

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |         |                           |         |                                         |         |         |         |         |         |         |         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------|---------|-----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Analyst: DB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         | DV-IP-0012                |         | <br>THE LEADER IN ENVIRONMENTAL TESTING |         |         |         |         |         |         |         |
| Date: 5.16.18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         | TCLP/SPLP Worksheet No. 1 |         |                                         |         |         |         |         |         |         |         |
| Sample Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| Login No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 109561  | 320-39023                 | LB      |                                         |         |         |         |         |         |         |         |
| Sample No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1       | 57                        |         |                                         |         |         |         |         |         |         |         |
| <b>A. Sample Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                           |         |                                         |         |         |         |         |         |         |         |
| Number of phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1       | 1                         |         |                                         |         |         |         |         |         |         |         |
| 1. Solid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | X       | X                         |         |                                         |         |         |         |         |         |         |         |
| 2. Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. lighter than water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. heavier than water                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| <b>B. Percent Solid Phase</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                           |         |                                         |         |         |         |         |         |         |         |
| Balance ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |         |                           |         |                                         |         |         |         |         |         |         |         |
| 1. Weight of filter (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |         |                           |         |                                         |         |         |         |         |         |         |         |
| 2. Weight of subsample                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. gross weight (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. tare weight (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. net weight (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.00    | 0.00                      | 0.00    | 0.00                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| 3. Weight of filtrate                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. gross weight (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. tare weight (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. net weight (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.00    | 0.00                      | 0.00    | 0.00                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| d. density of filtrate (g/mL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |         |                           |         |                                         |         |         |         |         |         |         |         |
| 4. Total weight wet solids (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.00    | 0.00                      | 0.00    | 0.00                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Weight percent solids (wet) (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | #DIV/0! | #DIV/0!                   | #DIV/0! | #DIV/0!                                 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Weight percent solids (dry)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. gross dry weight 1 (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. gross dry weight 2 (g)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. percent dry solids (%)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| d. Oven Temp (observed) (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |         |                           |         |                                         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0       |                           |         |                                         |         |         |         |         |         |         |         |
| Oven Temp Actual (°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0       | 0                         | 0       | 0                                       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| 7. Vol. of initial aqueous filtrate (mL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | #DIV/0! | #DIV/0!                   | #DIV/0! | #DIV/0!                                 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Vol. of initial organic filtrate (mL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |                           |         |                                         |         |         |         |         |         |         |         |
| <b>Comments:</b> <div style="text-align: right; margin-top: 10px;"> <math display="block">(\text{Weight percent dry solids, B.6.c}) = 100 \times \frac{(\text{Gross dry weight 2 or 1, B.6.b or B.6.a if B.6.a is blank}) - (\text{Weight of filter, B.1})}{(\text{Weight of subsample, B.2.c})}</math> </div> <div style="font-size: small; margin-top: 10px;">       (Net Weight of Subsample, B.2.c) = (gross weight, B.2.a) - (tare weight, B.2.b)<br/>       (Net Weight of Filtrate, B.3.c) = (gross weight, B.3.a) - (tare weight, B.3.b)<br/>       (Total weight wet solids, B.4) = (Weight subsample, B.2.c) - (Weight filtrate, B.3.c)<br/>       (Vol of initial filtrate, B.7) = (Weight of filtrate, B.3.c) / (Density of filtrate, B.3.d)<br/>       (Weight percent wet solids, B.5.) = 100 X (Total weight wet solids, B.4.) / (Weight of subsample, B.2.c.)     </div> |         |                           |         |                                         |         |         |         |         |         |         |         |

Analyst: DB

**DV-IP-0012**  
**TCLP Worksheet No. 2**  
**Selection of Leach Fluid**



Login No. 109561 320-39023 LB

Sample No. 1 57

**C. Leach Fluid Determination-** Does not apply to determination of volatile organic components or SPLP.

|                                                     |            |              |   |   |   |   |   |   |   |   |   |
|-----------------------------------------------------|------------|--------------|---|---|---|---|---|---|---|---|---|
| 1. Particle size reduction? (<1mm) Yes/No           | N          | N            |   |   |   |   |   |   |   |   |   |
| If yes, write NCM describing how.                   |            |              |   |   |   |   |   |   |   |   |   |
| 2. Balance ID                                       | 24950431   | 24950431     |   |   |   |   |   |   |   |   |   |
| 3. Sample weight, 5.0 +/- 0.1g                      | 5          | 5.03         |   |   |   |   |   |   |   |   |   |
| 4. Add 96.5 (+/- 2% or 94.57mL to 98.43mL)          |            |              |   |   |   |   |   |   |   |   |   |
| a. Pipette ID or Grad Cylinder ID                   | TCLP BT    | TCLP BT      |   |   |   |   |   |   |   |   |   |
| 5. Initial pH (after 5 min. mixing time)            |            |              |   |   |   |   |   |   |   |   |   |
| a. Start Time for Mixing                            | 2:20       | 2:28         |   |   |   |   |   |   |   |   |   |
| b. Stop Time for Mixing                             | 2:25       | 2:33         |   |   |   |   |   |   |   |   |   |
| c. pH reading after mixing                          | 10.91      | 10.01        |   |   |   |   |   |   |   |   |   |
| 6. If pH > 5.0, then add 3.5 mL 1N HCL & mark "X"   | X          | X            |   |   |   |   |   |   |   |   |   |
| a. HCL Lot# used                                    | 1N HCL 001 | 1N HCL 00037 |   |   |   |   |   |   |   |   |   |
| b. Pipette ID                                       | TCLP#2     | TCLP#2       |   |   |   |   |   |   |   |   |   |
| 7. Secondary pH (after 10min at 50C to 55C)         |            |              |   |   |   |   |   |   |   |   |   |
| a. Thermometer ID                                   |            |              |   |   |   |   |   |   |   |   |   |
| Termometer Correction Factor                        |            |              |   |   |   |   |   |   |   |   |   |
| b. Start Time                                       | 2:50       | 2:50         |   |   |   |   |   |   |   |   |   |
| c. Start Temperature (Observed)                     | 51         | 51           |   |   |   |   |   |   |   |   |   |
| Start Temperature (Actual)                          | 51         | 51           | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| d. Finish Time                                      | 3:01       | 3:01         |   |   |   |   |   |   |   |   |   |
| e. Finish Temperature (Observed)                    | 50         | 50           |   |   |   |   |   |   |   |   |   |
| Finish Temperature (Actual)                         | 50         | 50           | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| f. pH reading after heating (temperature corrected) | 1.52       | 1.73         |   |   |   |   |   |   |   |   |   |

**D. Selection of Leach Fluid**

|                                                                                    |         |         |  |  |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------|---------|---------|--|--|--|--|--|--|--|--|--|
| 1. If pH from C.5. or C.7.f. is <5.0 use Leach Fluid #1                            | Fluid 1 | Fluid 1 |  |  |  |  |  |  |  |  |  |
| 2. If pH from C.7.f is > 5.0, use Leach Fluid #2                                   |         |         |  |  |  |  |  |  |  |  |  |
| 3. SPLP Fluid 1: Soils- East of the Mississippi River; Wastewaters; or Wastewaters |         |         |  |  |  |  |  |  |  |  |  |
| 4. SPLP Fluid 2: Soils- West of Mississippi River                                  |         |         |  |  |  |  |  |  |  |  |  |
| 5. SPLP Fluid 3: If VOCs or Cyanide containing wastes.                             |         |         |  |  |  |  |  |  |  |  |  |
| 6. X if filtrate and fluid are miscible                                            |         |         |  |  |  |  |  |  |  |  |  |

Analyst: DB

DV-IP-0012

## TCLP/SPLP Worksheet No. 3

## Bottle Leach Procedure for Metals and Semi-Volatile Organic Components

|            |        |           |    |  |  |  |  |  |  |  |  |
|------------|--------|-----------|----|--|--|--|--|--|--|--|--|
| Login No.  | 109561 | 320-39023 | LB |  |  |  |  |  |  |  |  |
| Sample No. | 1      | 57        |    |  |  |  |  |  |  |  |  |

**E. Determination of Sample Size**

|                                              |          |          |  |  |  |  |  |  |  |  |  |
|----------------------------------------------|----------|----------|--|--|--|--|--|--|--|--|--|
| 1. Particle size reduction? Yes/no           | N        | N        |  |  |  |  |  |  |  |  |  |
| If yes, write NCM describing how.            |          |          |  |  |  |  |  |  |  |  |  |
| 2. Balance ID                                | 24950431 | 24950431 |  |  |  |  |  |  |  |  |  |
| 3. Weight of wet solids after filtration (g) | 100.05   | 100.09   |  |  |  |  |  |  |  |  |  |

**F. Determination of Amount of Leach Fluid**

| Fluid Type from Wksht 2                | TCLP 1   | TCLP 1   | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
|----------------------------------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. TCLP Fluid 1 Lot #                  | T1_00248 | T1_00248 |         |         |         |         |         |         |         |         |         |
| 2. TCLP Fluid 2 Lot #                  |          |          |         |         |         |         |         |         |         |         |         |
| 3. SPLP 1 (East) Lot #                 |          |          |         |         |         |         |         |         |         |         |         |
| 4. SPLP 2 (West) Lot #                 |          |          |         |         |         |         |         |         |         |         |         |
| 5. pH of leach fluid                   | 4.96     | 4.96     | 4.96    |         |         |         |         |         |         |         |         |
| 6. Vol of Fluid = wet solids x 20 (mL) | 2001     | 2002     |         |         |         |         |         |         |         |         |         |

**G. Record of Leach** - leach period is 16 to 20 hours

|                                                          |               |               |               |         |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------------|---------------|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Rotator checked to be rotating between 28 and 32 RPM? | Y             | Y             | Y             |         |         |         |         |         |         |         |         |
| 2. Leach start date and time                             | 5/16/18 16:32 | 5/16/18 16:32 | 5/16/18 16:32 |         |         |         |         |         |         |         |         |
| 3. Leach stop date and time                              | 5/17/18 8:35  | 5/17/18 8:35  | 5/17/18 8:35  |         |         |         |         |         |         |         |         |
| 4. Room temperature                                      |               |               |               |         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            | 0.0           | 0.0           | 0.0           |         |         |         |         |         |         |         |         |
| a.Temp Min (Observed) (°C)                               | 22.6          | 22.6          | 22.6          |         |         |         |         |         |         |         |         |
| b.Temp Max (Observed) (°C)                               | 23.9          | 23.9          | 23.9          |         |         |         |         |         |         |         |         |
| c.Temp Min (Actual) (°C)                                 | 22.6          | 22.6          | 22.6          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d.Temp Max (Actual) (°C)                                 | 23.9          | 23.9          | 23.9          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 5. pH of leachate                                        | 8.84          | 4.95          | 4.93          |         |         |         |         |         |         |         |         |
| Was the sample multiphasic?                              | #DIV/0!       | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Volume of leachate (mL)                               |               |               |               |         |         |         |         |         |         |         |         |
| a. Oil recovered from leachate (mL)                      |               |               |               |         |         |         |         |         |         |         |         |
| 7. Volume of initial filtrate for recombination (mL)     | #DIV/0!       | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Combined initial filtrate + leachate (mL)             | #DIV/0!       | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| COMMENTS:                                                |               |               |               |         |         |         |         |         |         |         |         |

(Volume of Fluid, F.4) = (Weight of wet solids, E.3) X 20

$$(\text{Vol. of Initial Filtrate for Recombination, G.7}) = \frac{(\text{Solids Leached, E.3})}{(\text{Tot. Wet Solids, B.4})} \times \frac{(\text{Leachate Recovered, G.6})}{(\text{Fluid Added, F.6})} \times (\text{Initial Filtrate, B.7})$$

(Vol. of Combined Filtrate and Leachate, G.8) = (Vol of Leachate, G.6) + (Vol of Filtrate, G.7)

Analyst: DB

**DV-IP-0012**  
**TCLP/SPLP Worksheet No. 4**  
**ZHE Leach**



|            |        |           |    |  |  |  |  |  |  |  |
|------------|--------|-----------|----|--|--|--|--|--|--|--|
| Login No.  | 109561 | 320-39023 | LB |  |  |  |  |  |  |  |
| Sample No. | 1      | 57        |    |  |  |  |  |  |  |  |

**H.Determination of Amount of Leach Fluid**

|                                          |         |          |          |         |         |         |         |         |         |         |
|------------------------------------------|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|
| 1. Balance ID                            |         | 24950431 |          |         |         |         |         |         |         |         |
| 2. ZHE vessel number                     |         | 2A       |          |         |         |         |         |         |         |         |
| 3. Weight of material added to ZHE (g)   |         | 25.10    |          |         |         |         |         |         |         |         |
| "X" if there was headspace in container. |         |          |          |         |         |         |         |         |         |         |
| 4. Weight of filtrate in syringe         |         |          |          |         |         |         |         |         |         |         |
| a. gross weight (g)                      |         |          |          |         |         |         |         |         |         |         |
| b. tare weight (g)                       |         |          |          |         |         |         |         |         |         |         |
| c. net weight (g)                        | 0.00    | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Volume of filtrate in syringe (mL)    |         |          |          |         |         |         |         |         |         |         |
| 6. Wet solids in ZHE (g)                 |         | 25       |          |         |         |         |         |         |         |         |
| 7. Weight of fluid to add (g)            | 0       | 502      | 0        | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| a. TCLP Fluid 1 Lot #                    |         | T1 00248 | T1 00248 |         |         |         |         |         |         |         |
| b. SPLP Fluid 3 Lot #                    |         |          |          |         |         |         |         |         |         |         |
| c. pH of Blank Fluid                     |         | 4.96     | 4.96     |         |         |         |         |         |         |         |
| 8. Percent Wet Solids (%)                | #DIV/0! | 100      | #DIV/0!  | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

**I. Record of ZHE Leach** - the Leach period is 16 to 20 hours.

|                                                          |         |               |               |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------|---------------|---------------|---------|---------|---------|---------|---------|---------|---------|
| 1. Leak Check                                            |         |               |               |         |         |         |         |         |         |         |
| a. Reading #1 (psi)                                      |         | 40            | 40            |         |         |         |         |         |         |         |
| b. Reading #2 (psi)                                      |         | 40            | 40            |         |         |         |         |         |         |         |
| 2. Rotator checked to be rotating between 28 and 32 RPM? |         | Y             | Y             |         |         |         |         |         |         |         |
| 3. Leach start date & time                               |         | 5/16/18 16:32 | 5/16/18 16:32 |         |         |         |         |         |         |         |
| 4. Leach stop date & time                                |         | 5/17/18 8:35  | 5/17/18 8:35  |         |         |         |         |         |         |         |
| 5. Room temperature                                      |         |               |               |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            |         | 0.0           | 0.0           |         |         |         |         |         |         |         |
| a. Temp Min (Observed) (°C)                              |         | 22.6          | 22.6          |         |         |         |         |         |         |         |
| b. Temp Max (Observed) (°C)                              |         | 23.9          | 23.9          |         |         |         |         |         |         |         |
| c. Temp Min (Actual) (°C)                                | 0.0     | 22.6          | 22.6          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d. Temp Max (Actual) (°C)                                | 0.0     | 23.9          | 23.9          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 6. X if still under positive pressure after leaching     |         | X             |               |         |         |         |         |         |         |         |
| 7. Volume of leachate recovered (mL)                     |         |               |               |         |         |         |         |         |         |         |
| a. Volume of oil recovered after leaching                |         |               |               |         |         |         |         |         |         |         |
| 8. Vol. of initial aqueous filtrate for recombination    |         |               |               |         |         |         |         |         |         |         |
| a. Calculated from Worksheet 1 (mL)                      | #DIV/0! | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| b. Calculated from Worksheet 4 (mL)                      | #DIV/0! | 0.0           | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

(Net Weight of Filtrate, H.4.c) = (Gross weight, H.4.a.) - (Tare weight, H.4.b.)

(Percent Wet Solids, H.8.) = 100 X [ (Wet Solids in ZHE, H.6) / (Weight of material added to ZHE, H.3) ]

(Wet Solids in ZHE, H.6) = (Weight of material added to ZHE, H.3.) - (net weight of filtrate, H.4.c.)

(Vol of Filtrate for recombination, I.7.b) = (Vol of Leachate Recvd, I.6) X (Weight of Filtrate, H.4.c) / (Vol Fluid Added, H.7.)

(Weight of Fluid to add, H.7.) = (Wet Solids in ZHE, H.6) X 20

(Vol of Filtrate for recombination, I.7.a) = [ (Wet Solids in ZHE, H.6.) / (Tot Wet Solids, B.4) ] X [ (Vol Leachate Recvd, I.6.) / (Vol Fluid Add, H.7.) ] X (Vol Filtrate, B.7.)

COMMENTS:



## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415294 Batch Start Date: 05/17/18 17:42 Batch Analyst: Bourgery, David FBatch Method: 1311 Batch End Date: 05/17/18 18:33

| Lab Sample ID       | Client Sample ID       | Method Chain | Basis | ExtractFluid | AnalysisComment |  |  |  |  |
|---------------------|------------------------|--------------|-------|--------------|-----------------|--|--|--|--|
| LB3<br>280-415294/1 |                        | 1311, 8260B  |       | elga         |                 |  |  |  |  |
| LCS<br>280-415294/2 |                        | 1311, 8260B  |       | elga         |                 |  |  |  |  |
| 320-39023-A-58      | IDW-KINGSLEY-WA-LDOS01 | 1311, 8260B  | P     | elga         | used B too      |  |  |  |  |

| Batch Notes      |                |
|------------------|----------------|
| First End time   | 05/17/18 18:33 |
| First Start time | 05/17/18 17:42 |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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.

|               |  |                           |  |  |  |  |  |                                         |  |  |  |
|---------------|--|---------------------------|--|--|--|--|--|-----------------------------------------|--|--|--|
| Analyst: DB   |  | DV-IP-0012                |  |  |  |  |  | <br>THE LEADER IN ENVIRONMENTAL TESTING |  |  |  |
| Date: 5.17.18 |  | TCLP/SPLP Worksheet No. 1 |  |  |  |  |  |                                         |  |  |  |
|               |  | Sample Description        |  |  |  |  |  |                                         |  |  |  |

|            |        |        |        |        |        |           |     |  |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |  |

**A. Sample Description**

|                       |   |   |   |   |   |   |  |  |  |  |
|-----------------------|---|---|---|---|---|---|--|--|--|--|
| Number of phases      | 2 | 2 | 2 | 2 | 2 | 2 |  |  |  |  |
| 1. Solid              | X | X | X | X | X | X |  |  |  |  |
| 2. Liquid             | X | X | X | X | X | X |  |  |  |  |
| a. lighter than water |   |   |   |   |   |   |  |  |  |  |
| b. water              | X | X | X | X | X | X |  |  |  |  |
| c. heavier than water |   |   |   |   |   |   |  |  |  |  |

**B. Percent Solid Phase**

|                                          |          |          |          |          |          |          |         |         |         |         |
|------------------------------------------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|
| Balance ID                               | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 |         |         |         |         |
| 1. Weight of filter (g)                  | 1.24     | 1.23     | 1.21     | 1.23     | 1.23     | 1.24     |         |         |         |         |
| 2. Weight of subsample                   |          |          |          |          |          |          |         |         |         |         |
| a. gross weight (g)                      | 1564.13  | 1565.22  | 1581.73  | 1553.46  | 1525.34  | 1512.28  |         |         |         |         |
| b. tare weight (g)                       | 505.39   | 507.63   | 507.71   | 503.86   | 508.69   | 507.11   |         |         |         |         |
| c. net weight (g)                        | 1058.74  | 1057.59  | 1074.02  | 1049.60  | 1016.65  | 1005.17  | 0.00    | 0.00    | 0.00    | 0.00    |
| 3. Weight of filtrate                    |          |          |          |          |          |          |         |         |         |         |
| a. gross weight (g)                      | 1704.22  | 1708.29  | 1697.62  | 1681.38  | 1654.82  | 1631.79  |         |         |         |         |
| b. tare weight (g)                       | 657.90   | 665.05   | 665.44   | 667.83   | 662.47   | 665.02   |         |         |         |         |
| c. net weight (g)                        | 1046.32  | 1043.24  | 1032.18  | 1013.55  | 992.35   | 966.77   | 0.00    | 0.00    | 0.00    | 0.00    |
| d. density of filtrate (g/mL)            |          |          |          |          |          |          |         |         |         |         |
| 4. Total weight wet solids (g)           | 12.42    | 14.35    | 41.84    | 36.05    | 24.30    | 38.40    | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Weight percent solids (wet) (%)       | 1.17     | 1.36     | 3.90     | 3.43     | 2.39     | 3.82     | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Weight percent solids (dry)           |          |          |          |          |          |          |         |         |         |         |
| a. gross dry weight 1 (g)                | 6.04     | 7.42     | 9.39     | 8.52     | 6.59     | 8.64     |         |         |         |         |
| b. gross dry weight 2 (g)                | 1.27     | 1.53     | 1.39     | 1.25     | 1.36     | 1.93     |         |         |         |         |
| c. percent dry solids (%)                | 0.00     | 0.03     | 0.02     | 0.00     | 0.01     | 0.07     |         |         |         |         |
| d. Oven Temp (observed) (°C)             |          |          |          |          |          |          |         |         |         |         |
| Thermometer Correction Factor            | 0        |          |          |          |          |          |         |         |         |         |
| Oven Temp Actual (°C)                    | 0        | 0        | 0        | 0        | 0        | 0        | 0       | 0       | 0       | 0       |
| 7. Vol. of initial aqueous filtrate (mL) | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Vol. of initial organic filtrate (mL) |          |          |          |          |          |          |         |         |         |         |

**Comments:**

$$(\text{Weight percent dry solids, B.6.c}) = 100 \times \frac{(\text{Gross dry weight 2 or 1, B.6.b or B.6.a if B.6.a is blank}) - (\text{Weight of filter, B.1})}{(\text{Weight of subsample, B.2.c})}$$

(Net Weight of Subsample, B.2.c) = (gross weight, B.2.a) - (tare weight, B.2.b)  
 (Net Weight of Filtrate, B.3.c) = (gross weight, B.3.a) - (tare weight, B.3.b)  
 (Total weight wet solids, B.4) = (Weight subsample, B.2.c) - (Weight filtrate, B.3.c)  
 (Weight percent wet solids, B.5.) =  $100 \times (\text{Total weight wet solids, B.4.}) / (\text{Weight of subsample, B.2.c.})$

(Vol of initial filtrate, B.7) = (Weight of filtrate, B.3.c) / (Density of filtrate, B.3.d)

Analyst: DB

**DV-IP-0012**  
**TCLP Worksheet No. 2**  
**Selection of Leach Fluid**



|            |        |        |        |        |        |           |     |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |

**C. Leach Fluid Determination**- Does not apply to determination of volatile organic components or SPLP.

|                                                                                |   |   |   |   |   |   |   |   |   |   |
|--------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|
| 1. Particle size reduction? (<1mm) Yes/No<br>If yes, write NCM describing how. |   |   |   |   |   |   |   |   |   |   |
| 2. Balance ID                                                                  |   |   |   |   |   |   |   |   |   |   |
| 3. Sample weight, 5.0 +/- 0.1g                                                 |   |   |   |   |   |   |   |   |   |   |
| 4. Add 96.5 (+/- 2% or 94.57mL to 98.43mL)                                     |   |   |   |   |   |   |   |   |   |   |
| a. Pipette ID or Grad Cylinder ID                                              |   |   |   |   |   |   |   |   |   |   |
| 5. Initial pH (after 5 min. mixing time)                                       |   |   |   |   |   |   |   |   |   |   |
| a. Start Time for Mixing                                                       |   |   |   |   |   |   |   |   |   |   |
| b. Stop Time for Mixing                                                        |   |   |   |   |   |   |   |   |   |   |
| c. pH reading after mixing                                                     |   |   |   |   |   |   |   |   |   |   |
| 6. If pH > 5.0, then add 3.5 mL 1N HCL & mark "X"                              |   |   |   |   |   |   |   |   |   |   |
| a. HCL Lot# used                                                               |   |   |   |   |   |   |   |   |   |   |
| b. Pipette ID                                                                  |   |   |   |   |   |   |   |   |   |   |
| 7. Secondary pH (after 10min at 50C to 55C)                                    |   |   |   |   |   |   |   |   |   |   |
| a. Thermometer ID                                                              |   |   |   |   |   |   |   |   |   |   |
| Termometer Correction Factor                                                   |   |   |   |   |   |   |   |   |   |   |
| b. Start Time                                                                  |   |   |   |   |   |   |   |   |   |   |
| c. Start Temperature (Observed)                                                |   |   |   |   |   |   |   |   |   |   |
| Start Temperature (Actual)                                                     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| d. Finish Time                                                                 |   |   |   |   |   |   |   |   |   |   |
| e. Finish Temperature (Observed)                                               |   |   |   |   |   |   |   |   |   |   |
| Finish Temperature (Actual)                                                    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| f. pH reading after heating (temperature corrected)                            |   |   |   |   |   |   |   |   |   |   |

**D. Selection of Leach Fluid**

|                                                                                       |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| 1. If pH from C.5. or C.7.f. is <5.0 use Leach Fluid #1                               |  |  |  |  |  |  |  |  |  |  |
| 2. If pH from C.7.f is > 5.0, use Leach Fluid #2                                      |  |  |  |  |  |  |  |  |  |  |
| 3. SPLP Fluid 1: Soils- East of the Mississippi River;<br>Wastewaters; or Wastewaters |  |  |  |  |  |  |  |  |  |  |
| 4. SPLP Fluid 2: Soils- West of Mississippi River                                     |  |  |  |  |  |  |  |  |  |  |
| 5. SPLP Fluid 3: If VOCs or Cyanide containing wastes.                                |  |  |  |  |  |  |  |  |  |  |
| 6. X if filtrate and fluid are miscible                                               |  |  |  |  |  |  |  |  |  |  |

Analyst: DB

DV-IP-0012

## TCLP/SPLP Worksheet No. 3

## Bottle Leach Procedure for Metals and Semi-Volatile Organic Components

|            |        |        |        |        |        |           |     |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |

**E. Determination of Sample Size**

|                                              |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| 1. Particle size reduction? Yes/no           |  |  |  |  |  |  |  |  |  |  |
| If yes, write NCM describing how.            |  |  |  |  |  |  |  |  |  |  |
| 2. Balance ID                                |  |  |  |  |  |  |  |  |  |  |
| 3. Weight of wet solids after filtration (g) |  |  |  |  |  |  |  |  |  |  |

**F. Determination of Amount of Leach Fluid**

|                                        |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Fluid Type from Wksht 2</b>         | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| 1. TCLP Fluid 1 Lot #                  |         |         |         |         |         |         |         |         |         |         |
| 2. TCLP Fluid 2 Lot #                  |         |         |         |         |         |         |         |         |         |         |
| 3. SPLP 1 (East) Lot #                 |         |         |         |         |         |         |         |         |         |         |
| 4. SPLP 2 (West) Lot #                 |         |         |         |         |         |         |         |         |         |         |
| 5. pH of leach fluid                   |         |         |         |         |         |         |         |         |         |         |
| 6. Vol of Fluid = wet solids x 20 (mL) |         |         |         |         |         |         |         |         |         |         |

**G. Record of Leach** - leach period is 16 to 20 hours

|                                                          |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Rotator checked to be rotating between 28 and 32 RPM? |         |         |         |         |         |         |         |         |         |         |
| 2. Leach start date and time                             |         |         |         |         |         |         |         |         |         |         |
| 3. Leach stop date and time                              |         |         |         |         |         |         |         |         |         |         |
| 4. Room temperature                                      |         |         |         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            |         |         |         |         |         |         |         |         |         |         |
| a.Temp Min (Observed) (°C)                               |         |         |         |         |         |         |         |         |         |         |
| b.Temp Max (Observed) (°C)                               |         |         |         |         |         |         |         |         |         |         |
| c.Temp Min (Actual) (°C)                                 | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d.Temp Max (Actual) (°C)                                 | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 5. pH of leachate                                        |         |         |         |         |         |         |         |         |         |         |
| Was the sample multiphasic?                              | FALSE   | FALSE   | FALSE   | FALSE   | FALSE   | FALSE   | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Volume of leachate (mL)                               |         |         |         |         |         |         |         |         |         |         |
| a. Oil recovered from leachate (mL)                      |         |         |         |         |         |         |         |         |         |         |
| 7. Volume of initial filtrate for recombination (mL)     | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Combined initial filtrate + leachate (mL)             | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| COMMENTS:                                                |         |         |         |         |         |         |         |         |         |         |

(Volume of Fluid, F.4) = (Weight of wet solids, E.3) X 20

$$(\text{Vol. of Initial Filtrate for Recombination, G.7}) = \frac{(\text{Solids Leached, E.3})}{(\text{Tot. Wet Solids, B.4})} \times \frac{(\text{Leachate Recovered, G.6})}{(\text{Fluid Added, F.6})} \times (\text{Initial Filtrate, B.7})$$

(Vol. of Combined Filtrate and Leachate, G.8) = (Vol of Leachate, G.6) + (Vol of Filtrate, G.7)

Analyst: DB

**DV-IP-0012**  
**TCLP/SPLP Worksheet No. 4**  
**ZHE Leach**



|            |        |        |        |        |        |           |     |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |

**H.Determination of Amount of Leach Fluid**

|                                          |          |          |          |          |          |          |         |         |         |         |
|------------------------------------------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|
| 1. Balance ID                            | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 |         |         |         |         |
| 2. ZHE vessel number                     | Franny   | Nicole   | 8        | Tim      | AAA      | Holly    | Franny  |         |         |         |
| 3. Weight of material added to ZHE (g)   |          |          |          |          |          |          |         |         |         |         |
| "X" if there was headspace in container. |          |          |          |          |          |          |         |         |         |         |
| 4. Weight of filtrate in syringe         |          |          |          |          |          |          |         |         |         |         |
| a. gross weight (g)                      |          |          |          |          |          |          |         |         |         |         |
| b. tare weight (g)                       |          |          |          |          |          |          |         |         |         |         |
| c. net weight (g)                        | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Volume of filtrate in syringe (mL)    |          |          |          |          |          |          |         |         |         |         |
| 6. Wet solids in ZHE (g)                 |          |          |          |          |          |          |         |         |         |         |
| 7. Weight of fluid to add (g)            | 0        | 0        | 0        | 0        | 0        | 0        | 0       | 0       | 0       | 0       |
| a. TCLP Fluid 1 Lot #                    |          |          |          |          |          |          |         |         |         |         |
| b. SPLP Fluid 3 Lot #                    |          |          |          |          |          |          |         |         |         |         |
| c. pH of Blank Fluid                     |          |          |          |          |          |          |         |         |         |         |
| 8. Percent Wet Solids (%)                | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

**I. Record of ZHE Leach** - the Leach period is 16 to 20 hours.

|                                                          |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Leak Check                                            |         |         |         |         |         |         |         |         |         |         |
| a. Reading #1 (psi)                                      |         |         |         |         |         |         |         |         |         |         |
| b. Reading #2 (psi)                                      |         |         |         |         |         |         |         |         |         |         |
| 2. Rotator checked to be rotating between 28 and 32 RPM? |         |         |         |         |         |         |         |         |         |         |
| 3. Leach start date & time                               |         |         |         |         |         |         |         |         |         |         |
| 4. Leach stop date & time                                |         |         |         |         |         |         |         |         |         |         |
| 5. Room temperature                                      |         |         |         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            |         |         |         |         |         |         |         |         |         |         |
| a. Temp Min (Observed) (°C)                              |         |         |         |         |         |         |         |         |         |         |
| b. Temp Max (Observed) (°C)                              |         |         |         |         |         |         |         |         |         |         |
| c. Temp Min (Actual) (°C)                                | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d. Temp Max (Actual) (°C)                                | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 6. X if still under positive pressure after leaching     |         |         |         |         |         |         |         |         |         |         |
| 7. Volume of leachate recovered (mL)                     |         |         |         |         |         |         |         |         |         |         |
| a. Volume of oil recovered after leaching                |         |         |         |         |         |         |         |         |         |         |
| 8. Vol. of initial aqueous filtrate for recombination    |         |         |         |         |         |         |         |         |         |         |
| a. Calculated from Worksheet 1 (mL)                      | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| b. Calculated from Worksheet 4 (mL)                      | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

(Net Weight of Filtrate, H.4.c) = (Gross weight, H.4.a.) - (Tare weight, H.4.b.)

(Percent Wet Solids, H.8.) = 100 X [ (Wet Solids in ZHE, H.6) / (Weight of material added to ZHE, H.3) ]

(Wet Solids in ZHE, H.6) = (Weight of material added to ZHE, H.3.) - (net weight of filtrate, H.4.c.)

(Vol of Filtrate for recombination, I.7.b) = (Vol of Leachate Recvd, I.6) X (Weight of Filtrate, H.4.c) / (Vol Fluid Added, H.7.)

(Weight of Fluid to add, H.7.) = (Wet Solids in ZHE, H.6) X 20

(Vol of Filtrate for recombination, I.7.a) = [ (Wet Solids in ZHE, H.6.) / (Tot Wet Solids, B.4) ] X [ (Vol Leachate Recvd, I.6.) / (Vol Fluid Add, H.7.) ] X (Vol Filtrate, B.7.)

COMMENTS:

## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415548 Batch Start Date: 05/20/18 18:30 Batch Analyst: Moan, Matthew RBatch Method: 8260B Batch End Date: \_\_\_\_\_

| Lab Sample ID        | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | MV-2cleve+AVA<br>00035 | MV-568718-D<br>00014 | MV-BFB 00025 | MV-Gas/Ket A<br>00073 |
|----------------------|------------------|--------------|-------|---------------|-------------|------------------------|----------------------|--------------|-----------------------|
| BFB<br>280-415548/1  |                  | 8260B        |       | 1 uL          | 1 uL        |                        |                      | 1 uL         |                       |
| IC<br>280-415548/10  |                  | 8260B        |       | 20 mL         | 20 mL       | 0.15 uL                | 1 uL                 |              | 0.15 uL               |
| IC<br>280-415548/11  |                  | 8260B        |       | 20 mL         | 20 mL       | 0.5 uL                 | 1 uL                 |              | 0.5 uL                |
| IC<br>280-415548/12  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                   | 1 uL                 |              | 1 uL                  |
| IC<br>280-415548/13  |                  | 8260B        |       | 20 mL         | 20 mL       | 2.5 uL                 | 1 uL                 |              | 2.5 uL                |
| IC<br>280-415548/14  |                  | 8260B        |       | 20 mL         | 20 mL       | 5 uL                   | 1 uL                 |              | 5 uL                  |
| IC<br>280-415548/15  |                  | 8260B        |       | 20 mL         | 20 mL       | 15 uL                  | 1 uL                 |              | 15 uL                 |
| IC<br>280-415548/16  |                  | 8260B        |       | 20 mL         | 20 mL       | 30 uL                  | 1 uL                 |              | 30 uL                 |
| ICV<br>280-415548/17 |                  | 8260B        |       | 20 mL         | 20 mL       |                        | 1 uL                 |              |                       |

| Lab Sample ID        | Client Sample ID | Method Chain | Basis | MV-Gas/Ket B<br>00042 | MV-Main A 00036 | MV-Main B 00021 | MV-SS 2-Cleve<br>00043 |  |  |
|----------------------|------------------|--------------|-------|-----------------------|-----------------|-----------------|------------------------|--|--|
| BFB<br>280-415548/1  |                  | 8260B        |       |                       |                 |                 |                        |  |  |
| IC<br>280-415548/10  |                  | 8260B        |       |                       | 0.15 uL         |                 |                        |  |  |
| IC<br>280-415548/11  |                  | 8260B        |       |                       | 0.5 uL          |                 |                        |  |  |
| IC<br>280-415548/12  |                  | 8260B        |       |                       | 1 uL            |                 |                        |  |  |
| IC<br>280-415548/13  |                  | 8260B        |       |                       | 2.5 uL          |                 |                        |  |  |
| IC<br>280-415548/14  |                  | 8260B        |       |                       | 5 uL            |                 |                        |  |  |
| IC<br>280-415548/15  |                  | 8260B        |       |                       | 15 uL           |                 |                        |  |  |
| IC<br>280-415548/16  |                  | 8260B        |       |                       | 30 uL           |                 |                        |  |  |
| ICV<br>280-415548/17 |                  | 8260B        |       | 5 uL                  |                 | 5 uL            | 5 uL                   |  |  |

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.

## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415548 Batch Start Date: 05/20/18 18:30 Batch Analyst: Moan, Matthew RBatch Method: 8260B Batch End Date: \_\_\_\_\_

| Batch Notes |  |
|-------------|--|
|             |  |
|             |  |

| Basis | Basis Description |
|-------|-------------------|
|       |                   |

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.

## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415557 Batch Start Date: 05/21/18 07:38 Batch Analyst: Wickham, Tom ABatch Method: 8260B Batch End Date: \_\_\_\_\_

| Lab Sample ID         | Client Sample ID       | Method Chain | Basis | InitialAmount | FinalAmount | MV-2cleve+AVA<br>00035 | MV-568718-D<br>00008 | MV-ARCH SS A<br>00090 | MV-BFB 00025 |
|-----------------------|------------------------|--------------|-------|---------------|-------------|------------------------|----------------------|-----------------------|--------------|
| BFB<br>280-415557/1   |                        | 8260B        |       | 1 uL          | 1 uL        |                        |                      |                       | 1 uL         |
| CCV<br>280-415557/2   |                        | 8260B        |       | 20 mL         | 20 mL       | 5 uL                   | 1 uL                 | 1.08 uL               |              |
| CCV<br>280-415557/3   |                        | 8260B        |       | 20 mL         | 20 mL       |                        | 1 uL                 |                       |              |
| LCS<br>280-415294/2-A |                        | 8260B        |       | 2 mL          | 20 mL       |                        | 1 uL                 | 1.08 uL               |              |
| LB3<br>280-415294/1-A |                        | 8260B        |       | 2 mL          | 20 mL       |                        | 1 uL                 | 1.08 uL               |              |
| 320-39023-A-58-A      | IDW-KINGSLEY-WA-LDOS01 | 8260B        | P     | 2 mL          | 20 mL       |                        | 1 uL                 | 1.08 uL               |              |
| CCVC<br>280-415557/36 |                        | 8260B        |       | 20 mL         | 20 mL       | 5 uL                   | 1 uL                 | 1.08 uL               |              |

| Lab Sample ID         | Client Sample ID       | Method Chain | Basis | MV-Gas/Ket A<br>00073 | MV-Gas/Ket B<br>00042 | MV-Main A 00036 | MV-Main B 00021 | MV-Supp A 00029 |  |
|-----------------------|------------------------|--------------|-------|-----------------------|-----------------------|-----------------|-----------------|-----------------|--|
| BFB<br>280-415557/1   |                        | 8260B        |       |                       |                       |                 |                 |                 |  |
| CCV<br>280-415557/2   |                        | 8260B        |       | 5 uL                  |                       | 5 uL            |                 |                 |  |
| CCV<br>280-415557/3   |                        | 8260B        |       |                       |                       |                 |                 | 5 uL            |  |
| LCS<br>280-415294/2-A |                        | 8260B        |       |                       | 2.5 uL                |                 | 2.5 uL          |                 |  |
| LB3<br>280-415294/1-A |                        | 8260B        |       |                       |                       |                 |                 |                 |  |
| 320-39023-A-58-A      | IDW-KINGSLEY-WA-LDOS01 | 8260B        | P     |                       |                       |                 |                 |                 |  |
| CCVC<br>280-415557/36 |                        | 8260B        |       | 5 uL                  |                       | 5 uL            |                 |                 |  |

| Batch Notes |  |
|-------------|--|
|             |  |
|             |  |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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.

