066 | 32.066 | - |
| O = 15.999 | 47.997 | - |
| H = 1.008 | 1.008 | 20.160 |
| N = 14.007 | - | 14.007 |
| | <u>500.125</u> | <u>130.255</u> → |

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Certificate of Origin

Product Name: Heptadecafluorooctanesulfonic acid tetraethylammonium salt
 98 %
Product Number: 365289
Product Brand: Aldrich
Lot: BCBF5116V
Molecular Formula: C₁₆H₂₀F₁₇NO₃S
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_00005

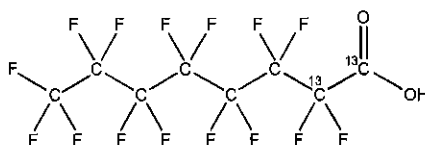


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFOA **LOT NUMBER:** M2PFOA0613
COMPOUND: Perfluoro-n-[1,2-¹³C₂]octanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₆HF₁₅O₂ **MOLECULAR WEIGHT:** 416.05
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) 06/19/2013
EXPIRY DATE: (mm/dd/yyyy) 06/19/2018
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____


B.G. Chittim

Date: 07/16/2013
(mm/dd/yyyy)

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

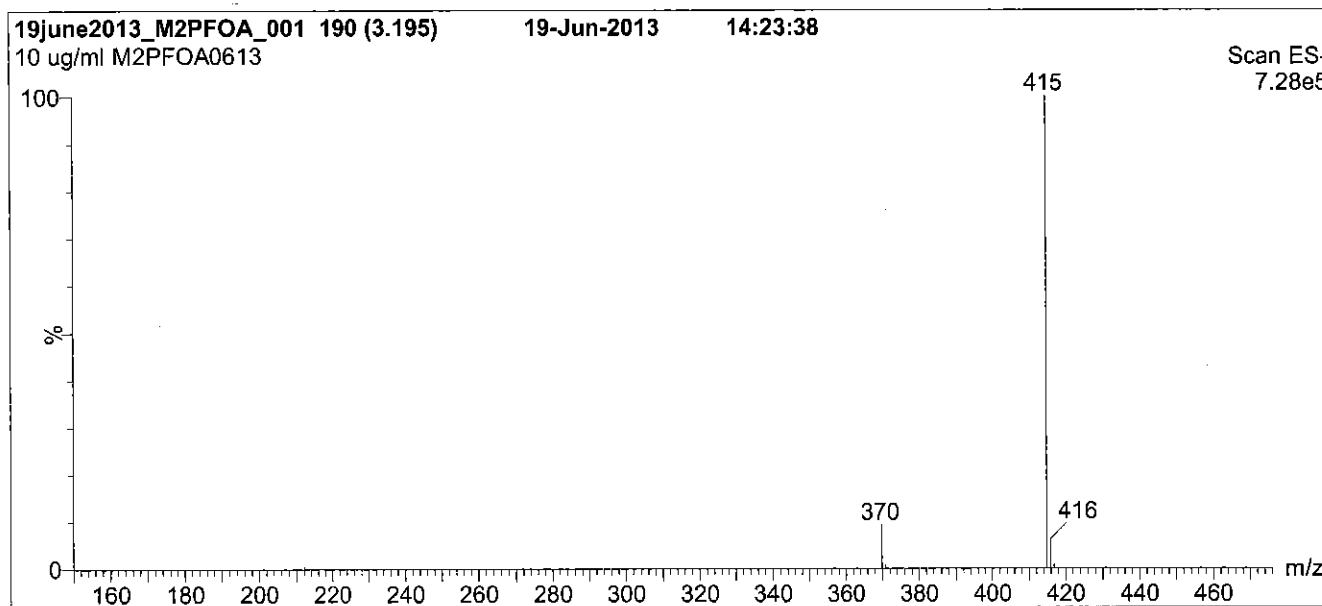
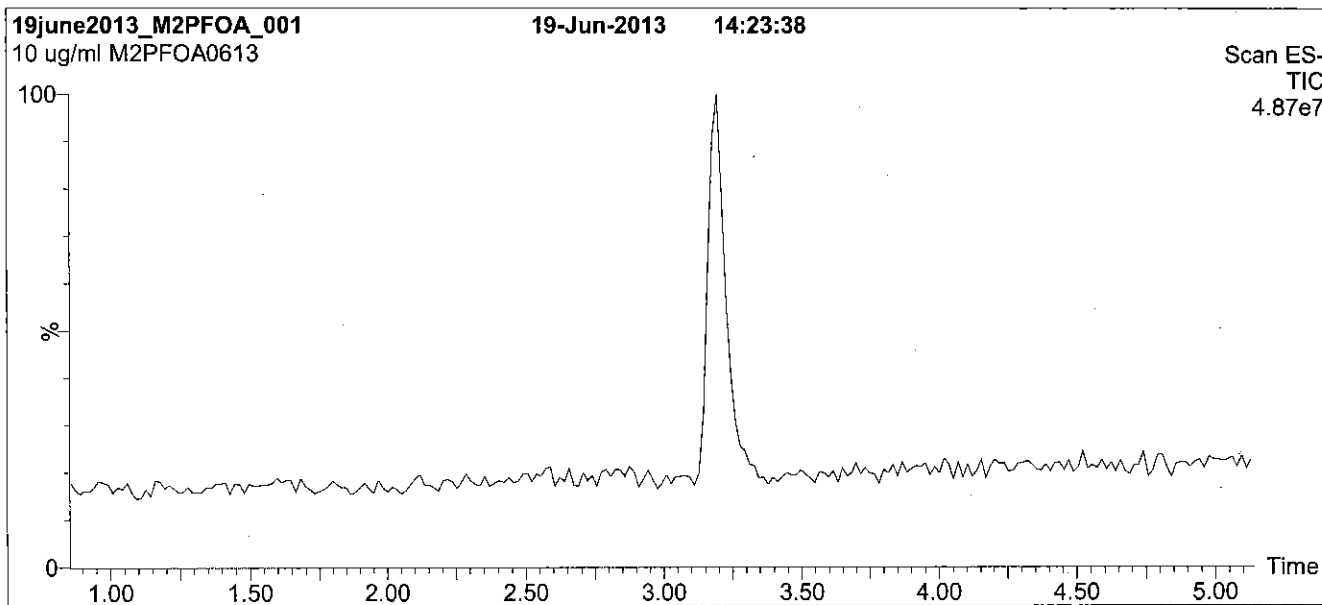
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 50% (80:20 MeOH:ACN) / 50% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7 min and hold for 1.5 min
 before returning to initial conditions in 0.5 min.
 Time: 10 min

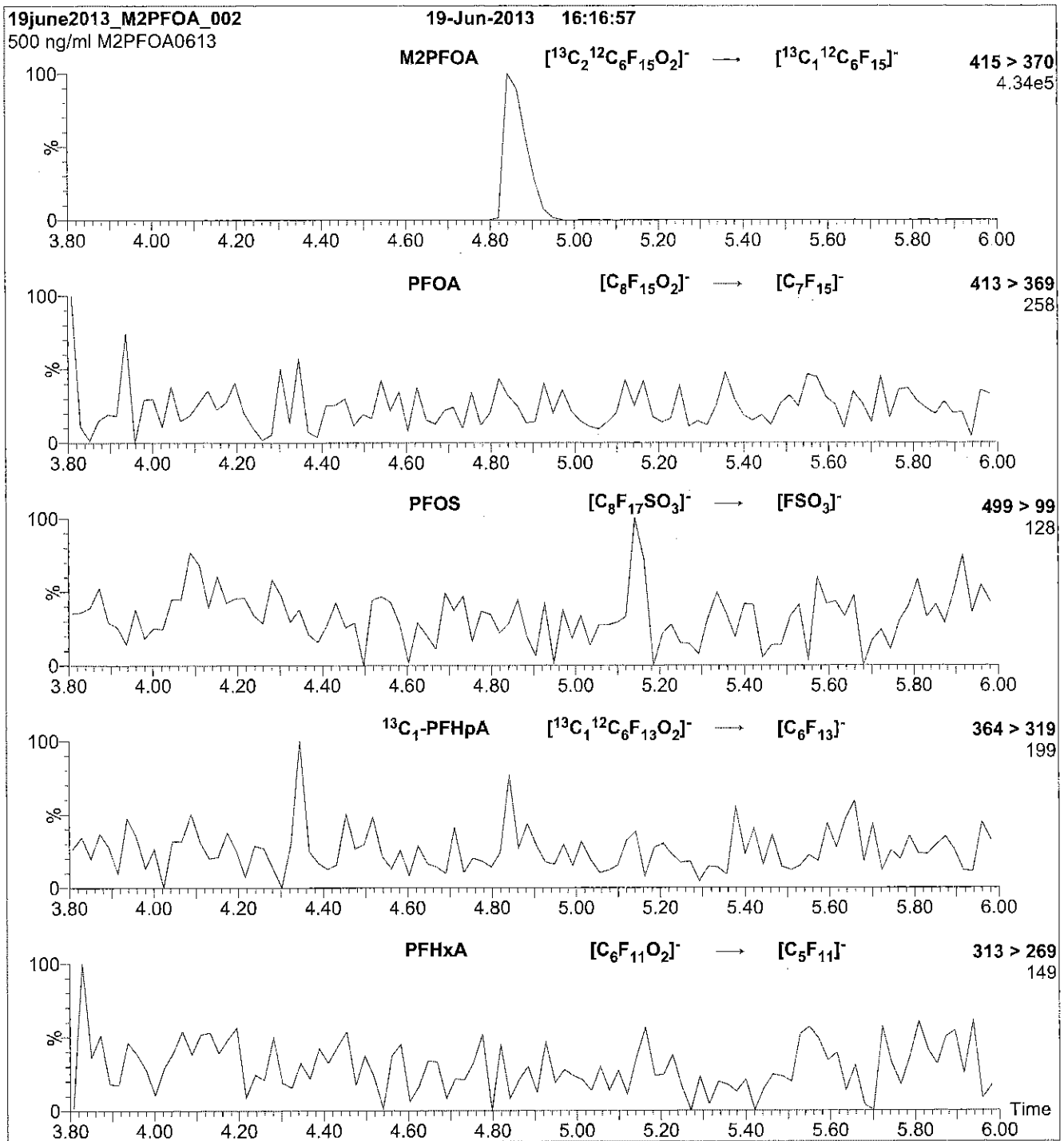
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFDA_00008



605243

ID: LCMPFDA_00008

Exp: 08/19/20 Pptd: CBW

13C2-Perfluorodecanoic acid

Rec. 3/29/16 JEB ✓



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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:

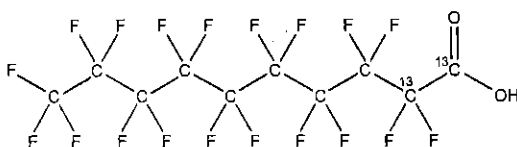
MPFDA

LOT NUMBER:

MPFDA0815

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

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₈HF₁₉O₂**MOLECULAR WEIGHT:**

516.07

CONCENTRATION:

50 ± 2.5 µg/ml

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

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

08/19/2015

(1,2-¹³C₂)**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)

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

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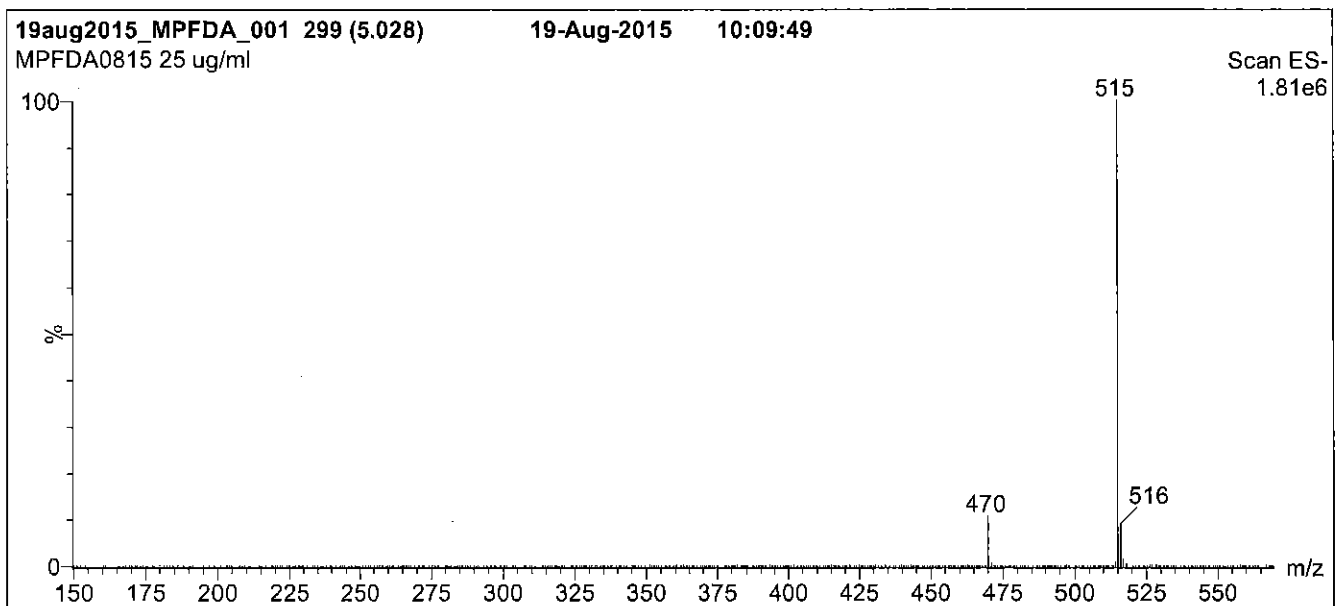
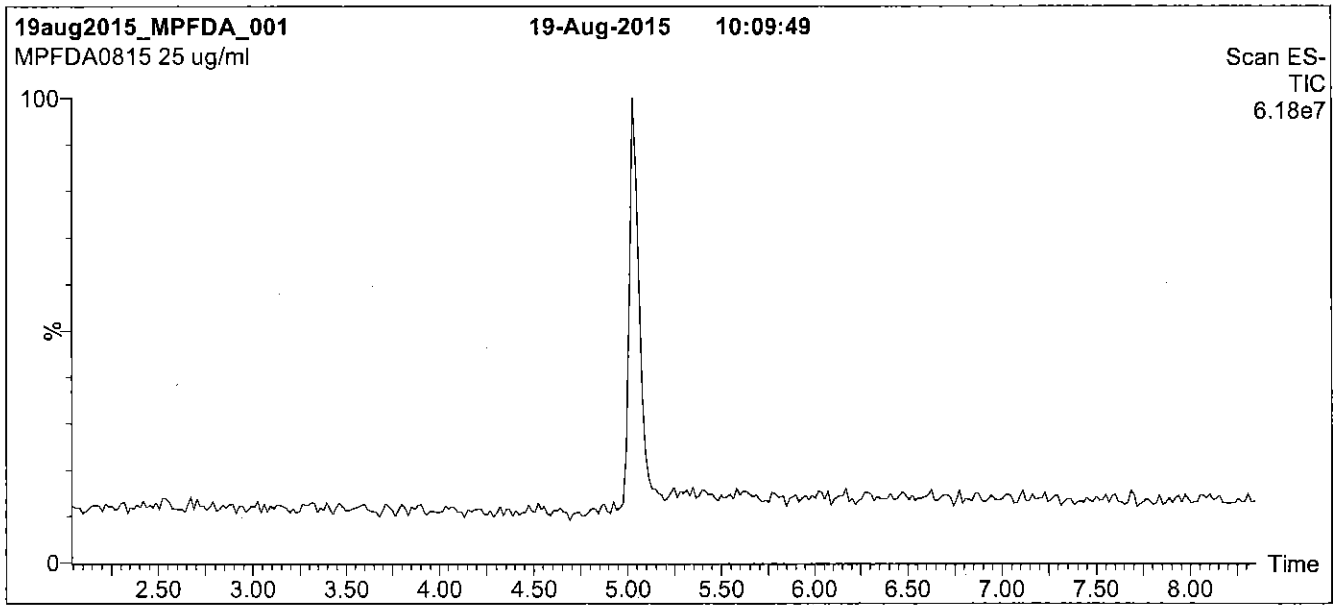
QUALITY MANAGEMENT:

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Figure 1: 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

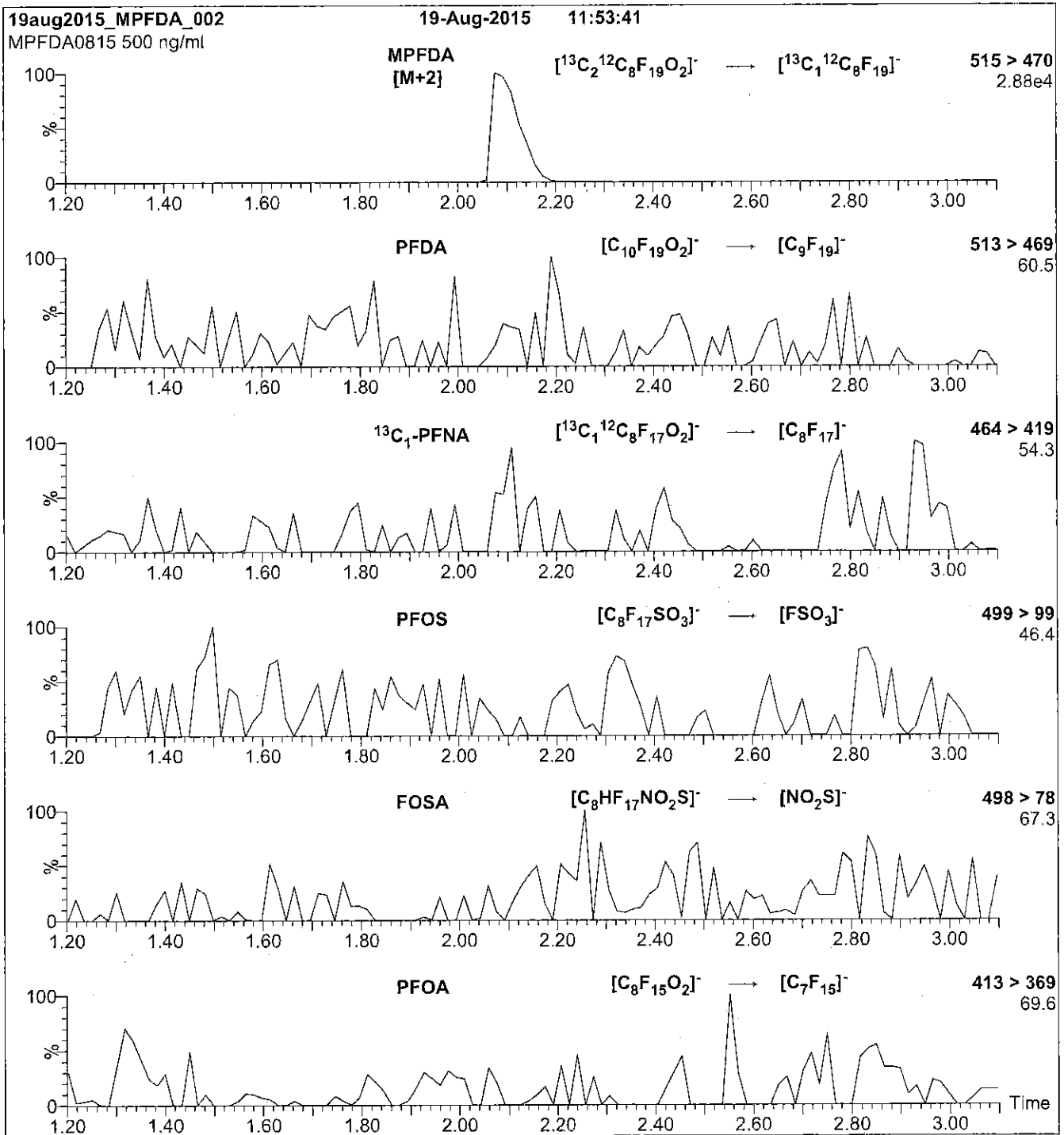
Flow: 300 μ l/min

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% H₂O
 (both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFDA_00012

R: SBC 12/21/16



814255

ID: LCMFDA_00012

Exp: 09/30/21 Prpd: SBC

13C2-Perfluorodecanoic a

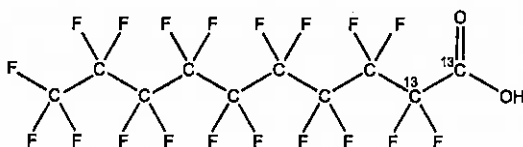


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA **LOT NUMBER:** MPFDA0916
COMPOUND: Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈HF₁₉O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 516.07
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ¹³C
(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy) 09/30/2016

EXPIRY DATE: (mm/dd/yyyy) 09/30/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

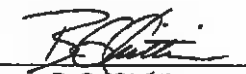
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of ¹³C₁-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

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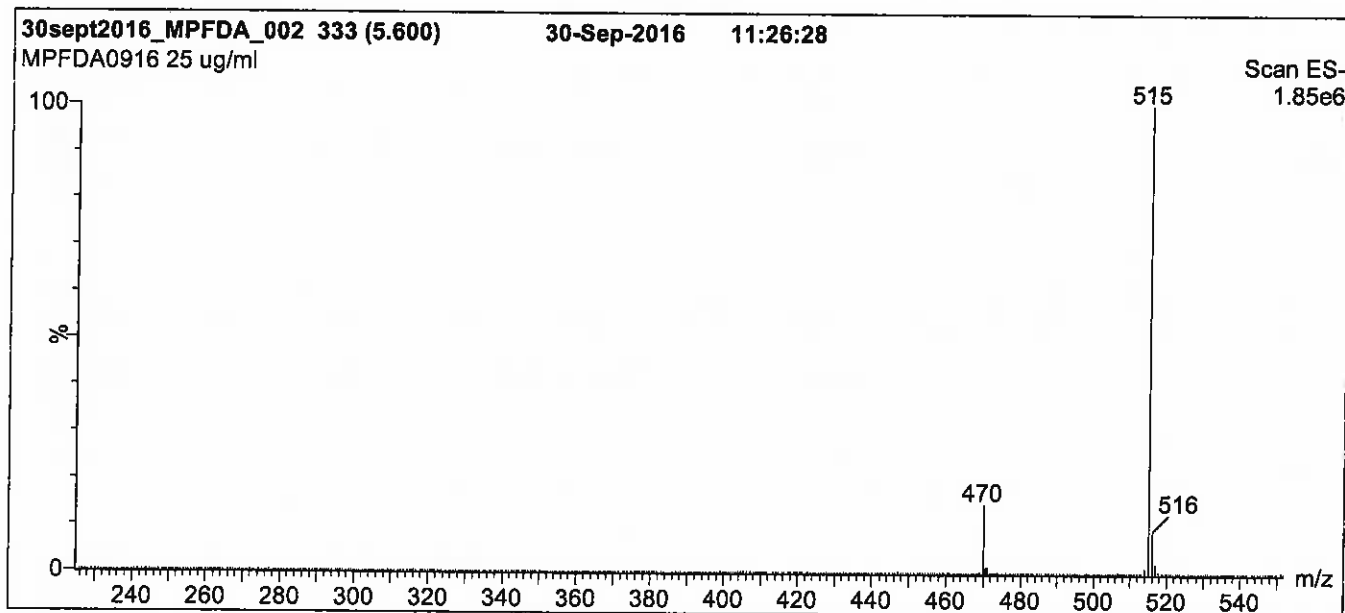
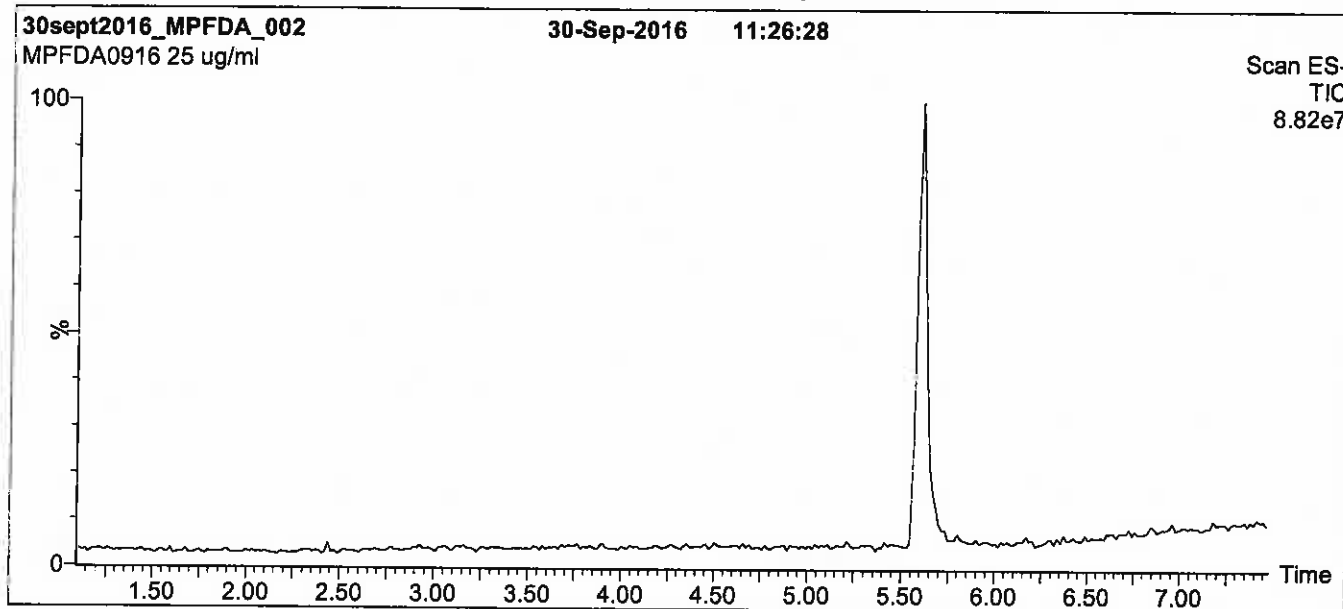
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

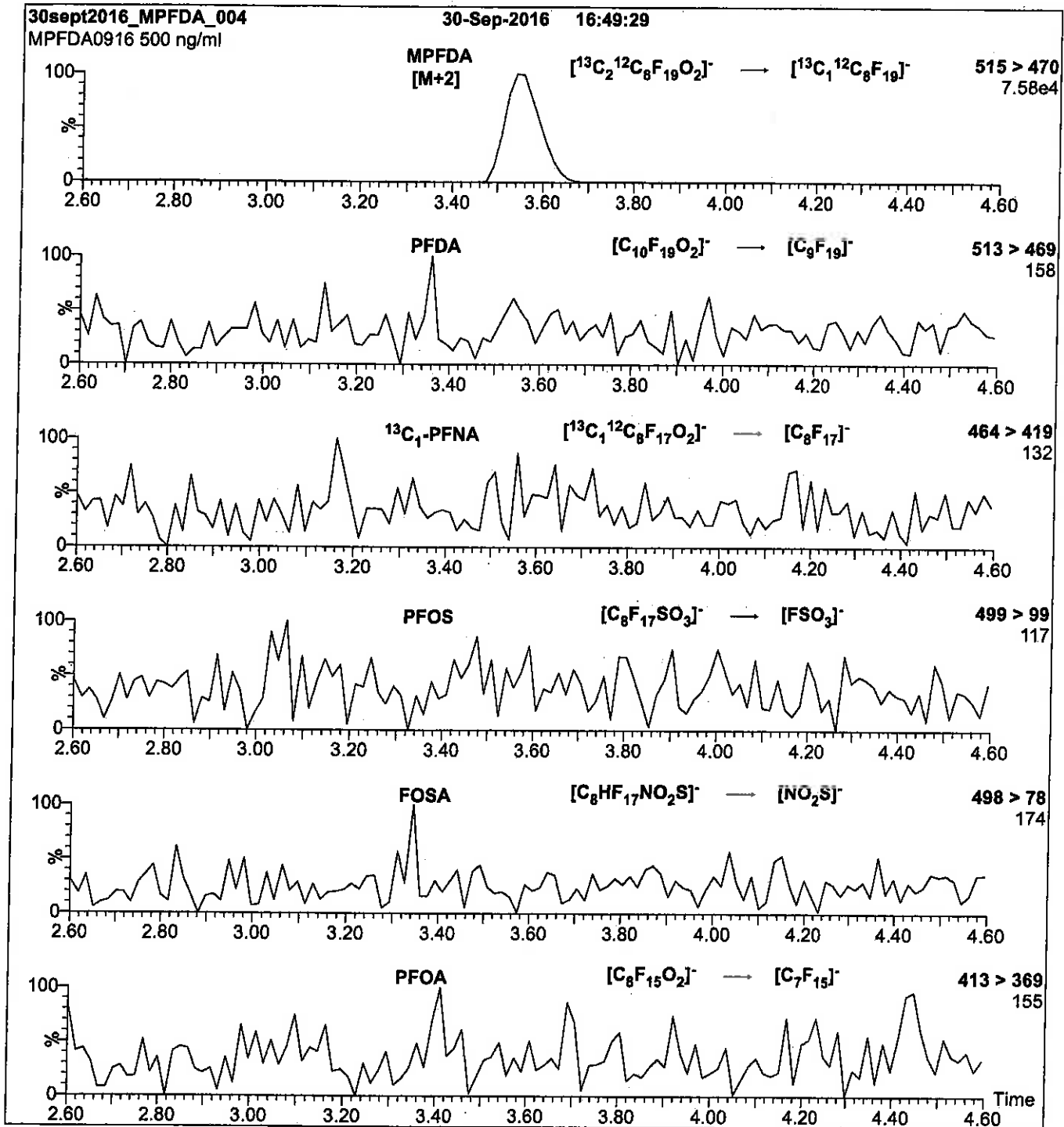
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

Injection: Direct loop injection
10 μ l (500 ng/ml MPFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFHxA_00009



605244
 ID: LCMPFHxA_00009
 Exp: 04/09/20 Prpd: CBW
¹³C₂-Perfluorohexanoic ac

Rec. 3/29/16 JRB ✓



WELLINGTON LABORATORIES

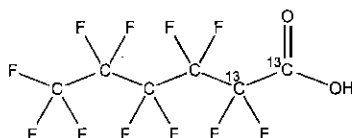
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: MPFHxA0415

STRUCTURE:

CAS #: Not available



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

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

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/09/2015
EXPIRY DATE: (mm/dd/yyyy) 04/09/2020

ISOTOPIC PURITY: ≥99%¹³C
 (1,2-¹³C₂)

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

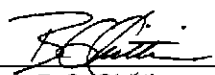
DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
 B.G. Chittim

Date: 04/14/2015
 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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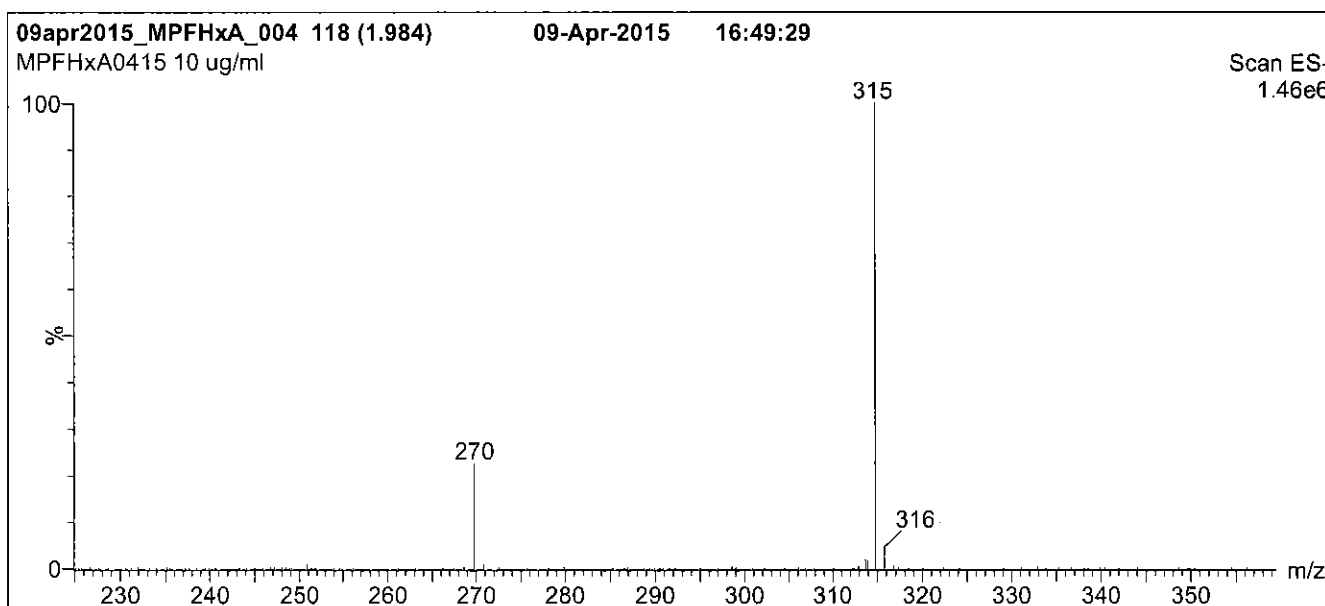
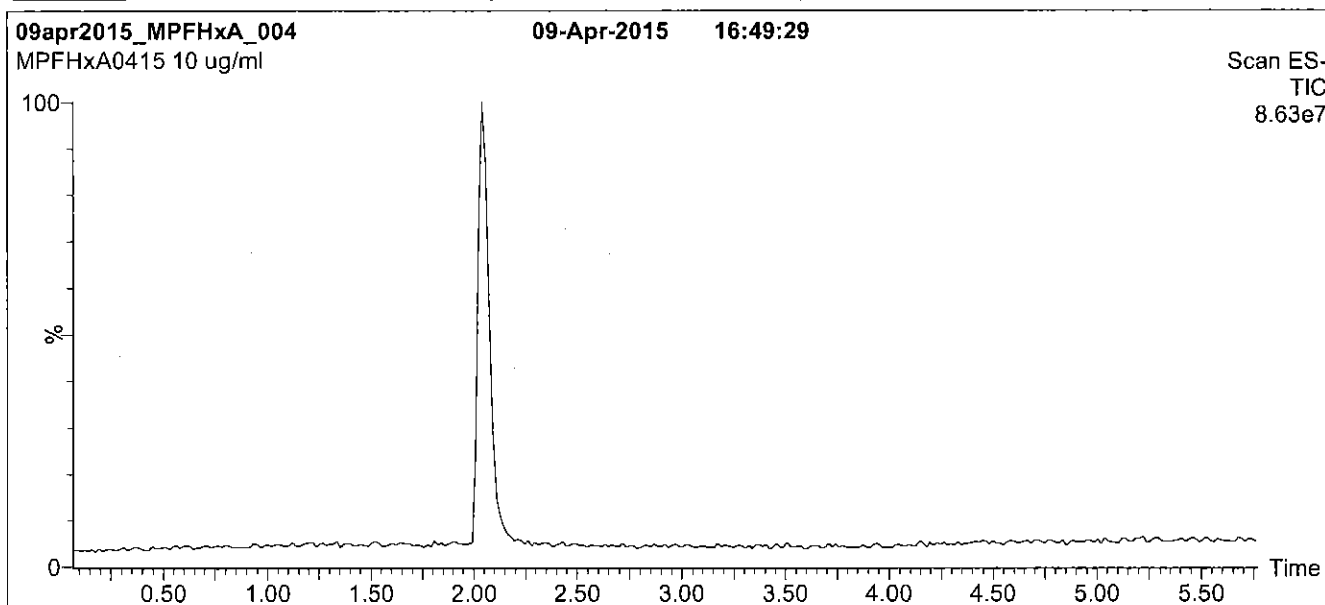
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MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

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

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

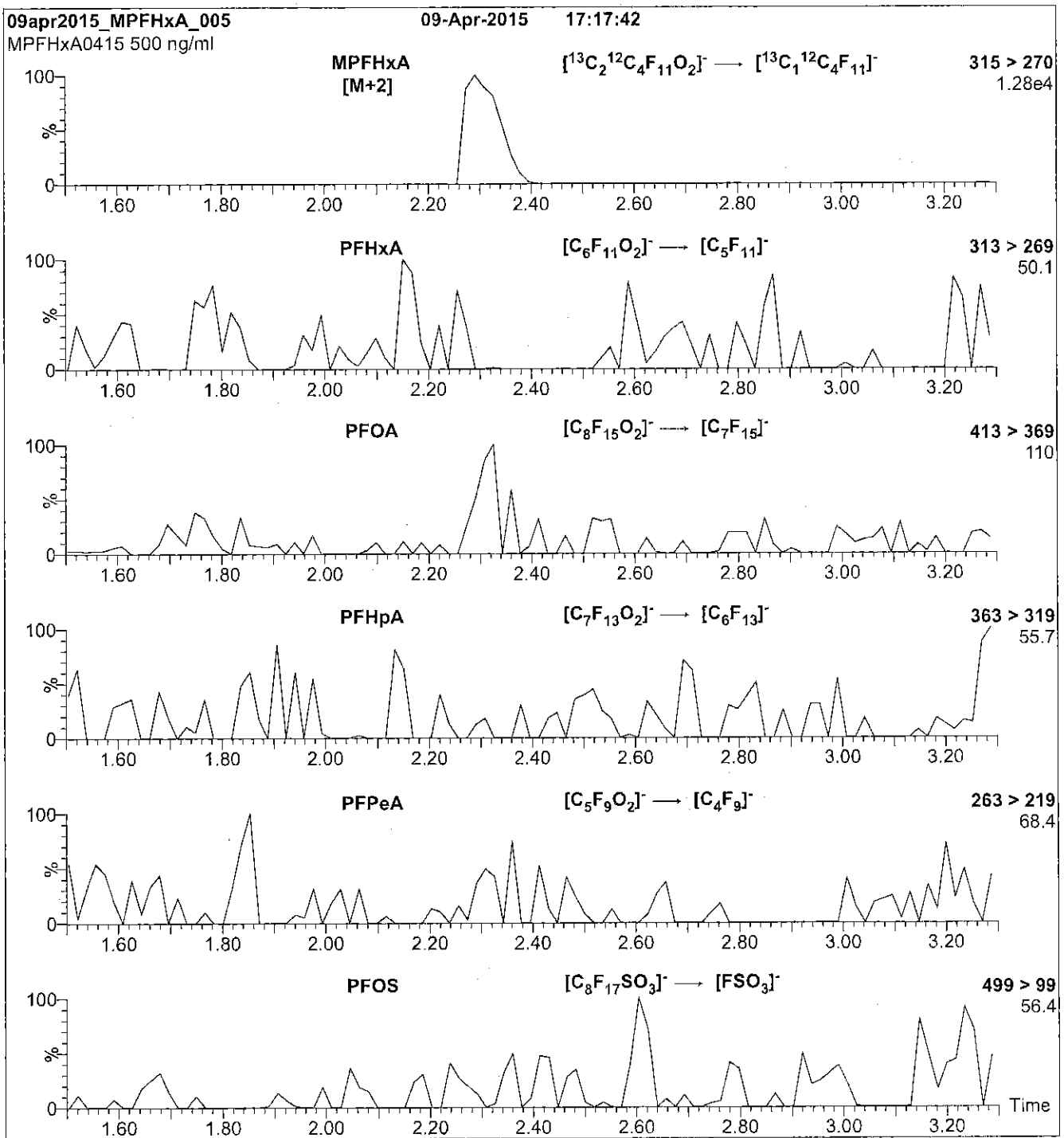
Flow: 300 μ l/min

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 μ l (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 10

Reagent

LCMPFHxA_00013

R: SBC 12/21/16



814258

ID: LCMPFHxA_00013

Exp: 04/08/21 Prod: SBC

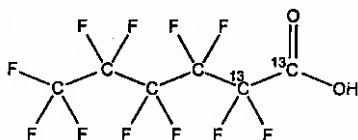
¹³C2-Perfluorohexanoic ac



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA **LOT NUMBER:** MPFHxA0416
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexanoic acid
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₄HF₁₁O₂ **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) 04/08/2016
EXPIRY DATE: (mm/dd/yyyy) 04/08/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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

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

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

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

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

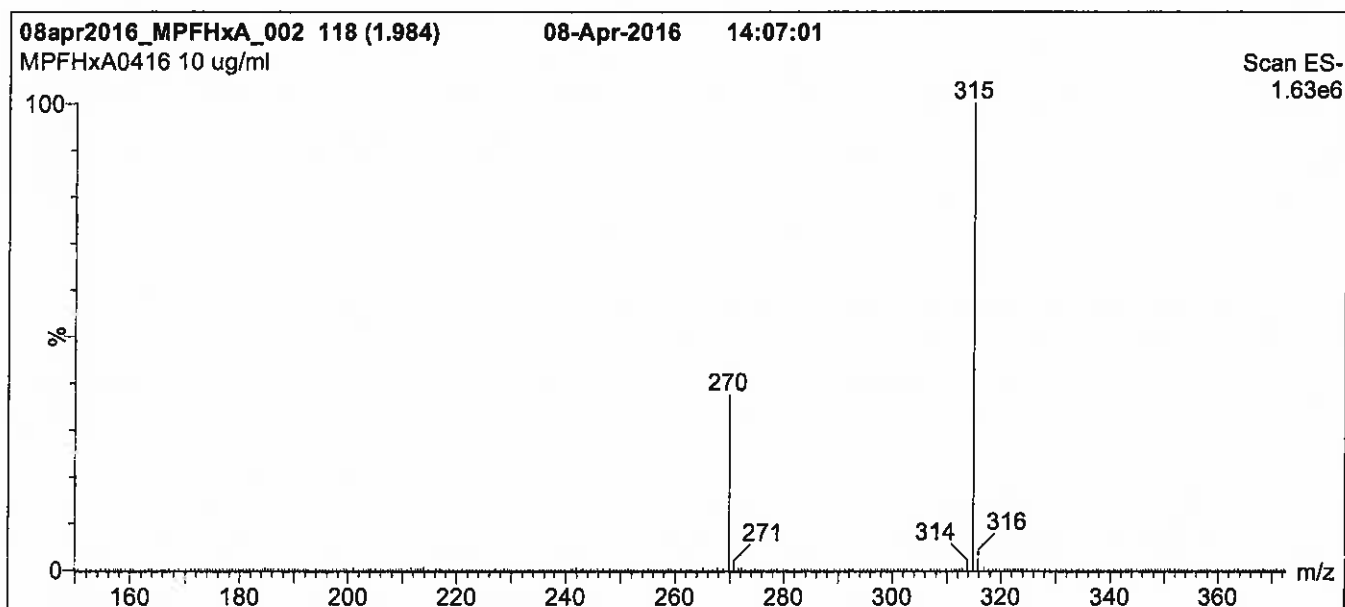
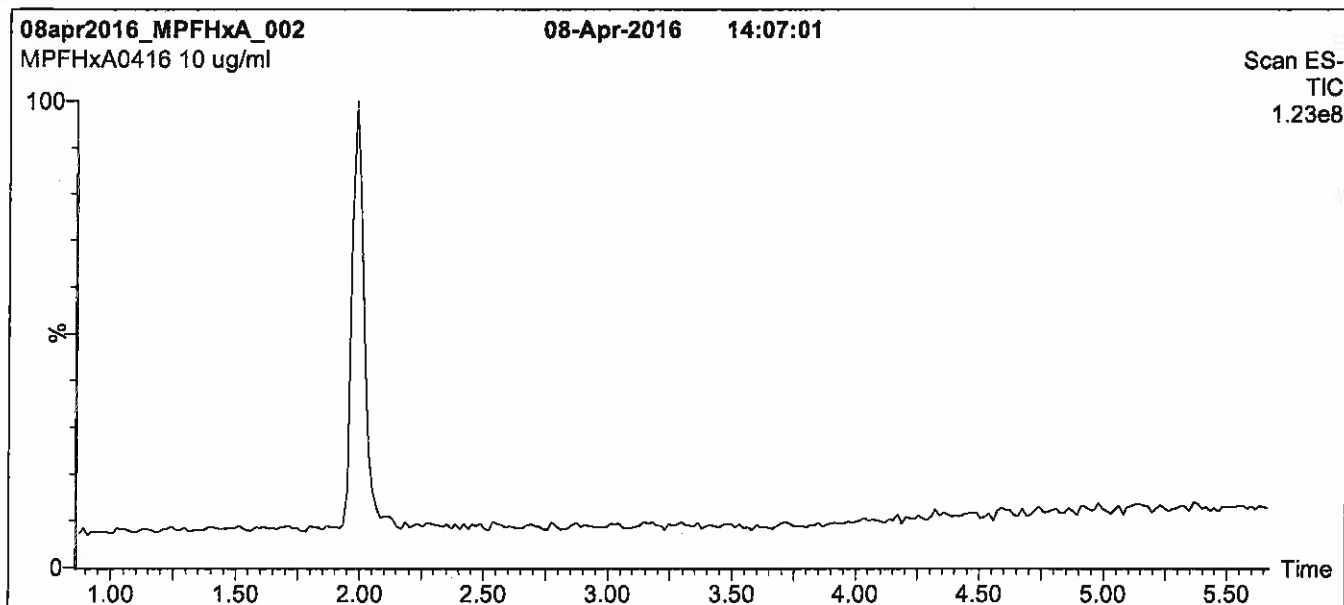
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
 Start: 50% (80:20 MeOH:ACN) / 50% H₂O
 (both with 10 mM NH₄OAc buffer)
 Ramp to 90% organic over 7.5 min and hold for 1.5 min
 before returning to initial conditions over 0.5 min.
 Time: 10 min

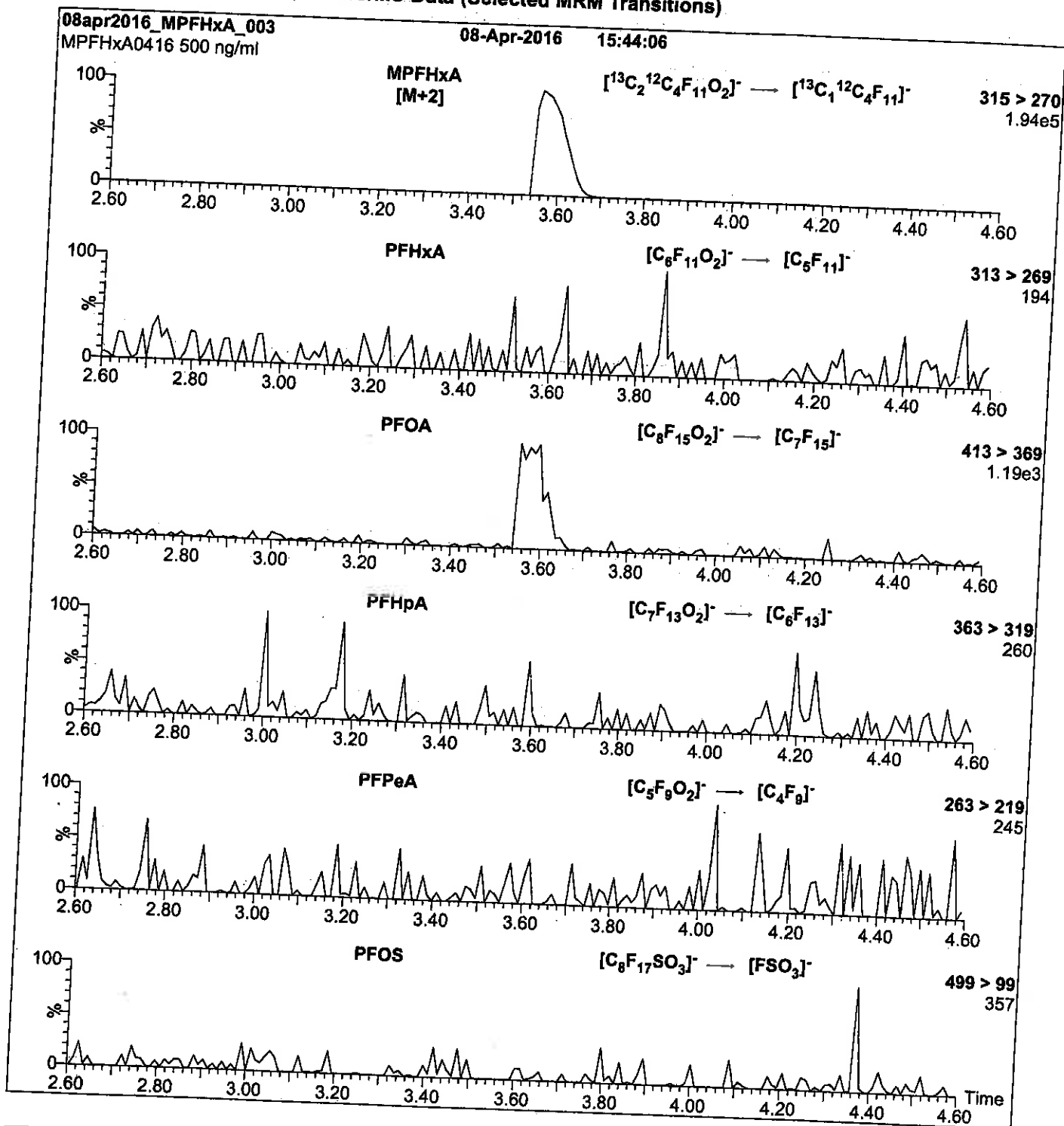
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFOS_00018

R: SBC 9/22/16



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

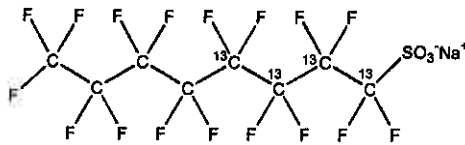


WELLINGTON LABORATORIES

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


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C]₃heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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

INTENDED USE:

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

HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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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 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

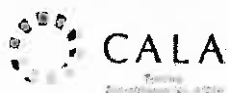
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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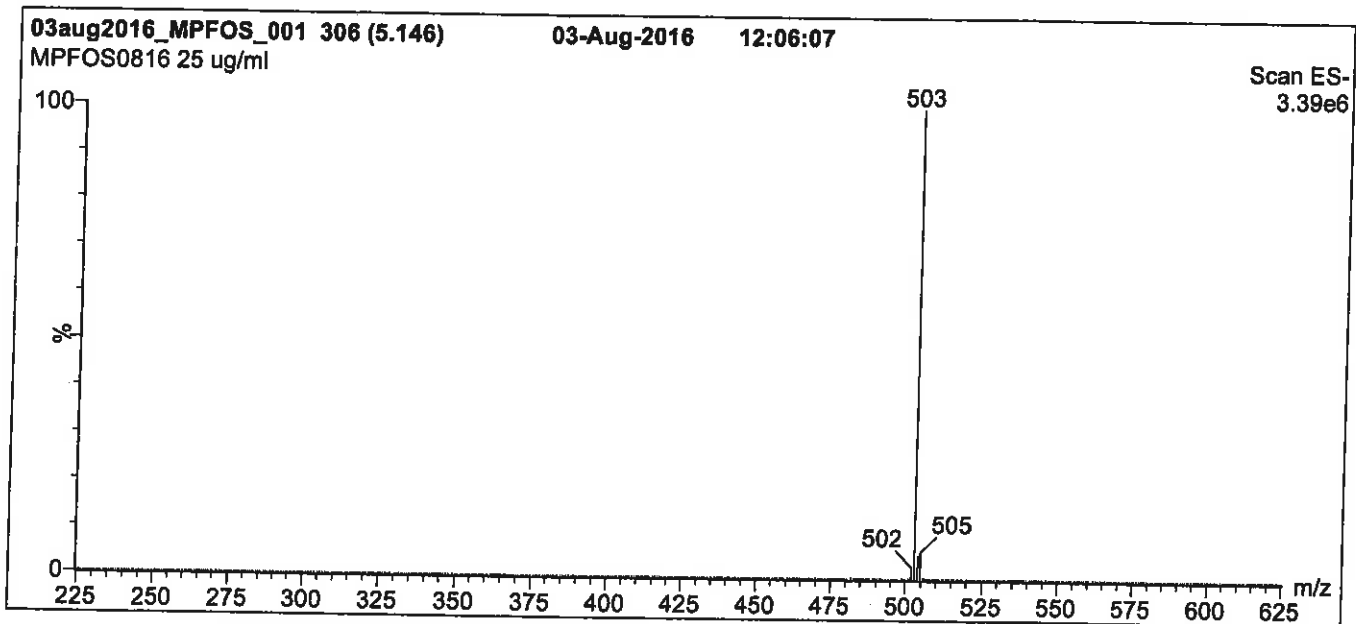
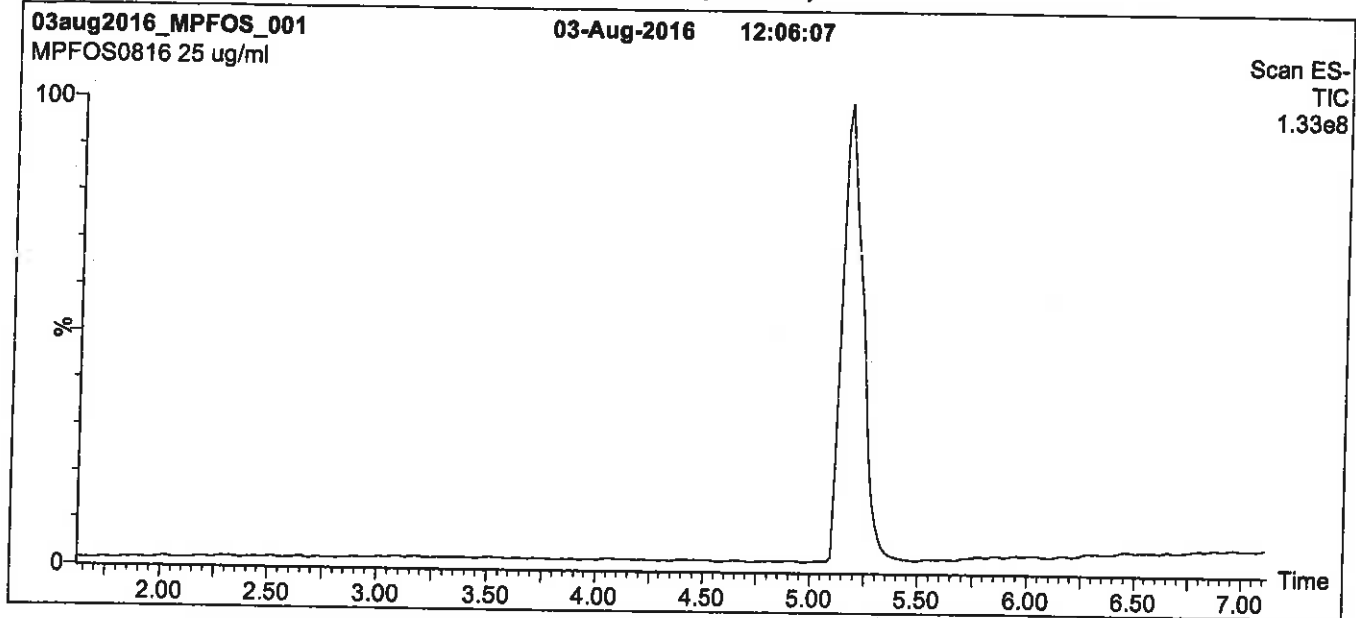
QUALITY MANAGEMENT:

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

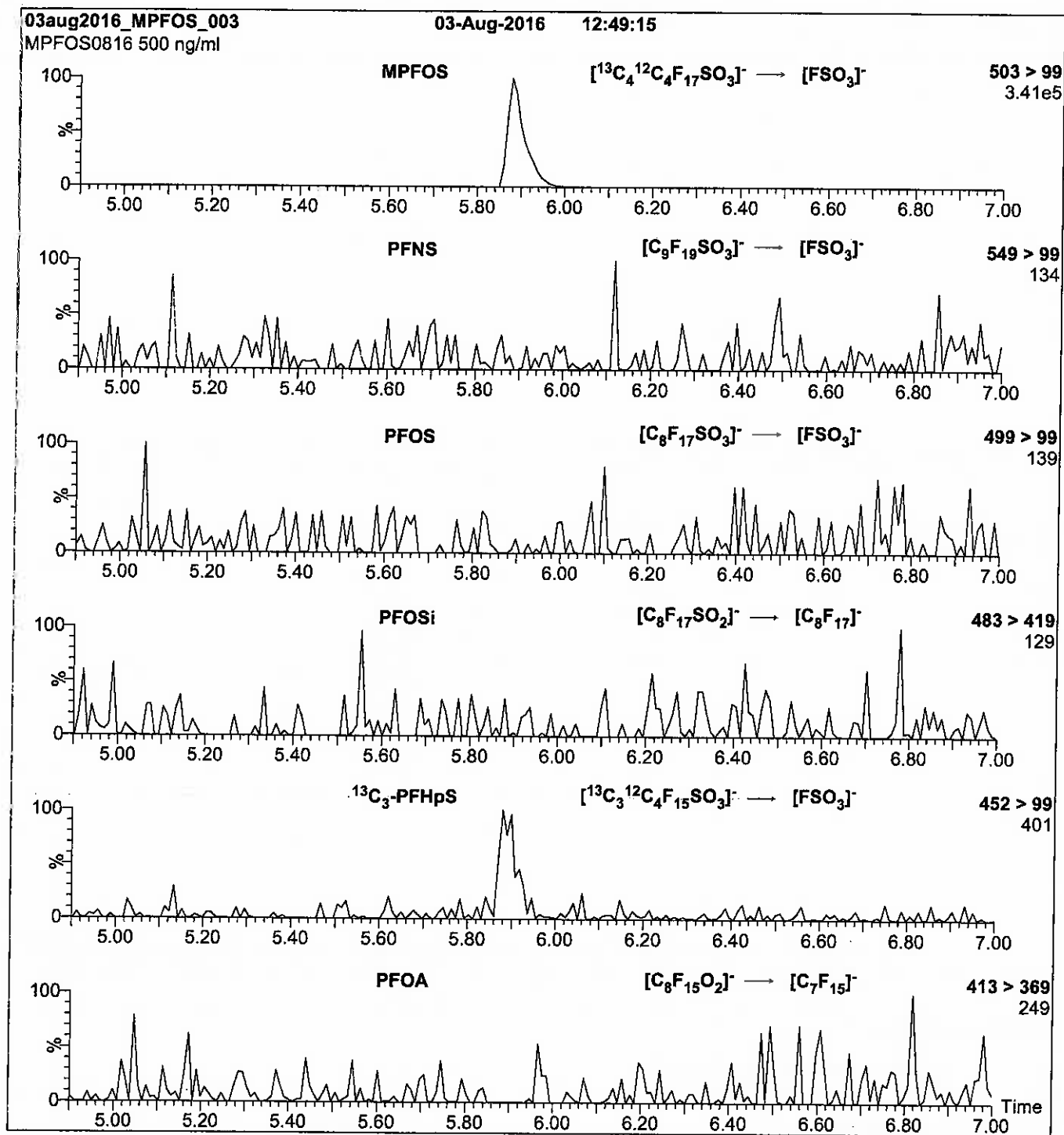
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFOS_00019

R: SBC 12/21/16



814253

ID: LCMFOS_00019

Exp: 08/03/21 Prpd: SBC

13C4-Perfluorooctanesulfo



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFOS

LOT NUMBER:

MPFOS0816

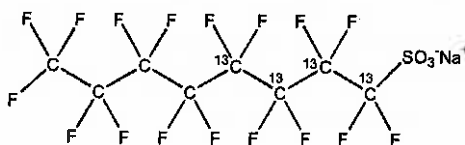
COMPOUND:

Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₄¹²C₄F₁₇SO₃Na

MOLECULAR WEIGHT:

526.08

CONCENTRATION:

50.0 ± 2.5 µg/ml (Na salt)

SOLVENT(S):

Methanol

47.8 ± 2.4 µg/ml (MPFOS anion)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

LAST TESTED: (mm/dd/yyyy)

08/03/2016

(1,2,3,4-¹³C₄)

EXPIRY DATE: (mm/dd/yyyy)

08/03/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

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

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/05/2016

(mm/dd/yyyy)

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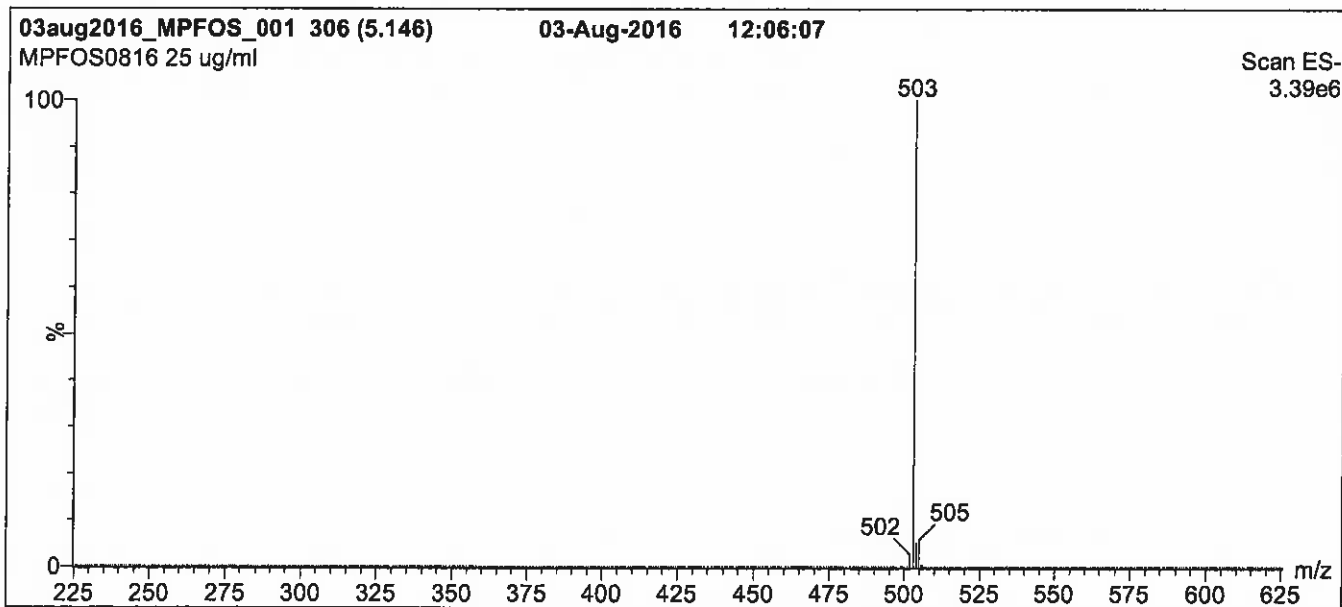
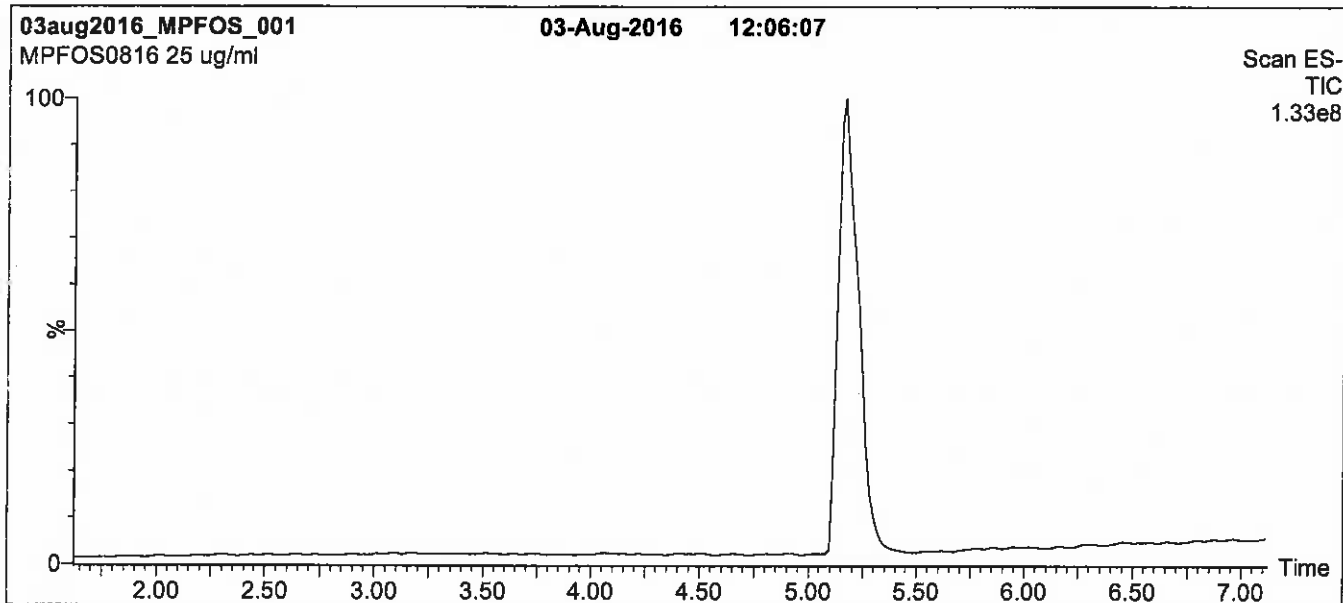
QUALITY MANAGEMENT:

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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: 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

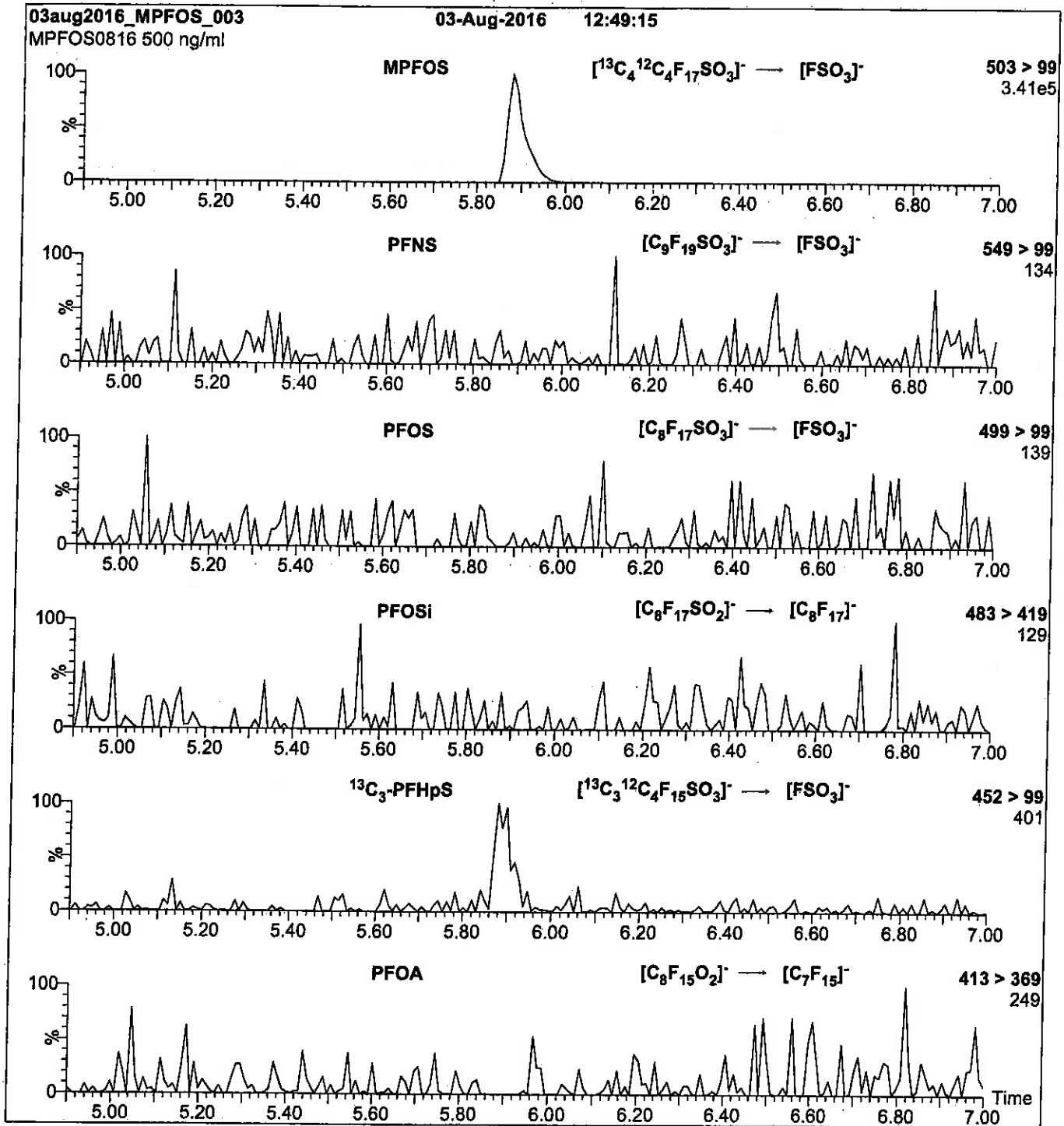
Flow: 300 μ l/min

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.: 320-26004-1

SDG No.: _____

Matrix: Water

Level: Low

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

| Client Sample ID | Lab Sample ID | PFHxA # | PFDA # |
|-------------------------|------------------------|---------|--------|
| WI-AF-1RW27-0217 | 320-26004-1 | 73 | 72 |
| WI-AF-1FB27-0217 | 320-26004-2 | 80 | 73 |
| WI-AF-1RW28-0217 | 320-26004-3 | 62 Q | 72 |
| WI-AF-1FB28-0217 | 320-26004-4 | 73 | 75 |
| WI-AF-1RW29-0217 | 320-26004-5 | 74 | 71 |
| WI-AF-1FB29-0217 | 320-26004-6 | 81 | 74 |
| WI-AF-1RW30-0217 | 320-26004-7 | 71 | 70 |
| WI-AF-1FB30-0217 | 320-26004-8 | 75 | 77 |
| WI-AF-1RW31-0217 | 320-26004-9 | 74 | 74 |
| WI-AF-1FB31-0217 | 320-26004-10 | 77 | 71 |
| | MB 320-152123/1-A | 76 | 72 |
| | LLCS 320-152123/2-A | 83 | 76 |
| WI-AF-1RW30-0217 MS | 320-26004-7 MS | 72 | 78 |
| WI-AF-1RW30-0217 MSD | 320-26004-7 MSD | 76 | 78 |

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2017.02.28C_537_002.d

Lab ID: LLCS 320-152123/2-A Client ID: _____

| COMPOUND | SPIKE ADDED (ug/L) | LLCS CONCENTRATION (ug/L) | LLCS % REC | QC LIMITS REC | # |
|--|--------------------------|---------------------------------|------------------|---------------------|---|
| Perfluorooctanesulfonic acid (PFOS) | 0.0400 | 0.0303 J | 76 | 50-150 | |
| Perfluorooctanoic acid (PFOA) | 0.0195 | 0.0140 J | 72 | 50-150 | |
| Perfluorobutanesulfonic acid (PFBS) | 0.0883 | 0.0839 J | 95 | 50-150 | |

Column to be used to flag recovery and RPD values

FORM III
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.02.28C_537_010.d
 Lab ID: 320-26004-7 MS Client ID: WI-AF-1RW30-0217 MS

| COMPOUND | SPIKE ADDED (ug/L) | SAMPLE CONCENTRATION (ug/L) | MS CONCENTRATION (ug/L) | MS % REC | QC LIMITS REC | # |
|--|--------------------------|-----------------------------------|-------------------------------|----------------|---------------------|---|
| Perfluorooctanesulfonic acid (PFOS) | 0.160 | 0.048 U | 0.131 | 82 | 70-130 | M |
| Perfluorooctanoic acid (PFOA) | 0.0781 | 0.024 U | 0.0565 | 72 | 70-130 | |
| Perfluorobutanesulfonic acid (PFBS) | 0.359 | 0.11 U | 0.298 | 83 | 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.: 320-26004-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.02.28C_537_012.d
 Lab ID: 320-26004-7 MSD Client ID: WI-AF-1RW30-0217 MSD

| COMPOUND | SPIKE ADDED (ug/L) | MSD CONCENTRATION (ug/L) | MSD % REC | % RPD | QC LIMITS | | # |
|-------------------------------------|--------------------------|--------------------------------|-----------------|----------|-----------|--------|---|
| | | | | | RPD | REC | |
| Perfluorooctanesulfonic acid (PFOS) | 0.161 | 0.132 | 82 | 0 | 30 | 70-130 | |
| Perfluorooctanoic acid (PFOA) | 0.0786 | 0.0584 | 74 | 3 | 30 | 70-130 | |
| Perfluorobutanesulfonic acid (PFBS) | 0.361 | 0.294 | 81 | 1 | 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.: 320-26004-1
 SDG No.: _____
 Lab File ID: 2017.02.28C_537_001.d Lab Sample ID: MB 320-152123/1-A
 Matrix: Water Date Extracted: 02/24/2017 13:19
 Instrument ID: A8_N Date Analyzed: 02/28/2017 17:13
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID | LAB FILE ID | DATE ANALYZED |
|----------------------|---------------------|--------------------------|------------------|
| | LLCS 320-152123/2-A | 2017.02.28C 537 002.d | 02/28/2017 17:18 |
| WI-AF-1RW27-0217 | 320-26004-1 | 2017.02.28C 537 003.d | 02/28/2017 17:22 |
| WI-AF-1FB27-0217 | 320-26004-2 | 2017.02.28C 537 004.d | 02/28/2017 17:26 |
| WI-AF-1RW28-0217 | 320-26004-3 | 2017.02.28C 537 005.d | 02/28/2017 17:31 |
| WI-AF-1RW29-0217 | 320-26004-5 | 2017.02.28C 537 007.d | 02/28/2017 17:40 |
| WI-AF-1FB29-0217 | 320-26004-6 | 2017.02.28C 537 008.d | 02/28/2017 17:44 |
| WI-AF-1RW30-0217 | 320-26004-7 | 2017.02.28C 537 009.d | 02/28/2017 17:48 |
| WI-AF-1RW30-0217 MS | 320-26004-7 MS | 2017.02.28C 537 010.d | 02/28/2017 17:53 |
| WI-AF-1RW30-0217 MSD | 320-26004-7 MSD | 2017.02.28C 537 012.d | 02/28/2017 18:02 |
| WI-AF-1RW31-0217 | 320-26004-9 | 2017.02.28C 537 014.d | 02/28/2017 18:10 |
| WI-AF-1FB31-0217 | 320-26004-10 | 2017.02.28C 537 015.d | 02/28/2017 18:15 |
| WI-AF-1FB28-0217 | 320-26004-4 | 2017.03.01A 537 005.d | 03/01/2017 15:30 |
| WI-AF-1FB30-0217 | 320-26004-8 | 2017.03.01A 537 006.d | 03/01/2017 15:35 |

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/28/2017 15:03
 Calibration ID: 28641

| | 13PFOA | | PFOS | | AREA # | RT # |
|---|----------------------|---------|----------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| INITIAL CALIBRATION MEAN AREA AND MEAN RT | 2367155 | 2.17 | 7076744 | 2.40 | | |
| UPPER LIMIT | 3550733 | 2.67 | 10615116 | 2.90 | | |
| LOWER LIMIT | 1183578 | 1.67 | 3538372 | 1.90 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| CCVL 320-152571/10 | | 2552157 | 2.13 | 7601493 | 2.36 | |
| ICV 320-152571/19 | | 2015269 | 2.08 | 5871836 | 2.31 | |
| CCV 320-152592/15 CCVIS | | 2535805 | 2.04 | 6966148 | 2.28 | |
| MB 320-152123/1-A | | 2527196 | 2.03 | 6997191 | 2.27 | |
| LLCS 320-152123/2-A | | 2482421 | 2.02 | 7076701 | 2.26 | |
| 320-26004-1 | WI-AF-1RW27-0217 | 2502381 | 2.03 | 6904068 | 2.28 | |
| 320-26004-2 | WI-AF-1FB27-0217 | 2360430 | 2.04 | 6503509 | 2.28 | |
| 320-26004-3 | WI-AF-1RW28-0217 | 2281266 | 2.03 | 6568982 | 2.27 | |
| 320-26004-5 | WI-AF-1RW29-0217 | 2356275 | 2.03 | 6510696 | 2.27 | |
| 320-26004-6 | WI-AF-1FB29-0217 | 2334850 | 2.02 | 6469251 | 2.27 | |
| 320-26004-7 | WI-AF-1RW30-0217 | 2562477 | 2.03 | 6785123 | 2.26 | |
| 320-26004-7 MS | WI-AF-1RW30-0217 MS | 2505711 | 2.03 | 6676675 | 2.28 | |
| CCV 320-152592/26 CCVIS | | 2371627 | 2.03 | 6534438 | 2.28 | |
| CCV 320-152593/26 CCVIS | | 2371627 | 2.03 | 6534438 | 2.28 | |
| 320-26004-7 MSD | WI-AF-1RW30-0217 MSD | 2390660 | 2.03 | 6653669 | 2.27 | |
| 320-26004-9 | WI-AF-1RW31-0217 | 2488632 | 2.02 | 6552378 | 2.26 | |
| 320-26004-10 | WI-AF-1FB31-0217 | 2497787 | 2.02 | 6830785 | 2.25 | |
| CCV 320-152593/31 | | 2403652 | 2.03 | 6899812 | 2.27 | |

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Sample No.: CCV 320-152592/15 Date Analyzed: 02/28/2017 17:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.02.28_537_015. Heated Purge: (Y/N) N
 Calibration ID: 28641

| | 13PFOA | | PFOS | | AREA # | RT # |
|---------------------|---------------------|---------|---------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| 12/24 HOUR STD | 2535805 | 2.04 | 6966148 | 2.28 | | |
| UPPER LIMIT | 3550127 | 2.54 | 9752607 | 2.78 | | |
| LOWER LIMIT | 1775064 | 1.54 | 4876304 | 1.78 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| MB 320-152123/1-A | | 2527196 | 2.03 | 6997191 | 2.27 | |
| LLCS 320-152123/2-A | | 2482421 | 2.02 | 7076701 | 2.26 | |
| 320-26004-1 | WI-AF-1RW27-0217 | 2502381 | 2.03 | 6904068 | 2.28 | |
| 320-26004-2 | WI-AF-1FB27-0217 | 2360430 | 2.04 | 6503509 | 2.28 | |
| 320-26004-3 | WI-AF-1RW28-0217 | 2281266 | 2.03 | 6568982 | 2.27 | |
| 320-26004-5 | WI-AF-1RW29-0217 | 2356275 | 2.03 | 6510696 | 2.27 | |
| 320-26004-6 | WI-AF-1FB29-0217 | 2334850 | 2.02 | 6469251 | 2.27 | |
| 320-26004-7 | WI-AF-1RW30-0217 | 2562477 | 2.03 | 6785123 | 2.26 | |
| 320-26004-7 MS | WI-AF-1RW30-0217 MS | 2505711 | 2.03 | 6676675 | 2.28 | |

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Sample No.: CCV 320-152592/26 Date Analyzed: 02/28/2017 17:57
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.02.28C_537_011 Heated Purge: (Y/N) N
 Calibration ID: 28641

| | 13PFOA | | PFOS | | AREA # | RT # |
|---------------------|---------------------|---------|---------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| 12/24 HOUR STD | 2371627 | 2.03 | 6534438 | 2.28 | | |
| UPPER LIMIT | 3320278 | 2.53 | 9148213 | 2.78 | | |
| LOWER LIMIT | 1660139 | 1.53 | 4574107 | 1.78 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| MB 320-152123/1-A | | 2527196 | 2.03 | 6997191 | 2.27 | |
| LLCS 320-152123/2-A | | 2482421 | 2.02 | 7076701 | 2.26 | |
| 320-26004-1 | WI-AF-1RW27-0217 | 2502381 | 2.03 | 6904068 | 2.28 | |
| 320-26004-2 | WI-AF-1FB27-0217 | 2360430 | 2.04 | 6503509 | 2.28 | |
| 320-26004-3 | WI-AF-1RW28-0217 | 2281266 | 2.03 | 6568982 | 2.27 | |
| 320-26004-5 | WI-AF-1RW29-0217 | 2356275 | 2.03 | 6510696 | 2.27 | |
| 320-26004-6 | WI-AF-1FB29-0217 | 2334850 | 2.02 | 6469251 | 2.27 | |
| 320-26004-7 | WI-AF-1RW30-0217 | 2562477 | 2.03 | 6785123 | 2.26 | |
| 320-26004-7 MS | WI-AF-1RW30-0217 MS | 2505711 | 2.03 | 6676675 | 2.28 | |