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## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415628 Batch Start Date: 05/21/18 07:24 Batch Analyst: Moan, Matthew RBatch Method: 8260B Batch End Date: \_\_\_\_\_

| Lab Sample ID         | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | MV-568718-D<br>00014 | MV-ARCH SS A<br>00096 | MV-BFB 00025 | MV-Supp A 00029 |
|-----------------------|------------------|--------------|-------|---------------|-------------|----------------------|-----------------------|--------------|-----------------|
| BFB<br>280-415628/1   |                  | 8260B        |       | 1 uL          | 1 uL        |                      |                       | 1 uL         |                 |
| IC<br>280-415628/10   |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.08 uL               |              | 0.5 uL          |
| IC<br>280-415628/11   |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.16 uL               |              | 1 uL            |
| IC<br>280-415628/12   |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.4 uL                |              | 2.5 uL          |
| ICIS<br>280-415628/13 |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.8 uL                |              | 5 uL            |
| IC<br>280-415628/14   |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 2.4 uL                |              | 15 uL           |
| IC<br>280-415628/15   |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 4.8 uL                |              | 30 uL           |
| ICV<br>280-415628/16  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.8 uL                |              |                 |

| Lab Sample ID         | Client Sample ID | Method Chain | Basis | MV-Supp B 00020 |  |  |  |  |  |
|-----------------------|------------------|--------------|-------|-----------------|--|--|--|--|--|
| BFB<br>280-415628/1   |                  | 8260B        |       |                 |  |  |  |  |  |
| IC<br>280-415628/10   |                  | 8260B        |       |                 |  |  |  |  |  |
| IC<br>280-415628/11   |                  | 8260B        |       |                 |  |  |  |  |  |
| IC<br>280-415628/12   |                  | 8260B        |       |                 |  |  |  |  |  |
| ICIS<br>280-415628/13 |                  | 8260B        |       |                 |  |  |  |  |  |
| IC<br>280-415628/14   |                  | 8260B        |       |                 |  |  |  |  |  |
| IC<br>280-415628/15   |                  | 8260B        |       |                 |  |  |  |  |  |
| ICV<br>280-415628/16  |                  | 8260B        |       | 5 uL            |  |  |  |  |  |

| Batch Notes |  |
|-------------|--|
|             |  |

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.

## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415628 Batch Start Date: 05/21/18 07:24 Batch Analyst: Moan, Matthew RBatch Method: 8260B Batch End Date: \_\_\_\_\_

| Basis | Basis Description |
|-------|-------------------|
|       |                   |

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.

## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 416475 Batch Start Date: 05/28/18 10:45 Batch Analyst: Moan, Matthew RBatch Method: 8260B Batch End Date: \_\_\_\_\_

| Lab Sample ID        | Client Sample ID | Method Chain | Basis | InitialAmount | FinalAmount | MV-568718-D<br>00014 | MV-ARCH SS A<br>00096 | MV-BFB 00025 |  |
|----------------------|------------------|--------------|-------|---------------|-------------|----------------------|-----------------------|--------------|--|
| BFB<br>280-416475/1  |                  | 8260B        |       | 1 uL          | 1 uL        |                      |                       | 1 uL         |  |
| IC<br>280-416475/12  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.16 uL               |              |  |
| IC<br>280-416475/13  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.4 uL                |              |  |
| IC<br>280-416475/14  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.8 uL                |              |  |
| IC<br>280-416475/15  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 2.4 uL                |              |  |
| IC<br>280-416475/16  |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 4.8 uL                |              |  |
| ICV<br>280-416475/17 |                  | 8260B        |       | 20 mL         | 20 mL       | 1 uL                 | 0.8 uL                |              |  |

| Batch Notes |  |
|-------------|--|
|             |  |
|             |  |

| Basis | Basis Description |
|-------|-------------------|
|       |                   |

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.

## GC/MS VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 416517 Batch Start Date: 05/29/18 07:07 Batch Analyst: Wickham, Tom ABatch Method: 8260B Batch End Date: \_\_\_\_\_

| Lab Sample ID         | Client Sample ID       | Method Chain | Basis | InitialAmount | FinalAmount | MV-2cleve+AVA<br>00035 | MV-568718-D<br>00014 | MV-ARCH SS A<br>00096 | MV-BFB 00025 |
|-----------------------|------------------------|--------------|-------|---------------|-------------|------------------------|----------------------|-----------------------|--------------|
| BFB<br>280-416517/1   |                        | 8260B        |       | 1 uL          | 1 uL        |                        |                      |                       | 1 uL         |
| CCV<br>280-416517/2   |                        | 8260B        |       | 20 mL         | 20 mL       | 5 uL                   | 1 uL                 |                       |              |
| CCV<br>280-416517/3   |                        | 8260B        |       | 20 mL         | 20 mL       |                        | 1 uL                 | 0.86 uL               |              |
| LCS<br>280-415139/2-A |                        | 8260B        |       | 2 mL          | 20 mL       |                        | 1 uL                 | 0.86 uL               |              |
| LB<br>280-415139/1-A  |                        | 8260B        |       | 2 mL          | 20 mL       |                        | 1 uL                 | 0.86 uL               |              |
| 320-39023-B-57-A      | IDW-KINGSLEY-SO-LDOS01 | 8260B        | P     | 2 mL          | 20 mL       |                        | 1 uL                 | 0.86 uL               |              |
| CCVC<br>280-416517/28 |                        | 8260B        |       | 20 mL         | 20 mL       | 5 uL                   | 1 uL                 | 0.86 uL               |              |

| Lab Sample ID         | Client Sample ID       | Method Chain | Basis | MV-Gas/Ket A<br>00073 | MV-Gas/Ket B<br>00041 | MV-Main A 00036 | MV-Main B 00021 | MV-SS 2-Cleve<br>00043 | MV-Supp A 00029 |
|-----------------------|------------------------|--------------|-------|-----------------------|-----------------------|-----------------|-----------------|------------------------|-----------------|
| BFB<br>280-416517/1   |                        | 8260B        |       |                       |                       |                 |                 |                        |                 |
| CCV<br>280-416517/2   |                        | 8260B        |       | 5 uL                  |                       | 5 uL            |                 |                        |                 |
| CCV<br>280-416517/3   |                        | 8260B        |       |                       |                       |                 |                 |                        | 5 uL            |
| LCS<br>280-415139/2-A |                        | 8260B        |       |                       | 2.5 uL                |                 | 2.5 uL          | 2.5 uL                 |                 |
| LB<br>280-415139/1-A  |                        | 8260B        |       |                       |                       |                 |                 |                        |                 |
| 320-39023-B-57-A      | IDW-KINGSLEY-SO-LDOS01 | 8260B        | P     |                       |                       |                 |                 |                        |                 |
| CCVC<br>280-416517/28 |                        | 8260B        |       | 5 uL                  |                       | 5 uL            |                 |                        |                 |

| Batch Notes |  |
|-------------|--|
|             |  |
|             |  |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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.

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# Method 8270 DOD

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Semivolatile Compounds (GC/MS) by  
Method 8270/DOD

FORM II  
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Solid (TCLP) Level: Low

GC Column (1): Rxi-5Sil MS ID: 0.25 (mm)

| Client Sample ID               | Lab Sample ID         | 2FP # | PHL # | NBZ # | FBP # | TBP # | TPHL # |
|--------------------------------|-----------------------|-------|-------|-------|-------|-------|--------|
| IDW-KINGSLEY-SO-LD<br>OS01     | 320-39023-57          | 90    | 78    | 88    | 100   | 97    | 94     |
|                                | LB<br>280-415138/1-C  | 67    | 55    | 66    | 79    | 87    | 92     |
|                                | LCS<br>280-415138/2-C | 85    | 75    | 86    | 97    | 95    | 93     |
| IDW-KINGSLEY-SO-LD<br>OS01 MS  | 320-39023-57 MS       | 81    | 70    | 79    | 90    | 91    | 88     |
| IDW-KINGSLEY-SO-LD<br>OS01 MSD | 320-39023-57 MSD      | 88    | 77    | 85    | 95    | 100   | 95     |

|                                   |                  |
|-----------------------------------|------------------|
|                                   | <u>QC LIMITS</u> |
| 2FP = 2-Fluorophenol (Surr)       | 50-120           |
| PHL = Phenol-d5 (Surr)            | 47-120           |
| NBZ = Nitrobenzene-d5 (Surr)      | 51-120           |
| FBP = 2-Fluorobiphenyl            | 49-120           |
| TBP = 2,4,6-Tribromophenol (Surr) | 51-120           |
| TPHL = Terphenyl-d14 (Surr)       | 56-120           |

# Column to be used to flag recovery values

FORM II  
GC/MS SEMI VOA SURROGATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water (TCLP) Level: Low  
 GC Column (1): Rxi-5Sil MS ID: 0.25 (mm)

| Client Sample ID           | Lab Sample ID         | 2FP # | PHL # | NBZ # | FBP # | TBP # | TPHL # |
|----------------------------|-----------------------|-------|-------|-------|-------|-------|--------|
| IDW-KINGSLEY-WA-LD<br>OS01 | 320-39023-58          | 51    | 51    | 56    | 68    | 92    | 90     |
|                            | LB3<br>280-416023/1-A | 77    | 64    | 74    | 89    | 89    | 95     |
|                            | LCS<br>280-416023/2-A | 92    | 80    | 87    | 103   | 97    | 99     |

|                                   |                  |
|-----------------------------------|------------------|
|                                   | <u>QC LIMITS</u> |
| 2FP = 2-Fluorophenol (Surr)       | 50-120           |
| PHL = Phenol-d5 (Surr)            | 47-120           |
| NBZ = Nitrobenzene-d5 (Surr)      | 51-120           |
| FBP = 2-Fluorobiphenyl            | 49-120           |
| TBP = 2,4,6-Tribromophenol (Surr) | 51-120           |
| TPHL = Terphenyl-d14 (Surr)       | 56-120           |

# Column to be used to flag recovery values

FORM III  
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid (TCLP) Level: Low Lab File ID: Y19667.D  
 Lab ID: LCS 280-415138/2-C Client ID: \_\_\_\_\_

| COMPOUND              | SPIKE<br>ADDED<br>(mg/L) | LCS<br>CONCENTRATION<br>(mg/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|-----------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| 2-Methylphenol        | 0.250                    | 0.217                          | 87              | 45-120              |   |
| 3 & 4 Methylphenol    | 0.500                    | 0.427                          | 85              | 44-120              |   |
| 1,4-Dichlorobenzene   | 0.250                    | 0.212                          | 85              | 36-120              |   |
| 2,4-Dinitrotoluene    | 0.100                    | 0.0672                         | 67              | 36-120              |   |
| Hexachlorobenzene     | 0.100                    | 0.0902                         | 90              | 52-120              |   |
| Hexachlorobutadiene   | 0.250                    | 0.216                          | 86              | 35-120              |   |
| Hexachloroethane      | 0.250                    | 0.200                          | 80              | 35-120              |   |
| Nitrobenzene          | 0.250                    | 0.224                          | 90              | 50-120              |   |
| Pentachlorophenol     | 0.500                    | 0.361                          | 72              | 39-120              |   |
| Pyridine              | 0.250                    | 0.118                          | 47              | 10-121              |   |
| 2,4,5-Trichlorophenol | 0.250                    | 0.258                          | 103             | 46-120              |   |
| 2,4,6-Trichlorophenol | 0.250                    | 0.263                          | 105             | 43-120              |   |

# Column to be used to flag recovery and RPD values



FORM III  
GC/MS SEMI VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: Y19665.D  
 Lab ID: LCS 280-416023/2-A Client ID: \_\_\_\_\_

| COMPOUND              | SPIKE<br>ADDED<br>(mg/L) | LCS<br>CONCENTRATION<br>(mg/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|-----------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| 2-Methylphenol        | 0.250                    | 0.232                          | 93              | 45-120              |   |
| 3 & 4 Methylphenol    | 0.500                    | 0.466                          | 93              | 44-120              |   |
| 1,4-Dichlorobenzene   | 0.250                    | 0.237                          | 95              | 36-120              |   |
| 2,4-Dinitrotoluene    | 0.100                    | 0.0686                         | 69              | 36-120              |   |
| Hexachlorobenzene     | 0.100                    | 0.0917                         | 92              | 52-120              |   |
| Hexachlorobutadiene   | 0.250                    | 0.235                          | 94              | 35-120              |   |
| Hexachloroethane      | 0.250                    | 0.220                          | 88              | 35-120              |   |
| Nitrobenzene          | 0.250                    | 0.231                          | 93              | 50-120              |   |
| Pentachlorophenol     | 0.500                    | 0.409                          | 82              | 39-120              |   |
| Pyridine              | 0.250                    | 0.0593 J                       | 24              | 10-121              |   |
| 2,4,5-Trichlorophenol | 0.250                    | 0.277                          | 111             | 46-120              |   |
| 2,4,6-Trichlorophenol | 0.250                    | 0.278                          | 111             | 43-120              |   |

# Column to be used to flag recovery and RPD values

FORM III  
GC/MS SEMI VOA MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid (TCLP) Level: Low Lab File ID: Y19676.D  
 Lab ID: 320-39023-57 MS Client ID: IDW-KINGSLEY-SO-LDOS01 MS

| COMPOUND              | SPIKE<br>ADDED<br>(mg/L) | SAMPLE<br>CONCENTRATION<br>(mg/L) | MS<br>CONCENTRATION<br>(mg/L) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|-----------------------|--------------------------|-----------------------------------|-------------------------------|----------------|---------------------|---|
| 2-Methylphenol        | 0.250                    | 0.010 U                           | 0.217                         | 87             | 45-120              |   |
| 3 & 4 Methylphenol    | 0.500                    | 0.0025 U                          | 0.422                         | 84             | 44-120              |   |
| 1,4-Dichlorobenzene   | 0.250                    | 0.020 U                           | 0.213                         | 85             | 36-120              |   |
| 2,4-Dinitrotoluene    | 0.100                    | 0.022 U                           | 0.0731                        | 73             | 36-120              |   |
| Hexachlorobenzene     | 0.100                    | 0.010 U                           | 0.0841                        | 84             | 52-120              |   |
| Hexachlorobutadiene   | 0.250                    | 0.050 U                           | 0.215                         | 86             | 35-120              |   |
| Hexachloroethane      | 0.250                    | 0.022 U                           | 0.198                         | 79             | 35-120              |   |
| Nitrobenzene          | 0.250                    | 0.010 U                           | 0.215                         | 86             | 50-120              |   |
| Pentachlorophenol     | 0.500                    | 0.20 U                            | 0.368                         | 74             | 39-120              |   |
| Pyridine              | 0.250                    | 0.022 U                           | 0.142                         | 57             | 10-121              |   |
| 2,4,5-Trichlorophenol | 0.250                    | 0.0050 U                          | 0.244                         | 97             | 46-120              |   |
| 2,4,6-Trichlorophenol | 0.250                    | 0.0050 U                          | 0.252                         | 101            | 43-120              |   |

# Column to be used to flag recovery and RPD values

FORM III  
GC/MS SEMI VOA MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid (TCLP) Level: Low Lab File ID: Y19677.D  
 Lab ID: 320-39023-57 MSD Client ID: IDW-KINGSLEY-SO-LDOS01 MSD

| COMPOUND              | SPIKE<br>ADDED<br>(mg/L) | MSD<br>CONCENTRATION<br>(mg/L) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | # |
|-----------------------|--------------------------|--------------------------------|-----------------|----------|-----------|--------|---|
|                       |                          |                                |                 |          | RPD       | REC    |   |
| 2-Methylphenol        | 0.250                    | 0.245                          | 98              | 12       | 30        | 45-120 |   |
| 3 & 4 Methylphenol    | 0.500                    | 0.478                          | 96              | 12       | 30        | 44-120 |   |
| 1,4-Dichlorobenzene   | 0.250                    | 0.235                          | 94              | 10       | 30        | 36-120 |   |
| 2,4-Dinitrotoluene    | 0.100                    | 0.0818                         | 82              | 11       | 30        | 36-120 |   |
| Hexachlorobenzene     | 0.100                    | 0.0978                         | 98              | 15       | 30        | 52-120 |   |
| Hexachlorobutadiene   | 0.250                    | 0.226                          | 90              | 5        | 30        | 35-120 |   |
| Hexachloroethane      | 0.250                    | 0.218                          | 87              | 9        | 30        | 35-120 |   |
| Nitrobenzene          | 0.250                    | 0.230                          | 92              | 6        | 30        | 50-120 |   |
| Pentachlorophenol     | 0.500                    | 0.388                          | 78              | 5        | 30        | 39-120 |   |
| Pyridine              | 0.250                    | 0.136                          | 55              | 4        | 30        | 10-121 |   |
| 2,4,5-Trichlorophenol | 0.250                    | 0.267                          | 107             | 9        | 30        | 46-120 |   |
| 2,4,6-Trichlorophenol | 0.250                    | 0.274                          | 109             | 8        | 30        | 43-120 |   |

# Column to be used to flag recovery and RPD values

FORM V  
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: Y19200.D DFTPP Injection Date: 04/21/2018  
Instrument ID: SMS\_Y DFTPP Injection Time: 11:56  
Analysis Batch No.: 412210

| M/E | ION ABUNDANCE CRITERIA              | % RELATIVE ABUNDANCE |
|-----|-------------------------------------|----------------------|
| 51  | 30.0 - 60.0 % of mass 198           | 44.6                 |
| 68  | Less than 2.0 % of mass 69          | 0.0 (0.0) 1          |
| 69  | Mass 69 relative abundance          | 44.7                 |
| 70  | Less than 2.0 % of mass 69          | 0.3 (0.8) 1          |
| 127 | 40.0 - 60.0 % of mass 198           | 49.9                 |
| 197 | Less than 1.0 % of mass 198         | 0.0                  |
| 198 | Base Peak, 100 % relative abundance | 100.0                |
| 199 | 5.0- 9.0 % of mass 198              | 6.6                  |
| 275 | 10.0 - 30.0 % of mass 198           | 20.5                 |
| 365 | Greater than 1.0 % of mass 198      | 2.1                  |
| 441 | Present but less than mass 443      | 8.6 (72.1) 3         |
| 442 | Greater than 40.0 % of mass 198     | 60.5                 |
| 443 | 17.0 - 23.0 % of mass 442           | 11.9 (19.7) 2        |

1-Value is % mass 69                      2-Value is % mass 442                      3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

| CLIENT SAMPLE ID | LAB SAMPLE ID        | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|------------------|----------------------|-------------|---------------|---------------|
|                  | ICIS 280-412210/3    | Y19201.D    | 04/21/2018    | 12:10         |
|                  | STD004 280-412210/4  | Y19202.D    | 04/21/2018    | 12:38         |
|                  | STD010 280-412210/5  | Y19203.D    | 04/21/2018    | 13:07         |
|                  | STD020 280-412210/6  | Y19204.D    | 04/21/2018    | 13:35         |
|                  | STD050 280-412210/7  | Y19205.D    | 04/21/2018    | 14:04         |
|                  | STD120 280-412210/8  | Y19206.D    | 04/21/2018    | 14:33         |
|                  | STD160 280-412210/9  | Y19207.D    | 04/21/2018    | 15:01         |
|                  | STD200 280-412210/10 | Y19208.D    | 04/21/2018    | 15:30         |
|                  | ICV 280-412210/11    | Y19209.D    | 04/21/2018    | 15:59         |
|                  | ICV 280-412210/12    | Y19210.D    | 04/21/2018    | 16:27         |
|                  | ICV 280-412210/13    | Y19211.D    | 04/21/2018    | 16:56         |

FORM V  
GC/MS SEMI VOA INSTRUMENT PERFORMANCE CHECK  
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: Y19662.D DFTPP Injection Date: 05/25/2018  
Instrument ID: SMS\_Y DFTPP Injection Time: 16:18  
Analysis Batch No.: 416357

| M/E | ION ABUNDANCE CRITERIA              | % RELATIVE ABUNDANCE |
|-----|-------------------------------------|----------------------|
| 51  | 30.0 - 60.0 % of mass 198           | 43.6                 |
| 68  | Less than 2.0 % of mass 69          | 0.1 (0.2) 1          |
| 69  | Mass 69 relative abundance          | 43.5                 |
| 70  | Less than 2.0 % of mass 69          | 0.3 (0.8) 1          |
| 127 | 40.0 - 60.0 % of mass 198           | 50.3                 |
| 197 | Less than 1.0 % of mass 198         | 0.7                  |
| 198 | Base Peak, 100 % relative abundance | 100.0                |
| 199 | 5.0- 9.0 % of mass 198              | 7.2                  |
| 275 | 10.0 - 30.0 % of mass 198           | 20.6                 |
| 365 | Greater than 1.0 % of mass 198      | 2.2                  |
| 441 | Present but less than mass 443      | 8.8 (71.5) 3         |
| 442 | Greater than 40.0 % of mass 198     | 63.3                 |
| 443 | 17.0 - 23.0 % of mass 442           | 12.3 (19.4) 2        |

1-Value is % mass 69                      2-Value is % mass 442                      3-Value is % mass 443

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

| CLIENT SAMPLE ID           | LAB SAMPLE ID      | LAB FILE ID | DATE ANALYZED | TIME ANALYZED |
|----------------------------|--------------------|-------------|---------------|---------------|
|                            | CCV 280-416357/3   | Y19663.D    | 05/25/2018    | 16:31         |
|                            | LB3 280-416023/1-A | Y19664.D    | 05/25/2018    | 17:01         |
|                            | LCS 280-416023/2-A | Y19665.D    | 05/25/2018    | 17:26         |
|                            | LB 280-415138/1-C  | Y19666.D    | 05/25/2018    | 17:51         |
|                            | LCS 280-415138/2-C | Y19667.D    | 05/25/2018    | 18:16         |
| IDW-KINGSLEY-WA-LDOS01     | 320-39023-58       | Y19673.D    | 05/25/2018    | 20:46         |
| IDW-KINGSLEY-SO-LDOS01     | 320-39023-57       | Y19675.D    | 05/25/2018    | 21:36         |
| IDW-KINGSLEY-SO-LDOS01 MS  | 320-39023-57 MS    | Y19676.D    | 05/25/2018    | 22:01         |
| IDW-KINGSLEY-SO-LDOS01 MSD | 320-39023-57 MSD   | Y19677.D    | 05/25/2018    | 22:25         |
|                            | CCVC 280-416357/18 | Y19678.D    | 05/25/2018    | 22:50         |

FORM VIII  
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: ICIS 280-412210/3 Date Analyzed: 04/21/2018 12:10  
 Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25 (mm)  
 Lab File ID (Standard): Y19201.D Heated Purge: (Y/N) N  
 Calibration ID: 32170

|                               |                            | DCBd4  |      | NPT    |      | ANT    |      |
|-------------------------------|----------------------------|--------|------|--------|------|--------|------|
|                               |                            | AREA # | RT # | AREA # | RT # | AREA # | RT # |
| INITIAL CALIBRATION MID-POINT |                            | 113145 | 4.68 | 469796 | 5.89 | 280768 | 7.65 |
| UPPER LIMIT                   |                            | 226290 | 5.18 | 939592 | 6.39 | 561536 | 8.15 |
| LOWER LIMIT                   |                            | 56573  | 4.18 | 234898 | 5.39 | 140384 | 7.15 |
| LAB SAMPLE ID                 | CLIENT SAMPLE ID           |        |      |        |      |        |      |
| ICV 280-412210/11             |                            | 110620 | 4.68 | 453931 | 5.89 | 272481 | 7.64 |
| ICV 280-412210/12             |                            | 104254 | 4.68 | 438861 | 5.89 | 258074 | 7.64 |
| ICV 280-412210/13             |                            | 114305 | 4.68 | 469590 | 5.90 | 265881 | 7.64 |
| CCV 280-416357/3              |                            | 121259 | 4.63 | 502368 | 5.86 | 289711 | 7.60 |
| LB3 280-416023/1-A            |                            | 90107  | 4.62 | 377609 | 5.85 | 198660 | 7.60 |
| LCS 280-416023/2-A            |                            | 86805  | 4.62 | 377880 | 5.85 | 193911 | 7.60 |
| LB 280-415138/1-C             |                            | 87020  | 4.62 | 368844 | 5.85 | 191788 | 7.60 |
| LCS 280-415138/2-C            |                            | 91607  | 4.62 | 378763 | 5.85 | 199414 | 7.61 |
| 320-39023-58                  | IDW-KINGSLEY-WA-LDOS01     | 102330 | 4.62 | 440858 | 5.86 | 244257 | 7.60 |
| 320-39023-57                  | IDW-KINGSLEY-SO-LDOS01     | 101101 | 4.62 | 422243 | 5.85 | 227217 | 7.60 |
| 320-39023-57 MS               | IDW-KINGSLEY-SO-LDOS01 MS  | 101621 | 4.62 | 433735 | 5.85 | 237467 | 7.60 |
| 320-39023-57 MSD              | IDW-KINGSLEY-SO-LDOS01 MSD | 95154  | 4.62 | 419287 | 5.86 | 231001 | 7.60 |
| CCVC 280-416357/18            |                            | 100965 | 4.62 | 438976 | 5.86 | 240298 | 7.60 |

DCBd4 = 1,4-Dichlorobenzene-d4

NPT = Naphthalene-d8

ANT = Acenaphthene-d10

Area Limit = 50%-200% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM VIII  
GC/MS SEMI VOA INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: ICIS 280-412210/3 Date Analyzed: 04/21/2018 12:10  
 Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25 (mm)  
 Lab File ID (Standard): Y19201.D Heated Purge: (Y/N) N  
 Calibration ID: 32170

|                               |                            | PHN    |      | CRY    |       | PRY    |       |
|-------------------------------|----------------------------|--------|------|--------|-------|--------|-------|
|                               |                            | AREA # | RT # | AREA # | RT #  | AREA # | RT #  |
| INITIAL CALIBRATION MID-POINT |                            | 494023 | 9.14 | 495007 | 13.25 | 477337 | 17.20 |
| UPPER LIMIT                   |                            | 988046 | 9.64 | 990014 | 13.75 | 954674 | 17.70 |
| LOWER LIMIT                   |                            | 247012 | 8.64 | 247504 | 12.75 | 238669 | 16.70 |
| LAB SAMPLE ID                 | CLIENT SAMPLE ID           |        |      |        |       |        |       |
| ICV 280-412210/11             |                            | 501731 | 9.14 | 492891 | 13.24 | 486318 | 17.18 |
| ICV 280-412210/12             |                            | 469909 | 9.14 | 485416 | 13.23 | 456294 | 17.17 |
| ICV 280-412210/13             |                            | 484343 | 9.14 | 476676 | 13.23 | 421145 | 17.16 |
| CCV 280-416357/3              |                            | 512275 | 9.10 | 506954 | 13.13 | 459711 | 17.03 |
| LB3 280-416023/1-A            |                            | 384452 | 9.09 | 385863 | 13.11 | 346042 | 17.00 |
| LCS 280-416023/2-A            |                            | 390843 | 9.09 | 375119 | 13.11 | 340941 | 17.00 |
| LB 280-415138/1-C             |                            | 382635 | 9.09 | 361646 | 13.11 | 341397 | 17.01 |
| LCS 280-415138/2-C            |                            | 390760 | 9.09 | 380283 | 13.11 | 339510 | 17.00 |
| 320-39023-58                  | IDW-KINGSLEY-WA-LDOS01     | 482033 | 9.09 | 464888 | 13.11 | 429844 | 17.01 |
| 320-39023-57                  | IDW-KINGSLEY-SO-LDOS01     | 447520 | 9.09 | 427494 | 13.11 | 405548 | 17.00 |
| 320-39023-57 MS               | IDW-KINGSLEY-SO-LDOS01 MS  | 466481 | 9.09 | 453161 | 13.11 | 429498 | 17.00 |
| 320-39023-57 MSD              | IDW-KINGSLEY-SO-LDOS01 MSD | 459263 | 9.09 | 439919 | 13.10 | 414859 | 17.01 |
| CCVC 280-416357/18            |                            | 465310 | 9.10 | 452648 | 13.12 | 423326 | 17.01 |

PHN = Phenanthrene-d10  
 CRY = Chrysene-d12  
 PRY = Perylene-d12

Area Limit = 50%-200% of internal standard area  
 RT Limit =  $\pm$  0.5 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

|                                                 |                                         |
|-------------------------------------------------|-----------------------------------------|
| Lab Name: <u>TestAmerica Denver</u>             | Job No.: <u>320-39023-1</u>             |
| SDG No.: _____                                  |                                         |
| Client Sample ID: <u>IDW-KINGSLEY-SO-LDOS01</u> | Lab Sample ID: <u>320-39023-57</u>      |
| Matrix: <u>Solid (TCLP)</u>                     | Lab File ID: <u>Y19675.D</u>            |
| Analysis Method: <u>8270D</u>                   | Date Collected: <u>05/07/2018 09:45</u> |
| Extract. Method: <u>3510C</u>                   | Date Extracted: <u>05/21/2018 08:55</u> |
| Sample wt/vol: <u>200 (mL)</u>                  | Date Analyzed: <u>05/25/2018 21:36</u>  |
| Con. Extract Vol.: <u>1 (mL)</u>                | Dilution Factor: <u>1</u>               |
| Injection Volume: <u>1 (uL)</u>                 | Level: (low/med) <u>Low</u>             |
| % Moisture: _____                               | GPC Cleanup: (Y/N) <u>N</u>             |
| Analysis Batch No.: <u>416357</u>               | Units: <u>mg/L</u>                      |

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.010  | U | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.0025 | U | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.020  | U | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.022  | U | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.010  | U | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.050  | U | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.022  | U | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.010  | U | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.20   | U | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.022  | U | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.0050 | U | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.0050 | U | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 100  |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 90   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 97   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 88   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 78   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 94   |   | 56-120 |



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19675.D  
 Lims ID: 320-39023-A-57-B  
 Client ID: IDW-KINGSLEY-SO-LDOS01  
 Sample Type: Client  
 Inject. Date: 25-May-2018 21:36:30 ALS Bottle#: 14 Worklist Smp#: 15  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-A-57-B  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:22:30

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4     | 152 | 4.624     | 4.625         | -0.001        | 97  | 101101   | 40.0            |       |
| * 2 Naphthalene-d8             | 136 | 5.852     | 5.858         | -0.006        | 99  | 422243   | 40.0            |       |
| * 3 Acenaphthene-d10           | 164 | 7.602     | 7.603         | -0.001        | 97  | 227217   | 40.0            |       |
| * 4 Phenanthrene-d10           | 188 | 9.089     | 9.095         | -0.006        | 98  | 447520   | 40.0            |       |
| * 5 Chrysene-d12               | 240 | 13.107    | 13.125        | -0.018        | 99  | 427494   | 40.0            |       |
| * 6 Perylene-d12               | 264 | 17.001    | 17.025        | -0.024        | 96  | 405548   | 40.0            |       |
| \$ 7 2-Fluorophenol            | 112 | 3.437     | 3.432         | 0.005         | 93  | 335950   | 90.4            |       |
| \$ 8 Phenol-d5                 | 99  | 4.266     | 4.266         | 0.000         | 0   | 359688   | 77.7            |       |
| \$ 9 Nitrobenzene-d5           | 82  | 5.141     | 5.147         | -0.006        | 89  | 375515   | 88.3            |       |
| \$ 10 2,4,6-Trichlorophenol-d2 | 198 |           | 6.872         |               |     |          | ND              |       |
| \$ 11 2-Fluorobiphenyl         | 172 | 6.915     | 6.916         | -0.001        | 100 | 730059   | 99.6            |       |
| \$ 12 2,4,6-Tribromophenol     | 330 | 8.390     | 8.396         | -0.006        | 87  | 82780    | 97.0            |       |
| \$ 13 Terphenyl-d14            | 244 | 11.021    | 11.022        | -0.001        | 98  | 878422   | 94.3            |       |
| 14 Triethyl amine              | 86  |           | 2.105         |               |     |          | ND              |       |
| 15 1,4-Dioxane                 | 88  |           | 2.016         |               |     |          | ND              |       |
| 16 2-Ethoxyethanol             | 59  |           | 2.252         |               |     |          | ND              |       |
| 17 N-Nitrosodimethylamine      | 74  |           | 2.251         |               |     |          | ND              | U     |
| 18 Pyridine                    | 79  |           | 2.310         |               |     |          | ND              |       |
| 19 Dimethylformamide           | 73  |           | 2.745         |               |     |          | ND              |       |
| 20 2-Picoline                  | 93  |           | 2.941         |               |     |          | ND              |       |
| 21 N-Nitrosomethylethylamine   | 88  |           | 3.012         |               |     |          | ND              |       |
| 22 Acrylamide                  | 71  |           | 3.264         |               |     |          | ND              |       |
| 23 Methyl methanesulfonate     | 80  |           | 3.270         |               |     |          | ND              |       |
| 24 N-Nitrosodiethylamine       | 102 |           | 3.634         |               |     |          | ND              |       |
| 25 Pentachlorophenol_T         | 266 |           | 3.767         |               |     |          | ND              |       |
| 26 Ethyl methanesulfonate      | 79  |           | 3.887         |               |     |          | ND              |       |
| 27 Benzaldehyde                | 106 |           | 4.250         |               |     |          | ND              |       |
| 28 Phenol                      | 94  |           | 4.278         |               |     |          | ND              |       |
| 29 Phenylmercaptan             | 110 |           | 4.266         |               |     |          | ND              |       |
| 30 Aniline                     | 93  |           | 4.307         |               |     |          | ND              |       |
| 31 Bis(2-chloroethyl)ether     | 93  |           | 4.354         |               |     |          | ND              |       |

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|-----------------|-------|
| 32 Alpha Methyl Styrene       | 118 |           | 4.360         |               |    |          | ND              |       |
| 33 Pentachloroethane          | 117 |           | 4.369         |               |    |          | ND              |       |
| 34 2-Chlorophenol             | 128 |           | 4.437         |               |    |          | ND              |       |
| 35 n-Decane                   | 43  |           | 4.460         |               |    |          | ND              |       |
| 36 Methyl styrene             | 118 | 4.618     | 4.497         | 0.118         | 42 | 1337     | NC              |       |
| 37 1,3-Dichlorobenzene        | 146 |           | 4.578         |               |    |          | ND              |       |
| 38 1,4-Dichlorobenzene        | 146 |           | 4.642         |               |    |          | ND              |       |
| 39 Benzyl alcohol             | 108 |           | 4.742         |               |    |          | ND              |       |
| 40 1,2-Dichlorobenzene        | 146 |           | 4.789         |               |    |          | ND              |       |
| 41 2-Methylphenol             | 108 |           | 4.848         |               |    |          | ND              |       |
| 42 Benzidine_T                | 184 |           | 4.842         |               |    |          | ND              |       |
| 43 2,2'-oxybis[1-chloropropan | 45  |           | 4.865         |               |    |          | ND              |       |
| 44 Indene                     | 116 |           | 4.877         |               |    |          | ND              |       |
| 45 N-Nitrosopyrrolidine       | 100 |           | 4.968         |               |    |          | ND              |       |
| 46 3-Methylphenol             | 108 |           | 4.995         |               |    |          | ND              |       |
| 47 4-Methylphenol             | 108 |           | 4.995         |               |    |          | ND              |       |
| 48 3 & 4 Methylphenol         | 108 |           | 4.995         |               |    |          | ND              |       |
| 49 N-Nitrosomorpholine        | 116 |           | 5.003         |               |    |          | ND              |       |
| 50 N-Nitrosodi-n-propylamine  | 70  |           | 4.989         |               |    |          | ND              |       |
| 51 Acetophenone               | 105 |           | 4.995         |               |    |          | ND              |       |
| 52 2-Toluidine                | 106 |           | 5.038         |               |    |          | ND              |       |
| 53 Hexachloroethane           | 117 |           | 5.118         |               |    |          | ND              |       |
| 54 Nitrobenzene               | 77  |           | 5.165         |               |    |          | ND              |       |
| 55 Triethyl phosphate         | 99  |           | 5.289         |               |    |          | ND              |       |
| 56 N-Nitrosopiperidine        | 114 |           | 5.309         |               |    |          | ND              |       |
| 57 Isophorone                 | 82  |           | 5.394         |               |    |          | ND              |       |
| 58 2-Nitrophenol              | 139 |           | 5.476         |               |    |          | ND              |       |
| 59 2,4-Dimethylphenol         | 107 |           | 5.506         |               |    |          | ND              |       |
| 60 Benzyl dichloride          | 125 |           | 5.547         |               |    |          | ND              |       |
| 61 o,o',o''-Triethylphosphoro | 198 |           | 5.561         |               |    |          | ND              |       |
| 62 2,4-Xylidine               | 121 |           | 5.712         |               |    |          | ND              |       |
| 63 Bis(2-chloroethoxy)methane | 93  |           | 5.588         |               |    |          | ND              |       |
| 64 Benzoic acid               | 105 |           | 5.653         |               |    |          | ND              |       |
| 65 o-Anisidine                | 80  |           | 5.753         |               |    |          | ND              | U     |
| 66 3,5-Dimethylphenol         | 107 |           | 5.641         |               |    |          | ND              |       |
| 67 alpha,alpha-Dimethyl phene | 58  |           | 5.714         |               |    |          | ND              |       |
| 68 2,4-Dichlorophenol         | 162 |           | 5.717         |               |    |          | ND              |       |
| 69 1,2,4-Trichlorobenzene     | 180 |           | 5.800         |               |    |          | ND              |       |
| 70 Alpha-Terpineol            | 59  |           | 5.876         |               |    |          | ND              |       |
| 71 Naphthalene                | 128 |           | 5.882         |               |    |          | ND              |       |
| 72 4-Chloroaniline            | 127 |           | 5.917         |               |    |          | ND              |       |
| 73 2,6-Dichlorophenol         | 162 |           | 5.935         |               |    |          | ND              |       |
| 74 Hexachloropropene          | 213 |           | 5.972         |               |    |          | ND              |       |
| 75 Hexachlorobutadiene        | 225 |           | 6.005         |               |    |          | ND              |       |
| 76 4-chlorobenzenethiol       | 144 |           | 6.086         |               |    |          | ND              |       |
| 77 Quinoline                  | 129 |           | 6.201         |               |    |          | ND              |       |
| 78 5-Methyl-o-Anisidine       | 122 |           | 6.364         |               |    |          | ND              |       |
| 79 Caprolactam                | 55  |           | 6.269         |               |    |          | ND              |       |
| 80 N-Nitrosodi-n-butylamine   | 84  |           | 6.248         |               |    |          | ND              |       |
| 81 p-Phenylene diamine        | 108 |           | 6.266         |               |    |          | ND              |       |
| 82 1,3-phenylenediamine       | 108 |           | 6.488         |               |    |          | ND              |       |
| 83 4-Chloro-3-methylphenol    | 107 |           | 6.405         |               |    |          | ND              |       |

| Compound                       | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | OnCol Amt<br>ug/ml | Flags |
|--------------------------------|-----|--------------|------------------|------------------|----|----------|--------------------|-------|
| 84 Safrole, Total              | 162 |              | 6.466            |                  |    |          | ND                 |       |
| 85 Carbofuran phenol           | 164 |              | 6.511            |                  |    |          | ND                 |       |
| 86 2-Methylnaphthalene         | 142 |              | 6.563            |                  |    |          | ND                 |       |
| 87 Phthalic anhydride          | 76  |              | 6.598            |                  |    |          | ND                 |       |
| 88 1-Methylnaphthalene         | 142 |              | 6.663            |                  |    |          | ND                 |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 |              | 6.734            |                  |    |          | ND                 |       |
| 90 Hexachlorocyclopentadiene   | 237 |              | 6.728            |                  |    |          | ND                 |       |
| 91 Isosafrole Peak 1           | 162 |              | 6.754            |                  |    |          | ND                 |       |
| 92 2,4,6-Trichlorophenol       | 196 |              | 6.845            |                  |    |          | ND                 |       |
| 93 2,3-Dichlorobenzenamine     | 161 |              | 6.839            |                  |    |          | ND                 |       |
| 94 2,4,5-Trichlorophenol       | 196 |              | 6.886            |                  |    |          | ND                 |       |
| 95 Methyl 4-chlorophenyl sulf  | 158 | 6.915        | 6.889            | 0.022            | 48 | 1421     | NC                 |       |
| 96 Isosafrole Peak 2           | 104 |              | 6.983            |                  |    |          | ND                 |       |
| 97 Toluene diamine (2,4- + 2,  | 122 |              | 7.033            |                  |    |          | ND                 |       |
| 98 1,1'-Biphenyl               | 154 |              | 7.021            |                  |    |          | ND                 |       |
| 99 2-Chloronaphthalene         | 162 |              | 7.051            |                  |    |          | ND                 |       |
| 100 1-Chloronaphthalene        | 162 |              | 7.077            |                  |    |          | ND                 |       |
| 101 2-Nitroaniline             | 65  |              | 7.139            |                  |    |          | ND                 |       |
| 102 1,4-Naphthoquinone         | 158 |              | 7.212            |                  |    |          | ND                 |       |
| 103 1,4-Dinitrobenzene         | 168 |              | 7.265            |                  |    |          | ND                 |       |
| 104 Dimethyl phthalate         | 163 |              | 7.315            |                  |    |          | ND                 |       |
| 105 1,3-Dinitrobenzene         | 168 |              | 7.344            |                  |    |          | ND                 |       |
| 106 2,6-Dinitrotoluene         | 165 |              | 7.374            |                  |    |          | ND                 |       |
| 107 Acenaphthylene             | 152 |              | 7.468            |                  |    |          | ND                 |       |
| 108 3-Nitroaniline             | 138 |              | 7.550            |                  |    |          | ND                 |       |
| 109 Acenaphthene               | 153 |              | 7.638            |                  |    |          | ND                 |       |
| 110 1,3-Dimethyl-2,4-Dinitrobe | 77  |              | 7.635            |                  |    |          | ND                 |       |
| 111 2,4-Dinitrophenol          | 184 |              | 7.650            |                  |    |          | ND                 |       |
| 112 4-Nitrophenol              | 109 |              | 7.732            |                  |    |          | ND                 |       |
| 113 1,3-Dimethyl-2,5-Dinitrobe | 179 |              | 7.879            |                  |    |          | ND                 |       |
| 114 2,4-Dinitrotoluene         | 165 |              | 7.779            |                  |    |          | ND                 |       |
| 115 Pentachlorobenzene         | 250 |              | 7.782            |                  |    |          | ND                 |       |
| 116 Dibenzofuran               | 168 |              | 7.809            |                  |    |          | ND                 |       |
| 117 1,4-Dimethyl-2,3-Dinitrobe | 77  |              | 7.885            |                  |    |          | ND                 |       |
| 118 1-Naphthylamine            | 143 |              | 7.887            |                  |    |          | ND                 |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 |              | 7.938            |                  |    |          | ND                 |       |
| 120 1,4-Dimethyl-2,6-Dinitrobe | 179 |              | 8.020            |                  |    |          | ND                 |       |
| 121 2-Naphthylamine            | 143 |              | 7.964            |                  |    |          | ND                 |       |
| 122 1,4-Dimethyl-2,5-Dinitrobe | 179 |              | 7.970            |                  |    |          | ND                 |       |
| 123 Diethyl phthalate          | 149 |              | 8.014            |                  |    |          | ND                 |       |
| 124 Hexadecane                 | 57  |              | 8.026            |                  |    |          | ND                 |       |
| 125 1,2-Dimethyl-3,6-Dinitrobe | 179 |              | 8.020            |                  |    |          | ND                 |       |
| 126 Thionazin                  | 97  |              | 8.099            |                  |    |          | ND                 |       |
| 127 4-Chlorophenyl phenyl ethe | 204 |              | 8.138            |                  |    |          | ND                 |       |
| 128 N-Nitro-o-toluidine        | 152 |              | 8.158            |                  |    |          | ND                 |       |
| 129 Fluorene                   | 166 |              | 8.155            |                  |    |          | ND                 |       |
| 130 4-Nitroaniline             | 138 |              | 8.167            |                  |    |          | ND                 |       |
| 131 4,6-Dinitro-2-methylphenol | 198 |              | 8.196            |                  |    |          | ND                 |       |
| 132 1,5-Dimethyl-2,4-Dinitrobe | 179 |              | 8.020            |                  |    |          | ND                 |       |
| 133 Tributyl phosphate         | 99  |              | 8.244            |                  |    |          | ND                 |       |
| 134 Diphenylamine              | 169 |              | 8.255            |                  |    |          | ND                 |       |
| 135 N-Nitrosodiphenylamine     | 169 |              | 8.255            |                  |    |          | ND                 |       |

| Compound                            | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | OnCol Amt<br>ug/ml | Flags |
|-------------------------------------|-----|--------------|------------------|------------------|----|----------|--------------------|-------|
| 136 1,2-Diphenylhydrazine           | 77  |              | 8.302            |                  |    |          | ND                 |       |
| 137 Azobenzene                      | 77  |              | 8.302            |                  |    |          | ND                 |       |
| 138 1,5-Dimethyl-2,3-Dinitrobenzene | 179 |              | 8.299            |                  |    |          | ND                 |       |
| 139 2,4,6 - Tribromophenol          | 330 |              | 8.396            |                  |    |          | ND                 | U     |
| 140 Sulfotep                        | 97  |              | 8.404            |                  |    |          | ND                 |       |
| 141 1,2-Dimethyl-3,5-Dinitrobenzene | 179 |              | 8.520            |                  |    |          | ND                 |       |
| 142 1,3,5-Trinitrobenzene           | 213 |              | 8.504            |                  |    |          | ND                 |       |
| 143 Diallate Peak 1                 | 86  |              | 8.545            |                  |    |          | ND                 |       |
| 144 Phorate                         | 121 |              | 8.557            |                  |    |          | ND                 |       |
| 145 Phenacetin                      | 108 |              | 8.563            |                  |    |          | ND                 |       |
| 146 1,2-Dimethyl-3,4-Dinitrobenzene | 179 |              | 8.557            |                  |    |          | ND                 |       |
| 147 Phenyl sulfide                  | 186 |              | 8.615            |                  |    |          | ND                 |       |
| 148 4-Bromophenyl phenyl ether      | 248 |              | 8.631            |                  |    |          | ND                 |       |
| 149 Diallate Peak 2                 | 86  |              | 8.639            |                  |    |          | ND                 |       |
| 150 Dimethoate                      | 87  |              | 8.727            |                  |    |          | ND                 |       |
| 151 Hexachlorobenzene               | 284 |              | 8.719            |                  |    |          | ND                 |       |
| 152 Atrazine                        | 200 |              | 8.778            |                  |    |          | ND                 |       |
| 153 1,2-Dimethyl-4,5-Dinitrobenzene | 91  |              | 8.784            |                  |    |          | ND                 |       |
| 154 4-Aminobiphenyl                 | 169 |              | 8.898            |                  |    |          | ND                 |       |
| 155 Pentachlorophenol               | 266 |              | 8.913            |                  |    |          | ND                 |       |
| 156 Pentachloronitrobenzene         | 237 |              | 8.927            |                  |    |          | ND                 |       |
| 157 Pronamide                       | 173 |              | 8.951            |                  |    |          | ND                 |       |
| 158 n-Octadecane                    | 85  |              | 8.948            |                  |    |          | ND                 |       |
| 159 Disulfoton                      | 88  |              | 9.080            |                  |    |          | ND                 |       |
| 160 Dinoseb                         | 211 |              | 9.086            |                  |    |          | ND                 |       |
| 161 Phenanthrene                    | 178 |              | 9.119            |                  |    |          | ND                 |       |
| 162 Anthracene                      | 178 |              | 9.171            |                  |    |          | ND                 |       |
| 163 n-hydroxymethylphthalimide      | 147 | 9.089        | 9.173            | -0.088           | 38 | 852      | NC                 |       |
| 164 Carbazole                       | 167 |              | 9.324            |                  |    |          | ND                 |       |
| 165 Methyl parathion                | 109 |              | 9.456            |                  |    |          | ND                 |       |
| 166 Alachlor                        | 188 |              | 9.453            |                  |    |          | ND                 |       |
| 167 Phenyl disulfide                | 109 |              | 9.589            |                  |    |          | ND                 |       |
| 168 Di-n-butyl phthalate            | 149 |              | 9.659            |                  |    |          | ND                 |       |
| 169 Ethyl Parathion                 | 109 |              | 9.879            |                  |    |          | ND                 |       |
| 170 4-Nitroquinoline-1-oxide        | 190 |              | 9.932            |                  |    |          | ND                 |       |
| 171 Diphenylsulfone                 | 125 |              | 9.984            |                  |    |          | ND                 |       |
| 172 Methapyrilene                   | 97  |              | 10.014           |                  |    |          | ND                 |       |
| 173 Isodrin                         | 193 |              | 10.290           |                  |    |          | ND                 |       |
| 174 Octachlorostyrene               | 308 |              | 10.360           |                  |    |          | ND                 |       |
| 175 Fluoranthene                    | 202 |              | 10.476           |                  |    |          | ND                 |       |
| 176 Benzidine                       | 184 |              | 10.647           |                  |    |          | ND                 |       |
| 177 4,4-Dichlorobenzil              | 139 |              | 10.529           |                  |    |          | ND                 |       |
| 178 Pyrene                          | 202 |              | 10.804           |                  |    |          | ND                 |       |
| 180 Aramite Peak 1                  | 185 |              | 10.989           |                  |    |          | ND                 |       |
| 181 p-chlorophenyl sulfone          | 159 | 11.021       | 11.018           | -0.015           | 44 | 10698    | NC                 |       |
| 182 Aramite Peak 2                  | 185 |              | 11.112           |                  |    |          | ND                 |       |
| 183 p-Dimethylamino azobenzene      | 120 |              | 11.271           |                  |    |          | ND                 |       |
| 184 Chlorobenzilate                 | 251 |              | 11.353           |                  |    |          | ND                 |       |
| 185 Famphur                         | 218 |              | 11.786           |                  |    |          | ND                 |       |
| 186 3,3'-Dimethylbenzidine          | 212 |              | 11.882           |                  |    |          | ND                 |       |
| 187 Butyl benzyl phthalate          | 149 |              | 11.903           |                  |    |          | ND                 |       |
| 188 2-Acetylaminofluorene           | 181 |              | 12.411           |                  |    |          | ND                 |       |

| Compound                         | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q | Response | OnCol Amt ug/ml | Flags |
|----------------------------------|-----|-----------|---------------|---------------|---|----------|-----------------|-------|
| 189 3,3'-Dichlorobenzidine       | 252 |           | 13.054        |               |   |          | ND              |       |
| 190 4,4'-Methylene bis(2-chlor   | 231 |           | 13.069        |               |   |          | ND              |       |
| 191 Benzo[a]anthracene           | 228 |           | 13.101        |               |   |          | ND              |       |
| 192 Chrysene                     | 228 |           | 13.190        |               |   |          | ND              |       |
| 193 Bis(2-ethylhexyl) phthalat   | 149 |           | 13.254        |               |   |          | ND              |       |
| 194 6-Methylchrysene             | 242 |           | 14.349        |               |   |          | ND              |       |
| 195 Di-n-octyl phthalate         | 149 |           | 15.040        |               |   |          | ND              |       |
| 196 Benzo[b]fluoranthene         | 252 |           | 15.945        |               |   |          | ND              |       |
| 197 7,12-Dimethylbenz(a)anthra   | 256 |           | 15.959        |               |   |          | ND              |       |
| 198 Benzo[k]fluoranthene         | 252 |           | 16.027        |               |   |          | ND              |       |
| 199 Hexachlorophene              | 196 |           | 16.657        |               |   |          | ND              |       |
| 200 Benzo[e]pyrene               | 252 |           | 16.720        |               |   |          | ND              |       |
| 201 Benzo[a]pyrene               | 252 |           | 16.867        |               |   |          | ND              |       |
| 202 Perylene                     | 252 |           | 17.249        |               |   |          | ND              |       |
| 203 3-Methylcholanthrene         | 268 |           | 17.956        |               |   |          | ND              |       |
| 204 Tris(2,3-dibromopropyl)pho   | 119 |           | 18.700        |               |   |          | ND              |       |
| 205 Dibenz[a,h]acridine          | 279 |           | 19.525        |               |   |          | ND              |       |
| 206 Dibenz[a,j]acridine          | 279 |           | 19.683        |               |   |          | ND              |       |
| 207 Indeno[1,2,3-cd]pyrene       | 276 |           | 20.133        |               |   |          | ND              |       |
| 208 Dibenz(a,h)anthracene        | 278 |           | 20.221        |               |   |          | ND              |       |
| 209 Benzo[g,h,i]perylene         | 276 |           | 20.867        |               |   |          | ND              |       |
| 210 Dibenzo[a,e]pyrene           | 302 |           | 25.234        |               |   |          | ND              |       |
| S 219 Total Cresols              | 108 |           | 15.636        |               |   |          | ND              |       |
| S 220 Methyl Phenols, Total      | 108 |           | 15.636        |               |   |          | ND              |       |
| S 221 Isosafrole                 | 162 |           | 15.636        |               |   |          | ND              |       |
| S 222 Diallate                   | 86  |           | 15.636        |               |   |          | ND              |       |
| S 223 Aramite, Total             | 185 |           | 15.636        |               |   |          | ND              |       |
| S 224 Phthalic acid              | 148 |           | 19.829        |               |   |          | ND              |       |
| 211 2-Phenoxyethanol             | 1   |           | 0.140         |               |   |          | ND              |       |
| 212 1,2,3,4-Tetrahydronaphthal   | 1   |           | 0.140         |               |   |          | ND              |       |
| 213 4-Methylacetophenone         | 1   |           | 0.140         |               |   |          | ND              |       |
| 214 2-Butoxyethanol              | 1   |           | 0.140         |               |   |          | ND              |       |
| 216 4,4'-DDE                     | 246 |           | 5.009         |               |   |          | ND              |       |
| 217 4,4'-DDD                     | 235 |           | 5.259         |               |   |          | ND              |       |
| 218 4,4'-DDT                     | 235 |           | 5.476         |               |   |          | ND              |       |
| S 225 TPAH                       | 1   |           | 0.000         |               |   |          | ND              |       |
| T 226 Pentachlorodibenzofurans T | 1   |           | 0.140         |               |   |          | ND              |       |
| T 227 Octadecane (TIC)           | 1   |           | 0.140         |               |   |          | ND              |       |
| T 228 Pentachlorodibenzo-p-dioxi | 1   |           | 0.140         |               |   |          | ND              |       |
| T 229 2,6-Dimethylphenol         | 1   |           | 0.140         |               |   |          | ND              |       |
| T 230 Tetrachlorodibenzo-p-dioxi | 1   |           | 0.140         |               |   |          | ND              |       |
| T 231 Tetrachlorodibenzofurans T | 1   |           | 0.140         |               |   |          | ND              |       |
| T 232 Hexachlorodibenzofurans TI | 1   |           | 0.140         |               |   |          | ND              |       |
| T 233 Hexachlorodibenzo-p-dioxin | 1   |           | 0.140         |               |   |          | ND              |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

U - Marked Undetected

**Reagents:**

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19675.D

Injection Date: 25-May-2018 21:36:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: 320-39023-A-57-B

Lab Sample ID: 280-39023-57

Worklist Smp#: 15

Client ID: IDW-KINGSLEY-SO-LDOS01

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

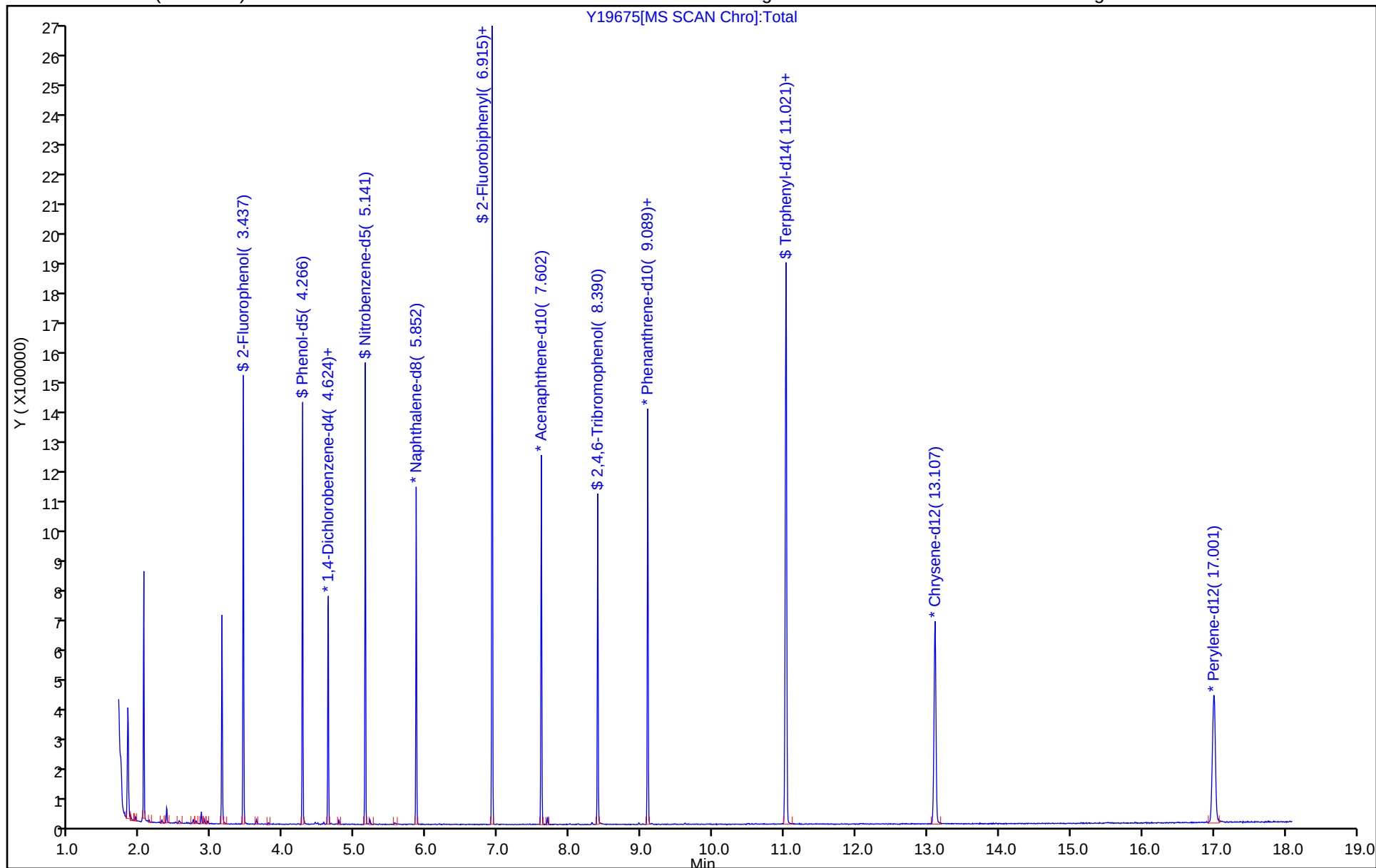
ALS Bottle#: 14

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19675.D  
 Lims ID: 320-39023-A-57-B  
 Client ID: IDW-KINGSLEY-SO-LDOS01  
 Sample Type: Client  
 Inject. Date: 25-May-2018 21:36:30 ALS Bottle#: 14 Worklist Smp#: 15  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-A-57-B  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:22:30

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 90.4             | 90.35  |
| \$ 8 Phenol-d5             | 100.0        | 77.7             | 77.68  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 88.3             | 88.34  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 99.6             | 99.58  |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 97.0             | 97.03  |
| \$ 13 Terphenyl-d14        | 100.0        | 94.3             | 94.32  |



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

|                                                 |                                         |
|-------------------------------------------------|-----------------------------------------|
| Lab Name: <u>TestAmerica Denver</u>             | Job No.: <u>320-39023-1</u>             |
| SDG No.: _____                                  |                                         |
| Client Sample ID: <u>IDW-KINGSLEY-WA-LDOS01</u> | Lab Sample ID: <u>320-39023-58</u>      |
| Matrix: <u>Water (TCLP)</u>                     | Lab File ID: <u>Y19673.D</u>            |
| Analysis Method: <u>8270D</u>                   | Date Collected: <u>05/07/2018 09:30</u> |
| Extract. Method: <u>3510C</u>                   | Date Extracted: <u>05/21/2018 08:46</u> |
| Sample wt/vol: <u>200 (mL)</u>                  | Date Analyzed: <u>05/25/2018 20:46</u>  |
| Con. Extract Vol.: <u>1 (mL)</u>                | Dilution Factor: <u>1</u>               |
| Injection Volume: <u>1 (uL)</u>                 | Level: (low/med) <u>Low</u>             |
| % Moisture: _____                               | GPC Cleanup: (Y/N) <u>N</u>             |
| Analysis Batch No.: <u>416357</u>               | Units: <u>mg/L</u>                      |

| CAS NO.    | COMPOUND NAME         | RESULT | Q   | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|-----|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.010  | U   | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.0025 | U   | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.020  | U   | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.022  | U   | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.010  | U   | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.050  | U   | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.022  | U   | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.010  | U   | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.20   | U   | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.022  | U   | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.0050 | U M | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.0050 | U M | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 68   |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 51   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 92   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 56   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 51   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 90   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19673.D  
 Lims ID: 320-39023-E-58-C  
 Client ID: IDW-KINGSLEY-WA-LDOS01  
 Sample Type: Client  
 Inject. Date: 25-May-2018 20:46:30 ALS Bottle#: 12 Worklist Smp#: 13  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-E-58-C  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:21:47

| Compound                   | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | OnCol Amt<br>ug/ml | Flags |
|----------------------------|-----|--------------|------------------|------------------|-----|----------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4 | 152 | 4.622        | 4.625            | -0.003           | 97  | 102330   | 40.0               |       |
| * 2 Naphthalene-d8         | 136 | 5.856        | 5.858            | -0.002           | 99  | 440858   | 40.0               |       |
| * 3 Acenaphthene-d10       | 164 | 7.601        | 7.603            | -0.002           | 97  | 244257   | 40.0               |       |
| * 4 Phenanthrene-d10       | 188 | 9.093        | 9.095            | -0.002           | 98  | 482033   | 40.0               |       |
| * 5 Chrysene-d12           | 240 | 13.111       | 13.125           | -0.014           | 99  | 464888   | 40.0               |       |
| * 6 Perylene-d12           | 264 | 17.011       | 17.025           | -0.014           | 96  | 429844   | 40.0               |       |
| \$ 7 2-Fluorophenol        | 112 | 3.436        | 3.432            | 0.004            | 93  | 192078   | 51.0               |       |
| \$ 8 Phenol-d5             | 99  | 4.264        | 4.266            | -0.002           | 0   | 239374   | 51.1               |       |
| \$ 9 Nitrobenzene-d5       | 82  | 5.139        | 5.147            | -0.008           | 90  | 247264   | 55.7               |       |
| \$ 11 2-Fluorobiphenyl     | 172 | 6.913        | 6.916            | -0.003           | 100 | 535245   | 67.9               |       |
| \$ 12 2,4,6-Tribromophenol | 330 | 8.394        | 8.396            | -0.002           | 91  | 84685    | 92.3               |       |
| \$ 13 Terphenyl-d14        | 244 | 11.025       | 11.022           | 0.003            | 98  | 909951   | 89.8               |       |
| 18 Pyridine                | 79  |              | 2.310            |                  |     |          | ND                 |       |
| 38 1,4-Dichlorobenzene     | 146 |              | 4.642            |                  |     |          | ND                 |       |
| 41 2-Methylphenol          | 108 |              | 4.848            |                  |     |          | ND                 |       |
| 48 3 & 4 Methylphenol      | 108 |              | 4.995            |                  |     |          | ND                 |       |
| 53 Hexachloroethane        | 117 |              | 5.118            |                  |     |          | ND                 |       |
| 54 Nitrobenzene            | 77  |              | 5.165            |                  |     |          | ND                 |       |
| 75 Hexachlorobutadiene     | 225 |              | 6.005            |                  |     |          | ND                 |       |
| 92 2,4,6-Trichlorophenol   | 196 |              | 6.845            |                  |     |          | ND                 | U     |
| 94 2,4,5-Trichlorophenol   | 196 |              | 6.886            |                  |     |          | ND                 | U     |
| 114 2,4-Dinitrotoluene     | 165 |              | 7.779            |                  |     |          | ND                 |       |
| 151 Hexachlorobenzene      | 284 |              | 8.719            |                  |     |          | ND                 |       |
| 155 Pentachlorophenol      | 266 |              | 8.913            |                  |     |          | ND                 |       |

## QC Flag Legend

### Review Flags

U - Marked Undetected

## Reagents:

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19673.D

Injection Date: 25-May-2018 20:46:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: 320-39023-E-58-C

Lab Sample ID: 280-39023-58

Worklist Smp#: 13

Client ID: IDW-KINGSLEY-WA-LDOS01

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

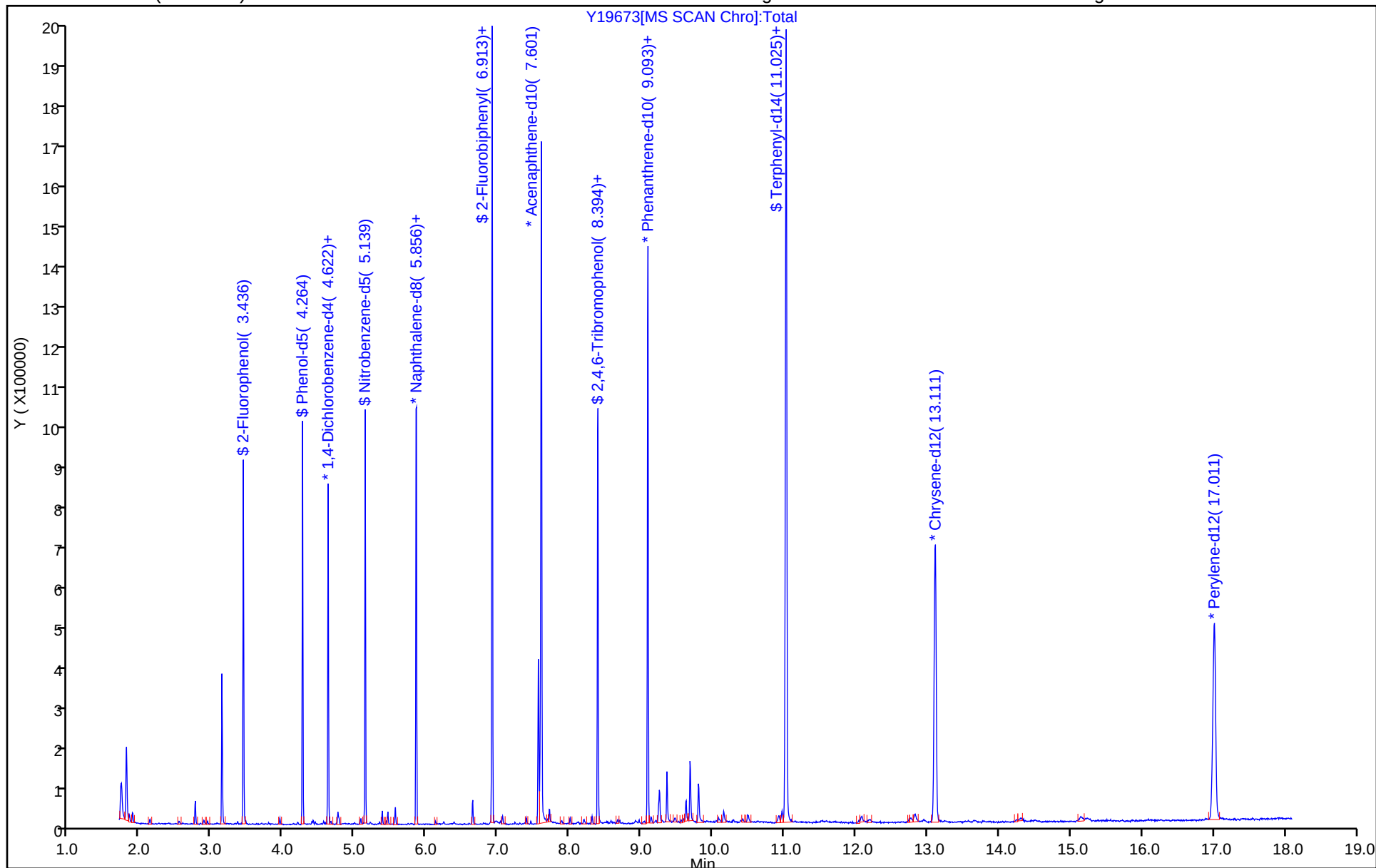
ALS Bottle#: 12

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19673.D  
 Lims ID: 320-39023-E-58-C  
 Client ID: IDW-KINGSLEY-WA-LDOS01  
 Sample Type: Client  
 Inject. Date: 25-May-2018 20:46:30 ALS Bottle#: 12 Worklist Smp#: 13  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-E-58-C  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:21:47

| Compound                       | Amount Added | Amount Recovered | % Rec. |
|--------------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol            | 100.0        | 51.0             | 51.04  |
| \$ 8 Phenol-d5                 | 100.0        | 51.1             | 51.07  |
| \$ 9 Nitrobenzene-d5           | 100.0        | 55.7             | 55.71  |
| \$ 10 2,4,6-Trichlorophenol-d2 | 0.0          | 0                | 0.00   |
| \$ 11 2-Fluorobiphenyl         | 100.0        | 67.9             | 67.91  |
| \$ 12 2,4,6-Tribromophenol     | 100.0        | 92.3             | 92.34  |
| \$ 13 Terphenyl-d14            | 100.0        | 89.8             | 89.85  |

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19673.D

Injection Date: 25-May-2018 20:46:30

Instrument ID: SMS\_Y

Lims ID: 320-39023-E-58-C

Lab Sample ID: 280-39023-58

Client ID: IDW-KINGSLEY-WA-LDOS01

Operator ID: HOEFLERA

ALS Bottle#: 12

Worklist Smp#: 13

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: SMSY\_8270C

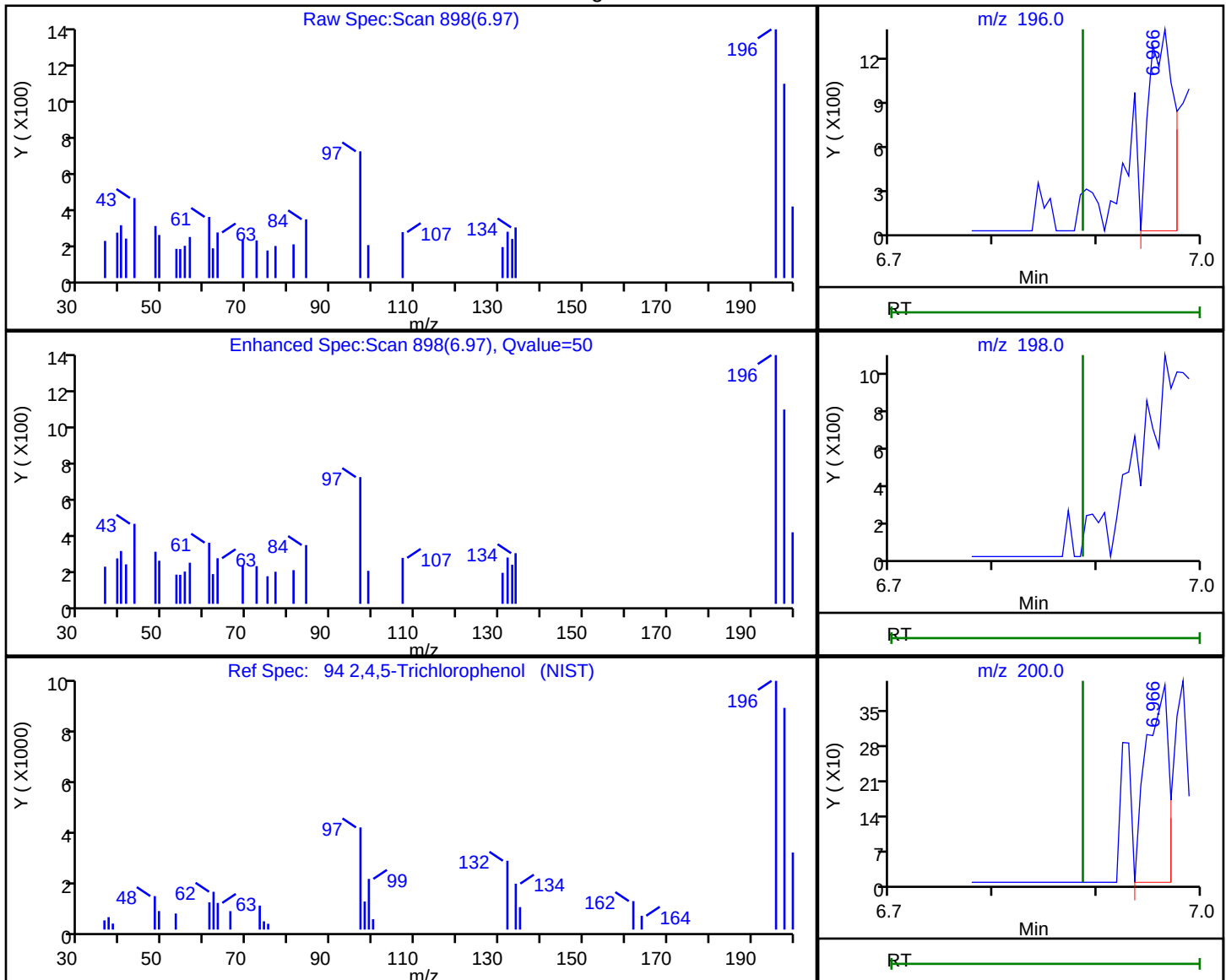
Limit Group: MSSV - 8270C\_625

Column: VF-5ms (0.50 mm)

Detector: MS SCAN

## 94 2,4,5-Trichlorophenol, CAS: 95-95-4

## Processing Results



| RT   | Mass   | Response | Amount   |
|------|--------|----------|----------|
| 6.97 | 196.00 | 2245     | 0.902807 |
| 6.97 | 198.00 | 2960     |          |
| 6.97 | 200.00 | 596      |          |

Reviewer: hoeflera, 26-May-2018 13:21:45

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19673.D

Injection Date: 25-May-2018 20:46:30

Instrument ID: SMS\_Y

Lims ID: 320-39023-E-58-C

Lab Sample ID: 280-39023-58

Client ID: IDW-KINGSLEY-WA-LDOS01

Operator ID: HOEFLERA

ALS Bottle#: 12

Worklist Smp#: 13

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

Method: SMSY\_8270C

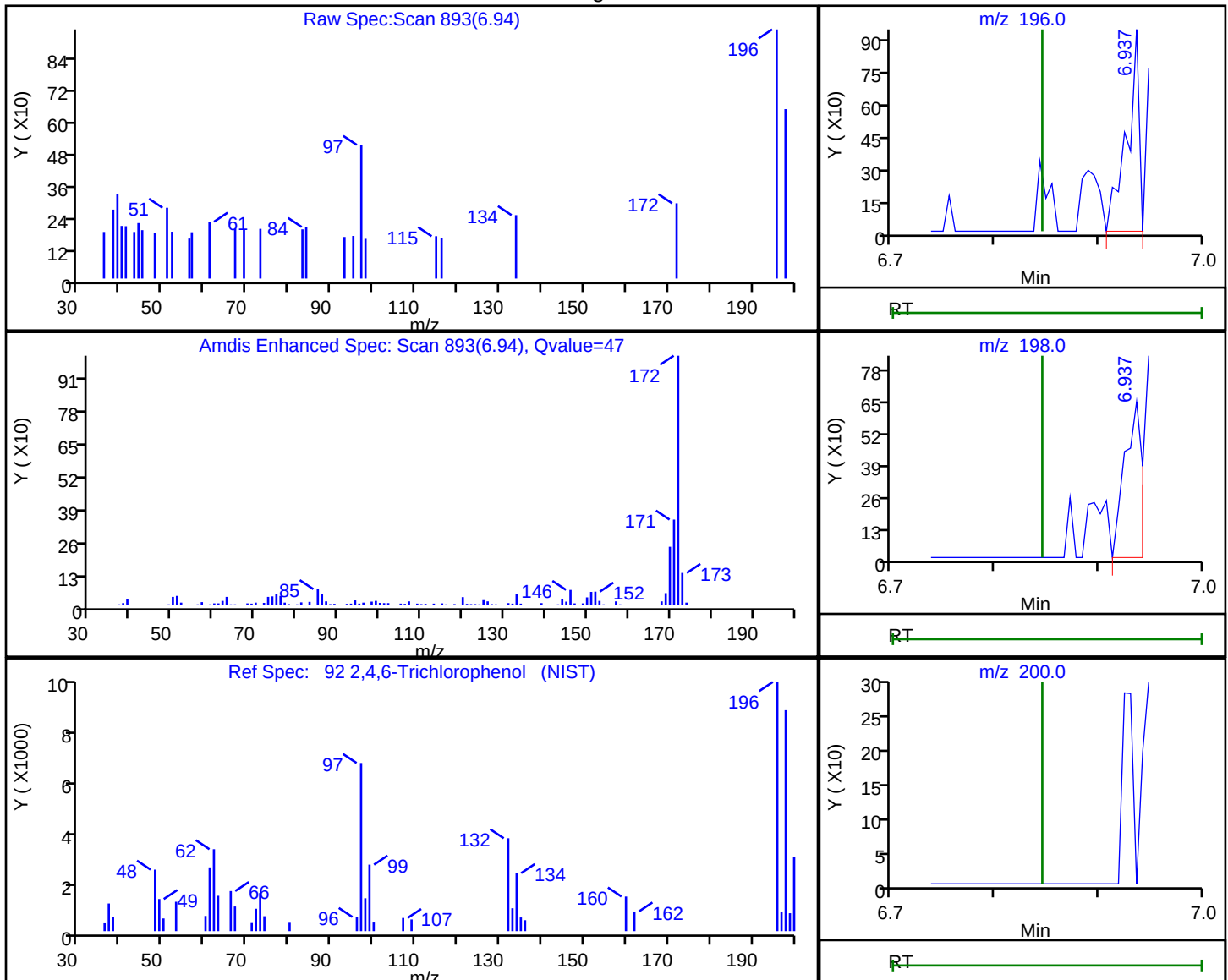
Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Detector: MS SCAN

## 92 2,4,6-Trichlorophenol, CAS: 88-06-2

## Processing Results



| RT   | Mass   | Response | Amount   |
|------|--------|----------|----------|
| 6.94 | 196.00 | 768      | 0.350704 |
| 6.94 | 198.00 | 746      |          |
| 6.85 | 200.00 | 0        |          |