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Sample No.: CCV 320-152593/26 Date Analyzed: 02/28/2017 17:57
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.02.28C_537_011 Heated Purge: (Y/N) N
 Calibration ID: 28641

| | 13PFOA | | PFOS | | AREA # | RT # |
|-------------------|----------------------|---------|---------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| 12/24 HOUR STD | 2371627 | 2.03 | 6534438 | 2.28 | | |
| UPPER LIMIT | 3320278 | 2.53 | 9148213 | 2.78 | | |
| LOWER LIMIT | 1660139 | 1.53 | 4574107 | 1.78 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| 320-26004-7 MSD | WI-AF-1RW30-0217 MSD | 2390660 | 2.03 | 6653669 | 2.27 | |
| 320-26004-9 | WI-AF-1RW31-0217 | 2488632 | 2.02 | 6552378 | 2.26 | |
| 320-26004-10 | WI-AF-1FB31-0217 | 2497787 | 2.02 | 6830785 | 2.25 | |
| CCV 320-152593/31 | | 2403652 | 2.03 | 6899812 | 2.27 | |

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

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 03/01/2017 12:47
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 03/01/2017 13:09
 Calibration ID: 28657

| | 13PFOA | | PFOS | | AREA # | RT # |
|---|------------------|---------|----------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| INITIAL CALIBRATION MEAN AREA AND MEAN RT | 2543636 | 1.99 | 6993430 | 2.24 | | |
| UPPER LIMIT | 3815454 | 2.49 | 10490145 | 2.74 | | |
| LOWER LIMIT | 1271818 | 1.49 | 3496715 | 1.74 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| CCVL 320-152685/10 | | 2696522 | 1.97 | 7208593 | 2.23 | |
| ICV 320-152685/12 | | 2081695 | 1.97 | 5884388 | 2.22 | |
| CCV 320-152753/2 CCVIS | | 2762819 | 2.00 | 7492148 | 2.25 | |
| 320-26004-4 | WI-AF-1FB28-0217 | 2614995 | 2.00 | 7071244 | 2.25 | |
| 320-26004-8 | WI-AF-1FB30-0217 | 2595600 | 1.99 | 7141505 | 2.24 | |
| CCV 320-152753/7 CCVIS | | 2462223 | 2.00 | 6682132 | 2.24 | |

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

Area Limit = 50%-150% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Sample No.: CCV 320-152753/2 Date Analyzed: 03/01/2017 15:17
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.03.01A_537_002 Heated Purge: (Y/N) N
 Calibration ID: 28657

| | 13PFOA | | PFOS | | AREA # | RT # |
|----------------|------------------|---------|----------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| 12/24 HOUR STD | 2762819 | 2.00 | 7492148 | 2.25 | | |
| UPPER LIMIT | 3867947 | 2.50 | 10489007 | 2.75 | | |
| LOWER LIMIT | 1933973 | 1.50 | 5244504 | 1.75 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| 320-26004-4 | WI-AF-1FB28-0217 | 2614995 | 2.00 | 7071244 | 2.25 | |
| 320-26004-8 | WI-AF-1FB30-0217 | 2595600 | 1.99 | 7141505 | 2.24 | |

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Sample No.: CCV 320-152753/7 Date Analyzed: 03/01/2017 15:39
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.03.01A_537_007 Heated Purge: (Y/N) N
 Calibration ID: 28657

| | 13PFOA | | PFOS | | AREA # | RT # |
|----------------|------------------|---------|---------|---------|--------|------|
| | AREA # | RT # | AREA # | RT # | | |
| 12/24 HOUR STD | 2462223 | 2.00 | 6682132 | 2.24 | | |
| UPPER LIMIT | 3447112 | 2.50 | 9354985 | 2.74 | | |
| LOWER LIMIT | 1723556 | 1.50 | 4677492 | 1.74 | | |
| LAB SAMPLE ID | CLIENT SAMPLE ID | | | | | |
| 320-26004-4 | WI-AF-1FB28-0217 | 2614995 | 2.00 | 7071244 | 2.25 | |
| 320-26004-8 | WI-AF-1FB30-0217 | 2595600 | 1.99 | 7141505 | 2.24 | |

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW27-0217 Lab Sample ID: 320-26004-1
 Matrix: Water Lab File ID: 2017.02.28C_537_003.d
 Analysis Method: 537 Date Collected: 02/20/2017 12:50
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 256.3(mL) Date Analyzed: 02/28/2017 17:22
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|-----|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 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 M | 0.14 | 0.11 | 0.046 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 73 | | 70-130 |
| STL00996 | 13C2 PFDA | 72 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_003.d
 Lims ID: 320-26004-A-1-A
 Client ID: WI-AF-1RW27-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:22:27 ALS Bottle#: 23 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:24:57

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | M |
| 298.90 > 80.00 | 1.540 | 1.627 | -0.087 | 1.000 | 24758 | 0.0690 | | 3.9 | M |
| 298.90 > 99.00 | 1.540 | 1.627 | -0.087 | 1.000 | 10649 | | 2.32(0.00-0.00) | 3.4 | M |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 1860049 | 7.26 | | 4336 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.033 | 2.172 | -0.139 | | 2502381 | 10.0 | | 4442 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.276 | 2.395 | -0.119 | | 6904068 | 28.7 | | 5504 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.428 | 2.530 | -0.102 | 1.000 | 1359476 | 7.18 | | 1923 | |

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_003.d

Injection Date: 28-Feb-2017 17:22:27

Instrument ID: A8_N

Lims ID: 320-26004-A-1-A

Lab Sample ID: 320-26004-1

Client ID: WI-AF-1RW27-0217

Operator ID: A8-PC\A8

ALS Bottle#: 23

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

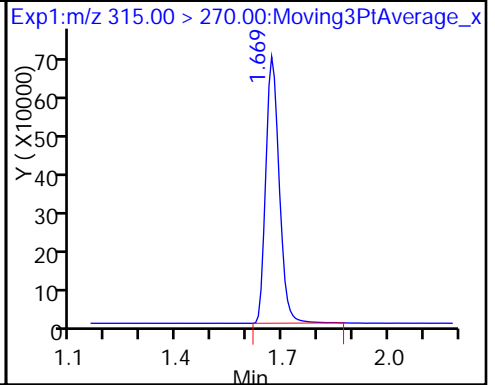
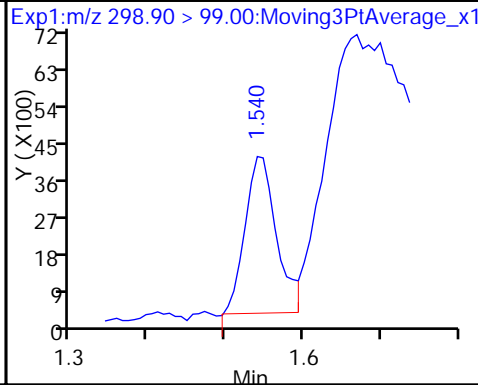
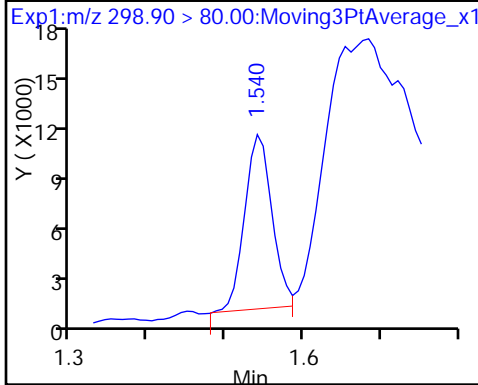
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (M)

1 Perfluorobutanesulfonic acid (M)

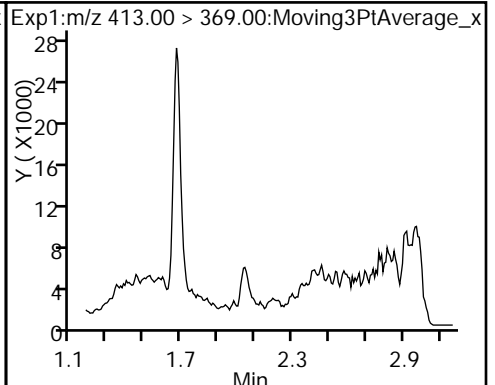
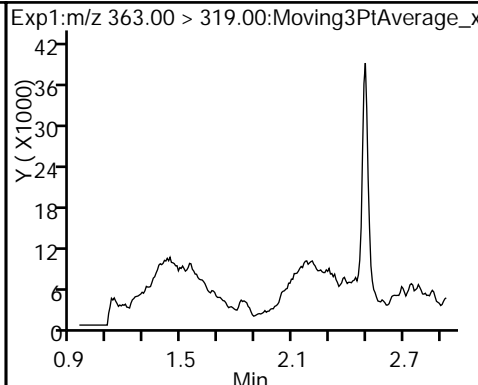
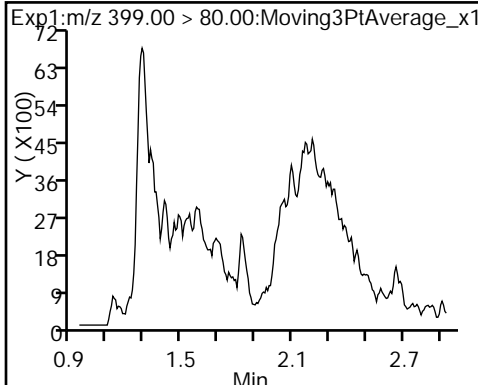
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

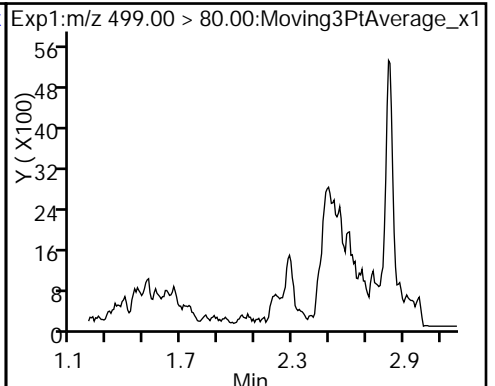
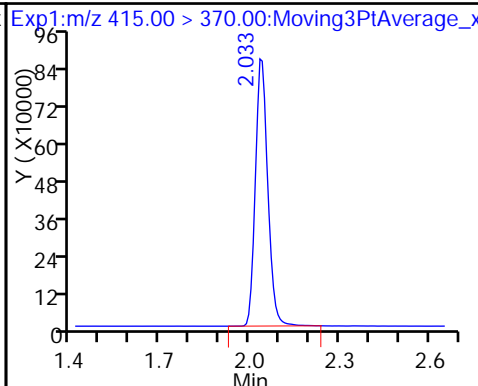
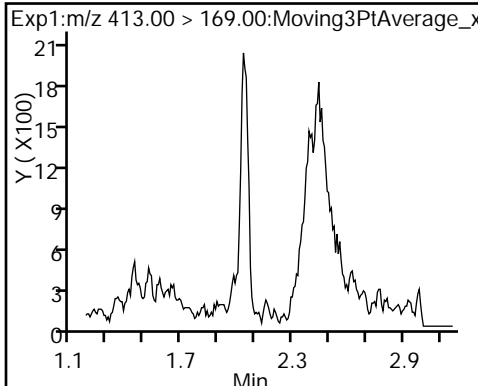
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

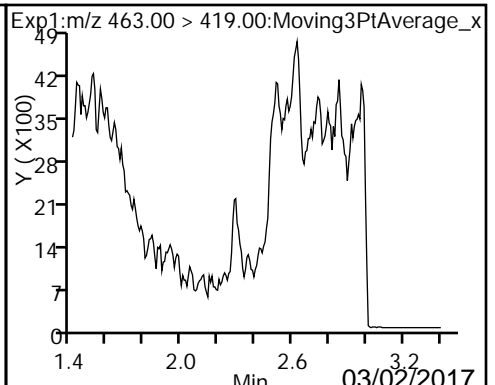
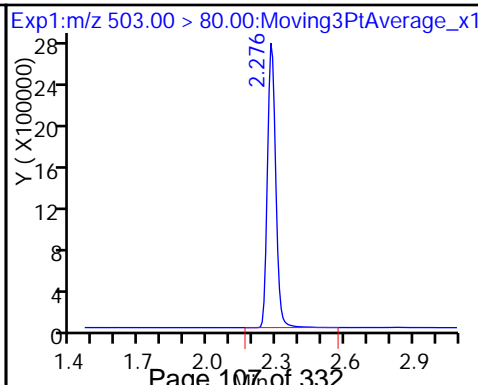
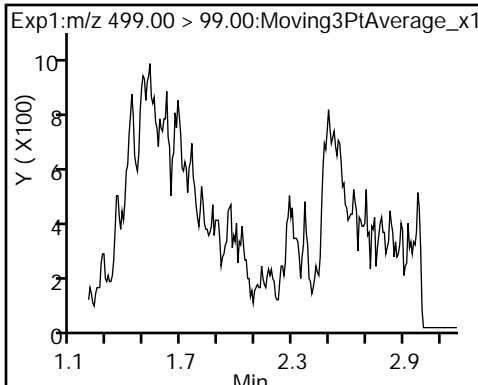
8 Perfluorooctane sulfonic acid (ND)



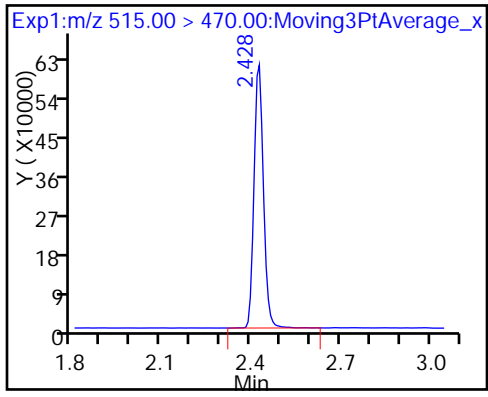
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_003.d
 Lims ID: 320-26004-A-1-A
 Client ID: WI-AF-1RW27-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:22:27 ALS Bottle#: 23 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:24:57

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.26 | 72.60 |
| \$ 10 13C2 PFDA | 10.0 | 7.18 | 71.78 |

TestAmerica Sacramento

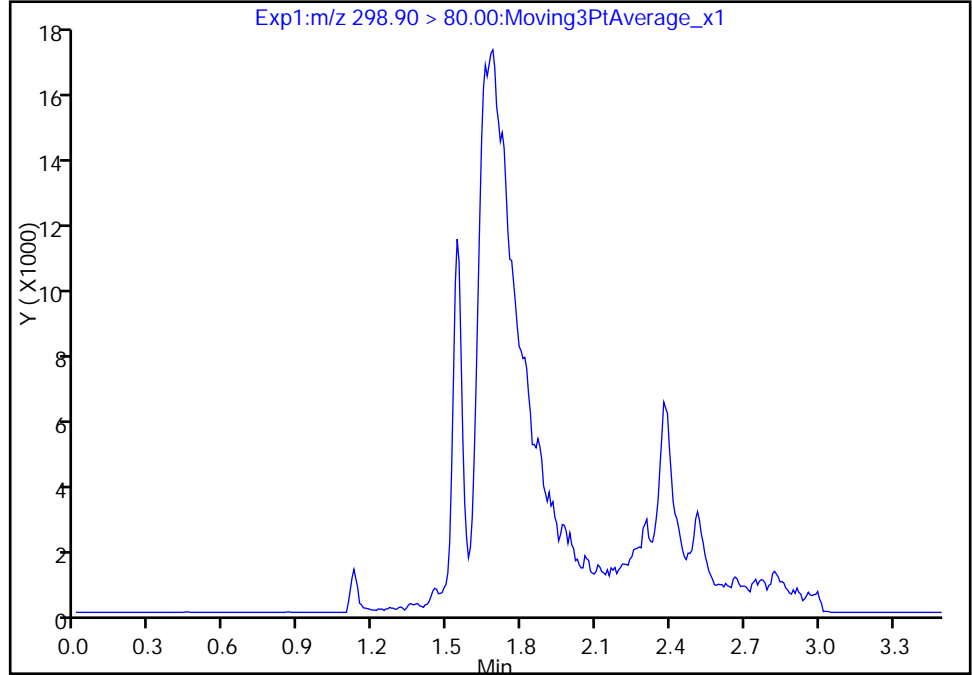
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Injection Date: 28-Feb-2017 17:22:27 Instrument ID: A8_N
Lims ID: 320-26004-A-1-A Lab Sample ID: 320-26004-1
Client ID: WI-AF-1RW27-0217
Operator ID: A8-PC\A8 ALS Bottle#: 23 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

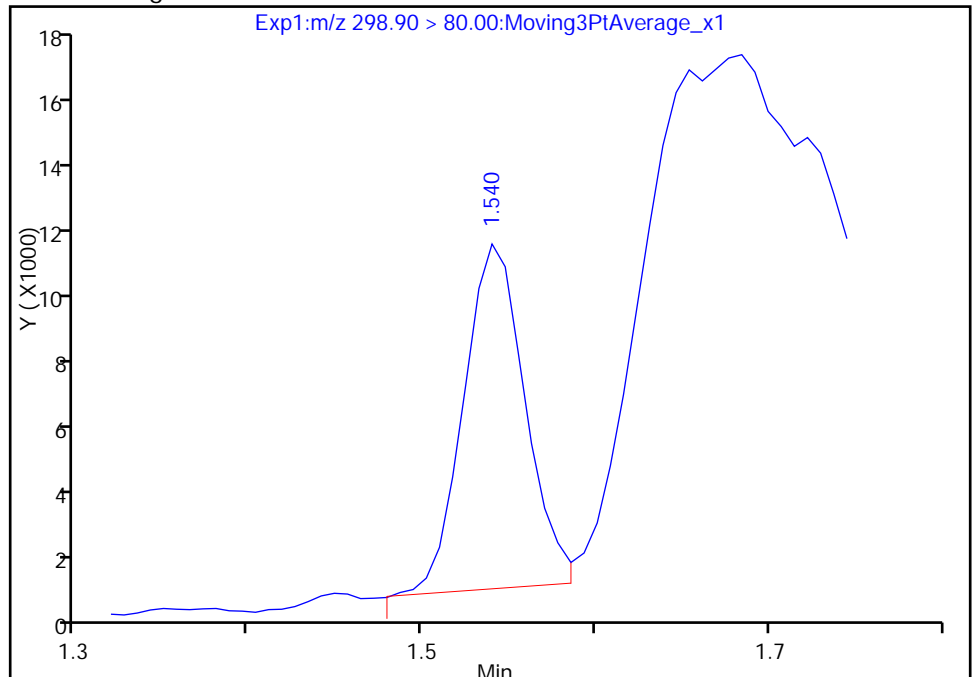
Not Detected
Expected RT: 1.63

Processing Integration Results



Manual Integration Results

RT: 1.54
Area: 24758
Amount: 0.068978
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:17
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

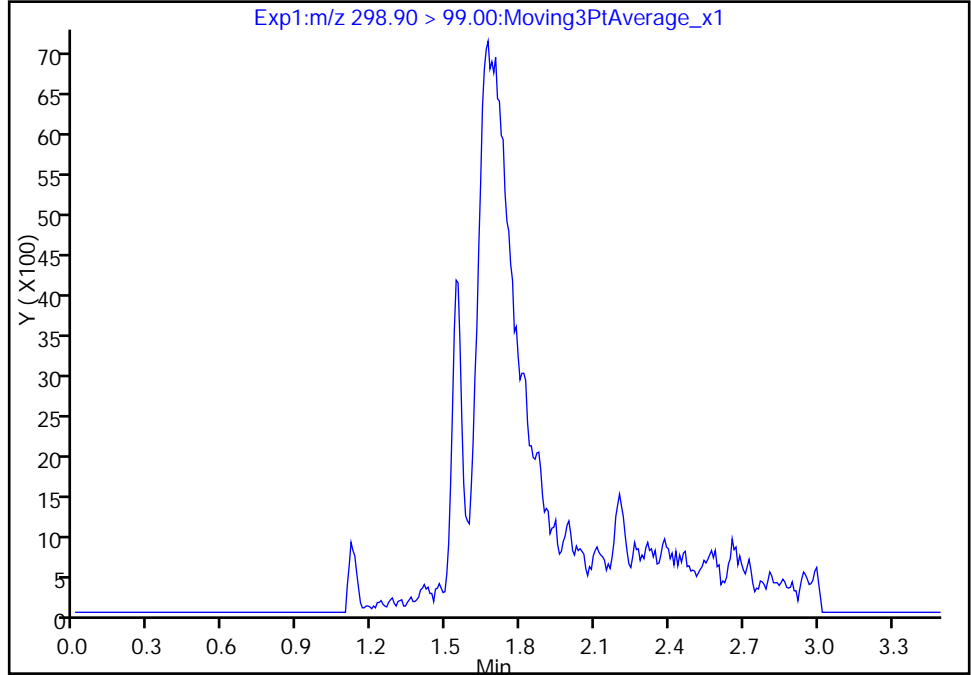
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Injection Date: 28-Feb-2017 17:22:27 Instrument ID: A8_N
Lims ID: 320-26004-A-1-A Lab Sample ID: 320-26004-1
Client ID: WI-AF-1RW27-0217
Operator ID: A8-PC\A8 ALS Bottle#: 23 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

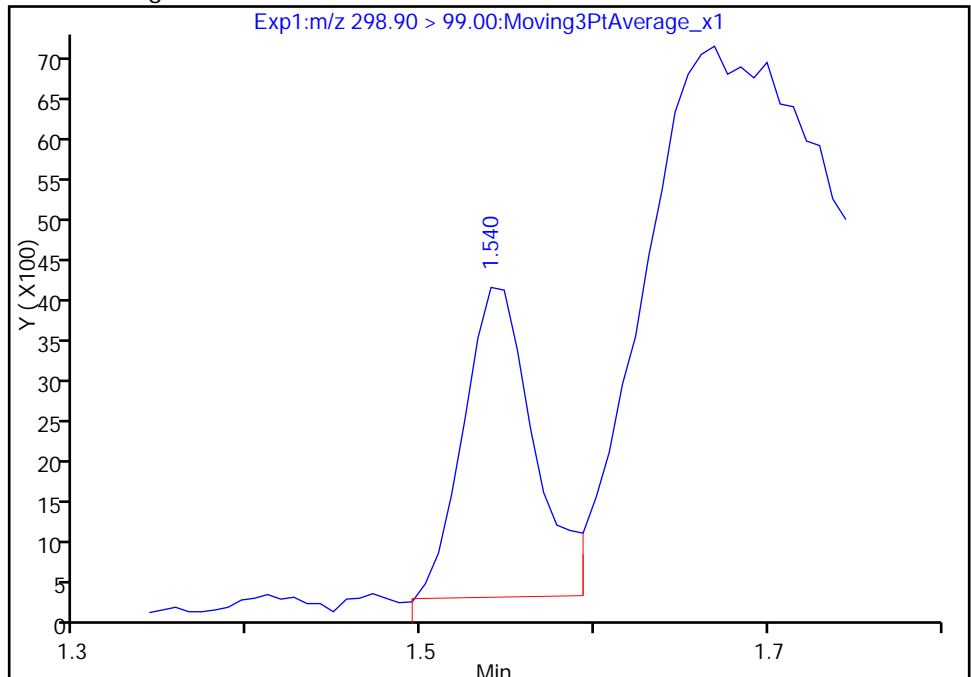
Not Detected
Expected RT: 1.63

Processing Integration Results



Manual Integration Results

RT: 1.54
Area: 10649
Amount: 0.068978
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:17

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB27-0217 Lab Sample ID: 320-26004-2
 Matrix: Water Lab File ID: 2017.02.28C_537_004.d
 Analysis Method: 537 Date Collected: 02/20/2017 12:51
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 255.4(mL) Date Analyzed: 02/28/2017 17:26
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 80 | | 70-130 |
| STL00996 | 13C2 PFDA | 73 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_004.d
 Lims ID: 320-26004-A-2-A
 Client ID: WI-AF-1FB27-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:26:50 ALS Bottle#: 24 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:25:15

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.677 | 1.765 | -0.088 | 1.000 | 1935806 | 8.01 | 4689 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 2.041 | 2.172 | -0.131 | | 2360430 | 10.0 | 4535 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.284 | 2.395 | -0.111 | | 6503509 | 28.7 | 7731 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.428 | 2.530 | -0.102 | 1.000 | 1306290 | 7.31 | 1568 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_004.d

Injection Date: 28-Feb-2017 17:26:50

Instrument ID: A8_N

Lims ID: 320-26004-A-2-A

Lab Sample ID: 320-26004-2

Client ID: WI-AF-1FB27-0217

Operator ID: A8-PC\A8

ALS Bottle#: 24

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

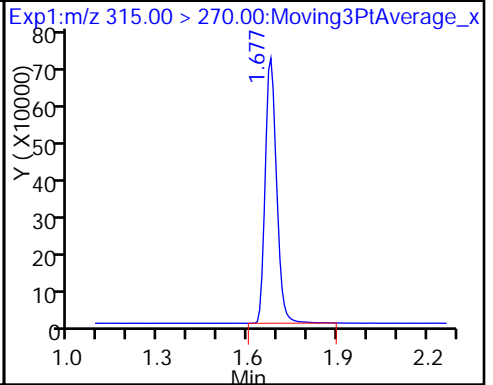
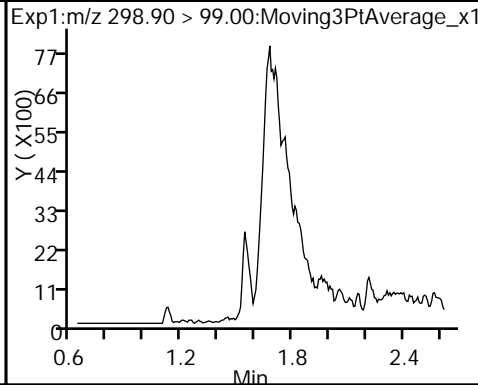
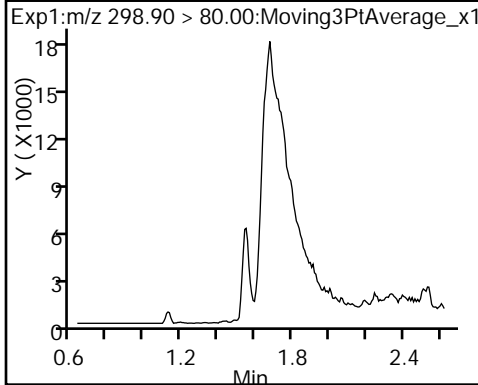
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

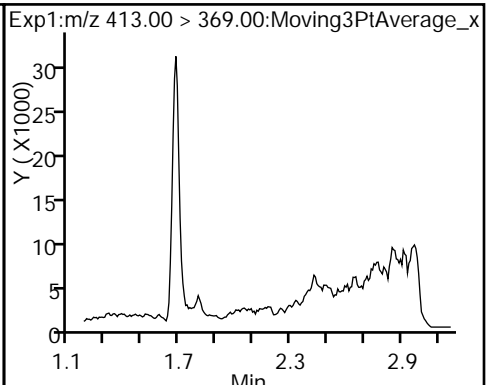
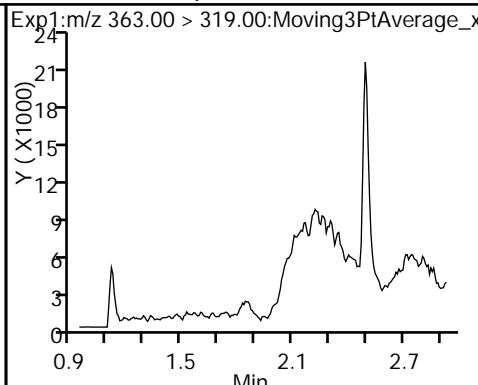
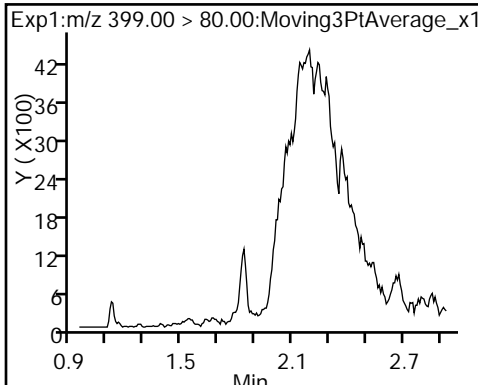
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

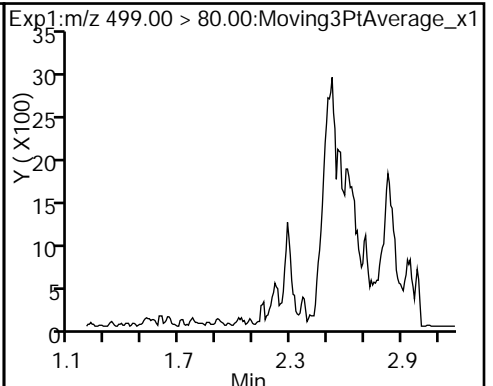
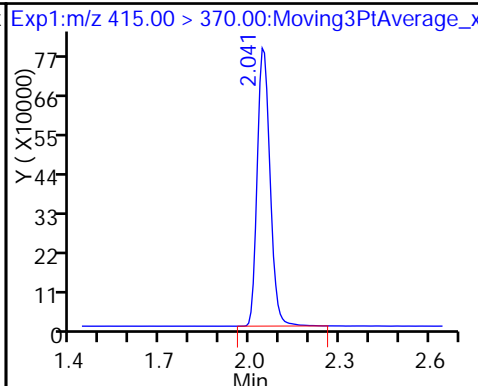
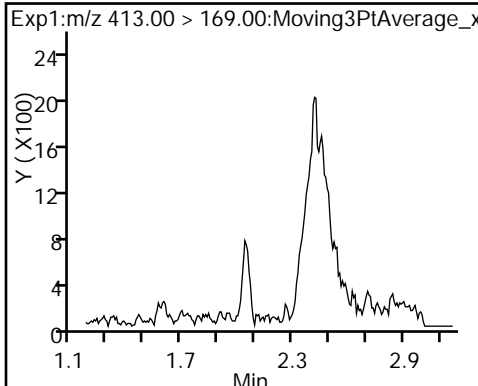
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

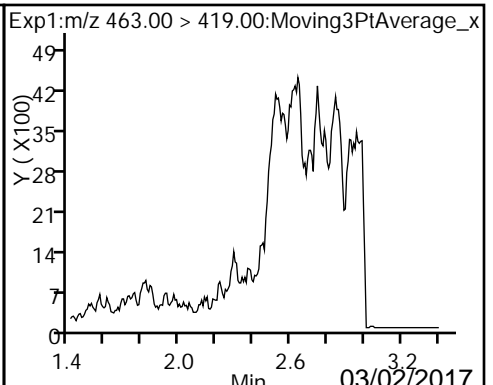
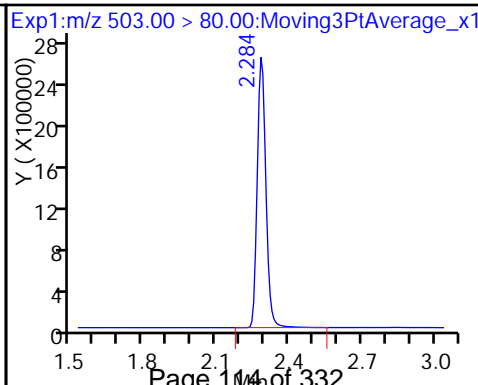
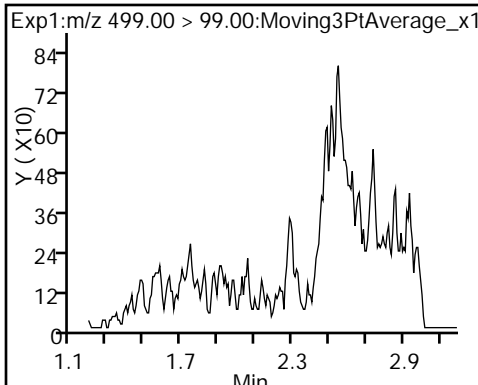
8 Perfluorooctane sulfonic acid (ND)



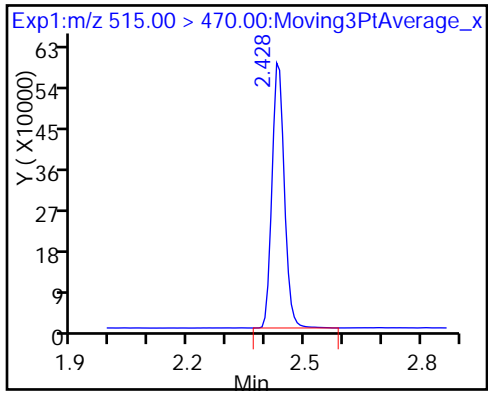
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_004.d
 Lims ID: 320-26004-A-2-A
 Client ID: WI-AF-1FB27-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:26:50 ALS Bottle#: 24 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:25:15

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 8.01 | 80.10 |
| \$ 10 13C2 PFDA | 10.0 | 7.31 | 73.12 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW28-0217 Lab Sample ID: 320-26004-3
 Matrix: Water Lab File ID: 2017.02.28C_537_005.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:22
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 246.5 (mL) Date Analyzed: 02/28/2017 17:31
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|-----|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.049 | U M | 0.061 | 0.049 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.032 | | 0.030 | 0.024 | 0.0096 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 62 | Q | 70-130 |
| STL00996 | 13C2 PFDA | 72 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_005.d
 Lims ID: 320-26004-A-3-A
 Client ID: WI-AF-1RW28-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:31:13 ALS Bottle#: 25 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:26:30

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.540 | 1.627 | -0.087 | 1.000 | 225838 | 0.6613 | | 27.0 | |
| 298.90 > 99.00 | 1.540 | 1.627 | -0.087 | 1.000 | 99239 | | 2.28(0.00-0.00) | 29.4 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 1456999 | 6.24 | | 3896 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.821 | 1.938 | -0.117 | 1.000 | 622734 | 1.98 | | 61.0 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.828 | 1.940 | -0.112 | 1.000 | 150905 | 0.7207 | | 5.7 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.033 | 2.172 | -0.139 | 1.000 | 1744133 | 7.96 | | 74.9 | |
| 413.00 > 169.00 | 2.026 | 2.172 | -0.146 | 0.996 | 1149316 | | 1.52(0.00-0.00) | 648 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.026 | 2.172 | -0.146 | | 2281266 | 10.0 | | 4655 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.193 | 2.276 | -0.083 | 1.000 | 39585 | 0.1586 | | 6.8 | M |
| 499.00 > 99.00 | 2.193 | 2.276 | -0.083 | 1.000 | 6502 | | 6.09(0.00-0.00) | 1.4 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.269 | 2.395 | -0.127 | | 6568982 | 28.7 | | 2951 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1249885 | 7.24 | | 1905 | |

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_005.d

Injection Date: 28-Feb-2017 17:31:13

Instrument ID: A8_N

Lims ID: 320-26004-A-3-A

Lab Sample ID: 320-26004-3

Client ID: WI-AF-1RW28-0217

Operator ID: A8-PC\A8

ALS Bottle#: 25

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

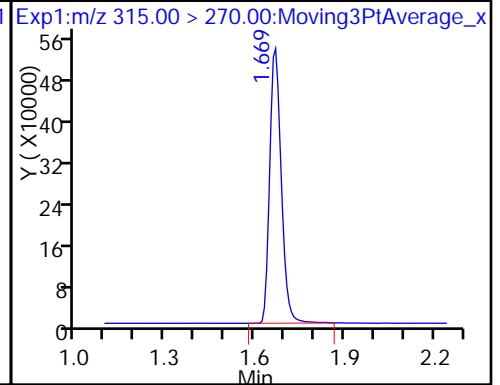
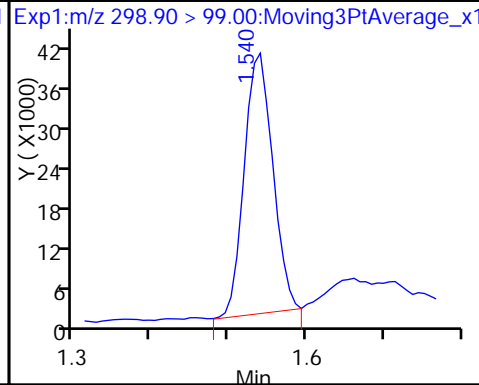
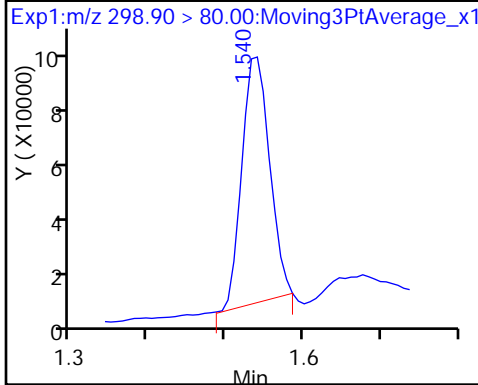
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

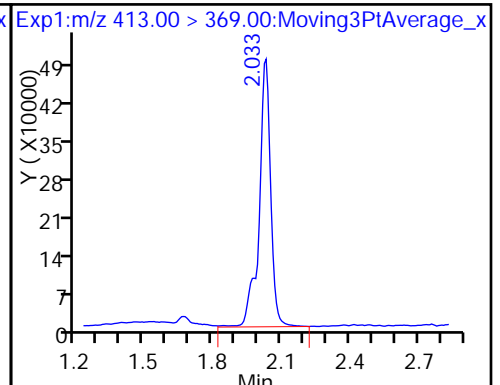
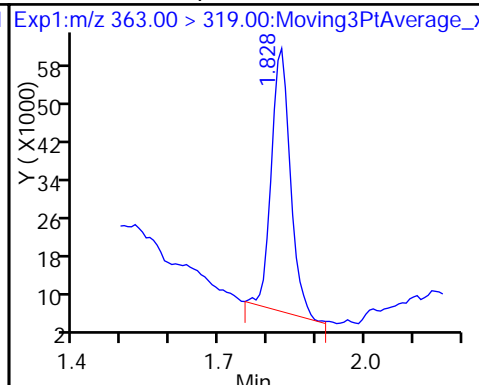
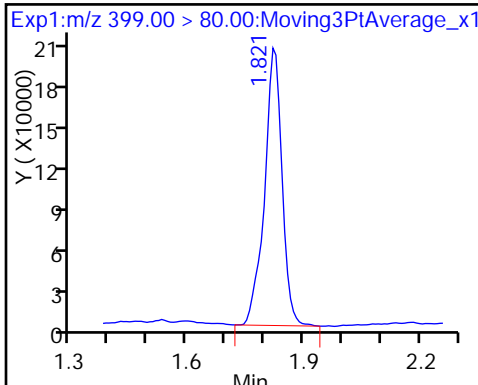
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

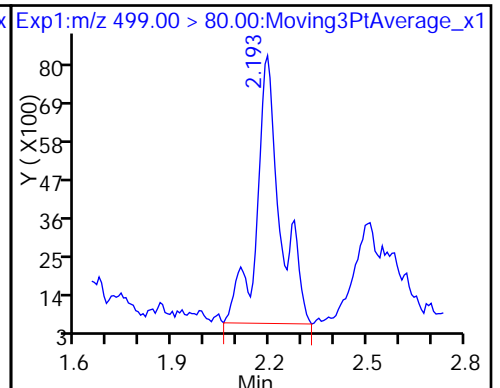
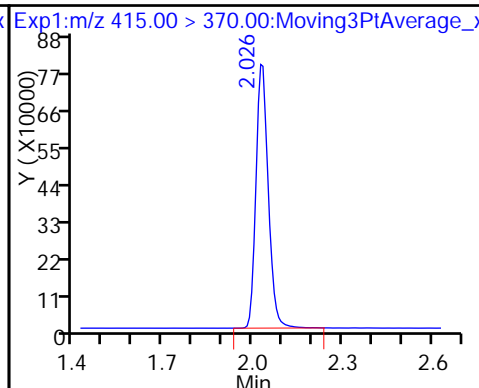
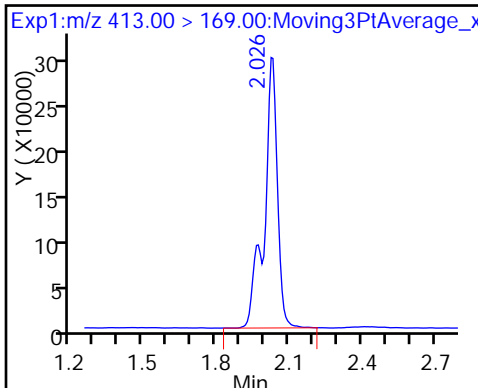
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

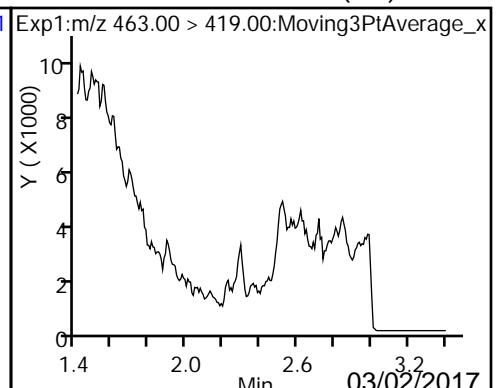
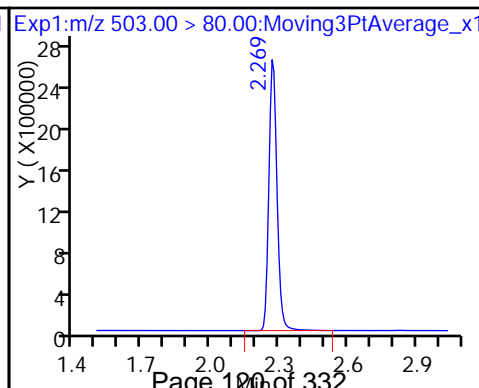
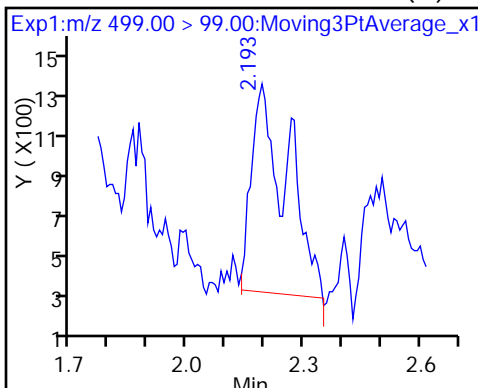
8 Perfluorooctane sulfonic acid



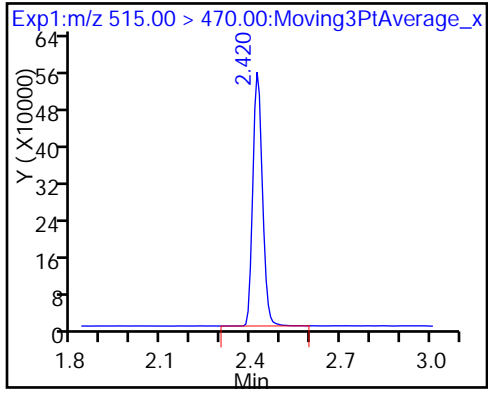
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_005.d
 Lims ID: 320-26004-A-3-A
 Client ID: WI-AF-1RW28-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:31:13 ALS Bottle#: 25 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:26:30

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 6.24 | 62.38 |
| \$ 10 13C2 PFDA | 10.0 | 7.24 | 72.39 |

TestAmerica Sacramento

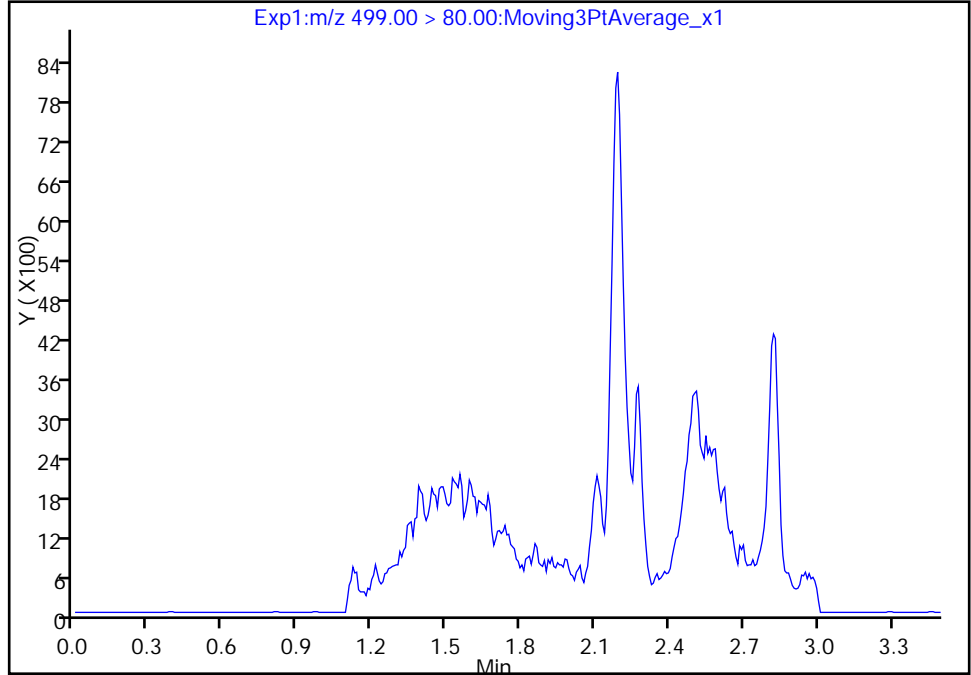
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Injection Date: 28-Feb-2017 17:31:13 Instrument ID: A8_N
Lims ID: 320-26004-A-3-A Lab Sample ID: 320-26004-3
Client ID: WI-AF-1RW28-0217
Operator ID: A8-PC\A8 ALS Bottle#: 25 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

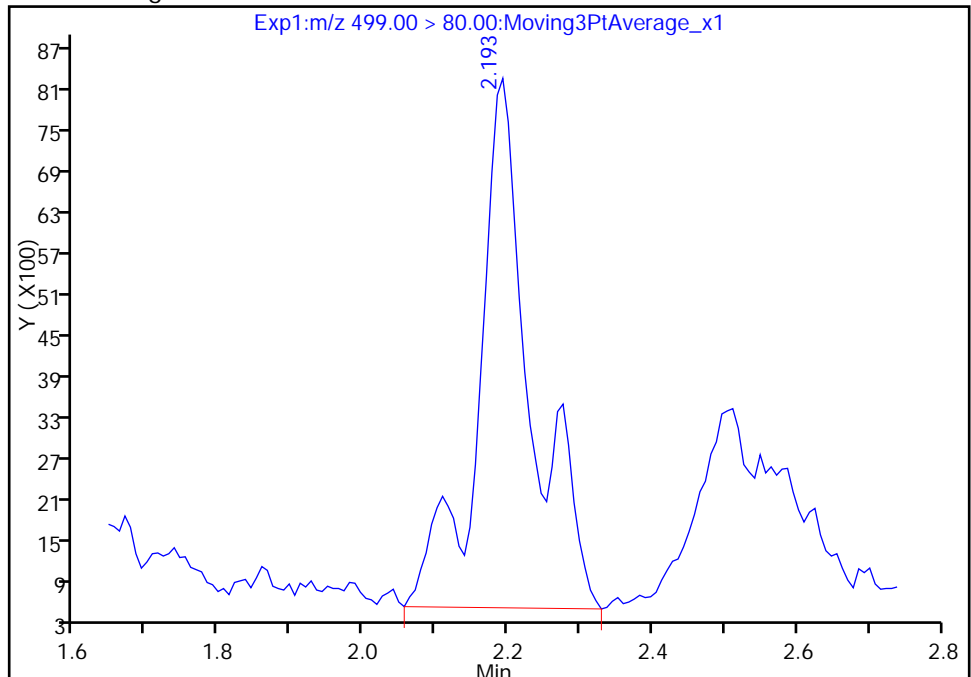
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.19
Area: 39585
Amount: 0.158645
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:22
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

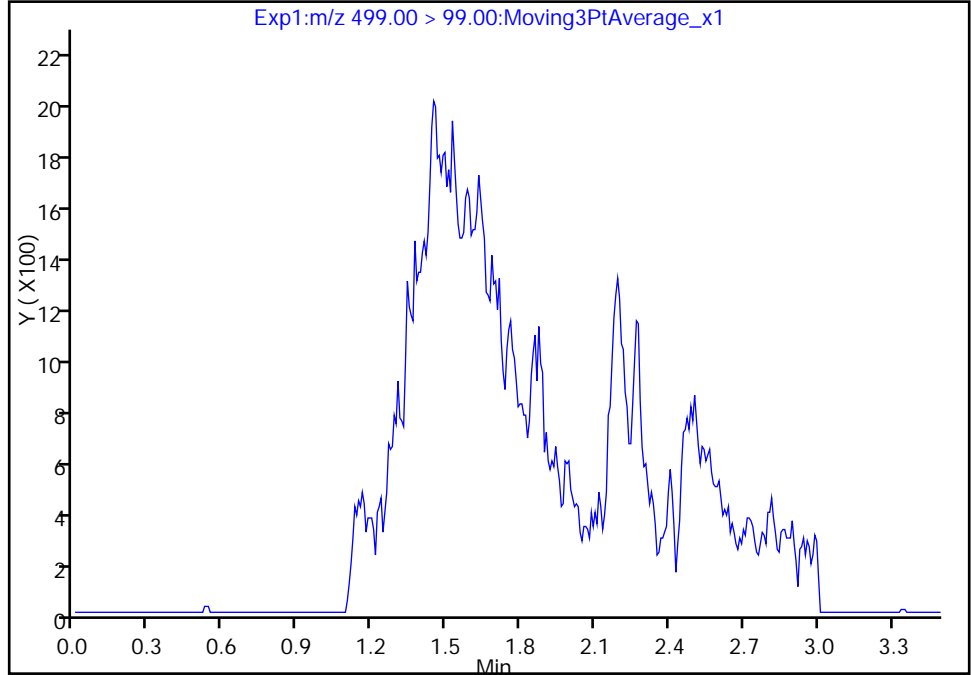
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Injection Date: 28-Feb-2017 17:31:13 Instrument ID: A8_N
Lims ID: 320-26004-A-3-A Lab Sample ID: 320-26004-3
Client ID: WI-AF-1RW28-0217
Operator ID: A8-PC\A8 ALS Bottle#: 25 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

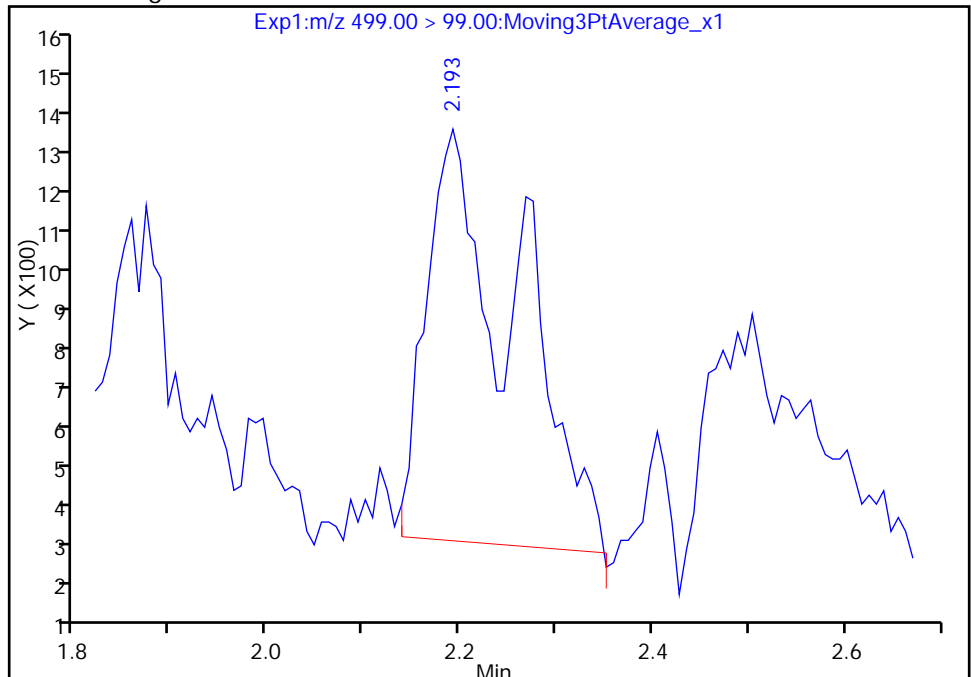
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.19
Area: 6502
Amount: 0.158645
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:22

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB28-0217 Lab Sample ID: 320-26004-4
 Matrix: Water Lab File ID: 2017.03.01A_537_005.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:23
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 250.5(mL) Date Analyzed: 03/01/2017 15:30
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152753 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 | 0.015 |
| 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 73 | | 70-130 |
| STL00996 | 13C2 PFDA | 75 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_005.d
 Lims ID: 320-26004-A-4-A
 Client ID: WI-AF-1FB28-0217
 Sample Type: Client
 Inject. Date: 01-Mar-2017 15:30:54 ALS Bottle#: 2 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 16:03:17 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 16:05:12

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.646 | 1.638 | 0.008 | 1.000 | 2030390 | 7.30 | 4767 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2614995 | 10.0 | 4286 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.246 | 2.241 | 0.005 | | 7071244 | 28.7 | 6606 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.397 | 2.392 | 0.005 | 1.000 | 1322882 | 7.47 | 1928 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_005.d

Injection Date: 01-Mar-2017 15:30:54

Instrument ID: A8_N

Lims ID: 320-26004-A-4-A

Lab Sample ID: 320-26004-4

Client ID: WI-AF-1FB28-0217

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 5

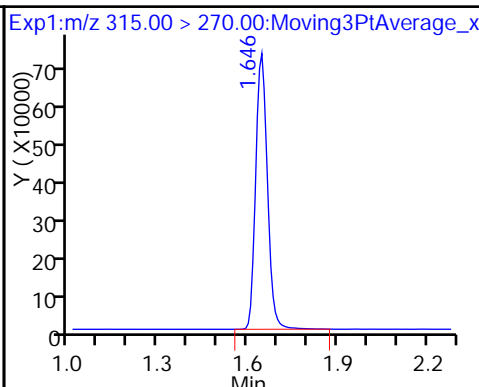
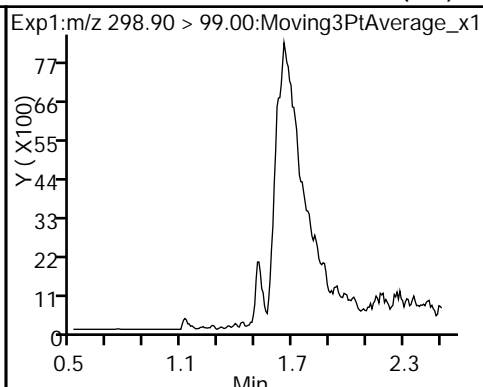
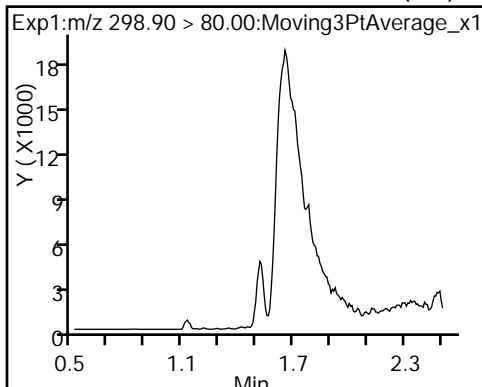
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

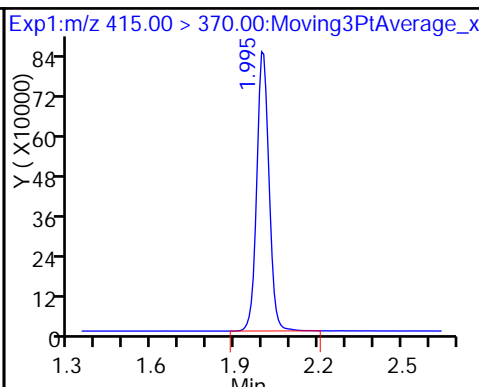
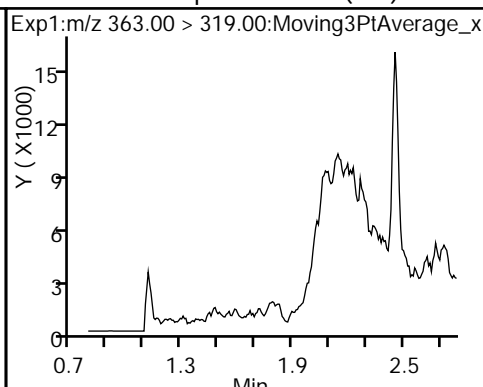
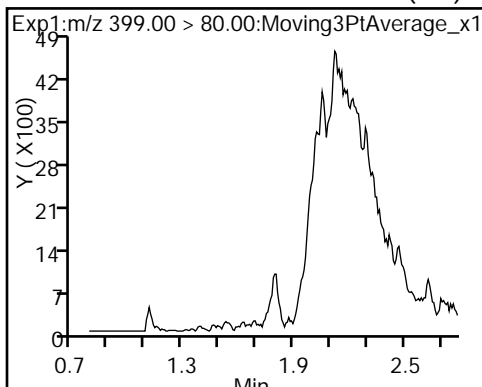
Method: 537_A8_N

Limit Group: LC 537 ICAL

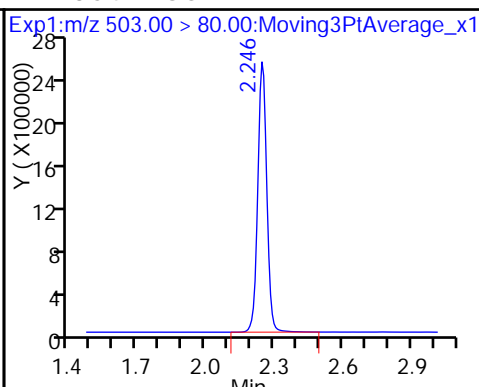
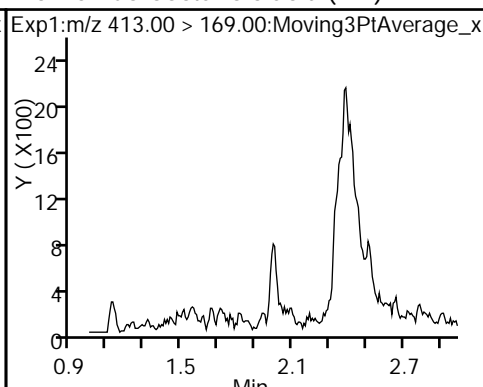
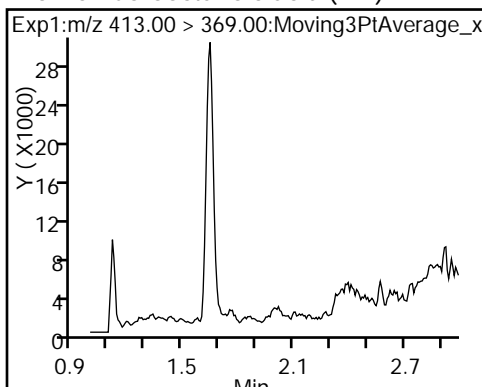
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



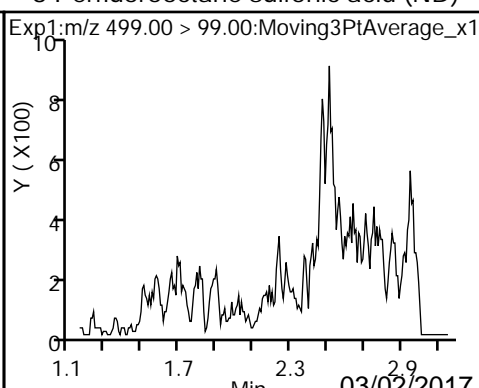
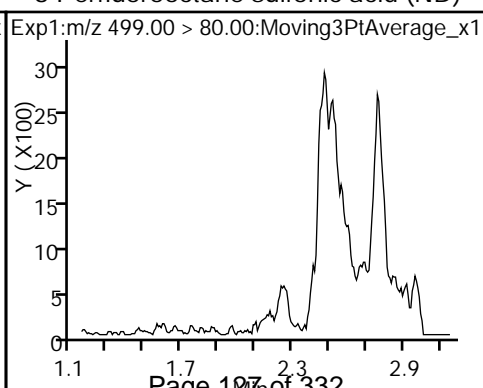
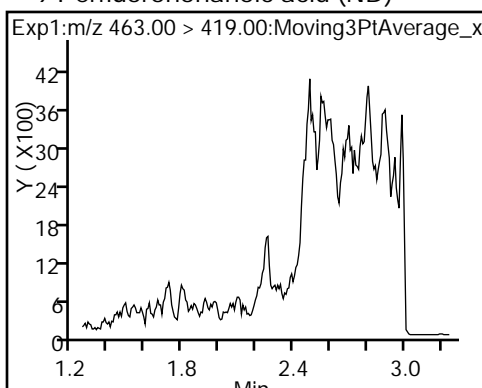
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



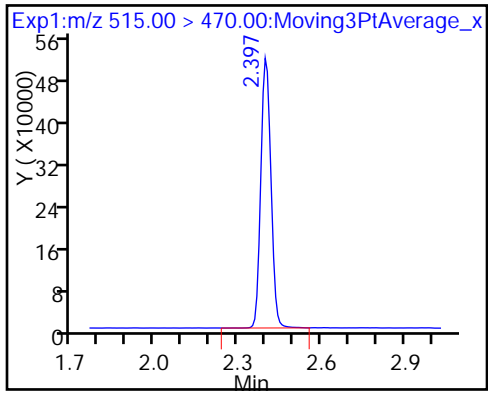
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



9 Perfluorononanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_005.d
 Lims ID: 320-26004-A-4-A
 Client ID: WI-AF-1FB28-0217
 Sample Type: Client
 Inject. Date: 01-Mar-2017 15:30:54 ALS Bottle#: 2 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 16:03:17 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 16:05:12

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.30 | 73.00 |
| \$ 10 13C2 PFDA | 10.0 | 7.47 | 74.72 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW29-0217 Lab Sample ID: 320-26004-5
 Matrix: Water Lab File ID: 2017.02.28C_537_007.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:51
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 248.5 (mL) Date Analyzed: 02/28/2017 17:40
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 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 | 0.0095 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 74 | | 70-130 |
| STL00996 | 13C2 PFDA | 71 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_007.d
 Lims ID: 320-26004-A-5-A
 Client ID: WI-AF-1RW29-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:40:02 ALS Bottle#: 27 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:27:47

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.540 | 1.627 | -0.087 | 1.000 | 181399 | 0.5359 | | 29.3 | |
| 298.90 > 99.00 | 1.540 | 1.627 | -0.087 | 1.000 | 78835 | | 2.30(0.00-0.00) | 27.0 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 1780758 | 7.38 | | 4571 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.026 | 2.172 | -0.146 | | 2356275 | 10.0 | | 4835 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.269 | 2.395 | -0.127 | | 6510696 | 28.7 | | 5696 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1266245 | 7.10 | | 1734 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_007.d

Injection Date: 28-Feb-2017 17:40:02

Instrument ID: A8_N

Lims ID: 320-26004-A-5-A

Lab Sample ID: 320-26004-5

Client ID: WI-AF-1RW29-0217

Operator ID: A8-PC\A8

ALS Bottle#: 27

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

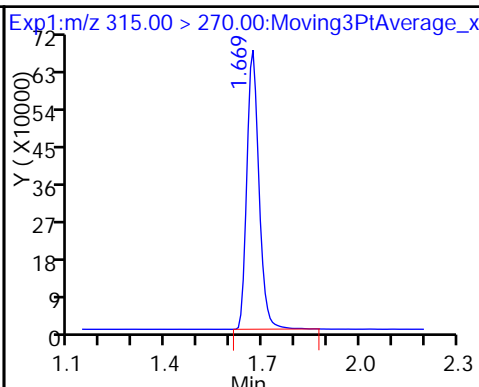
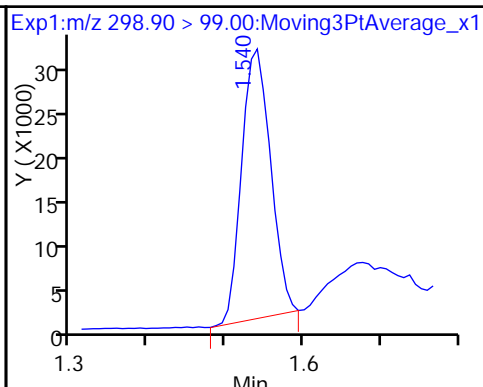
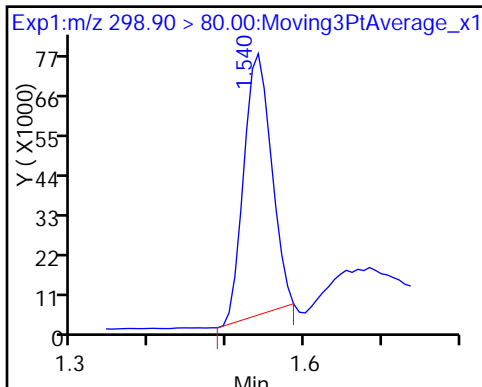
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

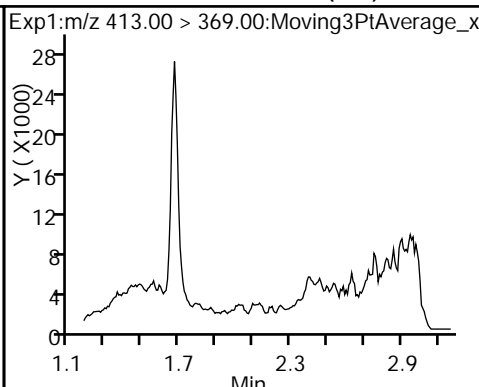
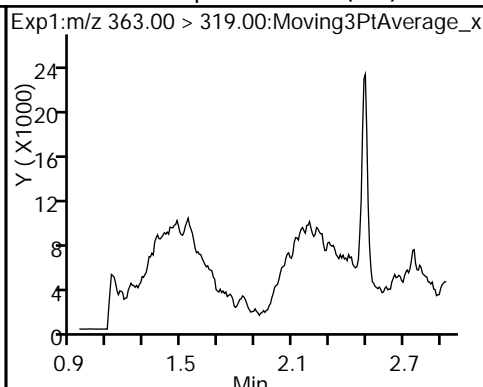
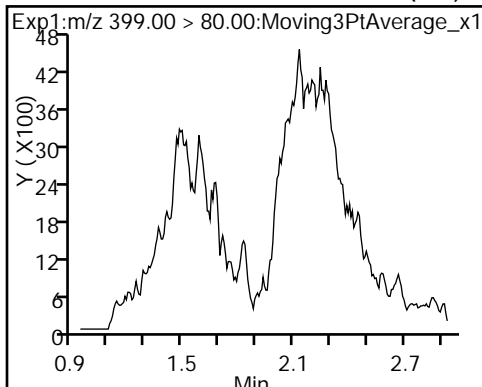
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

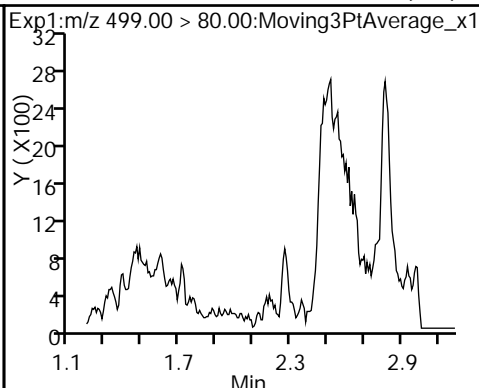
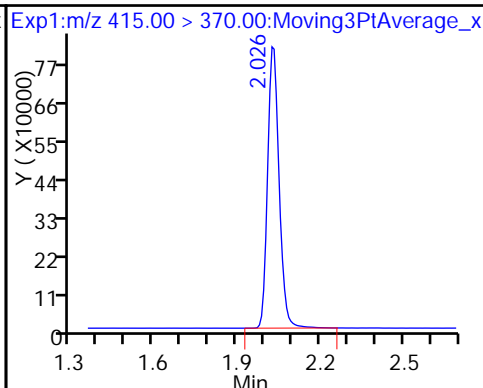
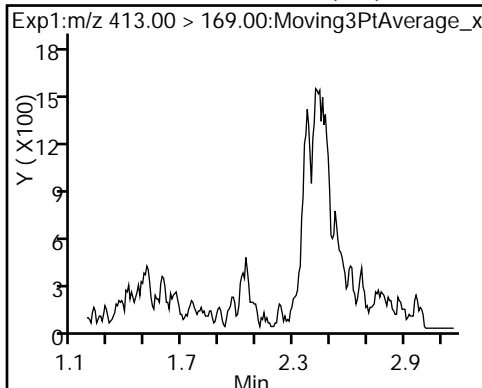
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

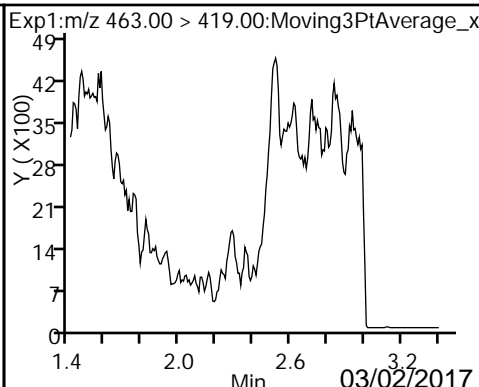
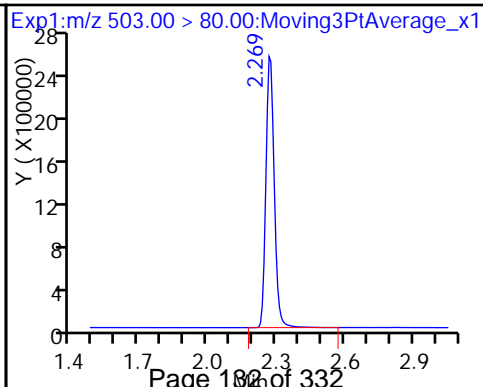
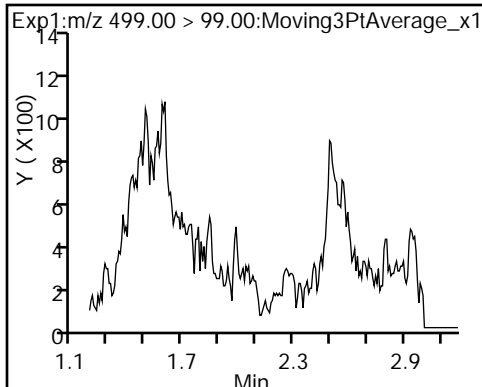
8 Perfluorooctane sulfonic acid (ND)



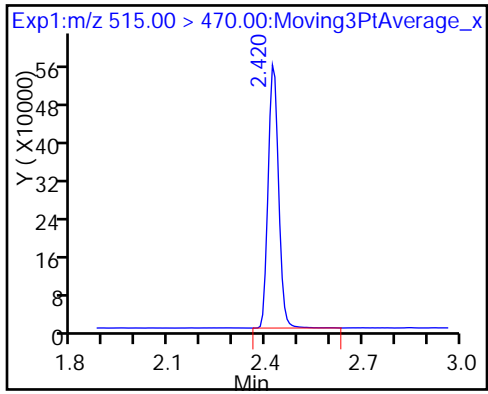
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_007.d
 Lims ID: 320-26004-A-5-A
 Client ID: WI-AF-1RW29-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:40:02 ALS Bottle#: 27 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:27:47

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.38 | 73.81 |
| \$ 10 13C2 PFDA | 10.0 | 7.10 | 71.01 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB29-0217 Lab Sample ID: 320-26004-6
 Matrix: Water Lab File ID: 2017.02.28C_537_008.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:52
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 253.8(mL) Date Analyzed: 02/28/2017 17:44
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.047 | 0.015 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.024 | 0.0093 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 81 | | 70-130 |
| STL00996 | 13C2 PFDA | 74 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_008.d
 Lims ID: 320-26004-A-6-A
 Client ID: WI-AF-1FB29-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:44:26 ALS Bottle#: 28 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:28:38

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.662 | 1.765 | -0.103 | 1.000 | 1929422 | 8.07 | 4915 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 2.018 | 2.172 | -0.154 | | 2334850 | 10.0 | 4155 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.269 | 2.395 | -0.127 | | 6469251 | 28.7 | 7106 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1305443 | 7.39 | 1749 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_008.d

Injection Date: 28-Feb-2017 17:44:26

Instrument ID: A8_N

Lims ID: 320-26004-A-6-A

Lab Sample ID: 320-26004-6

Client ID: WI-AF-1FB29-0217

Operator ID: A8-PC\A8

ALS Bottle#: 28

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

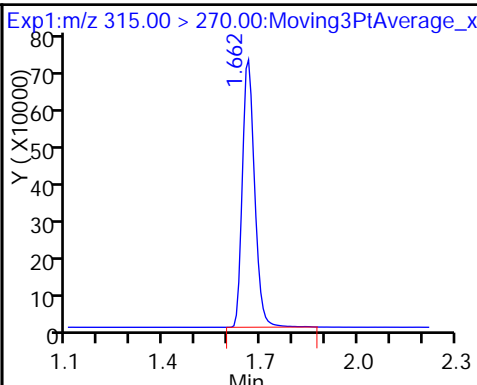
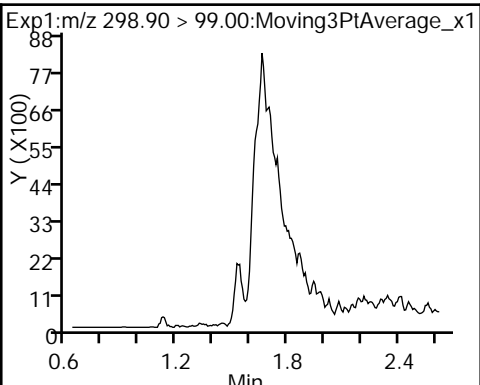
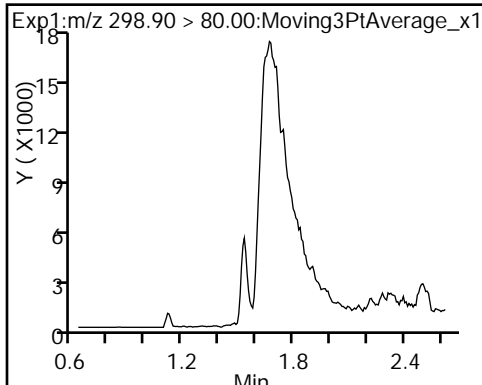
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

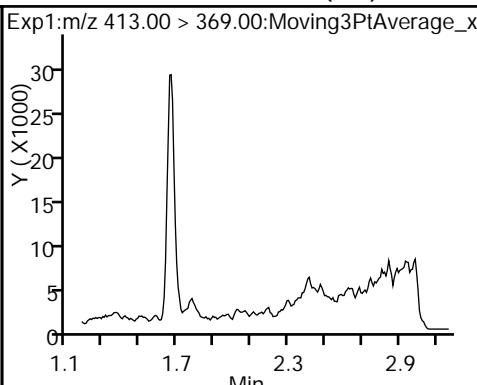
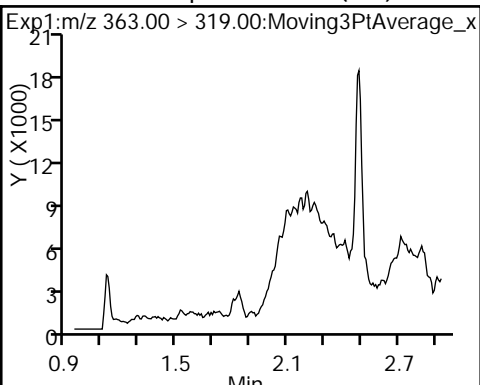
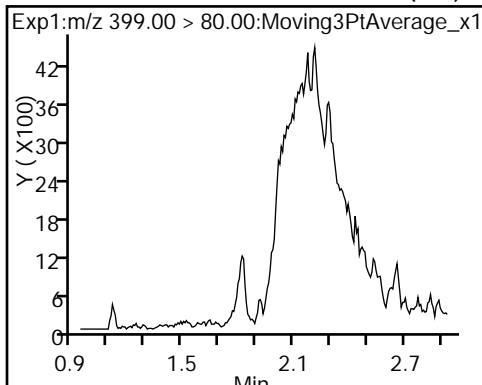
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

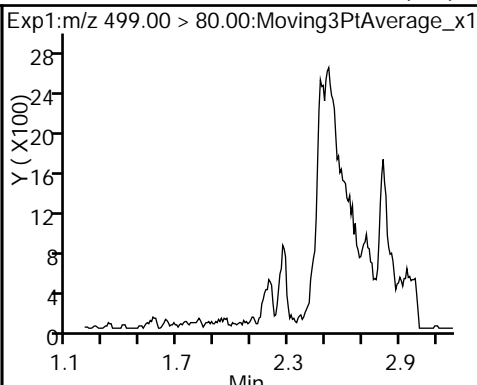
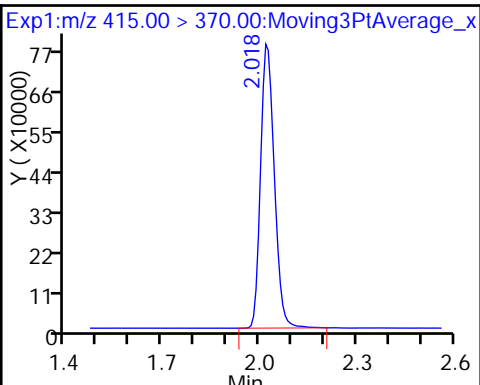
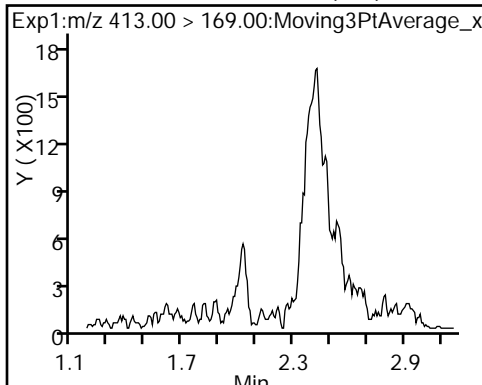
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

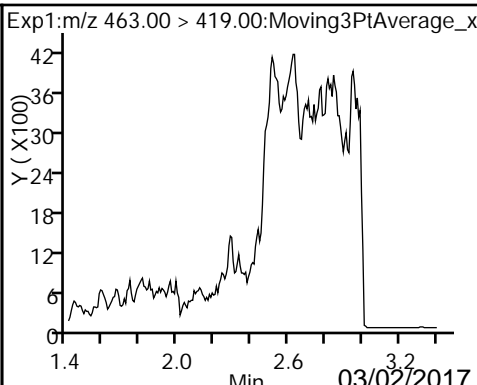
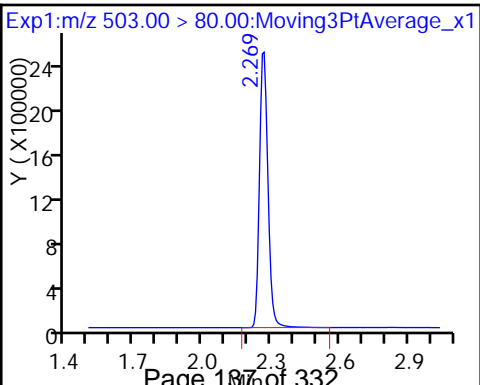
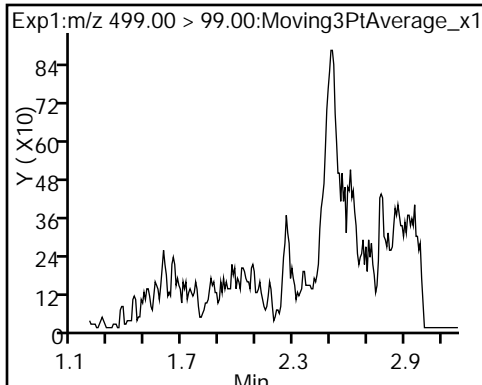
8 Perfluorooctane sulfonic acid (ND)



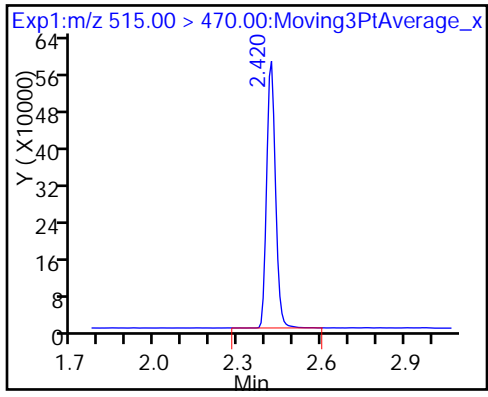
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_008.d
 Lims ID: 320-26004-A-6-A
 Client ID: WI-AF-1FB29-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:44:26 ALS Bottle#: 28 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:28:38

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 8.07 | 80.71 |
| \$ 10 13C2 PFDA | 10.0 | 7.39 | 73.88 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW30-0217 Lab Sample ID: 320-26004-7
 Matrix: Water Lab File ID: 2017.02.28C_537_009.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:25
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 252.3(mL) Date Analyzed: 02/28/2017 17:48
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.059 | 0.048 | 0.015 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.024 | 0.0093 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 71 | | 70-130 |
| STL00996 | 13C2 PFDA | 70 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_009.d
 Lims ID: 320-26004-A-7-A
 Client ID: WI-AF-1RW30-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:48:51 ALS Bottle#: 29 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:28:51

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.662 | 1.765 | -0.103 | 1.000 | 1873317 | 7.14 | 4390 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 2.026 | 2.172 | -0.146 | | 2562477 | 10.0 | 4533 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.261 | 2.395 | -0.134 | | 6785123 | 28.7 | 4923 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.413 | 2.530 | -0.117 | 1.000 | 1364300 | 7.03 | 2047 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_009.d

Injection Date: 28-Feb-2017 17:48:51

Instrument ID: A8_N

Lims ID: 320-26004-A-7-A

Lab Sample ID: 320-26004-7

Client ID: WI-AF-1RW30-0217

Operator ID: A8-PC\A8

ALS Bottle#: 29

Worklist Smp#: 24

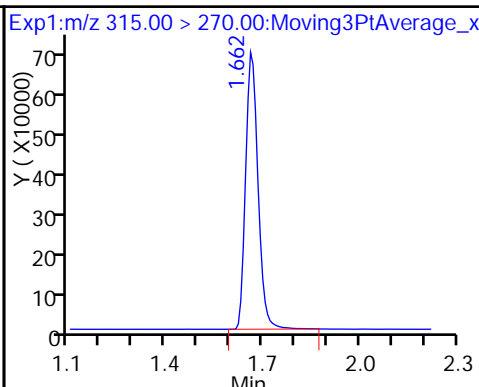
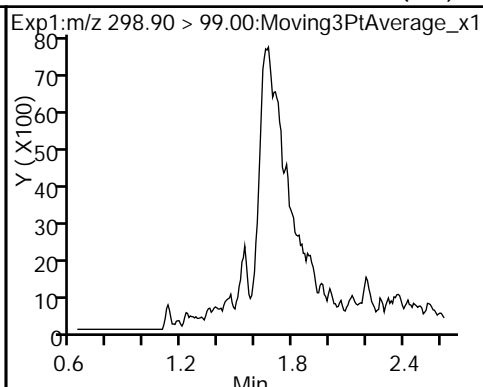
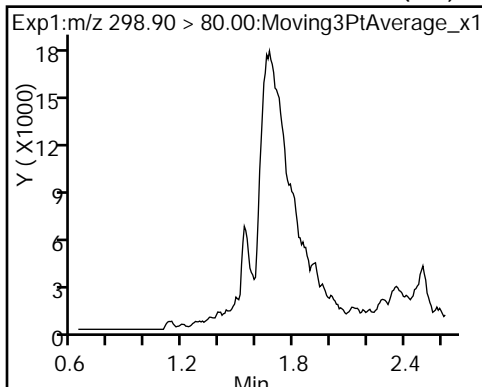
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

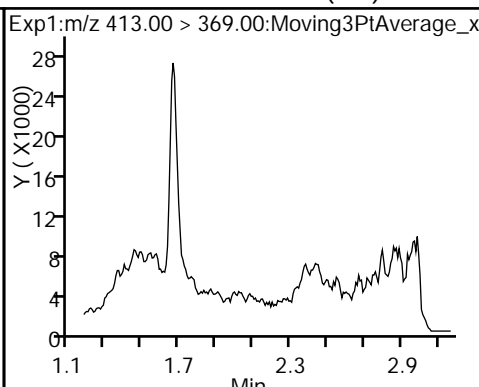
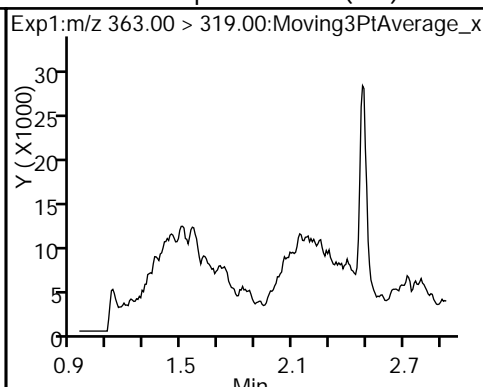
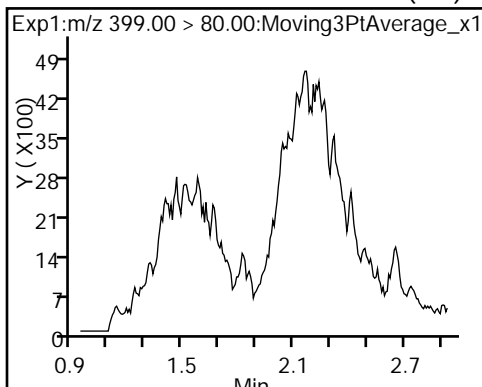
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

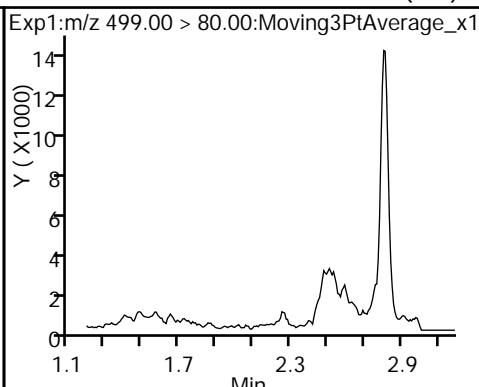
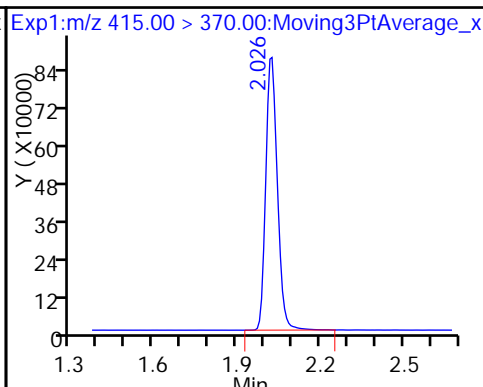
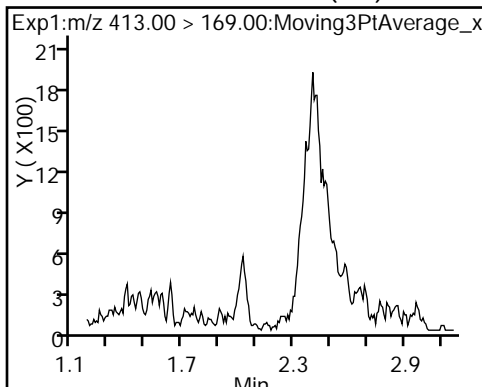
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

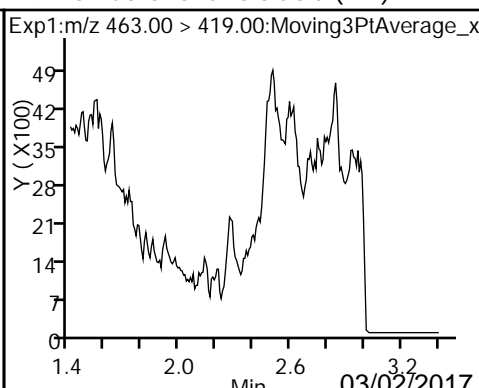
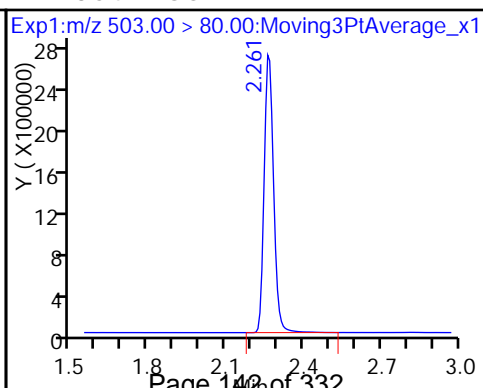
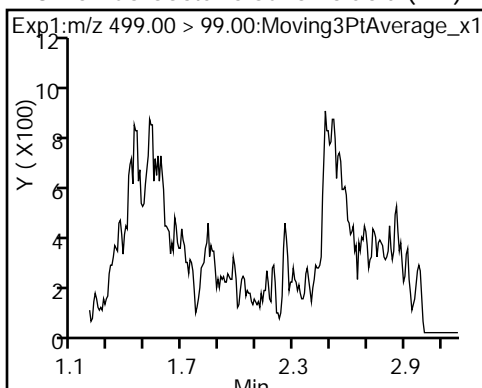
8 Perfluorooctane sulfonic acid (ND)



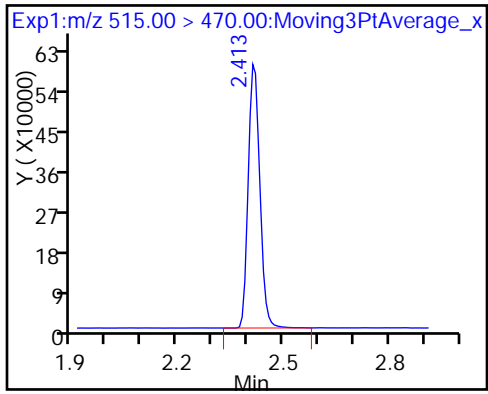
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_009.d
 Lims ID: 320-26004-A-7-A
 Client ID: WI-AF-1RW30-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 17:48:51 ALS Bottle#: 29 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:28:51

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.14 | 71.40 |
| \$ 10 13C2 PFDA | 10.0 | 7.03 | 70.35 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB30-0217 Lab Sample ID: 320-26004-8
 Matrix: Water Lab File ID: 2017.03.01A_537_006.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:26
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 251.5 (mL) Date Analyzed: 03/01/2017 15:35
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152753 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 | 0.015 |
| 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 75 | | 70-130 |
| STL00996 | 13C2 PFDA | 77 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_006.d
 Lims ID: 320-26004-A-8-A
 Client ID: WI-AF-1FB30-0217
 Sample Type: Client
 Inject. Date: 01-Mar-2017 15:35:19 ALS Bottle#: 3 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 16:03:17 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 16:05:26

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2070926 | 7.50 | 4973 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 1.988 | 1.992 | -0.004 | | 2595600 | 10.0 | 4448 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.238 | 2.241 | -0.003 | | 7141505 | 28.7 | 7222 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.390 | 2.392 | -0.002 | 1.000 | 1349437 | 7.68 | 1805 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_006.d

Injection Date: 01-Mar-2017 15:35:19

Instrument ID: A8_N

Lims ID: 320-26004-A-8-A

Lab Sample ID: 320-26004-8

Client ID: WI-AF-1FB30-0217

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 6

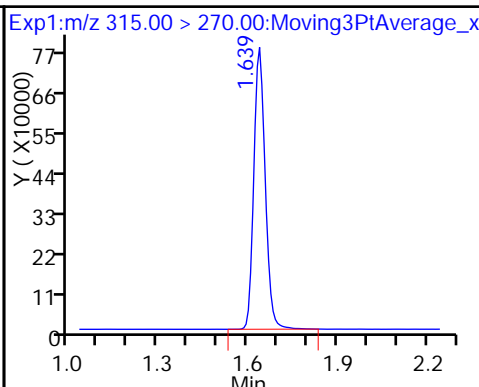
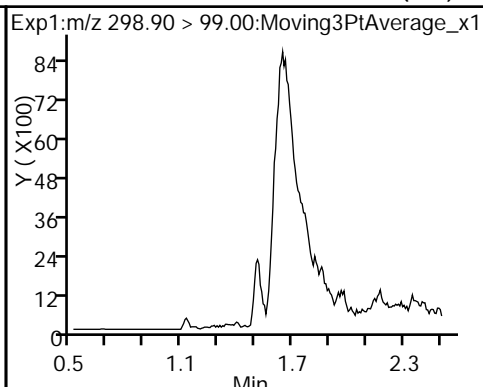
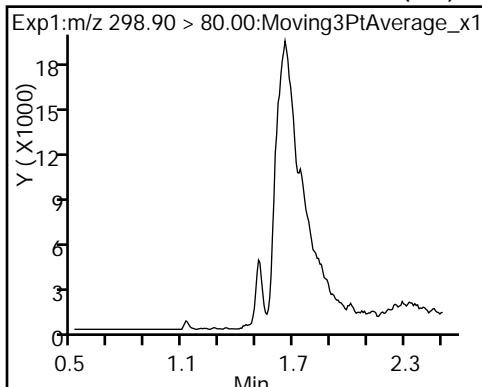
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

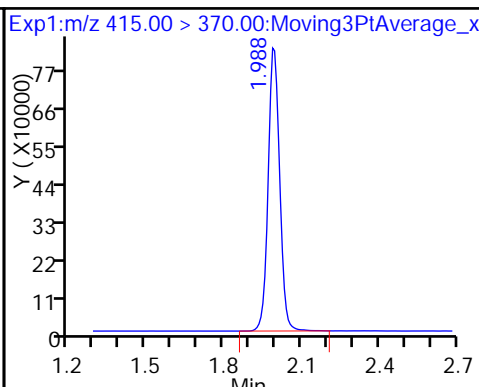
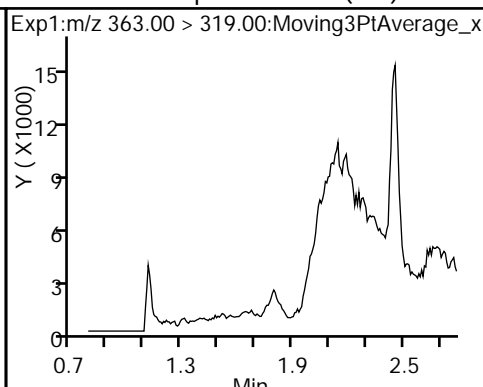
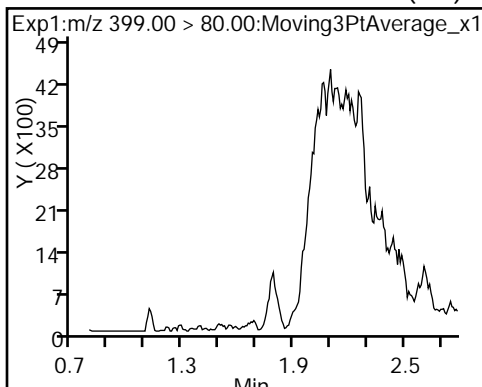
Method: 537_A8_N

Limit Group: LC 537 ICAL

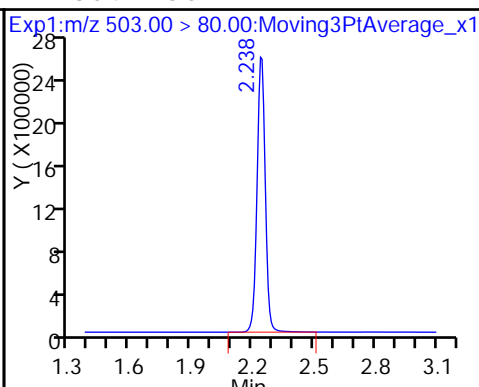
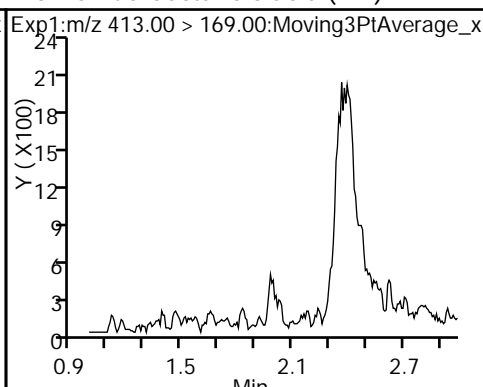
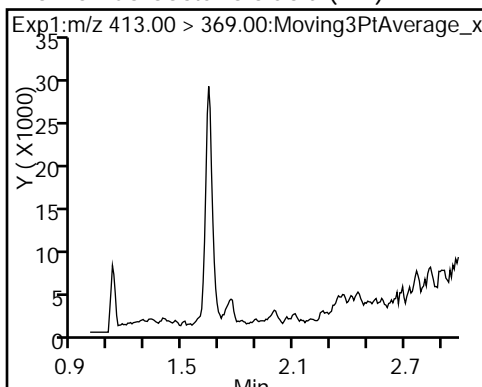
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



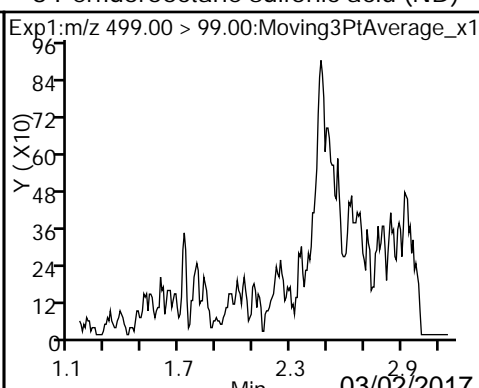
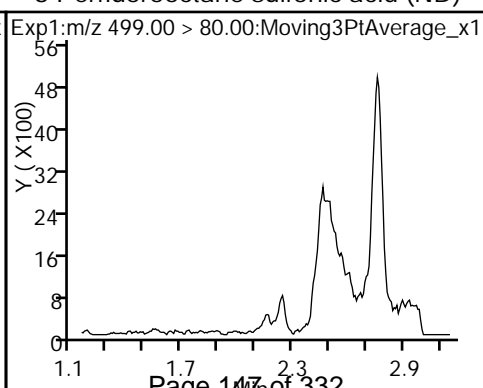
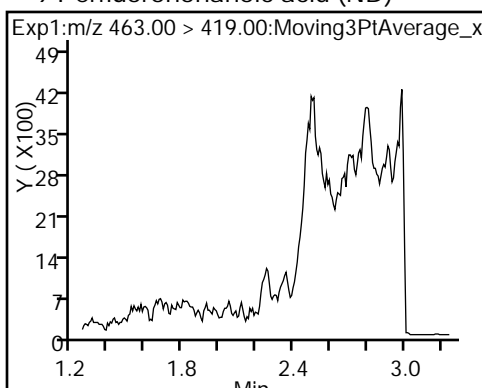
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



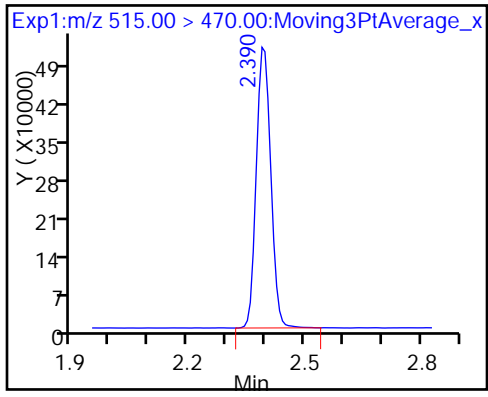
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



9 Perfluorononanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_006.d
 Lims ID: 320-26004-A-8-A
 Client ID: WI-AF-1FB30-0217
 Sample Type: Client
 Inject. Date: 01-Mar-2017 15:35:19 ALS Bottle#: 3 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 16:03:17 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 16:05:26

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.50 | 75.01 |
| \$ 10 13C2 PFDA | 10.0 | 7.68 | 76.79 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW31-0217 Lab Sample ID: 320-26004-9
 Matrix: Water Lab File ID: 2017.02.28C_537_014.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:45
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 247.9(mL) Date Analyzed: 02/28/2017 18:10
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152593 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.061 | 0.048 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.024 | 0.0095 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 74 | | 70-130 |
| STL00996 | 13C2 PFDA | 74 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_014.d
 Lims ID: 320-26004-A-9-A
 Client ID: WI-AF-1RW31-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 18:10:53 ALS Bottle#: 33 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:32:40

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.662 | 1.765 | -0.103 | 1.000 | 1894089 | 7.43 | 5563 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 2.018 | 2.172 | -0.154 | | 2488632 | 10.0 | 5423 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.261 | 2.395 | -0.134 | | 6552378 | 28.7 | 5155 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.413 | 2.530 | -0.117 | 1.000 | 1393275 | 7.40 | 2022 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_014.d

Injection Date: 28-Feb-2017 18:10:53

Instrument ID: A8_N

Lims ID: 320-26004-A-9-A

Lab Sample ID: 320-26004-9

Client ID: WI-AF-1RW31-0217

Operator ID: A8-PC\A8

ALS Bottle#: 33

Worklist Smp#: 29

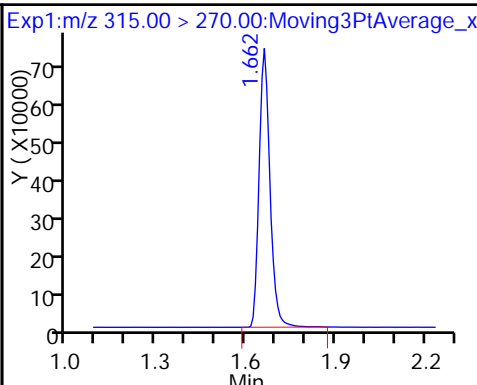
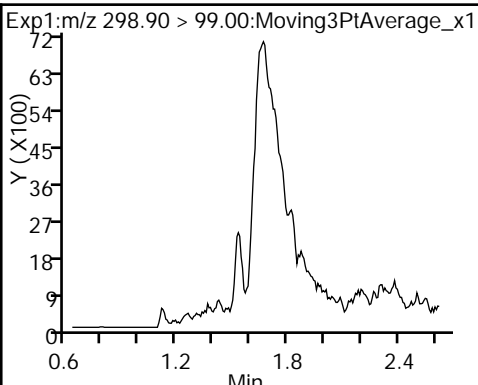
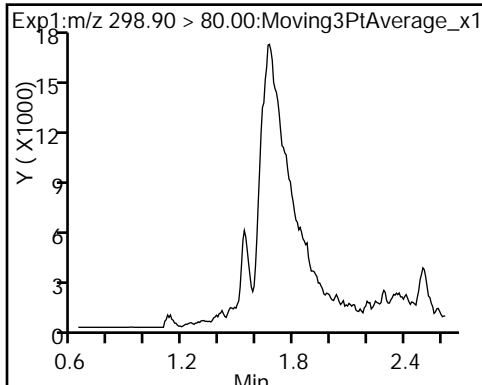
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

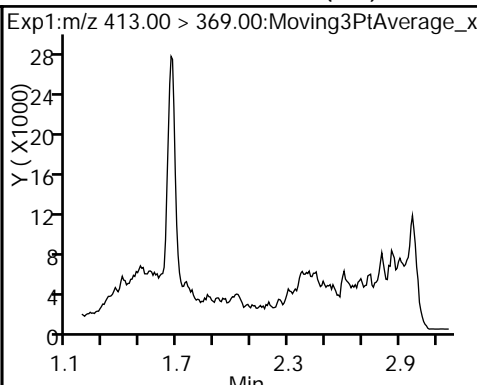
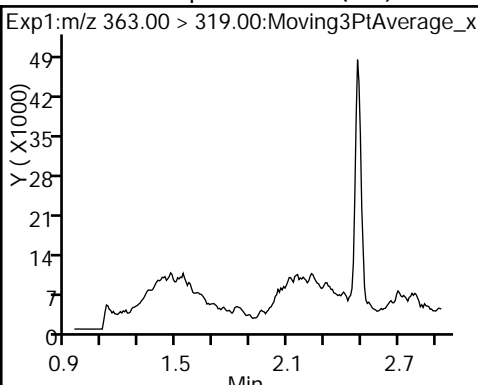
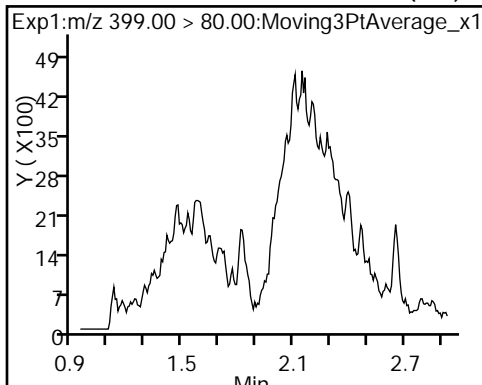
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

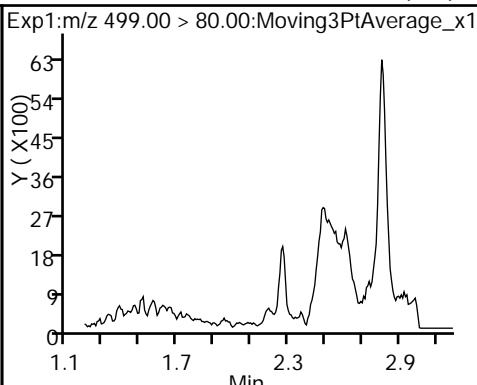
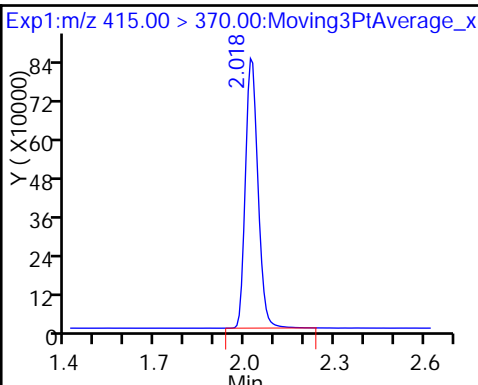
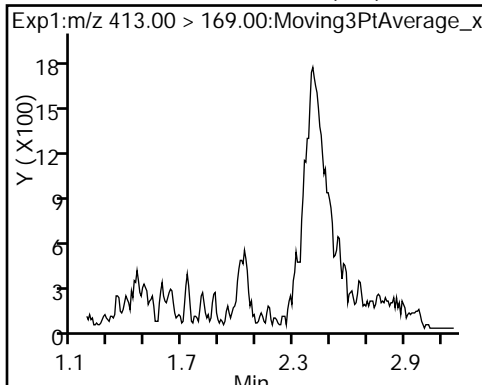
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

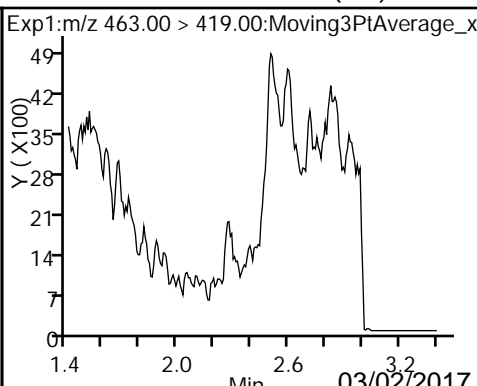
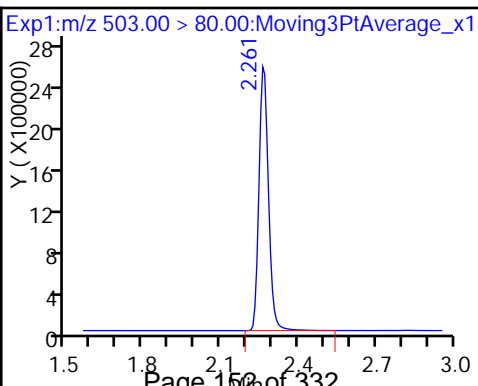
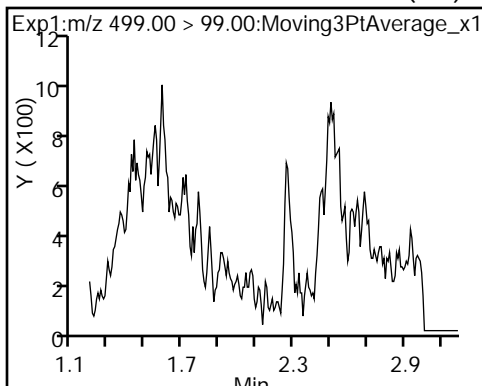
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

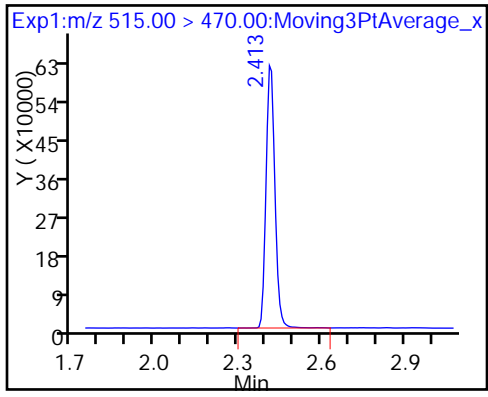


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_014.d
 Lims ID: 320-26004-A-9-A
 Client ID: WI-AF-1RW31-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 18:10:53 ALS Bottle#: 33 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:32:40

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.43 | 74.33 |
| \$ 10 13C2 PFDA | 10.0 | 7.40 | 73.98 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB31-0217 Lab Sample ID: 320-26004-10
 Matrix: Water Lab File ID: 2017.02.28C_537_015.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:46
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 255.8(mL) Date Analyzed: 02/28/2017 18:15
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152593 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 77 | | 70-130 |
| STL00996 | 13C2 PFDA | 71 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_015.d
 Lims ID: 320-26004-A-10-A
 Client ID: WI-AF-1FB31-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 18:15:17 ALS Bottle#: 34 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:32:53

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.654 | 1.765 | -0.111 | 1.000 | 1974420 | 7.72 | 4679 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 2.018 | 2.172 | -0.154 | | 2497787 | 10.0 | 4294 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.253 | 2.395 | -0.142 | | 6830785 | 28.7 | 7599 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.405 | 2.530 | -0.125 | 1.000 | 1336425 | 7.07 | 1890 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_015.d

Injection Date: 28-Feb-2017 18:15:17

Instrument ID: A8_N

Lims ID: 320-26004-A-10-A

Lab Sample ID: 320-26004-10

Client ID: WI-AF-1FB31-0217

Operator ID: A8-PC\A8

ALS Bottle#: 34

Worklist Smp#: 30

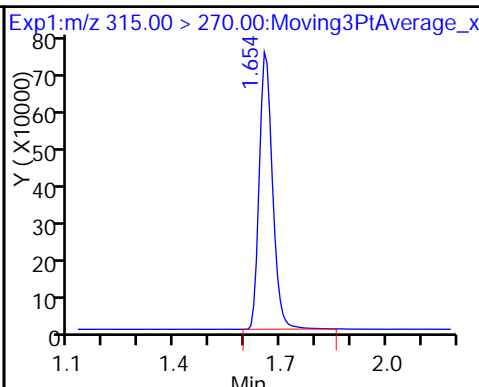
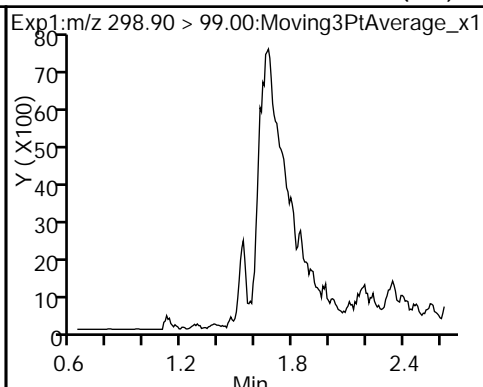
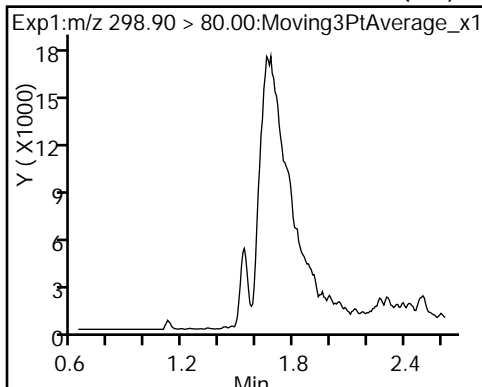
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

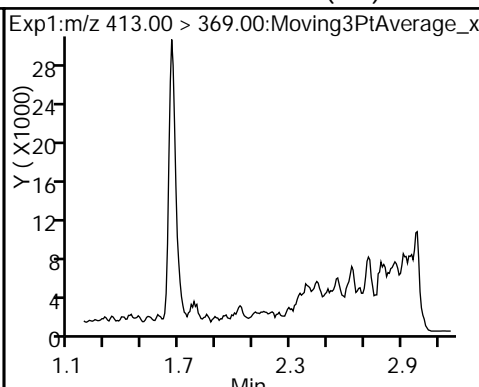
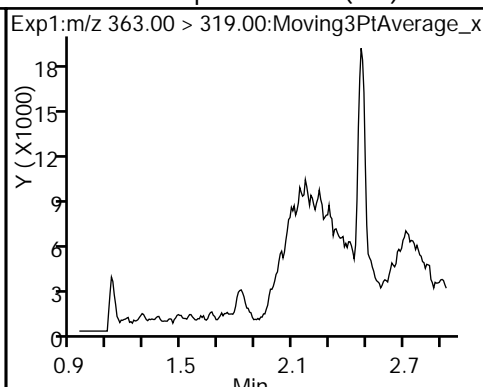
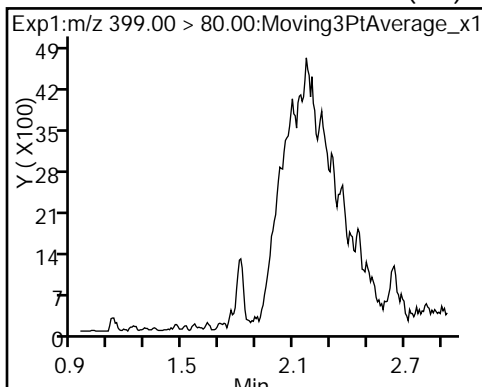
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

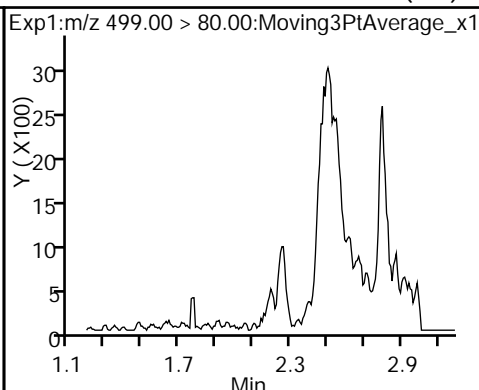
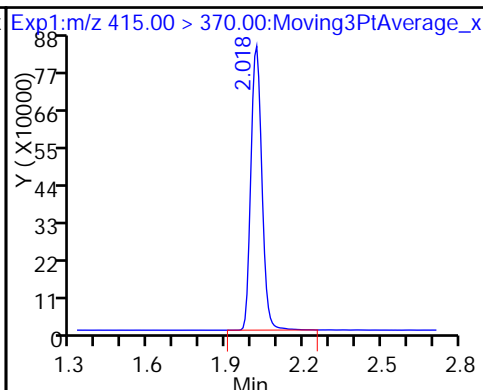
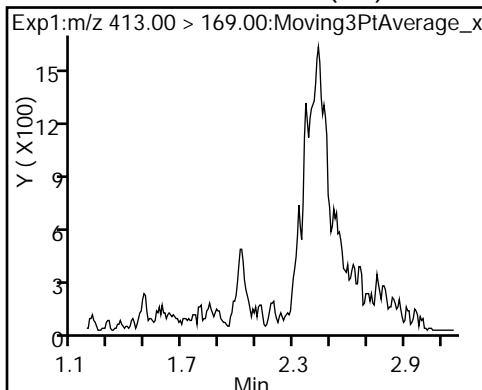
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

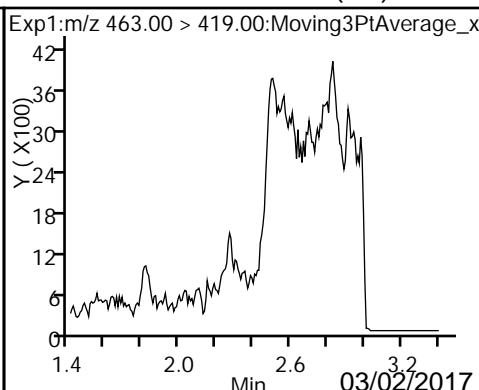
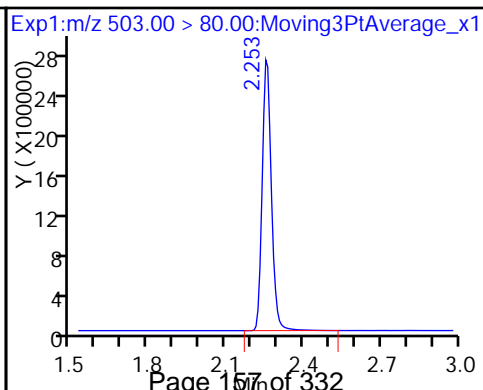
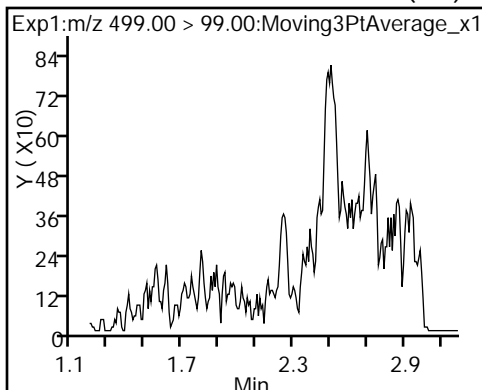
8 Perfluorooctane sulfonic acid (ND)



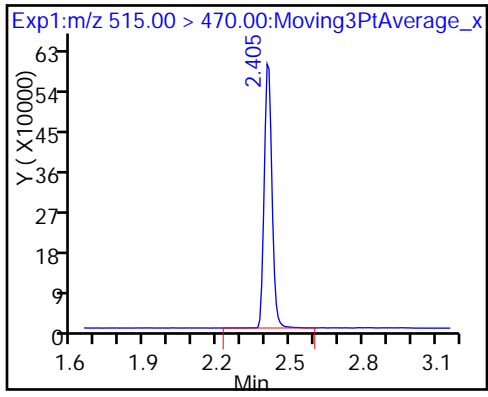
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_015.d
 Lims ID: 320-26004-A-10-A
 Client ID: WI-AF-1FB31-0217
 Sample Type: Client
 Inject. Date: 28-Feb-2017 18:15:17 ALS Bottle#: 34 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:32:53

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.72 | 77.20 |
| \$ 10 13C2 PFDA | 10.0 | 7.07 | 70.70 |

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

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1 Analy Batch No.: 152571

SDG No.: _____

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

Calibration Start Date: 02/28/2017 14:41 Calibration End Date: 02/28/2017 15:03 Calibration ID: 28641

Calibration Files:

| LEVEL: | LAB SAMPLE ID: | LAB FILE ID: |
|---------|-----------------|---------------------------|
| Level 1 | IC 320-152571/3 | 2017.02.28_537CURVE_003.d |
| Level 2 | IC 320-152571/4 | 2017.02.28_537CURVE_004.d |
| Level 3 | IC 320-152571/5 | 2017.02.28_537CURVE_005.d |
| Level 4 | IC 320-152571/6 | 2017.02.28_537CURVE_006.d |
| Level 5 | IC 320-152571/7 | 2017.02.28_537CURVE_007.d |
| Level 6 | IC 320-152571/8 | 2017.02.28_537CURVE_008.d |

| ANALYTE | RRF | | | | | CURVE TYPE | COEFFICIENT | | | # | MIN RRF | %RSD | # | MAX %RSD | R^2 OR COD | # | MIN R^2 OR COD |
|-------------------------------------|------------------|--------|--------|--------|--------|------------|-------------|--------|----|---|---------|------|------|----------|------------|---|----------------|
| | LVL 1 LVL 6 | LVL 2 | LVL 3 | LVL 4 | LVL 5 | | B | M1 | M2 | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | 1.5016 ++++ | 1.8158 | 1.5761 | 1.3805 | 1.1810 | Ave | | 1.4910 | | | 15.8 | | 30.0 | | | | |
| Perfluorohexanesulfonic acid | 1.2422 1.3984 | 1.4557 | 1.3594 | 1.4489 | 1.3279 | Ave | | 1.3721 | | | 5.9 | | 30.0 | | | | |
| Perfluoroheptanoic acid | 0.9416 0.9231 | 0.9550 | 0.9089 | 0.9315 | 0.8469 | Ave | | 0.9178 | | | 4.2 | | 30.0 | | | | |
| Perfluorooctanoic acid (PFOA) | 0.9510 0.9990 | 0.9684 | 0.9505 | 0.9766 | 0.9141 | Ave | | 0.9600 | | | 3.0 | | 30.0 | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 0.9983 1.1333 | 1.1256 | 1.0840 | 1.1236 | 1.0716 | Ave | | 1.0894 | | | 4.7 | | 30.0 | | | | |
| Perfluorononanoic acid | 0.8007 0.7485 | 0.7909 | 0.7759 | 0.7600 | 0.7116 | Ave | | 0.7646 | | | 4.2 | | 30.0 | | | | |
| 13C2 PFHxA | 0.9545 1.0658 | 0.9847 | 1.0265 | 1.0744 | 1.0374 | Ave | | 1.0239 | | | 4.5 | | 30.0 | | | | |
| 13C2 PFDA | 0.7502 0.7867 | 0.7326 | 0.7678 | 0.7622 | 0.7414 | Ave | | 0.7568 | | | 2.6 | | 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.: 320-26004-1 Analy Batch No.: 152571

SDG No.: _____

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

Calibration Start Date: 02/28/2017 14:41 Calibration End Date: 02/28/2017 15:03 Calibration ID: 28641

Calibration Files:

| LEVEL: | LAB SAMPLE ID: | LAB FILE ID: |
|---------|-----------------|---------------------------|
| Level 1 | IC 320-152571/3 | 2017.02.28_537CURVE_003.d |
| Level 2 | IC 320-152571/4 | 2017.02.28_537CURVE_004.d |
| Level 3 | IC 320-152571/5 | 2017.02.28_537CURVE_005.d |
| Level 4 | IC 320-152571/6 | 2017.02.28_537CURVE_006.d |
| Level 5 | IC 320-152571/7 | 2017.02.28_537CURVE_007.d |
| Level 6 | IC 320-152571/8 | 2017.02.28_537CURVE_008.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 | 3117331 +++++ | 10615156 | 17131251 | 34458881 | 40663139 | 8.98 +++++ | 22.9 | 45.1 | 90.9 | 135 |
| Perfluorohexanesulfonic acid | PFOS | Ave | 869306 18706875 | 2868620 | 4981047 | 12191221 | 15413358 | 3.03 60.1 | 7.72 | 15.2 | 30.6 | 45.4 |
| Perfluoroheptanoic acid | 13PF OA | Ave | 195953 3922787 | 610268 | 1038579 | 2471094 | 3101671 | 0.990 19.7 | 2.52 | 4.97 | 10.0 | 14.9 |
| Perfluorooctanoic acid (PFOA) | 13PF OA | Ave | 390206 8370583 | 1220112 | 2141484 | 5108386 | 6600582 | 1.95 38.8 | 4.98 | 9.81 | 19.8 | 29.3 |
| Perfluorooctanesulfonic acid (PFOS) | PFOS | Ave | 925076 20073777 | 2937313 | 5259430 | 12518800 | 16469240 | 4.01 79.6 | 10.2 | 20.1 | 40.6 | 60.1 |
| Perfluorononanoic acid | 13PF OA | Ave | 349094 6664465 | 1058848 | 1857458 | 4224505 | 5459781 | 2.07 41.2 | 5.29 | 10.4 | 21.0 | 31.1 |
| 13C2 PFHxA | 13PF OA | Ave | 2006507 2301837 | 2492526 | 2357788 | 2843456 | 2558490 | 10.0 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| 13C2 PFDA | 13PF OA | Ave | 1576965 1699216 | 1854375 | 1763607 | 2017178 | 1828420 | 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.: 320-26004-1 Analy Batch No.: 152571

SDG No.: _____

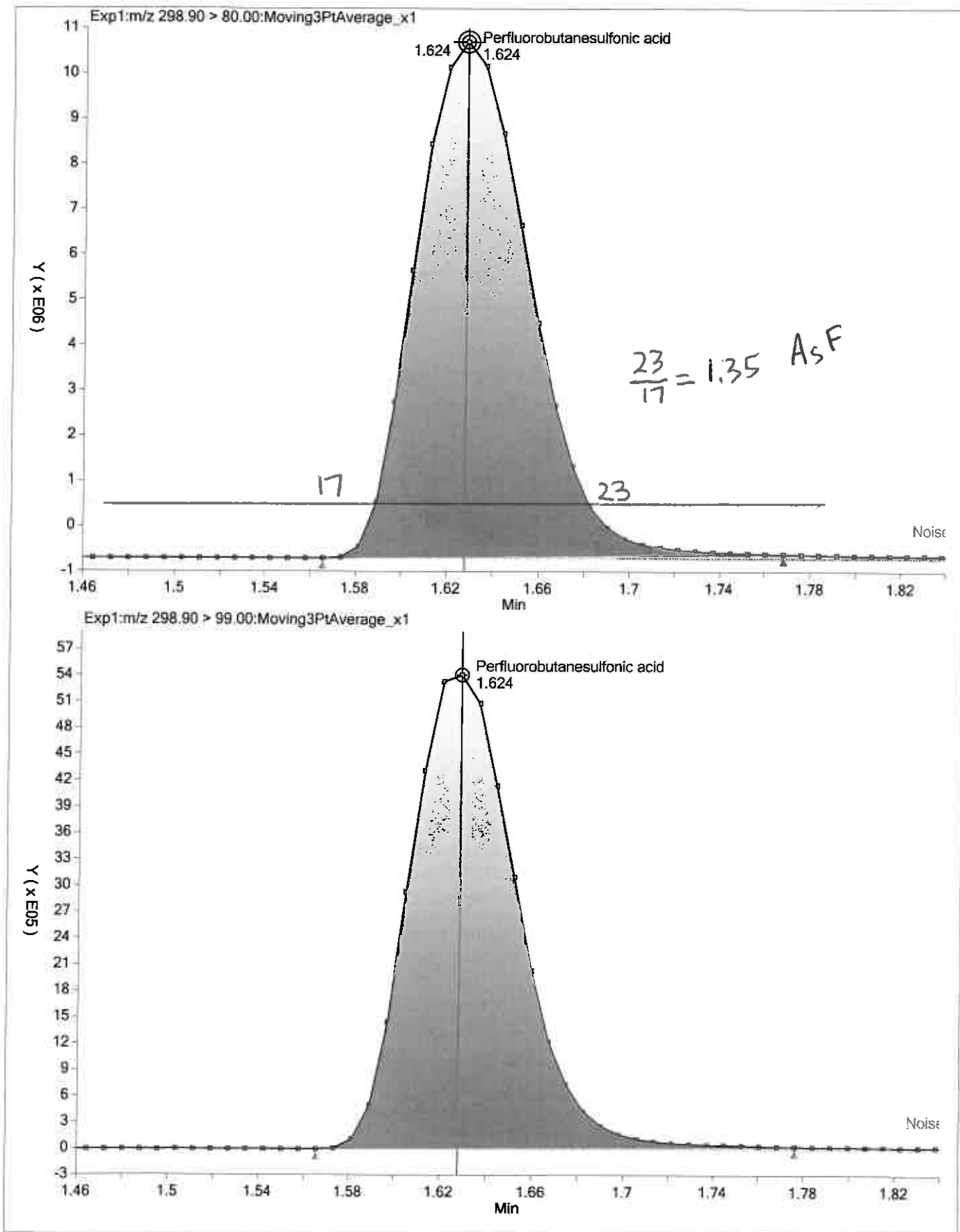
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

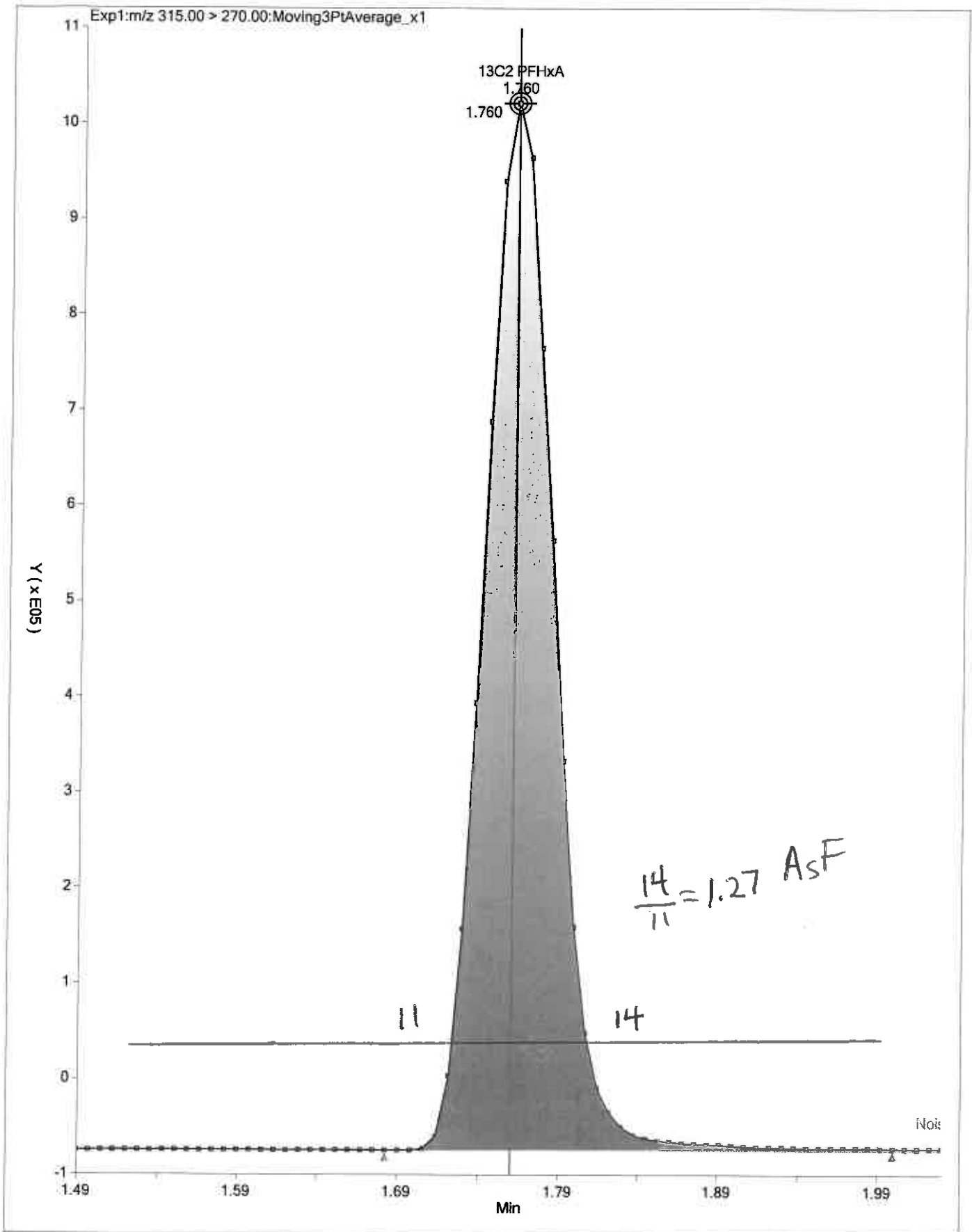
Calibration Start Date: 02/28/2017 14:41 Calibration End Date: 02/28/2017 15:03 Calibration ID: 28641

Calibration Files:

| LEVEL: | LAB SAMPLE ID: | LAB FILE ID: |
|---------|-----------------|---------------------------|
| Level 1 | IC 320-152571/3 | 2017.02.28_537CURVE_003.d |
| Level 2 | IC 320-152571/4 | 2017.02.28_537CURVE_004.d |
| Level 3 | IC 320-152571/5 | 2017.02.28_537CURVE_005.d |
| Level 4 | IC 320-152571/6 | 2017.02.28_537CURVE_006.d |
| Level 5 | IC 320-152571/7 | 2017.02.28_537CURVE_007.d |
| Level 6 | IC 320-152571/8 | 2017.02.28_537CURVE_008.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) | 0.7 | 21.8 | 5.7 | -7.4 | -20.8 | +++++ | 50 | 50 | 50 | 50 | 50 | |
| Perfluorohexanesulfonic acid | -9.5 | 6.1 | -0.9 | 5.6 | -3.2 | 1.9 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluoroheptanoic acid | 2.6 | 4.1 | -1.0 | 1.5 | -7.7 | 0.6 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluorooctanoic acid (PFOA) | -0.9 | 0.9 | -1.0 | 1.7 | -4.8 | 4.1 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluorooctanesulfonic acid (PFOS) | -8.4 | 3.3 | -0.5 | 3.1 | -1.6 | 4.0 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluorononanoic acid | 4.7 | 3.4 | 1.5 | -0.6 | -6.9 | -2.1 | 50 | 50 | 50 | 50 | 50 | 50 |
| 13C2 PFHxA | -6.8 | -3.8 | 0.3 | 4.9 | 1.3 | 4.1 | 30 | 30 | 30 | 30 | 30 | 30 |
| 13C2 PFDA | -0.9 | -3.2 | 1.5 | 0.7 | -2.0 | 4.0 | 30 | 30 | 30 | 30 | 30 | 30 |





TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_003.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 28-Feb-2017 14:41:28 ALS Bottle#: 1 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:25 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:30:38

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.639 | 1.631 | 0.008 | 1.000 | 3117331 | 9.04 | | 393 | |
| 298.90 > 99.00 | 1.639 | 1.631 | 0.008 | 1.000 | 1314092 | | 2.37(0.00-0.00) | 403 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.783 | 1.769 | 0.014 | 1.000 | 2006507 | 9.32 | | 2744 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.957 | 1.944 | 0.013 | 1.000 | 869306 | 2.74 | | 238 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.957 | 1.945 | 0.012 | 1.000 | 195953 | 1.02 | | 19.9 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.200 | 2.179 | 0.021 | | 2102051 | 10.0 | | 3215 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.193 | 2.179 | 0.014 | 1.000 | 390206 | 1.93 | | 32.8 | |
| 413.00 > 169.00 | 2.193 | 2.179 | 0.014 | 1.000 | 217900 | | 1.79(0.00-0.00) | 267 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.360 | 2.367 | -0.007 | 1.000 | 925076 | 3.67 | | 215 | |
| 499.00 > 99.00 | 2.413 | 2.367 | 0.046 | 1.023 | 231400 | | 4.00(0.00-0.00) | 402 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.413 | 2.401 | 0.012 | | 6633139 | 28.7 | | 7355 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.428 | 2.410 | 0.018 | 1.000 | 349094 | 2.17 | | 64.3 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.549 | 2.536 | 0.013 | 1.000 | 1576965 | 9.91 | | 2510 | |

Reagents:

LC537-L1_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_003.d

Injection Date: 28-Feb-2017 14:41:28

Instrument ID: A8_N

Lims ID: IC L1

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 1

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

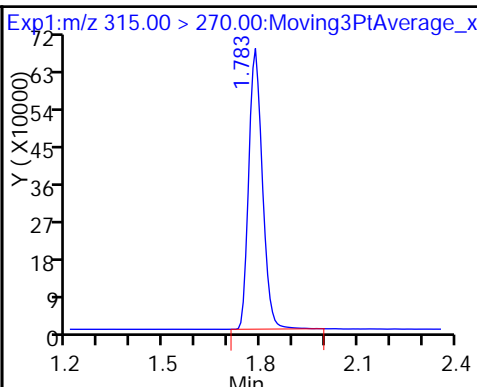
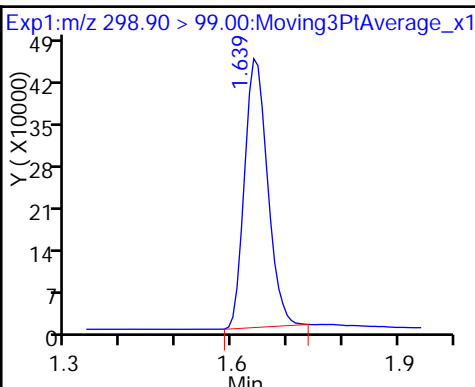
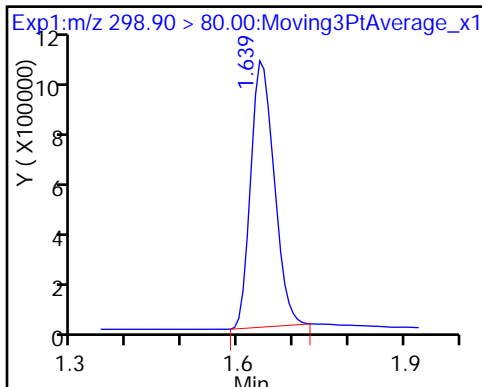
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

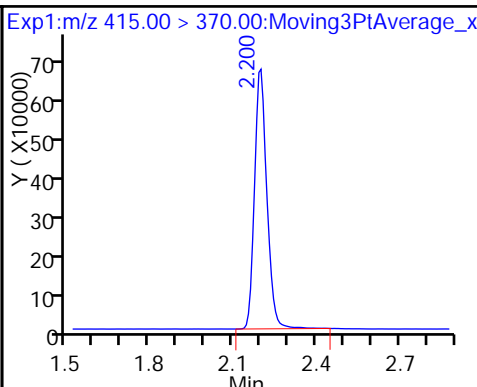
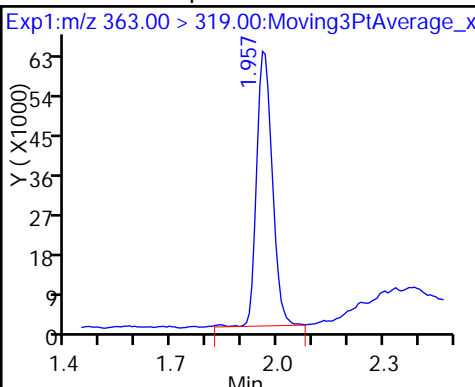
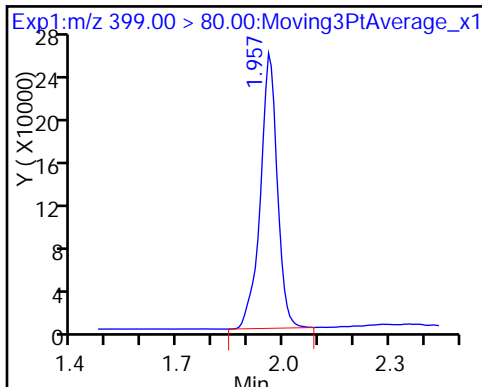
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

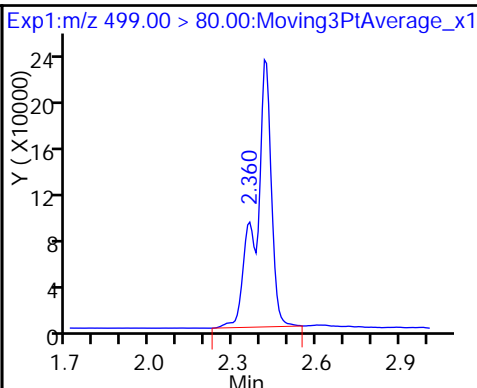
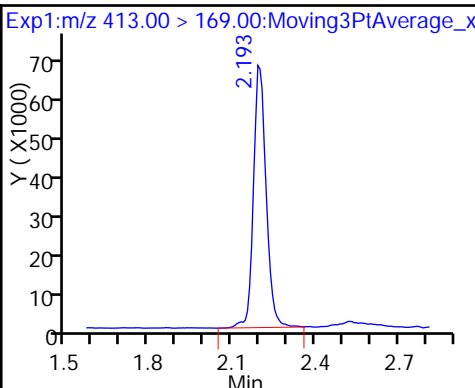
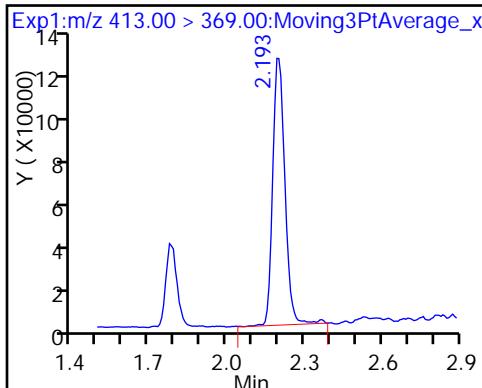
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

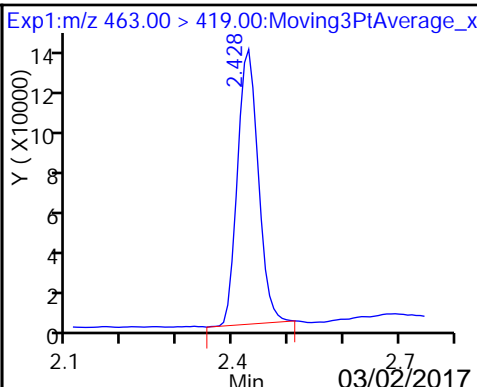
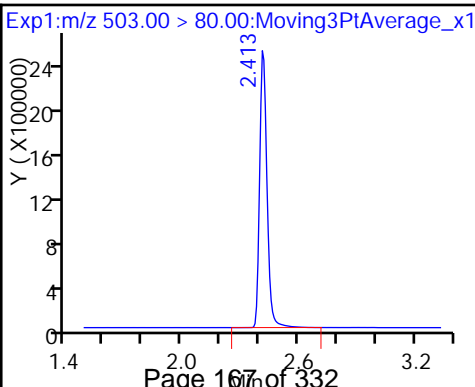
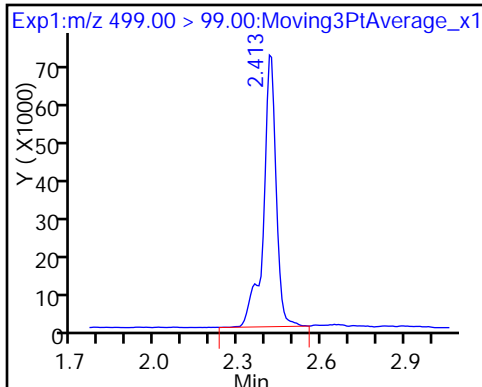
8 Perfluorooctane sulfonic acid



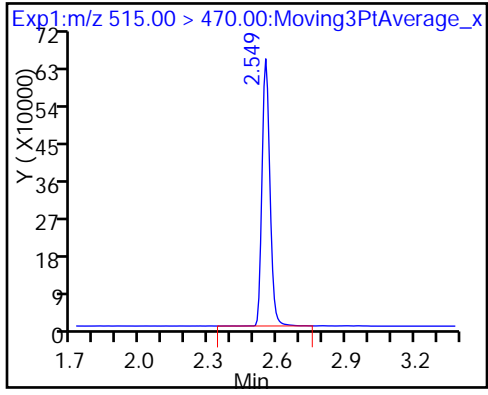
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_004.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 28-Feb-2017 14:45:57 ALS Bottle#: 2 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:26 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:31:42

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.646 | 1.627 | 0.019 | 1.000 | 10615156 | 27.9 | | 868 | |
| 298.90 > 99.00 | 1.646 | 1.627 | 0.019 | 1.000 | 4552642 | | 2.33(0.00-0.00) | 911 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.783 | 1.765 | 0.018 | 1.000 | 2492526 | 9.62 | | 2811 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.957 | 1.938 | 0.019 | 1.000 | 2868620 | 8.19 | | 581 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.957 | 1.940 | 0.017 | 1.000 | 610268 | 2.63 | | 62.7 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.193 | 2.172 | 0.021 | | 2531261 | 10.0 | | 4646 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.193 | 2.172 | 0.021 | 1.000 | 1220112 | 5.02 | | 95.7 | |
| 413.00 > 169.00 | 2.193 | 2.172 | 0.021 | 1.000 | 730729 | | 1.67(0.00-0.00) | 833 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.390 | 2.367 | 0.023 | 1.000 | 2937313 | 10.6 | | 647 | |
| 499.00 > 99.00 | 2.413 | 2.367 | 0.046 | 1.010 | 723391 | | 4.06(0.00-0.00) | 1296 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.413 | 2.395 | 0.018 | | 7325068 | 28.7 | | 9564 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.420 | 2.404 | 0.016 | 1.000 | 1058848 | 5.47 | | 270 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.542 | 2.530 | 0.012 | 1.000 | 1854375 | 9.68 | | 2770 | |

Reagents:

LC537-L2_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_004.d

Injection Date: 28-Feb-2017 14:45:57

Instrument ID: A8_N

Lims ID: IC L2

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

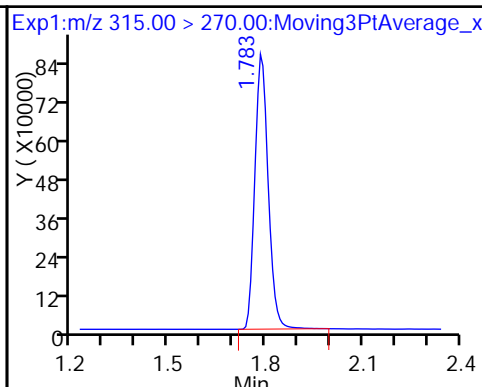
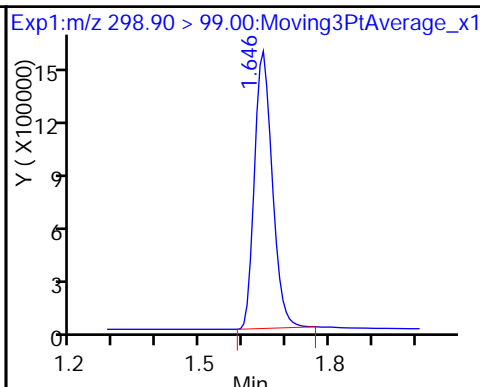
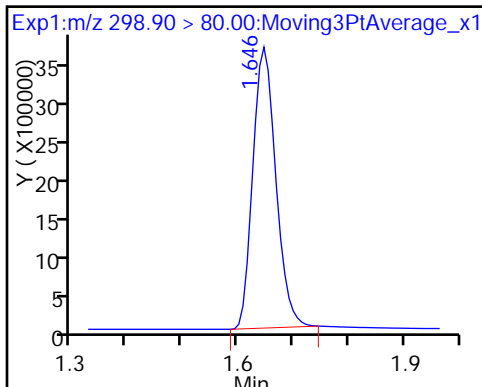
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

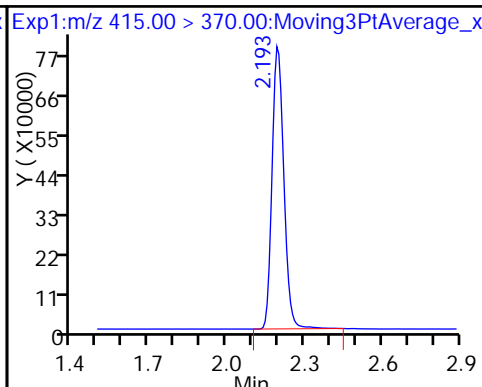
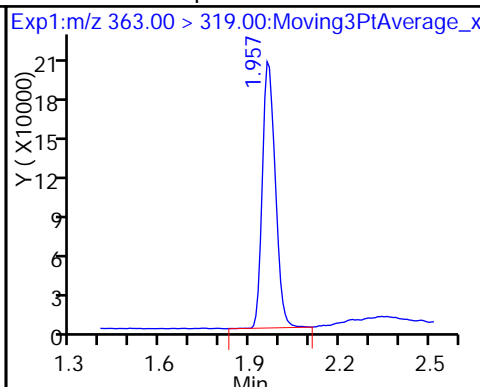
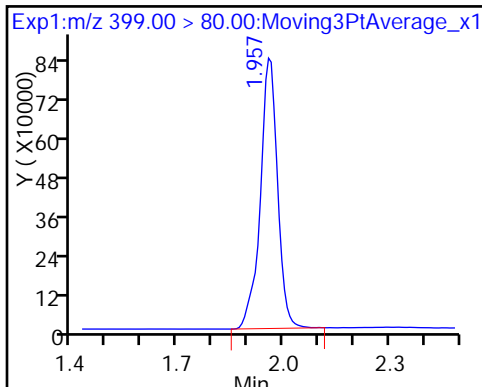
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

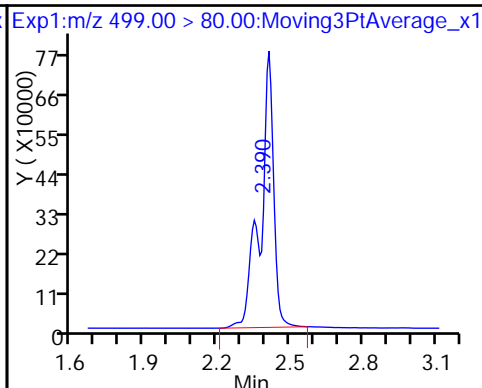
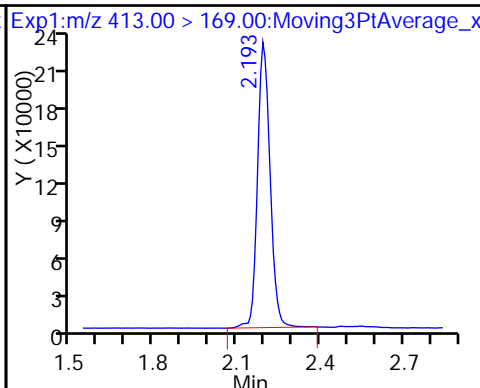
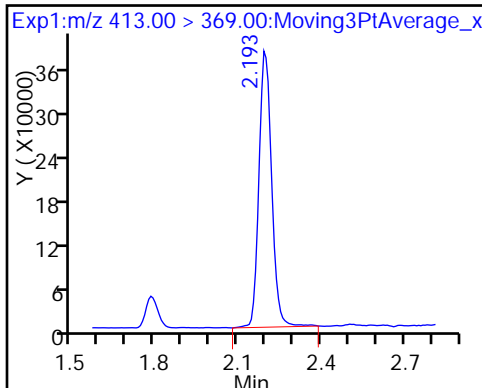
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

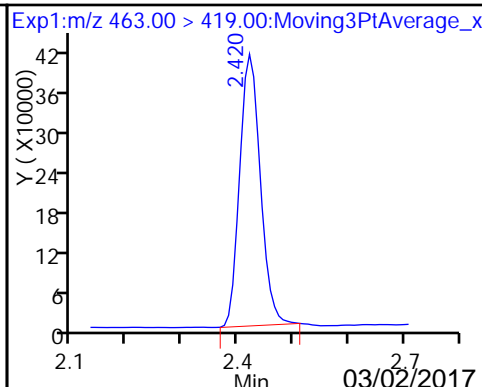
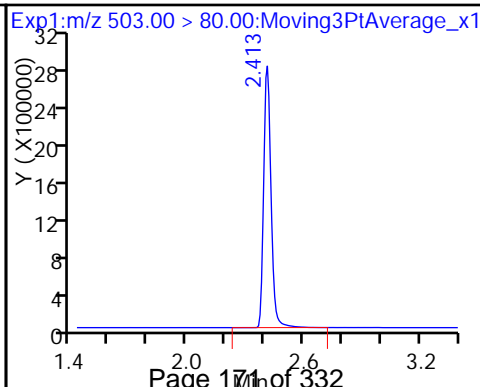
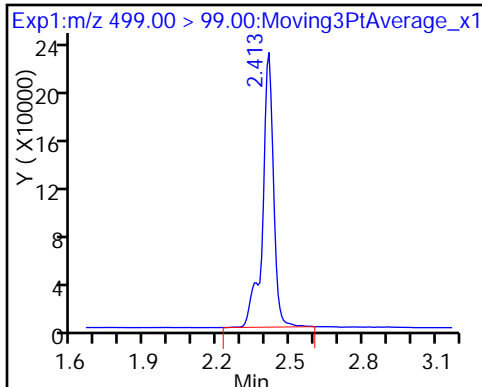
8 Perfluorooctane sulfonic acid



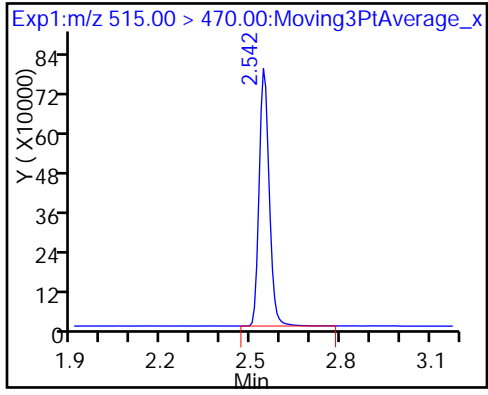
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_005.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 28-Feb-2017 14:50:23 ALS Bottle#: 3 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:28 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:31:53

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|-------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.631 | 1.627 | 0.004 | 1.000 | 17131251 | 47.7 | | 1048 | |
| 298.90 > 99.00 | 1.631 | 1.627 | 0.004 | 1.000 | 7542249 | | 2.27(0.00-0.00) | 1116 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.768 | 1.765 | 0.003 | 1.000 | 2357788 | 10.0 | | 2715 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.942 | 1.938 | 0.004 | 1.000 | 4981047 | 15.1 | | 922 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.950 | 1.940 | 0.010 | 1.000 | 1038579 | 4.93 | | 104 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.185 | 2.172 | 0.013 | 1.000 | 2141484 | 9.71 | | 167 | |
| 413.00 > 169.00 | 2.185 | 2.172 | 0.013 | 1.000 | 1206972 | | 1.77(0.00-0.00) | 1198 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.177 | 2.172 | 0.005 | | 2296952 | 10.0 | | 3528 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.405 | 2.367 | 0.038 | 1.000 | 5259430 | 20.0 | | 4068 | |
| 499.00 > 99.00 | 2.405 | 2.367 | 0.038 | 1.000 | 1265490 | | 4.16(0.00-0.00) | 1759 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.405 | 2.395 | 0.010 | | 6911413 | 28.7 | | 10468 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.413 | 2.404 | 0.009 | 1.000 | 1857458 | 10.6 | | 480 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.542 | 2.530 | 0.012 | 1.000 | 1763607 | 10.1 | | 2460 | |

Reagents:

LC537-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_005.d

Injection Date: 28-Feb-2017 14:50:23

Instrument ID: A8_N

Lims ID: IC L3

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

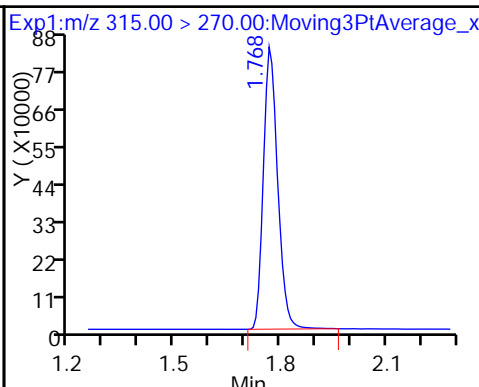
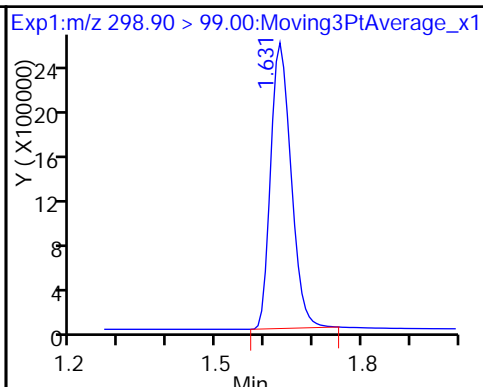
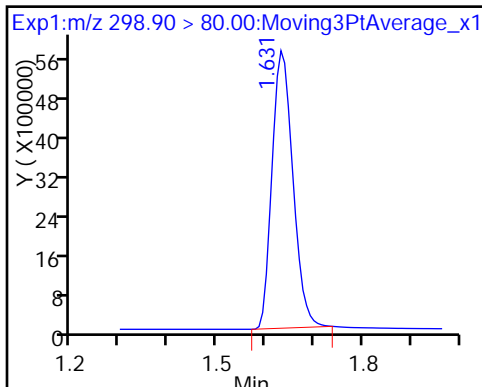
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

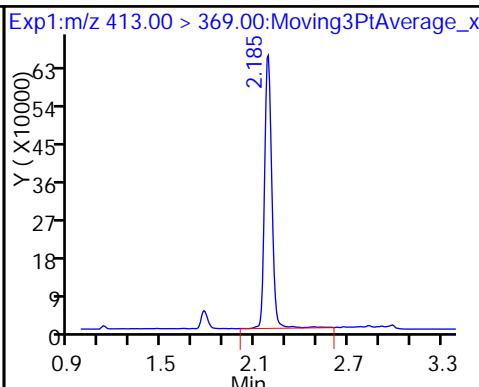
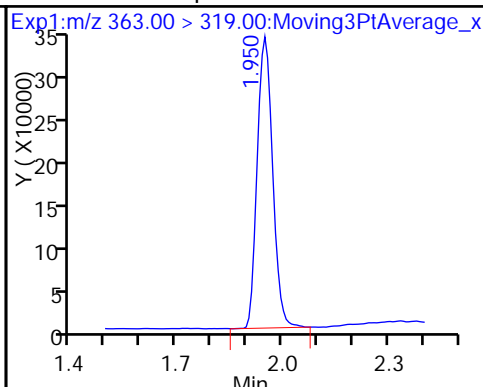
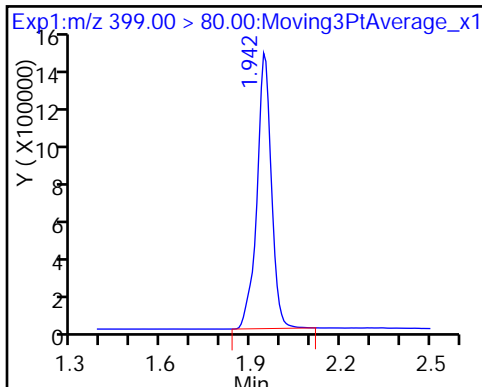
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

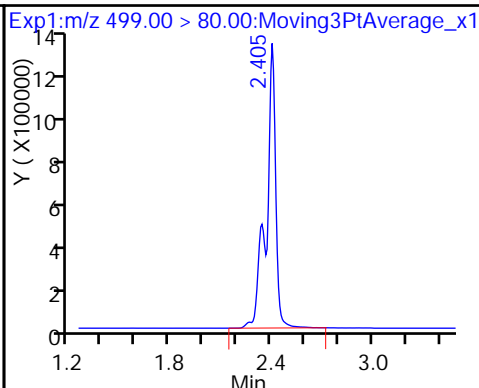
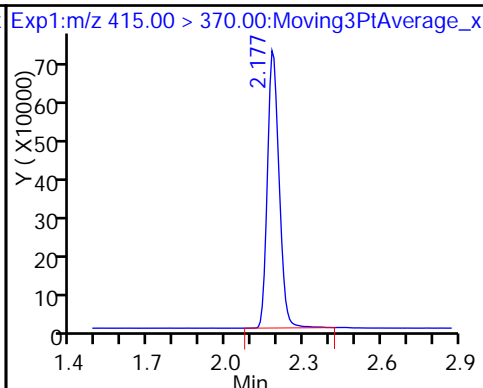
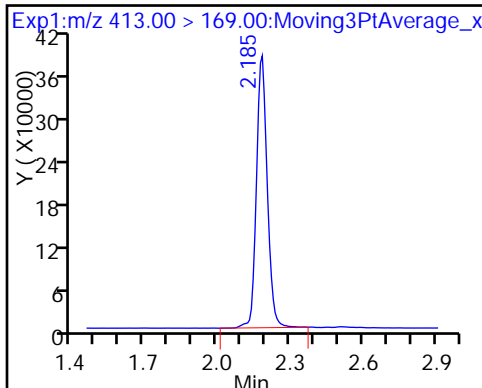
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