Reviewer: hoeflera, 26-May-2018 13:21:44

Audit Action: Marked Compound Undetected

Audit Reason: Invalid Compound ID

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

Calibration Files:

|         |                      |              |
|---------|----------------------|--------------|
| LEVEL:  | LAB SAMPLE ID:       | LAB FILE ID: |
| Level 1 | STD004 280-412210/4  | Y19202.D     |
| Level 2 | STD010 280-412210/5  | Y19203.D     |
| Level 3 | STD020 280-412210/6  | Y19204.D     |
| Level 4 | STD050 280-412210/7  | Y19205.D     |
| Level 5 | ICIS 280-412210/3    | Y19201.D     |
| Level 6 | STD120 280-412210/8  | Y19206.D     |
| Level 7 | STD160 280-412210/9  | Y19207.D     |
| Level 8 | STD200 280-412210/10 | Y19208.D     |

| ANALYTE                      | RRF              |                  |                  |        |        | CURVE TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX %RSD | R^2 OR COD | # | MIN R^2 OR COD |
|------------------------------|------------------|------------------|------------------|--------|--------|------------|-------------|--------|----|---|---------|------|---|----------|------------|---|----------------|
|                              | LVL 1            | LVL 2            | LVL 3            | LVL 4  | LVL 5  |            | B           | M1     | M2 |   |         |      |   |          |            |   |                |
|                              | LVL 6            | LVL 7            | LVL 8            |        |        |            |             |        |    |   |         |      |   |          |            |   |                |
| 1,4-Dioxane                  | 0.7631<br>0.5777 | 0.6527<br>0.5602 | 0.6587<br>0.5470 | 0.6235 | 0.6131 | Ave        |             | 0.6245 |    |   |         | 11.1 |   | 15.0     |            |   |                |
| N-Nitrosodimethylamine       | 1.0154<br>1.0023 | 1.0684<br>1.0060 | 1.1073<br>0.9546 | 1.0807 | 1.0368 | Ave        |             | 1.0339 |    |   |         | 4.8  |   | 15.0     |            |   |                |
| Pyridine                     | 1.7579<br>1.5678 | 1.7952<br>1.5398 | 1.8832<br>1.4814 | 1.7661 | 1.7176 | Ave        |             | 1.6886 |    |   |         | 8.4  |   | 15.0     |            |   |                |
| Phenol                       | 2.1187<br>1.7758 | 2.0357<br>1.7090 | 2.2108<br>1.6500 | 2.0803 | 1.9432 | Ave        |             | 1.9405 |    |   |         | 10.6 |   | 15.0     |            |   |                |
| Aniline                      | 2.6254<br>2.3018 | 2.5388<br>2.2669 | 2.6897<br>2.2114 | 2.5617 | 2.4719 | Ave        |             | 2.4584 |    |   |         | 7.2  |   | 15.0     |            |   |                |
| Bis(2-chloroethyl)ether      | 1.5133<br>1.3475 | 1.5638<br>1.3060 | 1.6724<br>1.2232 | 1.5331 | 1.4510 | Ave        |             | 1.4513 |    |   |         | 10.3 |   | 15.0     |            |   |                |
| 2-Chlorophenol               | 1.6283<br>1.3654 | 1.5396<br>1.3317 | 1.6630<br>1.2828 | 1.5444 | 1.4791 | Ave        |             | 1.4793 |    |   |         | 9.5  |   | 15.0     |            |   |                |
| 1,3-Dichlorobenzene          | 1.8695<br>1.5081 | 1.6970<br>1.4385 | 1.8351<br>1.3940 | 1.7039 | 1.5929 | Ave        |             | 1.6299 |    |   |         | 10.8 |   | 15.0     |            |   |                |
| 1,4-Dichlorobenzene          | 1.7598<br>1.5027 | 1.7546<br>1.4333 | 1.8269<br>1.3889 | 1.6687 | 1.6129 | Ave        |             | 1.6185 |    |   |         | 10.0 |   | 15.0     |            |   |                |
| Benzyl alcohol               | 1.0337<br>0.9462 | 1.0505<br>0.9140 | 1.0733<br>0.8859 | 1.0440 | 1.0007 | Ave        |             | 0.9935 |    |   |         | 7.0  |   | 15.0     |            |   |                |
| 1,2-Dichlorobenzene          | 1.6479<br>1.4268 | 1.6395<br>1.4161 | 1.7283<br>1.3230 | 1.6449 | 1.5439 | Ave        |             | 1.5463 |    |   |         | 9.2  |   | 15.0     |            |   |                |
| 2-Methylphenol               | 1.4850<br>1.2478 | 1.3966<br>1.2388 | 1.5190<br>1.1730 | 1.4403 | 1.3647 | Ave        |             | 1.3582 |    |   |         | 9.3  |   | 15.0     |            |   |                |
| 2,2'-oxybis[1-chloropropane] | 2.4007<br>2.0225 | 2.3812<br>1.9313 | 2.4871<br>1.8647 | 2.3577 | 2.1906 | Ave        |             | 2.2045 |    |   |         | 10.8 |   | 15.0     |            |   |                |
| 3 & 4 Methylphenol           | 1.6032<br>1.3218 | 1.5465<br>1.2524 | 1.6250<br>1.2181 | 1.5374 | 1.4294 | Ave        |             | 1.4417 |    |   |         | 11.1 |   | 15.0     |            |   |                |

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



FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210  
SDG No.: \_\_\_\_\_  
Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N  
Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                    | RRF              |                  |                  |        |        | CURVE<br>TYPE | COEFFICIENT |        |           | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|----------------------------|------------------|------------------|------------------|--------|--------|---------------|-------------|--------|-----------|---|---------|------|---|-------------|---------------|---|-------------------|
|                            | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3<br>LVL 8   | LVL 4  | LVL 5  |               | B           | M1     | M2        |   |         |      |   |             |               |   |                   |
| N-Nitrosodi-n-propylamine  | 1.2484<br>1.0605 | 1.2934<br>1.0273 | 1.3578<br>0.9925 | 1.2813 | 1.1626 | Ave           |             | 1.1780 |           |   | 0.0500  | 11.7 |   | 15.0        |               |   |                   |
| Acetophenone               | 2.3358<br>1.7646 | 2.2173<br>1.6498 | 2.3104<br>1.5676 | 2.0875 | 1.9399 | Qua           | 3.2901      | 2.0942 | -0.002778 |   |         |      |   |             | 0.9990        |   | 0.9900            |
| Hexachloroethane           | 0.6652<br>0.5705 | 0.6317<br>0.5562 | 0.6831<br>0.5259 | 0.6444 | 0.6136 | Ave           |             | 0.6113 |           |   |         | 9.1  |   | 15.0        |               |   |                   |
| Nitrobenzene               | 0.4131<br>0.3759 | 0.4358<br>0.3585 | 0.4366<br>0.3468 | 0.4054 | 0.4082 | Ave           |             | 0.3976 |           |   |         | 8.5  |   | 15.0        |               |   |                   |
| Isophorone                 | 0.7817<br>0.6499 | 0.7679<br>0.6409 | 0.7914<br>0.6200 | 0.7272 | 0.7090 | Ave           |             | 0.7110 |           |   |         | 9.5  |   | 15.0        |               |   |                   |
| 2-Nitrophenol              | 0.2016<br>0.1894 | 0.2082<br>0.1872 | 0.2159<br>0.1808 | 0.2052 | 0.2035 | Ave           |             | 0.1990 |           |   |         | 6.0  |   | 15.0        |               |   |                   |
| 2,4-Dimethylphenol         | 0.3916<br>0.3196 | 0.3893<br>0.3065 | 0.3963<br>0.3003 | 0.3679 | 0.3541 | Ave           |             | 0.3532 |           |   |         | 11.2 |   | 15.0        |               |   |                   |
| Bis(2-chloroethoxy)methane | 0.4923<br>0.3967 | 0.4890<br>0.3854 | 0.5010<br>0.3684 | 0.4504 | 0.4292 | Ave           |             | 0.4391 |           |   |         | 11.9 |   | 15.0        |               |   |                   |
| Benzoic acid               | ++++<br>0.3008   | 0.2540<br>0.3017 | 0.2790<br>0.3013 | 0.3066 | 0.3181 | Lin2          | -1.131      | 0.3108 |           |   |         |      |   |             | 0.9990        |   | 0.9900            |
| 2,4-Dichlorophenol         | 0.3138<br>0.2803 | 0.3283<br>0.2615 | 0.3292<br>0.2585 | 0.3031 | 0.2990 | Ave           |             | 0.2967 |           |   |         | 9.3  |   | 15.0        |               |   |                   |
| 1,2,4-Trichlorobenzene     | 0.3294<br>0.2813 | 0.3264<br>0.2744 | 0.3481<br>0.2605 | 0.3043 | 0.3017 | Ave           |             | 0.3033 |           |   |         | 10.0 |   | 15.0        |               |   |                   |
| Naphthalene                | 1.1088<br>0.8826 | 1.1003<br>0.8534 | 1.1277<br>0.7965 | 1.0207 | 1.0004 | Ave           |             | 0.9863 |           |   |         | 12.9 |   | 15.0        |               |   |                   |
| 4-Chloroaniline            | 0.5290<br>0.4214 | 0.5451<br>0.3964 | 0.5402<br>0.3785 | 0.4754 | 0.4639 | Ave           |             | 0.4687 |           |   |         | 14.0 |   | 15.0        |               |   |                   |
| 2,6-Dichlorophenol         | 0.3063<br>0.2718 | 0.3288<br>0.2563 | 0.3242<br>0.2513 | 0.3075 | 0.2949 | Ave           |             | 0.2926 |           |   |         | 10.2 |   | 15.0        |               |   |                   |
| Hexachlorobutadiene        | 0.1624<br>0.1503 | 0.1680<br>0.1390 | 0.1772<br>0.1368 | 0.1616 | 0.1583 | Ave           |             | 0.1567 |           |   |         | 8.9  |   | 15.0        |               |   |                   |
| Caprolactam                | 0.1960<br>0.1937 | 0.1896<br>0.1876 | 0.2105<br>0.1849 | 0.1928 | 0.1956 | Ave           |             | 0.1938 |           |   |         | 4.0  |   | 15.0        |               |   |                   |
| 4-Chloro-3-methylphenol    | 0.3574<br>0.2969 | 0.3695<br>0.2780 | 0.3456<br>0.2702 | 0.3325 | 0.3231 | Ave           |             | 0.3217 |           |   |         | 11.4 |   | 15.0        |               |   |                   |
| 2-Methylnaphthalene        | 0.7990<br>0.6346 | 0.7941<br>0.5943 | 0.7953<br>0.5709 | 0.7269 | 0.6966 | Ave           |             | 0.7015 |           |   |         | 13.3 |   | 15.0        |               |   |                   |
| 1-Methylnaphthalene        | 0.7472<br>0.6178 | 0.7402<br>0.5602 | 0.7430<br>0.5487 | 0.6782 | 0.6524 | Ave           |             | 0.6610 |           |   |         | 12.2 |   | 15.0        |               |   |                   |
| Hexachlorocyclopentadiene  | 0.3139<br>0.2980 | 0.3316<br>0.2899 | 0.3372<br>0.2885 | 0.3226 | 0.3088 | Ave           |             | 0.3113 |           |   | 0.0500  | 5.9  |   | 15.0        |               |   |                   |

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

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210  
SDG No.: \_\_\_\_\_  
Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N  
Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                     | RRF              |                  |                  |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|-----------------------------|------------------|------------------|------------------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|                             | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3<br>LVL 8   | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| 1,2,4,5-Tetrachlorobenzene  | 0.3389<br>0.2689 | 0.3284<br>0.2504 | 0.3453<br>0.2424 | 0.2999 | 0.2865 | Ave           |             | 0.2951 |    |   |         | 13.5 |   | 15.0        |               |   |                   |
| 2,4,6-Trichlorophenol       | 0.3913<br>0.3301 | 0.3960<br>0.3132 | 0.4030<br>0.3043 | 0.3789 | 0.3521 | Ave           |             | 0.3586 |    |   |         | 10.9 |   | 15.0        |               |   |                   |
| 2,4,5-Trichlorophenol       | 0.4111<br>0.3898 | 0.4367<br>0.3753 | 0.4610<br>0.3687 | 0.4110 | 0.4042 | Ave           |             | 0.4072 |    |   |         | 7.5  |   | 15.0        |               |   |                   |
| 1,1'-Biphenyl               | 1.5607<br>1.2783 | 1.5440<br>1.2174 | 1.5928<br>1.1600 | 1.4362 | 1.3641 | Ave           |             | 1.3942 |    |   |         | 11.9 |   | 15.0        |               |   |                   |
| 2-Chloronaphthalene         | 1.2606<br>1.0436 | 1.2365<br>1.0069 | 1.2854<br>0.9691 | 1.1616 | 1.1028 | Ave           |             | 1.1333 |    |   |         | 10.7 |   | 15.0        |               |   |                   |
| 2-Nitroaniline              | 0.4092<br>0.3814 | 0.4270<br>0.3768 | 0.4480<br>0.3658 | 0.4088 | 0.4042 | Ave           |             | 0.4026 |    |   |         | 6.8  |   | 15.0        |               |   |                   |
| Dimethyl phthalate          | 1.4693<br>1.1907 | 1.4127<br>1.1841 | 1.4597<br>1.1589 | 1.3323 | 1.2653 | Ave           |             | 1.3091 |    |   |         | 9.7  |   | 15.0        |               |   |                   |
| 1,3-Dinitrobenzene          | 0.1995<br>0.2218 | 0.2153<br>0.2264 | 0.2298<br>0.2208 | 0.2371 | 0.2281 | Ave           |             | 0.2223 |    |   |         | 5.1  |   | 15.0        |               |   |                   |
| 2,6-Dinitrotoluene          | 0.3277<br>0.2952 | 0.3359<br>0.2964 | 0.3425<br>0.2833 | 0.3266 | 0.3137 | Ave           |             | 0.3152 |    |   |         | 6.8  |   | 15.0        |               |   |                   |
| Acenaphthylene              | 1.8577<br>1.5693 | 1.8856<br>1.5253 | 1.9325<br>1.4491 | 1.7597 | 1.6730 | Ave           |             | 1.7065 |    |   |         | 10.6 |   | 15.0        |               |   |                   |
| 3-Nitroaniline              | 0.3936<br>0.3719 | 0.4157<br>0.3724 | 0.4373<br>0.3632 | 0.3990 | 0.3886 | Ave           |             | 0.3927 |    |   |         | 6.3  |   | 15.0        |               |   |                   |
| Acenaphthene                | 1.2285<br>0.9588 | 1.2546<br>0.9384 | 1.2309<br>0.8799 | 1.1024 | 1.0585 | Ave           |             | 1.0815 |    |   |         | 13.6 |   | 15.0        |               |   |                   |
| 2,4-Dinitrophenol           | ++++<br>0.2109   | 0.1902<br>0.2140 | 0.2173<br>0.2137 | 0.2166 | 0.2136 | Lin2          | -0.425      | 0.2170 |    |   | 0.0500  |      |   |             | 0.9990        |   | 0.9900            |
| 4-Nitrophenol               | 0.1964<br>0.1937 | 0.2105<br>0.1894 | 0.2156<br>0.1877 | 0.2057 | 0.2029 | Ave           |             | 0.2003 |    |   | 0.0500  | 5.0  |   | 15.0        |               |   |                   |
| 2,4-Dinitrotoluene          | 0.4165<br>0.4097 | 0.4450<br>0.4012 | 0.4685<br>0.3975 | 0.4400 | 0.4311 | Ave           |             | 0.4262 |    |   |         | 5.7  |   | 15.0        |               |   |                   |
| Dibenzofuran                | 1.7569<br>1.3900 | 1.7225<br>1.3827 | 1.7636<br>1.3212 | 1.5621 | 1.4977 | Ave           |             | 1.5496 |    |   |         | 11.6 |   | 15.0        |               |   |                   |
| 2,3,4,6-Tetrachlorophenol   | 0.2937<br>0.2927 | 0.3252<br>0.2811 | 0.3352<br>0.2749 | 0.3220 | 0.3073 | Ave           |             | 0.3040 |    |   |         | 7.2  |   | 15.0        |               |   |                   |
| Diethyl phthalate           | 1.4861<br>1.1851 | 1.4886<br>1.1164 | 1.4842<br>1.0735 | 1.3461 | 1.2588 | Ave           |             | 1.3049 |    |   |         | 13.1 |   | 15.0        |               |   |                   |
| 4-Chlorophenyl phenyl ether | 0.6872<br>0.5544 | 0.6515<br>0.5382 | 0.7077<br>0.5195 | 0.6181 | 0.5918 | Ave           |             | 0.6086 |    |   |         | 11.5 |   | 15.0        |               |   |                   |
| Fluorene                    | 1.4501<br>1.1449 | 1.4561<br>1.1012 | 1.4742<br>1.0719 | 1.2777 | 1.1936 | Ave           |             | 1.2712 |    |   |         | 13.2 |   | 15.0        |               |   |                   |

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

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210  
SDG No.: \_\_\_\_\_  
Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N  
Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                    | RRF              |                  |                  |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|----------------------------|------------------|------------------|------------------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|                            | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3<br>LVL 8   | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| 4-Nitroaniline             | 0.4427<br>0.3814 | 0.4416<br>0.3866 | 0.4614<br>0.3874 | 0.4072 | 0.3879 | Lin2          | 0.2424      | 0.3983 |    |   |         |      |   |             | 0.9950        |   | 0.9900            |
| 4,6-Dinitro-2-methylphenol | ++++<br>0.1393   | 0.1385<br>0.1338 | 0.1485<br>0.1317 | 0.1486 | 0.1436 | Lin2          | 0.0801      | 0.1394 |    |   |         |      |   |             | 0.9970        |   | 0.9900            |
| Diphenylamine              | 1.4387<br>1.1470 | 1.3790<br>1.1013 | 1.4208<br>1.0725 | 1.2659 | 1.2229 | Ave           |             | 1.2560 |    |   |         | 11.5 |   | 15.0        |               |   |                   |
| N-Nitrosodiphenylamine     | 0.6948<br>0.5479 | 0.6588<br>0.5141 | 0.6757<br>0.5014 | 0.5978 | 0.5908 | Ave           |             | 0.5976 |    |   |         | 12.3 |   | 15.0        |               |   |                   |
| 1,2-Diphenylhydrazine      | 1.6460<br>1.3194 | 1.5872<br>1.2952 | 1.6337<br>1.2414 | 1.4747 | 1.4127 | Ave           |             | 1.4513 |    |   |         | 11.0 |   | 15.0        |               |   |                   |
| Azobenzene                 | 1.6641<br>1.3339 | 1.6046<br>1.3094 | 1.6516<br>1.2550 | 1.4908 | 1.4282 | Ave           |             | 1.4672 |    |   |         | 11.0 |   | 15.0        |               |   |                   |
| 4-Bromophenyl phenyl ether | 0.2133<br>0.1730 | 0.2066<br>0.1633 | 0.2091<br>0.1577 | 0.1864 | 0.1819 | Ave           |             | 0.1864 |    |   |         | 11.5 |   | 15.0        |               |   |                   |
| Hexachlorobenzene          | 0.1860<br>0.1569 | 0.1771<br>0.1509 | 0.1898<br>0.1449 | 0.1761 | 0.1714 | Ave           |             | 0.1691 |    |   |         | 9.7  |   | 15.0        |               |   |                   |
| Atrazine                   | 0.2287<br>0.1826 | 0.2172<br>0.1752 | 0.2243<br>0.1635 | 0.1990 | 0.1977 | Ave           |             | 0.1985 |    |   |         | 12.0 |   | 15.0        |               |   |                   |
| Pentachlorophenol          | ++++<br>0.1102   | 0.1176<br>0.1068 | 0.1324<br>0.1015 | 0.1230 | 0.1151 | Lin2          | 0.2954      | 0.1110 |    |   |         |      |   |             | 0.9900        |   | 0.9900            |
| Phenanthrene               | 1.2816<br>0.9915 | 1.2429<br>0.9407 | 1.2796<br>0.9161 | 1.1195 | 1.0697 | Ave           |             | 1.1052 |    |   |         | 13.6 |   | 15.0        |               |   |                   |
| Anthracene                 | 1.3287<br>1.0473 | 1.2872<br>0.9971 | 1.3022<br>0.9446 | 1.1830 | 1.1444 | Ave           |             | 1.1543 |    |   |         | 12.7 |   | 15.0        |               |   |                   |
| Carbazole                  | 1.2739<br>1.0122 | 1.1866<br>0.9400 | 1.2310<br>0.9076 | 1.0963 | 1.0692 | Ave           |             | 1.0896 |    |   |         | 12.3 |   | 15.0        |               |   |                   |
| Alachlor                   | 0.1765<br>0.1415 | 0.1724<br>0.1396 | 0.1811<br>0.1329 | 0.1660 | 0.1586 | Ave           |             | 0.1586 |    |   |         | 11.6 |   | 15.0        |               |   |                   |
| Di-n-butyl phthalate       | 1.5453<br>1.1944 | 1.4545<br>1.1345 | 1.5025<br>1.0841 | 1.3460 | 1.3128 | Ave           |             | 1.3218 |    |   |         | 13.1 |   | 15.0        |               |   |                   |
| Fluoranthene               | 1.4698<br>1.1967 | 1.4154<br>1.1282 | 1.4599<br>1.0980 | 1.2898 | 1.2713 | Ave           |             | 1.2912 |    |   |         | 11.3 |   | 15.0        |               |   |                   |
| Pyrene                     | 1.4014<br>1.2492 | 1.4090<br>1.1927 | 1.4684<br>1.2007 | 1.3489 | 1.3144 | Ave           |             | 1.3231 |    |   |         | 7.7  |   | 15.0        |               |   |                   |
| Famphur                    | 0.5120<br>0.4164 | 0.5026<br>0.3875 | 0.5285<br>0.3565 | 0.4818 | 0.4681 | Ave           |             | 0.4567 |    |   |         | 13.7 |   | 15.0        |               |   |                   |
| Butyl benzyl phthalate     | 0.6761<br>0.6245 | 0.6569<br>0.6108 | 0.7091<br>0.5959 | 0.6696 | 0.6583 | Ave           |             | 0.6501 |    |   |         | 5.8  |   | 15.0        |               |   |                   |
| 3,3'-Dichlorobenzidine     | 0.4279<br>0.3922 | 0.4155<br>0.3795 | 0.4577<br>0.3720 | 0.4317 | 0.4265 | Ave           |             | 0.4129 |    |   |         | 7.1  |   | 15.0        |               |   |                   |

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

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210  
SDG No.: \_\_\_\_\_  
Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25 (mm) Heated Purge: (Y/N) N  
Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                     | RRF              |                  |                  |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|-----------------------------|------------------|------------------|------------------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|                             | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3<br>LVL 8   | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| Benzo[a]anthracene          | 1.3726<br>1.1888 | 1.2795<br>1.1626 | 1.3489<br>1.1566 | 1.2709 | 1.2597 | Ave           |             | 1.2549 |    |   |         | 6.5  |   | 15.0        |               |   |                   |
| Chrysene                    | 1.2659<br>1.1501 | 1.2969<br>1.1138 | 1.3332<br>1.1036 | 1.2329 | 1.2091 | Ave           |             | 1.2132 |    |   |         | 7.0  |   | 15.0        |               |   |                   |
| Bis(2-ethylhexyl) phthalate | 0.9341<br>0.8560 | 0.8874<br>0.8336 | 0.9510<br>0.8275 | 0.9199 | 0.8909 | Ave           |             | 0.8875 |    |   |         | 5.2  |   | 15.0        |               |   |                   |
| Di-n-octyl phthalate        | 1.6641<br>1.5214 | 1.6360<br>1.5020 | 1.6605<br>1.4894 | 1.6285 | 1.6010 | Ave           |             | 1.5879 |    |   |         | 4.6  |   | 15.0        |               |   |                   |
| Benzo[b]fluoranthene        | 1.3520<br>1.2071 | 1.3095<br>1.2285 | 1.4003<br>1.2425 | 1.3178 | 1.2736 | Ave           |             | 1.2914 |    |   |         | 5.1  |   | 15.0        |               |   |                   |
| Benzo[k]fluoranthene        | 1.4163<br>1.2402 | 1.3829<br>1.2052 | 1.3853<br>1.1509 | 1.3304 | 1.3004 | Ave           |             | 1.3015 |    |   |         | 7.3  |   | 15.0        |               |   |                   |
| Benzo[a]pyrene              | 1.3185<br>1.2064 | 1.3534<br>1.2193 | 1.3759<br>1.1833 | 1.3389 | 1.2776 | Ave           |             | 1.2842 |    |   |         | 5.7  |   | 15.0        |               |   |                   |
| Indeno[1,2,3-cd]pyrene      | 1.1596<br>0.9990 | 1.1080<br>0.9859 | 1.1234<br>1.0184 | 1.0679 | 1.0579 | Ave           |             | 1.0650 |    |   |         | 5.8  |   | 15.0        |               |   |                   |
| Dibenz(a,h)anthracene       | 1.1283<br>1.0511 | 1.1644<br>1.0244 | 1.1697<br>1.0089 | 1.1190 | 1.0856 | Ave           |             | 1.0939 |    |   |         | 5.6  |   | 15.0        |               |   |                   |
| Benzo[g,h,i]perylene        | 1.2516<br>1.0959 | 1.2748<br>1.0987 | 1.2522<br>1.0888 | 1.1890 | 1.1614 | Ave           |             | 1.1766 |    |   |         | 6.6  |   | 15.0        |               |   |                   |
| 2-Fluorophenol (Surr)       | 1.5632<br>1.3914 | 1.5549<br>1.3476 | 1.6162<br>1.2849 | 1.5384 | 1.4720 | Ave           |             | 1.4711 |    |   |         | 8.0  |   | 15.0        |               |   |                   |
| Phenol-d5 (Surr)            | 1.9329<br>1.7244 | 1.9138<br>1.6815 | 2.0401<br>1.6137 | 1.9206 | 1.8297 | Ave           |             | 1.8321 |    |   |         | 8.0  |   | 15.0        |               |   |                   |
| Nitrobenzene-d5 (Surr)      | 0.4331<br>0.3755 | 0.4435<br>0.3585 | 0.4420<br>0.3504 | 0.4142 | 0.4042 | Ave           |             | 0.4027 |    |   |         | 9.2  |   | 15.0        |               |   |                   |
| 2-Fluorobiphenyl            | 1.4014<br>1.1868 | 1.4578<br>1.1485 | 1.4504<br>1.0945 | 1.3209 | 1.2646 | Ave           |             | 1.2906 |    |   |         | 10.8 |   | 15.0        |               |   |                   |
| 2,4,6-Tribromophenol (Surr) | 0.1534<br>0.1409 | 0.1595<br>0.1384 | 0.1744<br>0.1325 | 0.1572 | 0.1452 | Ave           |             | 0.1502 |    |   |         | 9.1  |   | 15.0        |               |   |                   |
| Terphenyl-d14 (Surr)        | 0.9342<br>0.8145 | 0.9310<br>0.7943 | 0.9728<br>0.7783 | 0.8857 | 0.8607 | Ave           |             | 0.8714 |    |   |         | 8.2  |   | 15.0        |               |   |                   |

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

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

Calibration Files:

|         |                      |              |
|---------|----------------------|--------------|
| LEVEL:  | LAB SAMPLE ID:       | LAB FILE ID: |
| Level 1 | STD004 280-412210/4  | Y19202.D     |
| Level 2 | STD010 280-412210/5  | Y19203.D     |
| Level 3 | STD020 280-412210/6  | Y19204.D     |
| Level 4 | STD050 280-412210/7  | Y19205.D     |
| Level 5 | ICIS 280-412210/3    | Y19201.D     |
| Level 6 | STD120 280-412210/8  | Y19206.D     |
| Level 7 | STD160 280-412210/9  | Y19207.D     |
| Level 8 | STD200 280-412210/10 | Y19208.D     |

| ANALYTE                      | IS<br>REF | CURVE<br>TYPE | RESPONSE         |                  |                   |        |        | CONCENTRATION (UG/ML) |                |                |       |       |
|------------------------------|-----------|---------------|------------------|------------------|-------------------|--------|--------|-----------------------|----------------|----------------|-------|-------|
|                              |           |               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3<br>LVL 8    | LVL 4  | LVL 5  | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3<br>LVL 8 | LVL 4 | LVL 5 |
| 1,4-Dioxane                  | DCBd<br>4 | Ave           | 8533<br>199337   | 17746<br>254379  | 34532<br>307872   | 83374  | 138749 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| N-Nitrosodimethylamine       | DCBd<br>4 | Ave           | 11355<br>345873  | 29048<br>456762  | 58053<br>537315   | 144503 | 234612 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Pyridine                     | DCBd<br>4 | Ave           | 39314<br>1082050 | 97619<br>1398351 | 197462<br>1667737 | 472304 | 777352 | 8.00<br>240           | 20.0<br>320    | 40.0<br>400    | 100   | 160   |
| Phenol                       | DCBd<br>4 | Ave           | 23692<br>612780  | 55348<br>775978  | 115910<br>928781  | 278169 | 439738 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Aniline                      | DCBd<br>4 | Ave           | 29358<br>794277  | 69028<br>1029312 | 141013<br>1244741 | 342531 | 559359 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Bis(2-chloroethyl)ether      | DCBd<br>4 | Ave           | 16922<br>465000  | 42519<br>593014  | 87678<br>688518   | 204993 | 328343 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Chlorophenol               | DCBd<br>4 | Ave           | 18208<br>471152  | 41860<br>604662  | 87186<br>722069   | 206501 | 334698 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,3-Dichlorobenzene          | DCBd<br>4 | Ave           | 20905<br>520392  | 46139<br>653178  | 96211<br>784636   | 227840 | 360464 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,4-Dichlorobenzene          | DCBd<br>4 | Ave           | 19679<br>518551  | 47706<br>650810  | 95780<br>781812   | 223123 | 364981 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Benzyl alcohol               | DCBd<br>4 | Ave           | 11559<br>326503  | 28563<br>414995  | 56269<br>498669   | 139596 | 226440 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,2-Dichlorobenzene          | DCBd<br>4 | Ave           | 18427<br>492368  | 44577<br>643006  | 90610<br>744715   | 219950 | 349361 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Methylphenol               | DCBd<br>4 | Ave           | 16606<br>430586  | 37972<br>562463  | 79637<br>660268   | 192592 | 308823 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,2'-oxybis[1-chloropropane] | DCBd<br>4 | Ave           | 26845<br>697913  | 64742<br>876909  | 130395<br>1049631 | 315263 | 495719 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 3 & 4 Methylphenol           | DCBd<br>4 | Ave           | 17928<br>456111  | 42047<br>568673  | 85196<br>685664   | 205577 | 323461 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| N-Nitrosodi-n-propylamine    | DCBd<br>4 | Ave           | 13960<br>365965  | 35167<br>466467  | 71186<br>558680   | 171323 | 263075 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                    | IS<br>REF | CURVE<br>TYPE | RESPONSE         |                   |                   |        |        | CONCENTRATION (UG/ML) |                |                |       |       |
|----------------------------|-----------|---------------|------------------|-------------------|-------------------|--------|--------|-----------------------|----------------|----------------|-------|-------|
|                            |           |               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7    | LVL 3<br>LVL 8    | LVL 4  | LVL 5  | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3<br>LVL 8 | LVL 4 | LVL 5 |
| Acetophenone               | DCBd<br>4 | Qua           | 26120<br>608917  | 60285<br>749083   | 121132<br>882402  | 279125 | 438970 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Hexachloroethane           | DCBd<br>4 | Ave           | 7438<br>196877   | 17175<br>252565   | 35815<br>295997   | 86169  | 138845 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Nitrobenzene               | NPT       | Ave           | 19198<br>545698  | 47935<br>698415   | 95892<br>836886   | 234378 | 383557 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Isophorone                 | NPT       | Ave           | 36324<br>943440  | 84458<br>1248556  | 173812<br>1495968 | 420375 | 666206 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Nitrophenol              | NPT       | Ave           | 9367<br>274897   | 22896<br>364692   | 47408<br>436148   | 118643 | 191216 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,4-Dimethylphenol         | NPT       | Ave           | 18198<br>463994  | 42816<br>597104   | 87032<br>724566   | 212695 | 332701 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Bis(2-chloroethoxy)methane | NPT       | Ave           | 22879<br>575863  | 53790<br>750763   | 110029<br>888912  | 260376 | 403295 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Benzoic acid               | NPT       | Lin2          | ++++<br>873420   | 55866<br>1175692  | 122544<br>1453878 | 354513 | 597694 | ++++<br>240           | 20.0<br>320    | 40.0<br>400    | 100   | 160   |
| 2,4-Dichlorophenol         | NPT       | Ave           | 14584<br>406879  | 36113<br>509470   | 72294<br>623749   | 175198 | 280939 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,2,4-Trichlorobenzene     | NPT       | Ave           | 15306<br>408384  | 35902<br>534511   | 76461<br>628535   | 175913 | 283483 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Naphthalene                | NPT       | Ave           | 51527<br>1281317 | 121023<br>1662732 | 247676<br>1921888 | 590054 | 939988 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 4-Chloroaniline            | NPT       | Ave           | 24582<br>611784  | 59960<br>772222   | 118650<br>913178  | 274836 | 435859 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,6-Dichlorophenol         | NPT       | Ave           | 14233<br>394576  | 36169<br>499410   | 71212<br>606258   | 177768 | 277040 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Hexachlorobutadiene        | NPT       | Ave           | 7547<br>218175   | 18482<br>270891   | 38926<br>330057   | 93390  | 148720 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Caprolactam                | NPT       | Ave           | 9109<br>281143   | 20849<br>365427   | 46237<br>446167   | 111450 | 183817 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 4-Chloro-3-methylphenol    | NPT       | Ave           | 16610<br>430991  | 40638<br>541598   | 75906<br>651922   | 192233 | 303611 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Methylnaphthalene        | NPT       | Ave           | 37131<br>921174  | 87345<br>1157858  | 174669<br>1377564 | 420190 | 654499 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1-Methylnaphthalene        | NPT       | Ave           | 34724<br>896914  | 81421<br>1091324  | 163192<br>1323816 | 392068 | 613002 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Hexachlorocyclopentadiene  | ANT       | Ave           | 8627<br>253630   | 21739<br>325380   | 44163<br>400118   | 111454 | 173418 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,2,4,5-Tetrachlorobenzene | NPT       | Ave           | 15748<br>390293  | 36126<br>487923   | 75831<br>584933   | 173347 | 269167 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,4,6-Trichlorophenol      | ANT       | Ave           | 10756<br>280970  | 25963<br>351434   | 52790<br>422101   | 130917 | 197709 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                     | IS<br>REF | CURVE<br>TYPE | RESPONSE         |                   |                   |        |        | CONCENTRATION (UG/ML) |                |                |       |       |
|-----------------------------|-----------|---------------|------------------|-------------------|-------------------|--------|--------|-----------------------|----------------|----------------|-------|-------|
|                             |           |               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7    | LVL 3<br>LVL 8    | LVL 4  | LVL 5  | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3<br>LVL 8 | LVL 4 | LVL 5 |
| 2,4,5-Trichlorophenol       | ANT       | Ave           | 11301<br>331812  | 28628<br>421131   | 60380<br>511421   | 141991 | 226982 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,1'-Biphenyl               | ANT       | Ave           | 42898<br>1088118 | 101220<br>1366171 | 208628<br>1608828 | 496225 | 765996 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Chloronaphthalene         | ANT       | Ave           | 34651<br>888336  | 81063<br>1129943  | 168367<br>1344123 | 401352 | 619238 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Nitroaniline              | ANT       | Ave           | 11247<br>324691  | 27990<br>422845   | 58675<br>507275   | 141253 | 226949 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Dimethyl phthalate          | ANT       | Ave           | 40387<br>1013528 | 92610<br>1328796  | 191202<br>1607333 | 460316 | 710501 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,3-Dinitrobenzene          | ANT       | Ave           | 5483<br>188806   | 14112<br>254051   | 30099<br>306228   | 81916  | 128077 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,6-Dinitrotoluene          | ANT       | Ave           | 9007<br>251245   | 22020<br>332616   | 44860<br>392935   | 112855 | 176145 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Acenaphthylene              | ANT       | Ave           | 51063<br>1335791 | 123612<br>1711692 | 253125<br>2009812 | 607973 | 939465 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 3-Nitroaniline              | ANT       | Ave           | 10818<br>316567  | 27249<br>417889   | 57274<br>503793   | 137870 | 218235 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Acenaphthene                | ANT       | Ave           | 33769<br>816144  | 82248<br>1053079  | 161231<br>1220355 | 380880 | 594412 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,4-Dinitrophenol           | ANT       | Lin2          | ++++<br>359042   | 24942<br>480286   | 56931<br>592716   | 149649 | 239859 | ++++<br>240           | 20.0<br>320    | 40.0<br>400    | 100   | 160   |
| 4-Nitrophenol               | ANT       | Ave           | 10797<br>329815  | 27605<br>425142   | 56472<br>520782   | 142166 | 227896 | 8.00<br>240           | 20.0<br>320    | 40.0<br>400    | 100   | 160   |
| 2,4-Dinitrotoluene          | ANT       | Ave           | 11449<br>348707  | 29175<br>450202   | 61365<br>551255   | 152020 | 242095 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Dibenzofuran                | ANT       | Ave           | 48293<br>1183170 | 112920<br>1551680 | 231005<br>1832458 | 539732 | 840995 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,3,4,6-Tetrachlorophenol   | ANT       | Ave           | 8073<br>249156   | 21320<br>315502   | 43912<br>381317   | 111244 | 172573 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Diethyl phthalate           | ANT       | Ave           | 40847<br>1008787 | 97589<br>1252837  | 194411<br>1488859 | 465096 | 706856 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 4-Chlorophenyl phenyl ether | ANT       | Ave           | 18890<br>471944  | 42712<br>604002   | 92701<br>720520   | 213574 | 332297 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Fluorene                    | ANT       | Ave           | 39860<br>974547  | 95459<br>1235837  | 193102<br>1486568 | 441449 | 670242 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 4-Nitroaniline              | ANT       | Lin2          | 12168<br>324694  | 28952<br>433890   | 60431<br>537223   | 140687 | 217817 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 4,6-Dinitro-2-methylphenol  | PHN       | Lin2          | ++++<br>421934   | 32322<br>546781   | 69529<br>664197   | 184822 | 283733 | ++++<br>240           | 20.0<br>320    | 40.0<br>400    | 100   | 160   |
| Diphenylamine               | ANT       | Ave           | 33614<br>829901  | 76844<br>1050515  | 158194<br>1264299 | 371769 | 583697 | 3.40<br>102           | 8.50<br>136    | 17.0<br>170    | 42.5  | 68.0  |

FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                     | IS<br>REF | CURVE<br>TYPE | RESPONSE         |                   |                   |         |         | CONCENTRATION (UG/ML) |                |                |       |       |
|-----------------------------|-----------|---------------|------------------|-------------------|-------------------|---------|---------|-----------------------|----------------|----------------|-------|-------|
|                             |           |               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7    | LVL 3<br>LVL 8    | LVL 4   | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3<br>LVL 8 | LVL 4 | LVL 5 |
| N-Nitrosodiphenylamine      | PHN       | Ave           | 33614<br>829901  | 76844<br>1050515  | 158194<br>1264299 | 371769  | 583697  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 1,2-Diphenylhydrazine       | ANT       | Ave           | 45740<br>1135421 | 105194<br>1469472 | 216333<br>1740553 | 515093  | 802008  | 4.04<br>121           | 10.1<br>162    | 20.2<br>202    | 50.5  | 80.9  |
| Azobenzene                  | ANT       | Ave           | 45740<br>1135421 | 105194<br>1469472 | 216333<br>1740553 | 515093  | 802008  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 4-Bromophenyl phenyl ether  | PHN       | Ave           | 10317<br>261970  | 24102<br>333672   | 48949<br>397557   | 115939  | 179748  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Hexachlorobenzene           | PHN       | Ave           | 9000<br>237678   | 20656<br>308385   | 44439<br>365478   | 109497  | 169384  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Atrazine                    | PHN       | Ave           | 11065<br>276597  | 25340<br>358067   | 52513<br>412260   | 123786  | 195305  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Pentachlorophenol           | PHN       | Lin2          | +++++<br>333780  | 27438<br>436609   | 61993<br>511790   | 152991  | 227521  | +++++<br>240          | 20.0<br>320    | 40.0<br>400    | 100   | 160   |
| Phenanthrene                | PHN       | Ave           | 62000<br>1501830 | 144987<br>1922351 | 299577<br>2310136 | 696253  | 1056936 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Anthracene                  | PHN       | Ave           | 64279<br>1586285 | 150155<br>2037672 | 304861<br>2381793 | 735718  | 1130721 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Carbazole                   | PHN       | Ave           | 61627<br>1533165 | 138423<br>1920926 | 288203<br>2288558 | 681800  | 1056382 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Alachlor                    | PHN       | Ave           | 8538<br>214269   | 20106<br>285269   | 42405<br>335186   | 103269  | 156752  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Di-n-butyl phthalate        | PHN       | Ave           | 74759<br>1809119 | 169667<br>2318369 | 351766<br>2733618 | 837133  | 1297141 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Fluoranthene                | PHN       | Ave           | 71108<br>1812538 | 165109<br>2305622 | 341781<br>2768803 | 802156  | 1256120 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Pyrene                      | CRY       | Ave           | 71498<br>1881044 | 172530<br>2376271 | 349298<br>2910358 | 835208  | 1301286 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Famphur                     | CRY       | Ave           | 26123<br>627071  | 61545<br>771967   | 125711<br>864162  | 298331  | 463454  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Butyl benzyl phthalate      | CRY       | Ave           | 34496<br>940357  | 80436<br>1216839  | 168678<br>1444319 | 414601  | 651682  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 3,3'-Dichlorobenzidine      | CRY       | Ave           | 21833<br>590503  | 50883<br>756007   | 108889<br>901802  | 267287  | 422275  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Benzo[a]anthracene          | CRY       | Ave           | 70027<br>1790096 | 156676<br>2316211 | 320882<br>2803518 | 786913  | 1247102 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Chrysene                    | CRY       | Ave           | 64584<br>1731842 | 158805<br>2219096 | 317136<br>2674984 | 763403  | 1197072 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Bis(2-ethylhexyl) phthalate | CRY       | Ave           | 47655<br>1288990 | 108665<br>1660754 | 226218<br>2005760 | 569570  | 882014  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Di-n-octyl phthalate        | CRY       | Ave           | 84899<br>2290911 | 200338<br>2992451 | 395004<br>3610177 | 1008354 | 1585026 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |