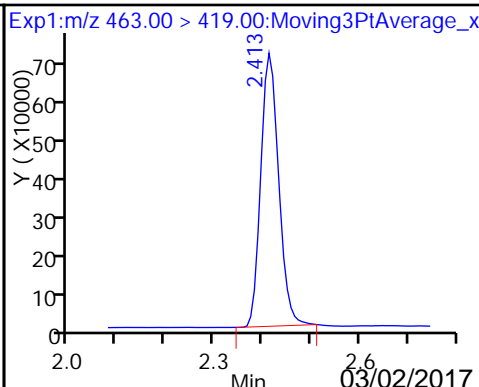
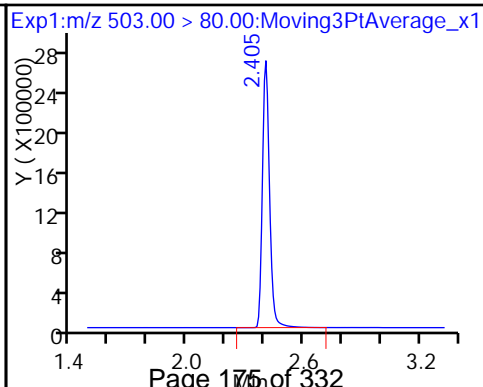
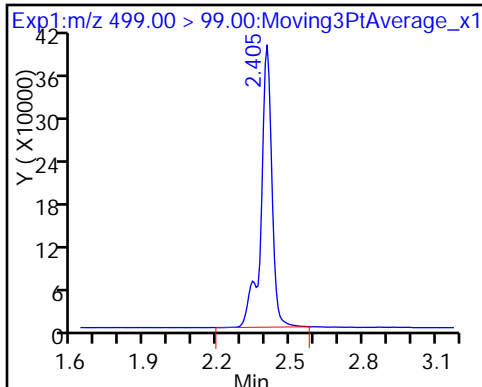
8 Perfluorooctane sulfonic acid



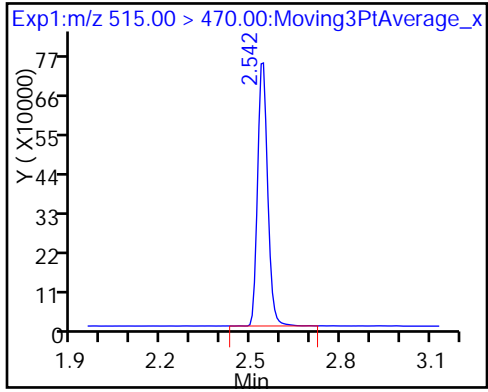
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_006.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 28-Feb-2017 14:54:47 ALS Bottle#: 4 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:30 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:32:03

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|-------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.624 | 1.627 | -0.003 | 1.000 | 34458881 | 84.1 | | 1113 | |
| 298.90 > 99.00 | 1.624 | 1.627 | -0.003 | 1.000 | 16969291 | | 2.03(0.00-0.00) | 1416 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.760 | 1.765 | -0.005 | 1.000 | 2843456 | 10.5 | | 3203 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.935 | 1.938 | -0.003 | 1.000 | 12191221 | 32.4 | | 1428 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.935 | 1.940 | -0.005 | 1.000 | 2471094 | 10.2 | | 213 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.170 | 2.172 | -0.002 | 1.000 | 5108386 | 20.1 | | 365 | |
| 413.00 > 169.00 | 2.170 | 2.172 | -0.002 | 1.000 | 3006567 | | 1.70(0.00-0.00) | 2178 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.170 | 2.172 | -0.002 | | 2646658 | 10.0 | | 5021 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.329 | 2.367 | -0.038 | 1.000 | 12518800 | 41.8 | | 1215 | |
| 499.00 > 99.00 | 2.390 | 2.367 | 0.023 | 1.026 | 3106705 | | 4.03(0.00-0.00) | 4732 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.390 | 2.395 | -0.005 | | 7876893 | 28.7 | | 12079 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.397 | 2.404 | -0.007 | 1.000 | 4224505 | 20.9 | | 1002 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.526 | 2.530 | -0.004 | 1.000 | 2017178 | 10.1 | | 2841 | |

Reagents:

LC537-L4_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_006.d

Injection Date: 28-Feb-2017 14:54:47

Instrument ID: A8_N

Lims ID: IC L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 4

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

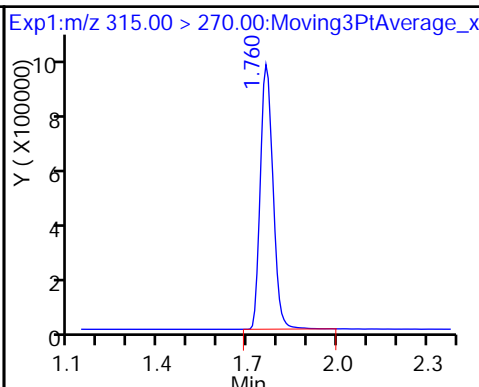
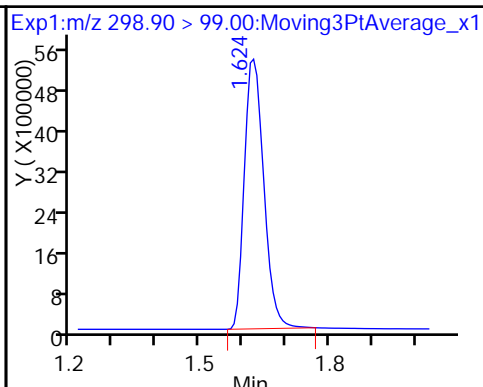
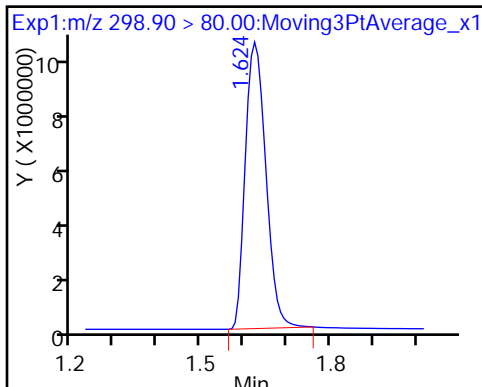
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

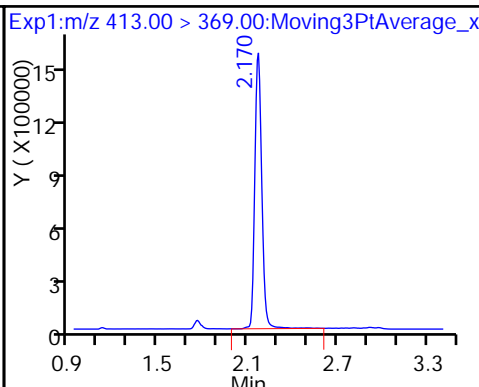
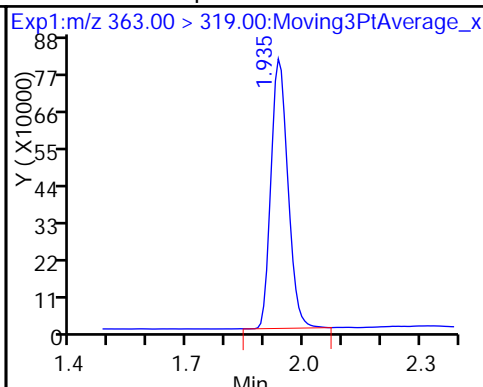
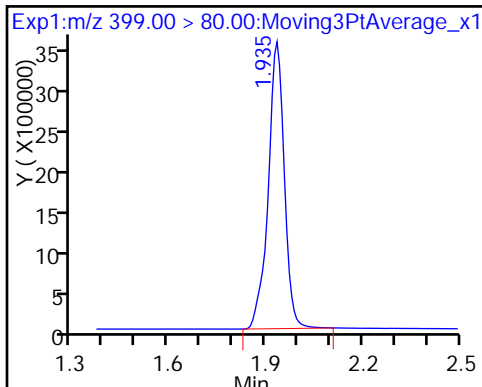
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

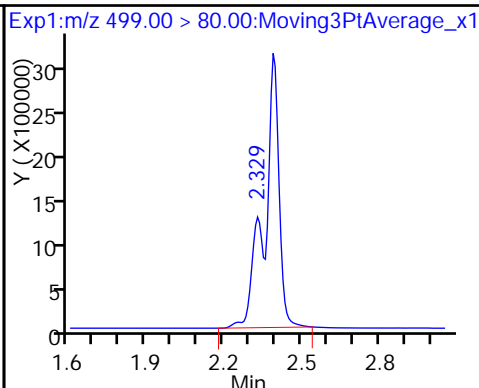
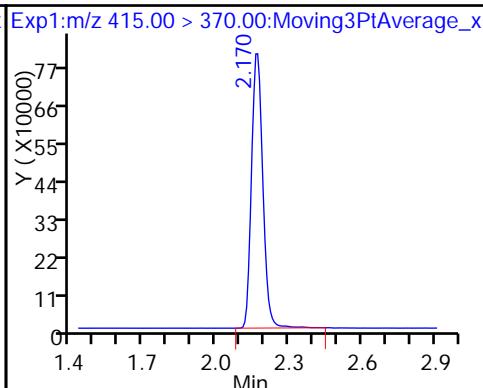
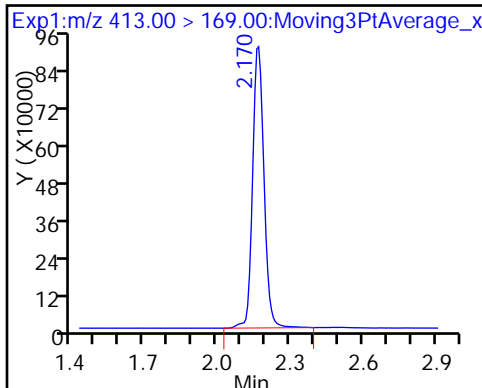
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

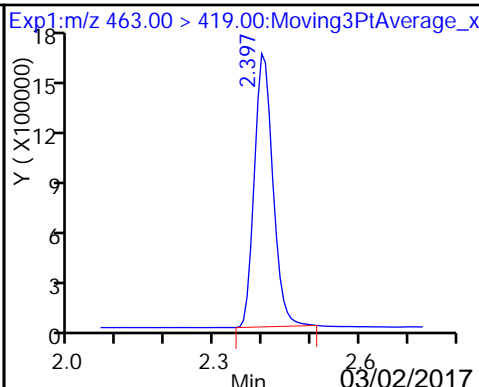
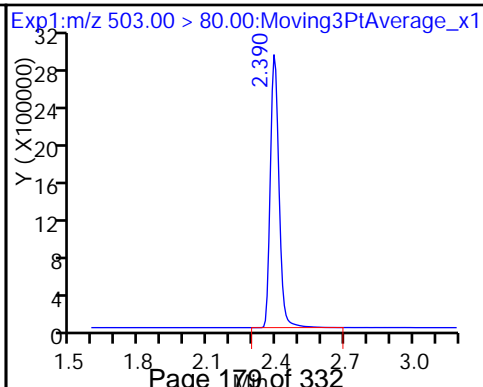
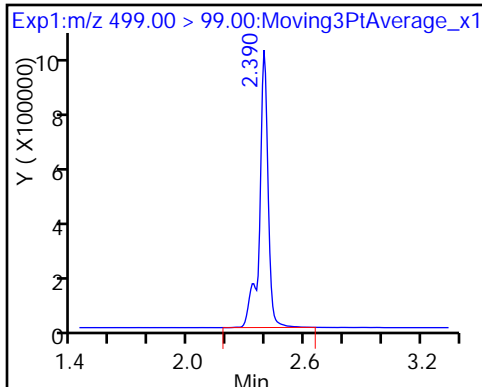
8 Perfluorooctane sulfonic acid



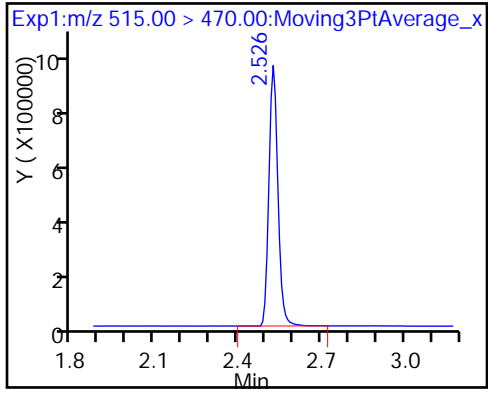
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_007.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 28-Feb-2017 14:59:10 ALS Bottle#: 5 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:31 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:32:12

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|-------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.616 | 1.627 | -0.011 | 1.000 | 40663139 | 106.6 | | 1079 | |
| 298.90 > 99.00 | 1.616 | 1.627 | -0.011 | 1.000 | 20542925 | | 1.98(0.00-0.00) | 1456 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.753 | 1.765 | -0.012 | 1.000 | 2558490 | 10.1 | | 3123 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.927 | 1.938 | -0.011 | 1.000 | 15413358 | 43.9 | | 1508 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.927 | 1.940 | -0.013 | 1.000 | 3101671 | 13.7 | | 282 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.155 | 2.172 | -0.017 | 1.000 | 6600582 | 27.9 | | 487 | |
| 413.00 > 169.00 | 2.155 | 2.172 | -0.017 | 1.000 | 3850026 | | 1.71(0.00-0.00) | 3046 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.155 | 2.172 | -0.017 | | 2466185 | 10.0 | | 4332 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.360 | 2.367 | -0.007 | 1.000 | 16469240 | 59.1 | | 1517 | |
| 499.00 > 99.00 | 2.382 | 2.367 | 0.015 | 1.010 | 4081781 | | 4.03(0.00-0.00) | 6285 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.382 | 2.395 | -0.013 | | 7334381 | 28.7 | | 11401 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.390 | 2.404 | -0.014 | 1.000 | 5459781 | 29.0 | | 1286 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.519 | 2.530 | -0.011 | 1.000 | 1828420 | 9.80 | | 2430 | |

Reagents:

LC537-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_007.d

Injection Date: 28-Feb-2017 14:59:10

Instrument ID: A8_N

Lims ID: IC L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 5

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

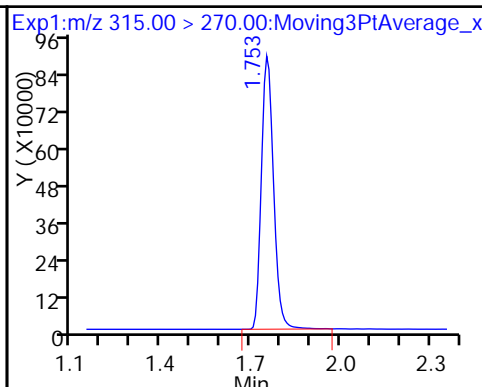
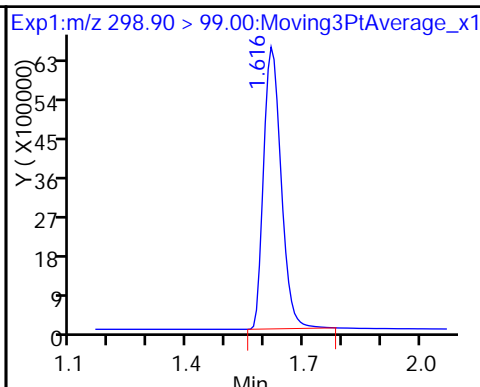
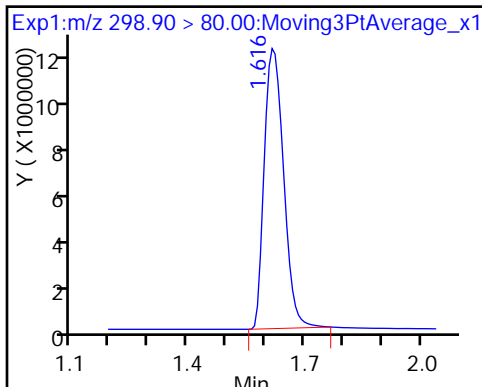
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

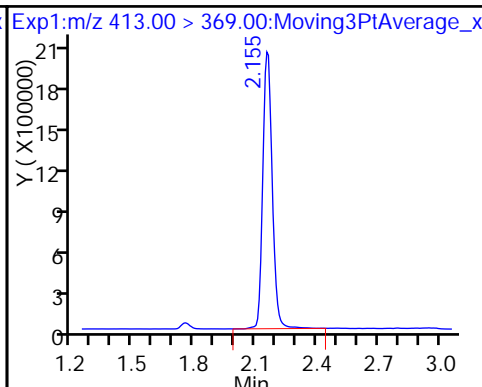
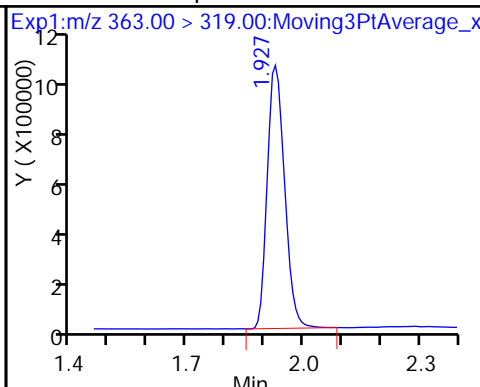
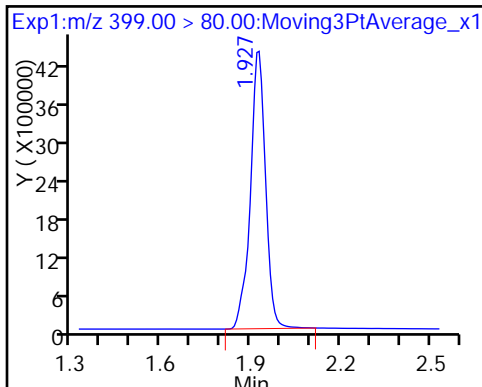
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

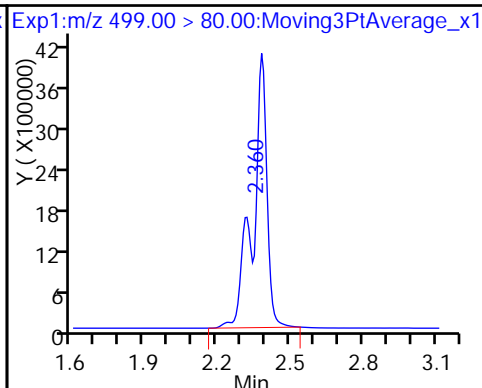
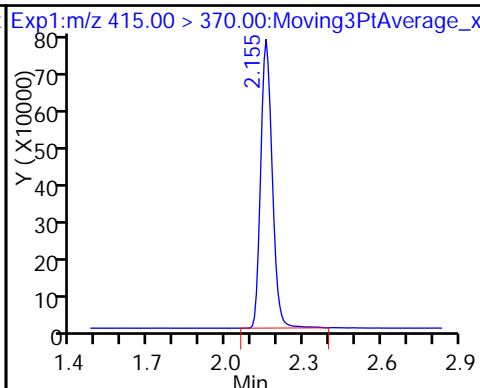
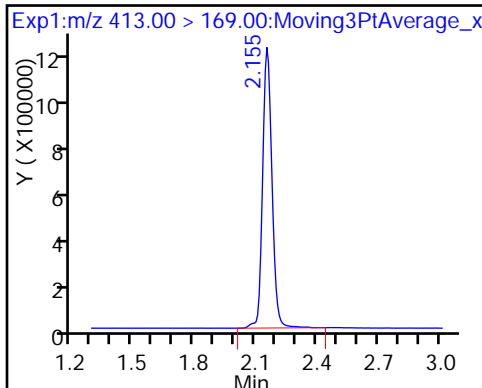
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

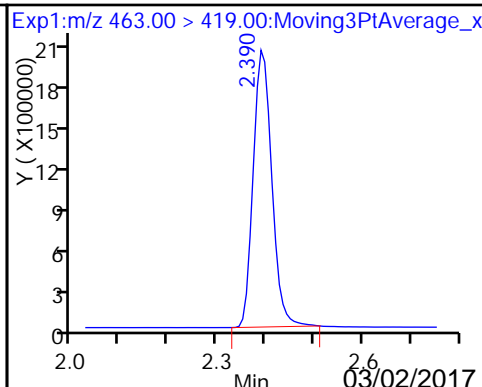
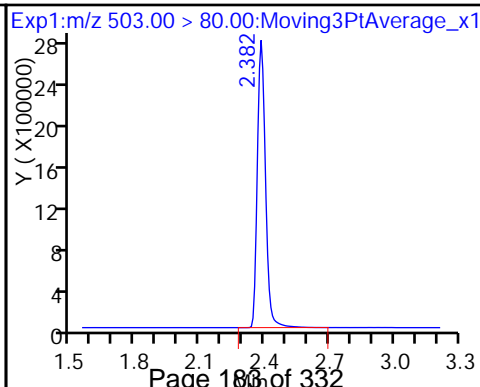
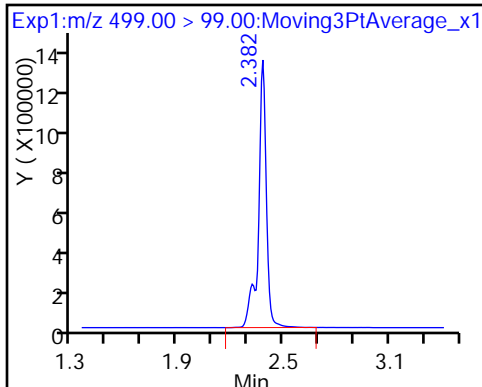
8 Perfluorooctane sulfonic acid



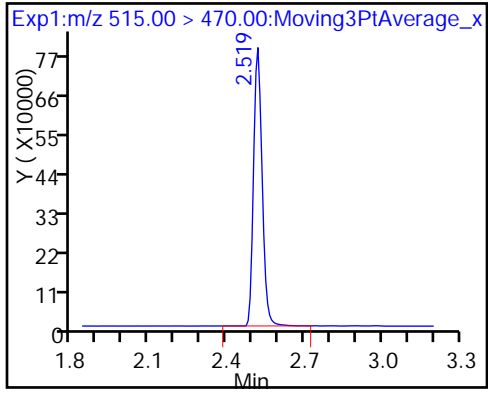
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 28-Feb-2017 15:03:35 ALS Bottle#: 6 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:32 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:32:21

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|-------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.608 | 1.627 | -0.019 | 1.000 | 46149314 | 139.1 | | 1059 | |
| 298.90 > 99.00 | 1.608 | 1.627 | -0.019 | 1.000 | 23950963 | | 1.93(0.00-0.00) | 1374 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.745 | 1.765 | -0.020 | 1.000 | 2301837 | 10.4 | | 3210 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.912 | 1.938 | -0.026 | 1.000 | 18706875 | 61.3 | | 1691 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.912 | 1.940 | -0.028 | 1.000 | 3922787 | 19.8 | | 345 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.140 | 2.172 | -0.032 | 1.000 | 8370583 | 40.4 | | 588 | |
| 413.00 > 169.00 | 2.140 | 2.172 | -0.032 | 1.000 | 4906844 | | 1.71(0.00-0.00) | 3727 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.140 | 2.172 | -0.032 | | 2159820 | 10.0 | | 3488 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.367 | 2.367 | 0.0 | 1.000 | 20073777 | 82.8 | | 6949 | |
| 499.00 > 99.00 | 2.367 | 2.367 | 0.0 | 1.000 | 4957749 | | 4.05(0.00-0.00) | 5916 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.367 | 2.395 | -0.028 | | 6379570 | 28.7 | | 10470 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.375 | 2.404 | -0.029 | 1.000 | 6664465 | 40.4 | | 1489 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.504 | 2.530 | -0.026 | 1.000 | 1699216 | 10.4 | | 2183 | |

Reagents:

LC537-L6_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d

Injection Date: 28-Feb-2017 15:03:35

Instrument ID: A8_N

Lims ID: IC L6

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 6

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

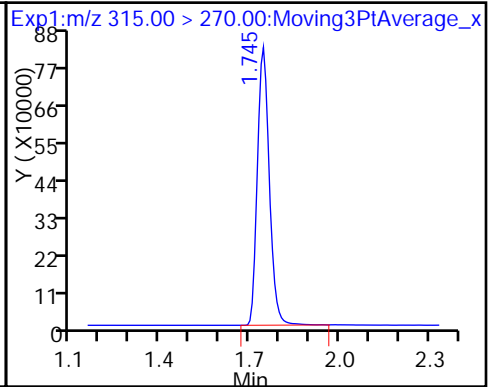
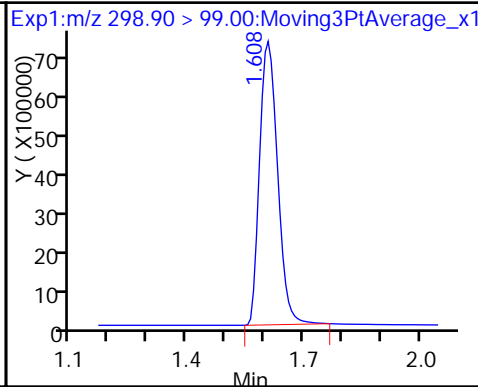
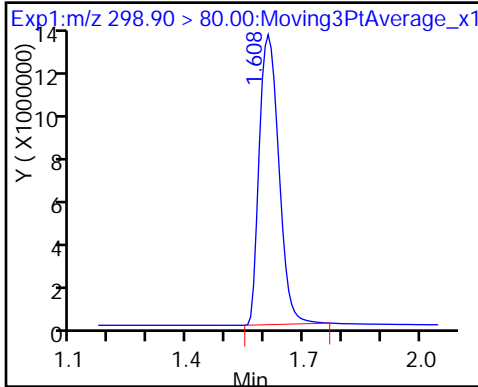
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

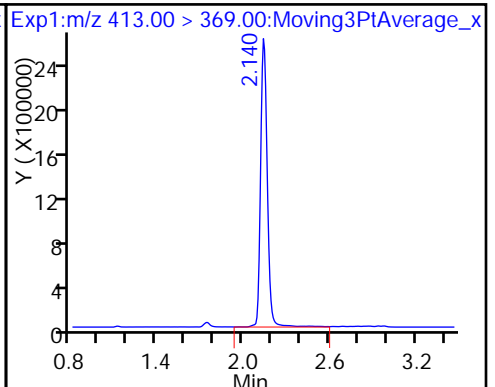
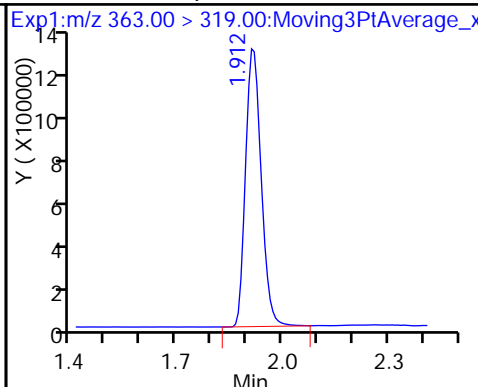
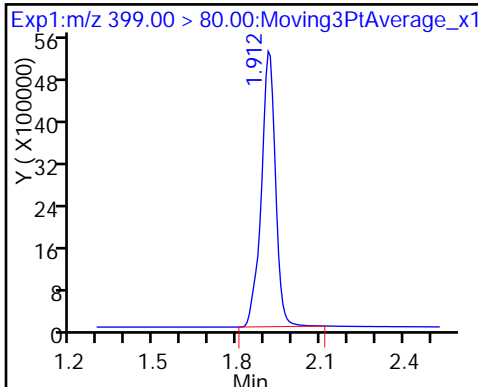
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

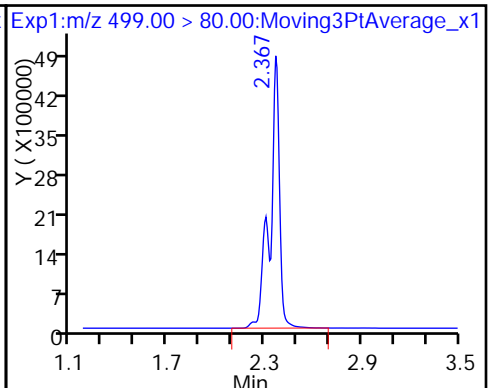
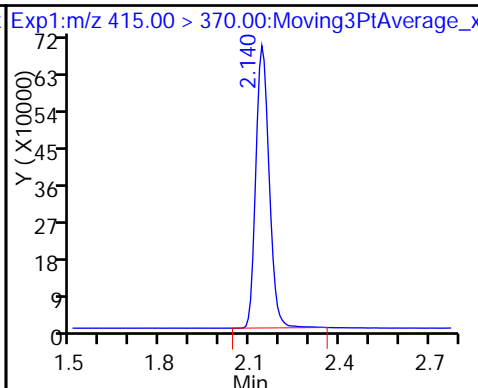
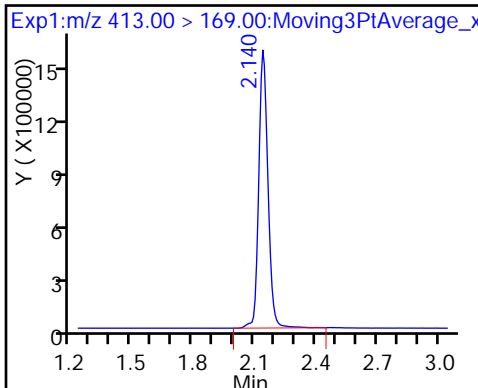
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

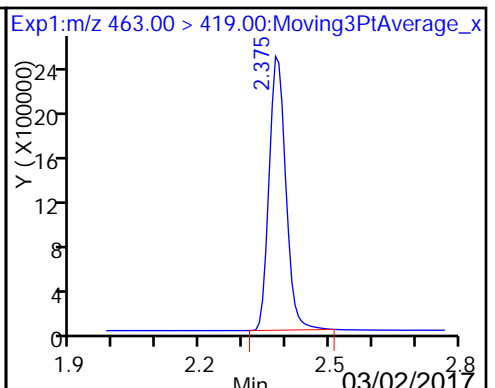
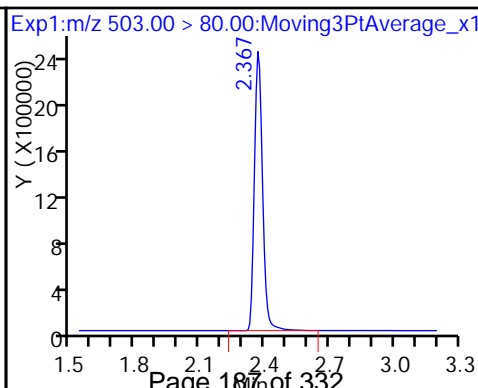
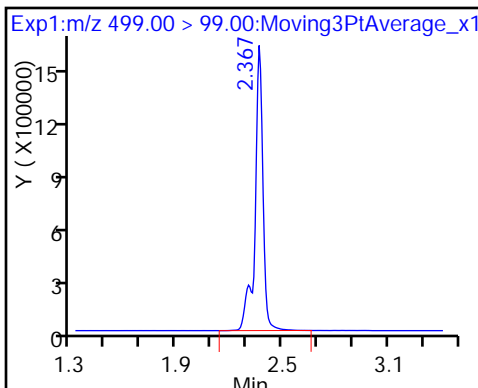
8 Perfluorooctane sulfonic acid



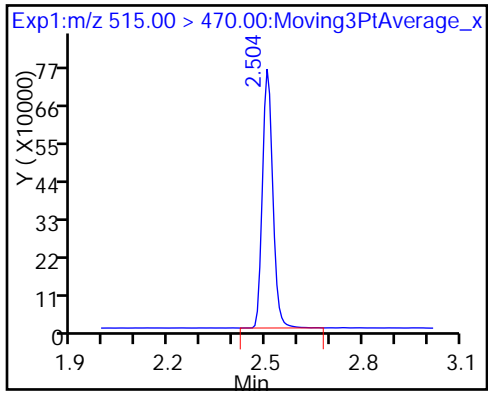
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1 Analy Batch No.: 152685

SDG No.: _____

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

Calibration Start Date: 03/01/2017 12:47 Calibration End Date: 03/01/2017 13:09 Calibration ID: 28657

Calibration Files:

| LEVEL: | LAB SAMPLE ID: | LAB FILE ID: |
|---------|-----------------|---------------------------|
| Level 1 | IC 320-152685/3 | 2017.03.01_537CURVE_003.d |
| Level 2 | IC 320-152685/4 | 2017.03.01_537CURVE_004.d |
| Level 3 | IC 320-152685/5 | 2017.03.01_537CURVE_005.d |
| Level 4 | IC 320-152685/6 | 2017.03.01_537CURVE_006.d |
| Level 5 | IC 320-152685/7 | 2017.03.01_537CURVE_007.d |
| Level 6 | IC 320-152685/8 | 2017.03.01_537CURVE_008.d |

| ANALYTE | RRF | | | | | CURVE TYPE | COEFFICIENT | | | # | MIN RRF | %RSD | # | MAX %RSD | R ² OR COD | # | MIN R ² OR COD |
|-------------------------------------|------------------|--------|--------|--------|--------|------------|-------------|--------|----|---|---------|------|------|----------|-----------------------|---|---------------------------|
| | LVL 1 LVL 6 | LVL 2 | LVL 3 | LVL 4 | LVL 5 | | B | M1 | M2 | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | 1.8150 ++++ | 2.0711 | 1.7963 | 1.4644 | 1.2469 | Ave | | 1.6787 | | | 19.3 | | 30.0 | | | | |
| Perfluorohexanesulfonic acid | 1.5115 1.5703 | 1.7408 | 1.6556 | 1.6436 | 1.5187 | Ave | | 1.6067 | | | 5.6 | | 30.0 | | | | |
| Perfluoroheptanoic acid | 0.9813 0.9601 | 1.0167 | 0.9643 | 0.9839 | 0.8831 | Ave | | 0.9649 | | | 4.6 | | 30.0 | | | | |
| Perfluorooctanoic acid (PFOA) | 0.9184 1.0277 | 0.9997 | 0.9379 | 0.9733 | 0.9076 | Ave | | 0.9608 | | | 4.9 | | 30.0 | | | | |
| Perfluorooctanesulfonic acid (PFOS) | 1.0311 1.1173 | 1.1404 | 1.1066 | 1.0945 | 1.0823 | Ave | | 1.0953 | | | 3.4 | | 30.0 | | | | |
| Perfluorononanoic acid | 0.7547 0.7421 | 0.7971 | 0.7596 | 0.7231 | 0.6859 | Ave | | 0.7437 | | | 5.0 | | 30.0 | | | | |
| 13C2 PFHxA | 0.9767 1.1040 | 1.0601 | 1.0503 | 1.1218 | 1.0690 | Ave | | 1.0636 | | | 4.8 | | 30.0 | | | | |
| 13C2 PFDA | 0.6546 0.7039 | 0.6617 | 0.6840 | 0.6701 | 0.6879 | Ave | | 0.6770 | | | 2.7 | | 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.: 320-26004-1 Analy Batch No.: 152685

SDG No.: _____

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

Calibration Start Date: 03/01/2017 12:47 Calibration End Date: 03/01/2017 13:09 Calibration ID: 28657

Calibration Files:

| LEVEL: | LAB SAMPLE ID: | LAB FILE ID: |
|---------|-----------------|---------------------------|
| Level 1 | IC 320-152685/3 | 2017.03.01_537CURVE_003.d |
| Level 2 | IC 320-152685/4 | 2017.03.01_537CURVE_004.d |
| Level 3 | IC 320-152685/5 | 2017.03.01_537CURVE_005.d |
| Level 4 | IC 320-152685/6 | 2017.03.01_537CURVE_006.d |
| Level 5 | IC 320-152685/7 | 2017.03.01_537CURVE_007.d |
| Level 6 | IC 320-152685/8 | 2017.03.01_537CURVE_008.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 | 3580505 +++++ | 11774738 | 19317093 | 37194083 | 43094748 | 8.98 +++++ | 22.9 | 45.1 | 90.9 | 135 |
| Perfluorohexanesulfonic acid | PFOS | Ave | 1005127 20803890 | 3336164 | 6002006 | 14073046 | 17694096 | 3.03 60.1 | 7.72 | 15.2 | 30.6 | 45.4 |
| Perfluoroheptanoic acid | 13PF OA | Ave | 221357 4287034 | 678626 | 1198441 | 2890123 | 3463661 | 0.990 19.7 | 2.52 | 4.97 | 10.0 | 14.9 |
| Perfluorooctanoic acid (PFOA) | 13PF OA | Ave | 408440 9047508 | 1315567 | 2298204 | 5636860 | 7018498 | 1.95 38.8 | 4.98 | 9.81 | 19.8 | 29.3 |
| Perfluorooctanesulfonic acid (PFOS) | PFOS | Ave | 907916 19599899 | 2893911 | 5311866 | 12408555 | 16698175 | 4.01 79.6 | 10.2 | 20.1 | 40.6 | 60.1 |
| Perfluorononanoic acid | 13PF OA | Ave | 356659 6942602 | 1114643 | 1977902 | 4450412 | 5636176 | 2.07 41.2 | 5.29 | 10.4 | 21.0 | 31.1 |
| 13C2 PFHxA | 13PF OA | Ave | 2225554 2505316 | 2802749 | 2623782 | 3287335 | 2823659 | 10.0 10.0 | 10.0 | 10.0 | 10.0 | 10.0 |
| 13C2 PFDA | 13PF OA | Ave | 1491623 1597232 | 1749385 | 1708725 | 1963700 | 1817043 | 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.: 320-26004-1 Analy Batch No.: 152685

SDG No.: _____

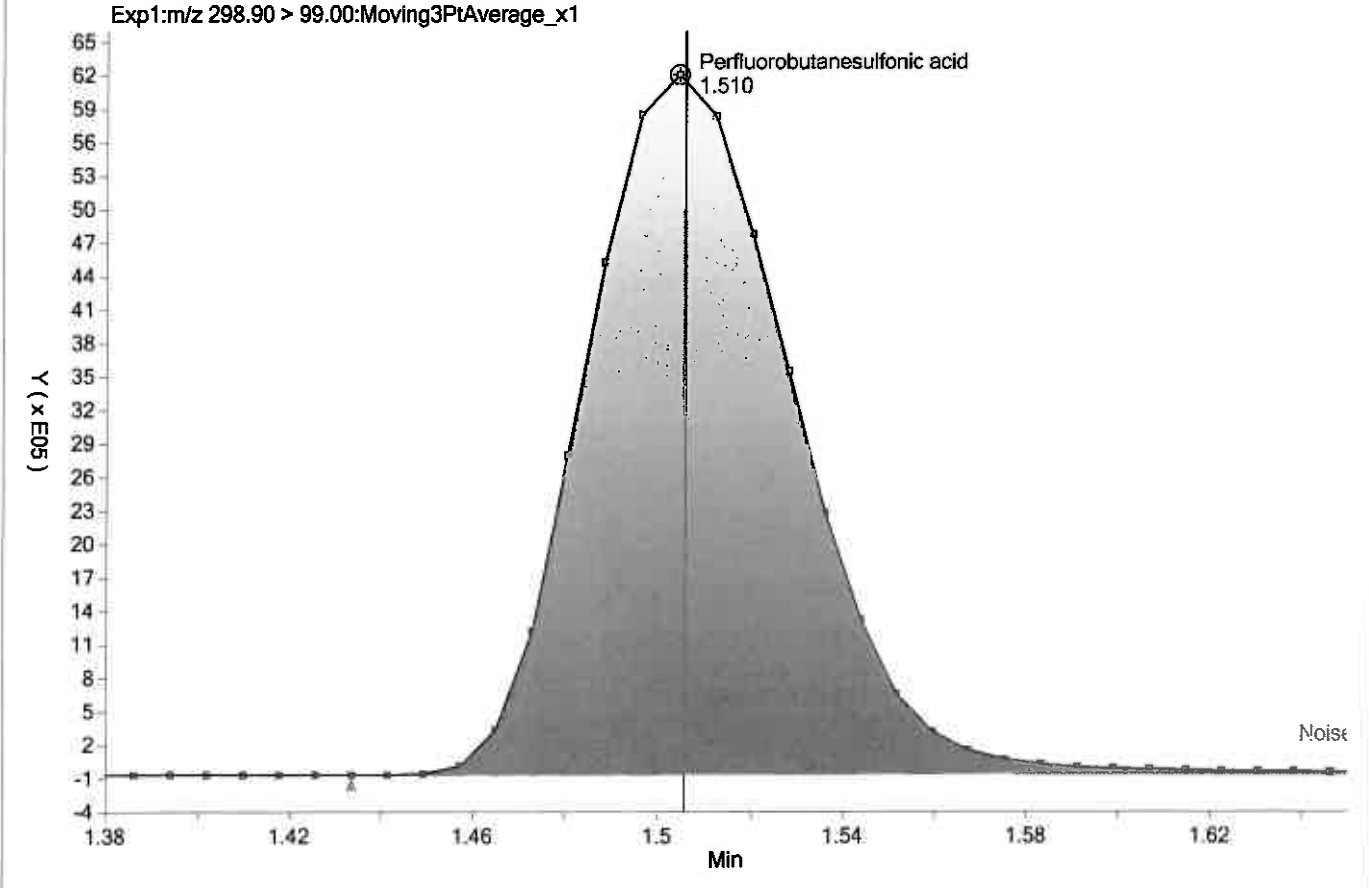
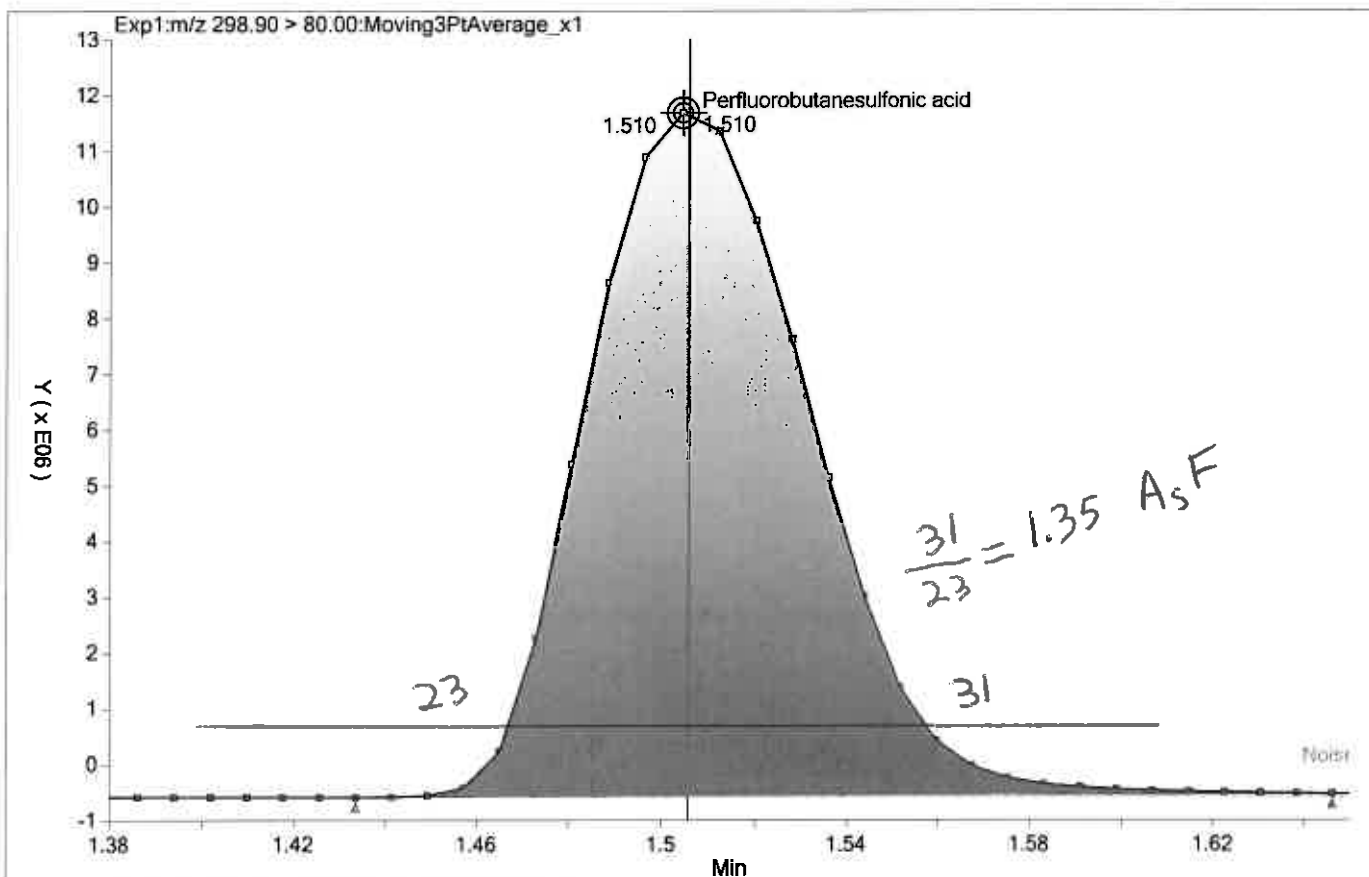
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

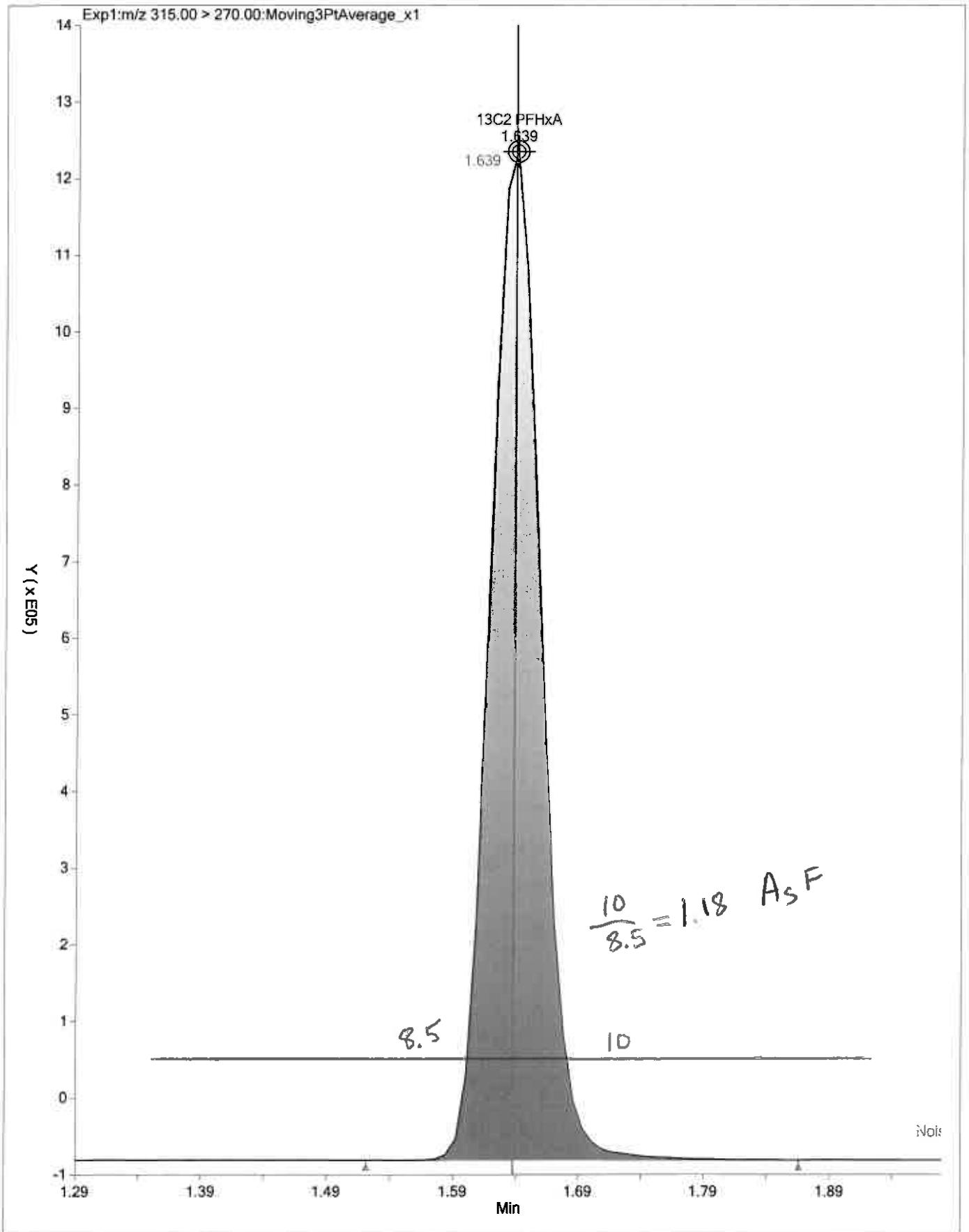
Calibration Start Date: 03/01/2017 12:47 Calibration End Date: 03/01/2017 13:09 Calibration ID: 28657

Calibration Files:

| LEVEL: | LAB SAMPLE ID: | LAB FILE ID: |
|---------|-----------------|---------------------------|
| Level 1 | IC 320-152685/3 | 2017.03.01_537CURVE_003.d |
| Level 2 | IC 320-152685/4 | 2017.03.01_537CURVE_004.d |
| Level 3 | IC 320-152685/5 | 2017.03.01_537CURVE_005.d |
| Level 4 | IC 320-152685/6 | 2017.03.01_537CURVE_006.d |
| Level 5 | IC 320-152685/7 | 2017.03.01_537CURVE_007.d |
| Level 6 | IC 320-152685/8 | 2017.03.01_537CURVE_008.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) | 8.1 | 23.4 | 7.0 | -12.8 | -25.7 | +++++ | 50 | 50 | 50 | 50 | 50 | |
| Perfluorohexanesulfonic acid | -5.9 | 8.3 | 3.0 | 2.3 | -5.5 | -2.3 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluoroheptanoic acid | 1.7 | 5.4 | -0.1 | 2.0 | -8.5 | -0.5 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluorooctanoic acid (PFOA) | -4.4 | 4.1 | -2.4 | 1.3 | -5.5 | 7.0 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluorooctanesulfonic acid (PFOS) | -5.9 | 4.1 | 1.0 | -0.1 | -1.2 | 2.0 | 50 | 50 | 50 | 50 | 50 | 50 |
| Perfluorononanoic acid | 1.5 | 7.2 | 2.1 | -2.8 | -7.8 | -0.2 | 50 | 50 | 50 | 50 | 50 | 50 |
| 13C2 PFHxA | -8.2 | -0.3 | -1.3 | 5.5 | 0.5 | 3.8 | 30 | 30 | 30 | 30 | 30 | 30 |
| 13C2 PFDA | -3.3 | -2.3 | 1.0 | -1.0 | 1.6 | 4.0 | 30 | 30 | 30 | 30 | 30 | 30 |





TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_003.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 01-Mar-2017 12:47:29 ALS Bottle#: 1 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:24 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:09:21

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.510 | 1.511 | -0.001 | 1.000 | 3580505 | 9.70 | | 436 | |
| 298.90 > 99.00 | 1.510 | 1.511 | -0.001 | 1.000 | 1511271 | | 2.37(0.00-0.00) | 446 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2225554 | 9.18 | | 5875 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.791 | 1.789 | 0.002 | 1.000 | 1005127 | 2.85 | | 268 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.791 | 1.791 | 0.0 | 1.000 | 221357 | 1.01 | | 22.6 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2278571 | 10.0 | | 4847 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.003 | 1.994 | 0.009 | 1.000 | 408440 | 1.87 | | 31.1 | |
| 413.00 > 169.00 | 1.995 | 1.994 | 0.001 | 0.996 | 247702 | | 1.65(0.00-0.00) | 293 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.246 | 2.162 | 0.084 | 1.000 | 907916 | 3.77 | | 459 | M |
| 499.00 > 99.00 | 2.246 | 2.162 | 0.084 | 1.000 | 220738 | | 4.11(0.00-0.00) | 336 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.246 | 2.241 | 0.005 | | 6303199 | 28.7 | | 7666 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.253 | 2.250 | 0.003 | 1.000 | 356659 | 2.10 | | 87.4 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.397 | 2.392 | 0.005 | 1.000 | 1491623 | 9.67 | | 1847 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_003.d

Injection Date: 01-Mar-2017 12:47:29

Instrument ID: A8_N

Lims ID: IC L1

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 1

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

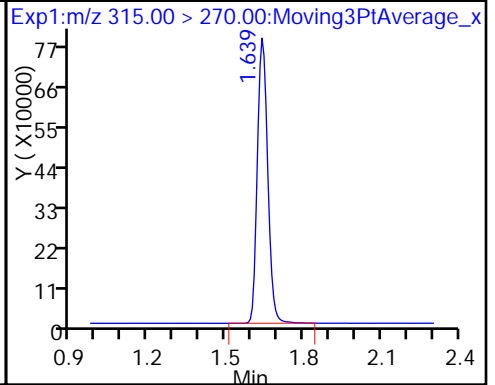
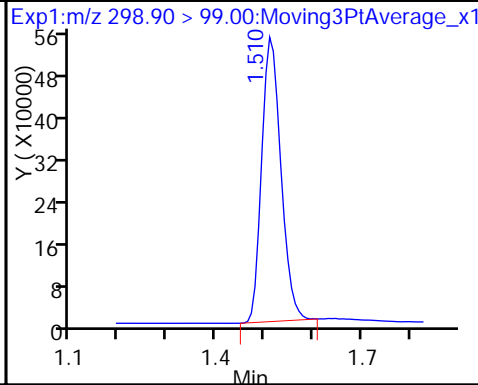
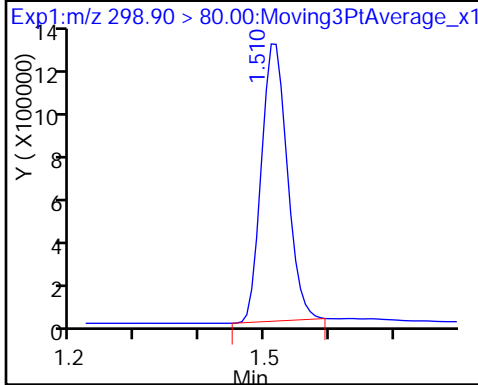
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

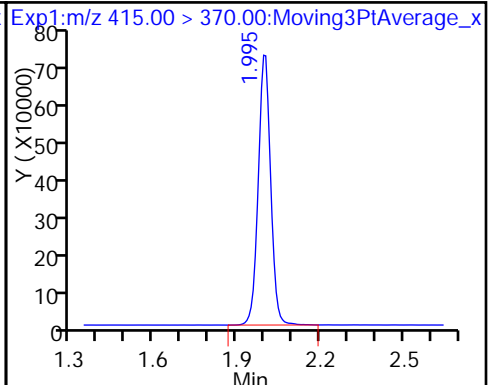
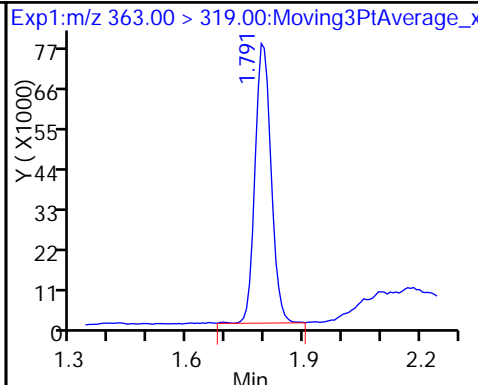
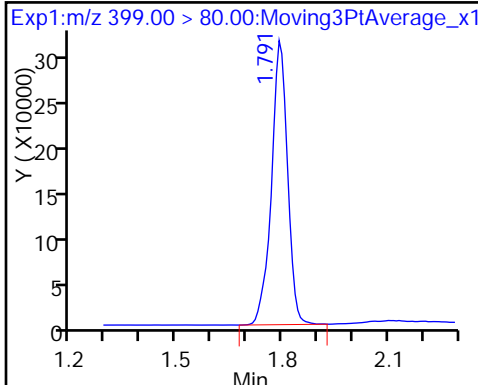
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

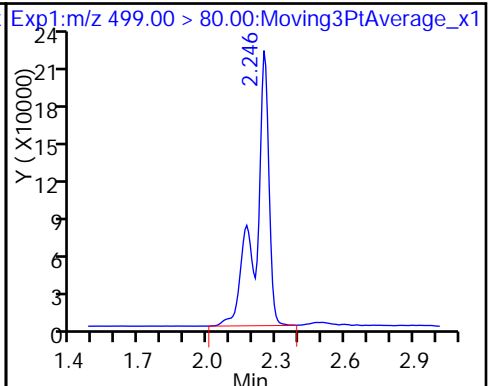
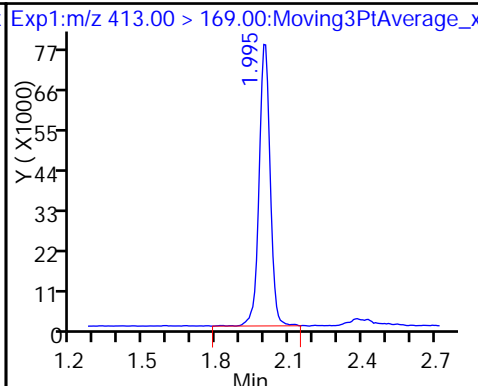
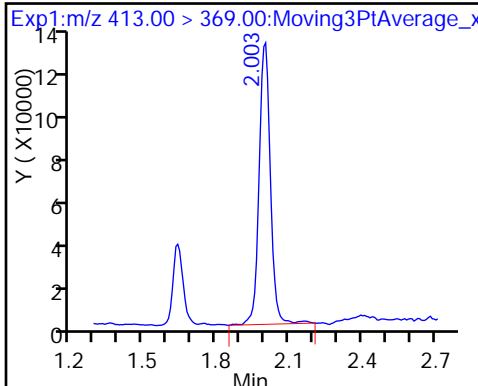
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

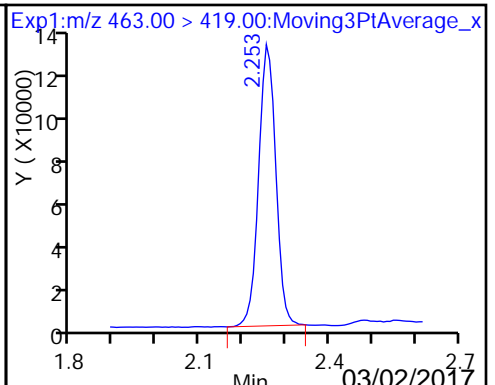
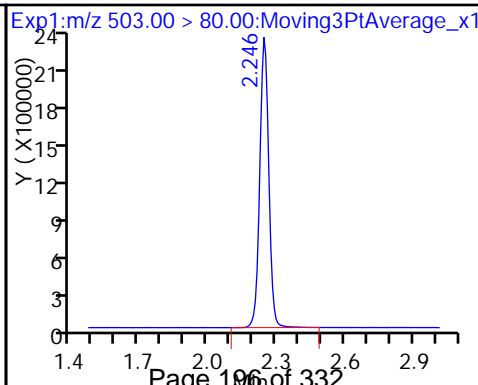
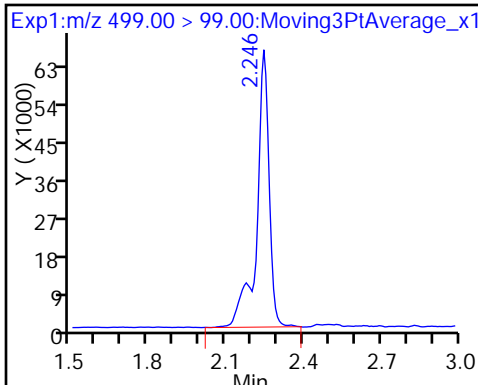
8 Perfluorooctane sulfonic acid (M)



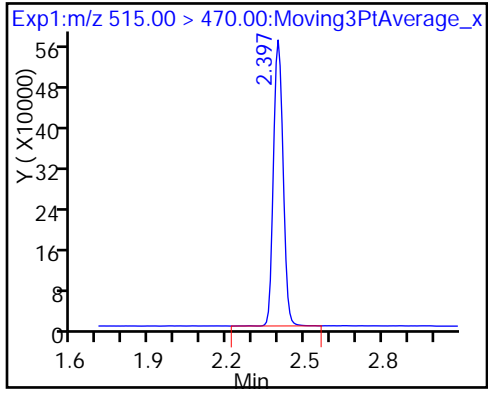
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

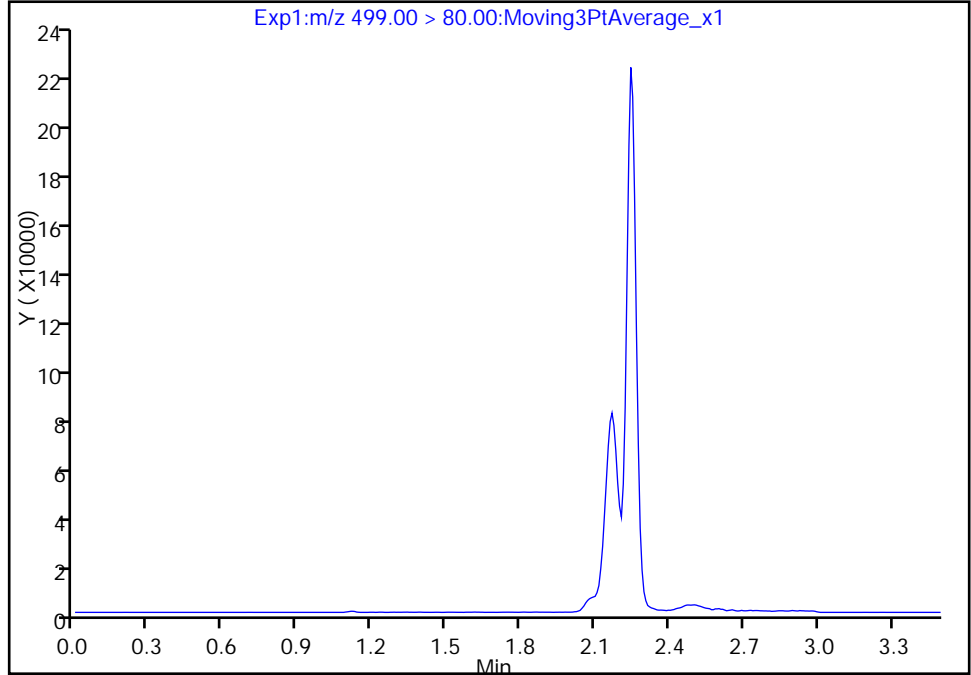
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Injection Date: 01-Mar-2017 12:47:29 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

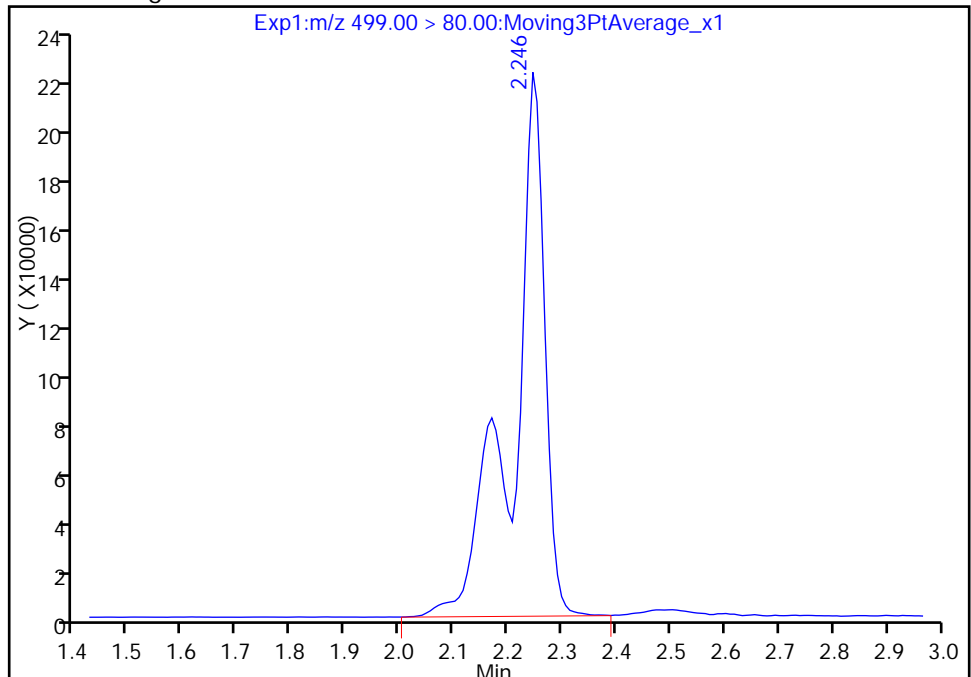
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 907916
Amount: 3.771489
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:24
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

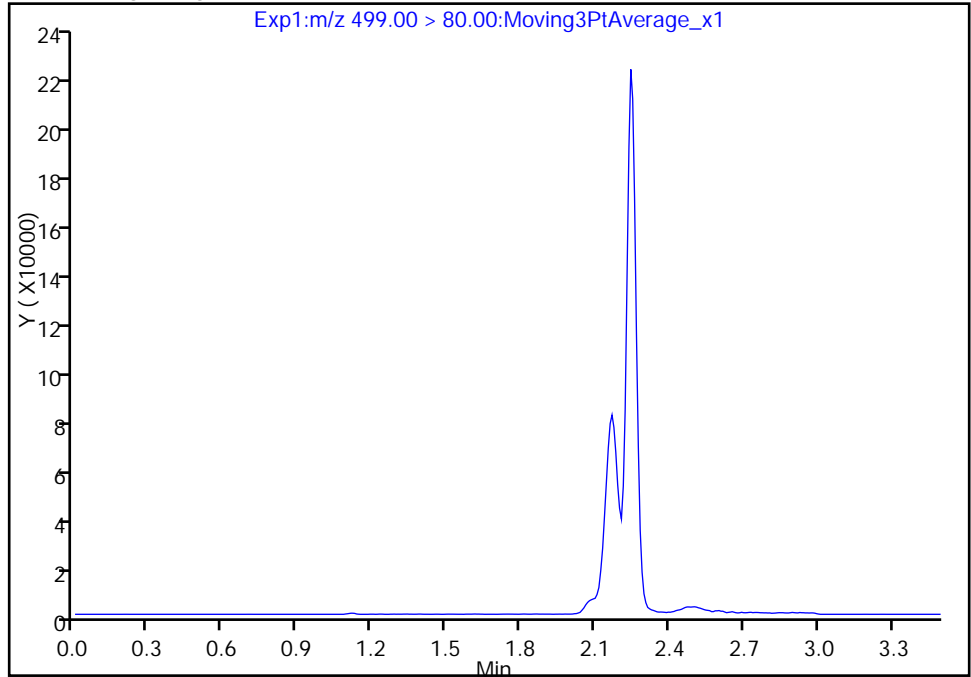
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Injection Date: 01-Mar-2017 12:47:29 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 1 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

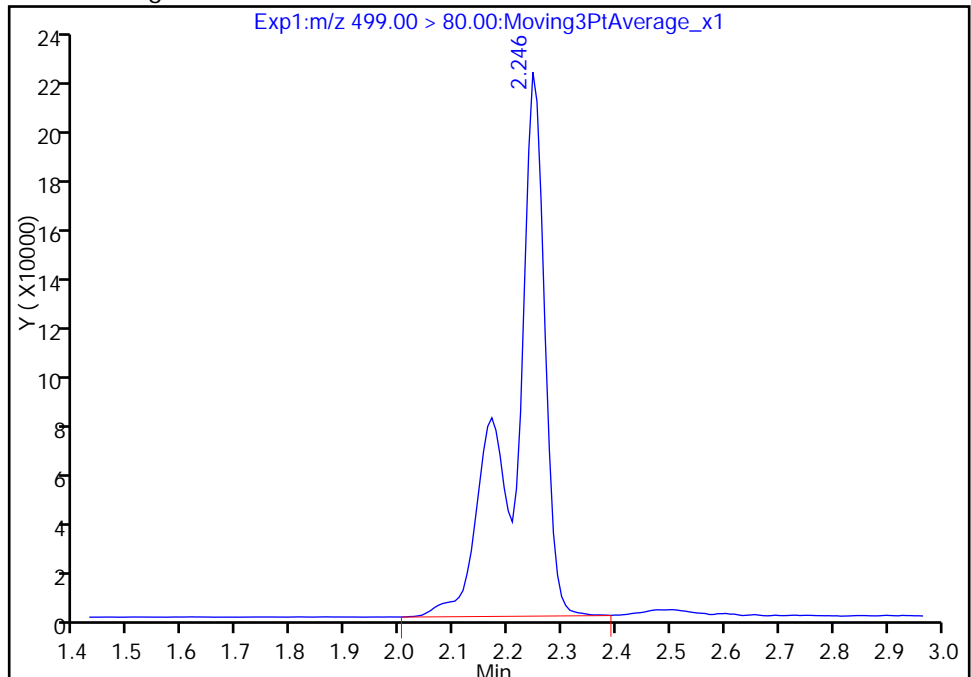
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 907916
Amount: 3.771489
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:24

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_004.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 01-Mar-2017 12:51:52 ALS Bottle#: 2 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:25 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:09:53

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.517 | 1.511 | 0.006 | 1.000 | 11774738 | 28.2 | | 1227 | |
| 298.90 > 99.00 | 1.517 | 1.511 | 0.006 | 1.000 | 5074215 | | 2.32(0.00-0.00) | 1356 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2802749 | 9.97 | | 6986 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.798 | 1.789 | 0.009 | 1.000 | 3336164 | 8.36 | | 809 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.798 | 1.791 | 0.007 | 1.000 | 678626 | 2.66 | | 70.1 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2643958 | 10.0 | | 5405 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.995 | 1.994 | 0.001 | 1.000 | 1315567 | 5.18 | | 99.4 | |
| 413.00 > 169.00 | 1.995 | 1.994 | 0.001 | 1.000 | 778318 | | 1.69(0.00-0.00) | 864 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.246 | 2.162 | 0.084 | 1.000 | 2893911 | 10.6 | | 1112 | M |
| 499.00 > 99.00 | 2.246 | 2.162 | 0.084 | 1.000 | 706475 | | 4.10(0.00-0.00) | 927 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.246 | 2.241 | 0.005 | | 7123582 | 28.7 | | 7264 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.253 | 2.250 | 0.003 | 1.000 | 1114643 | 5.67 | | 233 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.397 | 2.392 | 0.005 | 1.000 | 1749385 | 9.77 | | 2146 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_004.d

Injection Date: 01-Mar-2017 12:51:52

Instrument ID: A8_N

Lims ID: IC L2

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

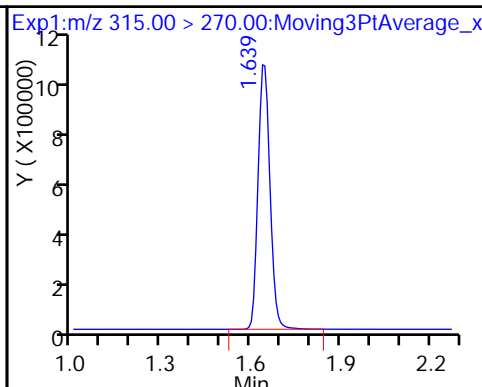
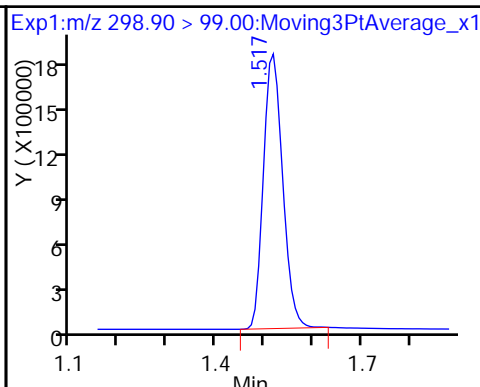
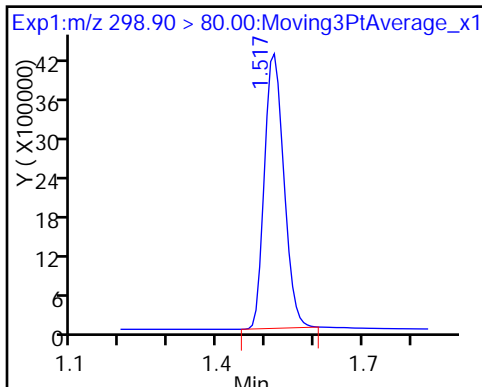
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

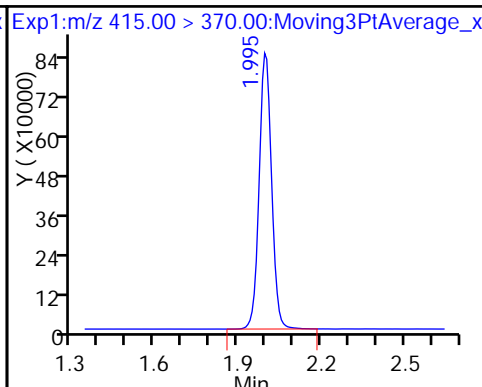
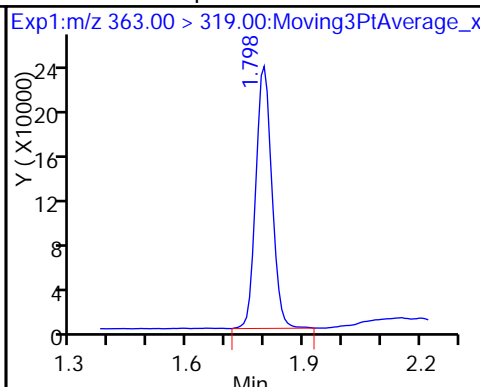
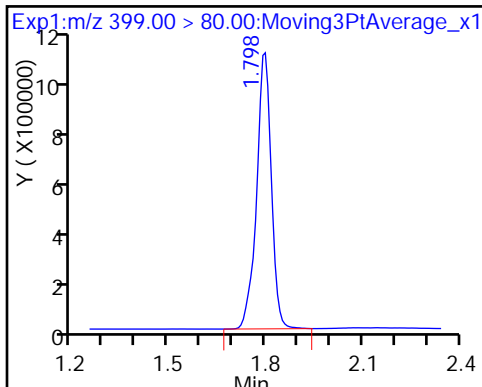
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

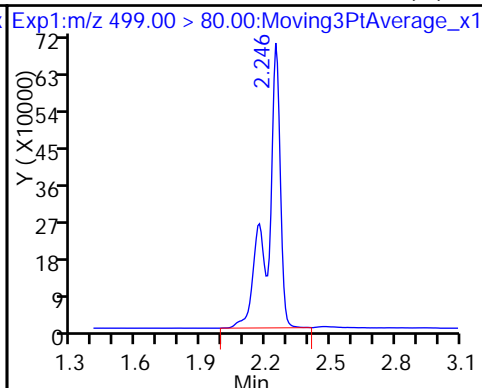
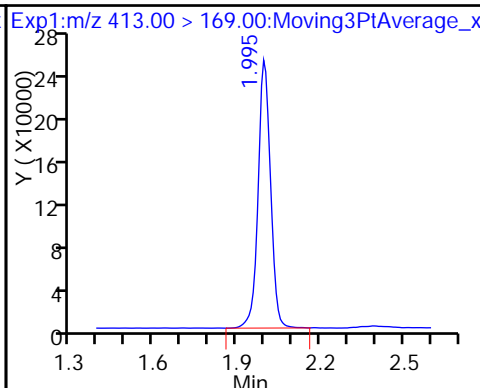
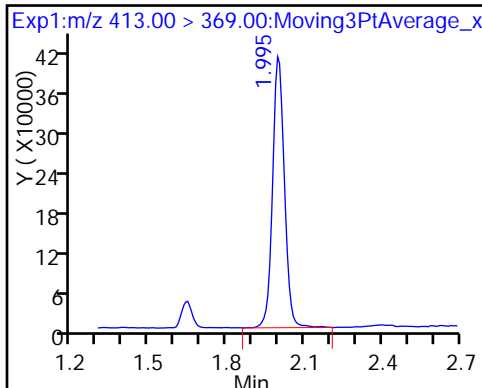
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

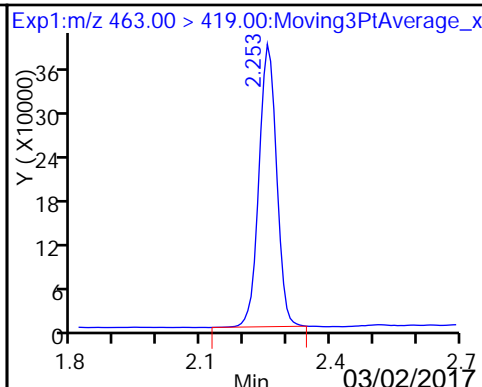
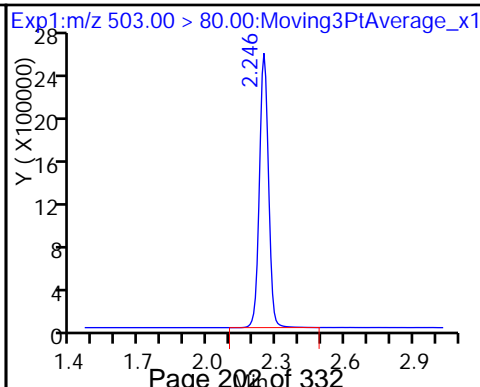
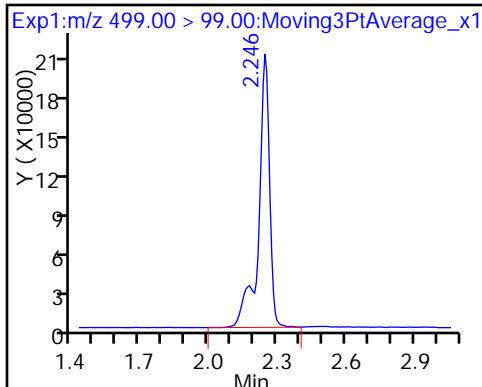
8 Perfluorooctane sulfonic acid (M)



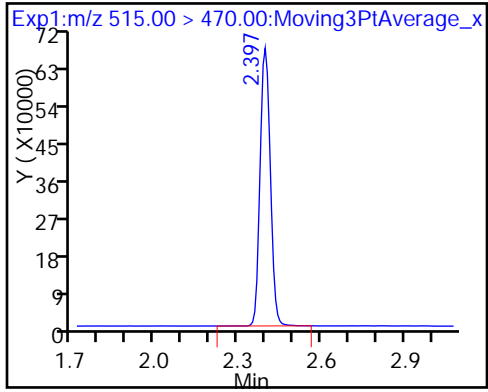
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

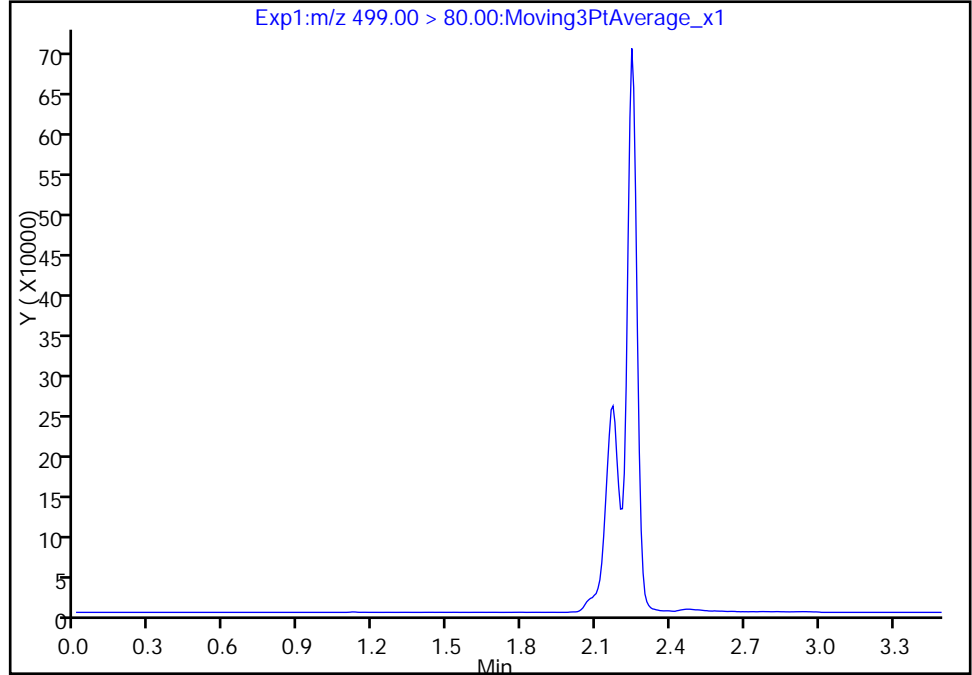
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_004.d
Injection Date: 01-Mar-2017 12:51:52 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