FORM VI  
GC/MS SEMI VOA BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Denver Job No.: 320-39023-1 Analy Batch No.: 412210

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y GC Column: Rxi-5Sil MS ID: 0.25(mm) Heated Purge: (Y/N) N

Calibration Start Date: 04/21/2018 12:10 Calibration End Date: 04/21/2018 15:30 Calibration ID: 32170

| ANALYTE                     | IS<br>REF | CURVE<br>TYPE | RESPONSE         |                   |                   |        |         | CONCENTRATION (UG/ML) |                |                |       |       |
|-----------------------------|-----------|---------------|------------------|-------------------|-------------------|--------|---------|-----------------------|----------------|----------------|-------|-------|
|                             |           |               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7    | LVL 3<br>LVL 8    | LVL 4  | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3<br>LVL 8 | LVL 4 | LVL 5 |
| Benzo[b]fluoranthene        | PRY       | Ave           | 65561<br>1750125 | 152364<br>2318222 | 316696<br>2891855 | 765766 | 1215867 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Benzo[k]fluoranthene        | PRY       | Ave           | 68676<br>1798183 | 160903<br>2274255 | 313288<br>2678663 | 773099 | 1241477 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Benzo[a]pyrene              | PRY       | Ave           | 63937<br>1749140 | 157473<br>2300777 | 311165<br>2753957 | 777991 | 1219706 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Indeno[1,2,3-cd]pyrene      | CRY       | Ave           | 59160<br>1504297 | 135682<br>1964191 | 267227<br>2468589 | 661252 | 1047336 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Dibenz(a,h)anthracene       | PRY       | Ave           | 54713<br>1523924 | 135483<br>1933092 | 264532<br>2347983 | 650219 | 1036374 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Benzo[g,h,i]perylene        | PRY       | Ave           | 60691<br>1588897 | 148325<br>2073184 | 283188<br>2534070 | 690942 | 1108798 | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Fluorophenol (Surr)       | DCBd<br>4 | Ave           | 17480<br>480148  | 42277<br>611897   | 84736<br>723232   | 205702 | 333089  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Phenol-d5 (Surr)            | DCBd<br>4 | Ave           | 21614<br>595061  | 52034<br>763475   | 106957<br>908346  | 256813 | 414049  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Nitrobenzene-d5 (Surr)      | NPT       | Ave           | 20128<br>545100  | 48777<br>698354   | 97075<br>845554   | 239445 | 379778  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2-Fluorobiphenyl            | ANT       | Ave           | 38519<br>1010216 | 95573<br>1288903  | 189985<br>1518027 | 456383 | 710121  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| 2,4,6-Tribromophenol (Surr) | ANT       | Ave           | 4216<br>119898   | 10458<br>155329   | 22841<br>183801   | 54304  | 81552   | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |
| Terphenyl-d14 (Surr)        | CRY       | Ave           | 47662<br>1226408 | 114003<br>1582431 | 231422<br>1886480 | 548426 | 852093  | 4.00<br>120           | 10.0<br>160    | 20.0<br>200    | 50.0  | 80.0  |

Curve Type Legend:

Ave = Average ISTD  
Lin2 = Linear 1/conc^2 ISTD  
Qua = Quadratic ISTD

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19201.D  
 Lims ID: ICIS HSL  
 Client ID:  
 Sample Type: ICIS Calib Level: 5  
 Inject. Date: 21-Apr-2018 12:10:30 ALS Bottle#: 2 Worklist Smp#: 3  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: ICIS HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:30 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 21-Apr-2018 12:51:39

| Compound                      | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.678        | 4.678            | 0.000            | 98  | 113145   | 40.0             | 40.0               |       |
| * 2 Naphthalene-d8            | 136 | 5.894        | 5.894            | 0.000            | 100 | 469796   | 40.0             | 40.0               |       |
| * 3 Acenaphthene-d10          | 164 | 7.645        | 7.645            | 0.000            | 91  | 280768   | 40.0             | 40.0               |       |
| * 4 Phenanthrene-d10          | 188 | 9.143        | 9.143            | 0.000            | 97  | 494023   | 40.0             | 40.0               |       |
| * 5 Chrysene-d12              | 240 | 13.249       | 13.249           | 0.000            | 99  | 495007   | 40.0             | 40.0               |       |
| * 6 Perylene-d12              | 264 | 17.197       | 17.197           | 0.000            | 97  | 477337   | 40.0             | 40.0               |       |
| \$ 7 2-Fluorophenol           | 112 | 3.521        | 3.521            | 0.000            | 93  | 333089   | 80.0             | 80.0               |       |
| \$ 8 Phenol-d5                | 99  | 4.302        | 4.302            | 0.000            | 0   | 414049   | 80.0             | 79.9               |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.189        | 5.189            | 0.000            | 89  | 379778   | 80.0             | 80.3               |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.958        | 6.958            | 0.000            | 100 | 710121   | 80.0             | 78.4               |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.438        | 8.438            | 0.000            | 87  | 81552    | 80.0             | 77.4               |       |
| \$ 13 Terphenyl-d14           | 244 | 11.117       | 11.117           | 0.000            | 98  | 852093   | 80.0             | 79.0               |       |
| 15 1,4-Dioxane                | 88  | 2.258        | 2.258            | 0.000            | 97  | 138749   | 80.0             | 78.5               |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.464        | 2.464            | 0.000            | 93  | 234612   | 80.0             | 80.2               |       |
| 18 Pyridine                   | 79  | 2.511        | 2.511            | 0.000            | 94  | 777352   | 160.0            | 162.7              |       |
| 28 Phenol                     | 94  | 4.320        | 4.320            | 0.000            | 99  | 439738   | 80.0             | 80.1               |       |
| 30 Aniline                    | 93  | 4.367        | 4.367            | 0.000            | 97  | 559359   | 80.0             | 80.4               |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.408        | 4.408            | 0.000            | 97  | 328343   | 80.0             | 80.0               |       |
| 32 Alpha Methyl Styrene       | 118 | 4.426        | 4.426            | 0.000            | 92  | 337226   | 80.0             | 79.5               |       |
| 34 2-Chlorophenol             | 128 | 4.490        | 4.490            | 0.000            | 97  | 334698   | 80.0             | 80.0               |       |
| 35 n-Decane                   | 43  | 4.520        | 4.520            | 0.000            | 93  | 374927   | 80.0             | 80.5               |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.631        | 4.631            | 0.000            | 98  | 360464   | 80.0             | 78.2               |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.696        | 4.696            | 0.000            | 93  | 364981   | 80.0             | 79.7               |       |
| 39 Benzyl alcohol             | 108 | 4.784        | 4.784            | 0.000            | 91  | 226440   | 80.0             | 80.6               |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.843        | 4.843            | 0.000            | 96  | 349361   | 80.0             | 79.9               |       |
| 41 2-Methylphenol             | 108 | 4.878        | 4.878            | 0.000            | 96  | 308823   | 80.0             | 80.4               |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.913        | 4.913            | 0.000            | 93  | 495719   | 80.0             | 79.5               |       |
| 44 Indene                     | 116 | 4.925        | 4.925            | 0.000            | 91  | 1073367  | 160.0            | 161.5              |       |
| 46 3-Methylphenol             | 108 | 5.019        | 5.019            | 0.000            | 92  | 323461   | 80.0             | 79.3               |       |
| 47 4-Methylphenol             | 108 | 5.019        | 5.019            | 0.000            | 94  | 323461   | 80.0             | 79.3               |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.019     | 5.019         | 0.000         | 0  | 323461   | 80.0          | 79.3            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.031     | 5.031         | 0.000         | 92 | 263075   | 80.0          | 79.0            |       |
| 51 Acetophenone                | 105 | 5.043     | 5.043         | 0.000         | 98 | 438970   | 80.0          | 81.3            |       |
| 53 Hexachloroethane            | 117 | 5.166     | 5.166         | 0.000         | 97 | 138845   | 80.0          | 80.3            |       |
| 54 Nitrobenzene                | 77  | 5.207     | 5.207         | 0.000         | 89 | 383557   | 80.0          | 82.1            |       |
| 57 Isophorone                  | 82  | 5.436     | 5.436         | 0.000         | 99 | 666206   | 80.0          | 79.8            |       |
| 58 2-Nitrophenol               | 139 | 5.512     | 5.512         | 0.000         | 96 | 191216   | 80.0          | 81.8            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.536     | 5.536         | 0.000         | 95 | 332701   | 80.0          | 80.2            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.624     | 5.624         | 0.000         | 98 | 403295   | 80.0          | 78.2            |       |
| 64 Benzoic acid                | 105 | 5.653     | 5.653         | 0.000         | 88 | 597694   | 160.0         | 167.4           |       |
| 66 3,5-Dimethylphenol          | 107 | 5.659     | 5.659         | 0.000         | 85 | 343027   | 80.0          | 81.0            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.747     | 5.747         | 0.000         | 94 | 280939   | 80.0          | 80.6            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.841     | 5.841         | 0.000         | 94 | 283483   | 80.0          | 79.6            |       |
| 71 Naphthalene                 | 128 | 5.918     | 5.918         | 0.000         | 98 | 939988   | 80.0          | 81.1            |       |
| 72 4-Chloroaniline             | 127 | 5.953     | 5.953         | 0.000         | 96 | 435859   | 80.0          | 79.2            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.971     | 5.971         | 0.000         | 97 | 277040   | 80.0          | 80.6            |       |
| 75 Hexachlorobutadiene         | 225 | 6.041     | 6.041         | 0.000         | 96 | 148720   | 80.0          | 80.8            |       |
| 79 Caprolactam                 | 55  | 6.282     | 6.282         | 0.000         | 79 | 183817   | 80.0          | 80.7            | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.423     | 6.423         | 0.000         | 96 | 303611   | 80.0          | 80.4            |       |
| 86 2-Methylnaphthalene         | 142 | 6.599     | 6.599         | 0.000         | 93 | 654499   | 80.0          | 79.4            |       |
| 88 1-Methylnaphthalene         | 142 | 6.699     | 6.699         | 0.000         | 93 | 613002   | 80.0          | 79.0            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.770     | 6.770         | 0.000         | 97 | 269167   | 80.0          | 77.7            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.764     | 6.764         | 0.000         | 96 | 173418   | 80.0          | 79.4            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.875     | 6.875         | 0.000         | 81 | 197709   | 80.0          | 78.5            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.875     | 6.875         | 0.000         | 92 | 329787   | 80.0          | 79.1            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.911     | 6.911         | 0.000         | 95 | 226982   | 80.0          | 79.4            |       |
| 98 1,1'-Biphenyl               | 154 | 7.057     | 7.057         | 0.000         | 96 | 765996   | 80.0          | 78.3            |       |
| 99 2-Chloronaphthalene         | 162 | 7.087     | 7.087         | 0.000         | 97 | 619238   | 80.0          | 77.8            |       |
| 101 2-Nitroaniline             | 65  | 7.169     | 7.169         | 0.000         | 85 | 226949   | 80.0          | 80.3            |       |
| 104 Dimethyl phthalate         | 163 | 7.351     | 7.351         | 0.000         | 99 | 710501   | 80.0          | 77.3            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.381     | 7.381         | 0.000         | 86 | 128077   | 80.0          | 82.1            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.410     | 7.410         | 0.000         | 96 | 176145   | 80.0          | 79.6            |       |
| 107 Acenaphthylene             | 152 | 7.504     | 7.504         | 0.000         | 98 | 939465   | 80.0          | 78.4            |       |
| 108 3-Nitroaniline             | 138 | 7.580     | 7.580         | 0.000         | 95 | 218235   | 80.0          | 79.2            |       |
| 109 Acenaphthene               | 153 | 7.680     | 7.680         | 0.000         | 93 | 594412   | 80.0          | 78.3            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.692     | 7.692         | 0.000         | 87 | 239859   | 160.0         | 159.4           |       |
| 112 4-Nitrophenol              | 109 | 7.745     | 7.745         | 0.000         | 95 | 227896   | 160.0         | 162.1           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.821     | 7.821         | 0.000         | 95 | 242095   | 80.0          | 80.9            |       |
| 116 Dibenzofuran               | 168 | 7.850     | 7.850         | 0.000         | 96 | 840995   | 80.0          | 77.3            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.974     | 7.974         | 0.000         | 75 | 172573   | 80.0          | 80.9            |       |
| 123 Diethyl phthalate          | 149 | 8.056     | 8.056         | 0.000         | 98 | 706856   | 80.0          | 77.2            |       |
| 124 Hexadecane                 | 57  | 8.074     | 8.074         | 0.000         | 95 | 451037   | 80.0          | 79.2            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.179     | 8.179         | 0.000         | 95 | 332297   | 80.0          | 77.8            |       |
| 129 Fluorene                   | 166 | 8.197     | 8.197         | 0.000         | 94 | 670242   | 80.0          | 75.1            |       |
| 130 4-Nitroaniline             | 138 | 8.203     | 8.203         | 0.000         | 85 | 217817   | 80.0          | 77.3            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.238     | 8.238         | 0.000         | 86 | 283733   | 160.0         | 164.2           |       |
| 134 Diphenylamine              | 169 | 8.297     | 8.297         | 0.000         | 97 | 583697   | 68.0          | 66.2            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.297     | 8.297         | 0.000         | 61 | 583697   | 80.0          | 79.1            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.344     | 8.344         | 0.000         | 99 | 802008   | 80.9          | 78.7            |       |
| 137 Azobenzene                 | 77  | 8.344     | 8.344         | 0.000         | 99 | 802008   | 80.0          | 77.9            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.438     | 8.438         | 0.000         | 87 | 81380    | 80.0          | 76.8            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.679     | 8.679         | 0.000         | 71 | 179748   | 80.0          | 78.1            |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.767     | 8.767         | 0.000         | 91  | 169384   | 80.0          | 81.1            |       |
| 152 Atrazine                   | 200 | 8.820     | 8.820         | 0.000         | 92  | 195305   | 80.0          | 79.7            |       |
| 155 Pentachlorophenol          | 266 | 8.955     | 8.955         | 0.000         | 89  | 227521   | 160.0         | 163.3           |       |
| 158 n-Octadecane               | 85  | 8.996     | 8.996         | 0.000         | 96  | 209930   | 80.0          | 89.6            |       |
| 161 Phenanthrene               | 178 | 9.166     | 9.166         | 0.000         | 98  | 1056936  | 80.0          | 77.4            |       |
| 162 Anthracene                 | 178 | 9.219     | 9.219         | 0.000         | 98  | 1130721  | 80.0          | 79.3            |       |
| 164 Carbazole                  | 167 | 9.372     | 9.372         | 0.000         | 96  | 1056382  | 80.0          | 78.5            |       |
| 166 Alachlor                   | 188 | 9.507     | 9.507         | 0.000         | 98  | 156752   | 80.0          | 80.0            |       |
| 168 Di-n-butyl phthalate       | 149 | 9.719     | 9.719         | 0.000         | 100 | 1297141  | 80.0          | 79.5            |       |
| 175 Fluoranthene               | 202 | 10.553    | 10.553        | 0.000         | 98  | 1256120  | 80.0          | 78.8            |       |
| 178 Pyrene                     | 202 | 10.893    | 10.893        | 0.000         | 97  | 1301286  | 80.0          | 79.5            |       |
| 185 Famphur                    | 218 | 11.886    | 11.886        | 0.000         | 85  | 463454   | 80.0          | 82.0            |       |
| 187 Butyl benzyl phthalate     | 149 | 12.010    | 12.010        | 0.000         | 98  | 651682   | 80.0          | 81.0            |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.173    | 13.173        | 0.000         | 75  | 422275   | 80.0          | 82.6            |       |
| 191 Benzo[a]anthracene         | 228 | 13.226    | 13.226        | 0.000         | 99  | 1247102  | 80.0          | 80.3            |       |
| 192 Chrysene                   | 228 | 13.314    | 13.314        | 0.000         | 97  | 1197072  | 80.0          | 79.7            |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.390    | 13.390        | 0.000         | 98  | 882014   | 80.0          | 80.3            |       |
| 195 Di-n-octyl phthalate       | 149 | 15.199    | 15.199        | 0.000         | 99  | 1585026  | 80.0          | 80.7            |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.104    | 16.104        | 0.000         | 92  | 1215867  | 80.0          | 78.9            |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.180    | 16.180        | 0.000         | 99  | 1241477  | 80.0          | 79.9            |       |
| 200 Benzo[e]pyrene             | 252 | 16.885    | 16.885        | 0.000         | 98  | 1145979  | 80.0          | 79.9            |       |
| 201 Benzo[a]pyrene             | 252 | 17.038    | 17.038        | 0.000         | 78  | 1219706  | 80.0          | 79.6            |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.328    | 20.328        | 0.000         | 97  | 1047336  | 80.0          | 79.5            |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.422    | 20.422        | 0.000         | 94  | 1036374  | 80.0          | 79.4            |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.074    | 21.074        | 0.000         | 96  | 1108798  | 80.0          | 79.0            |       |

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

MS-HSLA080\_00035

Amount Added: 200.00

Units: uL

Report Date: 22-Apr-2018 07:59:32

Chrom Revision: 2.2 17-Apr-2018 19:19:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19201.D

Injection Date: 21-Apr-2018 12:10:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: ICIS HSL

Worklist Smp#: 3

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

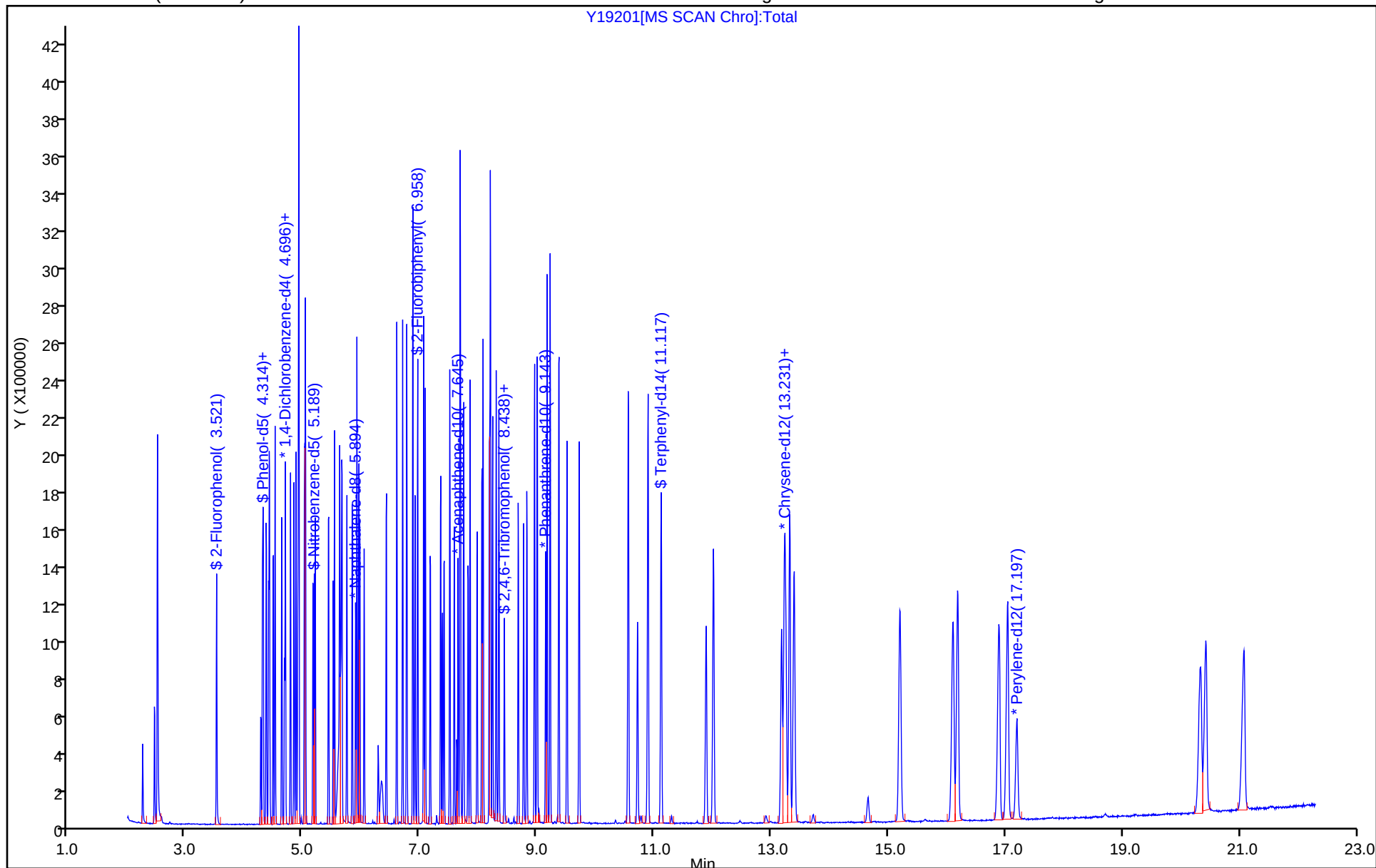
ALS Bottle#: 2

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

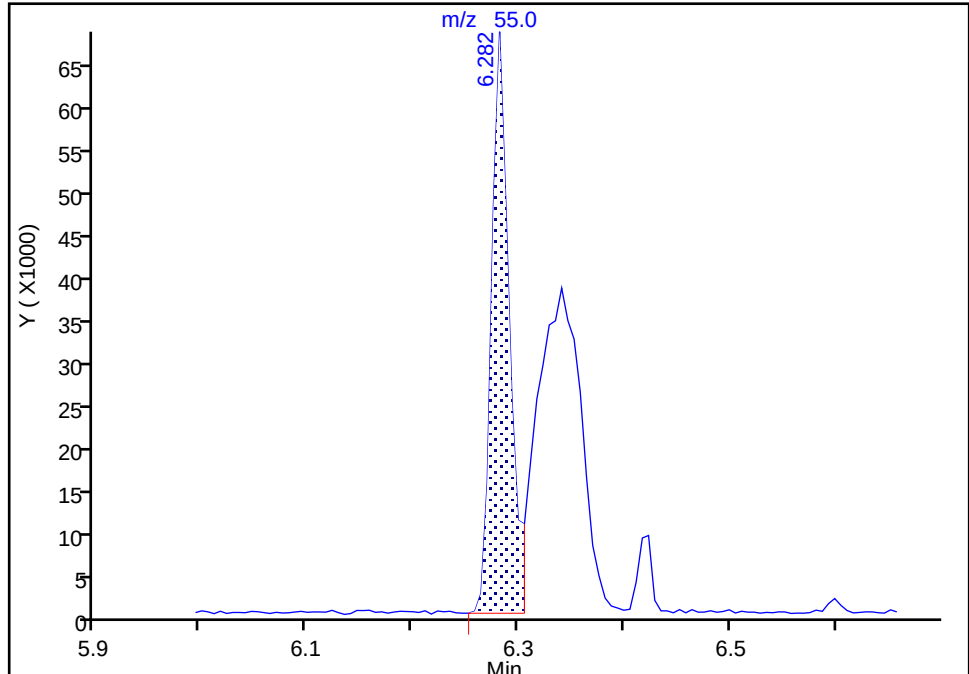
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19201.D  
Injection Date: 21-Apr-2018 12:10:30 Instrument ID: SMS\_Y  
Lims ID: ICIS HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 2 Worklist Smp#: 3  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**79 Caprolactam, CAS: 105-60-2**

Signal: 1

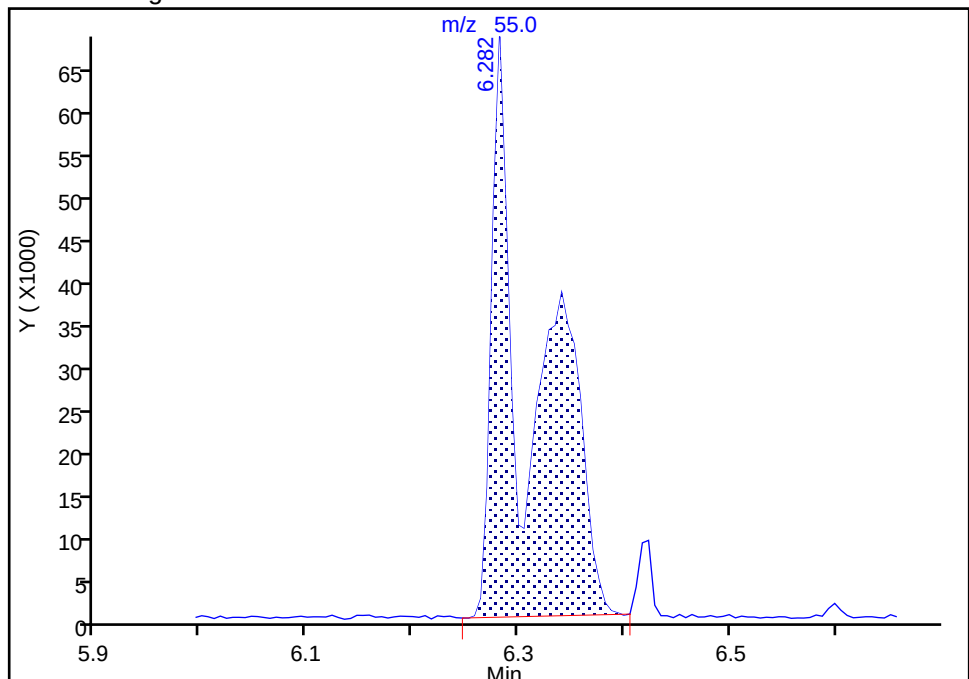
RT: 6.28  
Area: 80007  
Amount: 80.000000  
Amount Units: ug/ml

## Processing Integration Results



RT: 6.28  
Area: 183817  
Amount: 80.743727  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 21-Apr-2018 13:08:37

Audit Action: Manually Integrated

Audit Reason: Split Peak

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19202.D  
 Lims ID: STD004 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 21-Apr-2018 12:38:30 ALS Bottle#: 3 Worklist Smp#: 4  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD004 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:33 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:31:25

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.678     | 4.678         | 0.000         | 97 | 111823   | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8            | 136 | 5.894     | 5.894         | 0.000         | 99 | 464701   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10          | 164 | 7.645     | 7.645         | 0.000         | 92 | 274869   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10          | 188 | 9.137     | 9.143         | -0.006        | 97 | 483783   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12              | 240 | 13.231    | 13.249        | -0.018        | 98 | 510192   | 40.0          | 40.0            |       |
| * 6 Perylene-d12              | 264 | 17.179    | 17.197        | -0.018        | 96 | 484909   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol           | 112 | 3.515     | 3.521         | -0.006        | 91 | 17480    | 4.00          | 4.25            |       |
| \$ 8 Phenol-d5                | 99  | 4.296     | 4.302         | -0.006        | 0  | 21614    | 4.00          | 4.22            |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.183     | 5.189         | -0.006        | 90 | 20128    | 4.00          | 4.30            |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.952     | 6.958         | -0.006        | 99 | 38519    | 4.00          | 4.34            |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.432     | 8.438         | -0.006        | 88 | 4216     | 4.00          | 4.09            |       |
| \$ 13 Terphenyl-d14           | 244 | 11.105    | 11.117        | -0.012        | 98 | 47662    | 4.00          | 4.29            |       |
| 15 1,4-Dioxane                | 88  | 2.252     | 2.258         | -0.006        | 89 | 8533     | 4.00          | 4.89            |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.452     | 2.464         | -0.012        | 92 | 11355    | 4.00          | 3.93            |       |
| 18 Pyridine                   | 79  | 2.505     | 2.511         | -0.006        | 94 | 39314    | 8.00          | 8.33            |       |
| 28 Phenol                     | 94  | 4.308     | 4.320         | -0.012        | 98 | 23692    | 4.00          | 4.37            |       |
| 30 Aniline                    | 93  | 4.367     | 4.367         | 0.000         | 98 | 29358    | 4.00          | 4.27            |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.402     | 4.408         | -0.006        | 97 | 16922    | 4.00          | 4.17            |       |
| 32 Alpha Methyl Styrene       | 118 | 4.420     | 4.426         | -0.006        | 92 | 18466    | 4.00          | 4.40            |       |
| 34 2-Chlorophenol             | 128 | 4.484     | 4.490         | -0.006        | 97 | 18208    | 4.00          | 4.40            |       |
| 35 n-Decane                   | 43  | 4.520     | 4.520         | 0.000         | 92 | 20443    | 4.00          | 4.44            |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.631     | 4.631         | 0.000         | 96 | 20905    | 4.00          | 4.59            |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.696     | 4.696         | 0.000         | 94 | 19679    | 4.00          | 4.35            |       |
| 39 Benzyl alcohol             | 108 | 4.778     | 4.784         | -0.006        | 92 | 11559    | 4.00          | 4.16            |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.843     | 4.843         | 0.000         | 94 | 18427    | 4.00          | 4.26            |       |
| 41 2-Methylphenol             | 108 | 4.872     | 4.878         | -0.006        | 97 | 16606    | 4.00          | 4.37            |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.907     | 4.913         | -0.006        | 94 | 26845    | 4.00          | 4.36            |       |
| 44 Indene                     | 116 | 4.919     | 4.925         | -0.006        | 93 | 66619    | 8.00          | 5.67            |       |
| 46 3-Methylphenol             | 108 | 5.013     | 5.019         | -0.006        | 90 | 17928    | 4.00          | 4.45            |       |
| 47 4-Methylphenol             | 108 | 5.013     | 5.019         | -0.006        | 96 | 17928    | 4.00          | 4.45            |       |



| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.013     | 5.019         | -0.006        | 0  | 17928    | 4.00          | 4.45            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.025     | 5.031         | -0.006        | 89 | 13960    | 4.00          | 4.24            |       |
| 51 Acetophenone                | 105 | 5.037     | 5.043         | -0.006        | 97 | 26120    | 4.00          | 2.90            |       |
| 53 Hexachloroethane            | 117 | 5.166     | 5.166         | 0.000         | 95 | 7438     | 4.00          | 4.35            |       |
| 54 Nitrobenzene                | 77  | 5.201     | 5.207         | -0.006        | 90 | 19198    | 4.00          | 4.16            |       |
| 57 Isophorone                  | 82  | 5.424     | 5.436         | -0.012        | 99 | 36324    | 4.00          | 4.40            |       |
| 58 2-Nitrophenol               | 139 | 5.512     | 5.512         | 0.000         | 94 | 9367     | 4.00          | 4.05            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.530     | 5.536         | -0.006        | 93 | 18198    | 4.00          | 4.44            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.618     | 5.624         | -0.006        | 98 | 22879    | 4.00          | 4.49            |       |
| 64 Benzoic acid                | 105 | 5.559     | 5.653         | -0.094        | 90 | 17586    | 8.00          | 8.51            | a     |
| 66 3,5-Dimethylphenol          | 107 | 5.653     | 5.659         | -0.006        | 83 | 19182    | 4.00          | 4.58            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.741     | 5.747         | -0.006        | 94 | 14584    | 4.00          | 4.23            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.835     | 5.841         | -0.006        | 93 | 15306    | 4.00          | 4.34            |       |
| 71 Naphthalene                 | 128 | 5.912     | 5.918         | -0.006        | 98 | 51527    | 4.00          | 4.50            |       |
| 72 4-Chloroaniline             | 127 | 5.947     | 5.953         | -0.006        | 96 | 24582    | 4.00          | 4.51            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.965     | 5.971         | -0.006        | 97 | 14233    | 4.00          | 4.19            |       |
| 75 Hexachlorobutadiene         | 225 | 6.041     | 6.041         | 0.000         | 93 | 7547     | 4.00          | 4.15            |       |
| 79 Caprolactam                 | 55  | 6.253     | 6.282         | -0.029        | 80 | 9109     | 4.00          | 4.05            |       |
| 83 4-Chloro-3-methylphenol     | 107 | 6.411     | 6.423         | -0.012        | 97 | 16610    | 4.00          | 4.44            |       |
| 86 2-Methylnaphthalene         | 142 | 6.593     | 6.599         | -0.006        | 94 | 37131    | 4.00          | 4.56            |       |
| 88 1-Methylnaphthalene         | 142 | 6.693     | 6.699         | -0.006        | 92 | 34724    | 4.00          | 4.52            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.769     | 6.770         | -0.001        | 96 | 15748    | 4.00          | 4.59            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.764     | 6.764         | 0.000         | 94 | 8627     | 4.00          | 4.03            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.869     | 6.875         | -0.006        | 76 | 10756    | 4.00          | 4.36            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.869     | 6.875         | -0.006        | 91 | 18821    | 4.00          | 4.61            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.905     | 6.911         | -0.006        | 94 | 11301    | 4.00          | 4.04            |       |
| 98 1,1'-Biphenyl               | 154 | 7.057     | 7.057         | 0.000         | 96 | 42898    | 4.00          | 4.48            |       |
| 99 2-Chloronaphthalene         | 162 | 7.081     | 7.087         | -0.006        | 95 | 34651    | 4.00          | 4.45            |       |
| 101 2-Nitroaniline             | 65  | 7.163     | 7.169         | -0.006        | 84 | 11247    | 4.00          | 4.07            |       |
| 104 Dimethyl phthalate         | 163 | 7.339     | 7.351         | -0.012        | 98 | 40387    | 4.00          | 4.49            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.369     | 7.381         | -0.012        | 81 | 5483     | 4.00          | 3.59            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.398     | 7.410         | -0.012        | 95 | 9007     | 4.00          | 4.16            |       |
| 107 Acenaphthylene             | 152 | 7.498     | 7.504         | -0.006        | 98 | 51063    | 4.00          | 4.35            |       |
| 108 3-Nitroaniline             | 138 | 7.574     | 7.580         | -0.006        | 94 | 10818    | 4.00          | 4.01            |       |
| 109 Acenaphthene               | 153 | 7.674     | 7.680         | -0.006        | 93 | 33769    | 4.00          | 4.54            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.680     | 7.692         | -0.012        | 84 | 8989     | 8.00          | 7.99            |       |
| 112 4-Nitrophenol              | 109 | 7.721     | 7.745         | -0.024        | 94 | 10797    | 8.00          | 7.85            |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.809     | 7.821         | -0.012        | 94 | 11449    | 4.00          | 3.91            |       |
| 116 Dibenzofuran               | 168 | 7.844     | 7.850         | -0.006        | 96 | 48293    | 4.00          | 4.54            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.968     | 7.974         | -0.006        | 76 | 8073     | 4.00          | 3.86            |       |
| 123 Diethyl phthalate          | 149 | 8.044     | 8.056         | -0.012        | 98 | 40847    | 4.00          | 4.56            |       |
| 124 Hexadecane                 | 57  | 8.068     | 8.074         | -0.006        | 95 | 25648    | 4.00          | 4.60            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.179     | 8.179         | 0.000         | 93 | 18890    | 4.00          | 4.52            |       |
| 129 Fluorene                   | 166 | 8.191     | 8.197         | -0.006        | 96 | 39860    | 4.00          | 4.56            |       |
| 130 4-Nitroaniline             | 138 | 8.185     | 8.203         | -0.018        | 85 | 12168    | 4.00          | 3.84            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.226     | 8.238         | -0.012        | 88 | 11705    | 8.00          | 6.37            |       |
| 134 Diphenylamine              | 169 | 8.291     | 8.297         | -0.006        | 97 | 33614    | 3.40          | 3.89            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.291     | 8.297         | -0.006        | 60 | 33614    | 4.00          | 4.65            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.338     | 8.344         | -0.006        | 99 | 45740    | 4.04          | 4.59            |       |
| 137 Azobenzene                 | 77  | 8.338     | 8.344         | -0.006        | 98 | 45740    | 4.00          | 4.54            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.432     | 8.438         | -0.006        | 88 | 4417     | 4.00          | 4.26            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.673     | 8.679         | -0.006        | 69 | 10317    | 4.00          | 4.58            |       |



| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.761     | 8.767         | -0.006        | 91 | 9000     | 4.00          | 4.40            |       |
| 152 Atrazine                   | 200 | 8.814     | 8.820         | -0.006        | 90 | 11065    | 4.00          | 4.61            |       |
| 155 Pentachlorophenol          | 266 | 8.949     | 8.955         | -0.006        | 90 | 10575    | 8.00          | 5.22            |       |
| 158 n-Octadecane               | 85  | 8.996     | 8.996         | 0.000         | 96 | 12992    | 4.00          | 2.65            |       |
| 161 Phenanthrene               | 178 | 9.160     | 9.166         | -0.006        | 97 | 62000    | 4.00          | 4.64            |       |
| 162 Anthracene                 | 178 | 9.213     | 9.219         | -0.006        | 98 | 64279    | 4.00          | 4.60            |       |
| 164 Carbazole                  | 167 | 9.360     | 9.372         | -0.012        | 96 | 61627    | 4.00          | 4.68            |       |
| 166 Alachlor                   | 188 | 9.501     | 9.507         | -0.006        | 97 | 8538     | 4.00          | 4.45            |       |
| 168 Di-n-butyl phthalate       | 149 | 9.713     | 9.719         | -0.006        | 99 | 74759    | 4.00          | 4.68            |       |
| 175 Fluoranthene               | 202 | 10.547    | 10.553        | -0.006        | 98 | 71108    | 4.00          | 4.55            |       |
| 178 Pyrene                     | 202 | 10.882    | 10.893        | -0.011        | 97 | 71498    | 4.00          | 4.24            |       |
| 185 Famphur                    | 218 | 11.868    | 11.886        | -0.018        | 85 | 26123    | 4.00          | 4.48            |       |
| 187 Butyl benzyl phthalate     | 149 | 11.998    | 12.010        | -0.012        | 97 | 34496    | 4.00          | 4.16            |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.149    | 13.173        | -0.024        | 75 | 21833    | 4.00          | 4.15            |       |
| 191 Benzo[a]anthracene         | 228 | 13.208    | 13.226        | -0.018        | 98 | 70027    | 4.00          | 4.37            |       |
| 192 Chrysene                   | 228 | 13.290    | 13.314        | -0.024        | 97 | 64584    | 4.00          | 4.17            |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.372    | 13.390        | -0.018        | 98 | 47655    | 4.00          | 4.21            |       |
| 195 Di-n-octyl phthalate       | 149 | 15.182    | 15.199        | -0.017        | 99 | 84899    | 4.00          | 4.19            |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.069    | 16.104        | -0.035        | 98 | 65561    | 4.00          | 4.19            |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.151    | 16.180        | -0.029        | 99 | 68676    | 4.00          | 4.35            |       |
| 200 Benzo[e]pyrene             | 252 | 16.856    | 16.885        | -0.029        | 97 | 64031    | 4.00          | 4.39            |       |
| 201 Benzo[a]pyrene             | 252 | 16.991    | 17.038        | -0.047        | 78 | 63937    | 4.00          | 4.11            |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.286    | 20.328        | -0.042        | 96 | 59160    | 4.00          | 4.36            |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.375    | 20.422        | -0.047        | 95 | 54713    | 4.00          | 4.13            |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.021    | 21.074        | -0.053        | 94 | 60691    | 4.00          | 4.26            |       |
| S 219 Total Cresols            | 108 |           |               |               | 0  |          |               | 8.82            |       |
| S 220 Methyl Phenols, Total    | 108 |           |               |               | 0  |          |               | 8.82            |       |