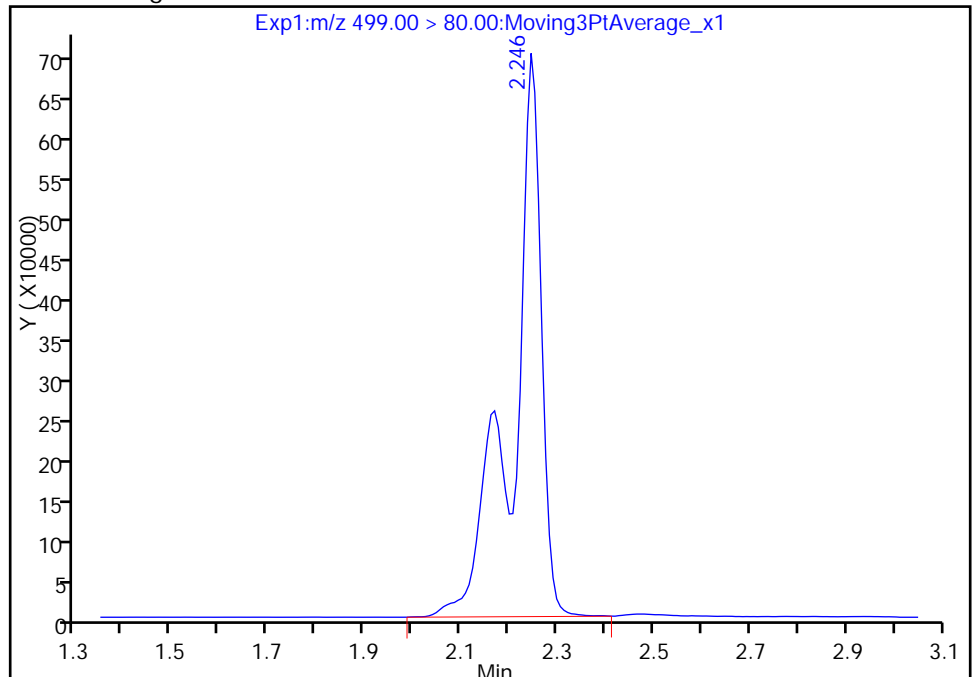
Not Detected
Expected RT: 2.16

Processing Integration Results



RT: 2.25
Area: 2893911
Amount: 10.636896
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 01-Mar-2017 14:25:25
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

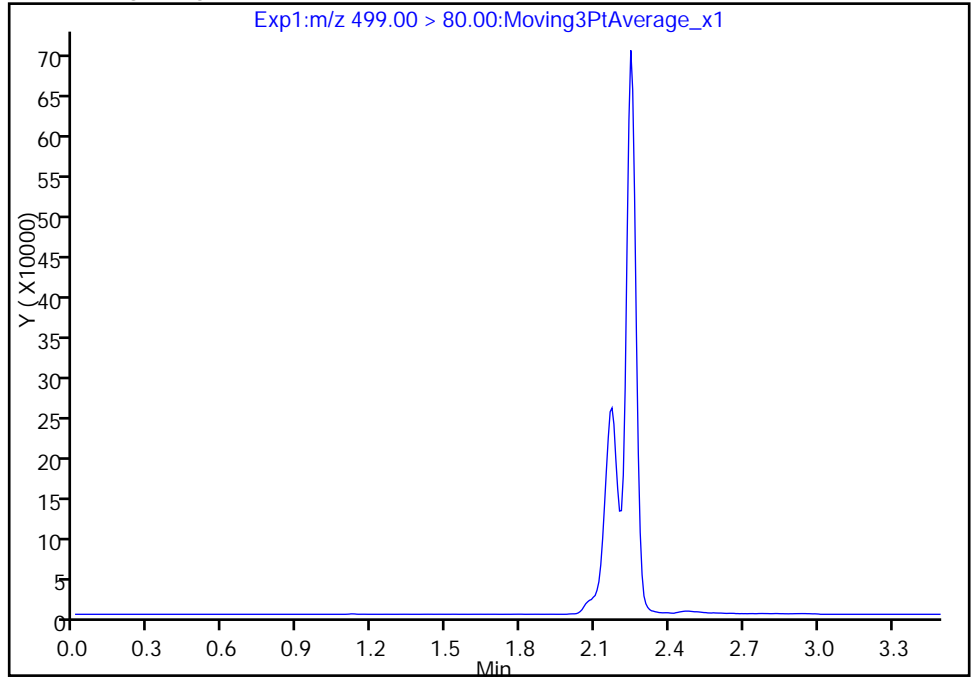
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Injection Date: 01-Mar-2017 12:51:52 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 2 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

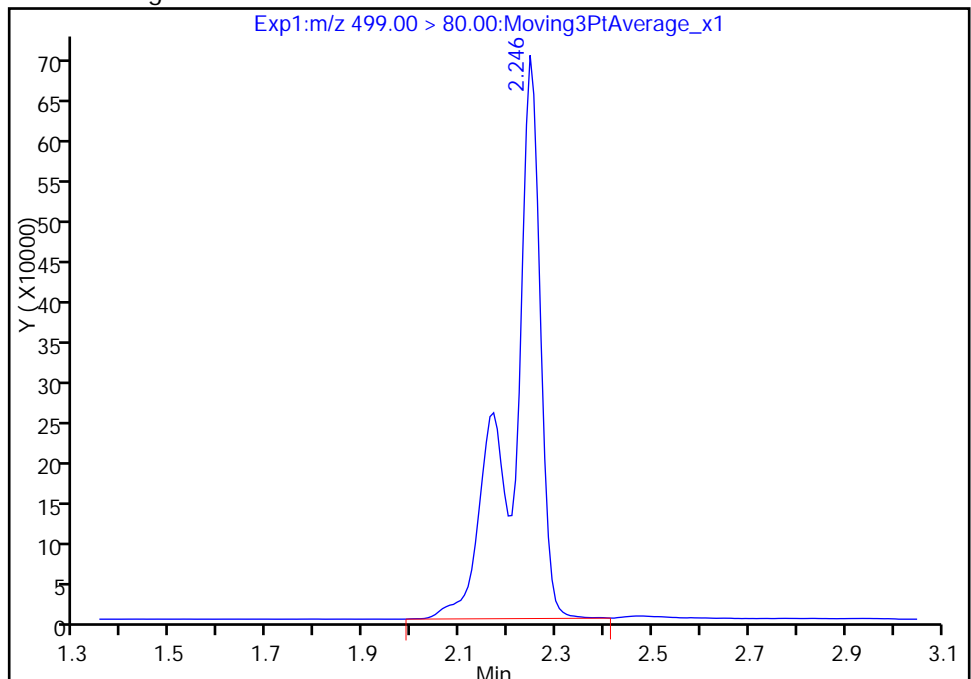
Not Detected
Expected RT: 2.16

Processing Integration Results



RT: 2.25
Area: 2893911
Amount: 10.636896
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 01-Mar-2017 14:25:25

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_005.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 01-Mar-2017 12:56:16 ALS Bottle#: 3 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:26 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:10:22

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.510 | 1.511 | -0.001 | 1.000 | 19317093 | 48.3 | | 1241 | |
| 298.90 > 99.00 | 1.510 | 1.511 | -0.001 | 1.000 | 8490983 | | 2.28(0.00-0.00) | 1369 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2623782 | 9.87 | | 5111 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.791 | 1.789 | 0.002 | 1.000 | 6002006 | 15.7 | | 1225 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.791 | 1.791 | 0.0 | 1.000 | 1198441 | 4.97 | | 115 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2498211 | 10.0 | | 4765 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.995 | 1.994 | 0.001 | 1.000 | 2298204 | 9.58 | | 177 | |
| 413.00 > 169.00 | 1.995 | 1.994 | 0.001 | 1.000 | 1310891 | | 1.75(0.00-0.00) | 1165 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.246 | 2.162 | 0.084 | 1.000 | 5311866 | 20.3 | | 1666 | M |
| 499.00 > 99.00 | 2.246 | 2.162 | 0.084 | 1.000 | 1274478 | | 4.17(0.00-0.00) | 1435 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.246 | 2.241 | 0.005 | | 6838052 | 28.7 | | 7299 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.253 | 2.250 | 0.003 | 1.000 | 1977902 | 10.6 | | 456 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.397 | 2.392 | 0.005 | 1.000 | 1708725 | 10.1 | | 1955 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_005.d

Injection Date: 01-Mar-2017 12:56:16

Instrument ID: A8_N

Lims ID: IC L3

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

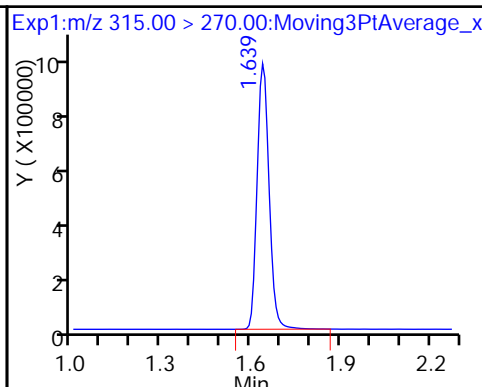
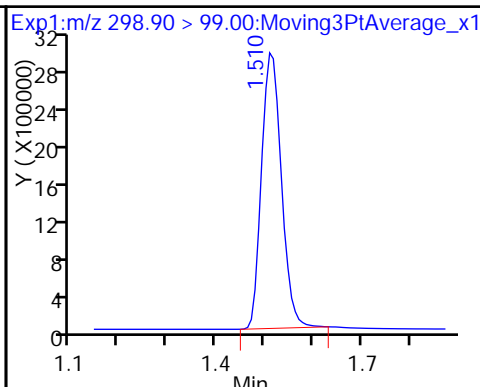
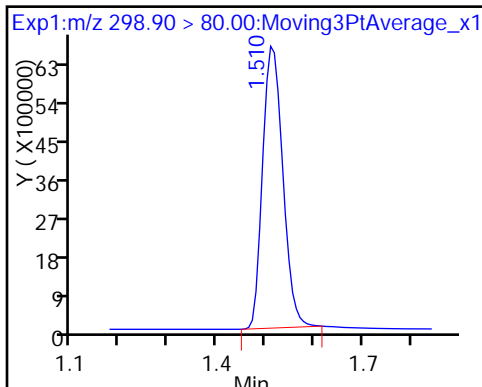
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

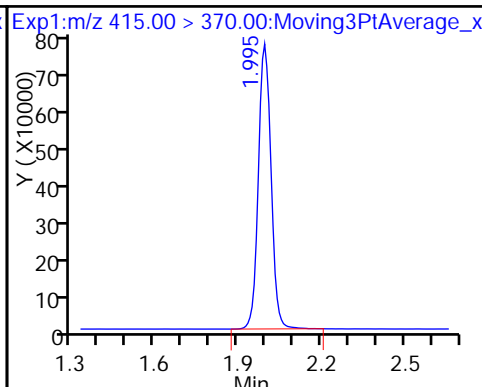
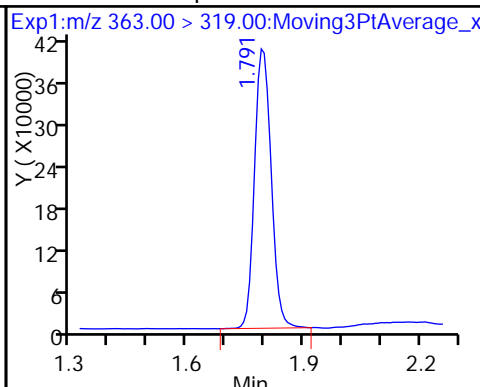
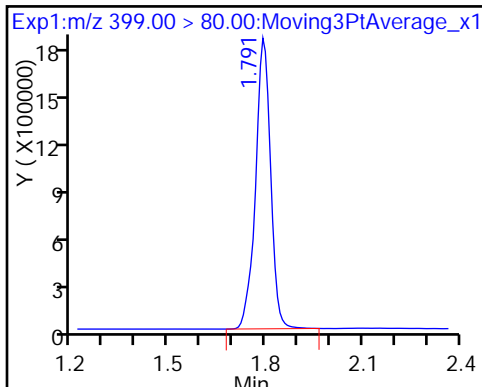
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

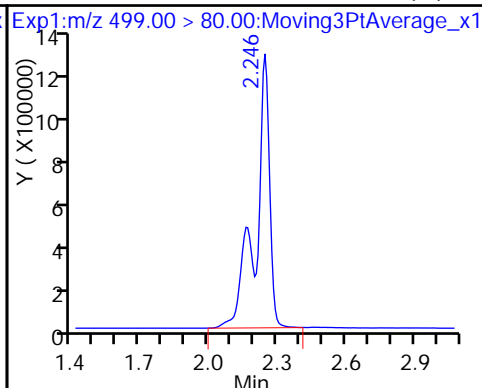
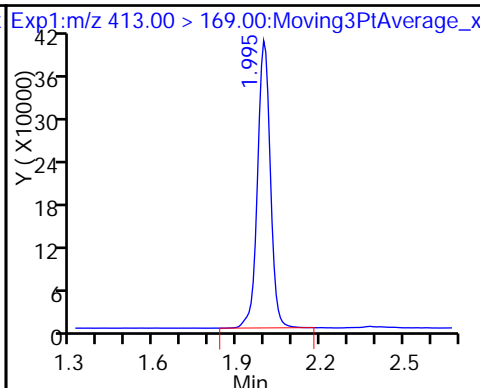
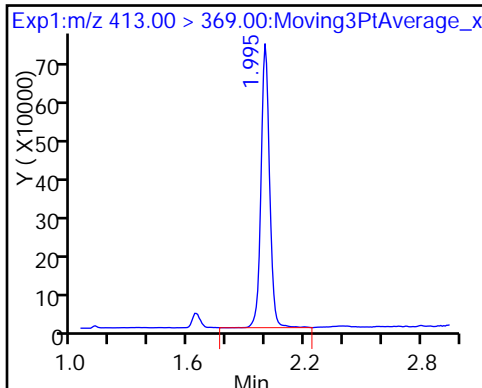
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

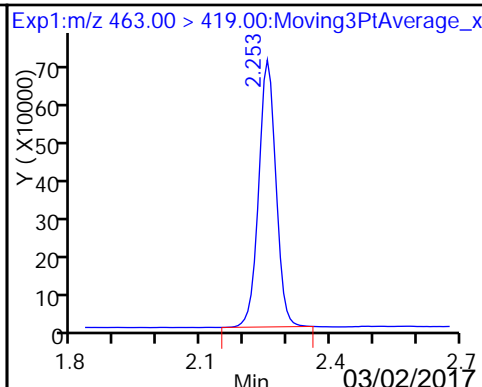
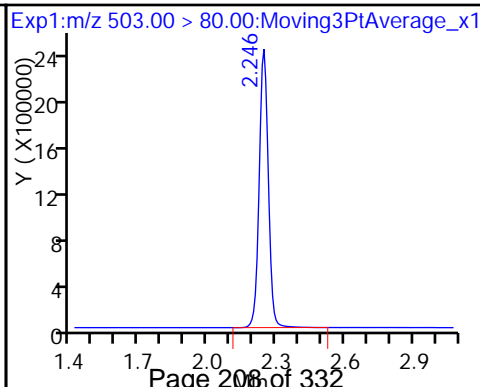
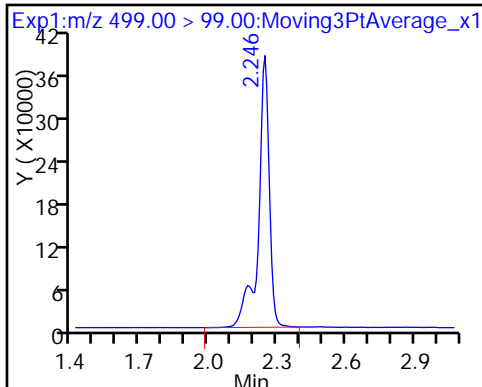
8 Perfluorooctane sulfonic acid (M)



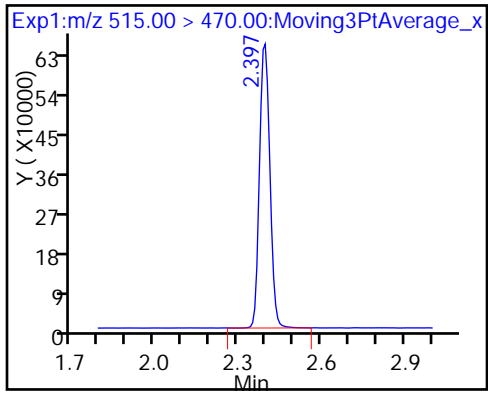
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

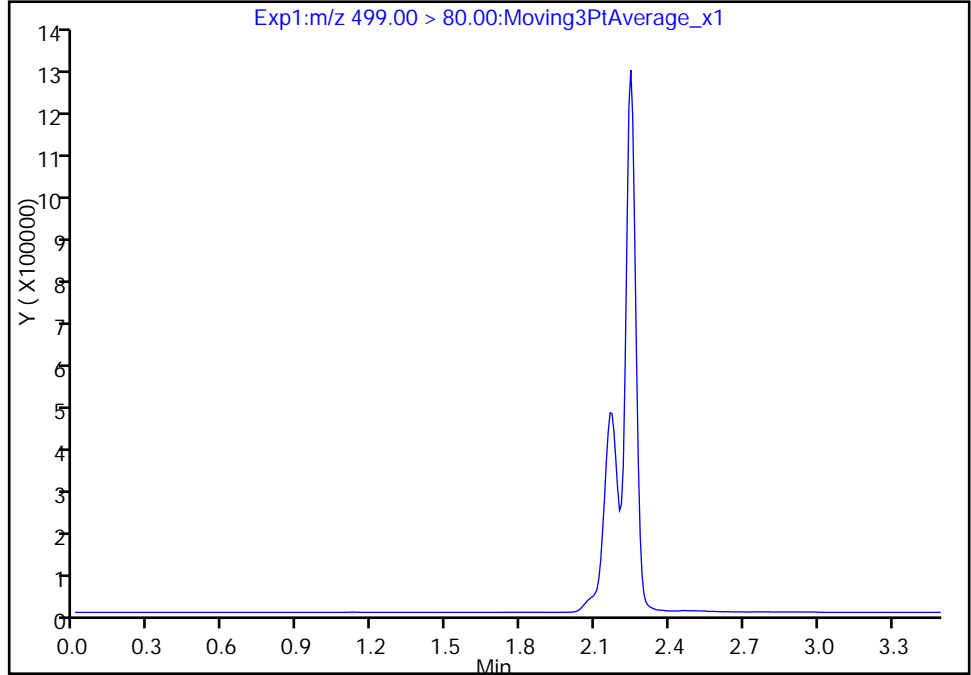
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_005.d
Injection Date: 01-Mar-2017 12:56:16 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

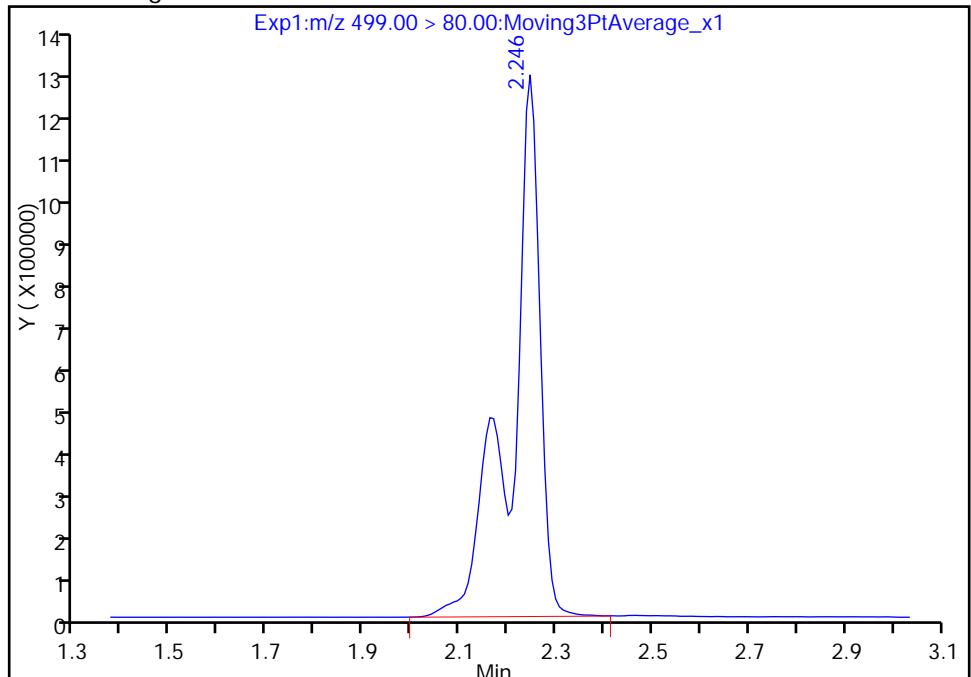
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 5311866
Amount: 20.339623
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:26
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

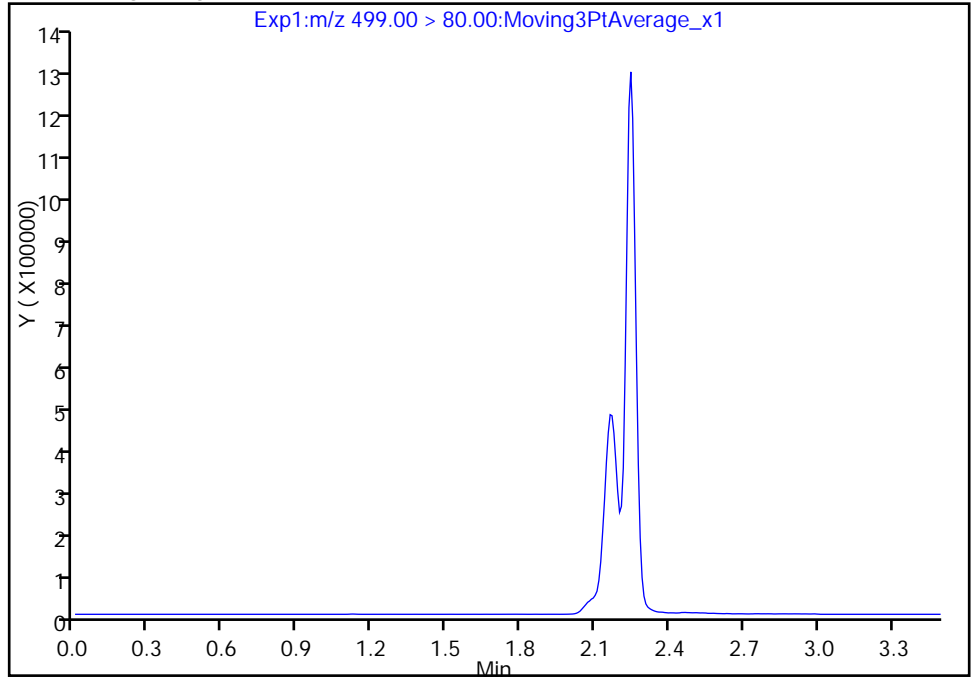
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Injection Date: 01-Mar-2017 12:56:16 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

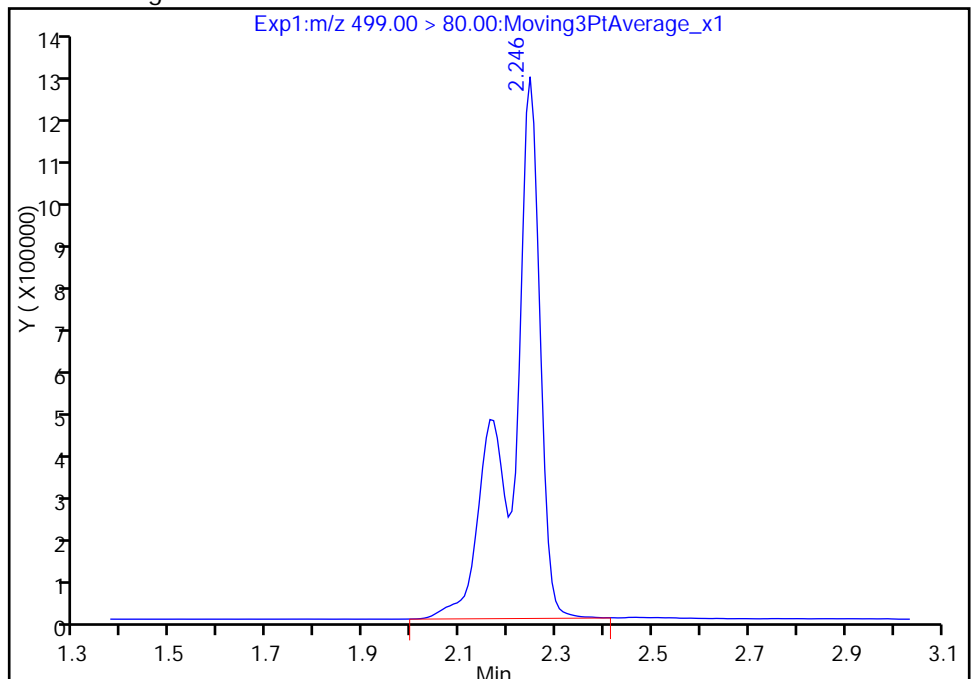
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 5311866
Amount: 20.339623
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:26

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_006.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 01-Mar-2017 13:00:39 ALS Bottle#: 4 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:28 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:10:41

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.510 | 1.511 | -0.001 | 1.000 | 37194083 | 79.3 | | 2239 | |
| 298.90 > 99.00 | 1.510 | 1.511 | -0.001 | 1.000 | 18558535 | | 2.00(0.00-0.00) | 2976 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 3287335 | 10.5 | | 7680 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.783 | 1.789 | -0.006 | 1.000 | 14073046 | 31.3 | | 2399 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.791 | 1.791 | 0.0 | 1.000 | 2890123 | 10.2 | | 262 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.988 | 1.992 | -0.004 | | 2930520 | 10.0 | | 5839 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.988 | 1.994 | -0.006 | 1.000 | 5636860 | 20.0 | | 393 | |
| 413.00 > 169.00 | 1.988 | 1.994 | -0.006 | 1.000 | 3310488 | | 1.70(0.00-0.00) | 2468 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.155 | 2.162 | -0.007 | 1.000 | 12408555 | 40.5 | | 1043 | |
| 499.00 > 99.00 | 2.238 | 2.162 | 0.076 | 1.039 | 3035243 | | 4.09(0.00-0.00) | 2678 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.238 | 2.241 | -0.003 | | 8015298 | 28.7 | | 8449 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.246 | 2.250 | -0.004 | 1.000 | 4450412 | 20.4 | | 973 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.390 | 2.392 | -0.002 | 1.000 | 1963700 | 9.90 | | 2169 | |

Reagents:

LC537-L4_00017

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_006.d

Injection Date: 01-Mar-2017 13:00:39

Instrument ID: A8_N

Lims ID: IC L4

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 4

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

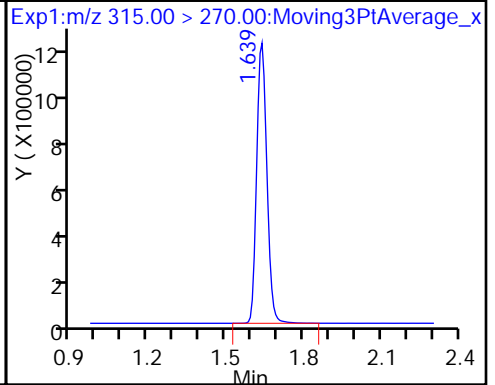
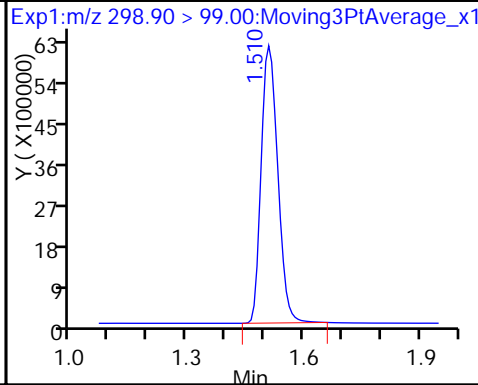
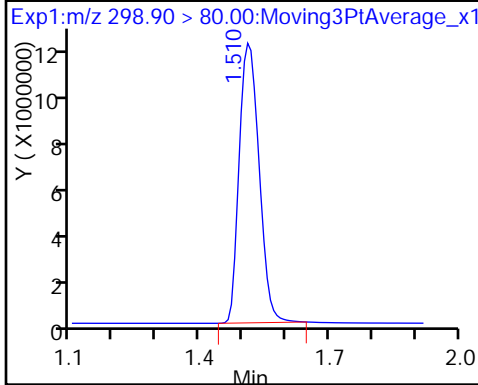
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

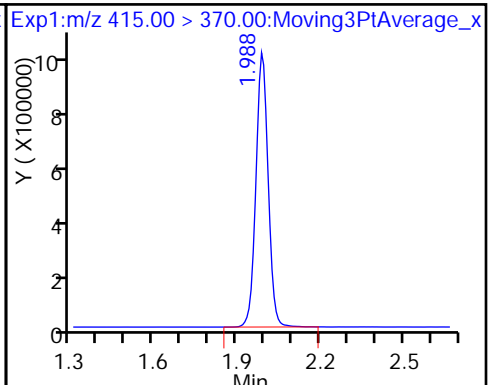
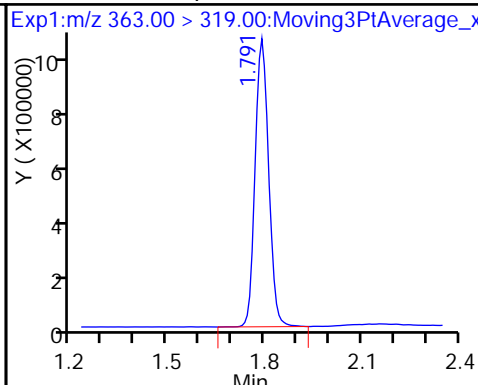
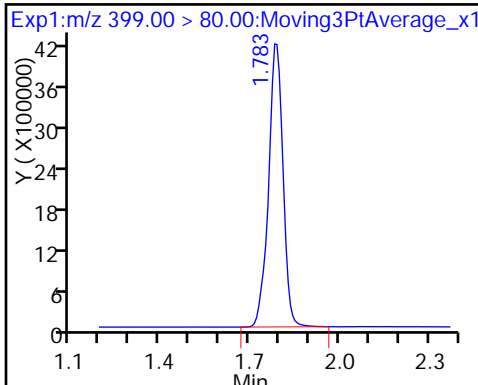
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

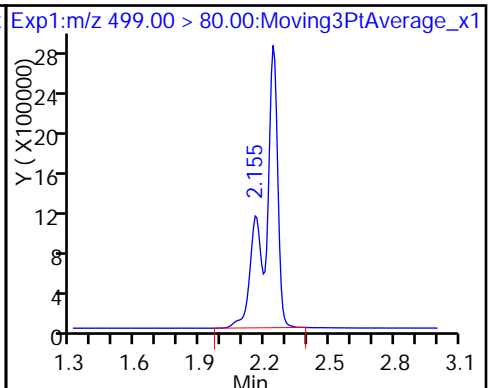
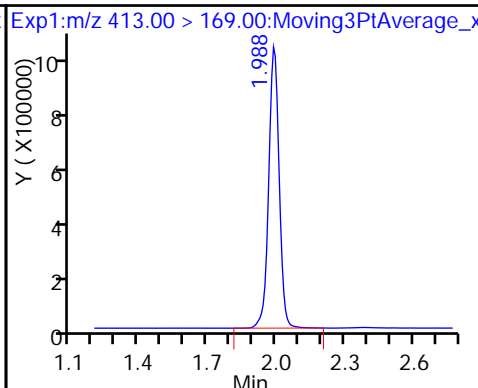
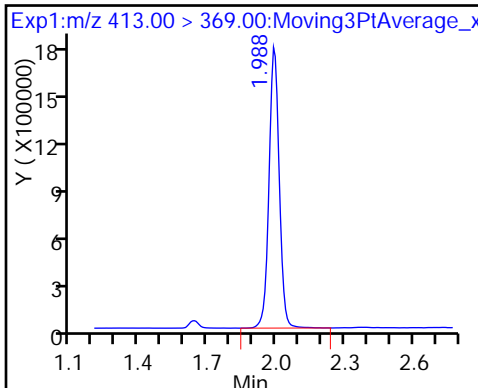
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

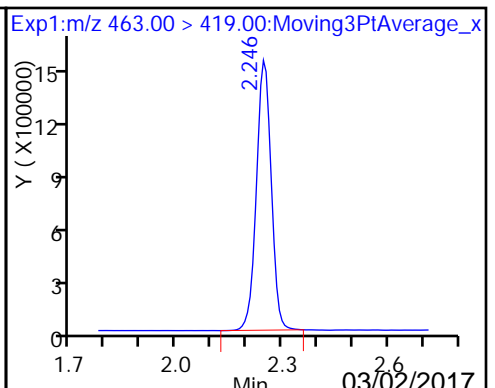
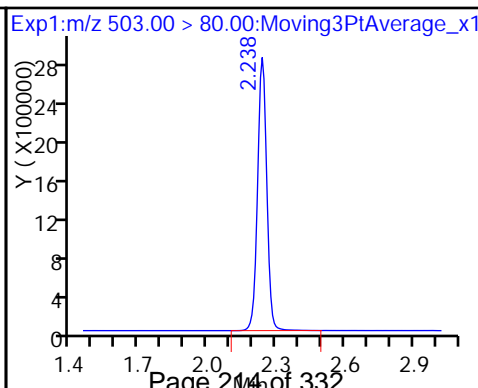
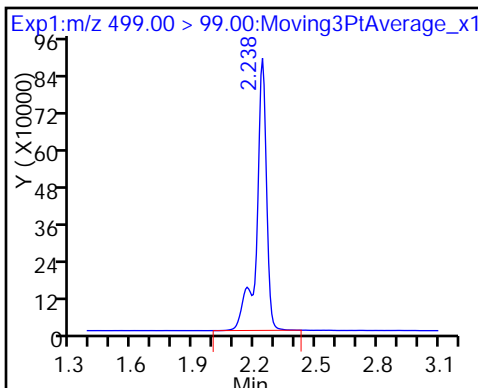
8 Perfluorooctane sulfonic acid



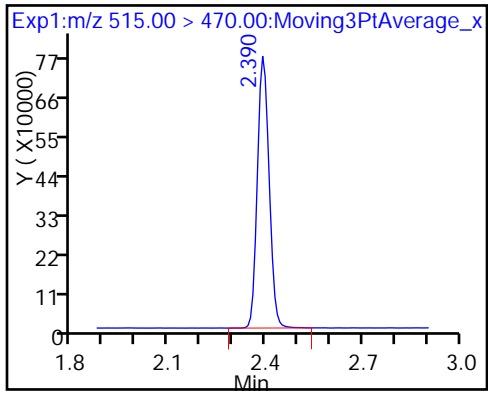
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_007.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 01-Mar-2017 13:05:03 ALS Bottle#: 5 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:29 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:10:59

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.502 | 1.511 | -0.009 | 1.000 | 43094748 | 100.0 | | 1847 | |
| 298.90 > 99.00 | 1.502 | 1.511 | -0.009 | 1.000 | 22398782 | | 1.92(0.00-0.00) | 2534 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.631 | 1.638 | -0.007 | 1.000 | 2823659 | 10.1 | | 5048 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.783 | 1.789 | -0.006 | 1.000 | 17694096 | 42.9 | | 2544 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.783 | 1.791 | -0.008 | 1.000 | 3463661 | 13.6 | | 317 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.980 | 1.992 | -0.012 | | 2641301 | 10.0 | | 5145 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.988 | 1.994 | -0.006 | 1.000 | 7018498 | 27.7 | | 460 | |
| 413.00 > 169.00 | 1.980 | 1.994 | -0.014 | 0.996 | 4069338 | | 1.72(0.00-0.00) | 2786 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.208 | 2.162 | 0.046 | 1.000 | 16698175 | 59.4 | | 1169 | |
| 499.00 > 99.00 | 2.231 | 2.162 | 0.069 | 1.010 | 4108009 | | 4.06(0.00-0.00) | 3840 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.231 | 2.241 | -0.010 | | 7362319 | 28.7 | | 7542 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.246 | 2.250 | -0.004 | 1.000 | 5636176 | 28.7 | | 1116 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.382 | 2.392 | -0.010 | 1.000 | 1817043 | 10.2 | | 2056 | |

Reagents:

LC537-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_007.d

Injection Date: 01-Mar-2017 13:05:03

Instrument ID: A8_N

Lims ID: IC L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 5

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

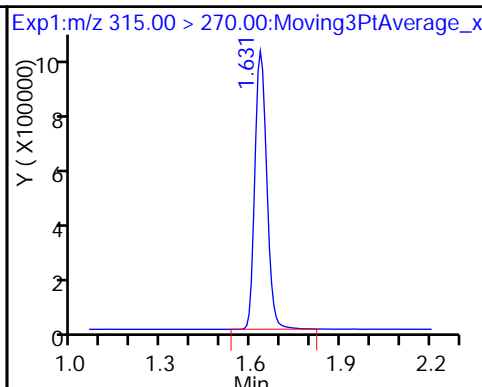
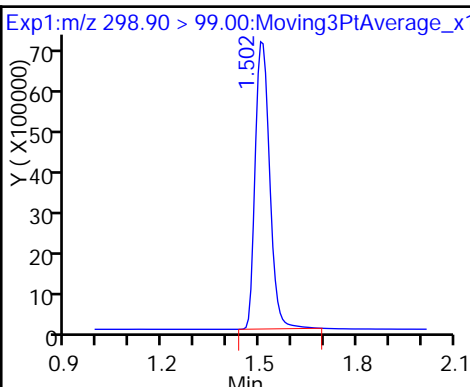
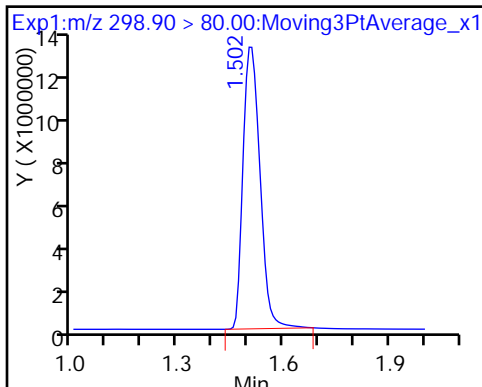
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

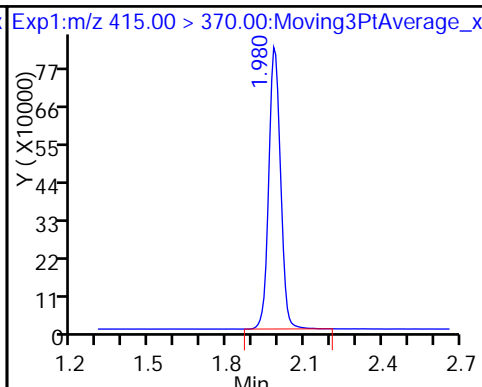
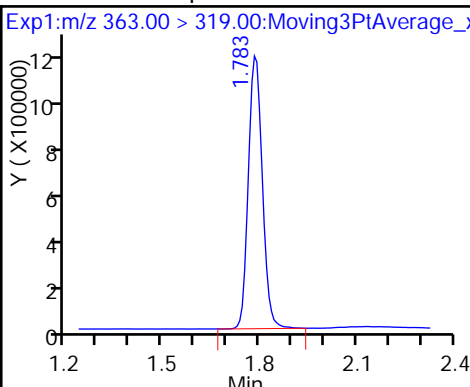
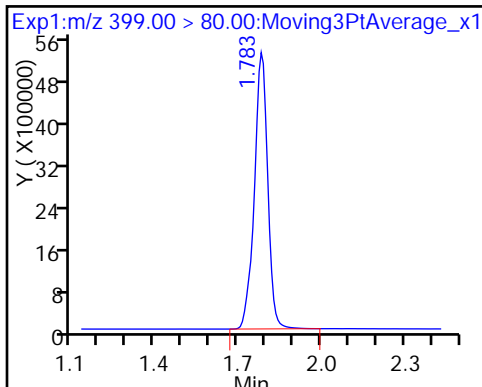
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

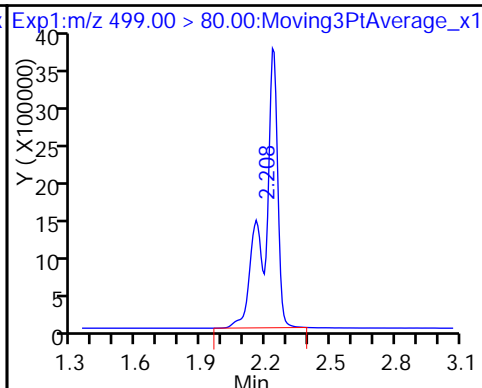
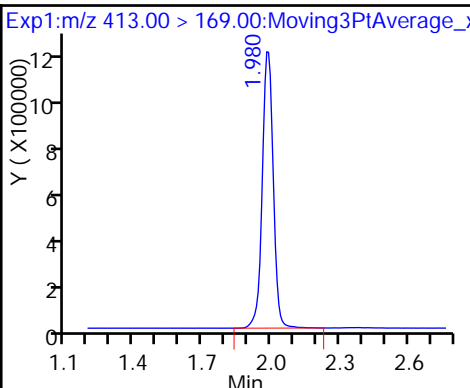
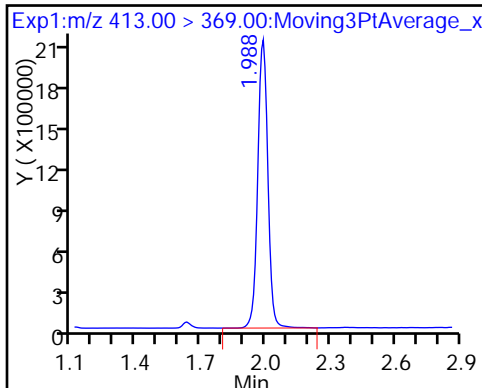
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

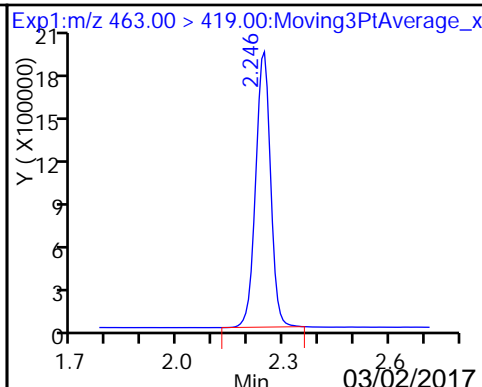
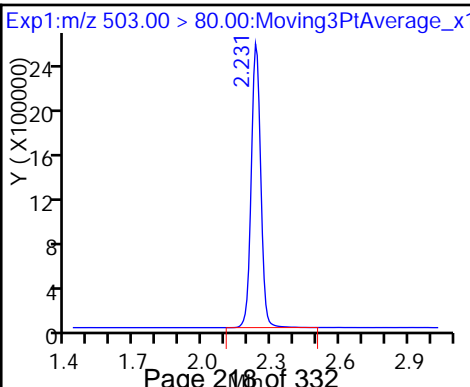
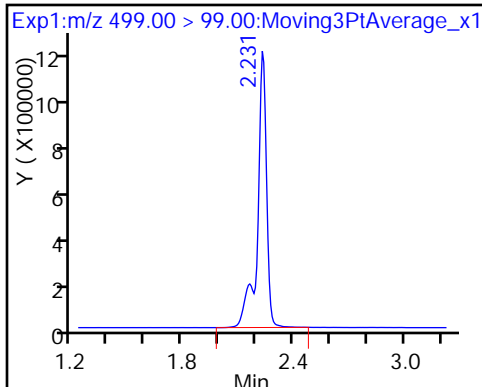
8 Perfluorooctane sulfonic acid



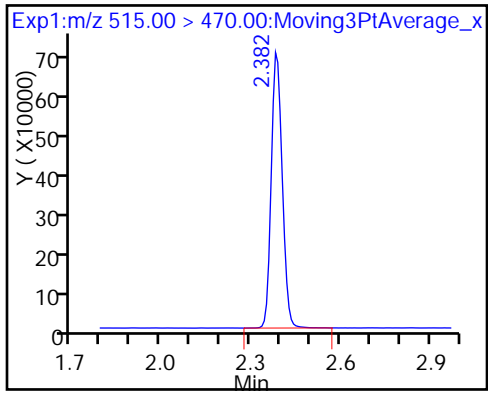
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 01-Mar-2017 13:09:27 ALS Bottle#: 6 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:30 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:11:15

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.517 | 1.511 | 0.006 | 1.000 | 48037006 | 129.9 | | 1521 | |
| 298.90 > 99.00 | 1.510 | 1.511 | -0.001 | 0.995 | 25564257 | | 1.88(0.00-0.00) | 2332 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2505316 | 10.4 | | 5418 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.791 | 1.789 | 0.002 | 1.000 | 20803890 | 58.8 | | 2347 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.791 | 1.791 | 0.0 | 1.000 | 4287034 | 19.6 | | 369 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2269255 | 10.0 | | 3877 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.995 | 1.994 | 0.001 | 1.000 | 9047508 | 41.5 | | 576 | |
| 413.00 > 169.00 | 1.995 | 1.994 | 0.001 | 1.000 | 5200734 | | 1.74(0.00-0.00) | 2866 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.162 | 2.162 | 0.0 | 1.000 | 19599899 | 81.2 | | 1064 | |
| 499.00 > 99.00 | 2.238 | 2.162 | 0.076 | 1.035 | 4875572 | | 4.02(0.00-0.00) | 3618 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.238 | 2.241 | -0.003 | | 6318130 | 28.7 | | 6668 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.246 | 2.250 | -0.004 | 1.000 | 6942602 | 41.1 | | 1283 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.390 | 2.392 | -0.002 | 1.000 | 1597232 | 10.4 | | 2017 | |

Reagents:

LC537-L6_00016

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Injection Date: 01-Mar-2017 13:09:27

Instrument ID: A8_N

Lims ID: IC L6

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 6

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

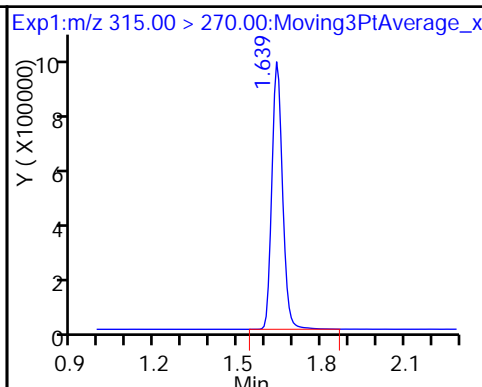
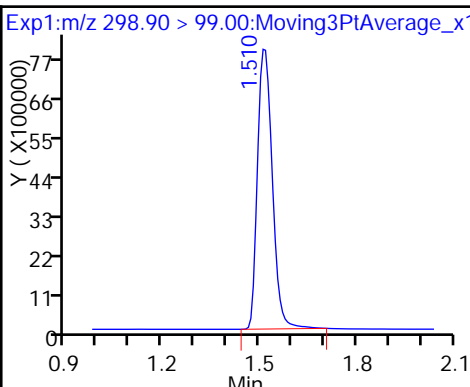
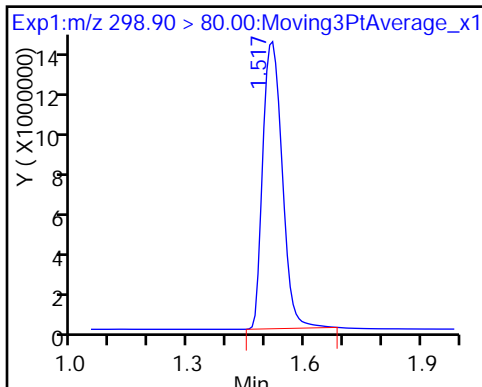
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

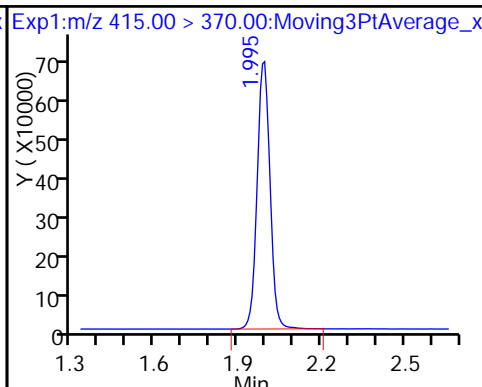
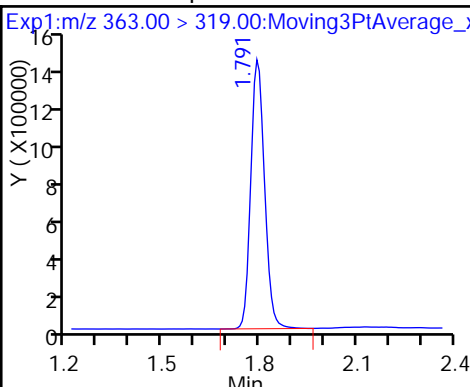
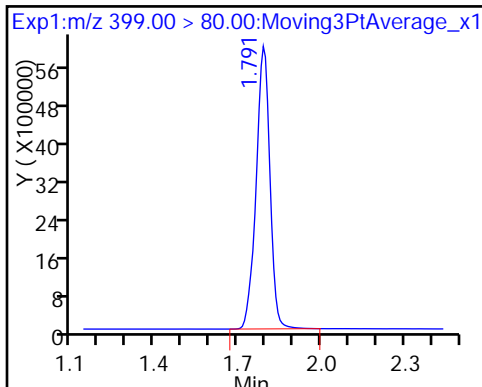
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

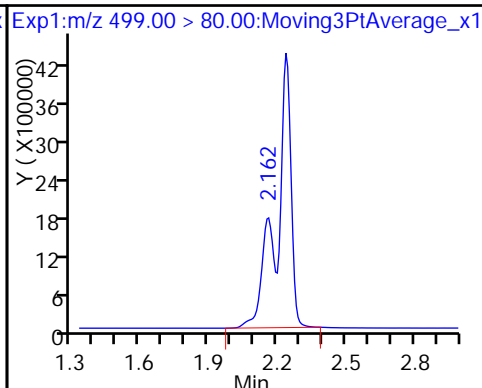
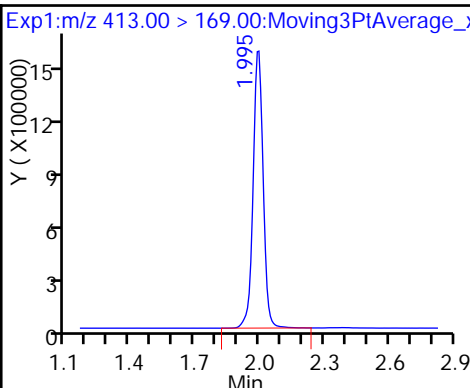
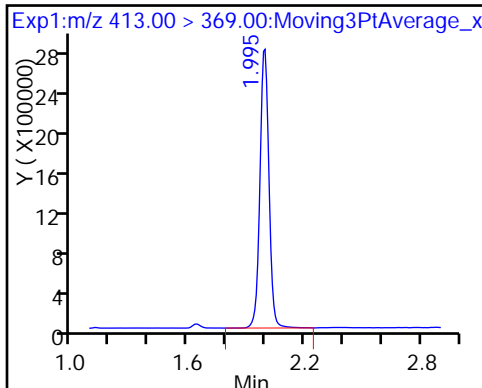
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

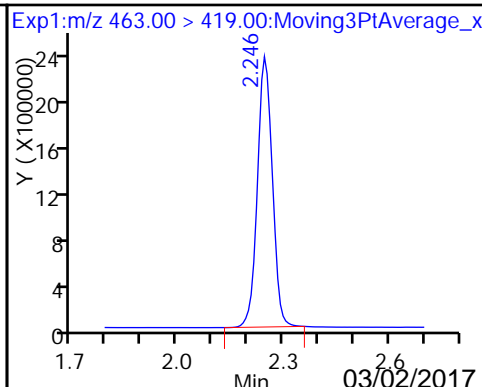
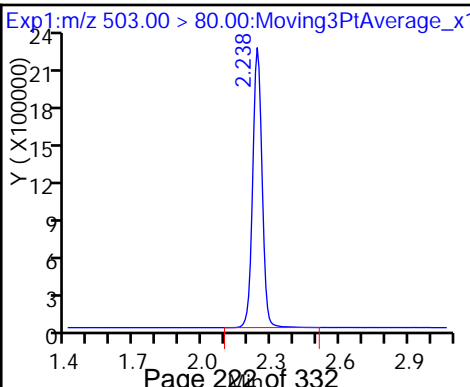
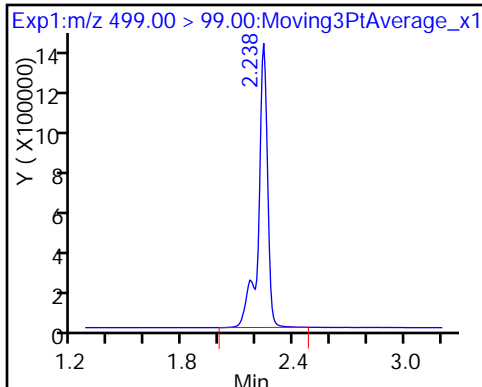
8 Perfluorooctane sulfonic acid



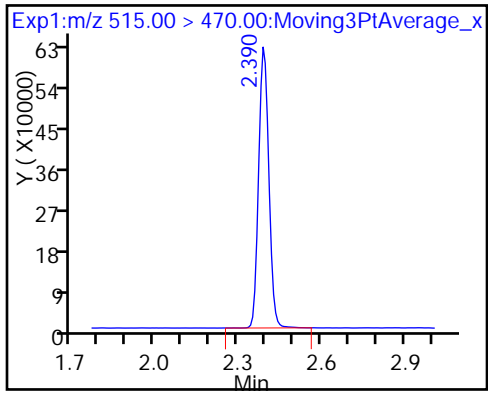
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-152571/10 Calibration Date: 02/28/2017 15:12
 Instrument ID: A8_N Calib Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/28/2017 15:03
 Lab File ID: 2017.02.28_537CURVE_010.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.491 | 1.816 | | 27.9 | 22.9 | 21.8 | 50.0 |
| Perfluorohexanesulfonic acid | Ave | 1.372 | 1.512 | | 8.50 | 7.72 | 10.2 | 50.0 |
| Perfluoroheptanoic acid | Ave | 0.9178 | 0.9503 | | 2.71 | 2.62 | 3.5 | 50.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9600 | 1.025 | | 5.31 | 4.98 | 6.7 | 50.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.089 | 1.132 | | 10.6 | 10.2 | 3.9 | 50.0 |
| Perfluorononanoic acid | Ave | 0.7646 | 0.8169 | | 5.65 | 5.29 | 6.8 | 50.0 |
| 13C2 PFHxA | Ave | 1.024 | 1.027 | | 10.0 | 10.0 | 0.3 | 30.0 |
| 13C2 PFDA | Ave | 0.7568 | 0.7315 | | 9.67 | 10.0 | -3.3 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_010.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 28-Feb-2017 15:12:22 ALS Bottle#: 2 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:02:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 15:36:38

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.601 | 1.627 | -0.026 | 1.000 | 11019425 | 27.9 | | 906 | |
| 298.90 > 99.00 | 1.601 | 1.627 | -0.026 | 1.000 | 4727664 | | 2.33(0.00-0.00) | 963 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.737 | 1.765 | -0.028 | 1.000 | 2621267 | 10.0 | | 3776 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.904 | 1.938 | -0.034 | 1.000 | 3091943 | 8.50 | | 653 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.912 | 1.940 | -0.028 | 1.000 | 635785 | 2.71 | | 62.1 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.132 | 2.172 | -0.040 | 1.000 | 1301543 | 5.31 | | 98.2 | |
| 413.00 > 169.00 | 2.132 | 2.172 | -0.040 | 1.000 | 745575 | | 1.75(0.00-0.00) | 777 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.132 | 2.172 | -0.040 | | 2552157 | 10.0 | | 4485 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.299 | 2.367 | -0.068 | 1.000 | 3065210 | 10.6 | | 538 | |
| 499.00 > 99.00 | 2.360 | 2.367 | -0.007 | 1.026 | 738632 | | 4.15(0.00-0.00) | 1200 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.360 | 2.395 | -0.035 | | 7601493 | 28.7 | | 9996 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.367 | 2.404 | -0.037 | 1.000 | 1102673 | 5.65 | | 326 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.496 | 2.530 | -0.034 | 1.000 | 1867002 | 9.67 | | 2466 | |

Reagents:

LC537-L2_00015

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_010.d

Injection Date: 28-Feb-2017 15:12:22

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

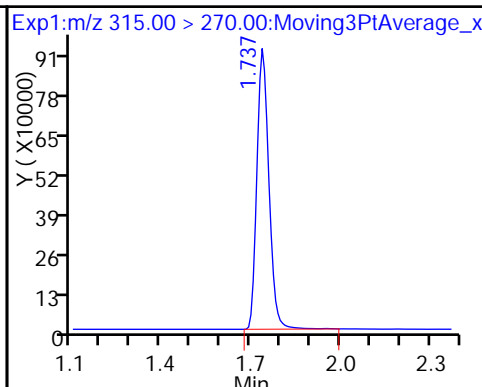
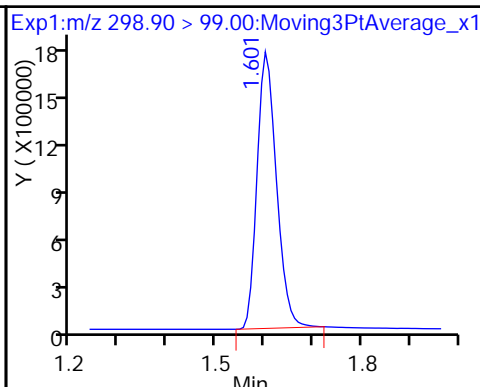
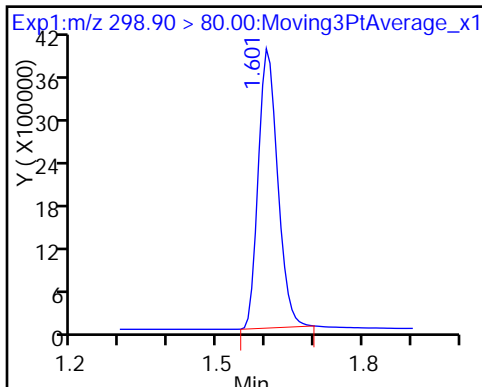
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

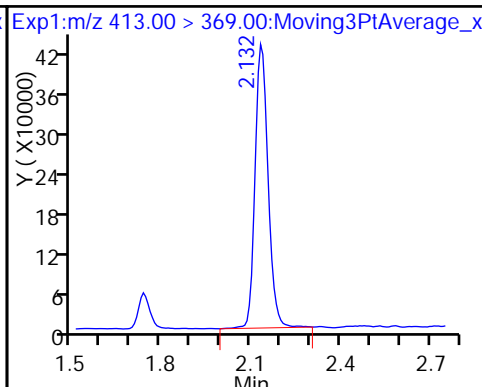
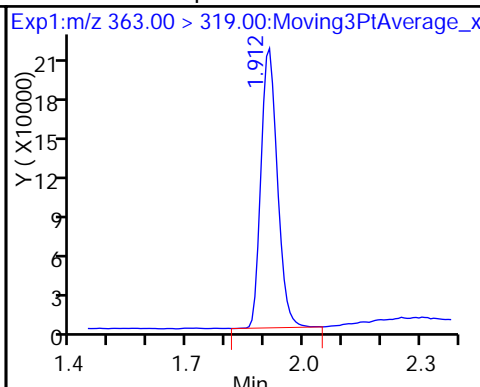
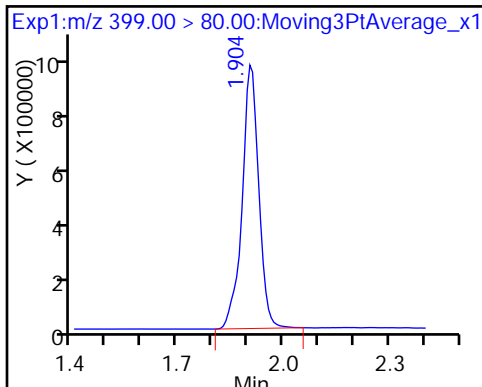
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

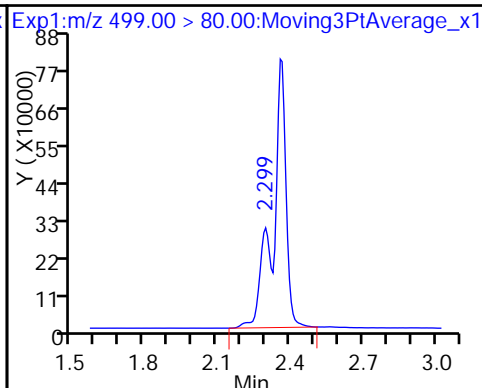
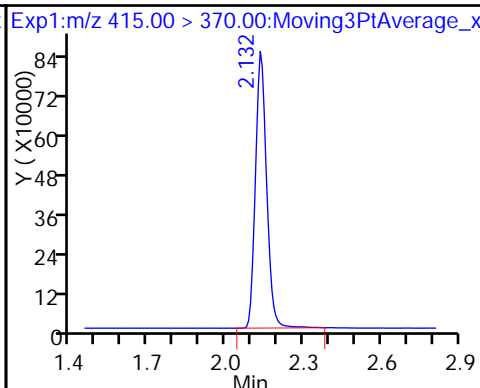
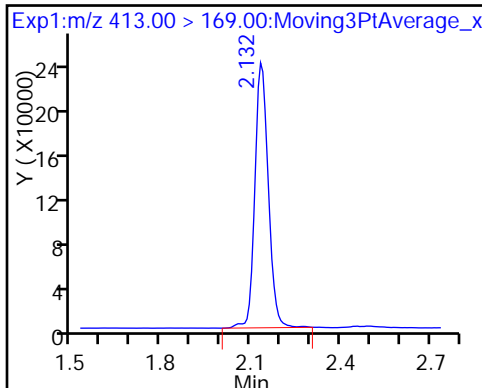
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

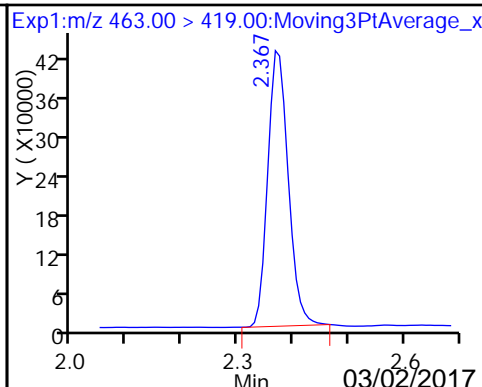
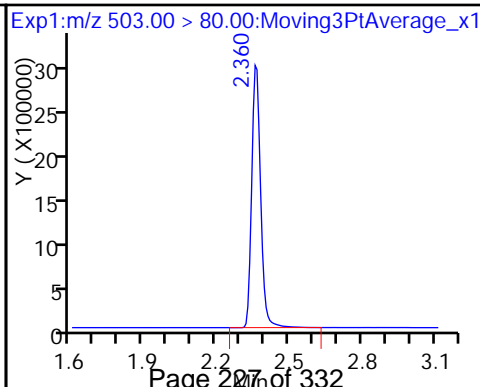
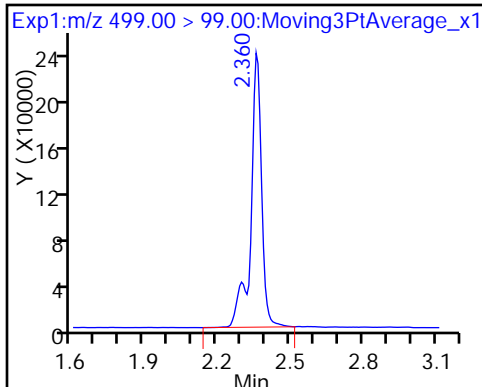
8 Perfluorooctane sulfonic acid



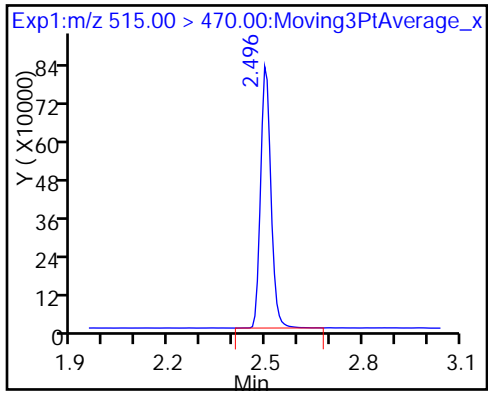
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: ICV 320-152571/19 Calibration Date: 02/28/2017 15:51
 Instrument ID: A8_N Calib Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/28/2017 15:03
 Lab File ID: 2017.02.28_537CURVE_015.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.491 | 1.244 | | 95.8 | 115 | -16.6 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9178 | 0.8583 | | 11.8 | 12.6 | -6.5 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.372 | 1.201 | | 23.2 | 26.5 | -12.5 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9600 | 0.7872 | | 20.5 | 25.0 | -18.0 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.089 | 0.8534 | | 21.3 | 27.2 | -21.7 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7646 | 0.6559 | | 21.5 | 25.0 | -14.2 | 30.0 |
| 13C2 PFHxA | Ave | 1.024 | 1.141 | | 11.1 | 10.0 | 11.4 | 30.0 |
| 13C2 PFDA | Ave | 0.7568 | 0.7563 | | 9.99 | 10.0 | -0.0 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_015.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 28-Feb-2017 15:51:56 ALS Bottle#: 9 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV OLD
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 28-Feb-2017 16:11:08 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK008

First Level Reviewer: barnettj Date: 28-Feb-2017 16:03:47

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.571 | 1.627 | -0.057 | 1.000 | 29231476 | 95.8 | | 1312 | |
| 298.90 > 99.00 | 1.571 | 1.627 | -0.057 | 1.000 | 13982676 | | 2.09(0.00-0.00) | 1636 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.707 | 1.765 | -0.058 | 1.000 | 2298892 | 11.1 | | 4675 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.866 | 1.938 | -0.072 | 1.000 | 6508934 | 23.2 | | 1299 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.866 | 1.940 | -0.074 | 1.000 | 2179518 | 11.8 | | 206 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.079 | 2.172 | -0.093 | 1.000 | 3969633 | 20.5 | | 265 | |
| 413.00 > 169.00 | 2.079 | 2.172 | -0.093 | 1.000 | 2377459 | | 1.67(0.00-0.00) | 2123 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.079 | 2.172 | -0.093 | | 2015269 | 10.0 | | 4233 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.299 | 2.367 | -0.068 | 1.000 | 4759132 | 21.3 | | 878 | |
| 499.00 > 99.00 | 2.314 | 2.367 | -0.053 | 1.007 | 975328 | | 4.88(0.00-0.00) | 1405 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.314 | 2.395 | -0.081 | | 5871836 | 28.7 | | 8792 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.322 | 2.404 | -0.082 | 1.000 | 3305884 | 21.5 | | 880 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.458 | 2.530 | -0.072 | 1.000 | 1524179 | 10.0 | | 1832 | |

Reagents:

LC537-ICV_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_015.d

Injection Date: 28-Feb-2017 15:51:56

Instrument ID: A8_N

Lims ID: ICV

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 9

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

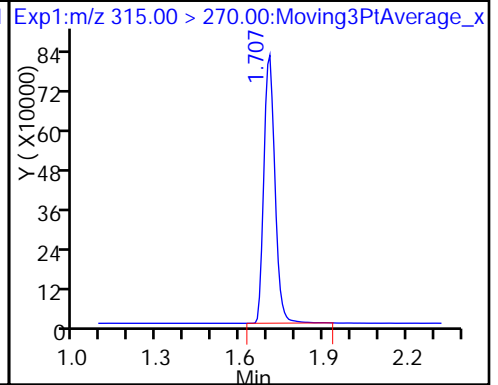
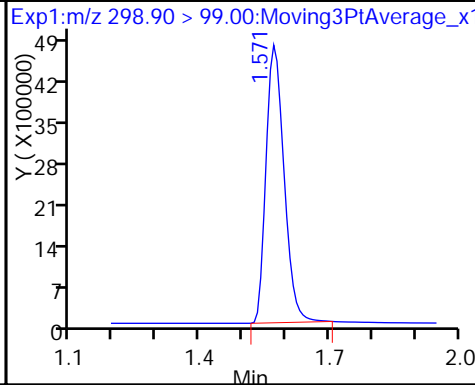
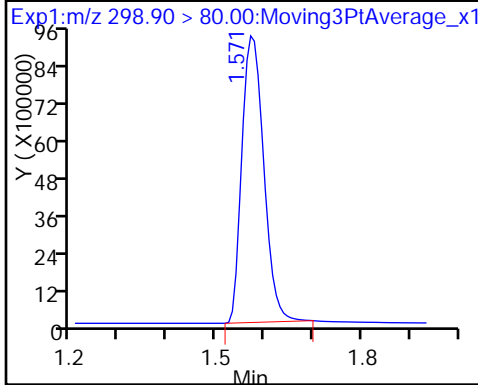
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

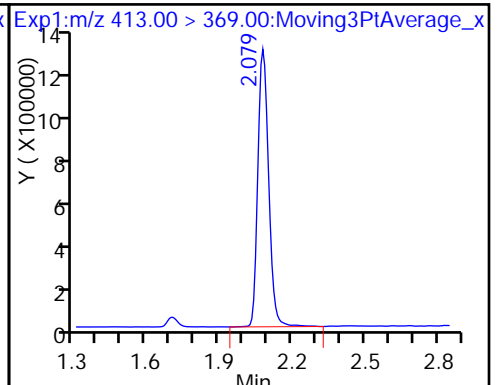
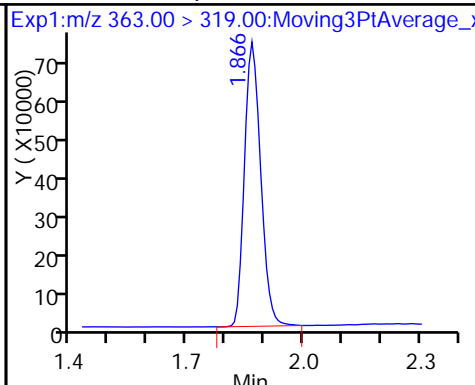
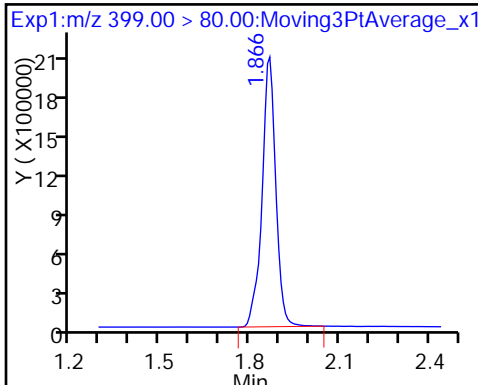
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

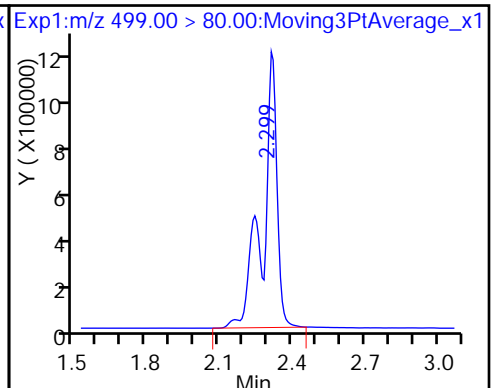
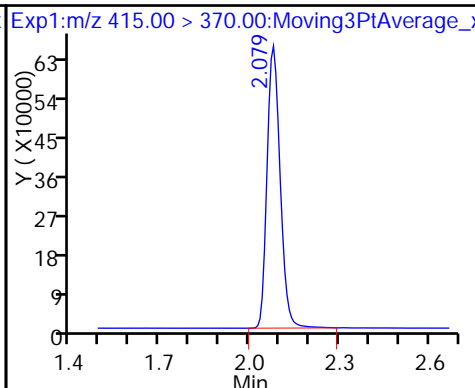
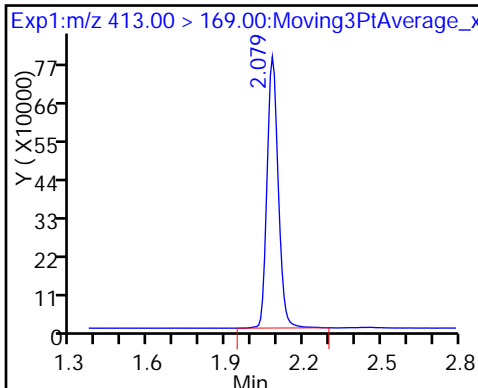
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

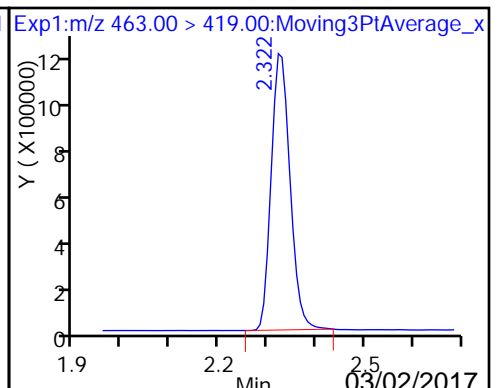
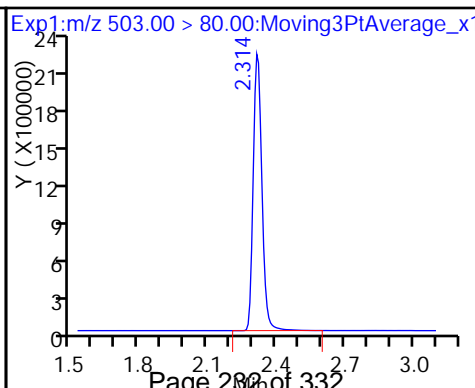
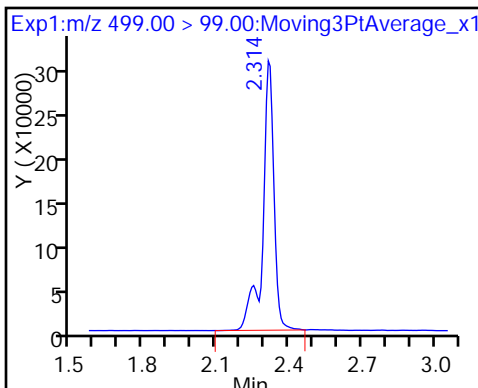
8 Perfluorooctane sulfonic acid



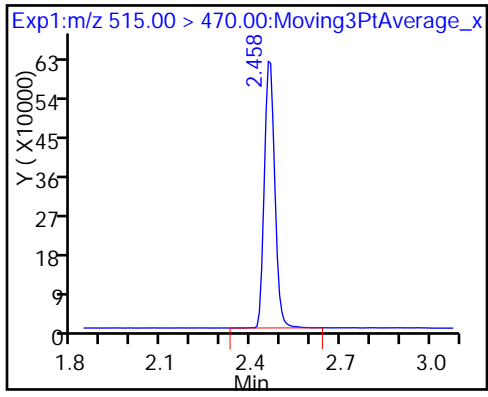
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152592/15 Calibration Date: 02/28/2017 17:09
 Instrument ID: A8_N Calib Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/28/2017 15:03
 Lab File ID: 2017.02.28_537_015.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.491 | 1.251 | | 113 | 135 | -16.1 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9178 | 0.8979 | | 14.5 | 14.9 | -2.2 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.372 | 1.530 | | 50.6 | 45.4 | 11.5 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9600 | 0.8901 | | 27.1 | 29.3 | -7.3 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.089 | 1.112 | | 61.3 | 60.1 | 2.1 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7646 | 0.6866 | | 27.9 | 31.1 | -10.2 | 30.0 |
| 13C2 PFHxA | Ave | 1.024 | 1.074 | | 10.5 | 10.0 | 4.9 | 30.0 |
| 13C2 PFDA | Ave | 0.7568 | 0.7143 | | 9.44 | 10.0 | -5.6 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28_537_015.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 28-Feb-2017 17:09:16 ALS Bottle#: 5 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:17:29 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:17:24

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.548 | 1.627 | -0.079 | 1.000 | 40918730 | 113.0 | | 1454 | |
| 298.90 > 99.00 | 1.540 | 1.627 | -0.087 | 0.995 | 21256173 | | 1.93(0.00-0.00) | 2021 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.677 | 1.765 | -0.088 | 1.000 | 2724474 | 10.5 | | 6176 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.836 | 1.938 | -0.102 | 1.000 | 16863925 | 50.6 | | 2432 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.836 | 1.940 | -0.104 | 1.000 | 3381311 | 14.5 | | 316 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.041 | 2.172 | -0.131 | 1.000 | 6608540 | 27.1 | | 445 | |
| 413.00 > 169.00 | 2.041 | 2.172 | -0.131 | 1.000 | 3952496 | | 1.67(0.00-0.00) | 2813 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.041 | 2.172 | -0.131 | | 2535805 | 10.0 | | 4788 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.284 | 2.284 | 0.0 | 1.000 | 16229895 | 61.3 | | 4265 | M |
| 499.00 > 99.00 | 2.284 | 2.284 | 0.0 | 1.000 | 3940974 | | 4.12(0.00-0.00) | 3568 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.284 | 2.395 | -0.111 | | 6966148 | 28.7 | | 8854 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.291 | 2.404 | -0.113 | 1.000 | 5416975 | 27.9 | | 1311 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.435 | 2.530 | -0.095 | 1.000 | 1811429 | 9.44 | | 2101 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28_537_015.d

Injection Date: 28-Feb-2017 17:09:16

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 5

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

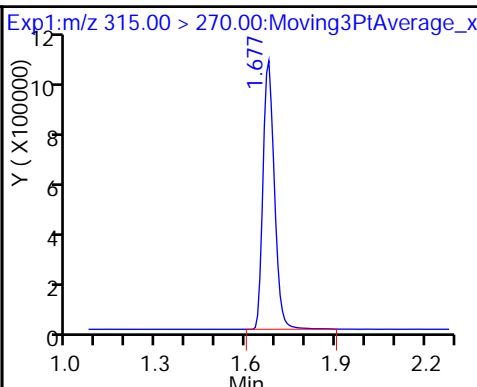
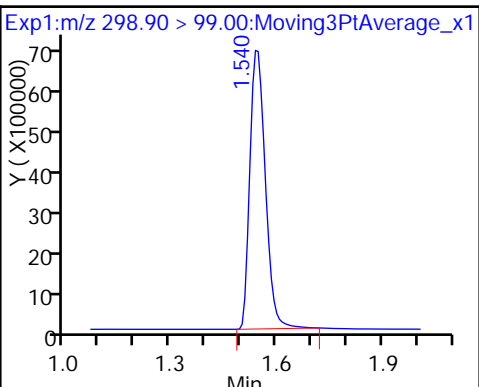
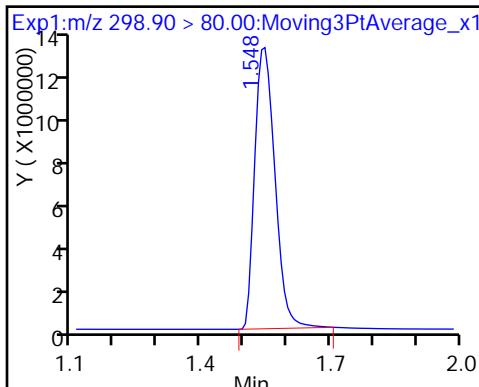
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

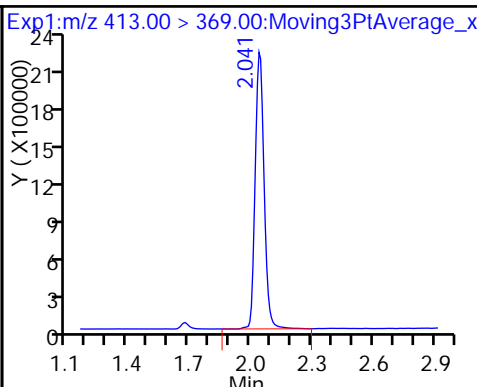
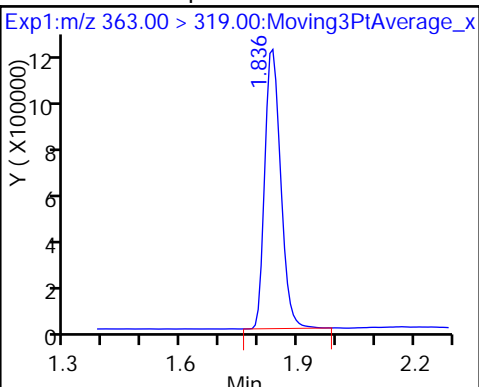
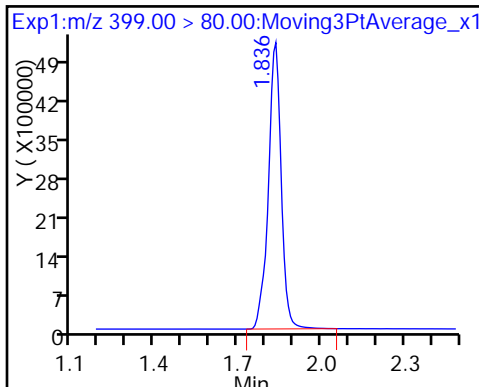
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

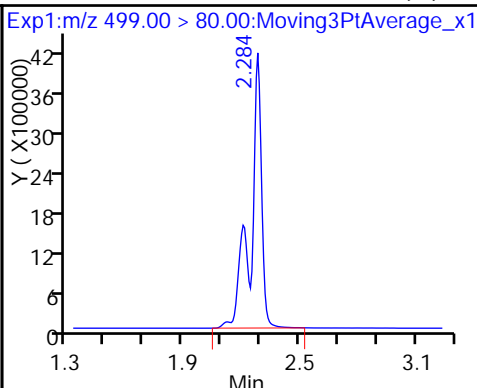
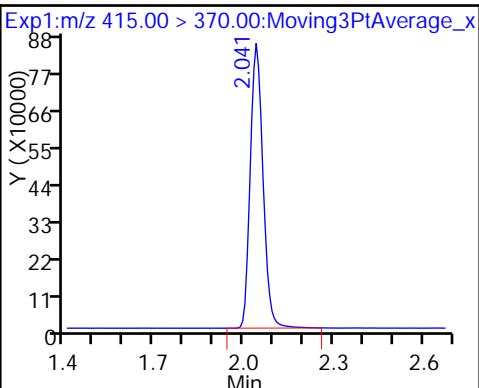
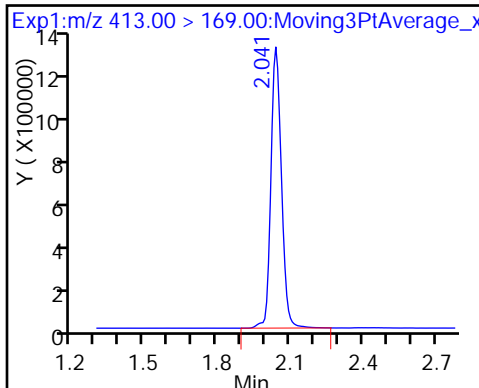
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

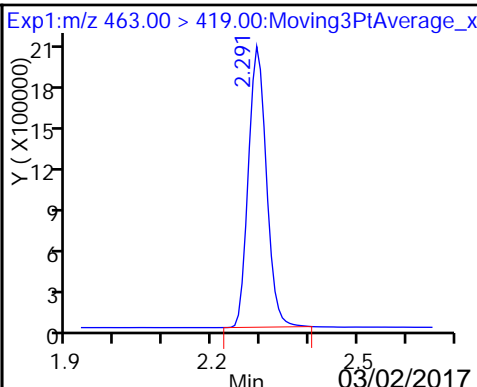
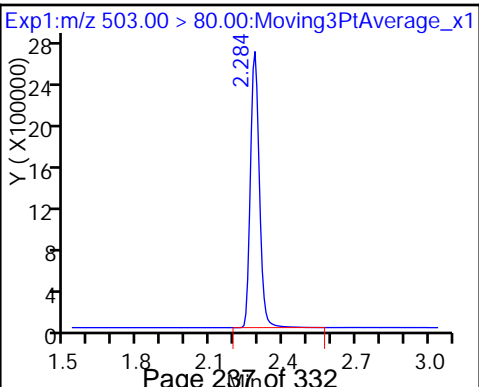
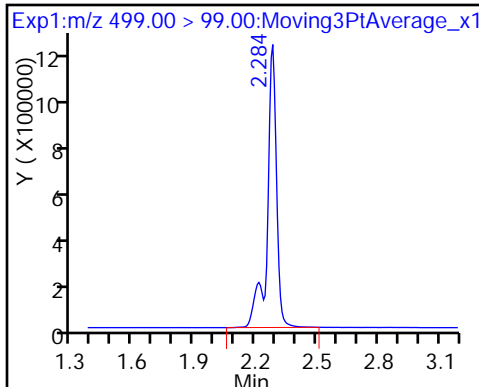
8 Perfluorooctane sulfonic acid (M)



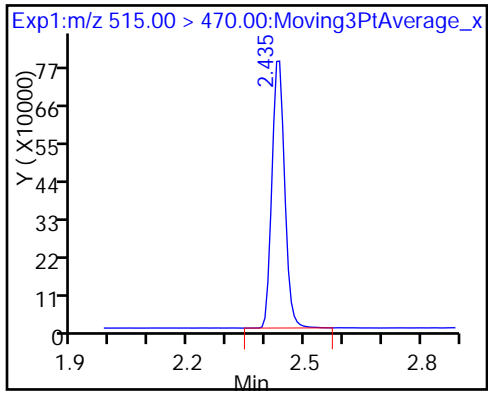
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

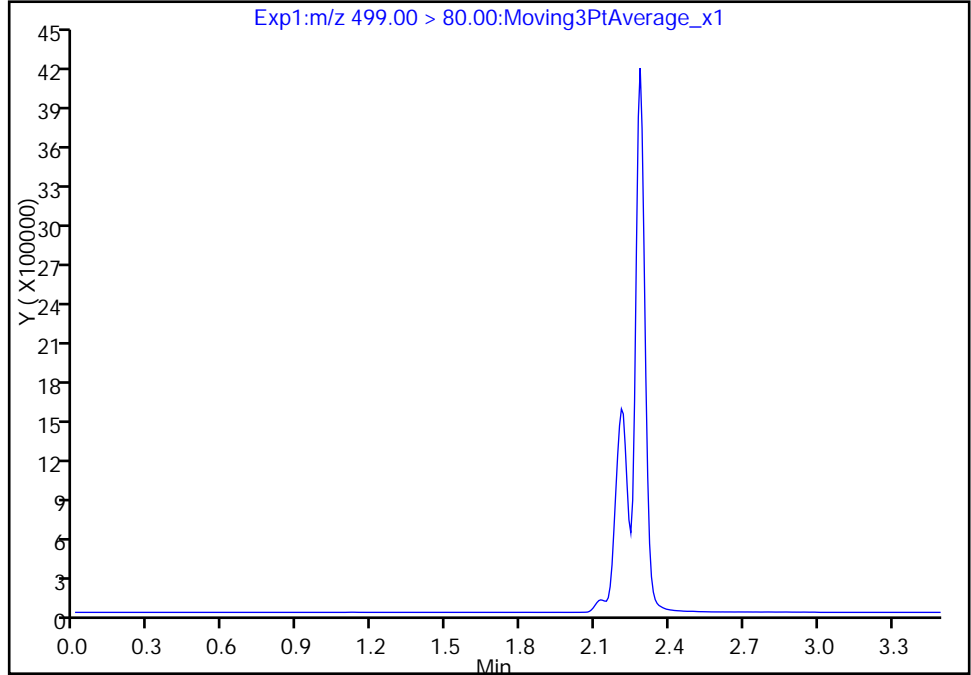
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Injection Date: 28-Feb-2017 17:09:16 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 5 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

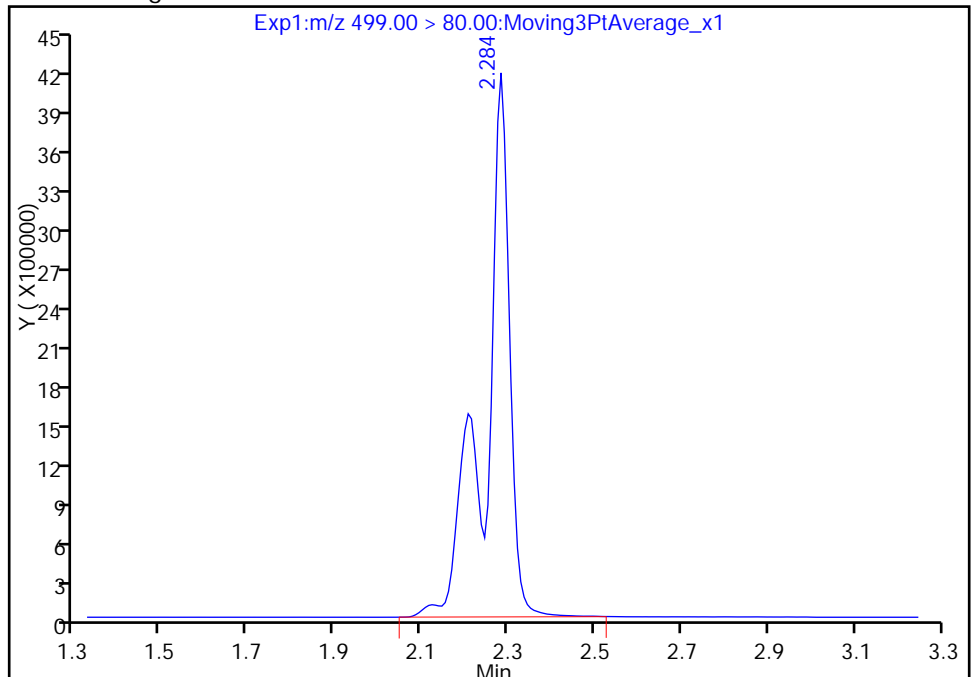
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 16229895
Amount: 61.336281
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:17:29
Audit Action: Assigned Compound ID

Audit Reason:

TestAmerica Sacramento

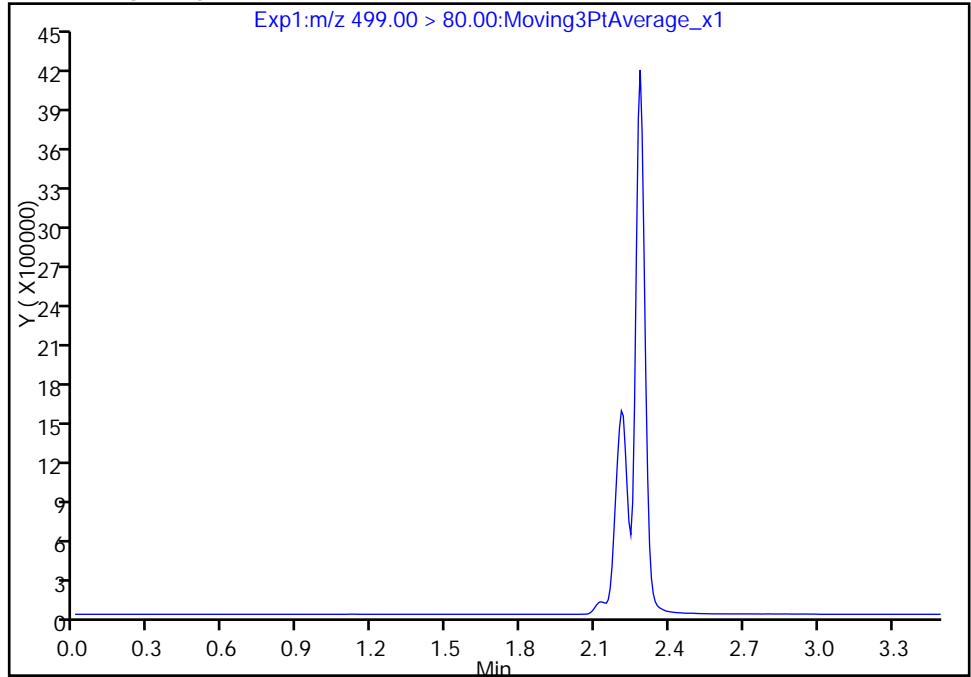
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Injection Date: 28-Feb-2017 17:09:16 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 5 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

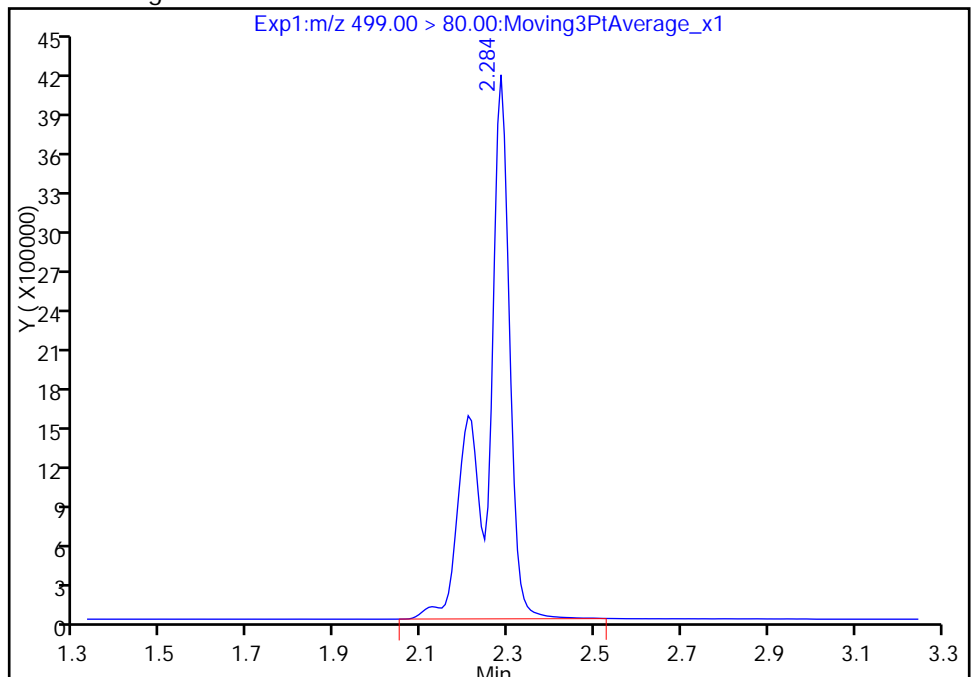
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 16229895
Amount: 61.336281
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:17:29

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152592/26 Calibration Date: 02/28/2017 17:57
 Instrument ID: A8_N Calib Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/28/2017 15:03
 Lab File ID: 2017.02.28C_537_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 | 1.491 | 1.755 | | 53.1 | 45.1 | 17.7 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.372 | 1.572 | | 17.4 | 15.2 | 14.6 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9178 | 0.9622 | | 5.22 | 4.97 | 4.8 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9600 | 0.9477 | | 9.68 | 9.81 | -1.3 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.089 | 1.105 | | 20.4 | 20.1 | 1.4 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7646 | 0.7306 | | 9.96 | 10.4 | -4.4 | 30.0 |
| 13C2 PFHxA | Ave | 1.024 | 1.026 | | 10.0 | 10.0 | 0.2 | 30.0 |
| 13C2 PFDA | Ave | 0.7568 | 0.6790 | | 8.97 | 10.0 | -10.3 | 30.0 |

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152593/26 Calibration Date: 02/28/2017 17:57
 Instrument ID: A8_N Calib Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/28/2017 15:03
 Lab File ID: 2017.02.28C_537_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 | 1.491 | 1.755 | | 53.1 | 45.1 | 17.7 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.372 | 1.572 | | 17.4 | 15.2 | 14.6 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9178 | 0.9622 | | 5.22 | 4.97 | 4.8 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9600 | 0.9477 | | 9.68 | 9.81 | -1.3 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.089 | 1.105 | | 20.4 | 20.1 | 1.4 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7646 | 0.7306 | | 9.96 | 10.4 | -4.4 | 30.0 |
| 13C2 PFHxA | Ave | 1.024 | 1.026 | | 10.0 | 10.0 | 0.2 | 30.0 |
| 13C2 PFDA | Ave | 0.7568 | 0.6790 | | 8.97 | 10.0 | -10.3 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 28-Feb-2017 17:57:40 ALS Bottle#: 3 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:30:02

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.533 | 1.627 | -0.094 | 1.000 | 18030777 | 53.1 | | 1176 | |
| 298.90 > 99.00 | 1.533 | 1.627 | -0.094 | 1.000 | 7969173 | | 2.26(0.00-0.00) | 1425 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 2432199 | 10.0 | | 5124 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.821 | 1.938 | -0.117 | 1.000 | 5446397 | 17.4 | | 1166 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.828 | 1.940 | -0.112 | 1.000 | 1135224 | 5.22 | | 108 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.033 | 2.172 | -0.139 | 1.000 | 2204485 | 9.68 | | 165 | |
| 413.00 > 169.00 | 2.033 | 2.172 | -0.139 | 1.000 | 1270563 | | 1.74(0.00-0.00) | 1343 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.033 | 2.172 | -0.139 | | 2371627 | 10.0 | | 5115 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.276 | 2.276 | 0.0 | 1.000 | 5068960 | 20.4 | | 1698 | M |
| 499.00 > 99.00 | 2.200 | 2.276 | -0.076 | 0.967 | 1208415 | | 4.19(0.00-0.00) | 217 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.276 | 2.395 | -0.119 | | 6534438 | 28.7 | | 8033 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.284 | 2.404 | -0.120 | 1.000 | 1806033 | 9.96 | | 490 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1610222 | 8.97 | | 2066 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 28-Feb-2017 17:57:40 ALS Bottle#: 3 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:30:02

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.533 | 1.627 | -0.094 | 1.000 | 18030777 | 53.1 | | 1176 | |
| 298.90 > 99.00 | 1.533 | 1.627 | -0.094 | 1.000 | 7969173 | | 2.26(0.00-0.00) | 1425 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 2432199 | 10.0 | | 5124 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.821 | 1.938 | -0.117 | 1.000 | 5446397 | 17.4 | | 1166 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.828 | 1.940 | -0.112 | 1.000 | 1135224 | 5.22 | | 108 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.033 | 2.172 | -0.139 | 1.000 | 2204485 | 9.68 | | 165 | |
| 413.00 > 169.00 | 2.033 | 2.172 | -0.139 | 1.000 | 1270563 | | 1.74(0.00-0.00) | 1343 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.033 | 2.172 | -0.139 | | 2371627 | 10.0 | | 5115 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.276 | 2.276 | 0.0 | 1.000 | 5068960 | 20.4 | | 1698 | M |
| 499.00 > 99.00 | 2.200 | 2.276 | -0.076 | 0.967 | 1208415 | | 4.19(0.00-0.00) | 217 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.276 | 2.395 | -0.119 | | 6534438 | 28.7 | | 8033 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.284 | 2.404 | -0.120 | 1.000 | 1806033 | 9.96 | | 490 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1610222 | 8.97 | | 2066 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d

Injection Date: 28-Feb-2017 17:57:40

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

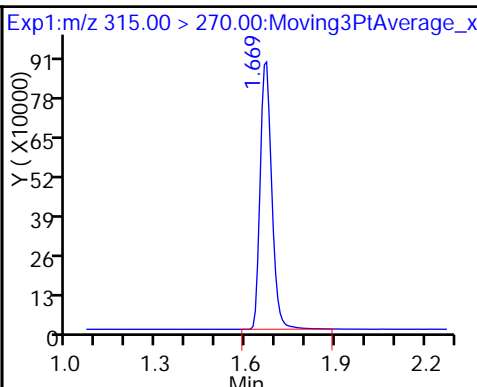
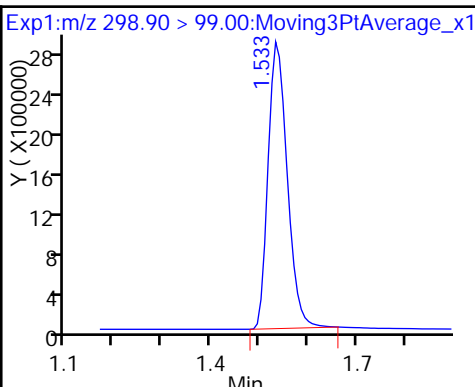
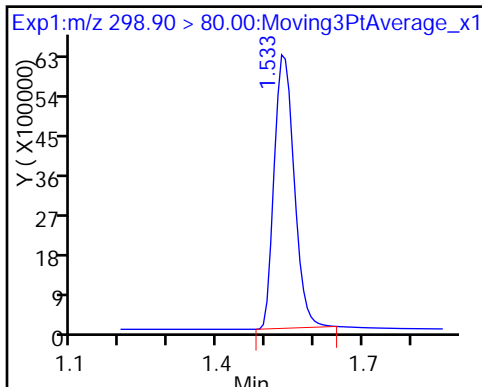
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

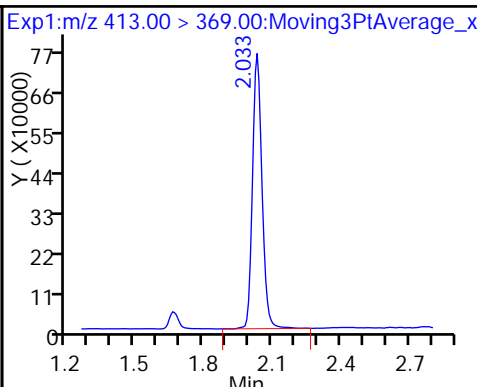
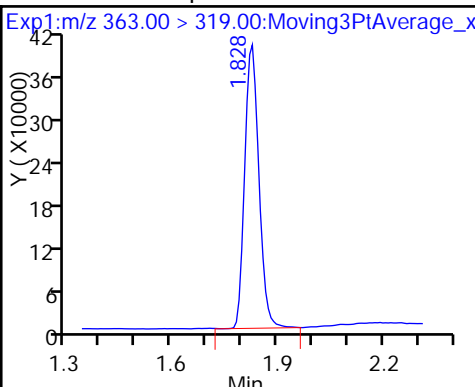
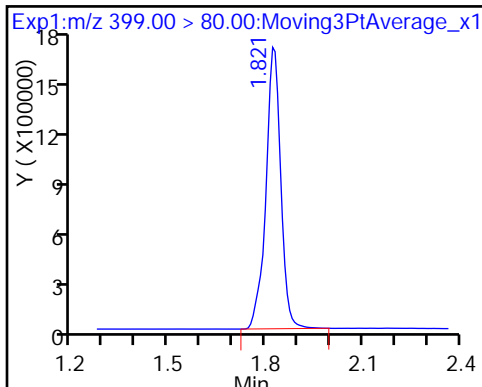
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

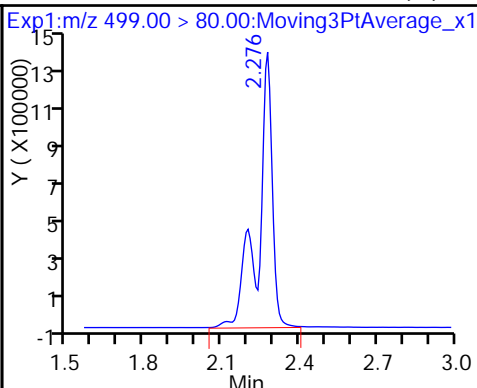
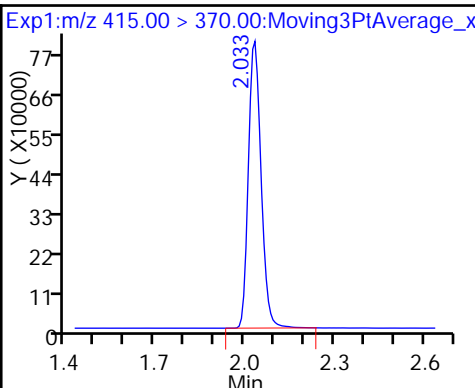
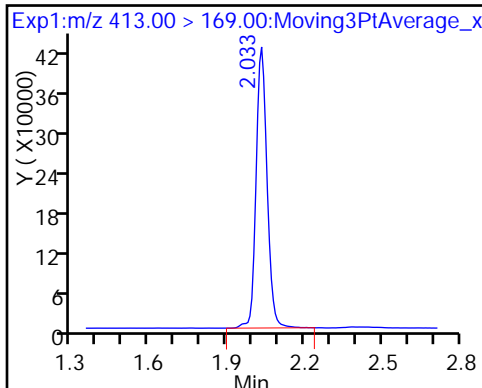
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

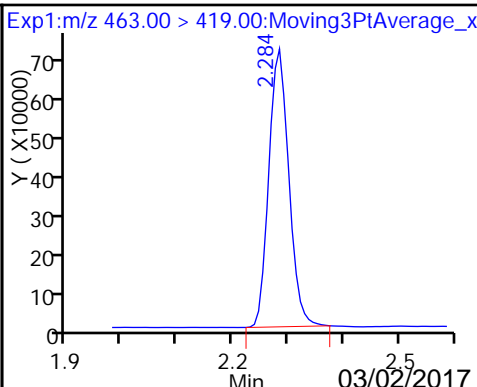
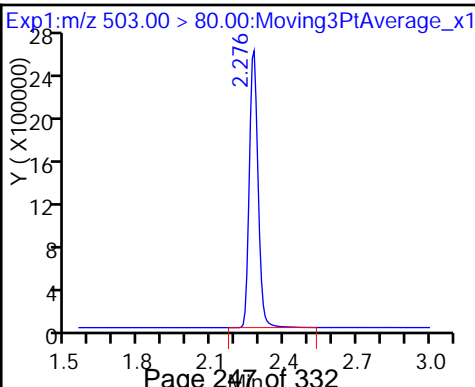
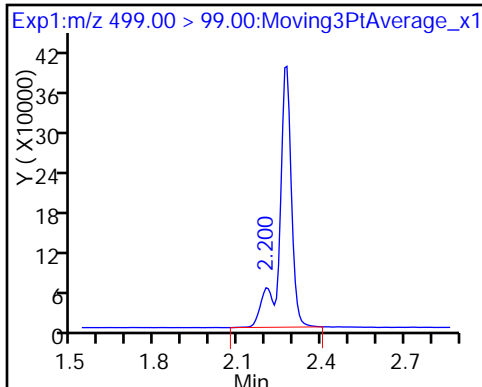
8 Perfluorooctane sulfonic acid (M)



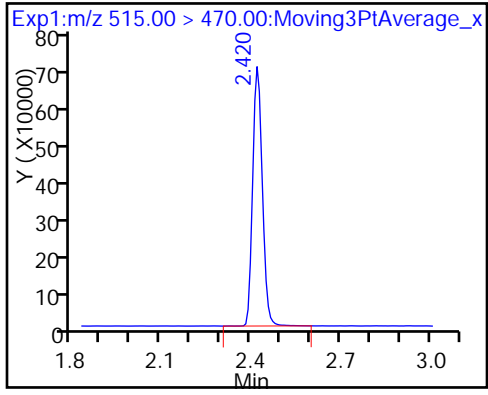
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d

Injection Date: 28-Feb-2017 17:57:40

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

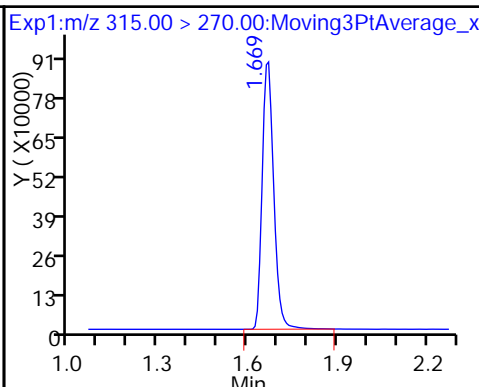
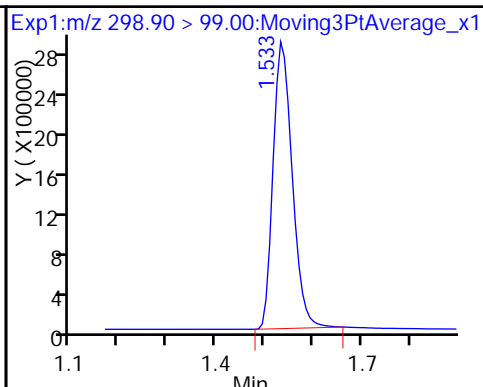
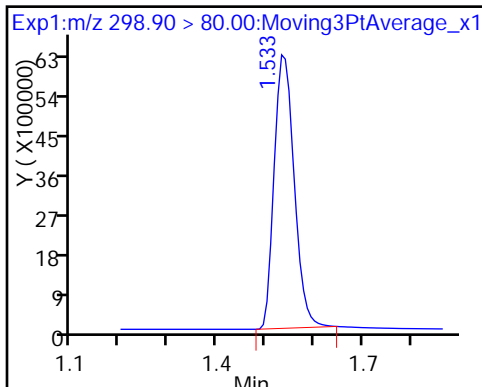
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

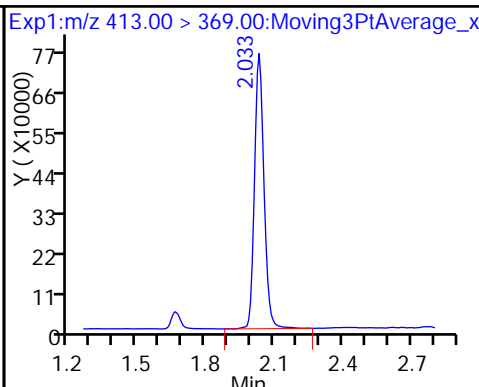
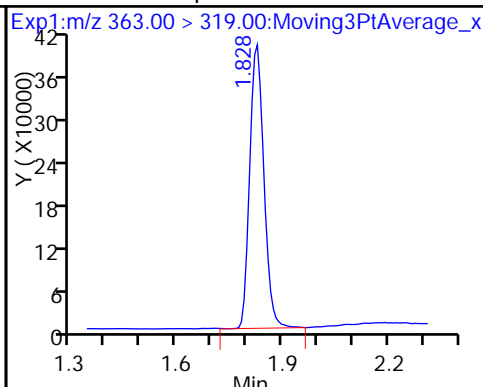
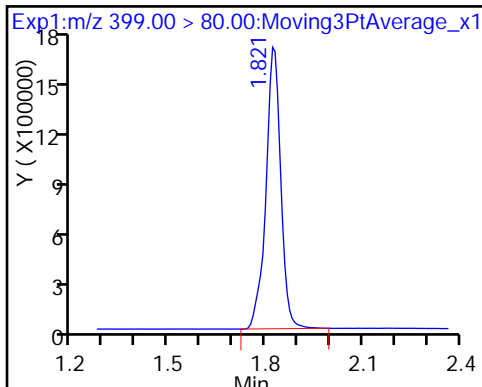
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

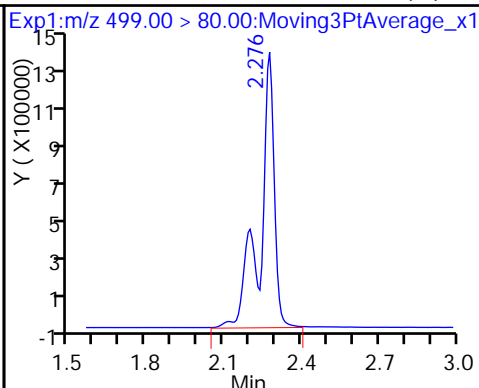
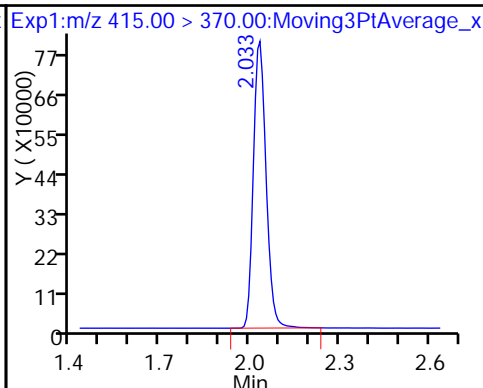
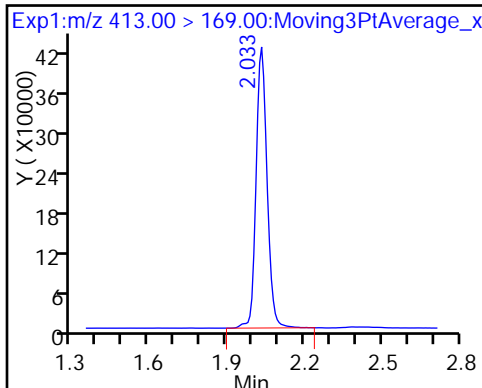
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

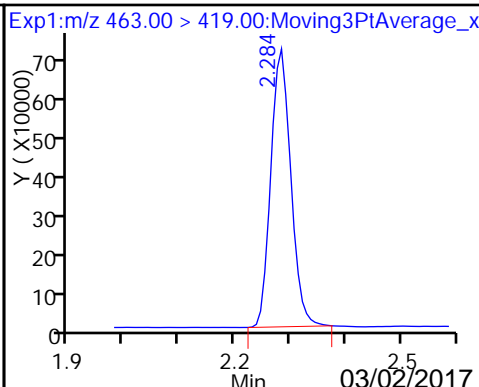
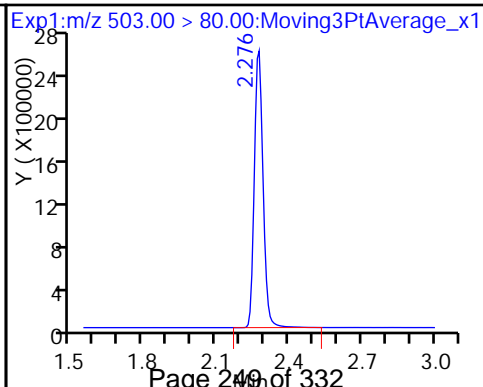
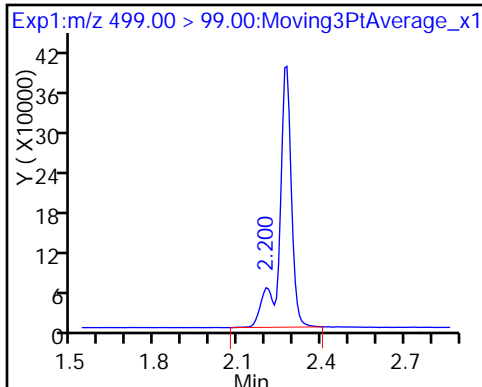
8 Perfluorooctane sulfonic acid (M)



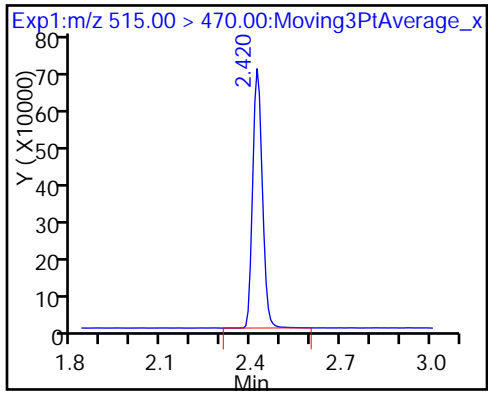
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

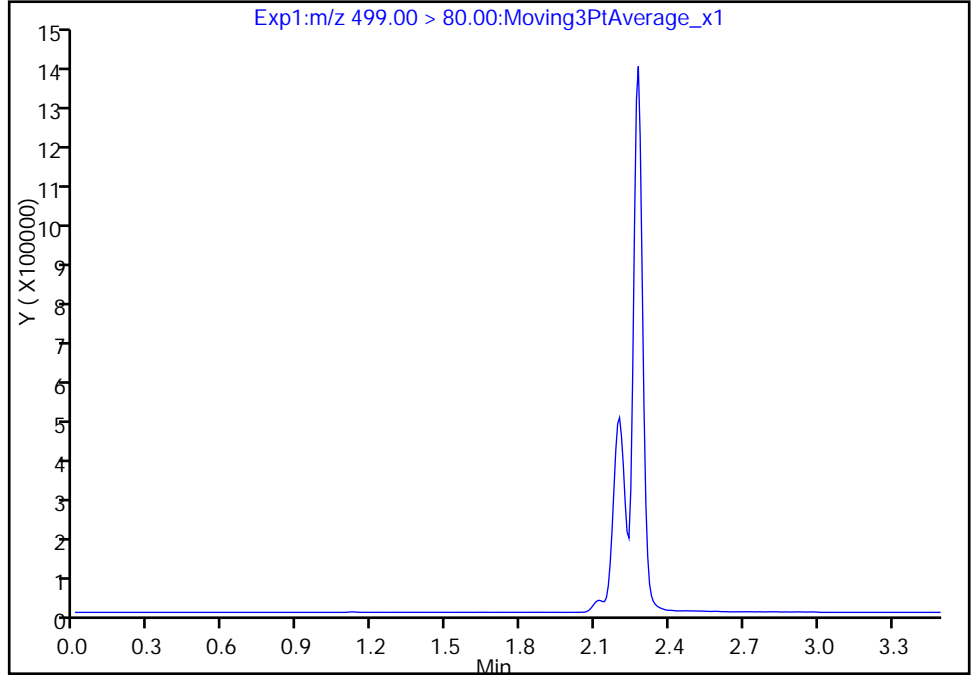
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d
Injection Date: 28-Feb-2017 17:57:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

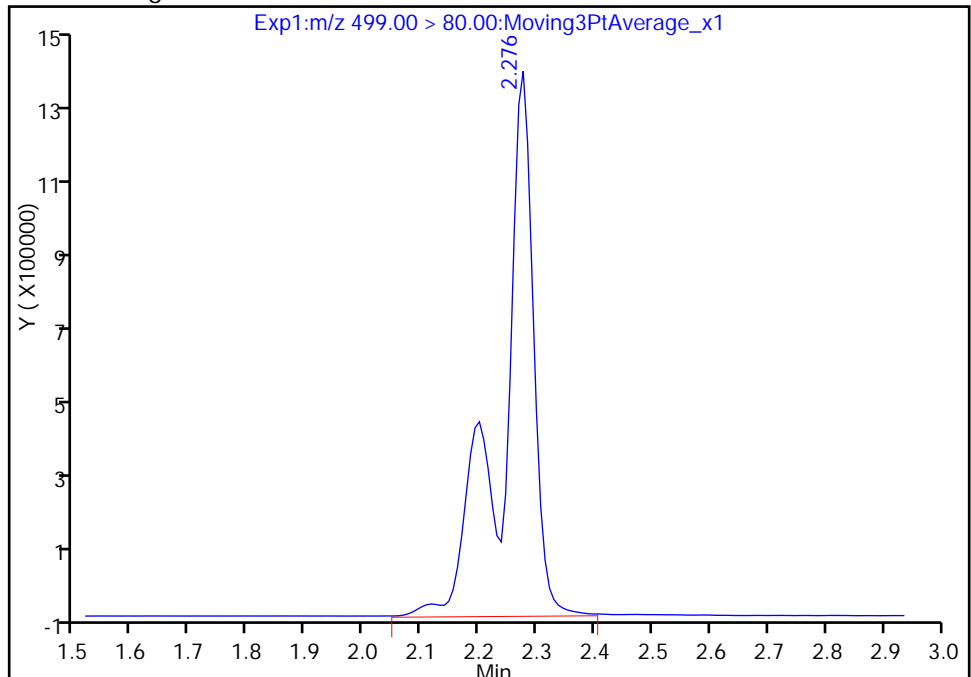
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 5068960
Amount: 20.422319
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:34
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

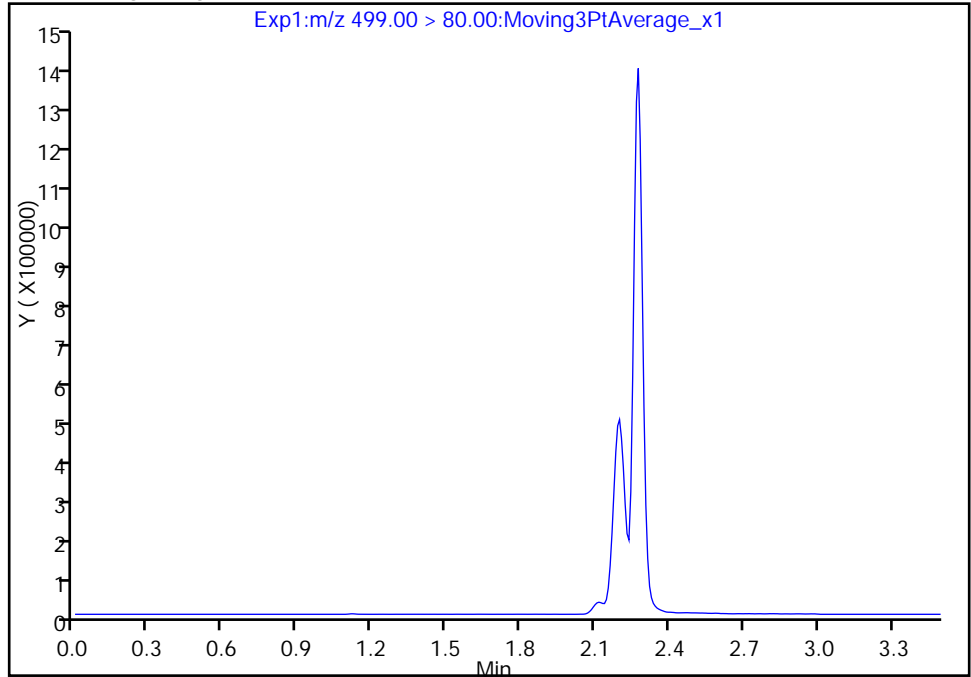
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Injection Date: 28-Feb-2017 17:57:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

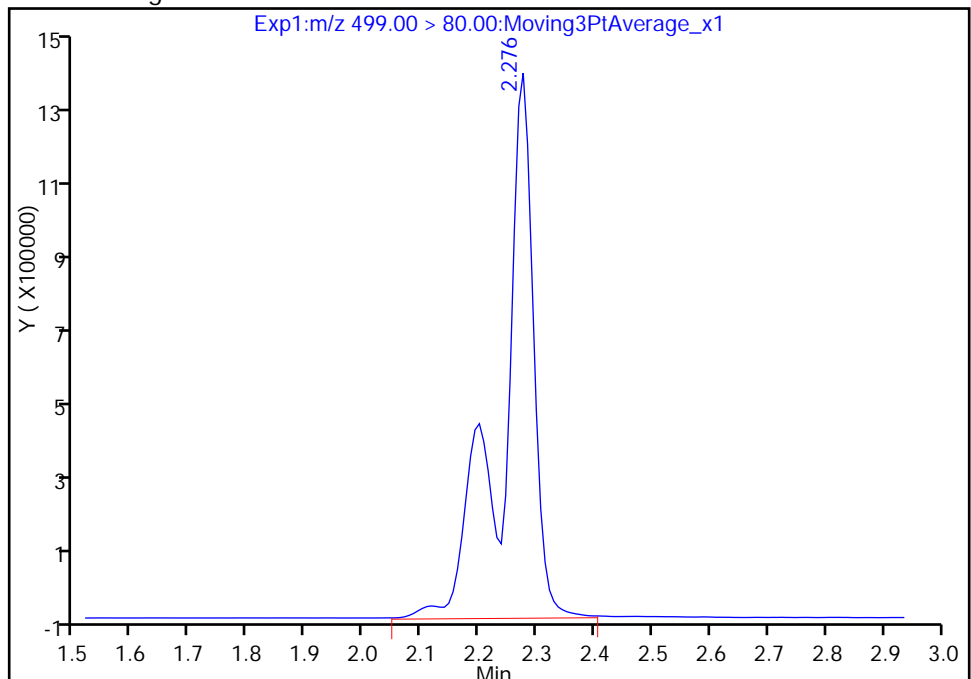
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 5068960
Amount: 20.422319
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

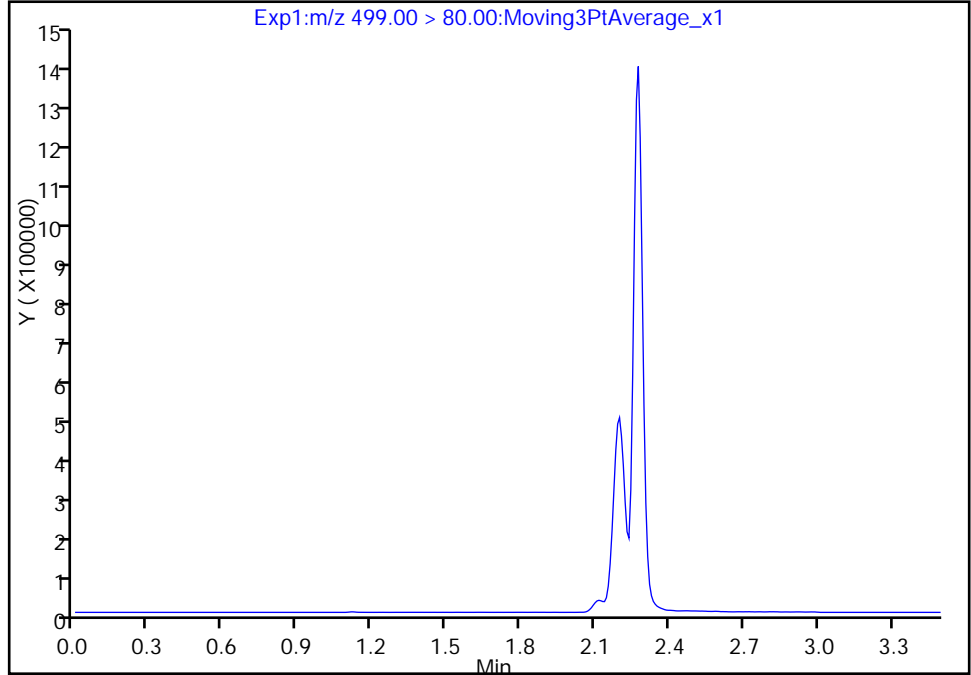
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d
Injection Date: 28-Feb-2017 17:57:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

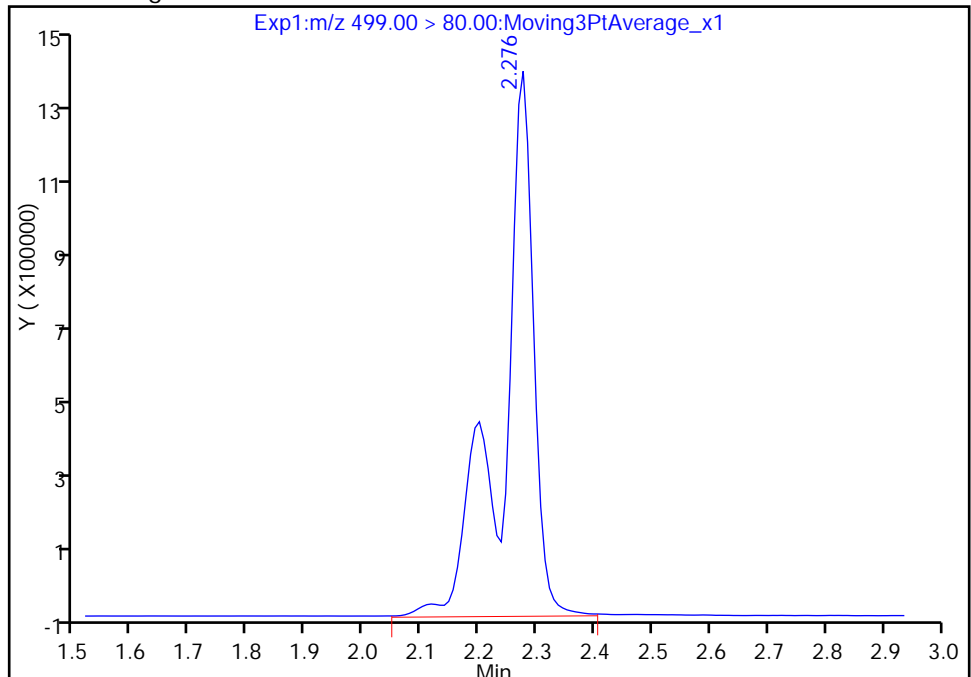
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 5068960
Amount: 20.422319
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:34
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

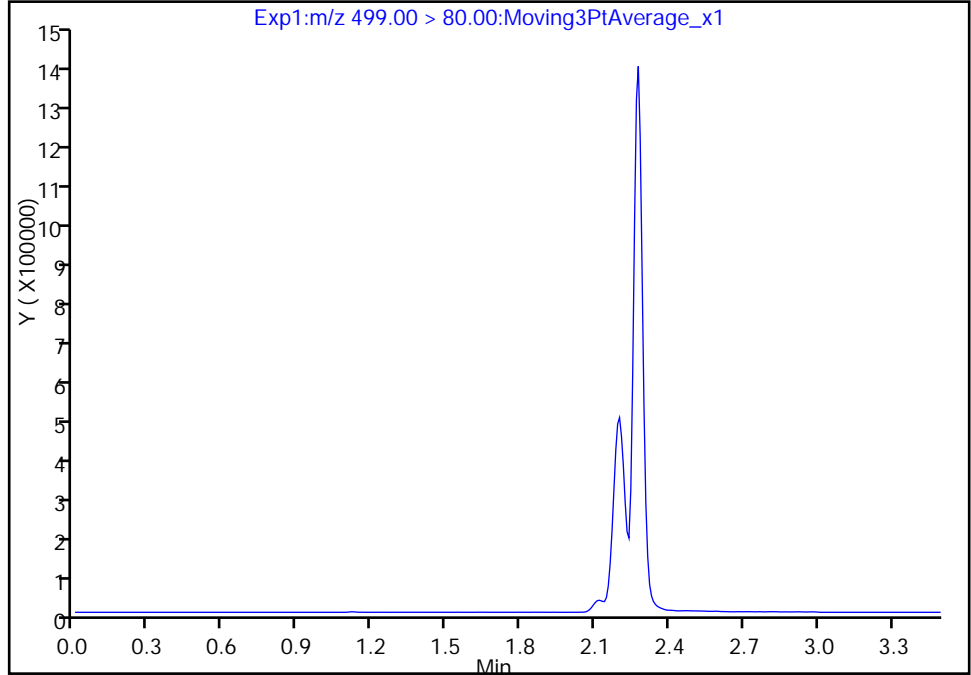
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_011.d
Injection Date: 28-Feb-2017 17:57:40 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 3 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

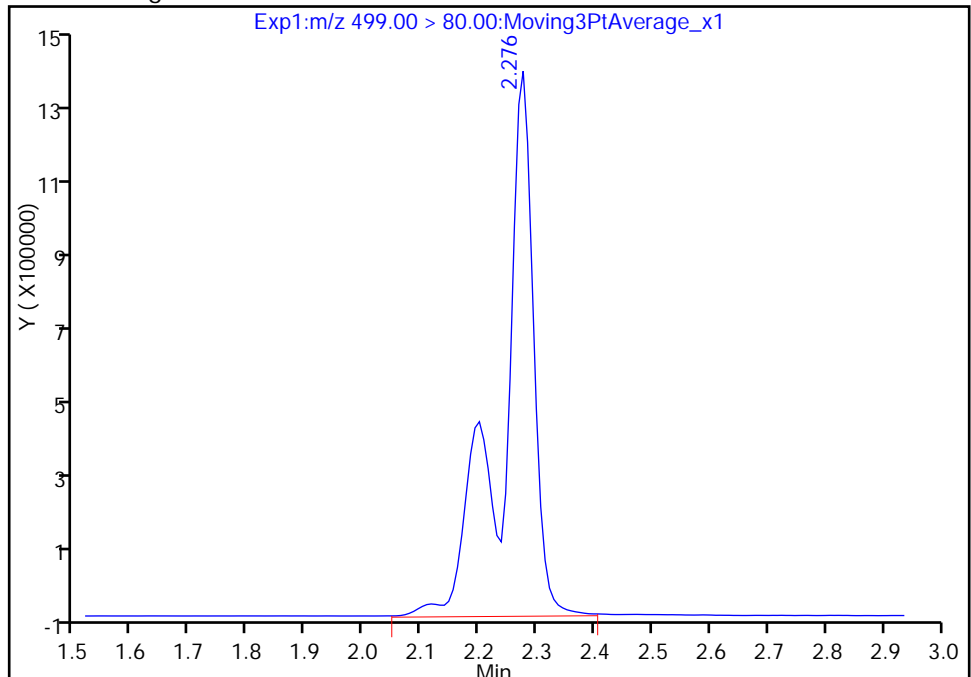
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 5068960
Amount: 20.422319
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152593/31 Calibration Date: 02/28/2017 18:19
 Instrument ID: A8_N Calib Start Date: 02/28/2017 14:41
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/28/2017 15:03
 Lab File ID: 2017.02.28C_537_016.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.491 | 1.247 | | 113 | 135 | -16.4 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9178 | 0.9311 | | 15.1 | 14.9 | 1.4 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.372 | 1.511 | | 50.0 | 45.4 | 10.1 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9600 | 0.9224 | | 28.1 | 29.3 | -3.9 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.089 | 1.058 | | 58.4 | 60.1 | -2.9 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7646 | 0.7094 | | 28.9 | 31.1 | -7.2 | 30.0 |
| 13C2 PFHxA | Ave | 1.024 | 1.112 | | 10.9 | 10.0 | 8.6 | 30.0 |
| 13C2 PFDA | Ave | 0.7568 | 0.7173 | | 9.48 | 10.0 | -5.2 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_016.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCV
 Inject. Date: 28-Feb-2017 18:19:42 ALS Bottle#: 5 Worklist Smp#: 31
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:46 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:33:10

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.533 | 1.627 | -0.094 | 1.000 | 40386120 | 112.6 | | 1589 | |
| 298.90 > 99.00 | 1.533 | 1.627 | -0.094 | 1.000 | 21042213 | | 1.92(0.00-0.00) | 2050 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.662 | 1.765 | -0.103 | 1.000 | 2672428 | 10.9 | | 5990 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.821 | 1.938 | -0.117 | 1.000 | 16498437 | 50.0 | | 2425 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.821 | 1.940 | -0.119 | 1.000 | 3323542 | 15.1 | | 318 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.026 | 2.172 | -0.146 | 1.000 | 6491609 | 28.1 | | 456 | |
| 413.00 > 169.00 | 2.026 | 2.172 | -0.146 | 1.000 | 3885624 | | 1.67(0.00-0.00) | 3073 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.026 | 2.172 | -0.146 | | 2403652 | 10.0 | | 5415 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.193 | 2.276 | -0.083 | 1.000 | 15299533 | 58.4 | | 1103 | |
| 499.00 > 99.00 | 2.238 | 2.276 | -0.038 | 1.021 | 3771110 | | 4.06(0.00-0.00) | 636 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.269 | 2.395 | -0.127 | | 6899812 | 28.7 | | 9362 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.276 | 2.404 | -0.128 | 1.000 | 5304818 | 28.9 | | 1301 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.413 | 2.530 | -0.117 | 1.000 | 1724050 | 9.48 | | 2044 | |

Reagents:

LC537-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_016.d

Injection Date: 28-Feb-2017 18:19:42

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 5

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

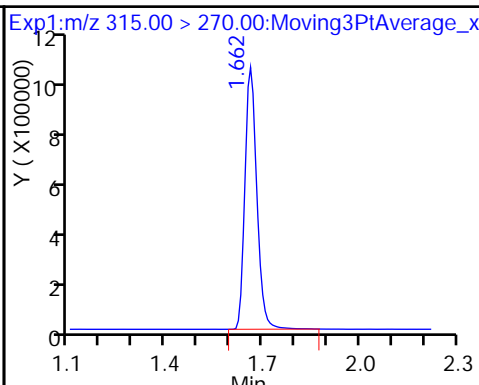
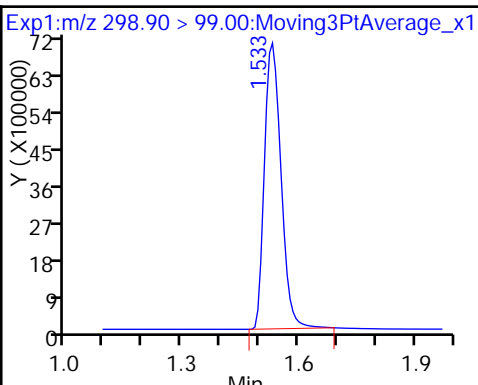
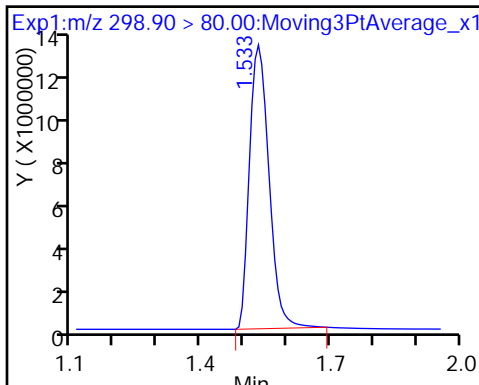
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

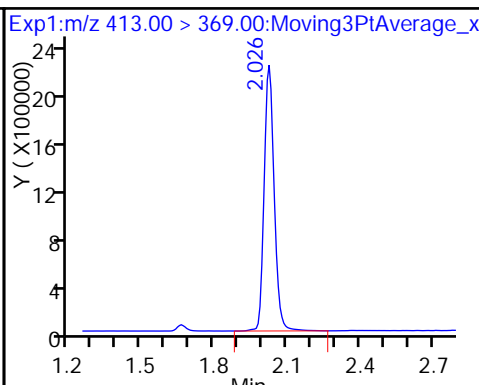
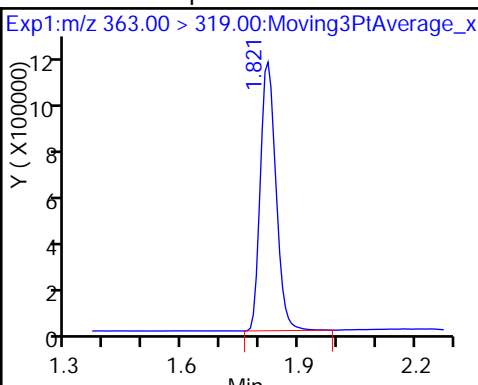
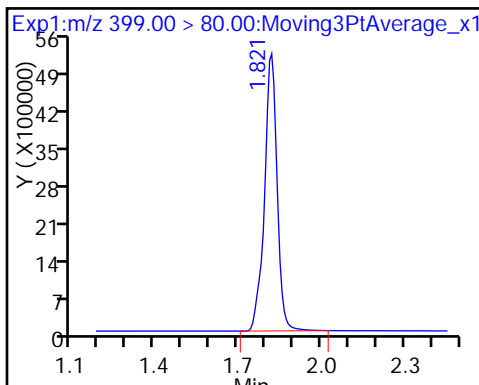
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

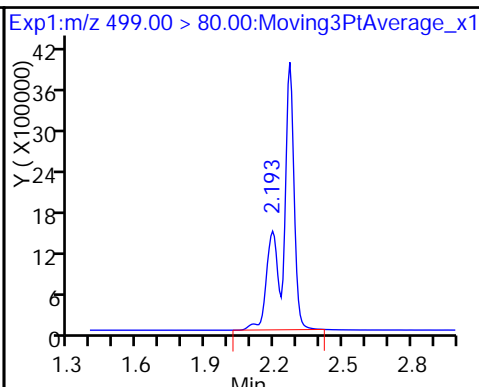
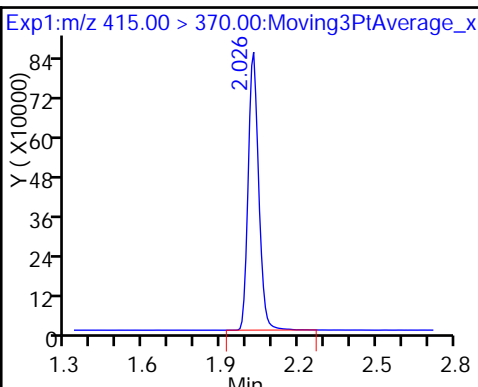
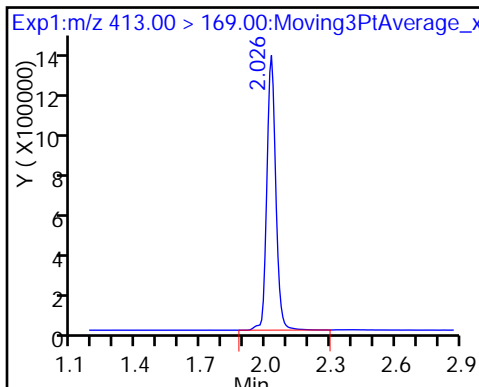
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

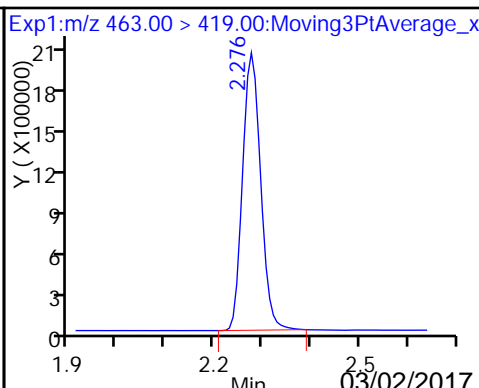
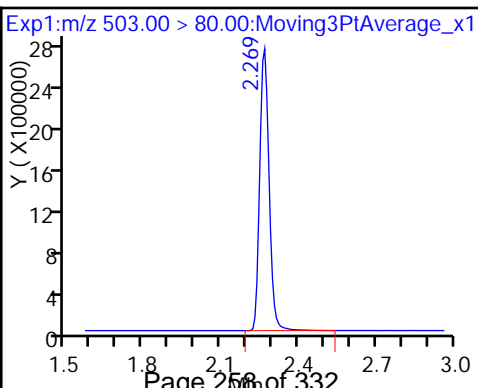
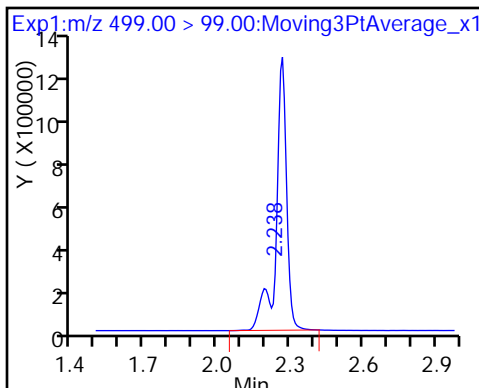
8 Perfluorooctane sulfonic acid



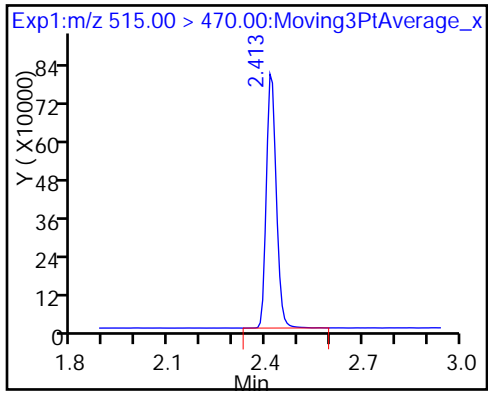
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-152685/10 Calibration Date: 03/01/2017 13:18
 Instrument ID: A8_N Calib Start Date: 03/01/2017 12:47
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 13:09
 Lab File ID: 2017.03.01_537CURVE_010.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.679 | 2.018 | | 27.5 | 22.9 | 20.2 | 50.0 |
| Perfluoroheptanoic acid | Ave | 0.9649 | 1.017 | | 2.76 | 2.62 | 5.4 | 50.0 |
| Perfluorohexanesulfonic acid | Ave | 1.607 | 1.744 | | 8.38 | 7.72 | 8.5 | 50.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9608 | 1.014 | | 5.25 | 4.98 | 5.5 | 50.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.095 | 1.128 | | 10.5 | 10.2 | 2.9 | 50.0 |
| Perfluorononanoic acid | Ave | 0.7437 | 0.7847 | | 5.58 | 5.29 | 5.5 | 50.0 |
| 13C2 PFHxA | Ave | 1.064 | 1.072 | | 10.1 | 10.0 | 0.7 | 30.0 |
| 13C2 PFDA | Ave | 0.6770 | 0.6632 | | 9.80 | 10.0 | -2.0 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_010.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 01-Mar-2017 13:18:14 ALS Bottle#: 2 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:32 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:13:40

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.502 | 1.511 | -0.009 | 1.000 | 11610519 | 27.5 | | 963 | |
| 298.90 > 99.00 | 1.502 | 1.511 | -0.009 | 1.000 | 5094854 | | 2.28(0.00-0.00) | 1116 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.624 | 1.638 | -0.014 | 1.000 | 2889630 | 10.1 | | 5638 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.775 | 1.789 | -0.014 | 1.000 | 3382372 | 8.38 | | 787 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.775 | 1.791 | -0.016 | 1.000 | 718609 | 2.76 | | 72.5 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.973 | 1.992 | -0.019 | | 2696522 | 10.0 | | 4571 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.980 | 1.994 | -0.014 | 1.000 | 1360435 | 5.25 | | 96.6 | |
| 413.00 > 169.00 | 1.980 | 1.994 | -0.014 | 1.000 | 779472 | | 1.75(0.00-0.00) | 838 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.231 | 2.162 | 0.069 | 1.000 | 2895451 | 10.5 | | 1037 | M |
| 499.00 > 99.00 | 2.231 | 2.162 | 0.069 | 1.000 | 690721 | | 4.19(0.00-0.00) | 903 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.231 | 2.241 | -0.010 | | 7208593 | 28.7 | | 7982 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.238 | 2.250 | -0.012 | 1.000 | 1119140 | 5.58 | | 288 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.382 | 2.392 | -0.010 | 1.000 | 1788264 | 9.80 | | 2109 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00015

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_010.d

Injection Date: 01-Mar-2017 13:18:14

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 2

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

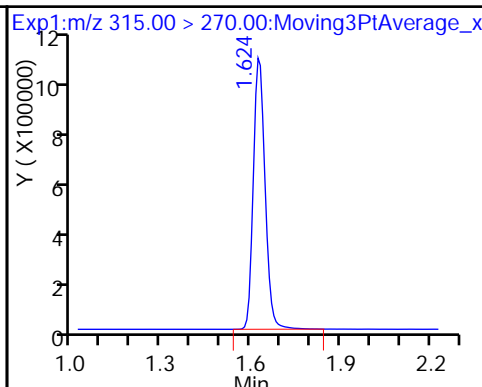
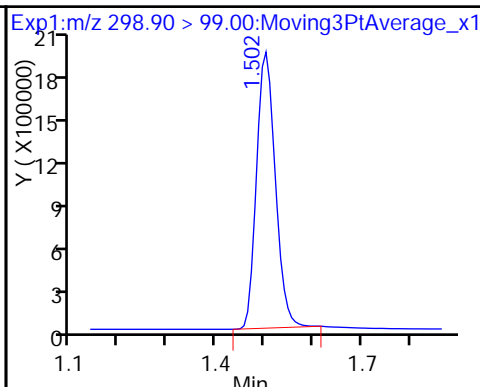
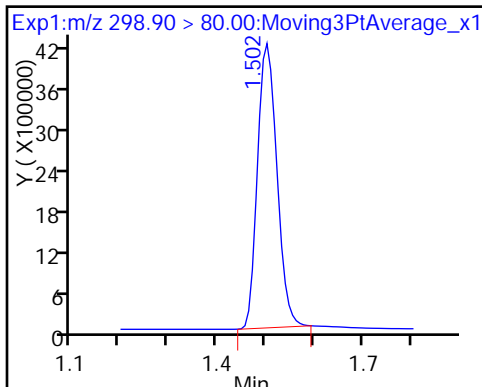
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

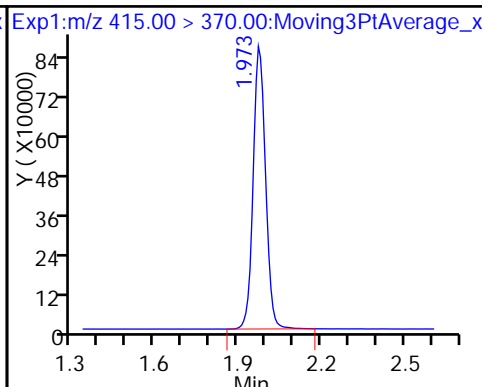
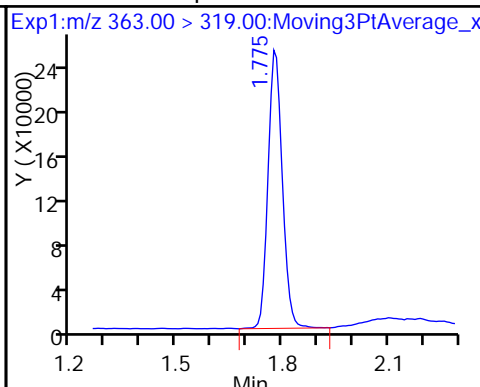
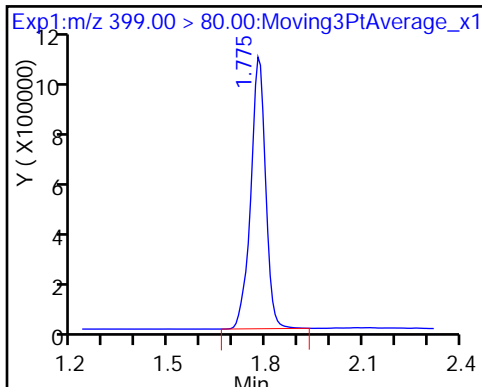
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

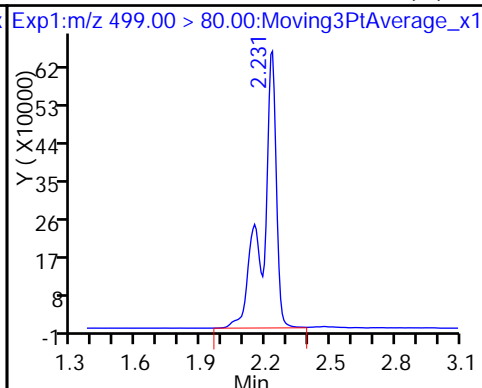
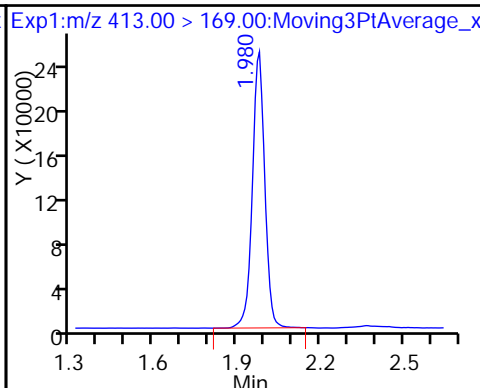
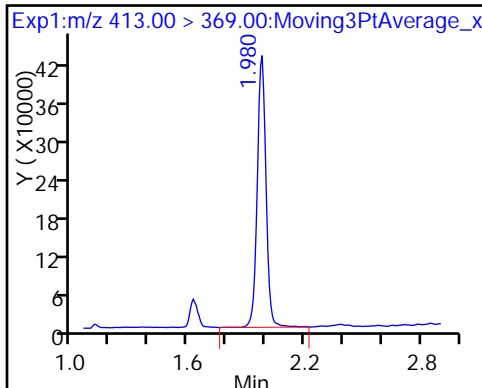
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

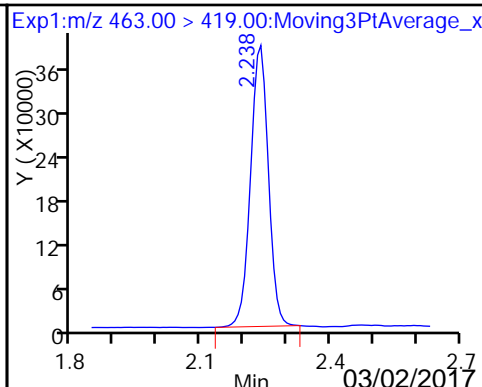
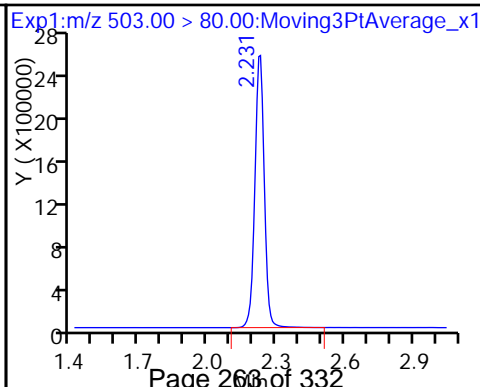
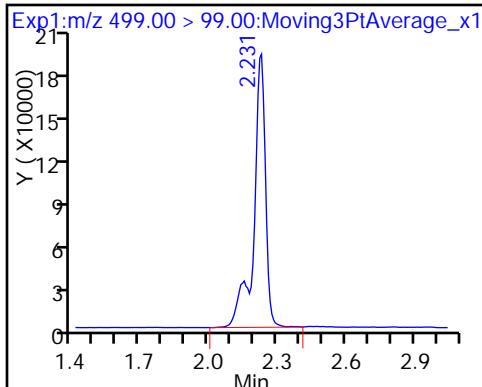
8 Perfluorooctane sulfonic acid (M)



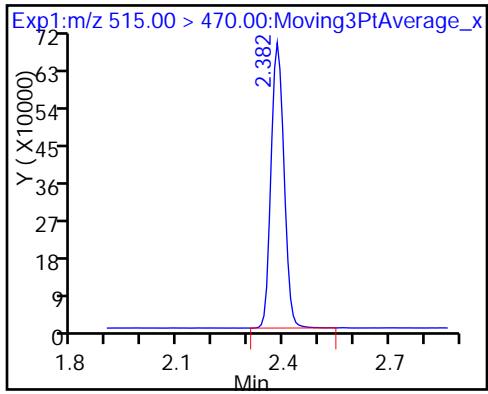
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

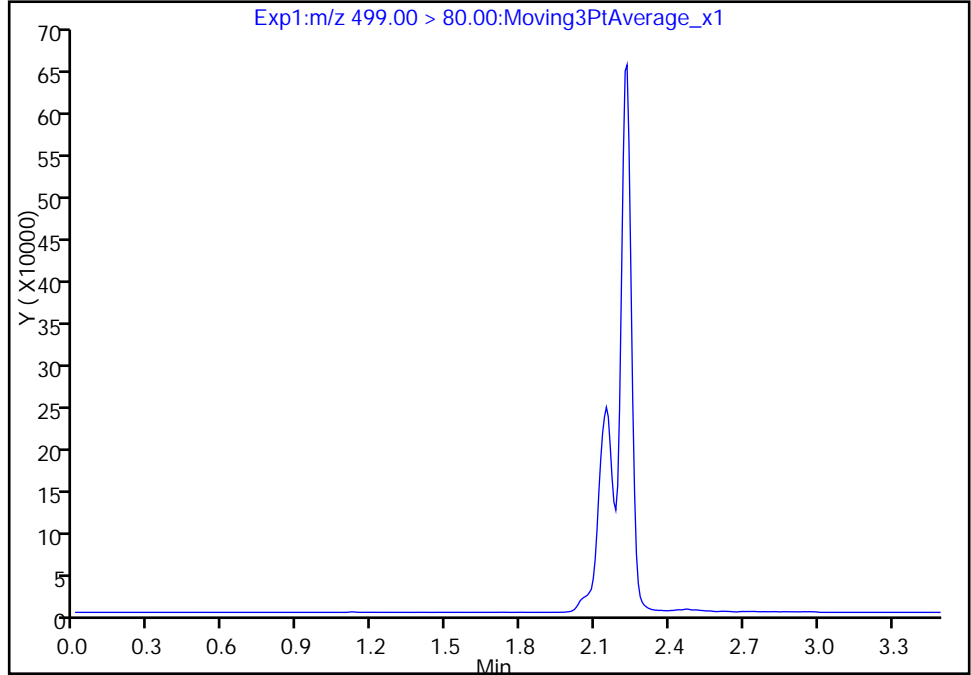
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Injection Date: 01-Mar-2017 13:18:14 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

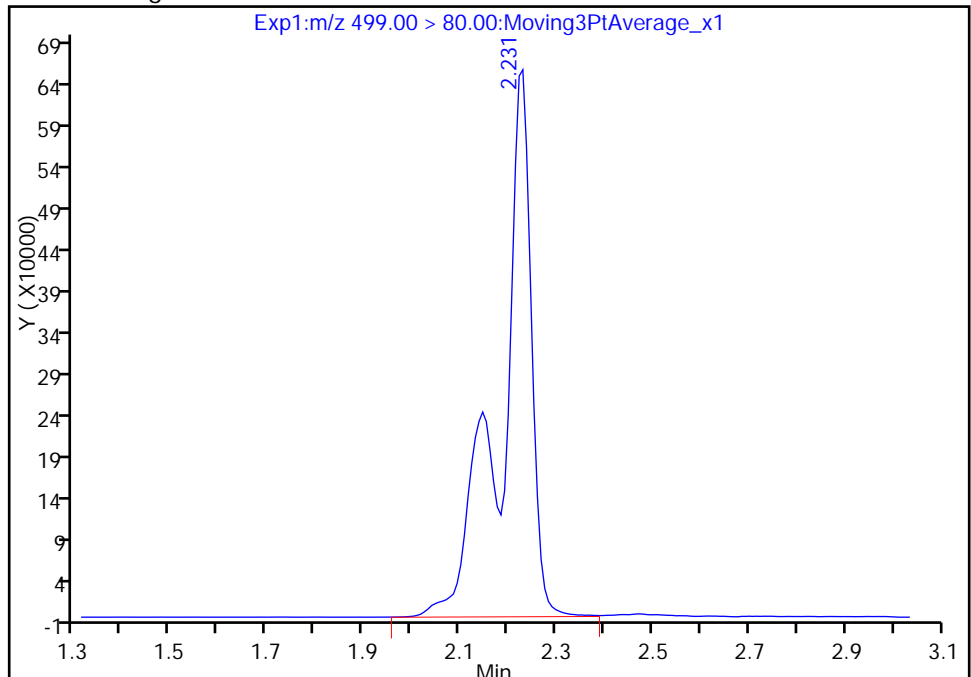
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.23
Area: 2895451
Amount: 10.517049
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:32
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

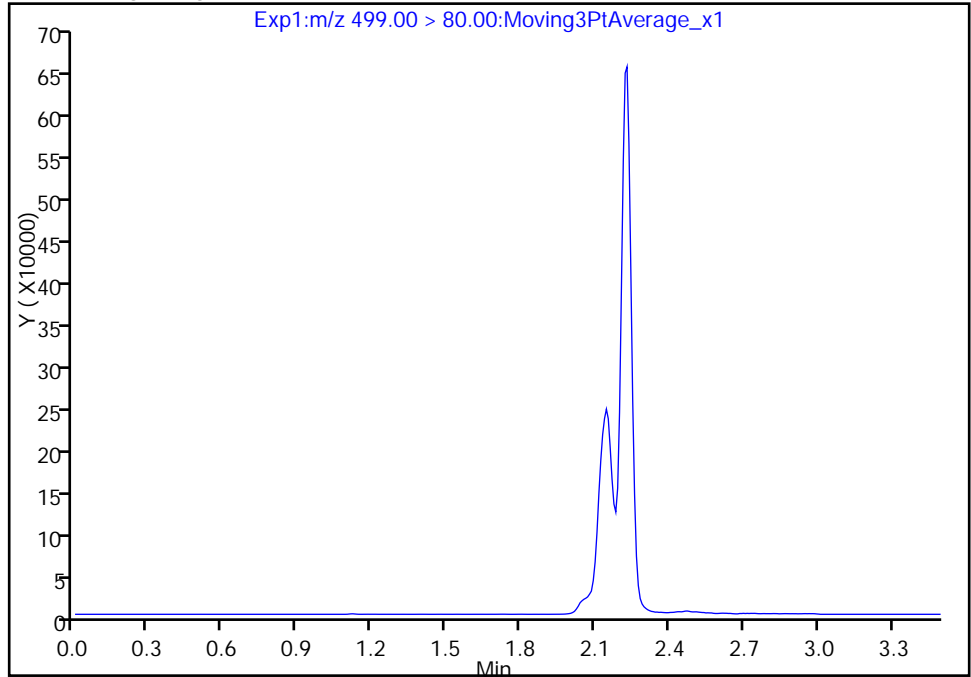
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Injection Date: 01-Mar-2017 13:18:14 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 2 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