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

MS-HSLA004\_00035

Amount Added: 200.00

Units: uL

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19202.D

Injection Date: 21-Apr-2018 12:38:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD004 HSL

Worklist Smp#: 4

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

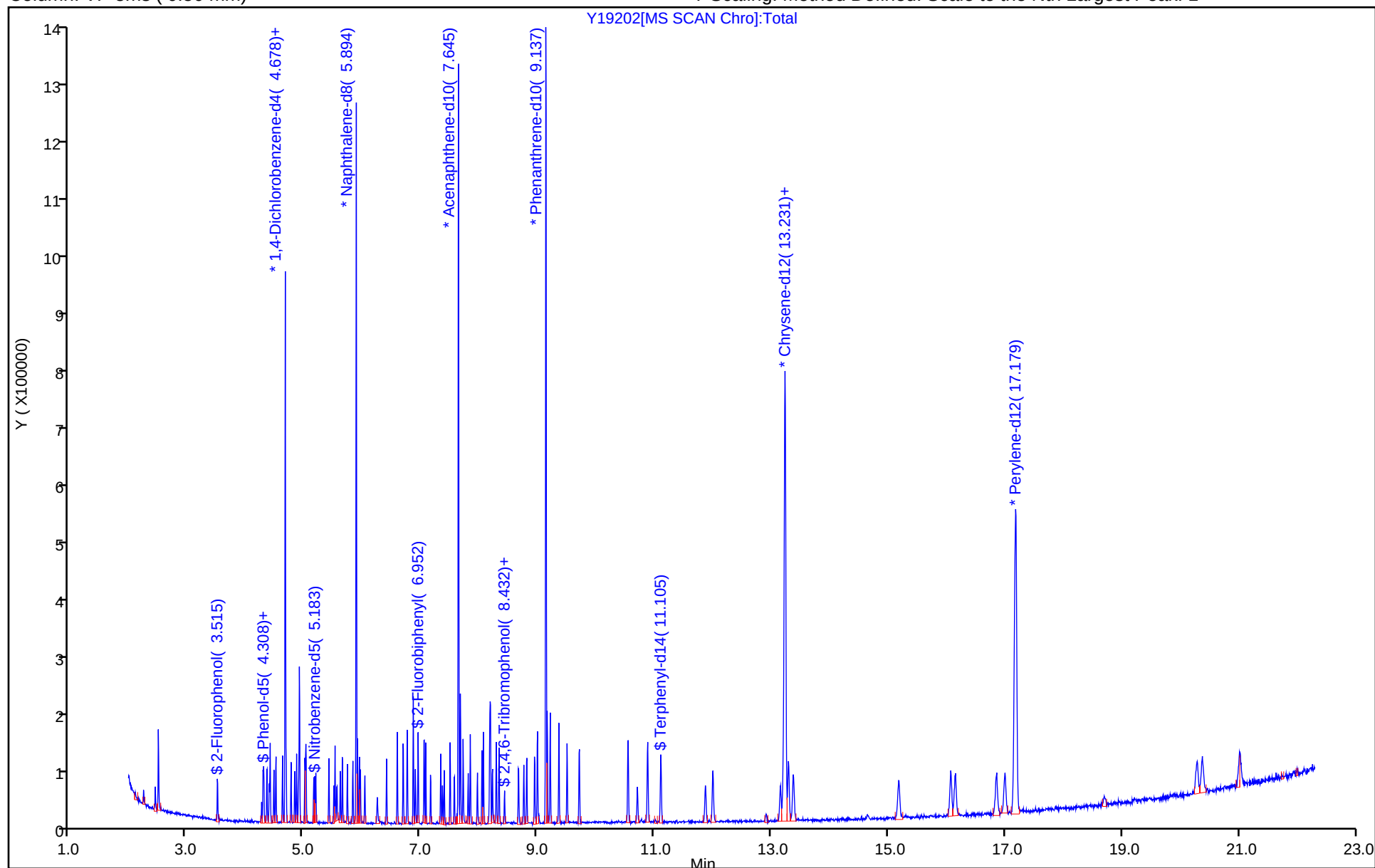
ALS Bottle#: 3

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

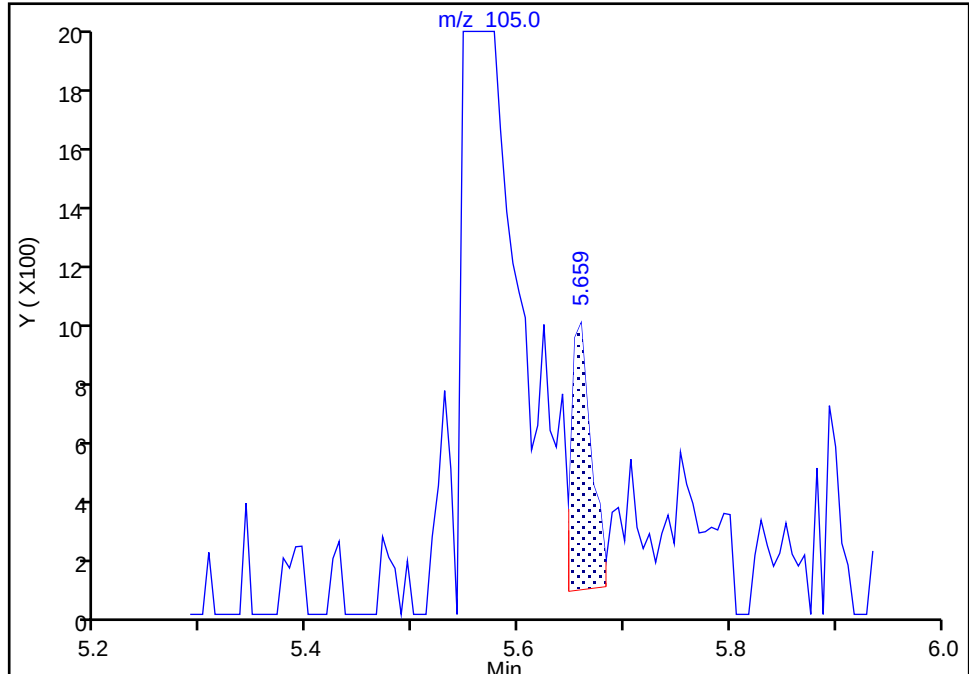
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19202.D  
Injection Date: 21-Apr-2018 12:38:30 Instrument ID: SMS\_Y  
Lims ID: STD004 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 3 Worklist Smp#: 4  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**64 Benzoic acid, CAS: 65-85-0**

Signal: 1

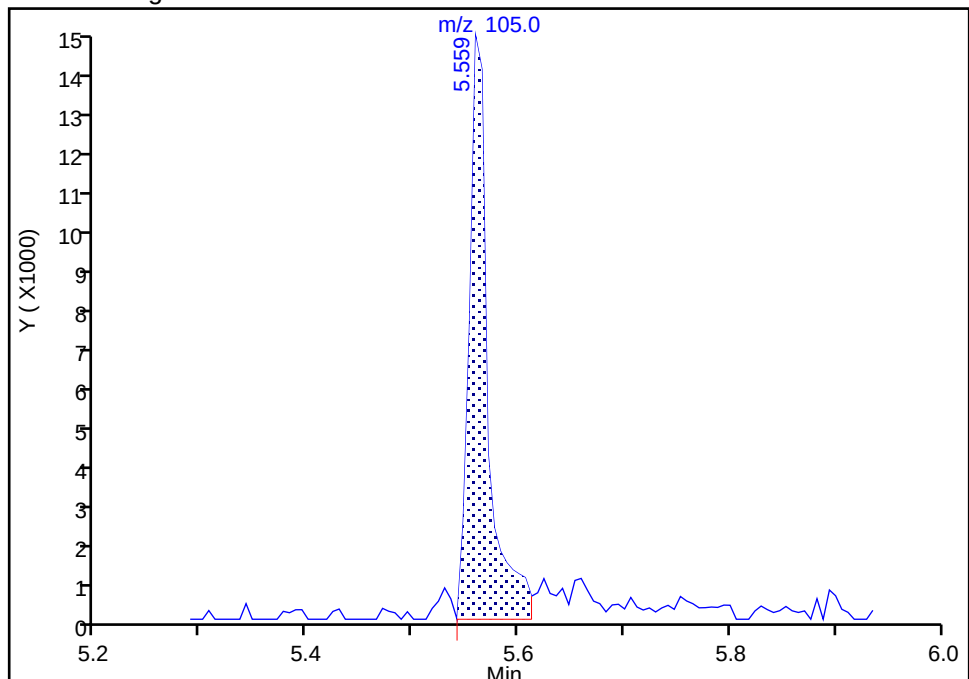
RT: 5.66  
Area: 1191  
Amount: 1.216965  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.56  
Area: 17586  
Amount: 8.509572  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:31:22

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19203.D  
 Lims ID: STD010 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 21-Apr-2018 13:07:30 ALS Bottle#: 4 Worklist Smp#: 5  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD010 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:36 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:31:46

| Compound                      | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.681        | 4.678            | 0.003            | 95  | 108756   | 40.0             | 40.0               |       |
| * 2 Naphthalene-d8            | 136 | 5.891        | 5.894            | -0.003           | 100 | 439966   | 40.0             | 40.0               |       |
| * 3 Acenaphthene-d10          | 164 | 7.641        | 7.645            | -0.004           | 92  | 262230   | 40.0             | 40.0               |       |
| * 4 Phenanthrene-d10          | 188 | 9.139        | 9.143            | -0.004           | 97  | 466601   | 40.0             | 40.0               |       |
| * 5 Chrysene-d12              | 240 | 13.228       | 13.249           | -0.021           | 98  | 489810   | 40.0             | 40.0               |       |
| * 6 Perylene-d12              | 264 | 17.175       | 17.197           | -0.022           | 96  | 465412   | 40.0             | 40.0               |       |
| \$ 7 2-Fluorophenol           | 112 | 3.517        | 3.521            | -0.004           | 93  | 42277    | 10.0             | 10.6               |       |
| \$ 8 Phenol-d5                | 99  | 4.299        | 4.302            | -0.003           | 0   | 52034    | 10.0             | 10.4               |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.180        | 5.189            | -0.009           | 90  | 48777    | 10.0             | 11.0               |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.954        | 6.958            | -0.004           | 100 | 95573    | 10.0             | 11.3               |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.434        | 8.438            | -0.004           | 88  | 10458    | 10.0             | 10.6               |       |
| \$ 13 Terphenyl-d14           | 244 | 11.107       | 11.117           | -0.010           | 96  | 114003   | 10.0             | 10.7               |       |
| 15 1,4-Dioxane                | 88  | 2.254        | 2.258            | -0.004           | 97  | 17746    | 10.0             | 10.5               |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.454        | 2.464            | -0.010           | 95  | 29048    | 10.0             | 10.3               |       |
| 18 Pyridine                   | 79  | 2.507        | 2.511            | -0.004           | 96  | 97619    | 20.0             | 21.3               |       |
| 28 Phenol                     | 94  | 4.310        | 4.320            | -0.010           | 98  | 55348    | 10.0             | 10.5               |       |
| 30 Aniline                    | 93  | 4.363        | 4.367            | -0.004           | 97  | 69028    | 10.0             | 10.3               |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.404        | 4.408            | -0.004           | 98  | 42519    | 10.0             | 10.8               |       |
| 32 Alpha Methyl Styrene       | 118 | 4.422        | 4.426            | -0.004           | 91  | 45971    | 10.0             | 11.3               |       |
| 34 2-Chlorophenol             | 128 | 4.481        | 4.490            | -0.009           | 97  | 41860    | 10.0             | 10.4               |       |
| 35 n-Decane                   | 43  | 4.516        | 4.520            | -0.004           | 93  | 47224    | 10.0             | 10.6               |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.634        | 4.631            | 0.003            | 97  | 46139    | 10.0             | 10.4               |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.692        | 4.696            | -0.004           | 96  | 47706    | 10.0             | 10.8               |       |
| 39 Benzyl alcohol             | 108 | 4.780        | 4.784            | -0.004           | 91  | 28563    | 10.0             | 10.6               |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.839        | 4.843            | -0.004           | 96  | 44577    | 10.0             | 10.6               |       |
| 41 2-Methylphenol             | 108 | 4.874        | 4.878            | -0.004           | 97  | 37972    | 10.0             | 10.3               |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.910        | 4.913            | -0.003           | 93  | 64742    | 10.0             | 10.8               |       |
| 44 Indene                     | 116 | 4.921        | 4.925            | -0.004           | 90  | 151744   | 20.0             | 18.1               |       |
| 46 3-Methylphenol             | 108 | 5.015        | 5.019            | -0.004           | 92  | 42047    | 10.0             | 10.7               |       |
| 47 4-Methylphenol             | 108 | 5.015        | 5.019            | -0.004           | 94  | 42047    | 10.0             | 10.7               |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.015     | 5.019         | -0.004        | 0  | 42047    | 10.0          | 10.7            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.027     | 5.031         | -0.004        | 89 | 35167    | 10.0          | 11.0            |       |
| 51 Acetophenone                | 105 | 5.033     | 5.043         | -0.010        | 95 | 60285    | 10.0          | 9.13            |       |
| 53 Hexachloroethane            | 117 | 5.162     | 5.166         | -0.004        | 96 | 17175    | 10.0          | 10.3            |       |
| 54 Nitrobenzene                | 77  | 5.203     | 5.207         | -0.004        | 87 | 47935    | 10.0          | 11.0            |       |
| 57 Isophorone                  | 82  | 5.427     | 5.436         | -0.009        | 99 | 84458    | 10.0          | 10.8            |       |
| 58 2-Nitrophenol               | 139 | 5.509     | 5.512         | -0.003        | 96 | 22896    | 10.0          | 10.5            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.532     | 5.536         | -0.004        | 95 | 42816    | 10.0          | 11.0            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.620     | 5.624         | -0.004        | 99 | 53790    | 10.0          | 11.1            |       |
| 64 Benzoic acid                | 105 | 5.579     | 5.653         | -0.074        | 88 | 55866    | 20.0          | 20.0            | a     |
| 66 3,5-Dimethylphenol          | 107 | 5.656     | 5.659         | -0.003        | 83 | 43892    | 10.0          | 11.1            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.744     | 5.747         | -0.003        | 94 | 36113    | 10.0          | 11.1            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.838     | 5.841         | -0.003        | 91 | 35902    | 10.0          | 10.8            |       |
| 71 Naphthalene                 | 128 | 5.914     | 5.918         | -0.004        | 98 | 121023   | 10.0          | 11.2            |       |
| 72 4-Chloroaniline             | 127 | 5.944     | 5.953         | -0.009        | 96 | 59960    | 10.0          | 11.6            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.961     | 5.971         | -0.010        | 96 | 36169    | 10.0          | 11.2            |       |
| 75 Hexachlorobutadiene         | 225 | 6.043     | 6.041         | 0.002         | 97 | 18482    | 10.0          | 10.7            |       |
| 79 Caprolactam                 | 55  | 6.249     | 6.282         | -0.033        | 79 | 20849    | 10.0          | 9.78            | a     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.413     | 6.423         | -0.010        | 97 | 40638    | 10.0          | 11.5            |       |
| 86 2-Methylnaphthalene         | 142 | 6.596     | 6.599         | -0.003        | 93 | 87345    | 10.0          | 11.3            |       |
| 88 1-Methylnaphthalene         | 142 | 6.695     | 6.699         | -0.004        | 92 | 81421    | 10.0          | 11.2            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.766     | 6.770         | -0.004        | 97 | 36126    | 10.0          | 11.1            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.760     | 6.764         | -0.004        | 93 | 21739    | 10.0          | 10.7            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.872     | 6.875         | -0.003        | 78 | 25963    | 10.0          | 11.0            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.866     | 6.875         | -0.009        | 91 | 43868    | 10.0          | 11.3            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.907     | 6.911         | -0.004        | 95 | 28628    | 10.0          | 10.7            |       |
| 98 1,1'-Biphenyl               | 154 | 7.054     | 7.057         | -0.003        | 95 | 101220   | 10.0          | 11.1            |       |
| 99 2-Chloronaphthalene         | 162 | 7.083     | 7.087         | -0.004        | 96 | 81063    | 10.0          | 10.9            |       |
| 101 2-Nitroaniline             | 65  | 7.165     | 7.169         | -0.004        | 84 | 27990    | 10.0          | 10.6            |       |
| 104 Dimethyl phthalate         | 163 | 7.342     | 7.351         | -0.009        | 99 | 92610    | 10.0          | 10.8            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.371     | 7.381         | -0.010        | 85 | 14112    | 10.0          | 9.68            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.400     | 7.410         | -0.010        | 95 | 22020    | 10.0          | 10.7            |       |
| 107 Acenaphthylene             | 152 | 7.500     | 7.504         | -0.004        | 98 | 123612   | 10.0          | 11.0            |       |
| 108 3-Nitroaniline             | 138 | 7.571     | 7.580         | -0.009        | 96 | 27249    | 10.0          | 10.6            |       |
| 109 Acenaphthene               | 153 | 7.676     | 7.680         | -0.004        | 94 | 82248    | 10.0          | 11.6            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.676     | 7.692         | -0.016        | 84 | 24942    | 20.0          | 19.5            |       |
| 112 4-Nitrophenol              | 109 | 7.723     | 7.745         | -0.022        | 94 | 27605    | 20.0          | 21.0            |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.812     | 7.821         | -0.009        | 94 | 29175    | 10.0          | 10.4            |       |
| 116 Dibenzofuran               | 168 | 7.847     | 7.850         | -0.003        | 96 | 112920   | 10.0          | 11.1            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.964     | 7.974         | -0.010        | 77 | 21320    | 10.0          | 10.7            |       |
| 123 Diethyl phthalate          | 149 | 8.047     | 8.056         | -0.009        | 98 | 97589    | 10.0          | 11.4            |       |
| 124 Hexadecane                 | 57  | 8.064     | 8.074         | -0.010        | 95 | 58516    | 10.0          | 11.0            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.176     | 8.179         | -0.003        | 94 | 42712    | 10.0          | 10.7            |       |
| 129 Fluorene                   | 166 | 8.193     | 8.197         | -0.004        | 95 | 95459    | 10.0          | 11.5            |       |
| 130 4-Nitroaniline             | 138 | 8.188     | 8.203         | -0.015        | 85 | 28952    | 10.0          | 10.5            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.223     | 8.238         | -0.015        | 86 | 32322    | 20.0          | 19.3            |       |
| 134 Diphenylamine              | 169 | 8.287     | 8.297         | -0.010        | 97 | 76844    | 8.50          | 9.33            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.287     | 8.297         | -0.010        | 61 | 76844    | 10.0          | 11.0            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.334     | 8.344         | -0.010        | 99 | 105194   | 10.1          | 11.1            |       |
| 137 Azobenzene                 | 77  | 8.334     | 8.344         | -0.010        | 98 | 105194   | 10.0          | 10.9            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.434     | 8.438         | -0.004        | 88 | 10539    | 10.0          | 10.6            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.669     | 8.679         | -0.010        | 70 | 24102    | 10.0          | 11.1            |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.763     | 8.767         | -0.004        | 87  | 20656    | 10.0          | 10.5            |       |
| 152 Atrazine                   | 200 | 8.810     | 8.820         | -0.010        | 92  | 25340    | 10.0          | 10.9            |       |
| 155 Pentachlorophenol          | 266 | 8.945     | 8.955         | -0.010        | 89  | 27438    | 20.0          | 18.5            |       |
| 158 n-Octadecane               | 85  | 8.992     | 8.996         | -0.004        | 96  | 28340    | 10.0          | 10.1            |       |
| 161 Phenanthrene               | 178 | 9.163     | 9.166         | -0.003        | 98  | 144987   | 10.0          | 11.2            |       |
| 162 Anthracene                 | 178 | 9.216     | 9.219         | -0.003        | 97  | 150155   | 10.0          | 11.2            |       |
| 164 Carbazole                  | 167 | 9.362     | 9.372         | -0.010        | 96  | 138423   | 10.0          | 10.9            |       |
| 166 Alachlor                   | 188 | 9.498     | 9.507         | -0.009        | 96  | 20106    | 10.0          | 10.9            |       |
| 168 Di-n-butyl phthalate       | 149 | 9.709     | 9.719         | -0.010        | 100 | 169667   | 10.0          | 11.0            |       |
| 175 Fluoranthene               | 202 | 10.543    | 10.553        | -0.010        | 98  | 165109   | 10.0          | 11.0            |       |
| 178 Pyrene                     | 202 | 10.878    | 10.893        | -0.015        | 97  | 172530   | 10.0          | 10.6            |       |
| 185 Famphur                    | 218 | 11.871    | 11.886        | -0.015        | 85  | 61545    | 10.0          | 11.0            |       |
| 187 Butyl benzyl phthalate     | 149 | 11.994    | 12.010        | -0.016        | 98  | 80436    | 10.0          | 10.1            |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.151    | 13.173        | -0.022        | 75  | 50883    | 10.0          | 10.1            |       |
| 191 Benzo[a]anthracene         | 228 | 13.204    | 13.226        | -0.022        | 99  | 156676   | 10.0          | 10.2            |       |
| 192 Chrysene                   | 228 | 13.292    | 13.314        | -0.022        | 98  | 158805   | 10.0          | 10.7            |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.375    | 13.390        | -0.015        | 98  | 108665   | 10.0          | 10.0            |       |
| 195 Di-n-octyl phthalate       | 149 | 15.178    | 15.199        | -0.021        | 99  | 200338   | 10.0          | 10.3            |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.071    | 16.104        | -0.033        | 98  | 152364   | 10.0          | 10.1            |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.153    | 16.180        | -0.027        | 99  | 160903   | 10.0          | 10.6            |       |
| 200 Benzo[e]pyrene             | 252 | 16.846    | 16.885        | -0.039        | 98  | 144410   | 10.0          | 10.3            |       |
| 201 Benzo[a]pyrene             | 252 | 16.999    | 17.038        | -0.039        | 79  | 157473   | 10.0          | 10.5            |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.283    | 20.328        | -0.045        | 96  | 135682   | 10.0          | 10.4            |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.377    | 20.422        | -0.045        | 95  | 135483   | 10.0          | 10.6            |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.023    | 21.074        | -0.051        | 96  | 148325   | 10.0          | 10.8            |       |
| S 219 Total Cresols            | 108 |           |               |               | 0   |          |               | 21.0            |       |
| S 220 Methyl Phenols, Total    | 108 |           |               |               | 0   |          |               | 21.0            |       |

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

MS-HSLA010\_00035

Amount Added: 200.00

Units: uL

Report Date: 22-Apr-2018 07:59:37

Chrom Revision: 2.2 17-Apr-2018 19:19:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19203.D

Injection Date: 21-Apr-2018 13:07:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD010 HSL

Worklist Smp#: 5

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

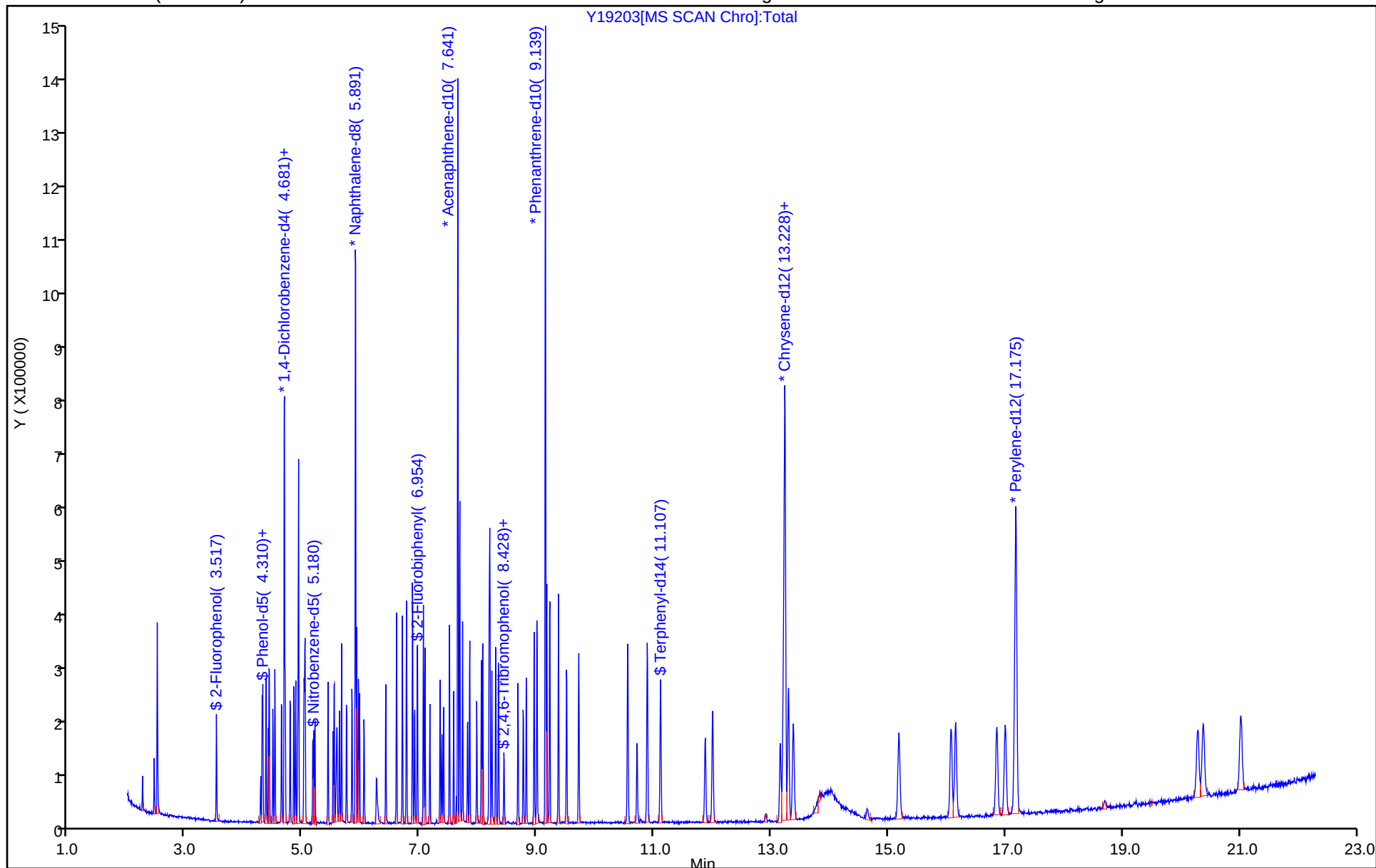
ALS Bottle#: 4

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

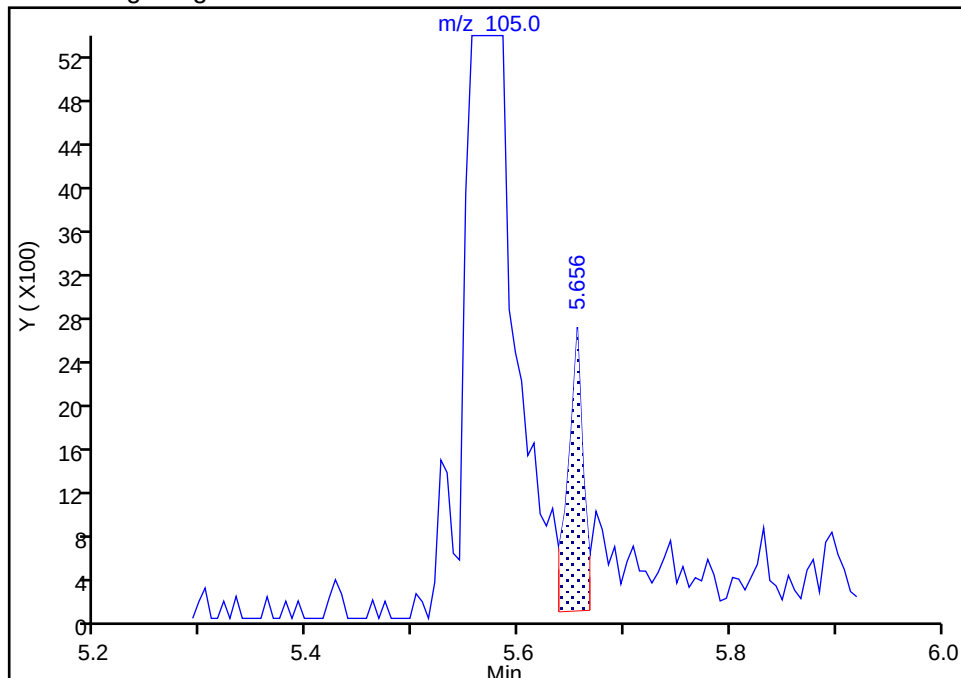
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19203.D  
Injection Date: 21-Apr-2018 13:07:30 Instrument ID: SMS\_Y  
Lims ID: STD010 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 4 Worklist Smp#: 5  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**64 Benzoic acid, CAS: 65-85-0**

Signal: 1

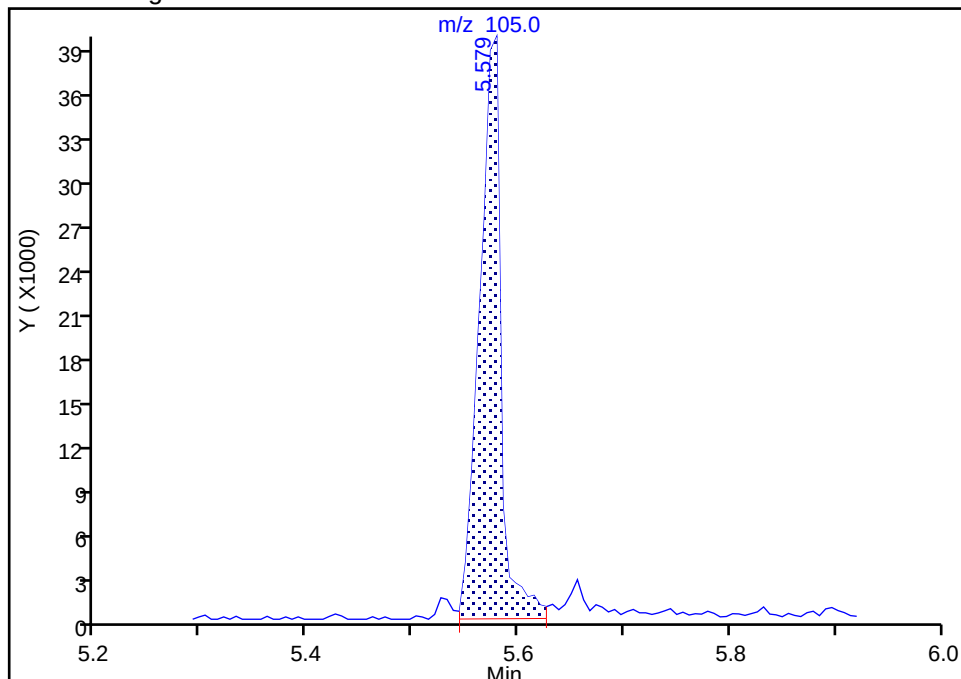
RT: 5.66  
Area: 2654  
Amount: 2.270107  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.58  
Area: 55866  
Amount: 19.980330  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:31:37

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak



## TestAmerica Denver

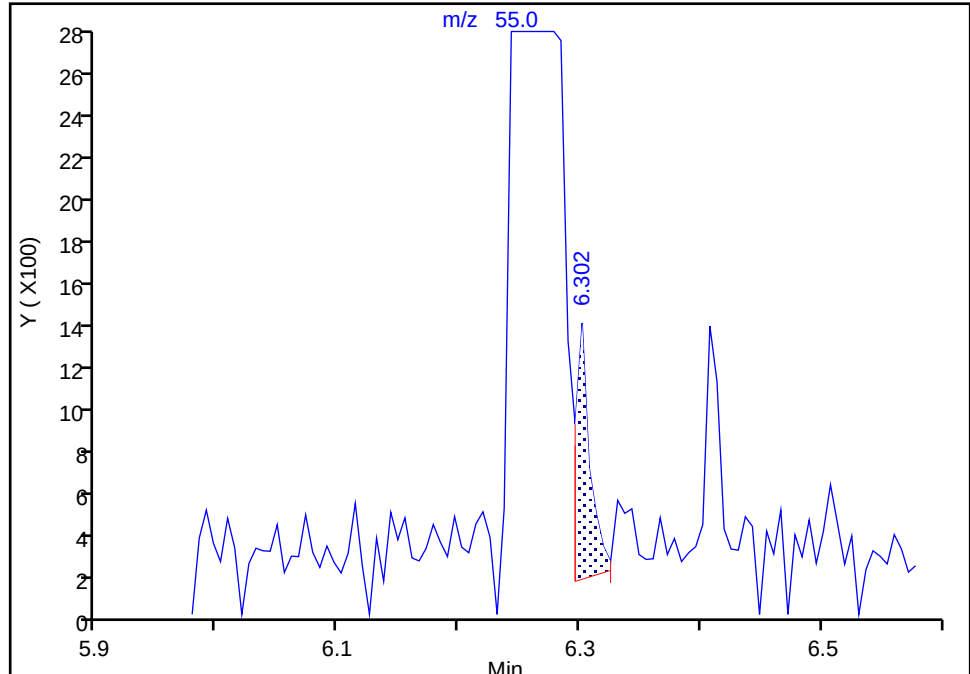
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19203.D  
Injection Date: 21-Apr-2018 13:07:30 Instrument ID: SMS\_Y  
Lims ID: STD010 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 4 Worklist Smp#: 5  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**79 Caprolactam, CAS: 105-60-2**

Signal: 1

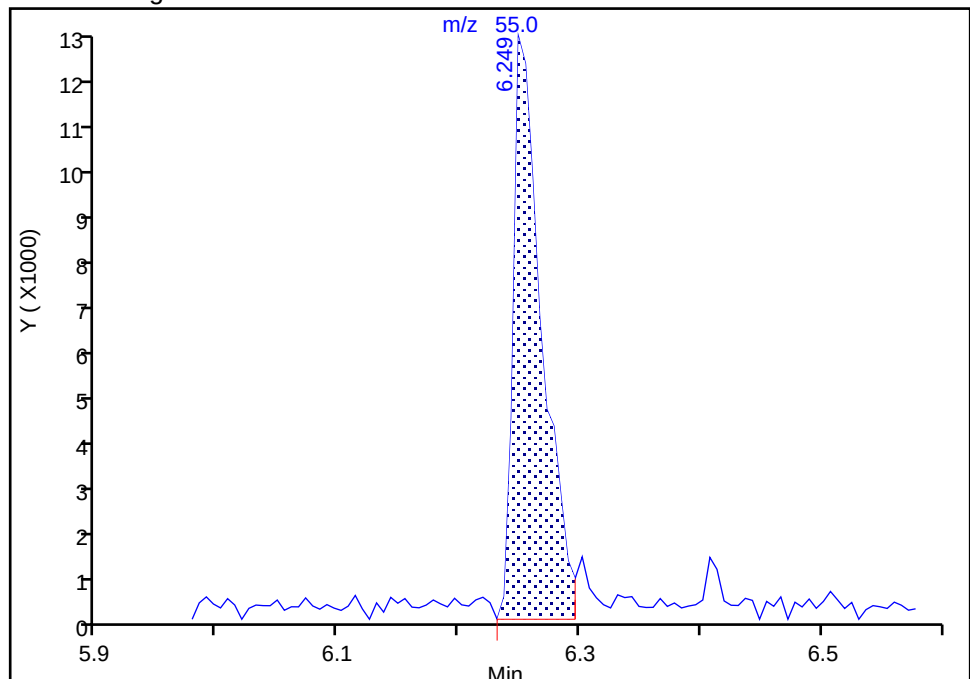
RT: 6.30  
Area: 1010  
Amount: 0.784971  
Amount Units: ug/ml

## Processing Integration Results



RT: 6.25  
Area: 20849  
Amount: 9.779092  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:31:44