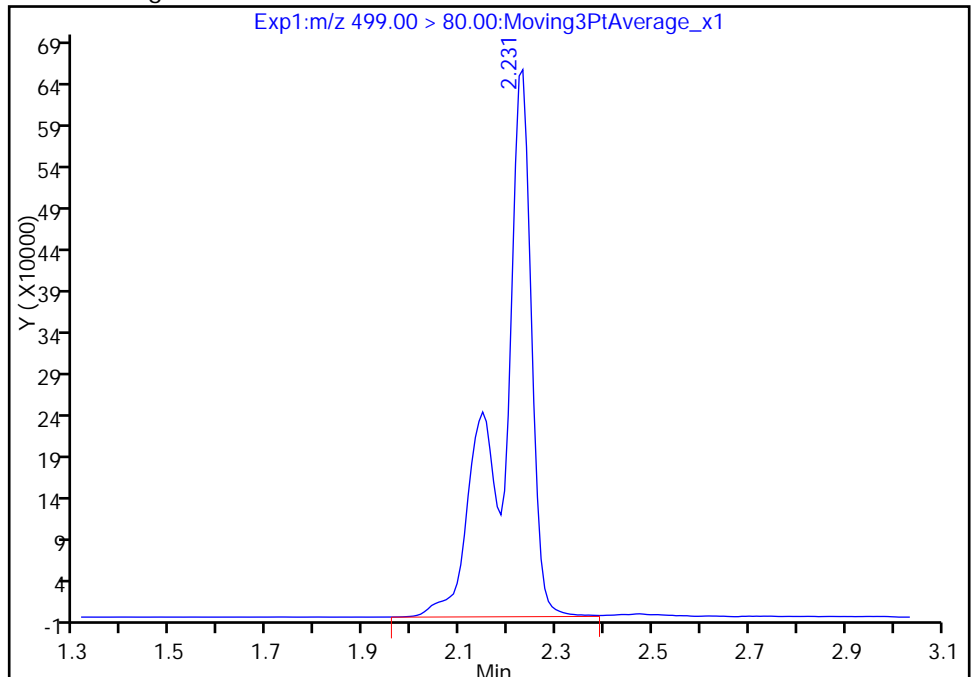
Not Detected
Expected RT: 2.16

Processing Integration Results



RT: 2.23
Area: 2895451
Amount: 10.517049
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 01-Mar-2017 14:25:32

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: ICV 320-152685/12 Calibration Date: 03/01/2017 13:27
 Instrument ID: A8_N Calib Start Date: 03/01/2017 12:47
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 13:09
 Lab File ID: 2017.03.01_537CURVE_012.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.679 | 1.525 | | 91.5 | 101 | -9.1 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9649 | 0.7768 | | 8.12 | 10.1 | -19.5 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.607 | 1.539 | | 20.3 | 21.2 | -4.2 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9608 | 0.8021 | | 16.7 | 20.0 | -16.5 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.095 | 1.032 | | 19.5 | 20.7 | -5.8 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7437 | 0.6312 | | 17.0 | 20.0 | -15.1 | 30.0 |
| 13C2 PFHxA | Ave | 1.064 | 1.104 | | 10.4 | 10.0 | 3.8 | 30.0 |
| 13C2 PFDA | Ave | 0.6770 | 0.7151 | | 10.6 | 10.0 | 5.6 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_012.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 01-Mar-2017 13:27:02 ALS Bottle#: 7 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 14:25:34 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d

Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 14:14:26

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.502 | 1.511 | -0.009 | 1.000 | 31510246 | 91.5 | | 1482 | |
| 298.90 > 99.00 | 1.502 | 1.511 | -0.009 | 1.000 | 15290813 | | 2.06(0.00-0.00) | 1845 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.624 | 1.638 | -0.014 | 1.000 | 2298254 | 10.4 | | 5213 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.775 | 1.789 | -0.014 | 1.000 | 6690980 | 20.3 | | 1372 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.775 | 1.791 | -0.016 | 1.000 | 1630084 | 8.12 | | 153 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.973 | 1.992 | -0.019 | | 2081695 | 10.0 | | 4689 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.973 | 1.994 | -0.021 | 1.000 | 3342351 | 16.7 | | 232 | |
| 413.00 > 169.00 | 1.973 | 1.994 | -0.021 | 1.000 | 1947026 | | 1.72(0.00-0.00) | 1629 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.223 | 2.162 | 0.061 | 1.000 | 4382920 | 19.5 | | 1305 | M |
| 499.00 > 99.00 | 2.223 | 2.162 | 0.061 | 1.000 | 875749 | | 5.00(0.00-0.00) | 1023 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.223 | 2.241 | -0.018 | | 5884388 | 28.7 | | 6367 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.231 | 2.250 | -0.019 | 1.000 | 2628814 | 17.0 | | 631 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.382 | 2.392 | -0.010 | 1.000 | 1488517 | 10.6 | | 1801 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-ICV_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_012.d

Injection Date: 01-Mar-2017 13:27:02

Instrument ID: A8_N

Lims ID: ICV

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 7

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

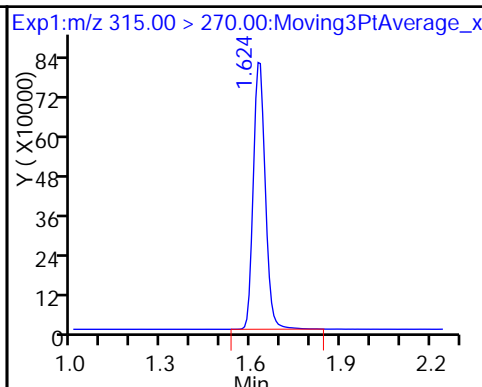
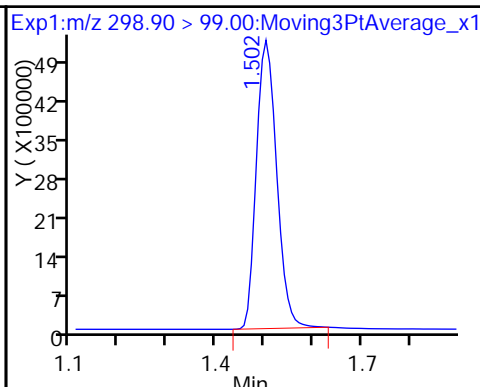
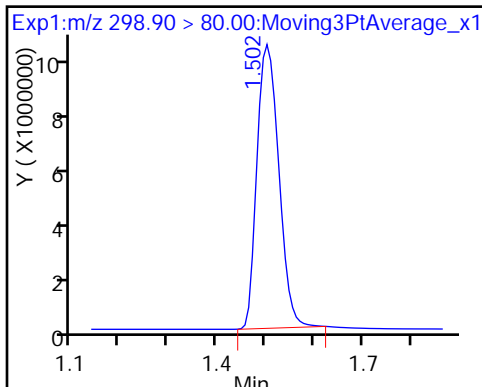
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

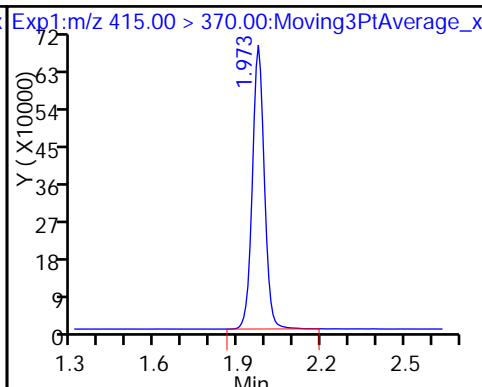
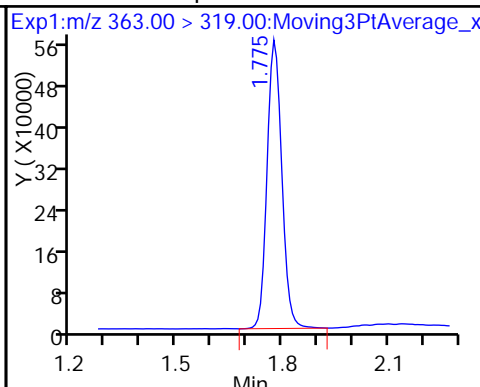
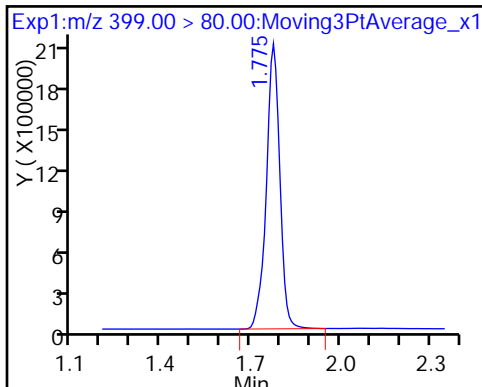
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

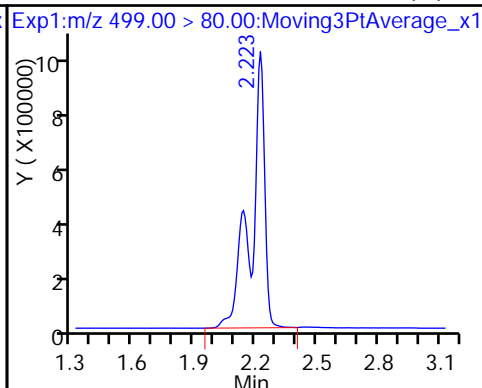
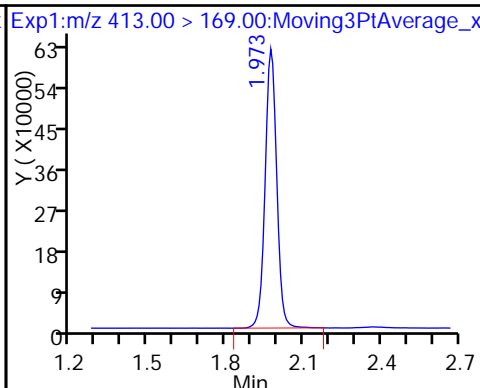
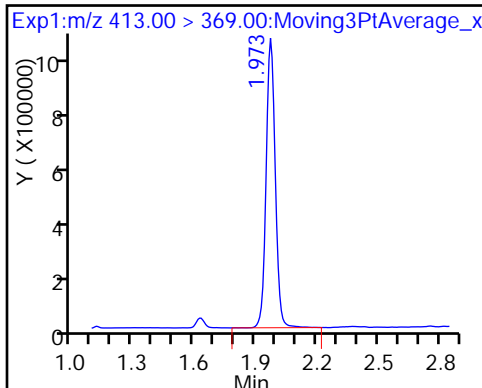
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

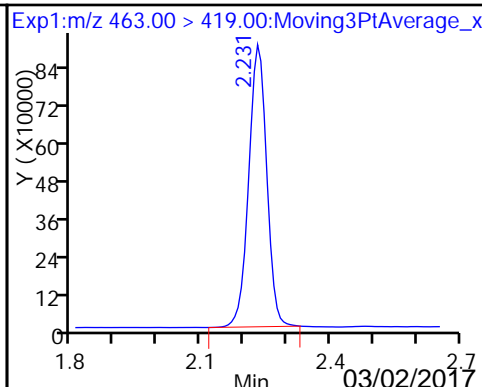
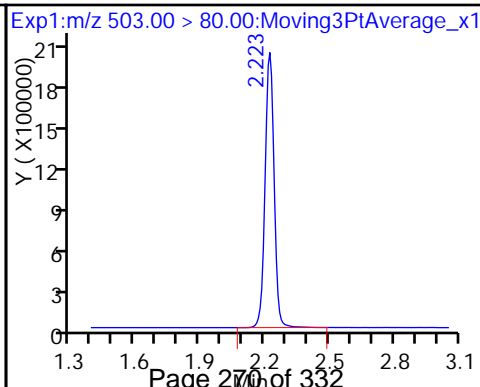
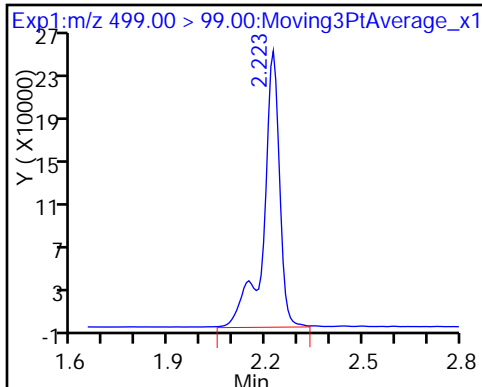
8 Perfluorooctane sulfonic acid (M)



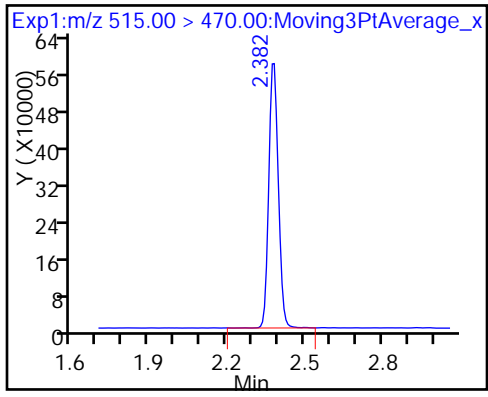
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

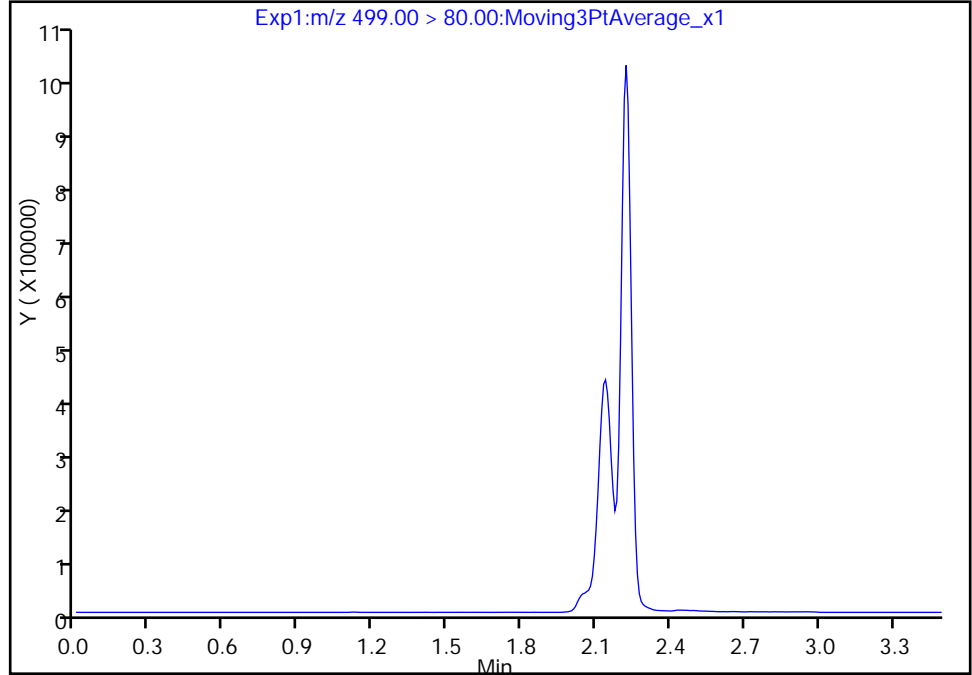
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_012.d
Injection Date: 01-Mar-2017 13:27:02 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 7 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

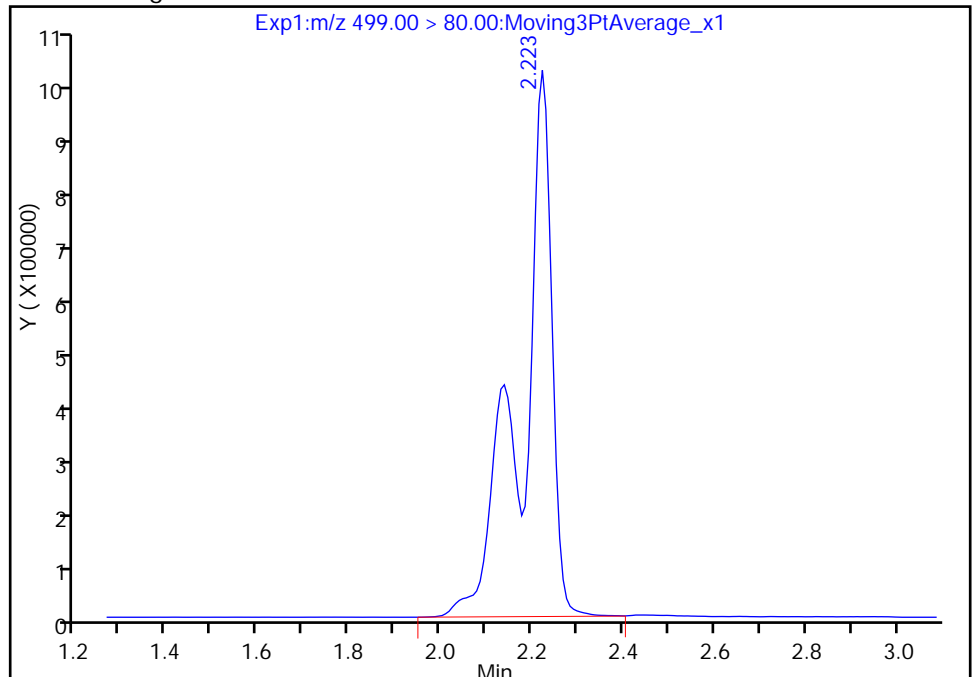
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.22
Area: 4382920
Amount: 19.502506
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:34
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

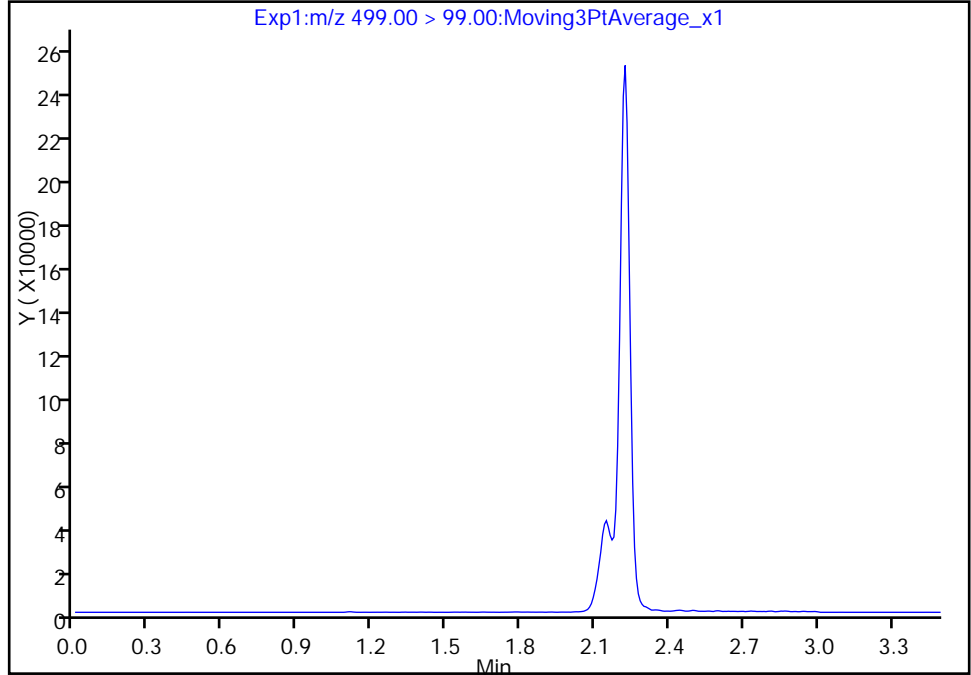
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_012.d
Injection Date: 01-Mar-2017 13:27:02 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 7 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

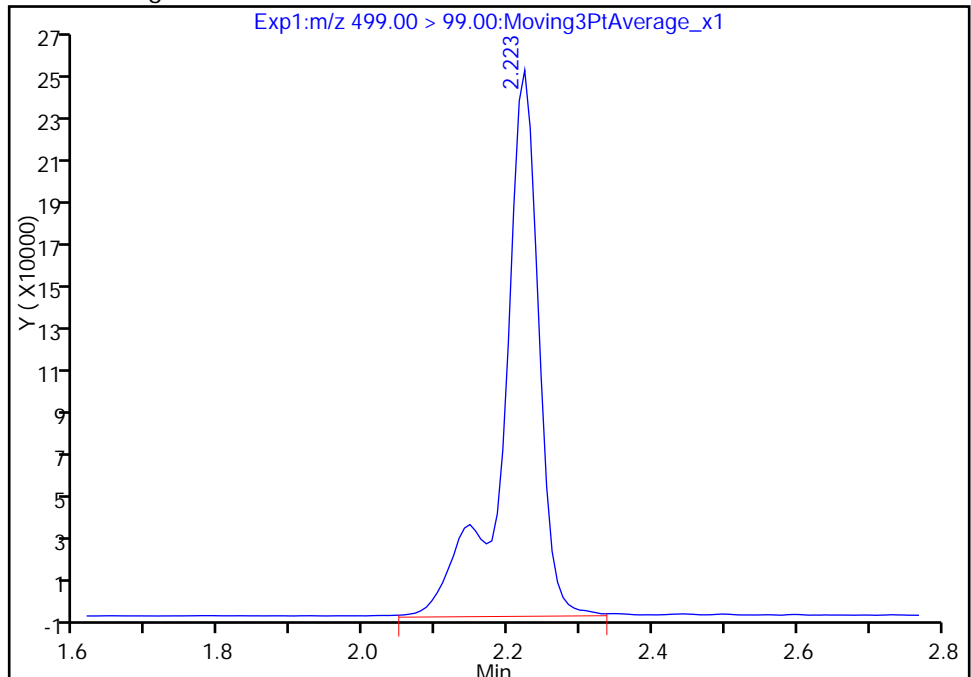
Not Detected
Expected RT: 2.16

Processing Integration Results



Manual Integration Results

RT: 2.22
Area: 875749
Amount: 19.502506
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 14:25:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

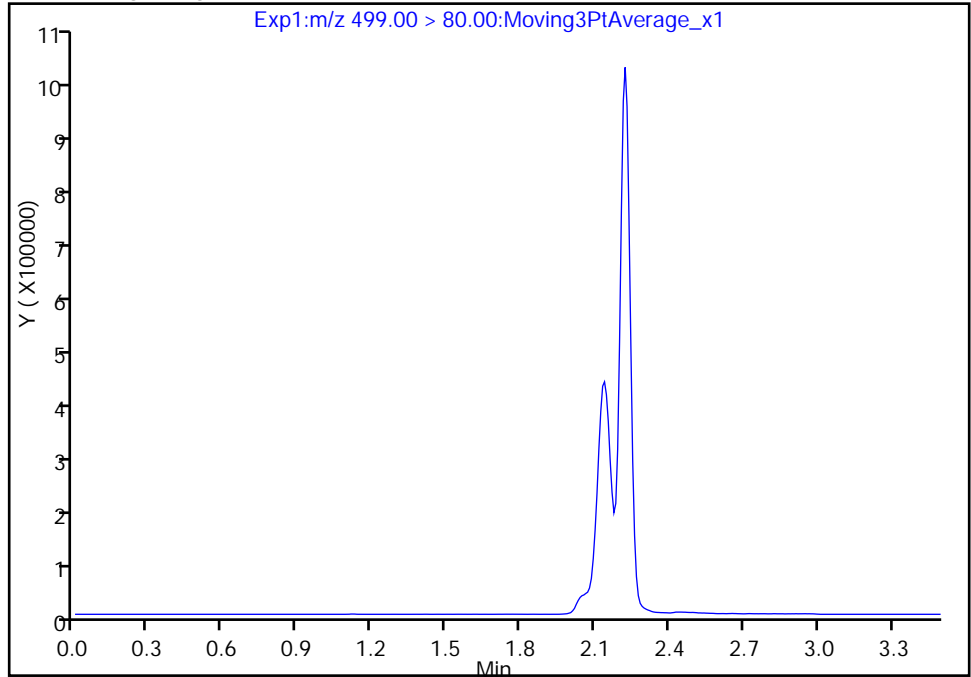
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_012.d
Injection Date: 01-Mar-2017 13:27:02 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 7 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

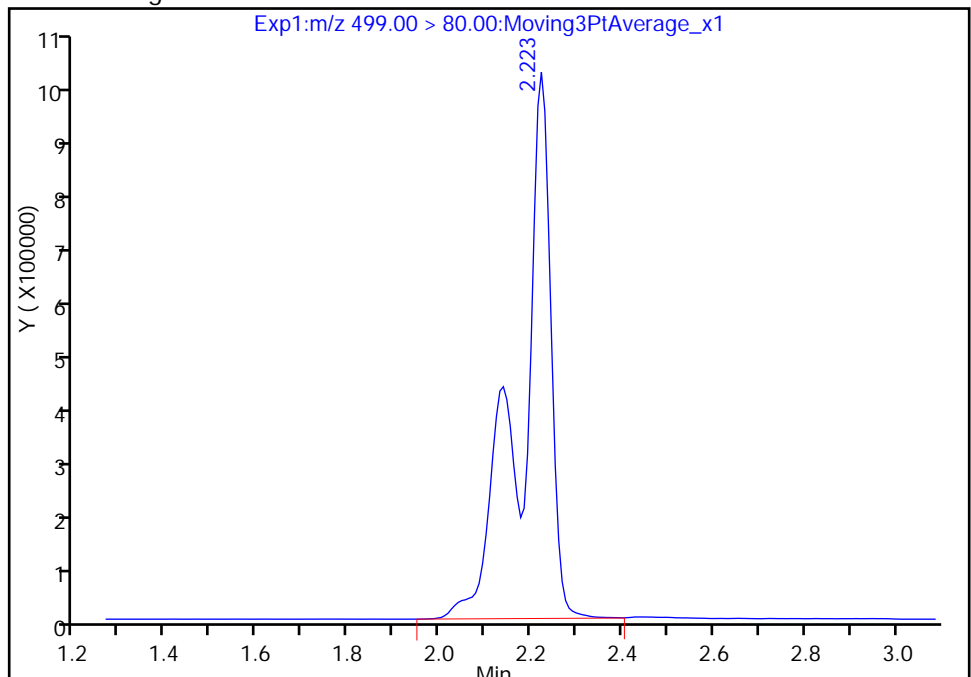
Not Detected
Expected RT: 2.16

Processing Integration Results



RT: 2.22
Area: 4382920
Amount: 19.502506
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 01-Mar-2017 14:25:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152753/2 Calibration Date: 03/01/2017 15:17
 Instrument ID: A8_N Calib Start Date: 03/01/2017 12:47
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 13:09
 Lab File ID: 2017.03.01A_537_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 | 1.679 | 1.214 | | 97.4 | 135 | -27.7 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9649 | 0.8698 | | 13.4 | 14.9 | -9.9 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.607 | 1.468 | | 41.5 | 45.4 | -8.6 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9608 | 0.8745 | | 26.7 | 29.3 | -9.0 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.095 | 1.061 | | 58.2 | 60.1 | -3.1 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7437 | 0.6658 | | 27.9 | 31.1 | -10.5 | 30.0 |
| 13C2 PFHxA | Ave | 1.064 | 1.041 | | 9.79 | 10.0 | -2.1 | 30.0 |
| 13C2 PFDA | Ave | 0.6770 | 0.6839 | | 10.1 | 10.0 | 1.0 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_002.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 01-Mar-2017 15:17:43 ALS Bottle#: 5 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 15:38:20 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 15:37:48

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.517 | 1.511 | 0.006 | 1.000 | 42703552 | 97.4 | | 2087 | |
| 298.90 > 99.00 | 1.517 | 1.511 | 0.006 | 1.000 | 22341890 | | 1.91(0.00-0.00) | 2764 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2876937 | 9.79 | | 6502 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.798 | 1.789 | 0.009 | 1.000 | 17409123 | 41.5 | | 2456 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.798 | 1.791 | 0.007 | 1.000 | 3568457 | 13.4 | | 352 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2762819 | 10.0 | | 4325 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.003 | 1.994 | 0.009 | 1.000 | 7074001 | 26.7 | | 541 | |
| 413.00 > 169.00 | 2.003 | 1.994 | 0.009 | 1.000 | 4321860 | | 1.64(0.00-0.00) | 3025 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.246 | 2.241 | 0.005 | | 7492148 | 28.7 | | 7171 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.261 | 2.250 | 0.011 | 1.000 | 5722760 | 27.9 | | 1247 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.253 | 2.253 | 0.0 | 1.000 | 16657523 | 58.2 | | 3430 | M |
| 499.00 > 99.00 | 2.246 | 2.253 | -0.007 | 0.997 | 4017735 | | 4.15(0.00-0.00) | 2402 | M |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.397 | 2.392 | 0.005 | 1.000 | 1889595 | 10.1 | | 2563 | |

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_002.d

Injection Date: 01-Mar-2017 15:17:43

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 5

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

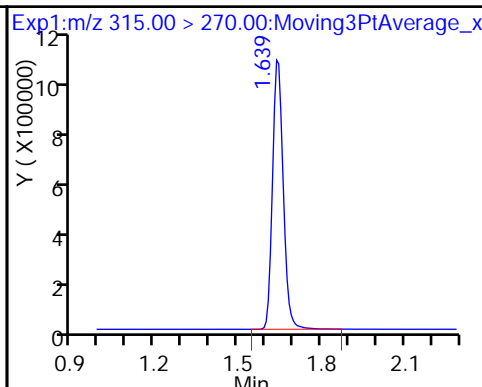
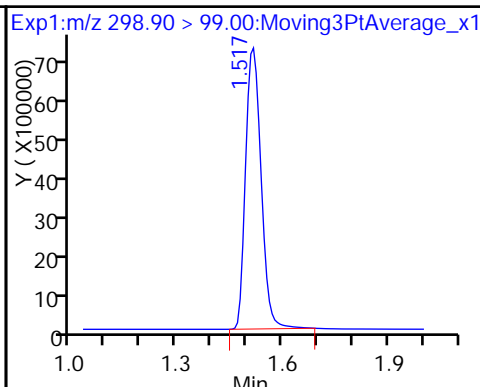
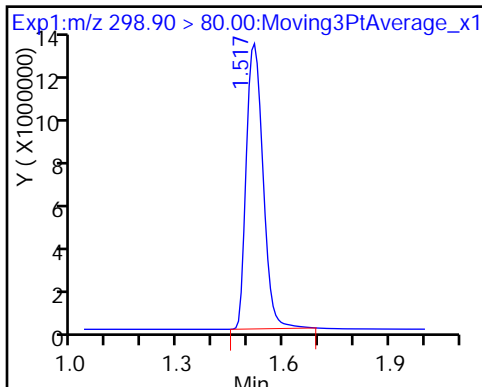
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

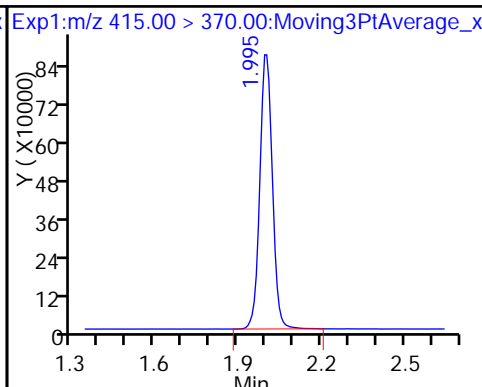
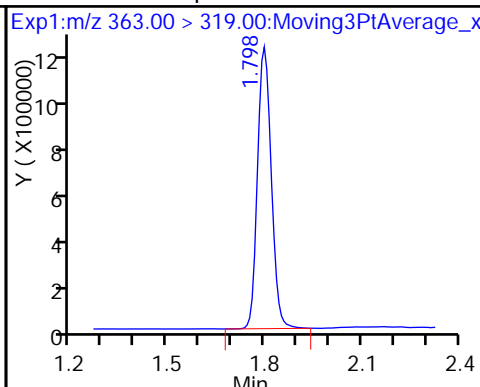
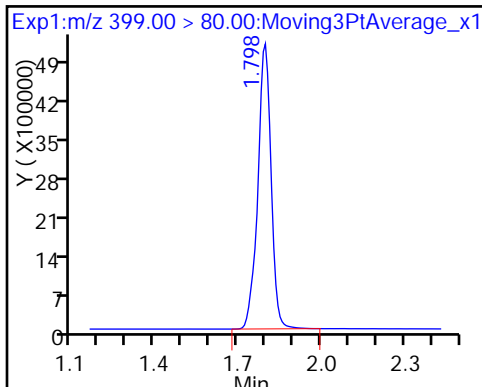
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

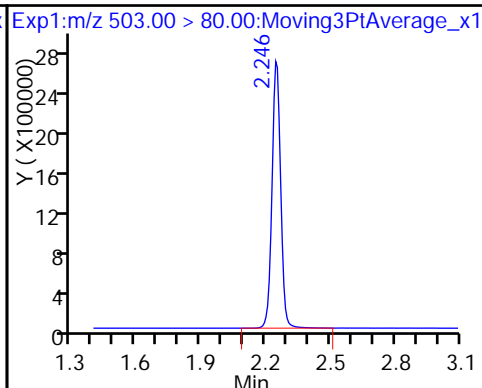
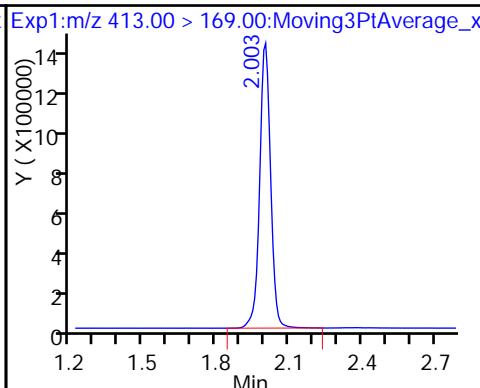
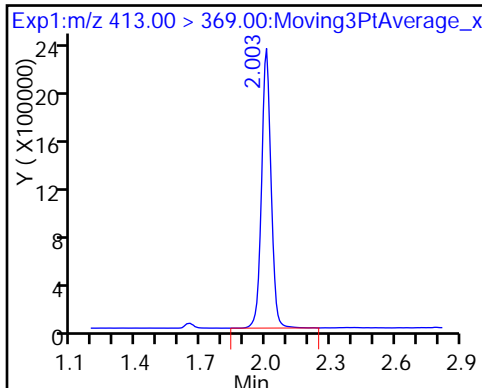
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

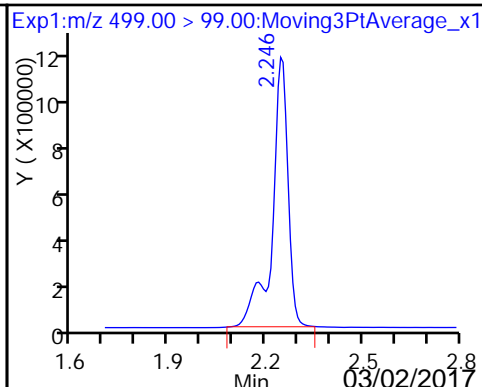
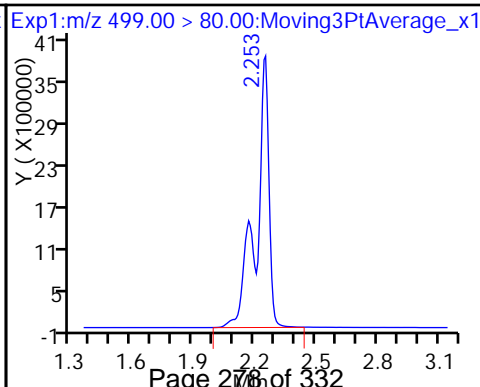
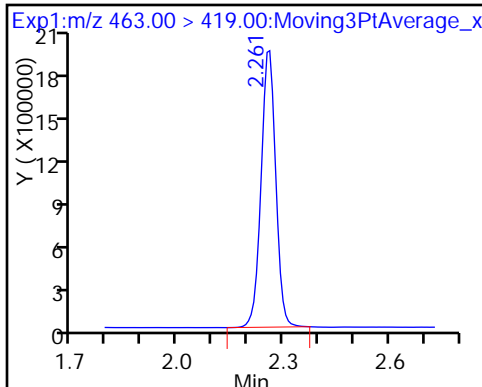
* 7 13C4 PFOS



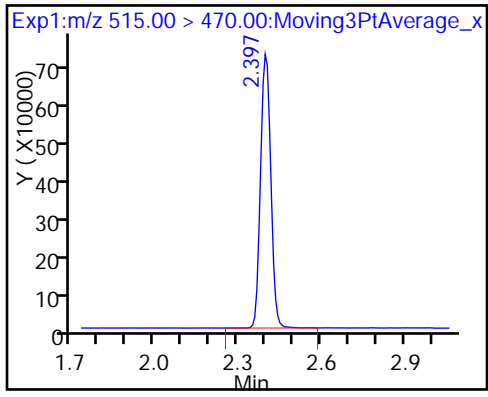
9 Perfluorononanoic acid

8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento

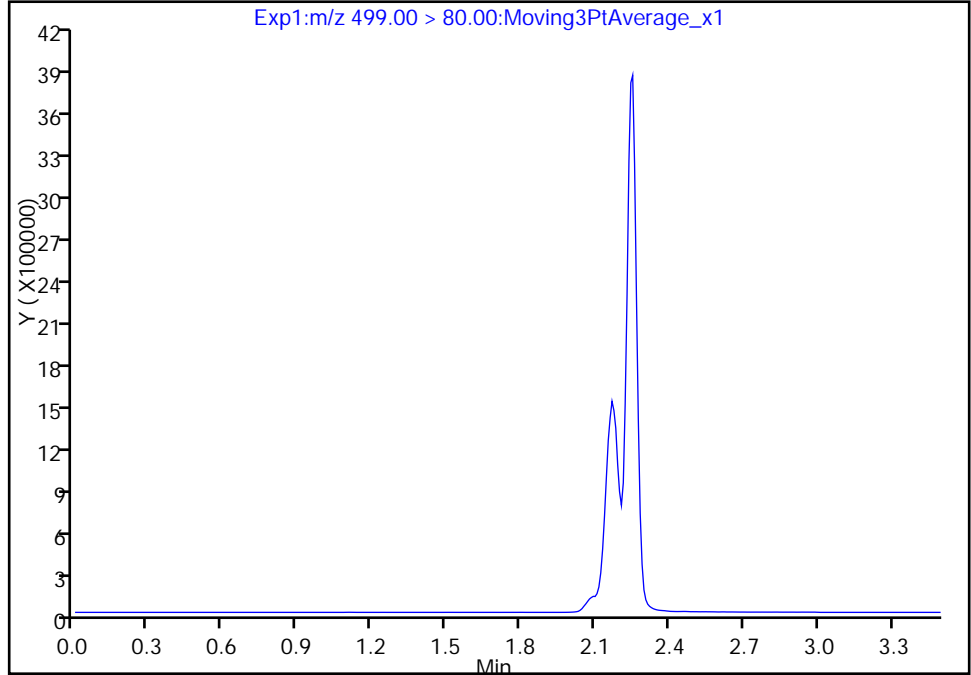
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_002.d
Injection Date: 01-Mar-2017 15:17:43 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 5 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

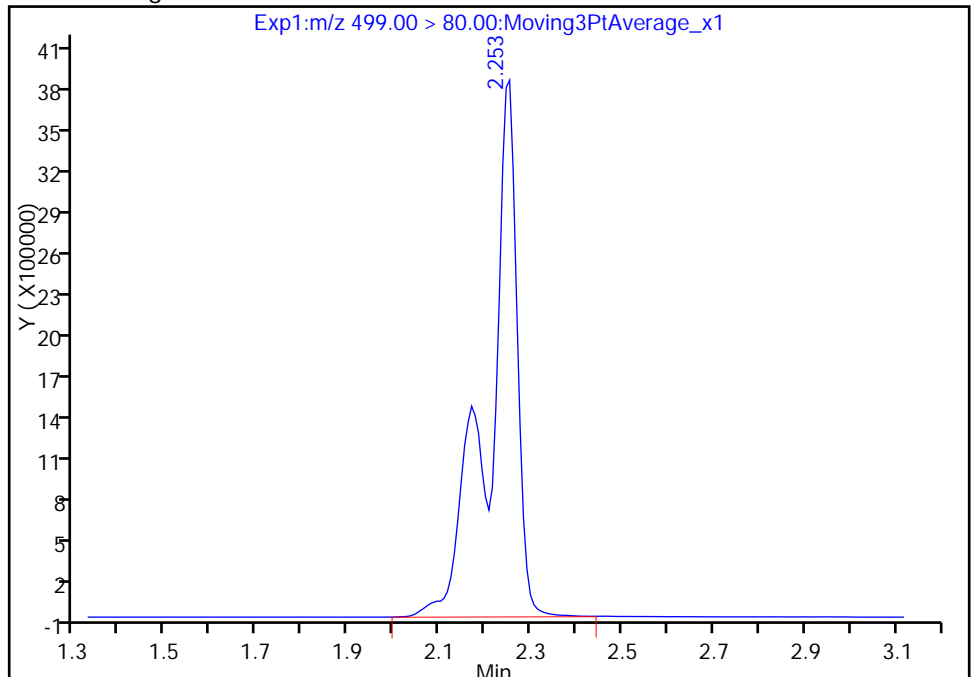
Not Detected
Expected RT: 2.25

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 16657523
Amount: 58.214645
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 15:38:20
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

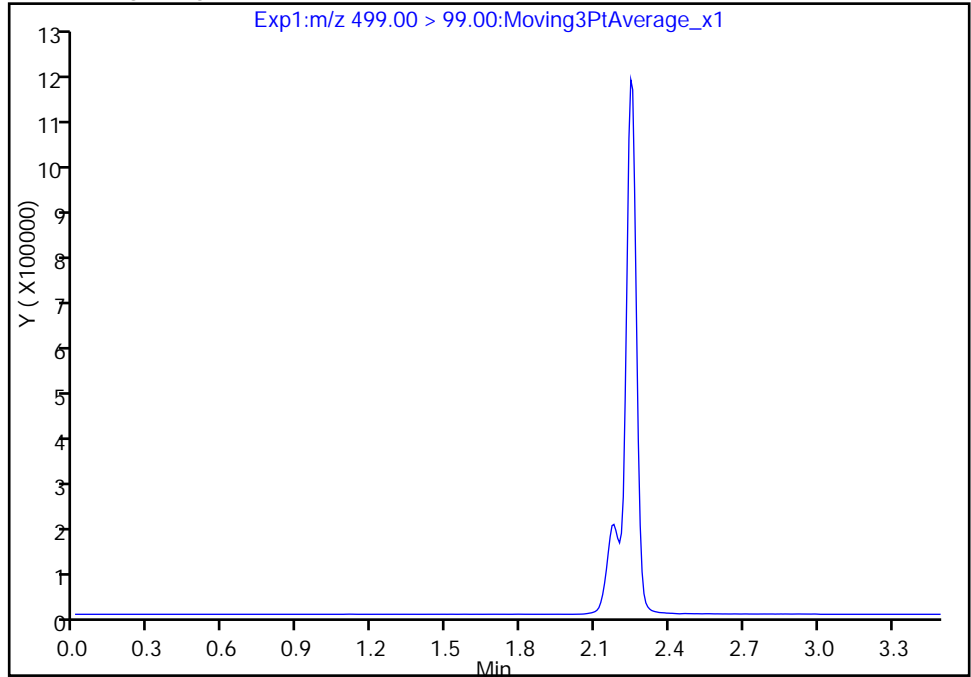
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_002.d
Injection Date: 01-Mar-2017 15:17:43 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 5 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

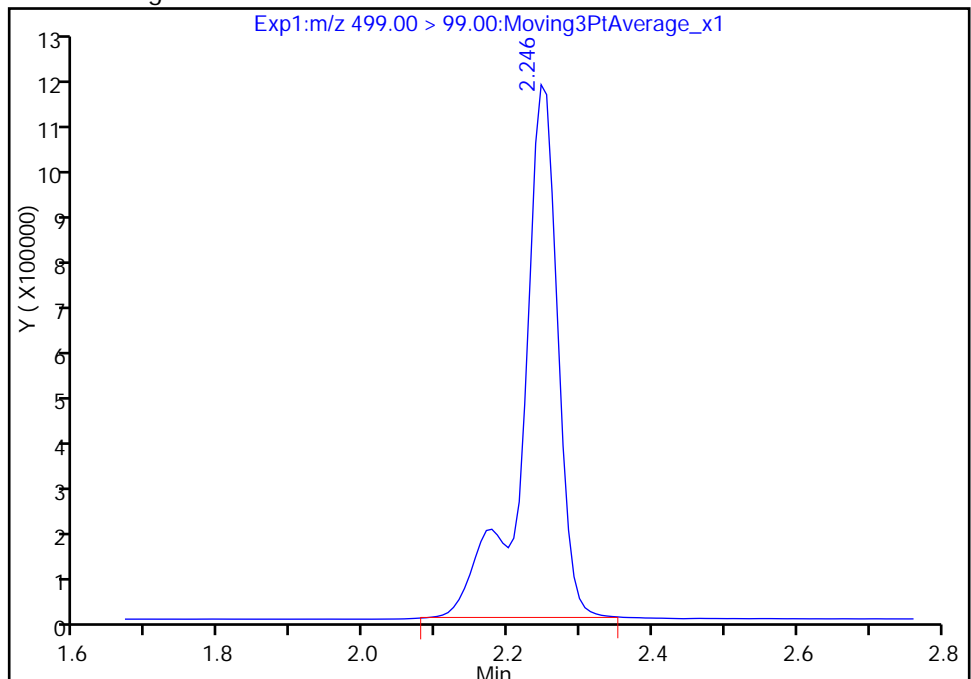
Not Detected
Expected RT: 2.25

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 4017735
Amount: 58.214645
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 15:38:20

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

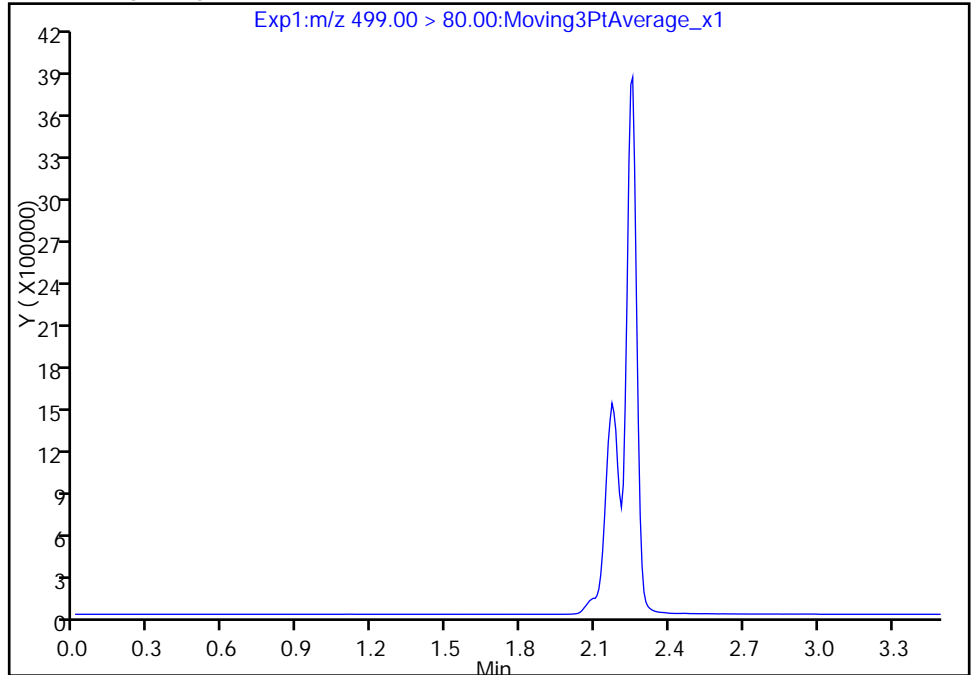
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_002.d
Injection Date: 01-Mar-2017 15:17:43 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: A8-PC\A8 ALS Bottle#: 5 Worklist Smp#: 2
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

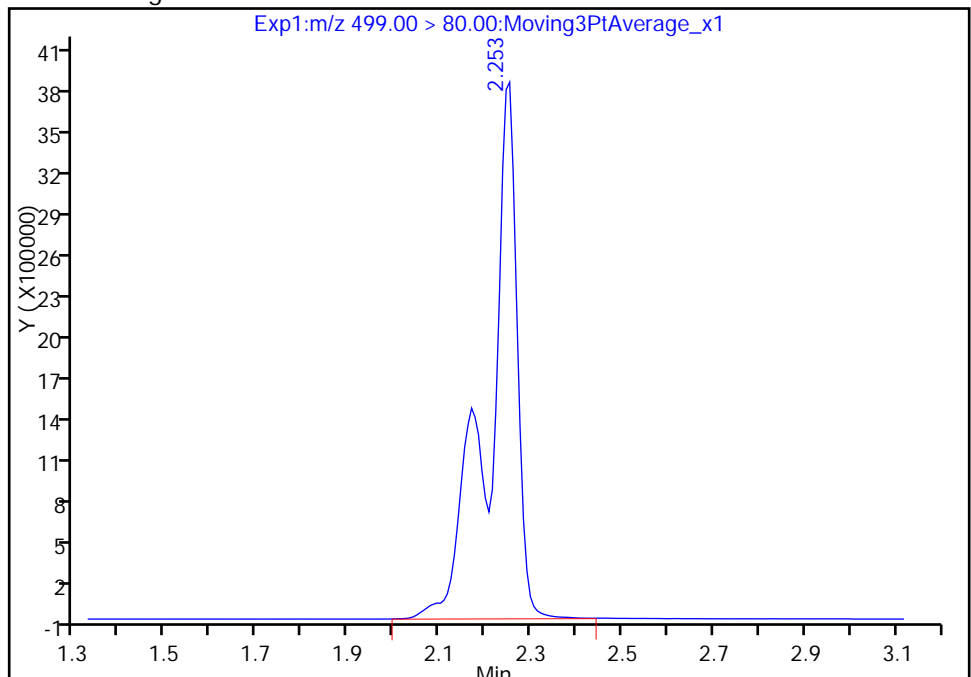
Not Detected
Expected RT: 2.25

Processing Integration Results



Manual Integration Results

RT: 2.25
Area: 16657523
Amount: 58.214645
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 15:38:20

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Lab Sample ID: CCV 320-152753/7 Calibration Date: 03/01/2017 15:39
 Instrument ID: A8_N Calib Start Date: 03/01/2017 12:47
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 03/01/2017 13:09
 Lab File ID: 2017.03.01A_537_007.d Conc. Units: ng/mL

| ANALYTE | CURVE TYPE | AVE RRF | RRF | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D | MAX %D |
|-------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanesulfonic acid (PFBS) | Ave | 1.679 | 1.781 | | 47.8 | 45.1 | 6.1 | 30.0 |
| Perfluoroheptanoic acid | Ave | 0.9649 | 0.9676 | | 4.99 | 4.97 | 0.3 | 30.0 |
| Perfluorohexanesulfonic acid | Ave | 1.607 | 1.636 | | 15.5 | 15.2 | 1.8 | 30.0 |
| Perfluorooctanoic acid (PFOA) | Ave | 0.9608 | 0.9521 | | 9.72 | 9.81 | -0.9 | 30.0 |
| Perfluorooctanesulfonic acid (PFOS) | Ave | 1.095 | 1.097 | | 20.2 | 20.1 | 0.2 | 30.0 |
| Perfluorononanoic acid | Ave | 0.7437 | 0.7474 | | 10.5 | 10.4 | 0.5 | 30.0 |
| 13C2 PFHxA | Ave | 1.064 | 1.039 | | 9.77 | 10.0 | -2.3 | 30.0 |
| 13C2 PFDA | Ave | 0.6770 | 0.6750 | | 9.97 | 10.0 | -0.3 | 30.0 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_007.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 01-Mar-2017 15:39:42 ALS Bottle#: 3 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 16:19:19 Calib Date: 01-Mar-2017 13:09:27
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170301-40359.b\2017.03.01_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 16:19:12

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.510 | 1.511 | -0.001 | 1.000 | 18714392 | 47.8 | | 1330 | |
| 298.90 > 99.00 | 1.510 | 1.511 | -0.001 | 1.000 | 8288759 | | 2.26(0.00-0.00) | 1572 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.639 | 1.638 | 0.001 | 1.000 | 2559347 | 9.77 | | 5182 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.791 | 1.789 | 0.002 | 1.000 | 5794904 | 15.5 | | 1305 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.791 | 1.791 | 0.0 | 1.000 | 1185225 | 4.99 | | 117 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 1.995 | 1.992 | 0.003 | | 2462223 | 10.0 | | 4948 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 1.995 | 1.994 | 0.001 | 1.000 | 2299259 | 9.72 | | 185 | |
| 413.00 > 169.00 | 1.995 | 1.994 | 0.001 | 1.000 | 1326364 | | 1.73(0.00-0.00) | 1226 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.162 | 2.162 | 0.0 | 1.000 | 5146550 | 20.2 | | 610 | |
| 499.00 > 99.00 | 2.238 | 2.162 | 0.076 | 1.035 | 1244622 | | 4.14(0.00-0.00) | 1393 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.238 | 2.241 | -0.003 | | 6682132 | 28.7 | | 6794 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.246 | 2.250 | -0.004 | 1.000 | 1917990 | 10.5 | | 495 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.397 | 2.392 | 0.005 | 1.000 | 1662097 | 9.97 | | 2187 | |

Reagents:

LC537-L3_00019

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b\2017.03.01A_537_007.d

Injection Date: 01-Mar-2017 15:39:42

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 3

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

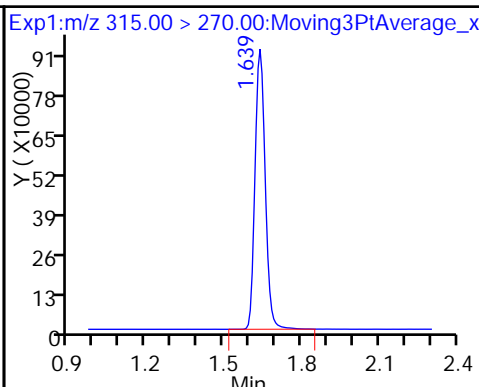
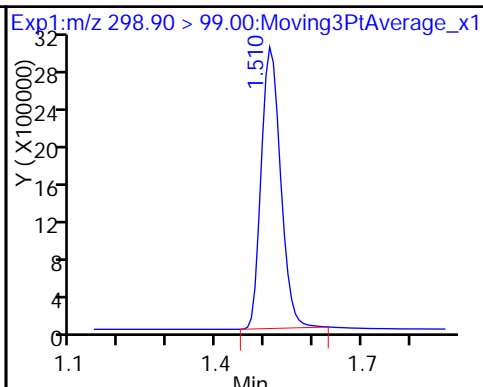
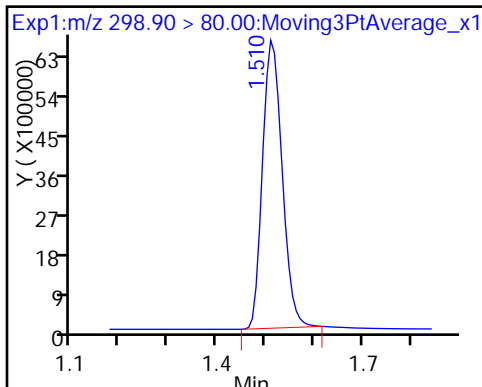
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

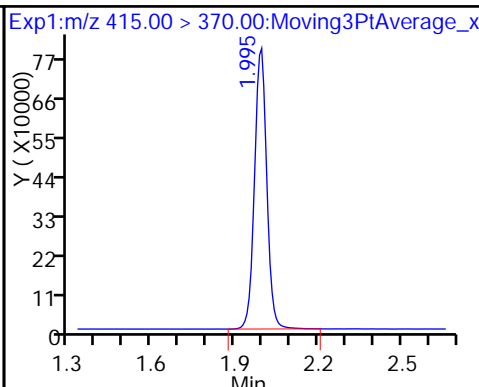
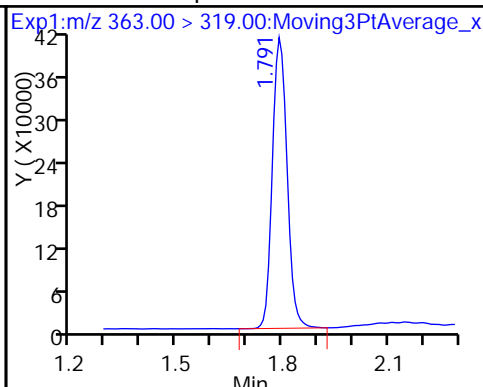
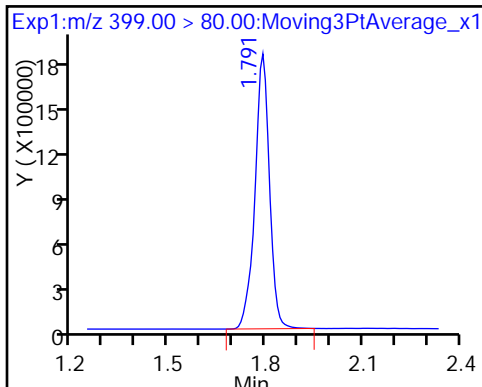
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

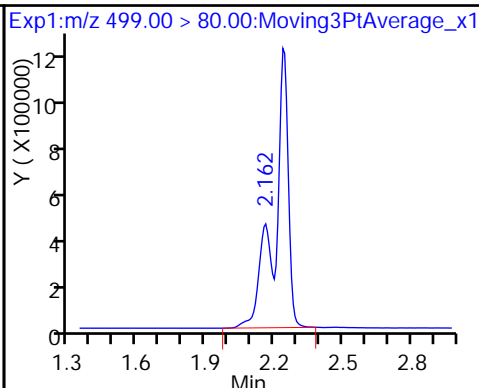
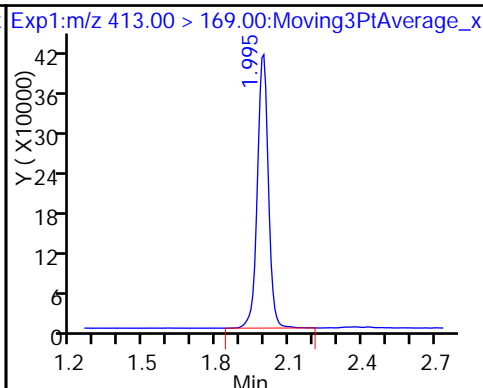
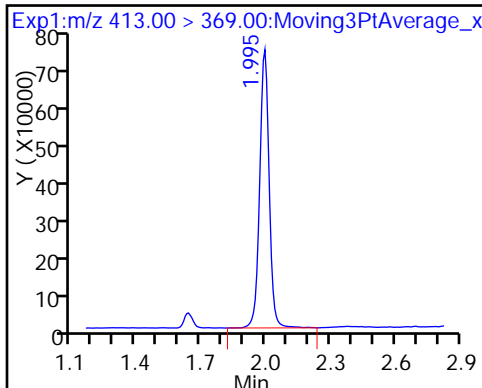
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

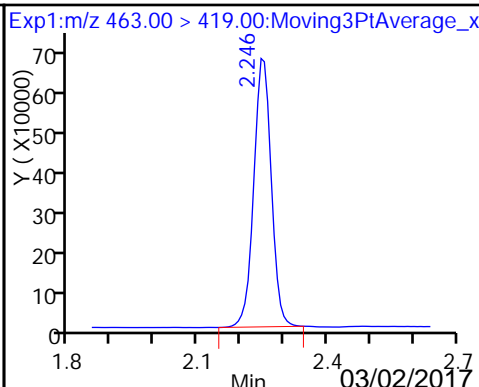
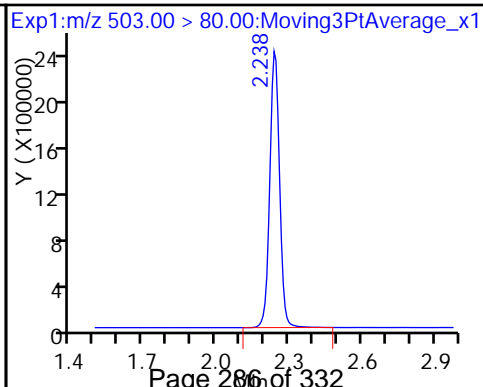
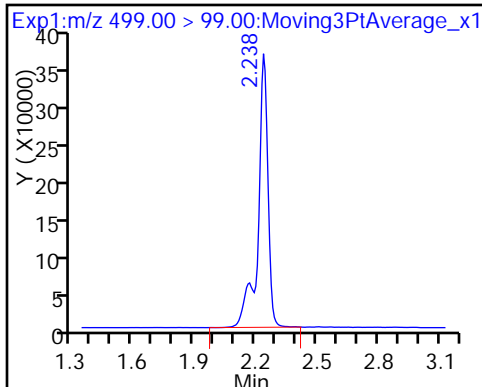
8 Perfluorooctane sulfonic acid



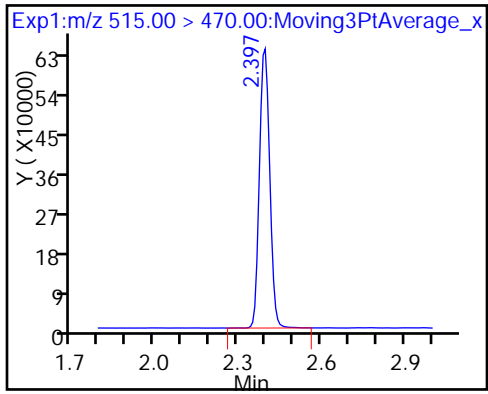
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-152123/1-A
 Matrix: Water Lab File ID: 2017.02.28C_537_001.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 250(mL) Date Analyzed: 02/28/2017 17:13
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 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 | 76 | | 70-130 |
| STL00996 | 13C2 PFDA | 72 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_001.d
 Lims ID: MB 320-152123/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 28-Feb-2017 17:13:39 ALS Bottle#: 21 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-152123/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 11:24:57

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|-----------------|-----------------|--------|--------|--------|----------|--------------|---------------|------|-------|
| \$ 2 13C2 PFHxA | 315.00 > 270.00 | 1.662 | 1.765 | -0.103 | 1.000 | 1979183 | 7.65 | 4279 | |
| * 6 13C2-PFOA | 415.00 > 370.00 | 2.026 | 2.172 | -0.146 | | 2527196 | 10.0 | 4756 | |
| * 7 13C4 PFOS | 503.00 > 80.00 | 2.269 | 2.395 | -0.127 | | 6997191 | 28.7 | 7852 | |
| \$ 10 13C2 PFDA | 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1383453 | 7.23 | 1735 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_001.d

Injection Date: 28-Feb-2017 17:13:39

Instrument ID: A8_N

Lims ID: MB 320-152123/1-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 21

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

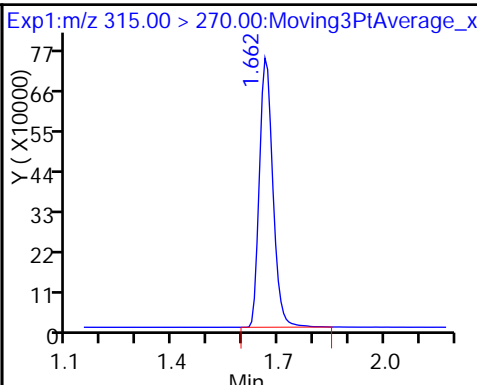
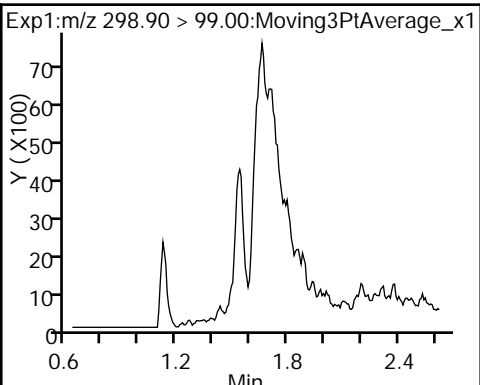
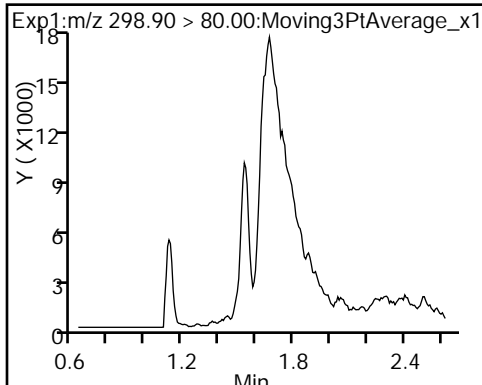
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

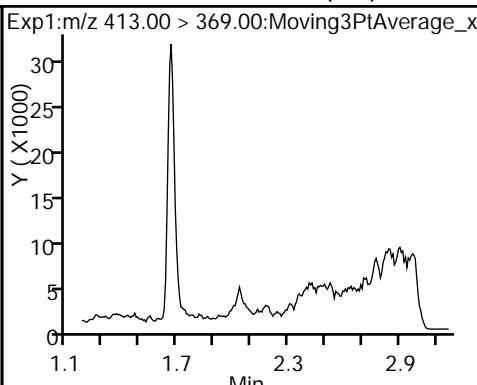
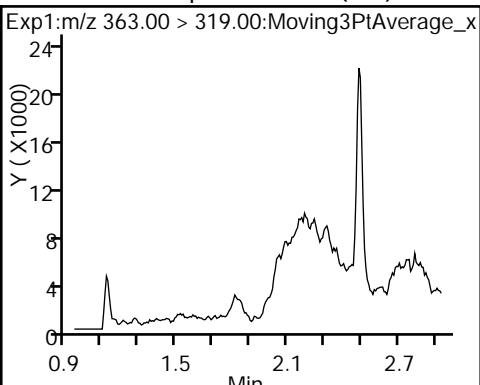
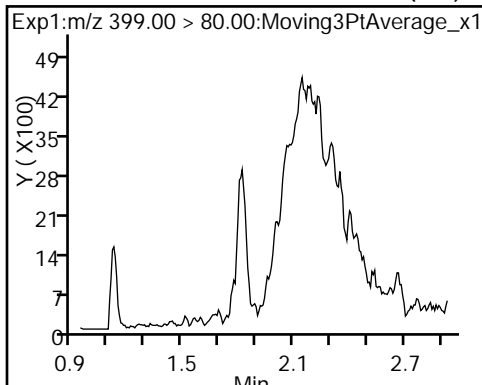
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

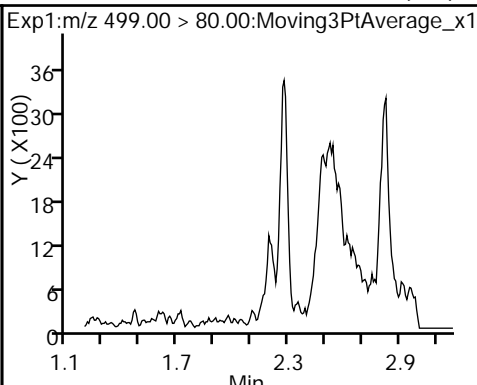
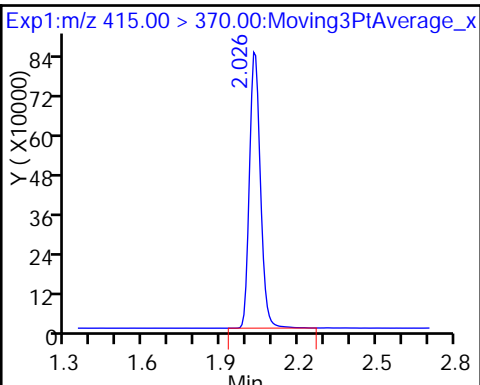
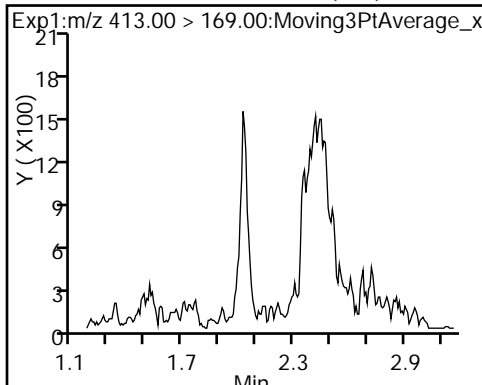
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

* 6 13C2-PFOA

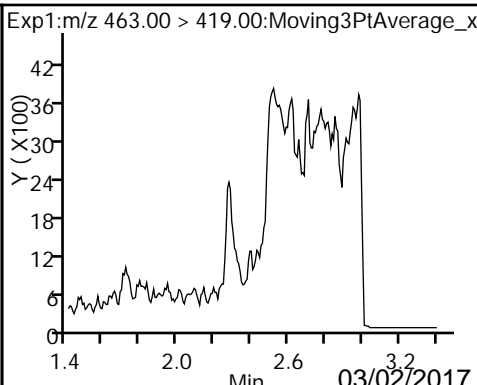
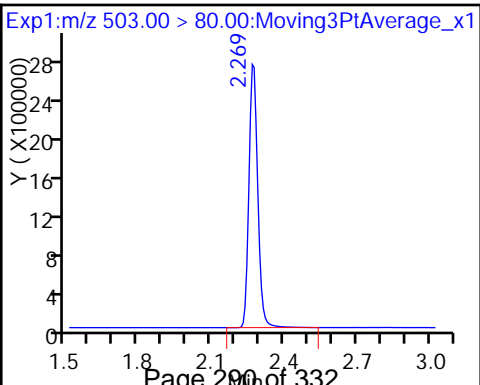
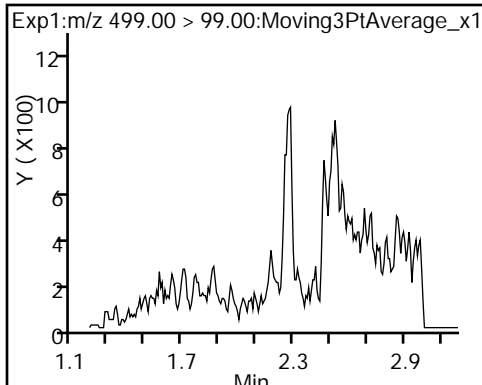
8 Perfluorooctane sulfonic acid (ND)



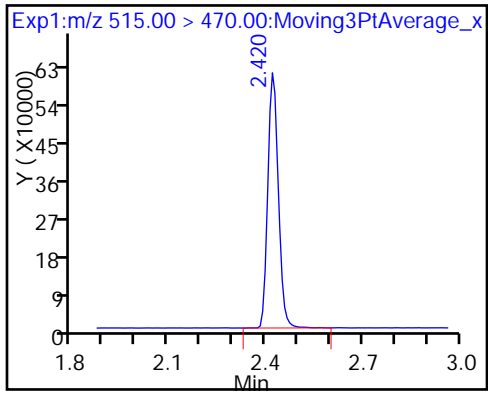
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_001.d
 Lims ID: MB 320-152123/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 28-Feb-2017 17:13:39 ALS Bottle#: 21 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-152123/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 11:24:57

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.65 | 76.49 |
| \$ 10 13C2 PFDA | 10.0 | 7.23 | 72.33 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCS 320-152123/2-A
 Matrix: Water Lab File ID: 2017.02.28C_537_002.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 250 (mL) Date Analyzed: 02/28/2017 17:18
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.0303 | J | 0.060 | 0.048 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.0140 | J | 0.030 | 0.024 | 0.0094 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.0839 | J | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 83 | | 70-130 |
| STL00996 | 13C2 PFDA | 76 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_002.d
 Lims ID: LLCS 320-152123/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 28-Feb-2017 17:18:02 ALS Bottle#: 22 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-152123/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:21:59

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.533 | 1.627 | -0.094 | 1.000 | 7712619 | 21.0 | | 830 | |
| 298.90 > 99.00 | 1.533 | 1.627 | -0.094 | 1.000 | 3197866 | | 2.41(0.00-0.00) | 820 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.662 | 1.765 | -0.103 | 1.000 | 2115250 | 8.32 | | 5124 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.813 | 1.938 | -0.125 | 1.000 | 2124996 | 6.28 | | 539 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.821 | 1.940 | -0.119 | 1.000 | 480915 | 2.11 | | 44.7 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.026 | 2.172 | -0.146 | 1.000 | 835088 | 3.50 | | 67.7 | |
| 413.00 > 169.00 | 2.018 | 2.172 | -0.154 | 0.996 | 489902 | | 1.70(0.00-0.00) | 555 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.018 | 2.172 | -0.154 | | 2482421 | 10.0 | | 5205 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.185 | 2.276 | -0.091 | 1.000 | 2034072 | 7.57 | | 270 | |
| 499.00 > 99.00 | 2.261 | 2.276 | -0.015 | 1.035 | 497348 | | 4.09(0.00-0.00) | 587 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.261 | 2.395 | -0.134 | | 7076701 | 28.7 | | 7551 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.269 | 2.404 | -0.136 | 1.000 | 757759 | 3.99 | | 201 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.413 | 2.530 | -0.117 | 1.000 | 1420211 | 7.56 | | 1888 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_002.d

Injection Date: 28-Feb-2017 17:18:02

Instrument ID: A8_N

Lims ID: LLCS 320-152123/2-A

Client ID:

Operator ID: A8-PC\A8

ALS Bottle#: 22

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

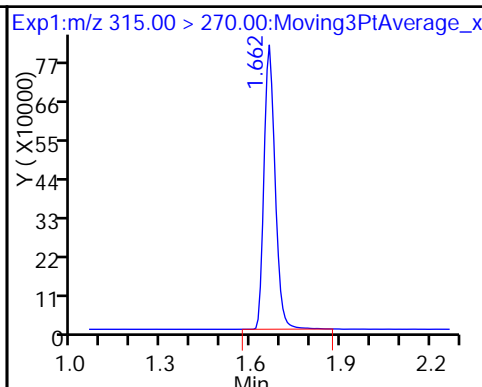
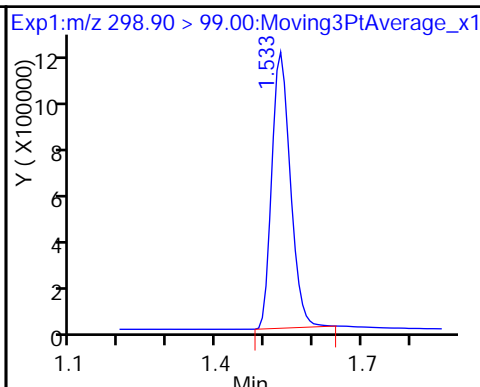
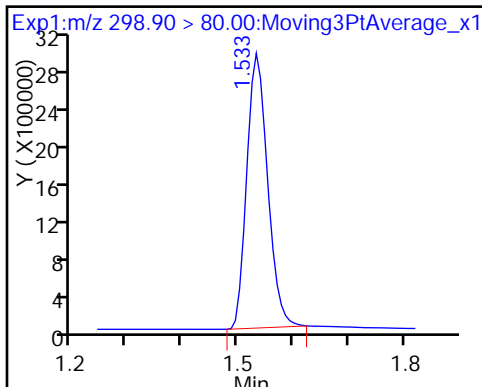
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

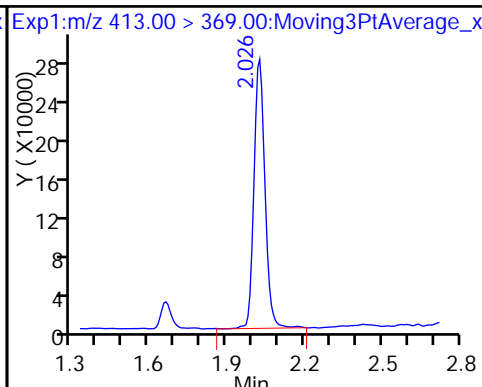
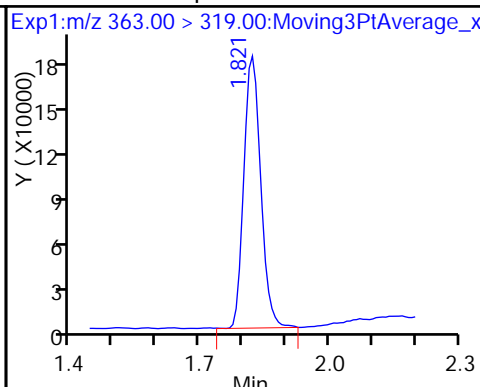
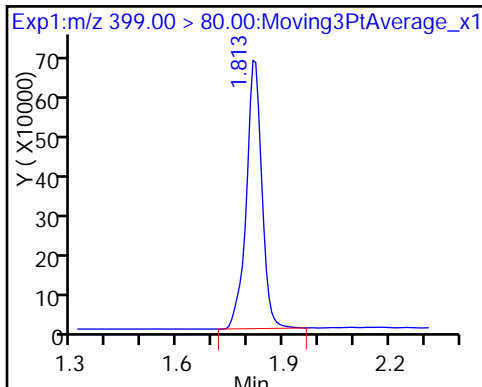
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

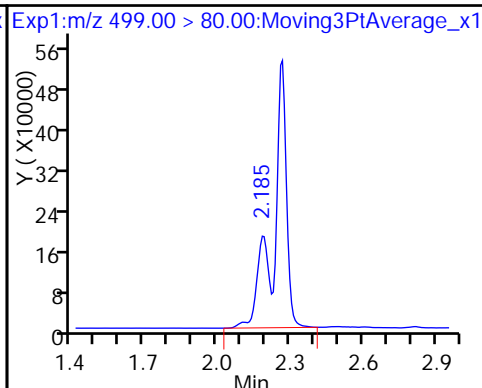
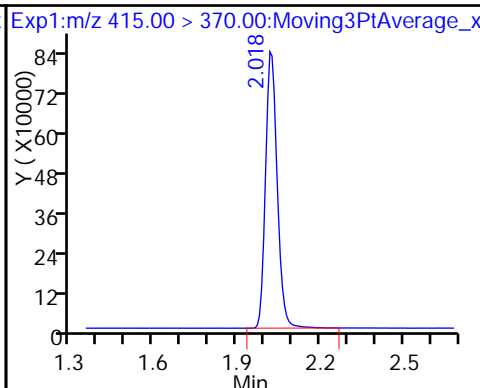
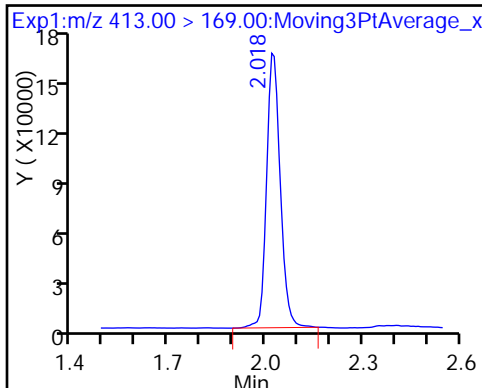
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

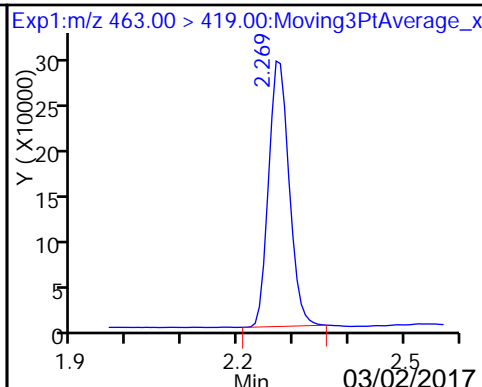
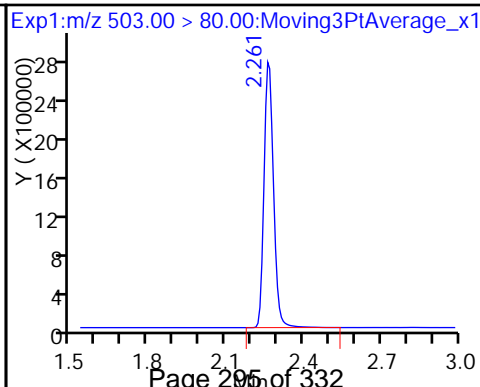
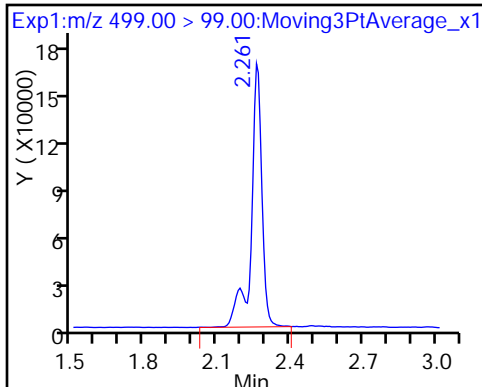
8 Perfluorooctane sulfonic acid



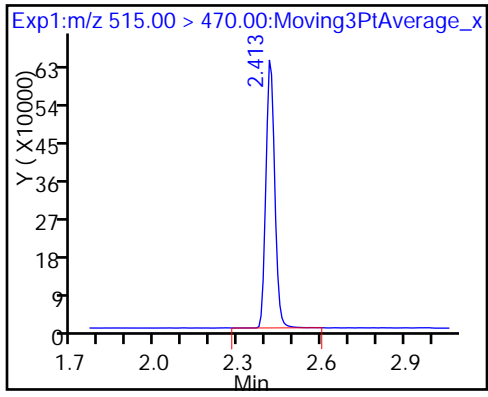
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_002.d
 Lims ID: LLCS 320-152123/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 28-Feb-2017 17:18:02 ALS Bottle#: 22 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-152123/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:21:59