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19204.D  
 Lims ID: STD020 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 21-Apr-2018 13:35:30 ALS Bottle#: 5 Worklist Smp#: 6  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD020 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:38 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:32:03

| Compound                      | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.678        | 4.678            | 0.000            | 96  | 104856   | 40.0             | 40.0               |       |
| * 2 Naphthalene-d8            | 136 | 5.894        | 5.894            | 0.000            | 100 | 439266   | 40.0             | 40.0               |       |
| * 3 Acenaphthene-d10          | 164 | 7.645        | 7.645            | 0.000            | 91  | 261971   | 40.0             | 40.0               |       |
| * 4 Phenanthrene-d10          | 188 | 9.137        | 9.143            | -0.006           | 97  | 468226   | 40.0             | 40.0               |       |
| * 5 Chrysene-d12              | 240 | 13.231       | 13.249           | -0.018           | 98  | 475764   | 40.0             | 40.0               |       |
| * 6 Perylene-d12              | 264 | 17.179       | 17.197           | -0.018           | 97  | 452316   | 40.0             | 40.0               |       |
| \$ 7 2-Fluorophenol           | 112 | 3.521        | 3.521            | 0.000            | 92  | 84736    | 20.0             | 22.0               |       |
| \$ 8 Phenol-d5                | 99  | 4.302        | 4.302            | 0.000            | 0   | 106957   | 20.0             | 22.3               |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.184        | 5.189            | -0.005           | 89  | 97075    | 20.0             | 22.0               |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.952        | 6.958            | -0.006           | 100 | 189985   | 20.0             | 22.5               |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.432        | 8.438            | -0.006           | 89  | 22841    | 20.0             | 23.2               |       |
| \$ 13 Terphenyl-d14           | 244 | 11.111       | 11.117           | -0.006           | 98  | 231422   | 20.0             | 22.3               |       |
| 15 1,4-Dioxane                | 88  | 2.258        | 2.258            | 0.000            | 98  | 34532    | 20.0             | 21.1               |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.458        | 2.464            | -0.006           | 94  | 58053    | 20.0             | 21.4               |       |
| 18 Pyridine                   | 79  | 2.511        | 2.511            | 0.000            | 96  | 197462   | 40.0             | 44.6               |       |
| 28 Phenol                     | 94  | 4.314        | 4.320            | -0.006           | 99  | 115910   | 20.0             | 22.8               |       |
| 30 Aniline                    | 93  | 4.367        | 4.367            | 0.000            | 97  | 141013   | 20.0             | 21.9               |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.408        | 4.408            | 0.000            | 98  | 87678    | 20.0             | 23.0               |       |
| 32 Alpha Methyl Styrene       | 118 | 4.420        | 4.426            | -0.006           | 90  | 87696    | 20.0             | 22.3               |       |
| 34 2-Chlorophenol             | 128 | 4.485        | 4.490            | -0.006           | 98  | 87186    | 20.0             | 22.5               |       |
| 35 n-Decane                   | 43  | 4.520        | 4.520            | 0.000            | 92  | 96344    | 20.0             | 22.3               |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.631        | 4.631            | 0.000            | 97  | 96211    | 20.0             | 22.5               |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.696        | 4.696            | 0.000            | 94  | 95780    | 20.0             | 22.6               |       |
| 39 Benzyl alcohol             | 108 | 4.778        | 4.784            | -0.006           | 91  | 56269    | 20.0             | 21.6               |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.843        | 4.843            | 0.000            | 97  | 90610    | 20.0             | 22.4               |       |
| 41 2-Methylphenol             | 108 | 4.872        | 4.878            | -0.006           | 98  | 79637    | 20.0             | 22.4               |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.907        | 4.913            | -0.006           | 93  | 130395   | 20.0             | 22.6               |       |
| 44 Indene                     | 116 | 4.925        | 4.925            | 0.000            | 91  | 309022   | 40.0             | 42.9               |       |
| 46 3-Methylphenol             | 108 | 5.013        | 5.019            | -0.006           | 91  | 85196    | 20.0             | 22.5               |       |
| 47 4-Methylphenol             | 108 | 5.013        | 5.019            | -0.006           | 95  | 85196    | 20.0             | 22.5               |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.013     | 5.019         | -0.006        | 0  | 85196    | 20.0          | 22.5            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.025     | 5.031         | -0.006        | 91 | 71186    | 20.0          | 23.1            |       |
| 51 Acetophenone                | 105 | 5.037     | 5.043         | -0.006        | 96 | 121132   | 20.0          | 21.1            |       |
| 53 Hexachloroethane            | 117 | 5.166     | 5.166         | 0.000         | 95 | 35815    | 20.0          | 22.3            |       |
| 54 Nitrobenzene                | 77  | 5.201     | 5.207         | -0.006        | 88 | 95892    | 20.0          | 22.0            |       |
| 57 Isophorone                  | 82  | 5.424     | 5.436         | -0.012        | 99 | 173812   | 20.0          | 22.3            |       |
| 58 2-Nitrophenol               | 139 | 5.513     | 5.512         | 0.001         | 93 | 47408    | 20.0          | 21.7            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.530     | 5.536         | -0.006        | 94 | 87032    | 20.0          | 22.4            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.618     | 5.624         | -0.006        | 99 | 110029   | 20.0          | 22.8            |       |
| 64 Benzoic acid                | 105 | 5.595     | 5.653         | -0.058        | 92 | 122544   | 40.0          | 39.5            | a     |
| 66 3,5-Dimethylphenol          | 107 | 5.659     | 5.659         | 0.000         | 83 | 91662    | 20.0          | 23.1            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.742     | 5.747         | -0.005        | 95 | 72294    | 20.0          | 22.2            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.836     | 5.841         | -0.005        | 93 | 76461    | 20.0          | 23.0            |       |
| 71 Naphthalene                 | 128 | 5.918     | 5.918         | 0.000         | 97 | 247676   | 20.0          | 22.9            |       |
| 72 4-Chloroaniline             | 127 | 5.947     | 5.953         | -0.006        | 97 | 118650   | 20.0          | 23.0            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.965     | 5.971         | -0.006        | 97 | 71212    | 20.0          | 22.2            |       |
| 75 Hexachlorobutadiene         | 225 | 6.041     | 6.041         | 0.000         | 97 | 38926    | 20.0          | 22.6            |       |
| 79 Caprolactam                 | 55  | 6.259     | 6.282         | -0.023        | 80 | 46237    | 20.0          | 21.7            |       |
| 83 4-Chloro-3-methylphenol     | 107 | 6.411     | 6.423         | -0.012        | 95 | 75906    | 20.0          | 21.5            |       |
| 86 2-Methylnaphthalene         | 142 | 6.593     | 6.599         | -0.006        | 92 | 174669   | 20.0          | 22.7            |       |
| 88 1-Methylnaphthalene         | 142 | 6.699     | 6.699         | 0.000         | 93 | 163192   | 20.0          | 22.5            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.770     | 6.770         | 0.000         | 97 | 75831    | 20.0          | 23.4            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.764     | 6.764         | 0.000         | 95 | 44163    | 20.0          | 21.7            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.870     | 6.875         | -0.005        | 79 | 52790    | 20.0          | 22.5            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.870     | 6.875         | -0.005        | 92 | 91483    | 20.0          | 23.5            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.905     | 6.911         | -0.006        | 95 | 60380    | 20.0          | 22.6            |       |
| 98 1,1'-Biphenyl               | 154 | 7.057     | 7.057         | 0.000         | 95 | 208628   | 20.0          | 22.8            |       |
| 99 2-Chloronaphthalene         | 162 | 7.081     | 7.087         | -0.006        | 97 | 168367   | 20.0          | 22.7            |       |
| 101 2-Nitroaniline             | 65  | 7.169     | 7.169         | 0.000         | 86 | 58675    | 20.0          | 22.3            |       |
| 104 Dimethyl phthalate         | 163 | 7.339     | 7.351         | -0.012        | 99 | 191202   | 20.0          | 22.3            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.375     | 7.381         | -0.006        | 87 | 30099    | 20.0          | 20.7            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.404     | 7.410         | -0.006        | 96 | 44860    | 20.0          | 21.7            |       |
| 107 Acenaphthylene             | 152 | 7.504     | 7.504         | 0.000         | 98 | 253125   | 20.0          | 22.6            |       |
| 108 3-Nitroaniline             | 138 | 7.574     | 7.580         | -0.006        | 94 | 57274    | 20.0          | 22.3            |       |
| 109 Acenaphthene               | 153 | 7.674     | 7.680         | -0.006        | 95 | 161231   | 20.0          | 22.8            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.680     | 7.692         | -0.012        | 84 | 56931    | 40.0          | 42.0            |       |
| 112 4-Nitrophenol              | 109 | 7.727     | 7.745         | -0.018        | 95 | 56472    | 40.0          | 43.1            | a     |
| 114 2,4-Dinitrotoluene         | 165 | 7.809     | 7.821         | -0.012        | 95 | 61365    | 20.0          | 22.0            |       |
| 116 Dibenzofuran               | 168 | 7.845     | 7.850         | -0.005        | 97 | 231005   | 20.0          | 22.8            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.968     | 7.974         | -0.006        | 75 | 43912    | 20.0          | 22.1            |       |
| 123 Diethyl phthalate          | 149 | 8.044     | 8.056         | -0.012        | 98 | 194411   | 20.0          | 22.7            |       |
| 124 Hexadecane                 | 57  | 8.068     | 8.074         | -0.006        | 95 | 121434   | 20.0          | 22.9            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.180     | 8.179         | 0.001         | 92 | 92701    | 20.0          | 23.3            |       |
| 129 Fluorene                   | 166 | 8.191     | 8.197         | -0.006        | 95 | 193102   | 20.0          | 23.2            |       |
| 130 4-Nitroaniline             | 138 | 8.191     | 8.203         | -0.012        | 85 | 60431    | 20.0          | 22.6            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.227     | 8.238         | -0.012        | 85 | 69529    | 40.0          | 42.0            |       |
| 134 Diphenylamine              | 169 | 8.291     | 8.297         | -0.006        | 97 | 158194   | 17.0          | 19.2            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.291     | 8.297         | -0.006        | 60 | 158194   | 20.0          | 22.6            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.338     | 8.344         | -0.006        | 99 | 216333   | 20.2          | 22.8            |       |
| 137 Azobenzene                 | 77  | 8.338     | 8.344         | -0.006        | 99 | 216333   | 20.0          | 22.5            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.432     | 8.438         | -0.006        | 89 | 22721    | 20.0          | 23.0            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.673     | 8.679         | -0.006        | 69 | 48949    | 20.0          | 22.4            |       |

| Compound                       | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|--------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.761        | 8.767            | -0.006           | 91  | 44439    | 20.0             | 22.4               |       |
| 152 Atrazine                   | 200 | 8.814        | 8.820            | -0.006           | 91  | 52513    | 20.0             | 22.6               |       |
| 155 Pentachlorophenol          | 266 | 8.949        | 8.955            | -0.006           | 90  | 61993    | 40.0             | 45.1               |       |
| 158 n-Octadecane               | 85  | 8.996        | 8.996            | 0.000            | 97  | 57571    | 20.0             | 23.6               |       |
| 161 Phenanthrene               | 178 | 9.166        | 9.166            | 0.000            | 98  | 299577   | 20.0             | 23.2               |       |
| 162 Anthracene                 | 178 | 9.213        | 9.219            | -0.006           | 98  | 304861   | 20.0             | 22.6               |       |
| 164 Carbazole                  | 167 | 9.366        | 9.372            | -0.006           | 96  | 288203   | 20.0             | 22.6               |       |
| 166 Alachlor                   | 188 | 9.501        | 9.507            | -0.006           | 98  | 42405    | 20.0             | 22.8               |       |
| 168 Di-n-butyl phthalate       | 149 | 9.713        | 9.719            | -0.006           | 100 | 351766   | 20.0             | 22.7               |       |
| 175 Fluoranthene               | 202 | 10.547       | 10.553           | -0.006           | 98  | 341781   | 20.0             | 22.6               |       |
| 178 Pyrene                     | 202 | 10.882       | 10.893           | -0.011           | 97  | 349298   | 20.0             | 22.2               |       |
| 185 Famphur                    | 218 | 11.875       | 11.886           | -0.012           | 85  | 125711   | 20.0             | 23.1               |       |
| 187 Butyl benzyl phthalate     | 149 | 11.998       | 12.010           | -0.012           | 98  | 168678   | 20.0             | 21.8               |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.155       | 13.173           | -0.018           | 75  | 108889   | 20.0             | 22.2               |       |
| 191 Benzo[a]anthracene         | 228 | 13.208       | 13.226           | -0.018           | 99  | 320882   | 20.0             | 21.5               |       |
| 192 Chrysene                   | 228 | 13.290       | 13.314           | -0.024           | 97  | 317136   | 20.0             | 22.0               |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.372       | 13.390           | -0.018           | 98  | 226218   | 20.0             | 21.4               |       |
| 195 Di-n-octyl phthalate       | 149 | 15.182       | 15.199           | -0.017           | 99  | 395004   | 20.0             | 20.9               |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.075       | 16.104           | -0.029           | 98  | 316696   | 20.0             | 21.7               |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.151       | 16.180           | -0.029           | 95  | 313288   | 20.0             | 21.3               |       |
| 200 Benzo[e]pyrene             | 252 | 16.856       | 16.885           | -0.029           | 98  | 287500   | 20.0             | 21.1               |       |
| 201 Benzo[a]pyrene             | 252 | 16.997       | 17.038           | -0.041           | 81  | 311165   | 20.0             | 21.4               |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.293       | 20.328           | -0.035           | 97  | 267227   | 20.0             | 21.1               |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.387       | 20.422           | -0.036           | 96  | 264532   | 20.0             | 21.4               |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.027       | 21.074           | -0.047           | 95  | 283188   | 20.0             | 21.3               |       |
| S 219 Total Cresols            | 108 |              |                  |                  | 0   |          |                  | 44.9               |       |
| S 220 Methyl Phenols, Total    | 108 |              |                  |                  | 0   |          |                  | 44.9               |       |

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

MS-HSLA020\_00035

Amount Added: 200.00

Units: uL

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19204.D

Injection Date: 21-Apr-2018 13:35:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD020 HSL

Worklist Smp#: 6

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

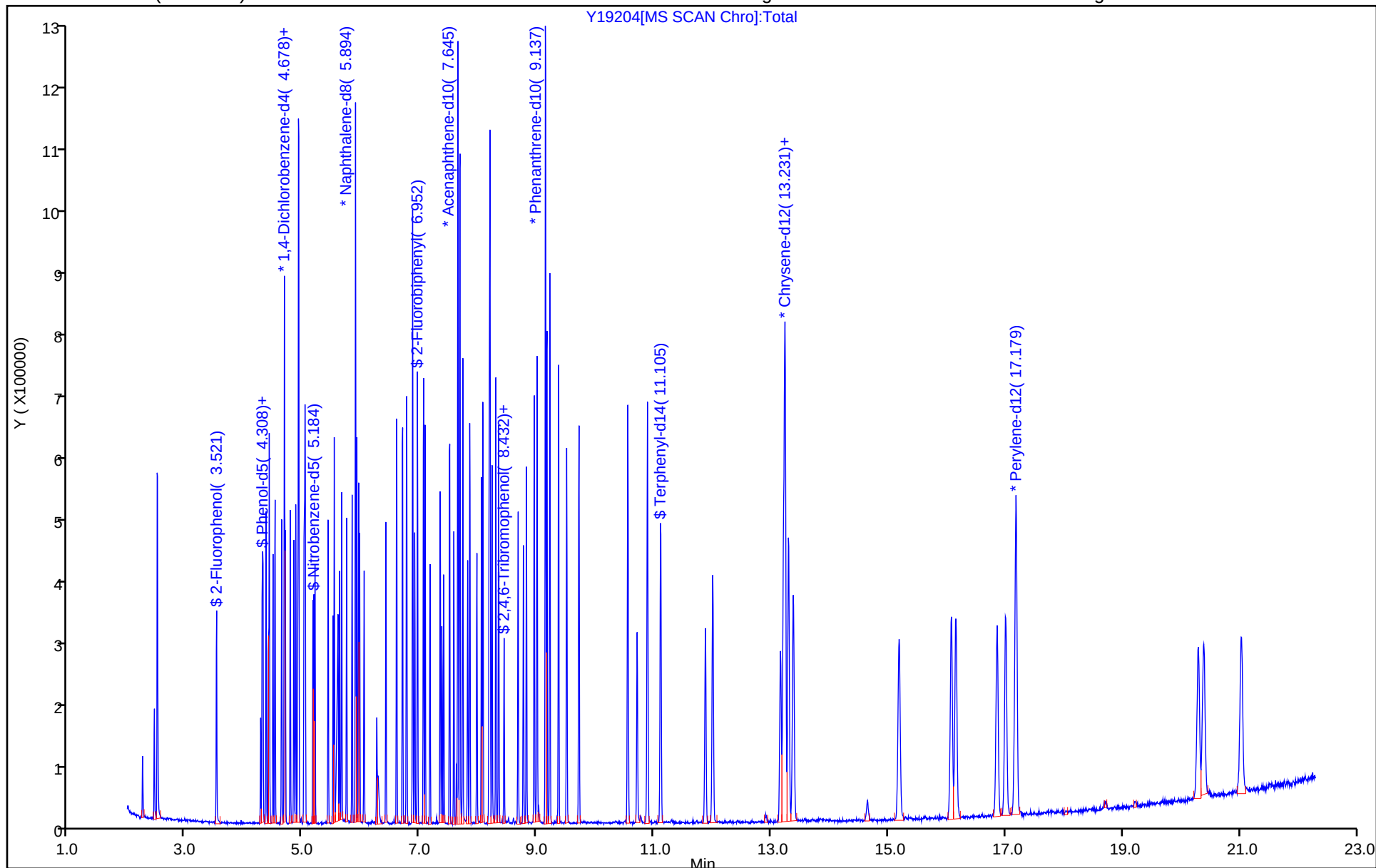
ALS Bottle#: 5

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19204.D  
Injection Date: 21-Apr-2018 13:35:30 Instrument ID: SMS\_Y  
Lims ID: STD020 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 5  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

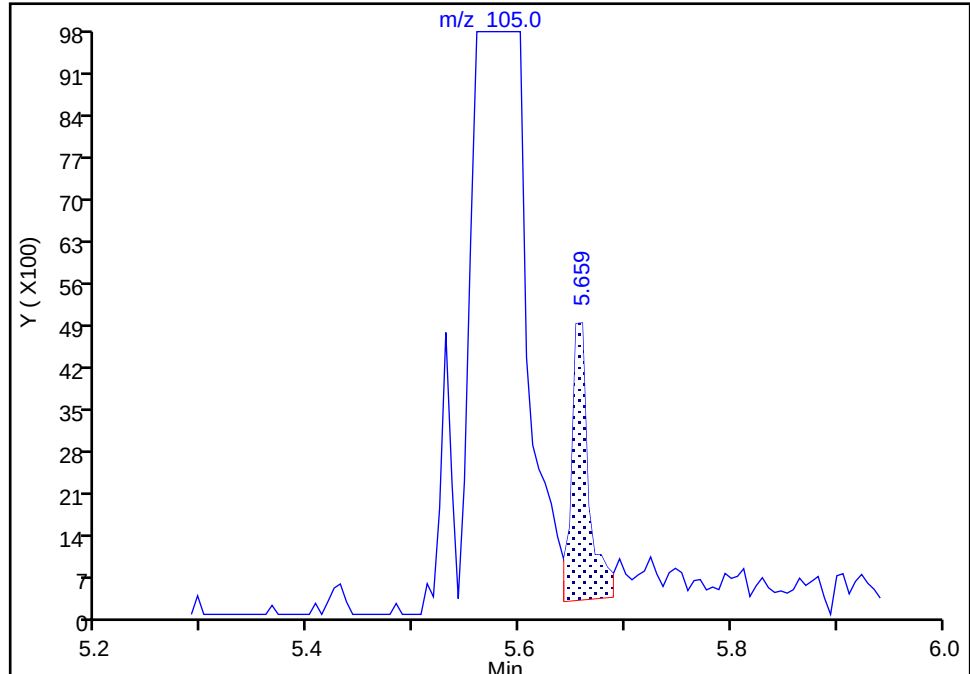
Worklist Smp#: 6

**64 Benzoic acid, CAS: 65-85-0**

Signal: 1

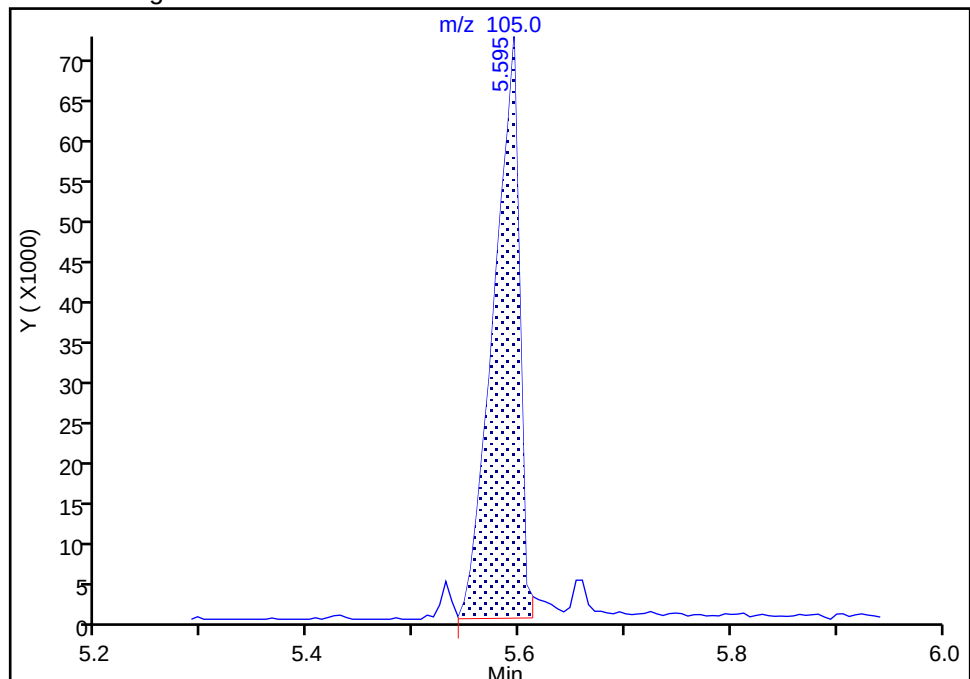
RT: 5.66  
Area: 5352  
Amount: 3.569680  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.59  
Area: 122544  
Amount: 39.540867  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:31:59

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

## TestAmerica Denver

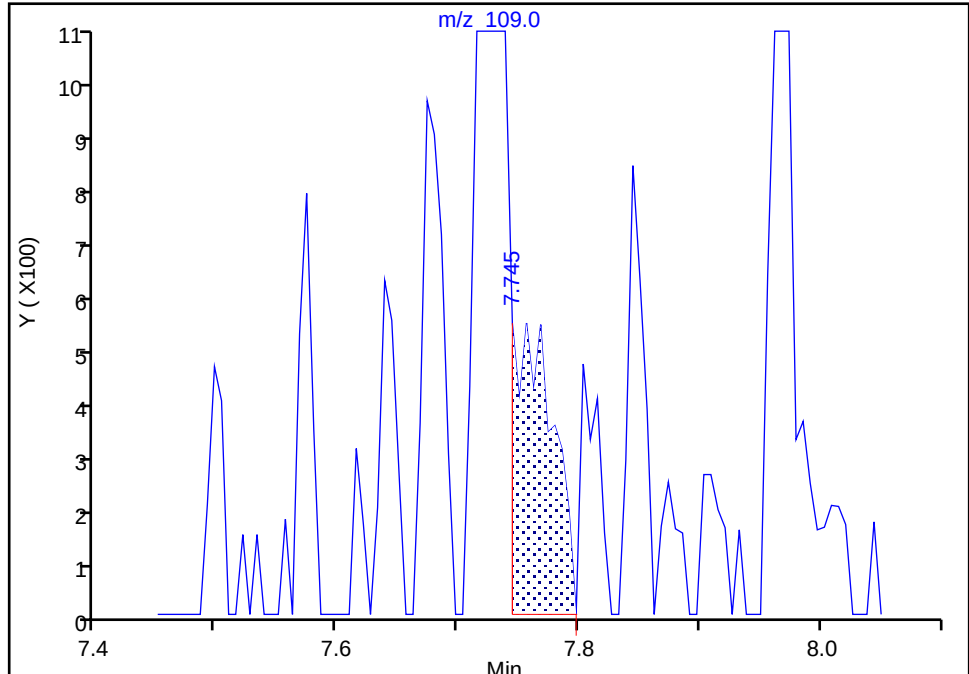
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19204.D  
Injection Date: 21-Apr-2018 13:35:30 Instrument ID: SMS\_Y  
Lims ID: STD020 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 5 Worklist Smp#: 6  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms (0.50 mm) Detector: MS SCAN

**112 4-Nitrophenol, CAS: 100-02-7**

Signal: 1

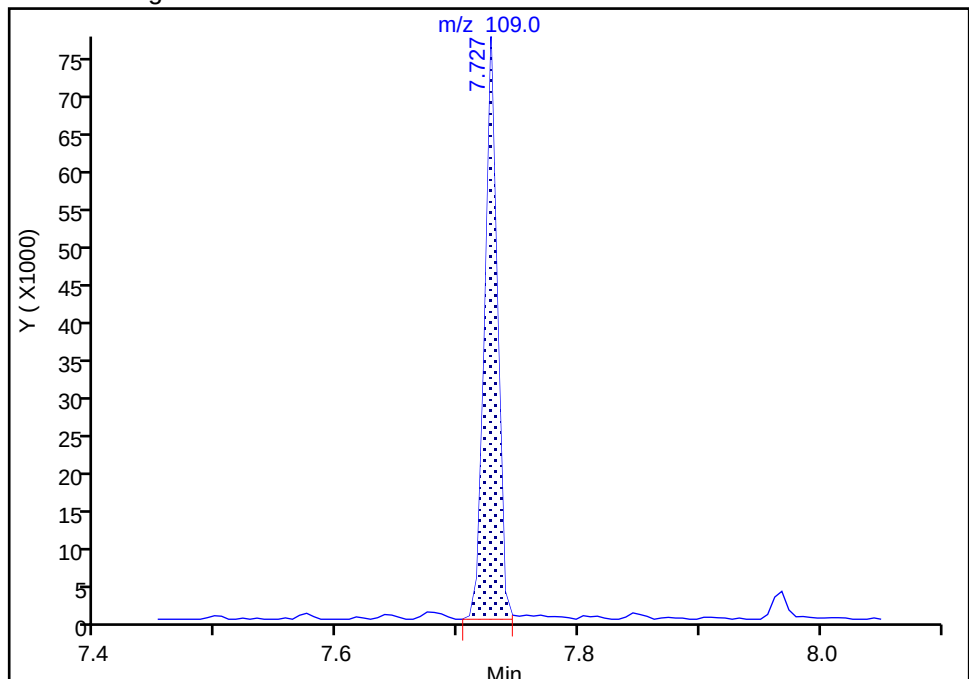
RT: 7.74  
Area: 1292  
Amount: 1.327992  
Amount Units: ug/ml

## Processing Integration Results



RT: 7.73  
Area: 56472  
Amount: 43.057539  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:35:43

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19205.D  
 Lims ID: STD050 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 4  
 Inject. Date: 21-Apr-2018 14:04:30 ALS Bottle#: 6 Worklist Smp#: 7  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD050 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:41 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:32:32

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.681     | 4.678         | 0.003         | 96  | 106971   | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8            | 136 | 5.897     | 5.894         | 0.003         | 99  | 462460   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10          | 164 | 7.647     | 7.645         | 0.002         | 92  | 276405   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10          | 188 | 9.139     | 9.143         | -0.004        | 97  | 497539   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12              | 240 | 13.240    | 13.249        | -0.009        | 98  | 495357   | 40.0          | 40.0            |       |
| * 6 Perylene-d12              | 264 | 17.181    | 17.197        | -0.016        | 96  | 464871   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol           | 112 | 3.518     | 3.521         | -0.003        | 93  | 205702   | 50.0          | 52.3            |       |
| \$ 8 Phenol-d5                | 99  | 4.305     | 4.302         | 0.003         | 0   | 256813   | 50.0          | 52.4            |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.186     | 5.189         | -0.003        | 89  | 239445   | 50.0          | 51.4            |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.954     | 6.958         | -0.004        | 100 | 456383   | 50.0          | 51.2            |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.434     | 8.438         | -0.004        | 88  | 54304    | 50.0          | 52.3            |       |
| \$ 13 Terphenyl-d14           | 244 | 11.113    | 11.117        | -0.004        | 98  | 548426   | 50.0          | 50.8            |       |
| 15 1,4-Dioxane                | 88  | 2.255     | 2.258         | -0.003        | 97  | 83374    | 50.0          | 49.9            |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.460     | 2.464         | -0.004        | 92  | 144503   | 50.0          | 52.3            |       |
| 18 Pyridine                   | 79  | 2.507     | 2.511         | -0.004        | 95  | 472304   | 100.0         | 104.6           |       |
| 28 Phenol                     | 94  | 4.317     | 4.320         | -0.004        | 99  | 278169   | 50.0          | 53.6            |       |
| 30 Aniline                    | 93  | 4.369     | 4.367         | 0.002         | 97  | 342531   | 50.0          | 52.1            |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.405     | 4.408         | -0.003        | 96  | 204993   | 50.0          | 52.8            |       |
| 32 Alpha Methyl Styrene       | 118 | 4.422     | 4.426         | -0.004        | 92  | 208946   | 50.0          | 52.1            |       |
| 34 2-Chlorophenol             | 128 | 4.487     | 4.490         | -0.003        | 98  | 206501   | 50.0          | 52.2            |       |
| 35 n-Decane                   | 43  | 4.516     | 4.520         | -0.004        | 93  | 228552   | 50.0          | 51.9            |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.634     | 4.631         | 0.003         | 98  | 227840   | 50.0          | 52.3            |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.692     | 4.696         | -0.004        | 93  | 223123   | 50.0          | 51.6            |       |
| 39 Benzyl alcohol             | 108 | 4.781     | 4.784         | -0.003        | 92  | 139596   | 50.0          | 52.5            |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.839     | 4.843         | -0.004        | 96  | 219950   | 50.0          | 53.2            |       |
| 41 2-Methylphenol             | 108 | 4.875     | 4.878         | -0.003        | 97  | 192592   | 50.0          | 53.0            |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.910     | 4.913         | -0.003        | 93  | 315263   | 50.0          | 53.5            |       |
| 44 Indene                     | 116 | 4.922     | 4.925         | -0.003        | 90  | 699180   | 100.0         | 104.7           |       |
| 46 3-Methylphenol             | 108 | 5.016     | 5.019         | -0.003        | 92  | 205577   | 50.0          | 53.3            |       |
| 47 4-Methylphenol             | 108 | 5.016     | 5.019         | -0.003        | 94  | 205577   | 50.0          | 53.3            |       |



| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.016     | 5.019         | -0.003        | 0  | 205577   | 50.0          | 53.3            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.033     | 5.031         | 0.002         | 91 | 171323   | 50.0          | 54.4            |       |
| 51 Acetophenone                | 105 | 5.039     | 5.043         | -0.004        | 96 | 279125   | 50.0          | 51.8            |       |
| 53 Hexachloroethane            | 117 | 5.168     | 5.166         | 0.002         | 96 | 86169    | 50.0          | 52.7            |       |
| 54 Nitrobenzene                | 77  | 5.204     | 5.207         | -0.003        | 89 | 234378   | 50.0          | 51.0            |       |
| 57 Isophorone                  | 82  | 5.427     | 5.436         | -0.009        | 99 | 420375   | 50.0          | 51.1            |       |
| 58 2-Nitrophenol               | 139 | 5.515     | 5.512         | 0.003         | 93 | 118643   | 50.0          | 51.6            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.533     | 5.536         | -0.004        | 96 | 212695   | 50.0          | 52.1            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.621     | 5.624         | -0.003        | 99 | 260376   | 50.0          | 51.3            |       |
| 64 Benzoic acid                | 105 | 5.627     | 5.653         | -0.027        | 91 | 354513   | 100.0         | 102.3           | a     |
| 66 3,5-Dimethylphenol          | 107 | 5.662     | 5.659         | 0.003         | 84 | 215672   | 50.0          | 51.7            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.744     | 5.747         | -0.003        | 95 | 175198   | 50.0          | 51.1            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.838     | 5.841         | -0.003        | 93 | 175913   | 50.0          | 50.2            |       |
| 71 Naphthalene                 | 128 | 5.914     | 5.918         | -0.004        | 98 | 590054   | 50.0          | 51.7            |       |
| 72 4-Chloroaniline             | 127 | 5.950     | 5.953         | -0.003        | 95 | 274836   | 50.0          | 50.7            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.967     | 5.971         | -0.004        | 98 | 177768   | 50.0          | 52.5            |       |
| 75 Hexachlorobutadiene         | 225 | 6.044     | 6.041         | 0.003         | 97 | 93390    | 50.0          | 51.5            |       |
| 79 Caprolactam                 | 55  | 6.267     | 6.282         | -0.015        | 80 | 111450   | 50.0          | 49.7            | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.414     | 6.423         | -0.009        | 97 | 192233   | 50.0          | 51.7            |       |
| 86 2-Methylnaphthalene         | 142 | 6.596     | 6.599         | -0.003        | 92 | 420190   | 50.0          | 51.8            |       |
| 88 1-Methylnaphthalene         | 142 | 6.696     | 6.699         | -0.003        | 93 | 392068   | 50.0          | 51.3            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.772     | 6.770         | 0.002         | 97 | 173347   | 50.0          | 50.8            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.766     | 6.764         | 0.002         | 95 | 111454   | 50.0          | 51.8            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.872     | 6.875         | -0.003        | 82 | 130917   | 50.0          | 52.8            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.872     | 6.875         | -0.003        | 89 | 207832   | 50.0          | 50.6            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.907     | 6.911         | -0.004        | 95 | 141991   | 50.0          | 50.5            |       |
| 98 1,1'-Biphenyl               | 154 | 7.060     | 7.057         | 0.003         | 95 | 496225   | 50.0          | 51.5            |       |
| 99 2-Chloronaphthalene         | 162 | 7.083     | 7.087         | -0.004        | 96 | 401352   | 50.0          | 51.2            |       |
| 101 2-Nitroaniline             | 65  | 7.171     | 7.169         | 0.002         | 84 | 141253   | 50.0          | 50.8            |       |
| 104 Dimethyl phthalate         | 163 | 7.348     | 7.351         | -0.003        | 99 | 460316   | 50.0          | 50.9            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.377     | 7.381         | -0.004        | 86 | 81916    | 50.0          | 53.3            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.406     | 7.410         | -0.004        | 96 | 112855   | 50.0          | 51.8            |       |
| 107 Acenaphthylene             | 152 | 7.500     | 7.504         | -0.004        | 98 | 607973   | 50.0          | 51.6            |       |
| 108 3-Nitroaniline             | 138 | 7.577     | 7.580         | -0.003        | 96 | 137870   | 50.0          | 50.8            |       |
| 109 Acenaphthene               | 153 | 7.677     | 7.680         | -0.003        | 92 | 380880   | 50.0          | 51.0            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.683     | 7.692         | -0.009        | 82 | 149649   | 100.0         | 101.7           | a     |
| 112 4-Nitrophenol              | 109 | 7.735     | 7.745         | -0.010        | 96 | 142166   | 100.0         | 102.7           | a     |
| 114 2,4-Dinitrotoluene         | 165 | 7.812     | 7.821         | -0.009        | 95 | 152020   | 50.0          | 51.6            |       |
| 116 Dibenzofuran               | 168 | 7.847     | 7.850         | -0.003        | 96 | 539732   | 50.0          | 50.4            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.970     | 7.974         | -0.004        | 75 | 111244   | 50.0          | 53.0            |       |
| 123 Diethyl phthalate          | 149 | 8.053     | 8.056         | -0.003        | 98 | 465096   | 50.0          | 51.6            |       |
| 124 Hexadecane                 | 57  | 8.070     | 8.074         | -0.004        | 95 | 291784   | 50.0          | 52.1            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.182     | 8.179         | 0.003         | 92 | 213574   | 50.0          | 50.8            |       |
| 129 Fluorene                   | 166 | 8.194     | 8.197         | -0.003        | 93 | 441449   | 50.0          | 50.3            |       |
| 130 4-Nitroaniline             | 138 | 8.194     | 8.203         | -0.009        | 65 | 140687   | 50.0          | 50.5            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.235     | 8.238         | -0.003        | 90 | 184822   | 100.0         | 106.0           |       |
| 134 Diphenylamine              | 169 | 8.293     | 8.297         | -0.004        | 97 | 371769   | 42.5          | 42.8            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.293     | 8.297         | -0.004        | 60 | 371769   | 50.0          | 50.0            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.340     | 8.344         | -0.004        | 99 | 515093   | 50.5          | 51.4            |       |
| 137 Azobenzene                 | 77  | 8.340     | 8.344         | -0.004        | 98 | 515093   | 50.0          | 50.8            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.434     | 8.438         | -0.004        | 88 | 54014    | 50.0          | 51.8            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.675     | 8.679         | -0.004        | 70 | 115939   | 50.0          | 50.0            |       |

| Compound                       | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|--------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.763        | 8.767            | -0.004           | 91  | 109497   | 50.0             | 52.0               |       |
| 152 Atrazine                   | 200 | 8.822        | 8.820            | 0.002            | 91  | 123786   | 50.0             | 50.1               |       |
| 155 Pentachlorophenol          | 266 | 8.951        | 8.955            | -0.004           | 90  | 152991   | 100.0            | 108.2              |       |
| 158 n-Octadecane               | 85  | 8.998        | 8.996            | 0.002            | 97  | 134410   | 50.0             | 55.8               |       |
| 161 Phenanthrene               | 178 | 9.169        | 9.166            | 0.003            | 98  | 696253   | 50.0             | 50.6               |       |
| 162 Anthracene                 | 178 | 9.216        | 9.219            | -0.003           | 98  | 735718   | 50.0             | 51.2               |       |
| 164 Carbazole                  | 167 | 9.368        | 9.372            | -0.004           | 96  | 681800   | 50.0             | 50.3               |       |
| 166 Alachlor                   | 188 | 9.504        | 9.507            | -0.003           | 98  | 103269   | 50.0             | 52.4               |       |
| 168 Di-n-butyl phthalate       | 149 | 9.715        | 9.719            | -0.004           | 100 | 837133   | 50.0             | 50.9               |       |
| 175 Fluoranthene               | 202 | 10.549       | 10.553           | -0.004           | 98  | 802156   | 50.0             | 49.9               |       |
| 178 Pyrene                     | 202 | 10.884       | 10.893           | -0.009           | 97  | 835208   | 50.0             | 51.0               |       |
| 185 Famphur                    | 218 | 11.877       | 11.886           | -0.009           | 85  | 298331   | 50.0             | 52.8               |       |
| 187 Butyl benzyl phthalate     | 149 | 12.006       | 12.010           | -0.004           | 98  | 414601   | 50.0             | 51.5               |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.157       | 13.173           | -0.016           | 74  | 267287   | 50.0             | 52.3               |       |
| 191 Benzo[a]anthracene         | 228 | 13.210       | 13.226           | -0.016           | 99  | 786913   | 50.0             | 50.6               |       |
| 192 Chrysene                   | 228 | 13.298       | 13.314           | -0.016           | 97  | 763403   | 50.0             | 50.8               |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.375       | 13.390           | -0.015           | 97  | 569570   | 50.0             | 51.8               |       |
| 195 Di-n-octyl phthalate       | 149 | 15.190       | 15.199           | -0.009           | 99  | 1008354  | 50.0             | 51.3               |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.089       | 16.104           | -0.015           | 98  | 765766   | 50.0             | 51.0               |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.165       | 16.180           | -0.015           | 99  | 773099   | 50.0             | 51.1               |       |
| 200 Benzo[e]pyrene             | 252 | 16.870       | 16.885           | -0.015           | 98  | 707244   | 50.0             | 50.6               |       |
| 201 Benzo[a]pyrene             | 252 | 17.017       | 17.038           | -0.021           | 78  | 777991   | 50.0             | 52.1               |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.307       | 20.328           | -0.021           | 97  | 661252   | 50.0             | 50.1               |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.401       | 20.422           | -0.021           | 95  | 650219   | 50.0             | 51.1               |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.053       | 21.074           | -0.021           | 95  | 690942   | 50.0             | 50.5               |       |
| S 219 Total Cresols            | 108 |              |                  |                  | 0   |          |                  | 106.3              |       |
| S 220 Methyl Phenols, Total    | 108 |              |                  |                  | 0   |          |                  | 106.3              |       |

**QC Flag Legend**

Review Flags

M - Manually Integrated

a - User Assigned ID

**Reagents:**

MS-HSLA050\_00036

Amount Added: 200.00

Units: uL

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19205.D

Injection Date: 21-Apr-2018 14:04:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD050 HSL

Worklist Smp#: 7

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

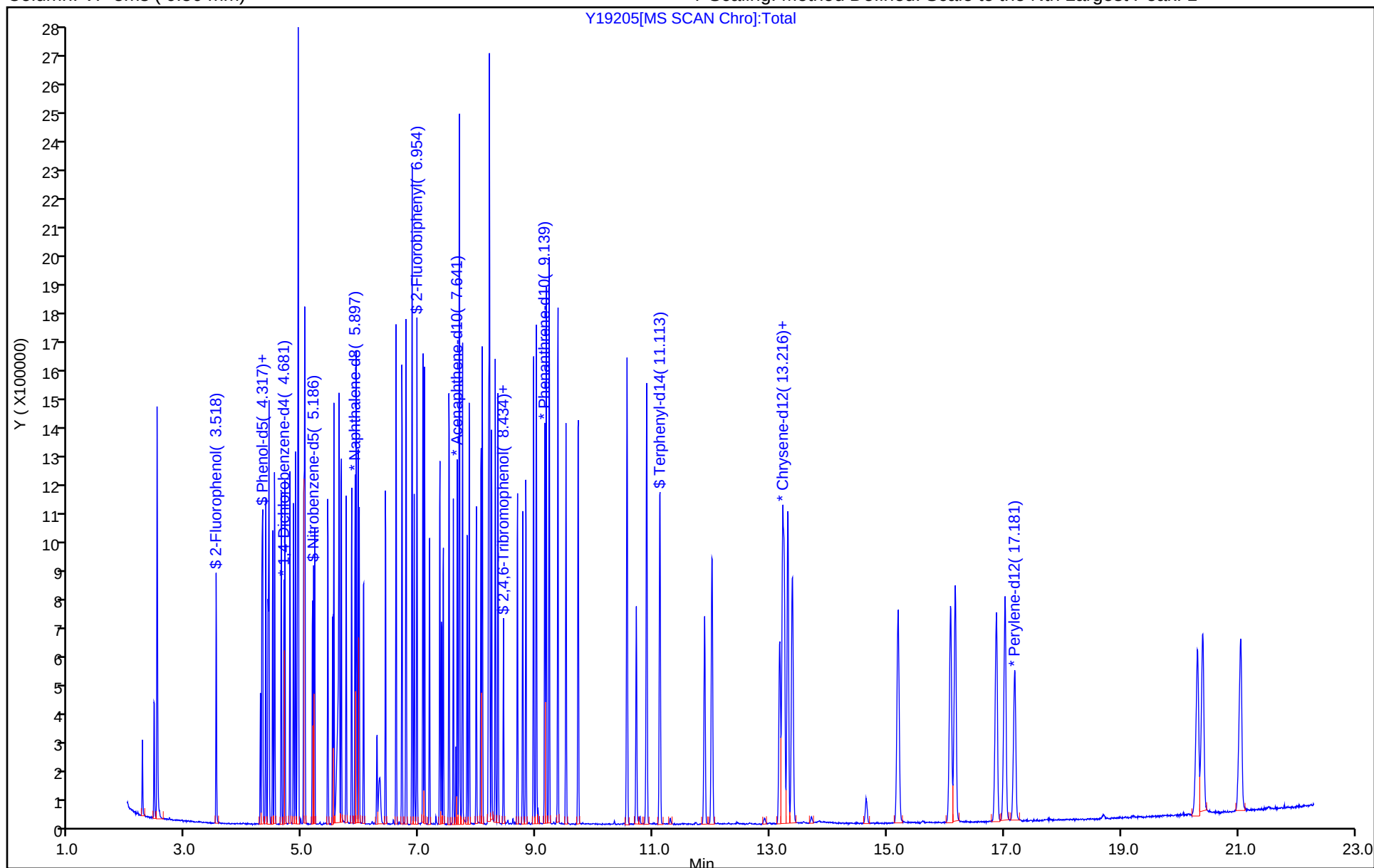
ALS Bottle#: 6

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

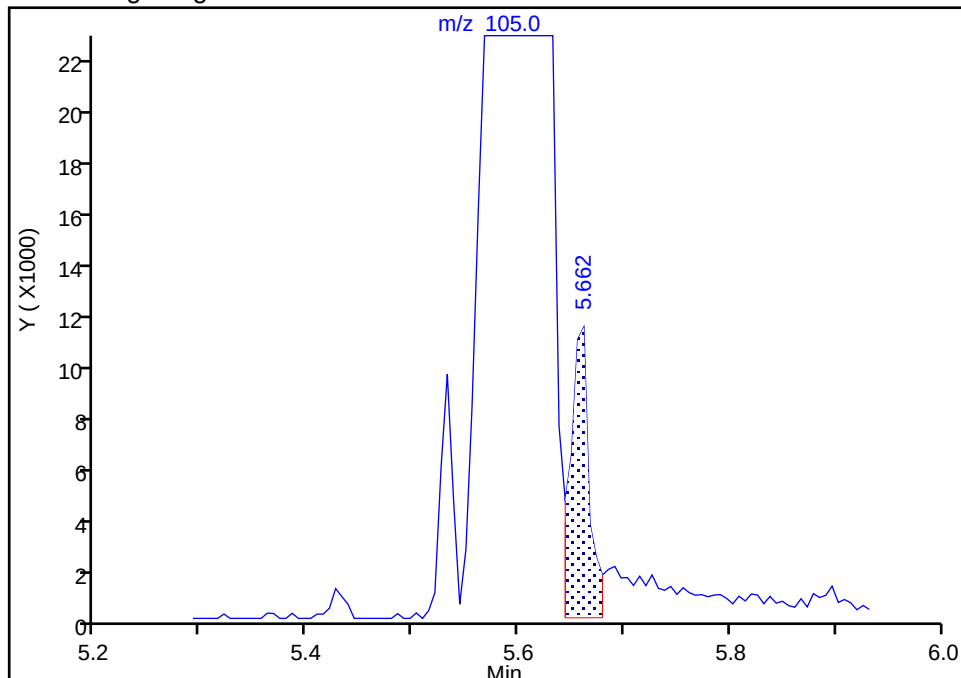
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19205.D  
Injection Date: 21-Apr-2018 14:04:30 Instrument ID: SMS\_Y  
Lims ID: STD050 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 6 Worklist Smp#: 7  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