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 8.32 | 83.22 |
| \$ 10 13C2 PFDA | 10.0 | 7.56 | 75.59 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW30-0217 MS Lab Sample ID: 320-26004-7 MS
 Matrix: Water Lab File ID: 2017.02.28C_537_010.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:25
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 250 (mL) Date Analyzed: 02/28/2017 17:53
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.131 | M | 0.060 | 0.048 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.0565 | | 0.030 | 0.024 | 0.0094 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.298 | | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 72 | | 70-130 |
| STL00996 | 13C2 PFDA | 78 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_010.d
 Lims ID: 320-26004-A-7-B MS
 Client ID: WI-AF-1RW30-0217
 Sample Type: MS
 Inject. Date: 28-Feb-2017 17:53:15 ALS Bottle#: 30 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-7-b ms
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:29:38

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.540 | 1.627 | -0.087 | 1.000 | 25873567 | 74.5 | | 1286 | |
| 298.90 > 99.00 | 1.540 | 1.627 | -0.087 | 1.000 | 11827716 | | 2.19(0.00-0.00) | 1603 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 1856394 | 7.24 | | 4031 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.828 | 1.938 | -0.110 | 1.000 | 8672357 | 27.2 | | 1129 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.828 | 1.940 | -0.112 | 1.000 | 1710480 | 7.44 | | 89.0 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.033 | 2.172 | -0.139 | 1.000 | 3400380 | 14.1 | | 187 | |
| 413.00 > 169.00 | 2.033 | 2.172 | -0.139 | 1.000 | 1980415 | | 1.72(0.00-0.00) | 1672 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.033 | 2.172 | -0.139 | | 2505711 | 10.0 | | 4544 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.276 | 2.276 | 0.0 | 1.000 | 8320849 | 32.8 | | 2025 | M |
| 499.00 > 99.00 | 2.276 | 2.276 | 0.0 | 1.000 | 1992889 | | 4.18(0.00-0.00) | 1236 | M |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.276 | 2.395 | -0.119 | | 6676675 | 28.7 | | 4763 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.284 | 2.404 | -0.120 | 1.000 | 3057435 | 16.0 | | 440 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.420 | 2.530 | -0.110 | 1.000 | 1473987 | 7.77 | | 2140 | |

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_010.d

Injection Date: 28-Feb-2017 17:53:15

Instrument ID: A8_N

Lims ID: 320-26004-A-7-B MS

Client ID: WI-AF-1RW30-0217

Operator ID: A8-PC\A8

ALS Bottle#: 30

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

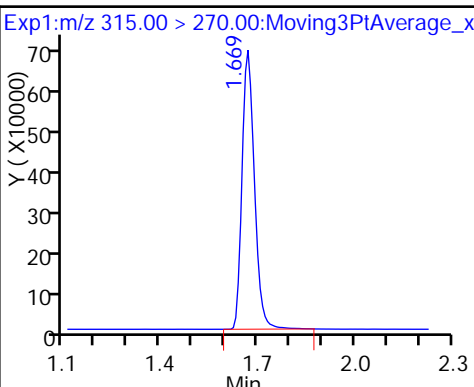
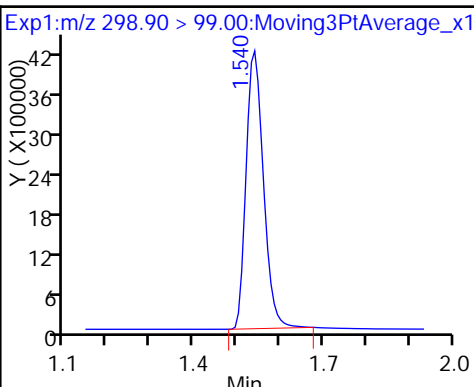
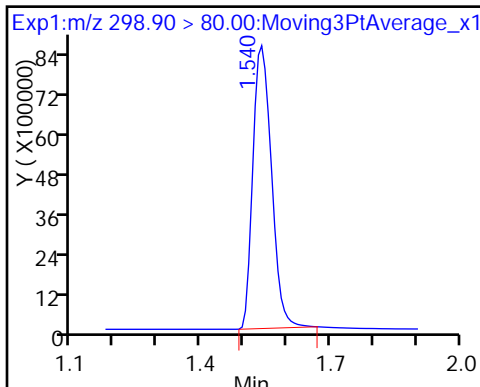
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

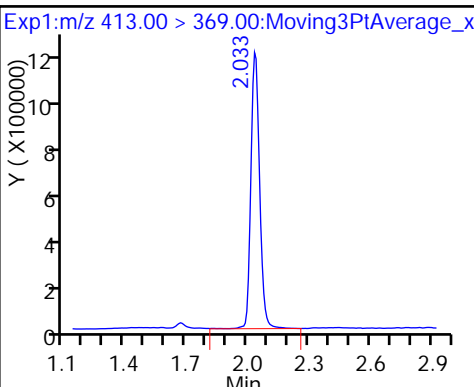
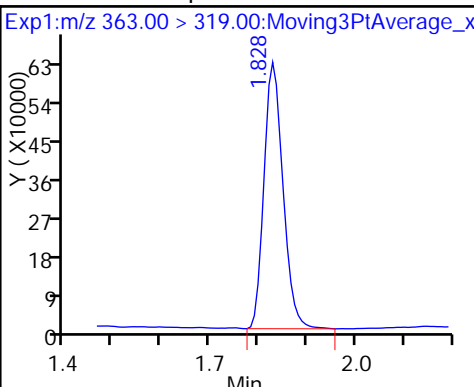
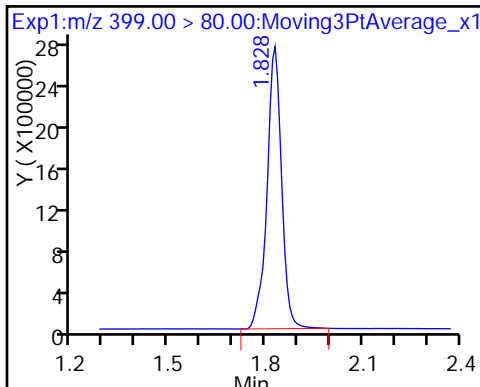
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

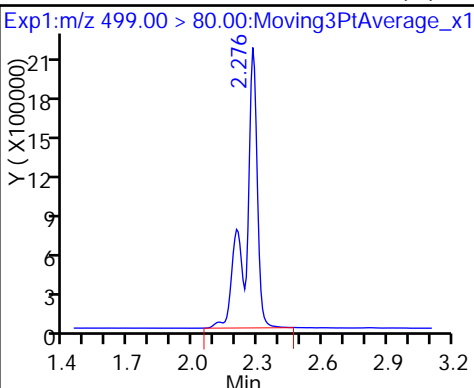
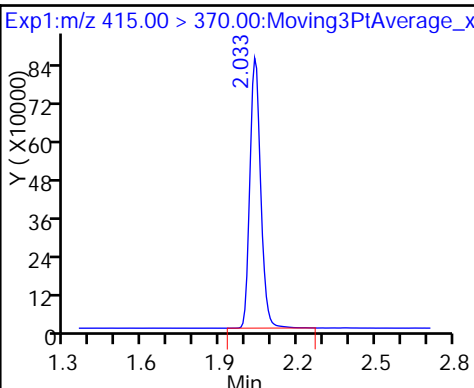
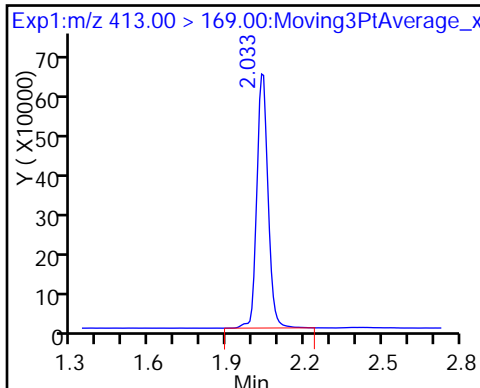
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

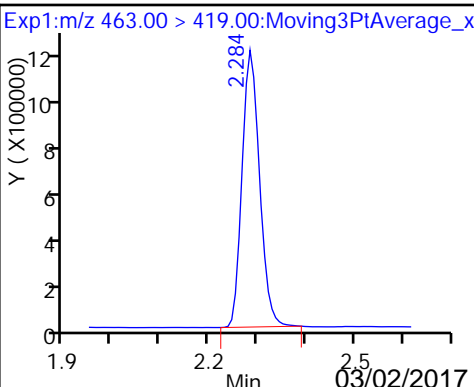
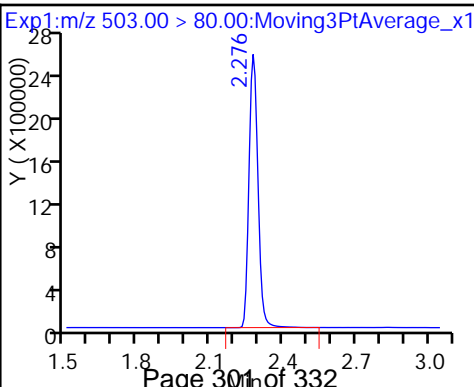
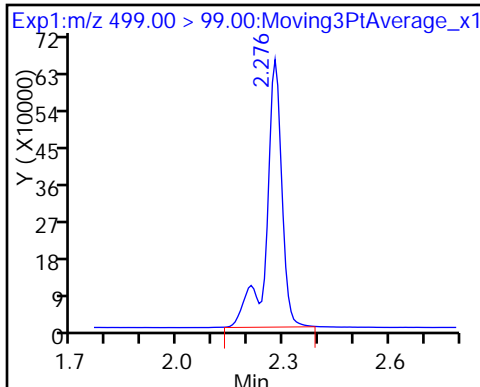
8 Perfluorooctane sulfonic acid (M)



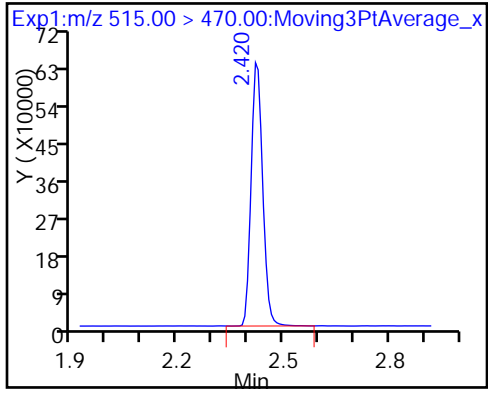
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_010.d
 Lims ID: 320-26004-A-7-B MS
 Client ID: WI-AF-1RW30-0217
 Sample Type: MS
 Inject. Date: 28-Feb-2017 17:53:15 ALS Bottle#: 30 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-7-b ms
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:37:54 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:29:38

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.24 | 72.36 |
| \$ 10 13C2 PFDA | 10.0 | 7.77 | 77.73 |

TestAmerica Sacramento

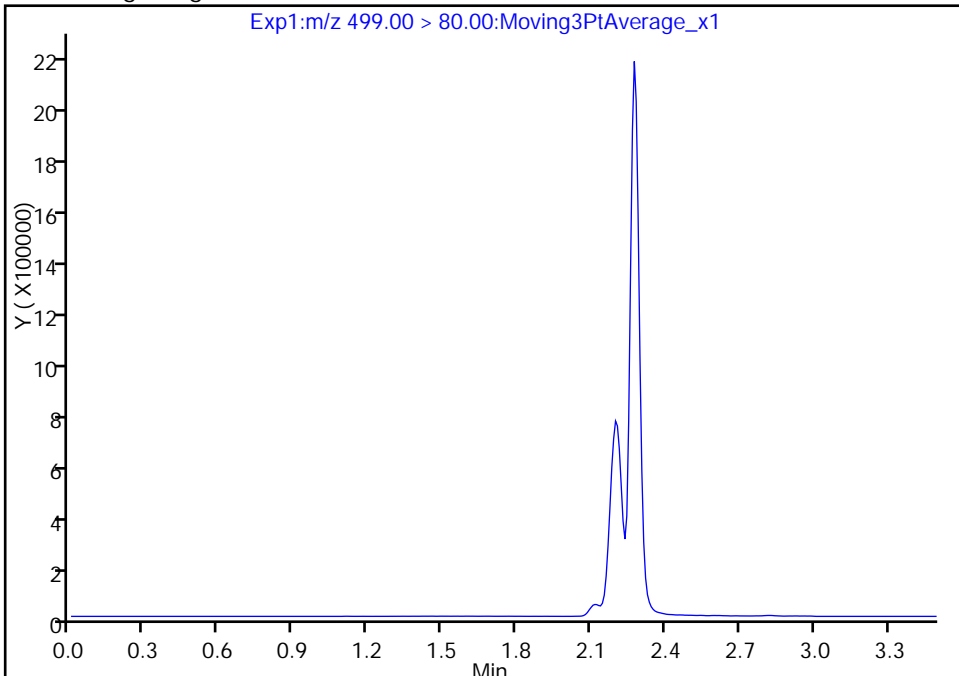
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Injection Date: 28-Feb-2017 17:53:15 Instrument ID: A8_N
Lims ID: 320-26004-A-7-B MS
Client ID: WI-AF-1RW30-0217
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

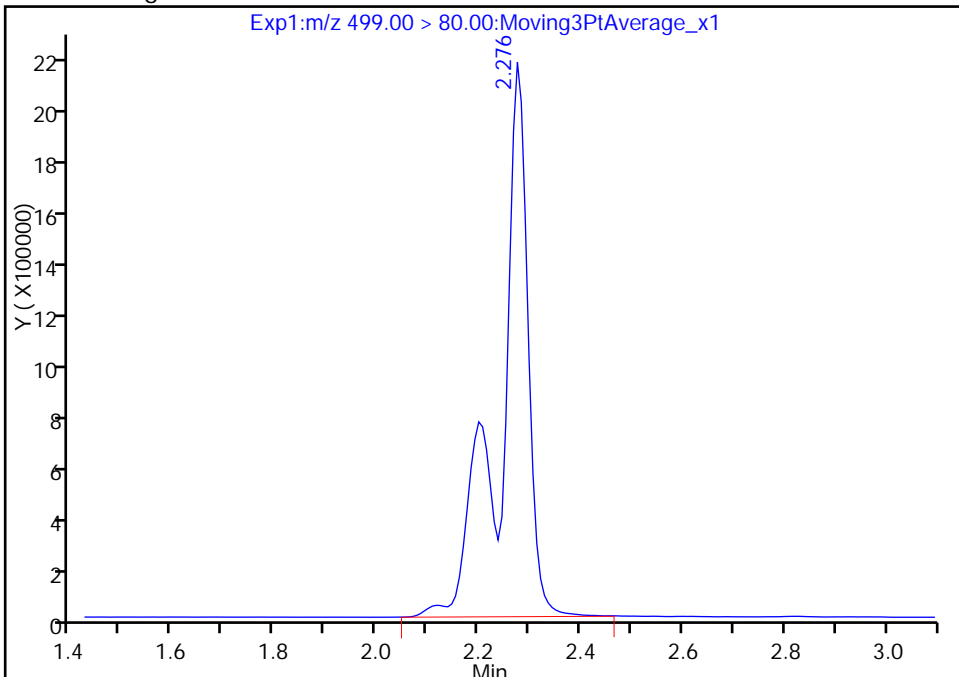
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 8320849
Amount: 32.809667
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:33
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

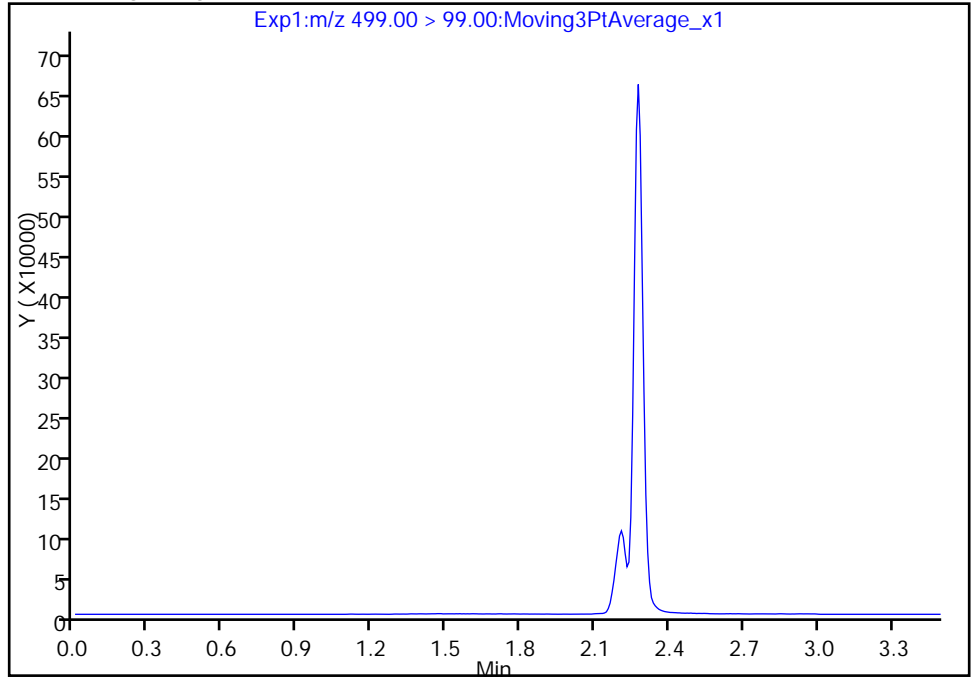
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Injection Date: 28-Feb-2017 17:53:15 Instrument ID: A8_N
Lims ID: 320-26004-A-7-B MS
Client ID: WI-AF-1RW30-0217
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

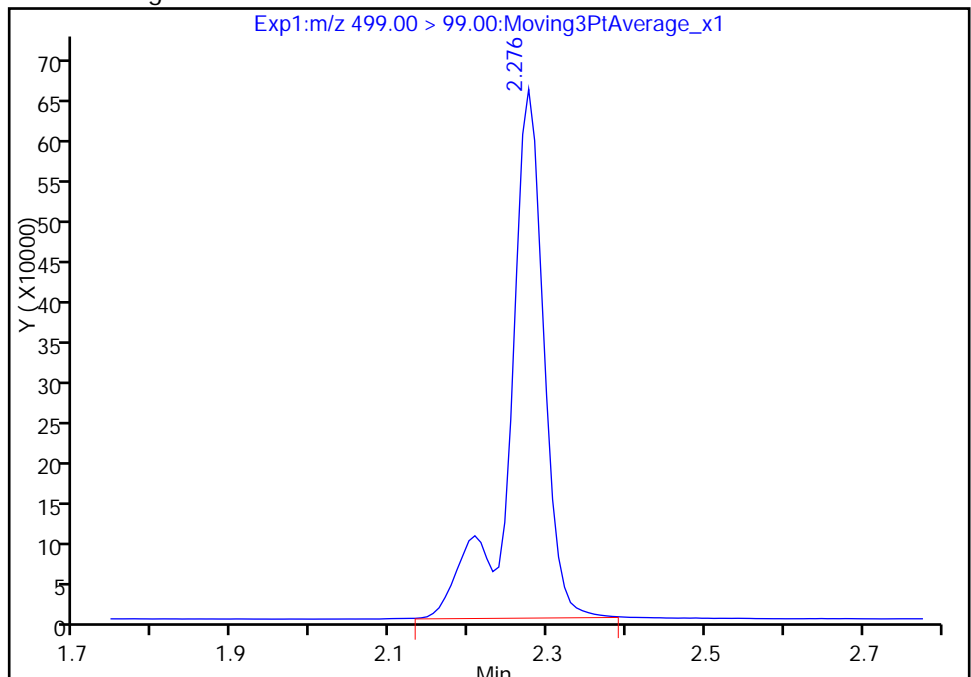
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 1992889
Amount: 32.809667
Amount Units: ng/ml



TestAmerica Sacramento

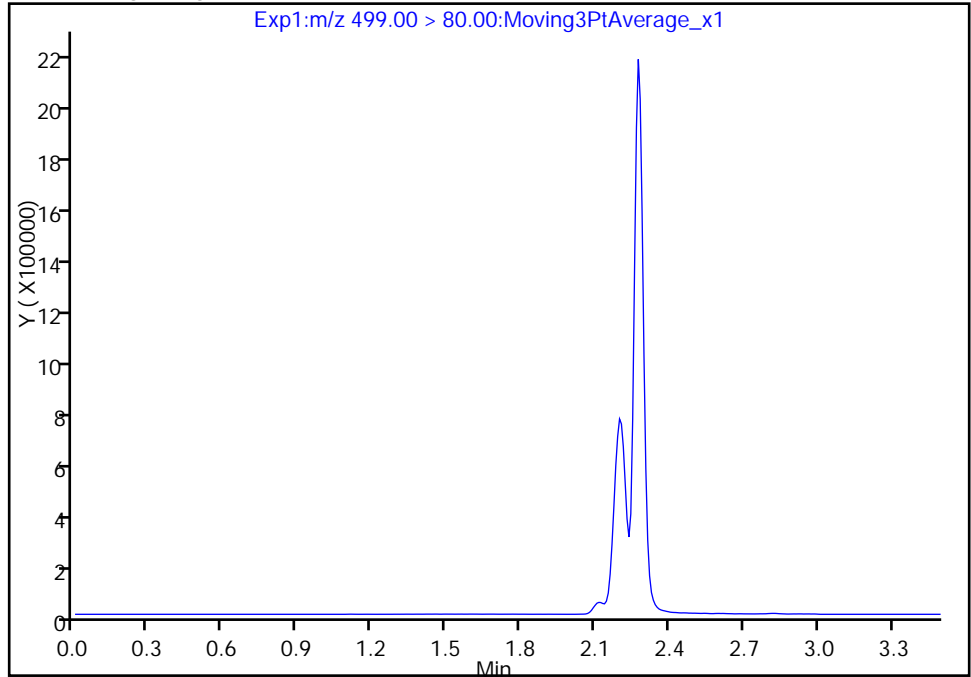
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Injection Date: 28-Feb-2017 17:53:15 Instrument ID: A8_N
Lims ID: 320-26004-A-7-B MS
Client ID: WI-AF-1RW30-0217
Operator ID: A8-PC\A8 ALS Bottle#: 30 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

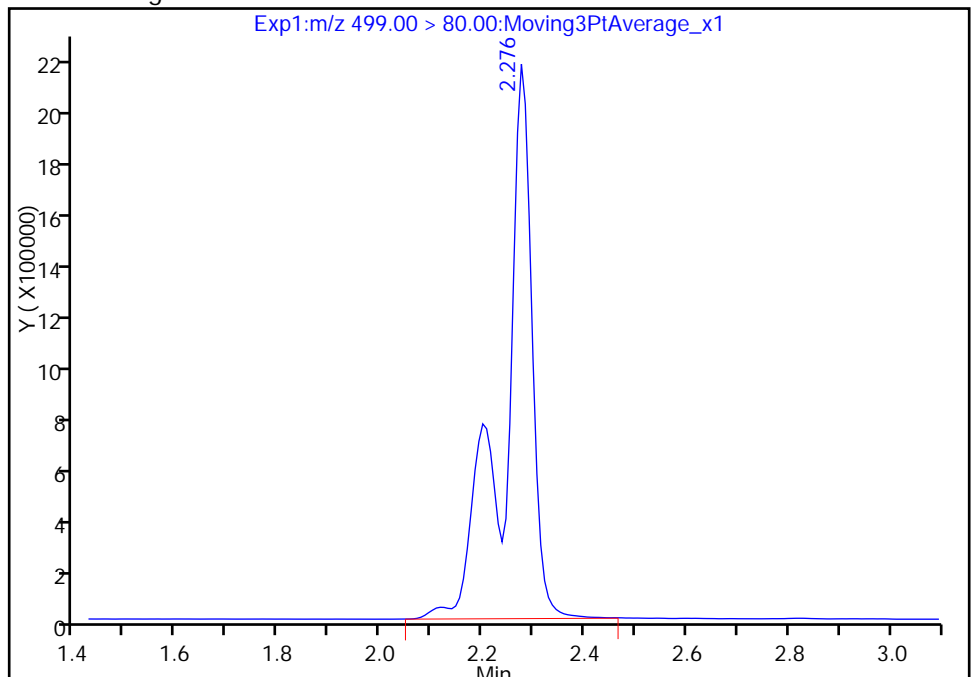
Not Detected
Expected RT: 2.28

Processing Integration Results



Manual Integration Results

RT: 2.28
Area: 8320849
Amount: 32.809667
Amount Units: ng/ml



Reviewer: barnettj, 01-Mar-2017 13:45:33

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW30-0217 MSD Lab Sample ID: 320-26004-7 MSD
 Matrix: Water Lab File ID: 2017.02.28C_537_012.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:25
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 248.3(mL) Date Analyzed: 02/28/2017 18:02
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152593 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.132 | | 0.060 | 0.048 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.0584 | | 0.030 | 0.024 | 0.0095 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.294 | | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 76 | | 70-130 |
| STL00996 | 13C2 PFDA | 78 | | 70-130 |

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_012.d
 Lims ID: 320-26004-A-7-C MSD
 Client ID: WI-AF-1RW30-0217
 Sample Type: MSD
 Inject. Date: 28-Feb-2017 18:02:05 ALS Bottle#: 31 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-7-c msd
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:30:36

| Signal | RT | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits) | S/N | Flags |
|---------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|
| 1 Perfluorobutanesulfonic acid | | | | | | | | | |
| 298.90 > 80.00 | 1.540 | 1.627 | -0.087 | 1.000 | 25259522 | 73.0 | | 1315 | |
| 298.90 > 99.00 | 1.533 | 1.627 | -0.094 | 0.995 | 11682201 | | 2.16(0.00-0.00) | 1559 | |
| \$ 2 13C2 PFHxA | | | | | | | | | |
| 315.00 > 270.00 | 1.669 | 1.765 | -0.096 | 1.000 | 1866648 | 7.63 | | 4498 | |
| 3 Perfluorohexanesulfonic acid | | | | | | | | | |
| 399.00 > 80.00 | 1.821 | 1.938 | -0.117 | 1.000 | 8581582 | 27.0 | | 1169 | |
| 4 Perfluoroheptanoic acid | | | | | | | | | |
| 363.00 > 319.00 | 1.821 | 1.940 | -0.119 | 1.000 | 1652813 | 7.53 | | 84.8 | |
| 5 Perfluorooctanoic acid | | | | | | | | | |
| 413.00 > 369.00 | 2.026 | 2.172 | -0.146 | 1.000 | 3328891 | 14.5 | | 191 | |
| 413.00 > 169.00 | 2.026 | 2.172 | -0.146 | 1.000 | 1967412 | | 1.69(0.00-0.00) | 1747 | |
| * 6 13C2-PFOA | | | | | | | | | |
| 415.00 > 370.00 | 2.026 | 2.172 | -0.146 | | 2390660 | 10.0 | | 4763 | |
| 8 Perfluorooctane sulfonic acid | | | | | | | | | |
| 499.00 > 80.00 | 2.193 | 2.276 | -0.083 | 1.000 | 8271789 | 32.7 | | 639 | |
| 499.00 > 99.00 | 2.238 | 2.276 | -0.038 | 1.021 | 1998741 | | 4.14(0.00-0.00) | 316 | |
| * 7 13C4 PFOS | | | | | | | | | |
| 503.00 > 80.00 | 2.269 | 2.395 | -0.127 | | 6653669 | 28.7 | | 4815 | |
| 9 Perfluorononanoic acid | | | | | | | | | |
| 463.00 > 419.00 | 2.276 | 2.404 | -0.128 | 1.000 | 2946591 | 16.1 | | 431 | |
| \$ 10 13C2 PFDA | | | | | | | | | |
| 515.00 > 470.00 | 2.413 | 2.530 | -0.117 | 1.000 | 1405703 | 7.77 | | 2031 | |

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_012.d

Injection Date: 28-Feb-2017 18:02:05

Instrument ID: A8_N

Lims ID: 320-26004-A-7-C MSD

Client ID: WI-AF-1RW30-0217

Operator ID: A8-PC\A8

ALS Bottle#: 31

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

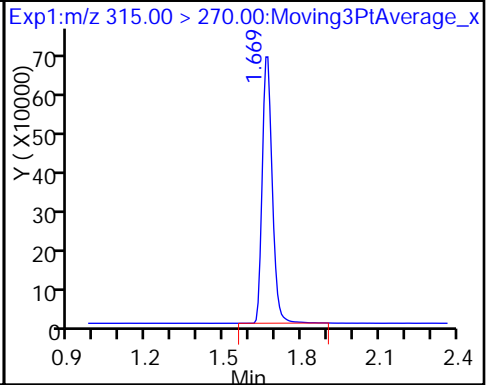
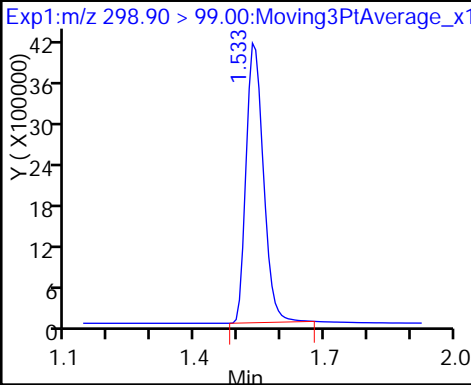
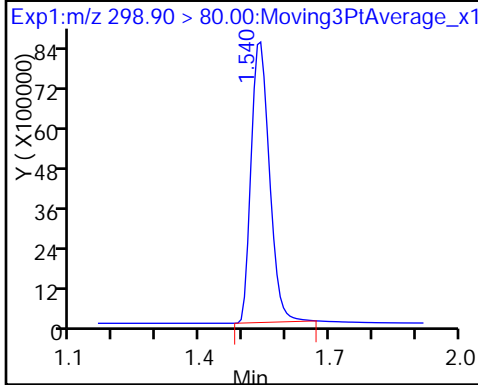
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

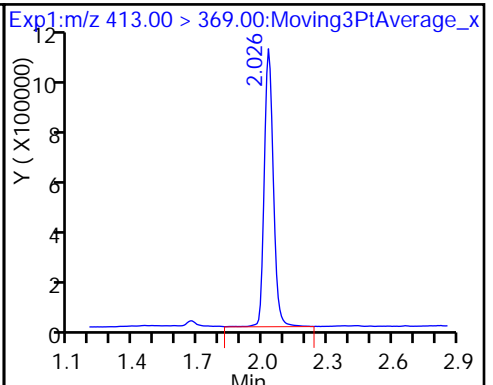
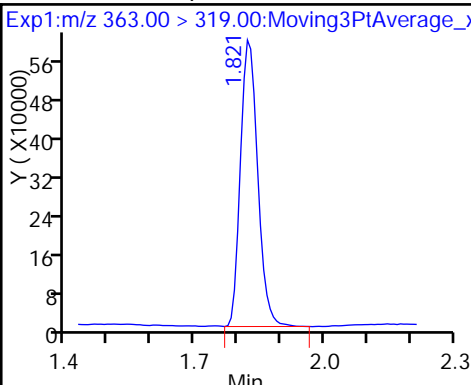
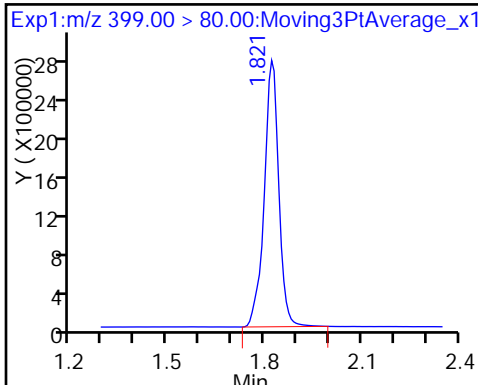
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

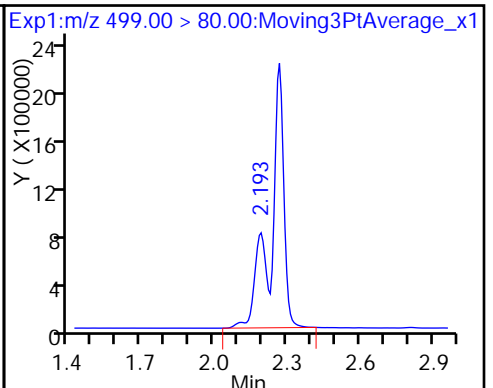
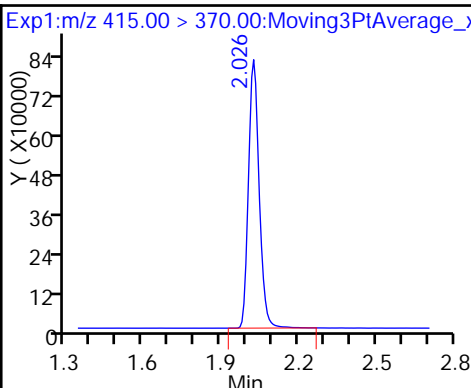
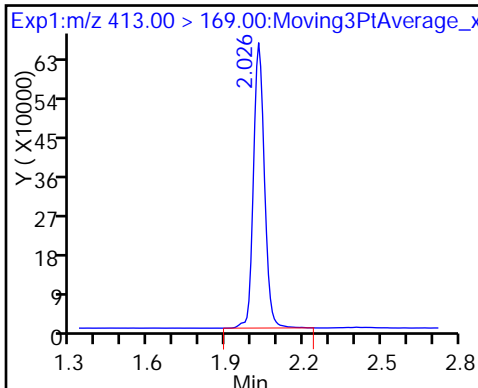
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

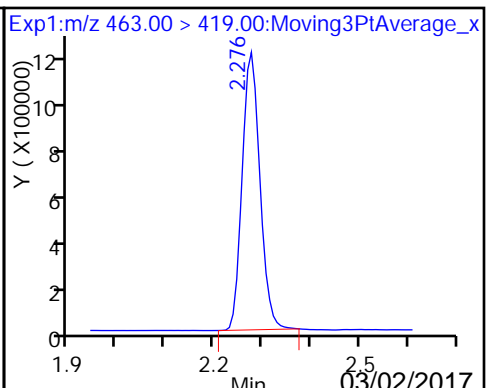
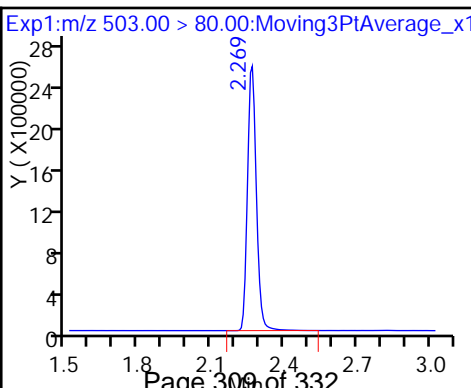
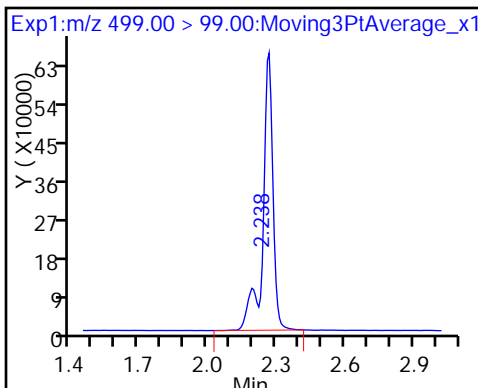
8 Perfluorooctane sulfonic acid



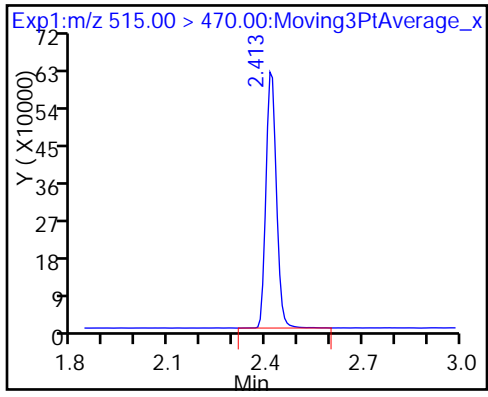
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\2017.02.28C_537_012.d
 Lims ID: 320-26004-A-7-C MSD
 Client ID: WI-AF-1RW30-0217
 Sample Type: MSD
 Inject. Date: 28-Feb-2017 18:02:05 ALS Bottle#: 31 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-26004-a-7-c msd
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: A8-PC\A8 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 01-Mar-2017 13:45:35 Calib Date: 28-Feb-2017 15:03:35
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170228-40333.b\2017.02.28_537CURVE_008.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj Date: 01-Mar-2017 13:30:36

| Compound | Amount Added | Amount Recovered | % Rec. |
|-----------------|--------------|------------------|--------|
| \$ 2 13C2 PFHxA | 10.0 | 7.63 | 76.26 |
| \$ 10 13C2 PFDA | 10.0 | 7.77 | 77.69 |

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/28/2017 14:41

Analysis Batch Number: 152571 End Date: 02/28/2017 15:51

| LAB SAMPLE ID | CLIENT SAMPLE ID | DATE ANALYZED | DILUTION FACTOR | LAB FILE ID | COLUMN ID |
|---------------------------|------------------|------------------|-----------------|-------------------------------|-----------------------|
| IC 320-152571/3 | | 02/28/2017 14:41 | 1 | 2017.02.28_537C URVE 003.d | GeminiC18 3x100 3(mm) |
| IC 320-152571/4 | | 02/28/2017 14:45 | 1 | 2017.02.28_537C URVE 004.d | GeminiC18 3x100 3(mm) |
| IC 320-152571/5 | | 02/28/2017 14:50 | 1 | 2017.02.28_537C URVE 005.d | GeminiC18 3x100 3(mm) |
| IC 320-152571/6 ICISAV | | 02/28/2017 14:54 | 1 | 2017.02.28_537C URVE 006.d | GeminiC18 3x100 3(mm) |
| IC 320-152571/7 | | 02/28/2017 14:59 | 1 | 2017.02.28_537C URVE 007.d | GeminiC18 3x100 3(mm) |
| IC 320-152571/8 | | 02/28/2017 15:03 | 1 | 2017.02.28_537C URVE 008.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 02/28/2017 15:07 | 1 | | GeminiC18 3x100 3(mm) |
| CCVL 320-152571/10 | | 02/28/2017 15:12 | 1 | 2017.02.28_537C URVE 010.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 02/28/2017 15:16 | 1 | | GeminiC18 3x100 3(mm) |
| ICV 320-152571/12 | | 02/28/2017 15:21 | 1 | | GeminiC18 3x100 3(mm) |
| ICV 320-152571/19 | | 02/28/2017 15:51 | 1 | 2017.02.28_537C URVE 015.d | GeminiC18 3x100 3(mm) |

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/28/2017 17:09

Analysis Batch Number: 152592 End Date: 02/28/2017 17:57

| LAB SAMPLE ID | CLIENT SAMPLE ID | DATE ANALYZED | DILUTION FACTOR | LAB FILE ID | COLUMN ID |
|----------------------------|------------------|------------------|-----------------|-----------------------|-----------------------|
| CCV 320-152592/15 CCVIS | | 02/28/2017 17:09 | 1 | 2017.02.28_537_015.d | GeminiC18 3x100 3(mm) |
| MB 320-152123/1-A | | 02/28/2017 17:13 | 1 | 2017.02.28C_537_001.d | GeminiC18 3x100 3(mm) |
| LLCS 320-152123/2-A | | 02/28/2017 17:18 | 1 | 2017.02.28C_537_002.d | GeminiC18 3x100 3(mm) |
| 320-26004-1 | | 02/28/2017 17:22 | 1 | 2017.02.28C_537_003.d | GeminiC18 3x100 3(mm) |
| 320-26004-2 | | 02/28/2017 17:26 | 1 | 2017.02.28C_537_004.d | GeminiC18 3x100 3(mm) |
| 320-26004-3 | | 02/28/2017 17:31 | 1 | 2017.02.28C_537_005.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 02/28/2017 17:35 | 1 | | GeminiC18 3x100 3(mm) |
| 320-26004-5 | | 02/28/2017 17:40 | 1 | 2017.02.28C_537_007.d | GeminiC18 3x100 3(mm) |
| 320-26004-6 | | 02/28/2017 17:44 | 1 | 2017.02.28C_537_008.d | GeminiC18 3x100 3(mm) |
| 320-26004-7 | | 02/28/2017 17:48 | 1 | 2017.02.28C_537_009.d | GeminiC18 3x100 3(mm) |
| 320-26004-7 MS | | 02/28/2017 17:53 | 1 | 2017.02.28C_537_010.d | GeminiC18 3x100 3(mm) |
| CCV 320-152592/26 CCVIS | | 02/28/2017 17:57 | 1 | 2017.02.28C_537_011.d | GeminiC18 3x100 3(mm) |

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/28/2017 17:57

Analysis Batch Number: 152593 End Date: 02/28/2017 18:19

| LAB SAMPLE ID | CLIENT SAMPLE ID | DATE ANALYZED | DILUTION FACTOR | LAB FILE ID | COLUMN ID |
|----------------------------|------------------|------------------|-----------------|--------------------------|-----------------------|
| CCV 320-152593/26 CCVIS | | 02/28/2017 17:57 | 1 | 2017.02.28C_537 011.d | GeminiC18 3x100 3(mm) |
| 320-26004-7 MSD | | 02/28/2017 18:02 | 1 | 2017.02.28C_537 012.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 02/28/2017 18:06 | 1 | | GeminiC18 3x100 3(mm) |
| 320-26004-9 | | 02/28/2017 18:10 | 1 | 2017.02.28C_537 014.d | GeminiC18 3x100 3(mm) |
| 320-26004-10 | | 02/28/2017 18:15 | 1 | 2017.02.28C_537 015.d | GeminiC18 3x100 3(mm) |
| CCV 320-152593/31 | | 02/28/2017 18:19 | 1 | 2017.02.28C_537 016.d | GeminiC18 3x100 3(mm) |

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/01/2017 12:47

Analysis Batch Number: 152685 End Date: 03/01/2017 13:27

| LAB SAMPLE ID | CLIENT SAMPLE ID | DATE ANALYZED | DILUTION FACTOR | LAB FILE ID | COLUMN ID |
|---------------------------|------------------|------------------|-----------------|-------------------------------|-----------------------|
| IC 320-152685/3 | | 03/01/2017 12:47 | 1 | 2017.03.01_537C URVE 003.d | GeminiC18 3x100 3(mm) |
| IC 320-152685/4 | | 03/01/2017 12:51 | 1 | 2017.03.01_537C URVE 004.d | GeminiC18 3x100 3(mm) |
| IC 320-152685/5 | | 03/01/2017 12:56 | 1 | 2017.03.01_537C URVE 005.d | GeminiC18 3x100 3(mm) |
| IC 320-152685/6 ICISAV | | 03/01/2017 13:00 | 1 | 2017.03.01_537C URVE 006.d | GeminiC18 3x100 3(mm) |
| IC 320-152685/7 | | 03/01/2017 13:05 | 1 | 2017.03.01_537C URVE 007.d | GeminiC18 3x100 3(mm) |
| IC 320-152685/8 | | 03/01/2017 13:09 | 1 | 2017.03.01_537C URVE 008.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 03/01/2017 13:13 | 1 | | GeminiC18 3x100 3(mm) |
| CCVL 320-152685/10 | | 03/01/2017 13:18 | 1 | 2017.03.01_537C URVE 010.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 03/01/2017 13:22 | 1 | | GeminiC18 3x100 3(mm) |
| ICV 320-152685/12 | | 03/01/2017 13:27 | 1 | 2017.03.01_537C URVE 012.d | GeminiC18 3x100 3(mm) |

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/01/2017 15:17

Analysis Batch Number: 152753 End Date: 03/01/2017 15:39

| LAB SAMPLE ID | CLIENT SAMPLE ID | DATE ANALYZED | DILUTION FACTOR | LAB FILE ID | COLUMN ID |
|---------------------------|------------------|------------------|-----------------|--------------------------|-----------------------|
| CCV 320-152753/2 CCVIS | | 03/01/2017 15:17 | 1 | 2017.03.01A_537 002.d | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 03/01/2017 15:22 | 1 | | GeminiC18 3x100 3(mm) |
| ZZZZZ | | 03/01/2017 15:26 | 1 | | GeminiC18 3x100 3(mm) |
| 320-26004-4 | | 03/01/2017 15:30 | 1 | 2017.03.01A_537 005.d | GeminiC18 3x100 3(mm) |
| 320-26004-8 | | 03/01/2017 15:35 | 1 | 2017.03.01A_537 006.d | GeminiC18 3x100 3(mm) |
| CCV 320-152753/7 CCVIS | | 03/01/2017 15:39 | 1 | 2017.03.01A_537 007.d | GeminiC18 3x100 3(mm) |

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Batch Number: 152123 Batch Start Date: 02/24/17 13:18 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/26/17 11:45

| Lab Sample ID | Client Sample ID | Method Chain | Basis | GrossWeight | TareWeight | InitialAmount | FinalAmount | ReceivedpH | LC537-IS 00030 |
|----------------------|------------------|--------------|-------|-------------|------------|---------------|-------------|------------|----------------|
| MB 320-152123/1 | | 537, 537 | | | | 250 mL | 1 mL | 7 SU | 20 uL |
| LLCS 320-152123/2 | | 537, 537 | | | | 250 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-1 | WI-AF-1RW27-0217 | 537, 537 | T | 283.67 g | 27.39 g | 256.3 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-2 | WI-AF-1FB27-0217 | 537, 537 | T | 282.18 g | 26.79 g | 255.4 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-3 | WI-AF-1RW28-0217 | 537, 537 | T | 274.03 g | 27.58 g | 246.5 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-4 | WI-AF-1FB28-0217 | 537, 537 | T | 276.95 g | 26.42 g | 250.5 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-5 | WI-AF-1RW29-0217 | 537, 537 | T | 274.59 g | 26.11 g | 248.5 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-6 | WI-AF-1FB29-0217 | 537, 537 | T | 280.33 g | 26.51 g | 253.8 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-7 | WI-AF-1RW30-0217 | 537, 537 | T | 280.30 g | 27.98 g | 252.3 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-7 MS | WI-AF-1RW30-0217 | 537, 537 | T | 276.90 g | 26.88 g | 250 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-7 MSD | WI-AF-1RW30-0217 | 537, 537 | T | 275.91 g | 27.66 g | 248.3 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-8 | WI-AF-1FB30-0217 | 537, 537 | T | 277.97 g | 26.48 g | 251.5 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-9 | WI-AF-1RW31-0217 | 537, 537 | T | 274.94 g | 27.07 g | 247.9 mL | 1 mL | 7 SU | 20 uL |
| 320-26004-A-10 | WI-AF-1FB31-0217 | 537, 537 | T | 282.53 g | 26.75 g | 255.8 mL | 1 mL | 7 SU | 20 uL |

| Lab Sample ID | Client Sample ID | Method Chain | Basis | LC537-LSP 00017 | LC537-MSP 00017 | LC537-SU 00030 | AnalysisComment | | |
|----------------------|------------------|--------------|-------|-----------------|-----------------|----------------|-----------------|--|--|
| MB 320-152123/1 | | 537, 537 | | | | 50 uL | chlorine=ND | | |
| LLCS 320-152123/2 | | 537, 537 | | 50 uL | | 50 uL | chlorine=ND | | |
| 320-26004-A-1 | WI-AF-1RW27-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-2 | WI-AF-1FB27-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-3 | WI-AF-1RW28-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-4 | WI-AF-1FB28-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-5 | WI-AF-1RW29-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-6 | WI-AF-1FB29-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-7 | WI-AF-1RW30-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-7 MS | WI-AF-1RW30-0217 | 537, 537 | T | | 50 uL | 50 uL | chlorine=ND | | |
| 320-26004-A-7 MSD | WI-AF-1RW30-0217 | 537, 537 | T | | 50 uL | 50 uL | chlorine=ND | | |
| 320-26004-A-8 | WI-AF-1FB30-0217 | 537, 537 | T | | | 50 uL | 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.: 320-26004-1

SDG No.: _____

Batch Number: 152123 Batch Start Date: 02/24/17 13:18 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/26/17 11:45

| Lab Sample ID | Client Sample ID | Method Chain | Basis | LC537-LSP 00017 | LC537-MSP 00017 | LC537-SU 00030 | AnalysisComment | | |
|----------------|------------------|--------------|-------|-----------------|-----------------|----------------|-----------------|--|--|
| 320-26004-A-9 | WI-AF-1RW31-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |
| 320-26004-A-10 | WI-AF-1FB31-0217 | 537, 537 | T | | | 50 uL | chlorine=ND | | |

| Batch Notes | |
|--------------------------------------|------------|
| Manifold ID | 1, 2 |
| Methanol ID | 851504 |
| Pipette ID | MD05306 |
| Analyst ID - IS Reagent Drop | JER |
| Analyst ID - IS Reagent Drop Witness | SKV |
| Analyst ID - SU Reagent Drop | KMK |
| Analyst ID - SU Reagent Drop Witness | NSH |
| Analyst ID - TA Reagent Drop | KMK |
| Analyst ID - TA Reagent Drop Witness | NSH |
| SPE Cartridge ID | 6341059-04 |
| Trizma ID | SLBR4303V |
| Reagent Water ID | 2-21-17 |

| Basis | Basis Description |
|-------|-------------------|
| T | Total/NA |

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

A8

Job No: 26004 Instrument ID & Date: 2-28-17 ICAL Batch: 152571, 152685
 Extraction Batch: 152123 Worklist #: 40335, 40376 TALS Batch: 152592, 152593, 152753

| Review Items | Level 1 | | | Level 2 |
|--|---------|----|-----|---------|
| | Yes | No | N/A | |
| Initial Calibration | | | | |
| 1. Is ICAL verified and locked in Chrom & TALS? | ✓ | | | ✓ |
| 2. Is ICV properly linked in TALS? | ✓ | | | ✓ |
| Continuing Calibration | | | | |
| 1. Low-range CCV injected at start of analytical run? CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range? | ✓ | | | ✓ |
| 2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run? | ✓ | | | ✓ |
| 3. Native compounds and surrogates in control? Low-range within ±50% of true value Mid and High-range within ±30% of true value | ✓ | | | ✓ |
| 4. Internal Standard areas in control? Areas ≥ 50% of average area of the ICAL and 70-140% of the most recent CCV. | ✓ | | | ✓ |
| Client Samples & QC Sample Results | | | | |
| 1. Were preparation and analysis done within holding times? | ✓ | | | ✓ |
| 2. Are Chromatograms reviewed and spectra verified? | ✓ | | | ✓ |
| 3. Are positive results within calibration range? | ✓ | | | ✓ |
| 4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____ | | | ✓ | |
| 5. All target compounds in MB < 1/3 RL ? (Requires NCM if "no.") | ✓ | | | ✓ |
| 6. Are target constituents in LCS/LCSD within method control limits? | ✓ | | | ✓ |
| 7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV | ✓ | | | ✓ |
| 8. Do results (e.g., dilutions/trip blanks) make sense? | ✓ | | | ✓ |
| 9. Are MS/MSD recoveries and RPDs within method control limits? | ✓ | | | ✓ |
| 10. Are all QC samples properly linked in TALS? | ✓ | | | ✓ |
| 11. All manual integrations appropriate and completely documented? | ✓ | | | ✓ |
| 12. Are nonconformances documented as NCMs? | ✓ | | | ✓ |
| 13. Are all Chrom graphics uploaded? | ✓ | | | ✓ |

1st Level Reviewer / Date: JRB 3-1-17

2nd Level Reviewer / Date: Shu R m u 3/2/17

NCM # and Comments: 79527

A8

Instrument ID & Date: 2-28-17 Worklist#: 40333

ICAL Batch: 152571, 152572 Calibration ID number: 28641

| Review Items | -- Level 1 -- | | | Level 2 |
|--|---------------|----|--------------|----------------|
| | Yes | No | N/A | |
| Initial Calibration | | | | <i>initial</i> |
| 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 ≤ 1/2 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 3-1-17

2nd Level Reviewer / Date: BAW 3-1-17

NCM # and Comments: _____

A8

Instrument ID & Date: 3-1-17 Worklist#: 40359

ICAL Batch: 152685, 152686 Calibration ID number: 28657, 28658

| 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 ≤ 1/2 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 3-1-17

2nd Level Reviewer / Date: CBW 3-1-17

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 28FEB2017B_537

Worklist Number: 40335

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170228-40335.b

QC Batching: Enabled

Limit Group Batching: Enabled

| QC Batch: 1 | LC 537 ICAL Raw Batch: 152585 |
|-------------------------|----------------------------------|
| # 1 CCV L5 | # 1 CCV L5 |
| # 2 MB 320-152377/1-A | # 2 MB 320-152377/1-A |
| # 3 LCS 320-152377/2-A | # 3 LCS 320-152377/2-A |
| # 4 LCSD 320-152377/3-A | # 4 LCSD 320-152377/3-A |
| # 5 320-25960-B-1-A | # 5 320-25960-B-1-A |
| # 6 320-25960-B-2-A | # 6 320-25960-B-2-A |
| # 7 320-25960-B-3-A | # 7 320-25960-B-3-A |
| # 8 320-25960-B-4-A | # 8 320-25960-B-4-A |
| # 9 320-25960-B-5-A | # 9 320-25960-B-5-A |
| #10 320-25960-B-6-A | #10 320-25960-B-6-A |
| #11 320-25960-B-7-A | #11 320-25960-B-7-A |
| #12 CCV L3 | #12 CCV L3 |

| QC Batch: 2 | LC 537 ICAL Raw Batch: 152586 |
|---------------------|----------------------------------|
| #12 CCV L3 | #12 CCV L3 |
| #13 320-25960-B-8-A | #13 320-25960-B-8-A |
| #14 QC 537 IS 00032 | #14 QC 537 IS 00032 |
| #15 CCV L5 | #15 CCV L5 |

| QC Batch: 3 | LC 537 ICAL Raw Batch: 152592 |
|-------------------------|----------------------------------|
| #15 CCV L5 | #15 CCV L5 |
| #16 MB 320-152123/1-A | #16 MB 320-152123/1-A |
| #17 LLCS 320-152123/2-A | #17 LLCS 320-152123/2-A |
| #18 320-26004-A-1-A | #18 320-26004-A-1-A |
| #19 320-26004-A-2-A | #19 320-26004-A-2-A |
| #20 320-26004-A-3-A | #20 320-26004-A-3-A |
| #21 320-26004-A-4-A | #21 320-26004-A-4-A |
| #22 320-26004-A-5-A | #22 320-26004-A-5-A |
| #23 320-26004-A-6-A | #23 320-26004-A-6-A |
| #24 320-26004-A-7-A | #24 320-26004-A-7-A |
| #25 320-26004-A-7-B MS | #25 320-26004-A-7-B MS |
| #26 CCV L3 | #26 CCV L3 |

| QC Batch: 4 | LC 537 ICAL Raw Batch: 152593 |
|-------------------------|----------------------------------|
| #26 CCV L3 | #26 CCV L3 |
| #27 320-26004-A-7-C MSD | #27 320-26004-A-7-C MSD |
| #28 320-26004-A-8-A | #28 320-26004-A-8-A |
| #29 320-26004-A-9-A | #29 320-26004-A-9-A |
| #30 320-26004-A-10-A | #30 320-26004-A-10-A |
| #31 CCV L5 | #31 CCV L5 |

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 01MAR2017B_537 Worklist Number: 40376
 Instrument Name: A8_N Chrom Method: 537_A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170301-40376.b
 QC Batching: Enabled Limit Group Batching: Enabled

| QC Batch: 1 | LC 537 ICAL Raw Batch: 152753 |
|---------------------|----------------------------------|
| # 1 RB | # 1 RB |
| # 2 CCV L5 | # 2 CCV L5 |
| # 3 RB | # 3 RB |
| # 4 320-26004-A-3-A | # 4 320-26004-A-3-A |
| # 5 320-26004-A-4-A | # 5 320-26004-A-4-A |
| # 6 320-26004-A-8-A | # 6 320-26004-A-8-A |
| # 7 CCV L3 | # 7 CCV L3 |

| QC Batch: 2 | LC 537 ICAL Raw Batch: 152754 |
|------------------------|----------------------------------|
| # 7 CCV L3 | # 7 CCV L3 |
| # 8 MB 320-152423/1-A | # 8 MB 320-152423/1-A |
| # 9 LCS 320-152423/2-A | # 9 LCS 320-152423/2-A |
| #10 537 IS QC_00032 | #10 537 IS QC_00032 |
| #11 320-26042-A-1-A | #11 320-26042-A-1-A |
| #12 320-26042-A-2-A | #12 320-26042-A-2-A |
| #13 320-26042-A-3-A | #13 320-26042-A-3-A |
| #14 320-26042-A-4-A | #14 320-26042-A-4-A |
| #15 320-26042-A-5-A | #15 320-26042-A-5-A |
| #16 320-26042-A-6-A | #16 320-26042-A-6-A |
| #17 320-26042-A-7-A | #17 320-26042-A-7-A |
| #18 320-26042-A-8-A | #18 320-26042-A-8-A |
| #19 CCV L5 | #19 CCV L5 |

| QC Batch: 3 | LC 537 ICAL Raw Batch: 152767 |
|-------------------------|----------------------------------|
| #19 CCV L5 | #19 CCV L5 |
| #20 320-26042-A-9-A | #20 320-26042-A-9-A |
| #21 320-26042-A-9-B MS | #21 320-26042-A-9-B MS |
| #22 320-26042-A-9-C MSD | #22 320-26042-A-9-C MSD |
| #23 320-26042-A-10-A | #23 320-26042-A-10-A |
| #24 320-26042-A-11-A | #24 320-26042-A-11-A |
| #25 320-26042-A-12-A | #25 320-26042-A-12-A |
| #26 320-26042-A-13-A | #26 320-26042-A-13-A |
| #27 320-26042-A-14-A | #27 320-26042-A-14-A |
| #28 320-26042-A-15-A | #28 320-26042-A-15-A |
| #29 CCV L3 | #29 CCV L3 |

14

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152123

Analyst: Kolstad, Kate M

Batch Open: 2/24/2017 1:18:00PM

Method Code: 320-537_Prep-320

Batch End: 2/26/17 11:45

Extraction of Perfluorinated Alkyl Acids

| Input Sample Lab ID (Analytical Method) | SDG (Job #) | GrossWt TareWt | InitAmnt FinAmnt | Revd | PHs | | Due Date | Analytical TAT | Div Rank | Comments | Output Sample Lab ID |
|--|----------------------|---------------------|---------------------|------|------|------|----------|-------------------|-------------|-------------|----------------------|
| | | | | | Adj1 | Adj2 | | | | | |
| 1 MB-320-152123/1 N/A | N/A | | 250 mL 1 mL | 7 | | | N/A | N/A | N/A | chlorine=ND | MB 320-152123/1-A |
| 2 LLCS-320-152123/2 N/A | N/A | | 250 mL 1 mL | 7 | | | N/A | N/A | N/A | chlorine=ND | LLCS 320-152123/2-A |
| 3 320-26004-A-1 (537_DOD5) | N/A (320-26004-1) | 283.67 g 27.39 g | 256.3 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-1-A |
| 4 320-26004-A-2 (537_DOD5) | N/A (320-26004-1) | 282.18 g 26.79 g | 255.4 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-2-A |
| 5 320-26004-A-3 (537_DOD5) | N/A (320-26004-1) | 274.03 g 27.58 g | 246.5 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-3-A |
| 6 320-26004-A-4 (537_DOD5) | N/A (320-26004-1) | 276.95 g 26.42 g | 250.5 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-4-A |
| 7 320-26004-A-5 (537_DOD5) | N/A (320-26004-1) | 274.59 g 26.11 g | 248.5 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-5-A |
| 8 320-26004-A-6 (537_DOD5) | N/A (320-26004-1) | 280.33 g 26.51 g | 253.8 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-6-A |
| 9 320-26004-A-7 (537_DOD5) | N/A (320-26004-1) | 280.30 g 27.98 g | 252.3 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-7-A |
| 10 320-26004-A-7-MS (537_DOD5) | N/A (320-26004-1) | 276.90 g 26.88 g | 250 mL 1 mL | 7 | | | 2/27/17 | 5_Days | 4 | chlorine=ND | 320-26004-A-7-B-MS |

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)





Batch Number: 320-152123

Analyst: Kolstad, Kate M

Batch Open: 2/24/2017 1:18:00PM

Method Code: 320-537_Prep-320

Batch End:

| | | | | | | | | | | | |
|----|---------------------------------|----------------------|---------------------|------------------|---|--|---------|--------|---|-------------|---|
| 11 | 320-26004-A-7-MSD (537_DOD5) | N/A (320-26004-1) | 275.91 g 27.66 g | 248.3 mL 1 mL | 7 | | 2/27/17 | 5_Days | 4 | chlorine=ND |  |
| 12 | 320-26004-A-8 (537_DOD5) | N/A (320-26004-1) | 277.97 g 26.48 g | 251.5 mL 1 mL | 7 | | 2/27/17 | 5_Days | 4 | chlorine=ND |  |
| 13 | 320-26004-A-9 (537_DOD5) | N/A (320-26004-1) | 274.94 g 27.07 g | 247.9 mL 1 mL | 7 | | 2/27/17 | 5_Days | 4 | chlorine=ND |  |
| 14 | 320-26004-A-10 (537_DOD5) | N/A (320-26004-1) | 282.53 g 26.75 g | 255.8 mL 1 mL | 7 | | 2/27/17 | 5_Days | 4 | chlorine=ND |  |

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152123

Analyst: Kolstad, Kate M

Batch Open: 2/24/2017 1:18:00PM

Method Code: 320-537_Prep-320

Batch End:

| Batch Notes | |
|--------------------------------------|----------------------------|
| Manifold ID | 1, 2 |
| Trizma ID | SLBR4303V |
| SPE Cartridge ID | 6341059-04 |
| Methanol ID | 851504 |
| Reagent Water ID | 2-21-17 |
| Pipette ID | MD05306 |
| Analyst ID - TA Reagent Drop | KMK |
| Analyst ID - TA Reagent Drop Witness | NSH |
| Analyst ID - SU Reagent Drop | KMK |
| Analyst ID - SU Reagent Drop Witness | NSH |
| Analyst ID - IS Reagent Drop | JER 2/26/17 (827698) 20 µL |
| Analyst ID - IS Reagent Drop Witness | SKJ 2/26/17 |
| Batch Comment | NA |

| Comments |
|----------|
| |

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152123

Analyst: Kolstad, Kate M

Batch Open: 2/24/2017 1:18:00PM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

| Lab ID | Reagent Code | Amount Added | Final Amount | By | Witness |
|-------------------|-----------------|--------------|--------------|------------------------------------|-------------|
| MB 320-152123/1 | LC537-SU_00030 | 50 uL | 1 mL | KMK 2/24/17 | N5H 2-24-17 |
| LLCS 320-152123/2 | LC537-LSP_00017 | 50 uL | 1 mL | Signed for Kate By Venkata | |
| LLCS 320-152123/2 | LC537-SU_00030 | 50 uL | 1 mL | manuho 2/27/17 | |
| 320-26004-A-1 | LC537-SU_00030 | 50 uL | 1 mL | (She is off and forgot to sign) | |
| 320-26004-A-2 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-3 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-4 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-5 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-6 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-7 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-7 MS | LC537-MSP_00017 | 50 uL | 1 mL | | |
| 320-26004-A-7 MS | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-7 MSD | LC537-MSP_00017 | 50 uL | 1 mL | | |
| 320-26004-A-7 MSD | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-8 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-9 | LC537-SU_00030 | 50 uL | 1 mL | | |
| 320-26004-A-10 | LC537-SU_00030 | 50 uL | 1 mL | | |

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-152123

Analyst: Kolstad, Kate M

Batch Open: 2/24/2017 1:18:00PM

Method Code: 320-537_Prep-320

Batch End:

| Reagent | Other Reagents: | Amount/Units | Lot#: |
|---------|-----------------|--------------|-------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Preparation Batch Number(s): 152123 Test: 537-Prep

Earliest Holding Time: 3-6-17

| Sample List Tab | | 1 st Level Reviewer | 2 nd Level Reviewer |
|---|--|--------------------------------|--------------------------------|
| Samples identified to the correct method | | ✓ | ✓ |
| All necessary NCMs filed (including holding time) | | NA | NA |
| Method/sample/login/QAS checked and correct | | ✓ | ✓ |
| Worksheet Tab | | 1 st Level Reviewer | 2 nd Level Reviewer |
| All samples properly preserved | | ✓ | ✓ |
| Weights in anticipated range and not targeted | | ✓ | ✓ |
| All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check) | | ✓ | ✓ |
| The pH is transcribed correctly in TALS | | ✓ | ✓ |
| All additional information transcribed into TALS is correct and raw data is attached | | ✓ | ✓ |
| Comments are transcribed correctly in TALS | | ✓ | ✓ |
| Reagents Tab | | 1 st Level Reviewer | 2 nd Level Reviewer |
| All necessary reagents not expired and entered into TALS | | ✓ | ✓ |
| All spike amounts correct and added to necessary samples and QC | | ✓ | ✓ |
| Batch Information | | 1 st Level Reviewer | 2 nd Level Reviewer |
| Date and time accurate and entered into TALS correctly | | ✓ | ✓ |
| All necessary 'batch information' complete and entered into TALS correctly | | ✓ | ✓ |

1st Level Reviewer: 

Date: 2/26/17

2nd Level Reviewer: 

Date: 2/27/17

Comments: _____

Shipping and Receiving Documents

| | | | | | | | | | |
|--|--|---|--|--|--|---|--|--------------------------------------|--|
| Client Contact Company Name: CH2M HILL Address: 1100 NE Circle Blvd Ste 300 City/State/Zip: Corvallis, OR 97330 Phone: 541-765-3194 Fax: 541-908-3794 Project Name: CTO-08 Site: NAS Whidbey Island P.O.#: 1000 0710 0050 - 079580.06.PI.FS | | Regulatory Program: <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other: | | Project Manager: Kobi Tippin Tel/Fax: 757-671-0258 | | Site Contact: Mike Wilmer Date: 2/14/2017 Lab Contact: Laura Tumber Carrier: FedEx | | COC No: 1 of 1 COCs | |
| Analysis Turnaround Time <input checked="" type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below: 3 day <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day | | Sample Identification | | Sample Specific Notes: | | Sampler: | | For Lab Use Only: Walk-in Client: | |
| Sample Date | | Sample Time | | Sample Type (C-Comp, G-Grab) | | Matrix | | # of Cont. | |
| 2/20/17 | | 1250 | | G | | DW | | 2 | |
| 2/20/17 | | 1251 | | G | | DW | | 2 | |
| 2/20/17 | | 1422 | | G | | DW | | 2 | |
| 2/20/17 | | 1423 | | G | | DW | | 2 | |
| 2/20/17 | | 1457 | | G | | DW | | 2 | |
| 2/20/17 | | 1452 | | G | | DW | | 2 | |
| 2/20/17 | | 1525 | | G | | DW | | 2 | |
| 2/20/17 | | 1525 | | G | | DW | | 2 | |
| 2/20/17 | | 1525 | | G | | DW | | 2 | |
| 2/20/17 | | 1526 | | G | | DW | | 2 | |
| 2/20/17 | | 1545 | | G | | DW | | 2 | |
| 2/20/17 | | 1540 | | G | | DW | | 2 | |
| Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other (V2MA) | | | | | | | | | |
| 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. | | | | | | | | | |
| <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown | | | | | | | | | |
| Special Instructions/QC Requirements & Comments: | | | | | | | | | |
| Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No | | Custody Seal No.: | | Cooler Temp. (°C): Obs'd: 0.8°C Corr'd: 0.8°C | | Therm ID No.: | | Date/Time: 2/23/17 9:55 | |
| Relinquished by: [Signature] | | Company: CH2M | | Received by: [Signature] | | Company: TAWS | | Date/Time: 2/23/17 9:55 | |
| 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: 320-26004-1

Login Number: 26004
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

| 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 | |

**DATA VALIDATION SUMMARY REPORT
WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 320-26004-1
 Laboratory: Test America, Sacramento, California
 Site: Whidbey Island, CTO-0008, Washington
 Date: March 22, 2017

| PFCs | | | |
|--------|---------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-1RW27-0217 | 320-26004-1 | Water |
| 2 | WI-AF-1FB27-0217 | 320-26004-2 | Water |
| 3 | WI-AF-1RW28-0217 | 320-26004-3 | Water |
| 4 | WI-AF-1FB28-0217 | 320-26004-4 | Water |
| 5 | WI-AF-1RW29-0217 | 320-26004-5 | Water |
| 6 | WI-AF-1FB29-0217 | 320-26004-6 | Water |
| 7 | WI-AF-1RW30-0217 | 320-26004-7 | Water |
| 7MS | WI-AF-1RW30-0217MS | 320-26004-7MS | Water |
| 7MSD | WI-AF-1RW30-0217MSD | 320-26004-7MSD | Water |
| 8 | WI-AF-1FB30-0217 | 320-26004-8 | Water |
| 9 | WI-AF-1RW31-0217 | 320-26004-9 | Water |
| 10 | WI-AF-1FB31-0217 | 320-26004-10 | Water |

A full data validation was performed on the analytical data for five water samples and five aqueous field blank samples collected on February 20, 2017 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 (July 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 as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedences of QC criteria.

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 except for the following.

| Sample ID | Surrogate | %R | Qualifier |
|-----------|------------|-----|-----------|
| 3 | 13C2-PFHxA | 62% | J/UJ |

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable %R and RPD values.

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries (%R).

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 samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 3/24/17

| 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.: 320-26004-1

SDG No.: _____

Client Sample ID: WI-AF-1RW27-0217 Lab Sample ID: 320-26004-1

Matrix: Water Lab File ID: 2017.02.28C_537_003.d

Analysis Method: 537 Date Collected: 02/20/2017 12:50

Extraction Method: 537 Date Extracted: 02/24/2017 13:19

Sample wt/vol: 256.3(mL) Date Analyzed: 02/28/2017 17:22

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

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

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

Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|----------------|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 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 N | 0.14 | 0.11 | 0.046 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 73 | | 70-130 |
| STL00996 | 13C2 PFDA | 72 | | 70-130 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

2

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB27-0217 Lab Sample ID: 320-26004-2
 Matrix: Water Lab File ID: 2017.02.28C_537_004.d
 Analysis Method: 537 Date Collected: 02/20/2017 12:51
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 255.4 (mL) Date Analyzed: 02/28/2017 17:26
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 80 | | 70-130 |
| STL00996 | 13C2 PFDA | 73 | | 70-130 |

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

3

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1RW28-0217 Lab Sample ID: 320-26004-3
 Matrix: Water Lab File ID: 2017.02.28C_537_005.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:22
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 246.5 (mL) Date Analyzed: 02/28/2017 17:31
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|--------------|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.049 | <i>U M J</i> | 0.061 | 0.049 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.032 | <i>J</i> | 0.030 | 0.024 | 0.0096 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | <i>U J</i> | 0.14 | 0.11 | 0.048 |

SSL
↓

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|----------|--------|
| STL00993 | 13C2 PFHxA | 62 | <i>Q</i> | 70-130 |
| STL00996 | 13C2 PFDA | 72 | | 70-130 |

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4

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB28-0217 Lab Sample ID: 320-26004-4
 Matrix: Water Lab File ID: 2017.03.01A_537_005.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:23
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 250.5 (mL) Date Analyzed: 03/01/2017 15:30
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152753 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 | 0.015 |
| 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 73 | | 70-130 |
| STL00996 | 13C2 PFDA | 75 | | 70-130 |

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5

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Client Sample ID: WI-AF-1RW29-0217 Lab Sample ID: 320-26004-5

Matrix: Water Lab File ID: 2017.02.28C_537_007.d

Analysis Method: 537 Date Collected: 02/20/2017 14:51

Extraction Method: 537 Date Extracted: 02/24/2017 13:19

Sample wt/vol: 248.5(mL) Date Analyzed: 02/28/2017 17:40

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

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

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

Analysis Batch No.: 152592 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 | 0.0095 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 74 | | 70-130 |
| STL00996 | 13C2 PFDA | 71 | | 70-130 |

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6

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB29-0217 Lab Sample ID: 320-26004-6
 Matrix: Water Lab File ID: 2017.02.28C_537_008.d
 Analysis Method: 537 Date Collected: 02/20/2017 14:52
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 253.8(mL) Date Analyzed: 02/28/2017 17:44
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 0.047 | 0.015 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.024 | 0.0093 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 81 | | 70-130 |
| STL00996 | 13C2 PFDA | 74 | | 70-130 |

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7

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Client Sample ID: WI-AF-1RW30-0217 Lab Sample ID: 320-26004-7

Matrix: Water Lab File ID: 2017.02.28C_537_009.d

Analysis Method: 537 Date Collected: 02/20/2017 15:25

Extraction Method: 537 Date Extracted: 02/24/2017 13:19

Sample wt/vol: 252.3(mL) Date Analyzed: 02/28/2017 17:48

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

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

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

Analysis Batch No.: 152592 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.059 | 0.048 | 0.015 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.024 | 0.0093 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 71 | | 70-130 |
| STL00996 | 13C2 PFDA | 70 | | 70-130 |

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8

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB30-0217 Lab Sample ID: 320-26004-8
 Matrix: Water Lab File ID: 2017.03.01A_537_006.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:26
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 251.5(mL) Date Analyzed: 03/01/2017 15:35
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152753 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 | 0.015 |
| 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 75 | | 70-130 |
| STL00996 | 13C2 PFDA | 77 | | 70-130 |

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9

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1

SDG No.: _____

Client Sample ID: WI-AF-1RW31-0217 Lab Sample ID: 320-26004-9

Matrix: Water Lab File ID: 2017.02.28C_537_014.d

Analysis Method: 537 Date Collected: 02/20/2017 15:45

Extraction Method: 537 Date Extracted: 02/24/2017 13:19

Sample wt/vol: 247.9(mL) Date Analyzed: 02/28/2017 18:10

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

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

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

Analysis Batch No.: 152593 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.048 | U | 0.061 | 0.048 | 0.016 |
| 335-67-1 | Perfluorooctanoic acid (PFOA) | 0.024 | U | 0.030 | 0.024 | 0.0095 |
| 375-73-5 | Perfluorobutanesulfonic acid (PFBS) | 0.11 | U | 0.14 | 0.11 | 0.048 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 74 | | 70-130 |
| STL00996 | 13C2 PFDA | 74 | | 70-130 |

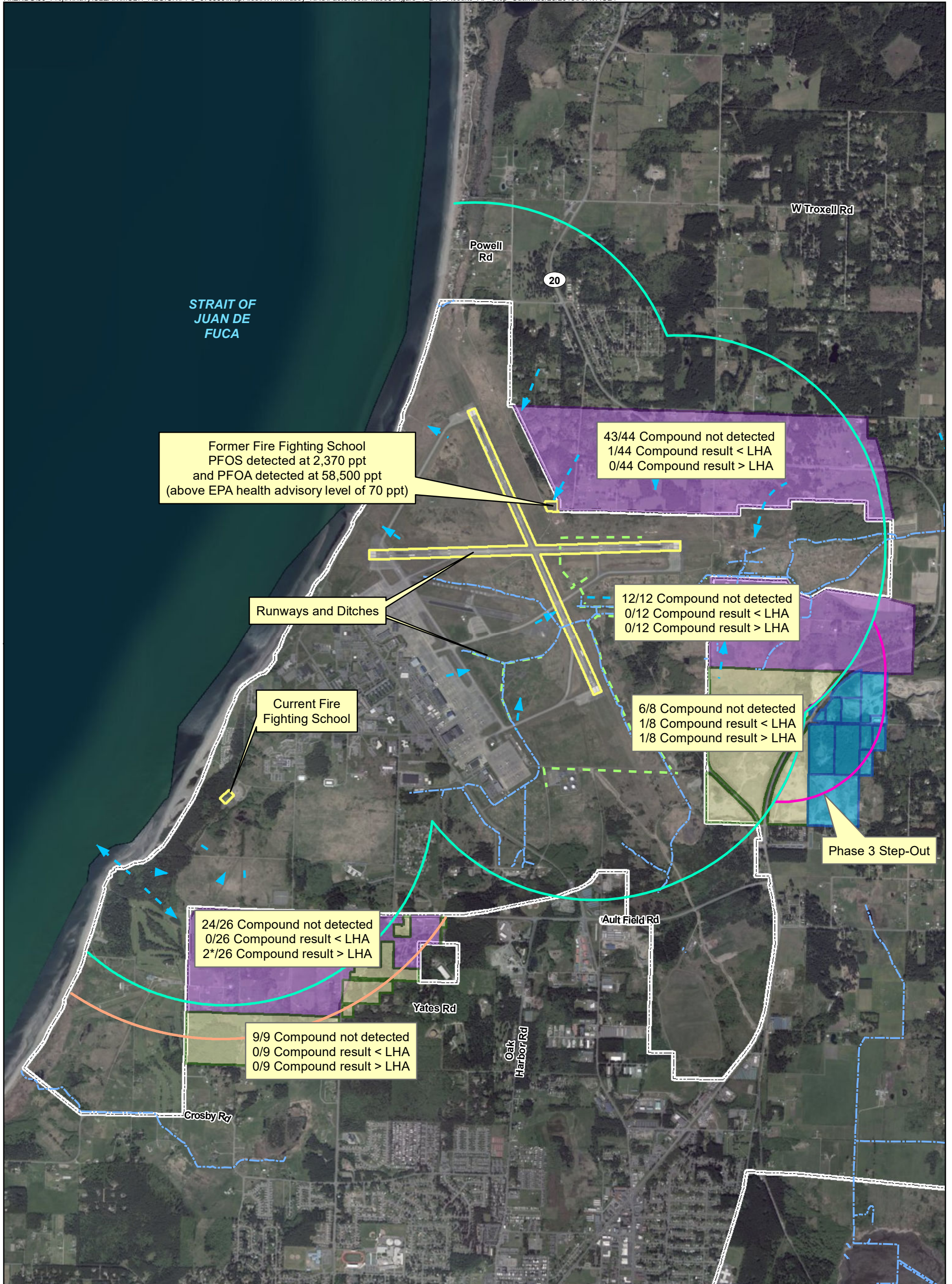
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10

Lab Name: TestAmerica Sacramento Job No.: 320-26004-1
 SDG No.: _____
 Client Sample ID: WI-AF-1FB31-0217 Lab Sample ID: 320-26004-10
 Matrix: Water Lab File ID: 2017.02.28C_537_015.d
 Analysis Method: 537 Date Collected: 02/20/2017 15:46
 Extraction Method: 537 Date Extracted: 02/24/2017 13:19
 Sample wt/vol: 255.8(mL) Date Analyzed: 02/28/2017 18:15
 Con. Extract Vol.: 1(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 152593 Units: ug/L

| CAS NO. | COMPOUND NAME | RESULT | Q | LOQ | LOD | DL |
|-----------|-------------------------------------|--------|---|-------|-------|--------|
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS) | 0.047 | U | 0.059 | 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 | 0.047 |

| CAS NO. | SURROGATE | %REC | Q | LIMITS |
|----------|------------|------|---|--------|
| STL00993 | 13C2 PFHxA | 77 | | 70-130 |
| STL00996 | 13C2 PFDA | 71 | | 70-130 |



Former Fire Fighting School
 PFOS detected at 2,370 ppt
 and PFOA detected at 58,500 ppt
 (above EPA health advisory level of 70 ppt)

43/44 Compound not detected
 1/44 Compound result < LHA
 0/44 Compound result > LHA

Runways and Ditches

12/12 Compound not detected
 0/12 Compound result < LHA
 0/12 Compound result > LHA

Current Fire Fighting School

6/8 Compound not detected
 1/8 Compound result < LHA
 1/8 Compound result > LHA

Phase 3 Step-Out

24/26 Compound not detected
 0/26 Compound result < LHA
 2*/26 Compound result > LHA

9/9 Compound not detected
 0/9 Compound result < LHA
 0/9 Compound result > LHA

Legend

- 1 Mile Zone
- Half-mile Step-out Downgradient
- - - Surface Water
- - - Drainage Ditch
- Half-mile Step-out Downgradient
- Suspected Source Area
- Parcels in Phase 1 Sampling Area
- Parcels Identified in Phase 2 Sampling Area
- Parcels Identified in Phase 3 Sampling Area

- Base Boundary
- - - Inferred Groundwater Flow Direction

* Second result above the EPA health advisory is from a duplicate sample collected from the well with the first exceedance near Ault Field.

Note:
 PFOA and PFOS results reflected on figure,
 PFBS results discussed in Table 2 and text.



0 0.225 0.45
 Miles

1 inch = 0.45 mile
 Imagery Source: Esri

Figure 2
 Results for Drinking Water Well Sampling
 Ault Field
 Naval Air Station Whidbey Island
 Oak Harbor, Washington