## 64 Benzoic acid, CAS: 65-85-0

Signal: 1

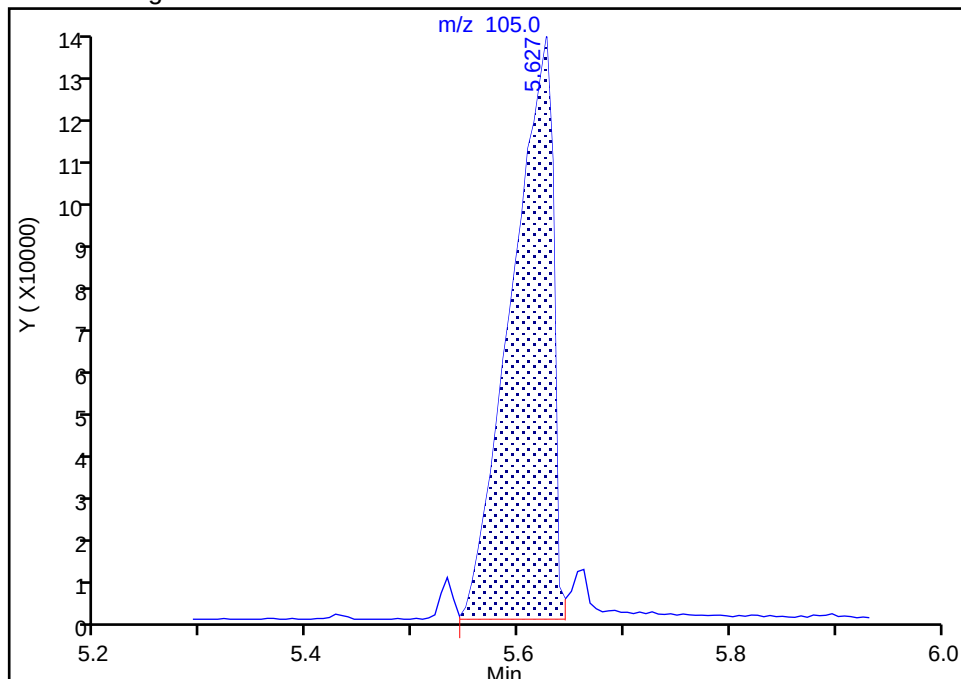
RT: 5.66  
Area: 14081  
Amount: 7.169473  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.63  
Area: 354513  
Amount: 102.2913  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:32:15

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

## TestAmerica Denver

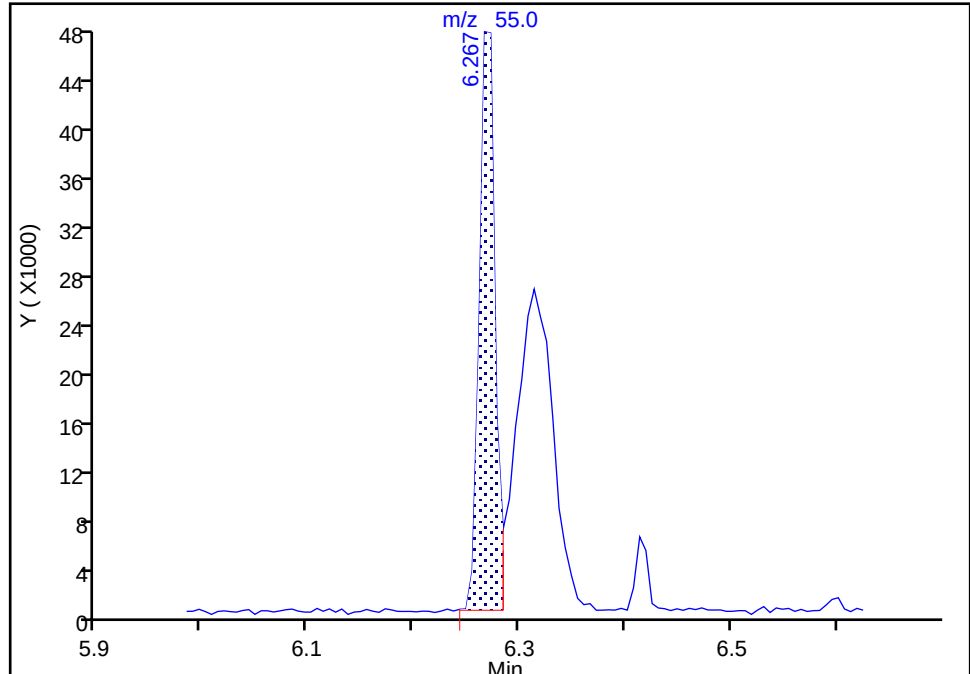
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19205.D  
Injection Date: 21-Apr-2018 14:04:30 Instrument ID: SMS\_Y  
Lims ID: STD050 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 6 Worklist Smp#: 7  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**79 Caprolactam, CAS: 105-60-2**

Signal: 1

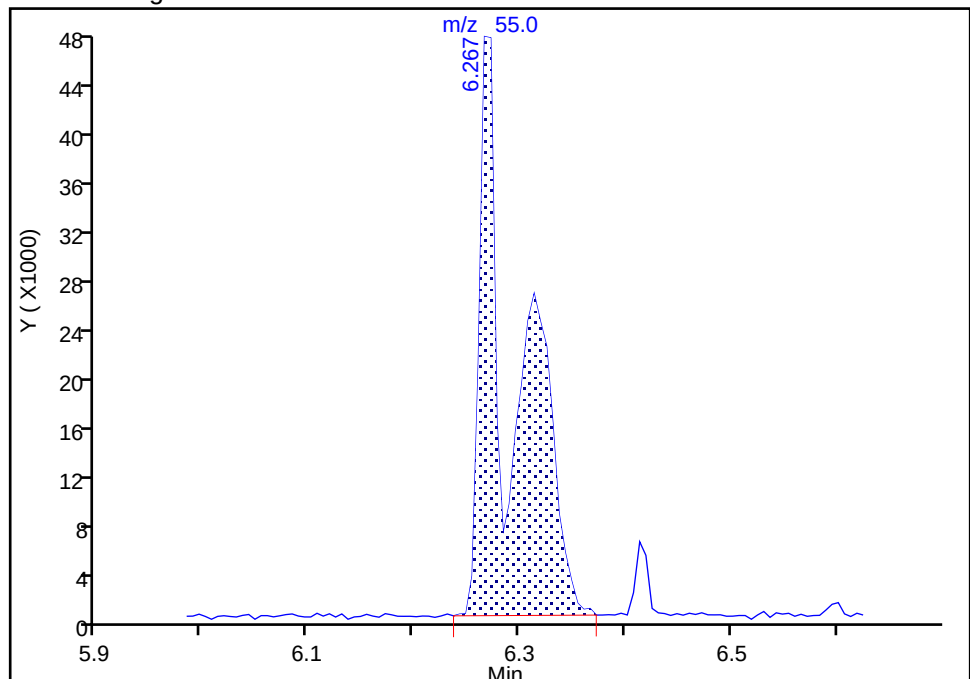
RT: 6.27  
Area: 49911  
Amount: 30.940634  
Amount Units: ug/ml

## Processing Integration Results



RT: 6.27  
Area: 111450  
Amount: 49.732275  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:32:29

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19205.D

Injection Date: 21-Apr-2018 14:04:30

Instrument ID: SMS\_Y

Lims ID: STD050 HSL

Client ID:

Operator ID: KIEKELD

ALS Bottle#:

6

Worklist Smp#: 7

Injection Vol: 0.5 ul

Dil. Factor:

1.0000

Method: SMSY\_8270C

Limit Group:

MSSV - 8270C\_625

Column: VF-5ms (0.50 mm)

Detector

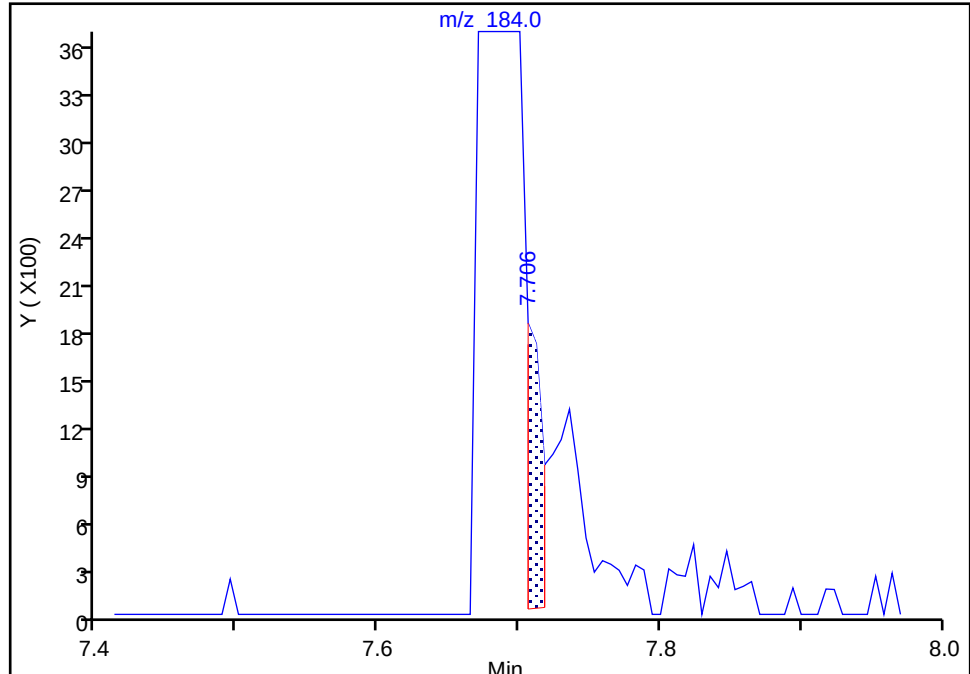
MS SCAN

**111 2,4-Dinitrophenol, CAS: 51-28-5**

Signal: 1

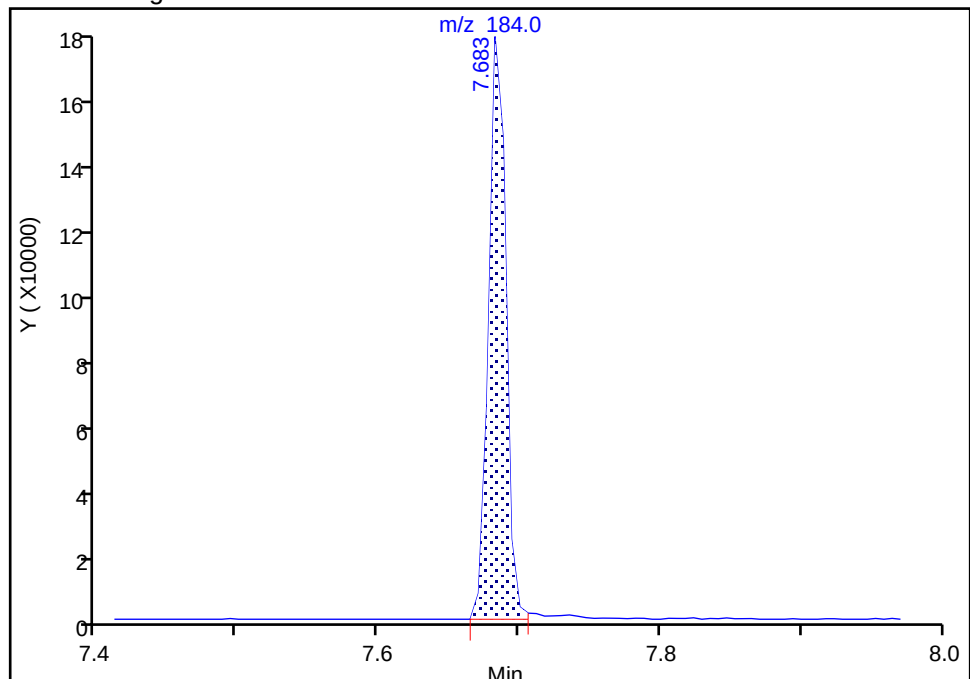
RT: 7.71  
Area: 1551  
Amount: 1.259689  
Amount Units: ug/ml

## Processing Integration Results



RT: 7.68  
Area: 149649  
Amount: 101.7435  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:37:17

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

## TestAmerica Denver

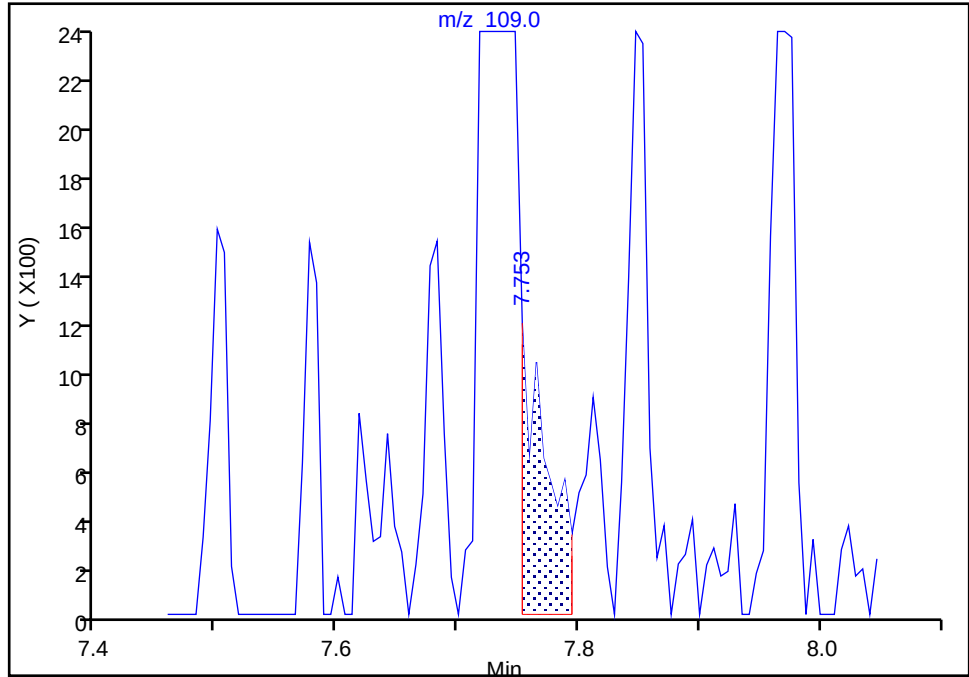
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19205.D  
Injection Date: 21-Apr-2018 14:04:30 Instrument ID: SMS\_Y  
Lims ID: STD050 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 6 Worklist Smp#: 7  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**112 4-Nitrophenol, CAS: 100-02-7**

Signal: 1

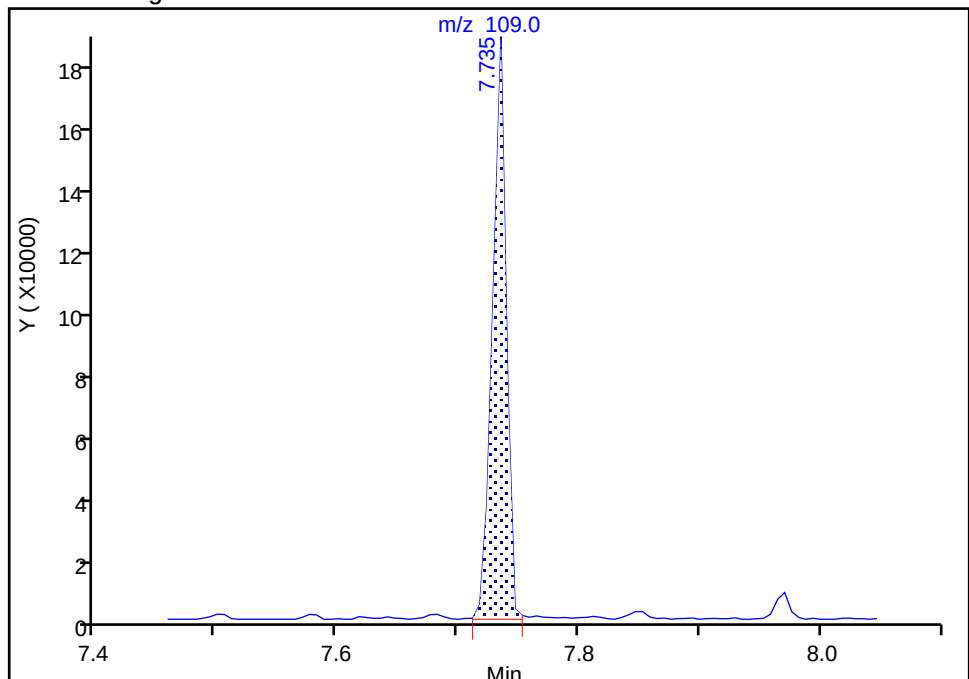
RT: 7.75  
Area: 1870  
Amount: 1.547449  
Amount Units: ug/ml

## Processing Integration Results



RT: 7.74  
Area: 142166  
Amount: 102.7352  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:36:03

Audit Action: Assigned Compound ID

Audit Reason: Wrong peak

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19206.D  
 Lims ID: STD120 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 21-Apr-2018 14:33:30 ALS Bottle#: 7 Worklist Smp#: 8  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD120 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:44 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:32:59

| Compound                      | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.678        | 4.678            | 0.000            | 97  | 115025   | 40.0             | 40.0               |       |
| * 2 Naphthalene-d8            | 136 | 5.900        | 5.894            | 0.006            | 99  | 483896   | 40.0             | 40.0               |       |
| * 3 Acenaphthene-d10          | 164 | 7.645        | 7.645            | 0.000            | 92  | 283739   | 40.0             | 40.0               |       |
| * 4 Phenanthrene-d10          | 188 | 9.143        | 9.143            | 0.000            | 98  | 504878   | 40.0             | 40.0               |       |
| * 5 Chrysene-d12              | 240 | 13.249       | 13.249           | 0.000            | 98  | 501931   | 40.0             | 40.0               |       |
| * 6 Perylene-d12              | 264 | 17.191       | 17.197           | -0.006           | 96  | 483287   | 40.0             | 40.0               |       |
| \$ 7 2-Fluorophenol           | 112 | 3.521        | 3.521            | 0.000            | 93  | 480148   | 120.0            | 113.5              |       |
| \$ 8 Phenol-d5                | 99  | 4.308        | 4.302            | 0.006            | 0   | 595061   | 120.0            | 112.9              |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.189        | 5.189            | 0.000            | 89  | 545100   | 120.0            | 111.9              |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.957        | 6.958            | -0.001           | 100 | 1010216  | 120.0            | 110.3              |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.438        | 8.438            | 0.000            | 88  | 119898   | 120.0            | 112.5              |       |
| \$ 13 Terphenyl-d14           | 244 | 11.117       | 11.117           | 0.000            | 98  | 1226408  | 120.0            | 112.2              |       |
| 15 1,4-Dioxane                | 88  | 2.258        | 2.258            | 0.000            | 96  | 199337   | 120.0            | 111.0              |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.464        | 2.464            | 0.000            | 92  | 345873   | 120.0            | 116.3              |       |
| 18 Pyridine                   | 79  | 2.511        | 2.511            | 0.000            | 95  | 1082050  | 240.0            | 222.8              |       |
| 28 Phenol                     | 94  | 4.320        | 4.320            | 0.000            | 99  | 612780   | 120.0            | 109.8              |       |
| 30 Aniline                    | 93  | 4.373        | 4.367            | 0.006            | 97  | 794277   | 120.0            | 112.4              |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.414        | 4.408            | 0.006            | 96  | 465000   | 120.0            | 111.4              |       |
| 32 Alpha Methyl Styrene       | 118 | 4.426        | 4.426            | 0.000            | 92  | 474611   | 120.0            | 110.0              |       |
| 34 2-Chlorophenol             | 128 | 4.490        | 4.490            | 0.000            | 97  | 471152   | 120.0            | 110.8              |       |
| 35 n-Decane                   | 43  | 4.520        | 4.520            | 0.000            | 92  | 523537   | 120.0            | 110.6              |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.637        | 4.631            | 0.006            | 97  | 520392   | 120.0            | 111.0              |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.696        | 4.696            | 0.000            | 94  | 518551   | 120.0            | 111.4              |       |
| 39 Benzyl alcohol             | 108 | 4.784        | 4.784            | 0.000            | 91  | 326503   | 120.0            | 114.3              |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.843        | 4.843            | 0.000            | 96  | 492368   | 120.0            | 110.7              |       |
| 41 2-Methylphenol             | 108 | 4.878        | 4.878            | 0.000            | 98  | 430586   | 120.0            | 110.3              |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.913        | 4.913            | 0.000            | 94  | 697913   | 120.0            | 110.1              |       |
| 44 Indene                     | 116 | 4.925        | 4.925            | 0.000            | 91  | 1446250  | 240.0            | 229.3              |       |
| 46 3-Methylphenol             | 108 | 5.025        | 5.019            | 0.006            | 89  | 456111   | 120.0            | 110.0              |       |
| 47 4-Methylphenol             | 108 | 5.025        | 5.019            | 0.006            | 92  | 456111   | 120.0            | 110.0              |       |



| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.025     | 5.019         | 0.006         | 0  | 456111   | 120.0         | 110.0           |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.037     | 5.031         | 0.006         | 90 | 365965   | 120.0         | 108.0           |       |
| 51 Acetophenone                | 105 | 5.042     | 5.043         | -0.001        | 97 | 608917   | 120.0         | 118.0           |       |
| 53 Hexachloroethane            | 117 | 5.166     | 5.166         | 0.000         | 96 | 196877   | 120.0         | 112.0           |       |
| 54 Nitrobenzene                | 77  | 5.207     | 5.207         | 0.000         | 90 | 545698   | 120.0         | 113.5           |       |
| 57 Isophorone                  | 82  | 5.436     | 5.436         | 0.000         | 99 | 943440   | 120.0         | 109.7           |       |
| 58 2-Nitrophenol               | 139 | 5.518     | 5.512         | 0.006         | 94 | 274897   | 120.0         | 114.2           |       |
| 59 2,4-Dimethylphenol          | 107 | 5.536     | 5.536         | 0.000         | 95 | 463994   | 120.0         | 108.6           |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.624     | 5.624         | 0.000         | 99 | 575863   | 120.0         | 108.4           |       |
| 64 Benzoic acid                | 105 | 5.677     | 5.653         | 0.024         | 89 | 873420   | 240.0         | 235.9           | M     |
| 66 3,5-Dimethylphenol          | 107 | 5.665     | 5.659         | 0.006         | 90 | 467017   | 120.0         | 107.0           |       |
| 68 2,4-Dichlorophenol          | 162 | 5.747     | 5.747         | 0.000         | 95 | 406879   | 120.0         | 113.4           |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.841     | 5.841         | 0.000         | 93 | 408384   | 120.0         | 111.3           |       |
| 71 Naphthalene                 | 128 | 5.918     | 5.918         | 0.000         | 98 | 1281317  | 120.0         | 107.4           |       |
| 72 4-Chloroaniline             | 127 | 5.953     | 5.953         | 0.000         | 96 | 611784   | 120.0         | 107.9           |       |
| 73 2,6-Dichlorophenol          | 162 | 5.971     | 5.971         | 0.000         | 97 | 394576   | 120.0         | 111.5           |       |
| 75 Hexachlorobutadiene         | 225 | 6.041     | 6.041         | 0.000         | 96 | 218175   | 120.0         | 115.1           |       |
| 79 Caprolactam                 | 55  | 6.294     | 6.282         | 0.012         | 78 | 281143   | 120.0         | 119.9           | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.423     | 6.423         | 0.000         | 96 | 430991   | 120.0         | 110.8           |       |
| 86 2-Methylnaphthalene         | 142 | 6.599     | 6.599         | 0.000         | 93 | 921174   | 120.0         | 108.6           |       |
| 88 1-Methylnaphthalene         | 142 | 6.699     | 6.699         | 0.000         | 93 | 896914   | 120.0         | 112.2           |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.775     | 6.770         | 0.005         | 98 | 390293   | 120.0         | 109.3           |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.769     | 6.764         | 0.005         | 95 | 253630   | 120.0         | 114.9           |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.875     | 6.875         | 0.000         | 83 | 280970   | 120.0         | 110.5           |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.875     | 6.875         | 0.000         | 90 | 449432   | 120.0         | 106.7           |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.910     | 6.911         | -0.001        | 95 | 331812   | 120.0         | 114.9           |       |
| 98 1,1'-Biphenyl               | 154 | 7.063     | 7.057         | 0.006         | 95 | 1088118  | 120.0         | 110.0           |       |
| 99 2-Chloronaphthalene         | 162 | 7.087     | 7.087         | 0.000         | 96 | 888336   | 120.0         | 110.5           |       |
| 101 2-Nitroaniline             | 65  | 7.175     | 7.169         | 0.006         | 84 | 324691   | 120.0         | 113.7           |       |
| 104 Dimethyl phthalate         | 163 | 7.351     | 7.351         | 0.000         | 98 | 1013528  | 120.0         | 109.1           |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.380     | 7.381         | -0.001        | 86 | 188806   | 120.0         | 119.7           |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.410     | 7.410         | 0.000         | 95 | 251245   | 120.0         | 112.4           |       |
| 107 Acenaphthylene             | 152 | 7.504     | 7.504         | 0.000         | 98 | 1335791  | 120.0         | 110.3           |       |
| 108 3-Nitroaniline             | 138 | 7.586     | 7.580         | 0.006         | 95 | 316567   | 120.0         | 113.6           |       |
| 109 Acenaphthene               | 153 | 7.680     | 7.680         | 0.000         | 93 | 816144   | 120.0         | 106.4           |       |
| 111 2,4-Dinitrophenol          | 184 | 7.692     | 7.692         | 0.000         | 87 | 359042   | 240.0         | 235.2           |       |
| 112 4-Nitrophenol              | 109 | 7.751     | 7.745         | 0.006         | 95 | 329815   | 240.0         | 232.2           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.821     | 7.821         | 0.000         | 95 | 348707   | 120.0         | 115.3           |       |
| 116 Dibenzofuran               | 168 | 7.850     | 7.850         | 0.000         | 96 | 1183170  | 120.0         | 107.6           |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.974     | 7.974         | 0.000         | 75 | 249156   | 120.0         | 115.5           |       |
| 123 Diethyl phthalate          | 149 | 8.056     | 8.056         | 0.000         | 98 | 1008787  | 120.0         | 109.0           |       |
| 124 Hexadecane                 | 57  | 8.074     | 8.074         | 0.000         | 95 | 634072   | 120.0         | 110.2           |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.185     | 8.179         | 0.006         | 91 | 471944   | 120.0         | 109.3           |       |
| 129 Fluorene                   | 166 | 8.197     | 8.197         | 0.000         | 95 | 974547   | 120.0         | 108.1           |       |
| 130 4-Nitroaniline             | 138 | 8.209     | 8.203         | 0.006         | 86 | 324694   | 120.0         | 114.3           |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.244     | 8.238         | 0.006         | 89 | 421934   | 240.0         | 239.2           |       |
| 134 Diphenylamine              | 169 | 8.303     | 8.297         | 0.006         | 97 | 829901   | 102.0         | 93.1            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.303     | 8.297         | 0.006         | 60 | 829901   | 120.0         | 110.0           |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.344     | 8.344         | 0.000         | 99 | 1135421  | 121.3         | 110.3           |       |
| 137 Azobenzene                 | 77  | 8.344     | 8.344         | 0.000         | 99 | 1135421  | 120.0         | 109.1           |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.438     | 8.438         | 0.000         | 88 | 119785   | 120.0         | 111.8           |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.679     | 8.679         | 0.000         | 70 | 261970   | 120.0         | 111.3           |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.767     | 8.767         | 0.000         | 89  | 237678   | 120.0         | 111.3           |       |
| 152 Atrazine                   | 200 | 8.826     | 8.820         | 0.006         | 92  | 276597   | 120.0         | 110.4           |       |
| 155 Pentachlorophenol          | 266 | 8.955     | 8.955         | 0.000         | 89  | 333780   | 240.0         | 235.6           |       |
| 158 n-Octadecane               | 85  | 8.996     | 8.996         | 0.000         | 96  | 293246   | 120.0         | 123.7           |       |
| 161 Phenanthrene               | 178 | 9.172     | 9.166         | 0.006         | 98  | 1501830  | 120.0         | 107.7           |       |
| 162 Anthracene                 | 178 | 9.225     | 9.219         | 0.006         | 97  | 1586285  | 120.0         | 108.9           |       |
| 164 Carbazole                  | 167 | 9.372     | 9.372         | 0.000         | 97  | 1533165  | 120.0         | 111.5           |       |
| 166 Alachlor                   | 188 | 9.507     | 9.507         | 0.000         | 98  | 214269   | 120.0         | 107.0           |       |
| 168 Di-n-butyl phthalate       | 149 | 9.718     | 9.719         | -0.001        | 100 | 1809119  | 120.0         | 108.4           |       |
| 175 Fluoranthene               | 202 | 10.558    | 10.553        | 0.005         | 98  | 1812538  | 120.0         | 111.2           |       |
| 178 Pyrene                     | 202 | 10.893    | 10.893        | 0.000         | 97  | 1881044  | 120.0         | 113.3           |       |
| 185 Famphur                    | 218 | 11.886    | 11.886        | 0.000         | 85  | 627071   | 120.0         | 109.4           |       |
| 187 Butyl benzyl phthalate     | 149 | 12.009    | 12.010        | -0.001        | 98  | 940357   | 120.0         | 115.3           |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.173    | 13.173        | 0.000         | 74  | 590503   | 120.0         | 114.0           |       |
| 191 Benzo[a]anthracene         | 228 | 13.225    | 13.226        | -0.001        | 99  | 1790096  | 120.0         | 113.7           |       |
| 192 Chrysene                   | 228 | 13.314    | 13.314        | 0.000         | 97  | 1731842  | 120.0         | 113.8           |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.384    | 13.390        | -0.006        | 97  | 1288990  | 120.0         | 115.7           |       |
| 195 Di-n-octyl phthalate       | 149 | 15.193    | 15.199        | -0.006        | 99  | 2290911  | 120.0         | 115.0           |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.110    | 16.104        | 0.006         | 98  | 1750125  | 120.0         | 112.2           |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.192    | 16.180        | 0.012         | 99  | 1798183  | 120.0         | 114.4           |       |
| 200 Benzo[e]pyrene             | 252 | 16.891    | 16.885        | 0.006         | 98  | 1652215  | 120.0         | 113.7           |       |
| 201 Benzo[a]pyrene             | 252 | 17.044    | 17.038        | 0.006         | 78  | 1749140  | 120.0         | 112.7           |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.339    | 20.328        | 0.011         | 97  | 1504297  | 120.0         | 112.6           | M     |
| 208 Dibenz(a,h)anthracene      | 278 | 20.427    | 20.422        | 0.005         | 96  | 1523924  | 120.0         | 115.3           |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.085    | 21.074        | 0.011         | 95  | 1588897  | 120.0         | 111.8           |       |
| S 219 Total Cresols            | 108 |           |               |               | 0   |          |               | 220.3           |       |
| S 220 Methyl Phenols, Total    | 108 |           |               |               | 0   |          |               | 220.3           |       |

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

MS-HSLA120\_00035

Amount Added: 200.00

Units: uL

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19206.D

Injection Date: 21-Apr-2018 14:33:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD120 HSL

Worklist Smp#: 8

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

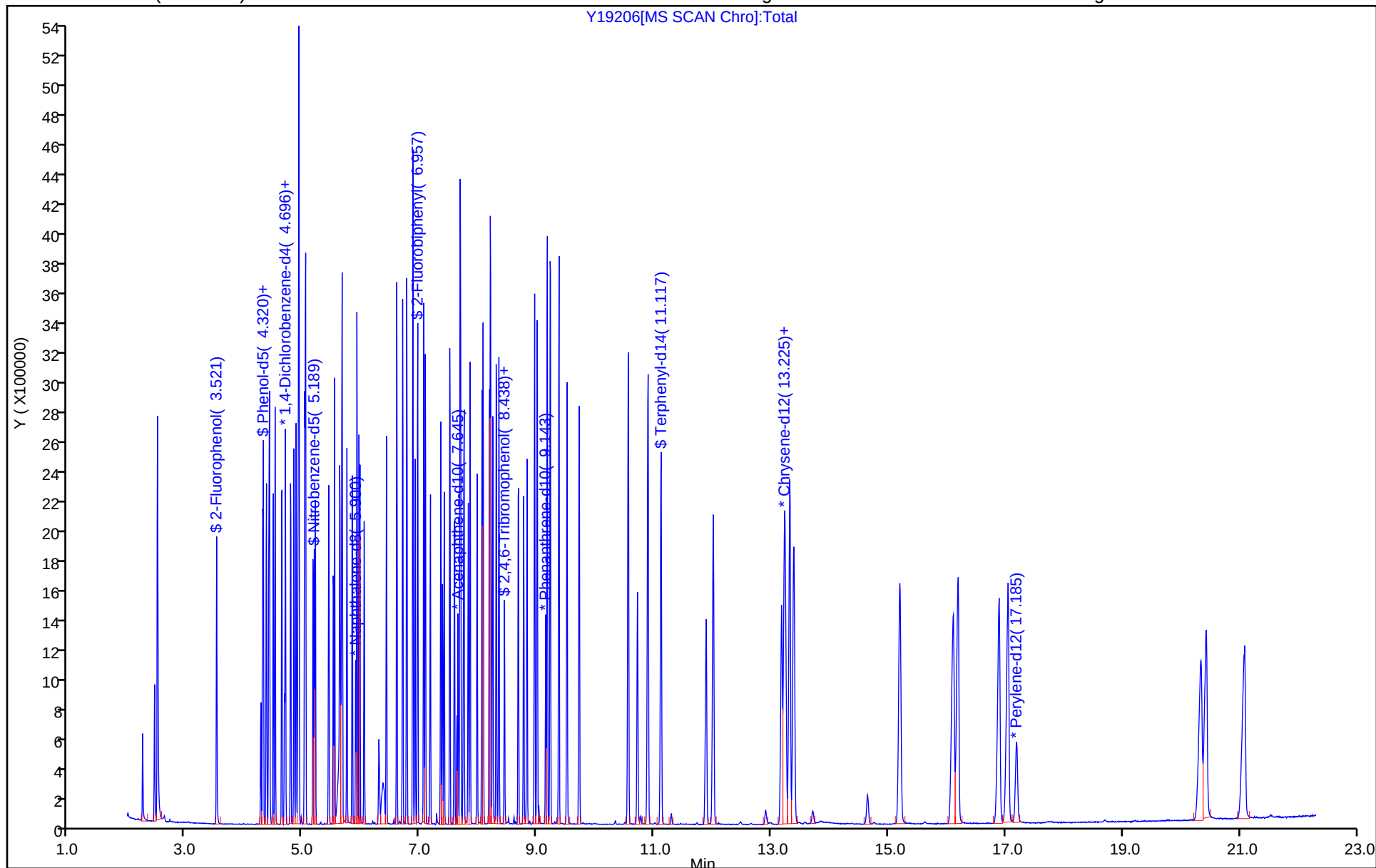
ALS Bottle#: 7

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

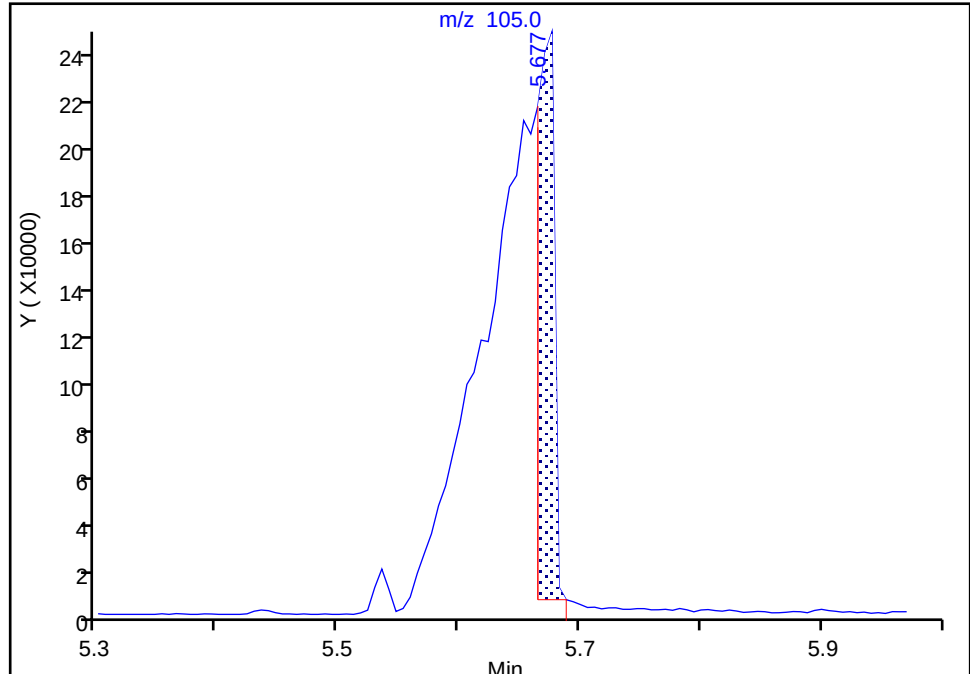
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19206.D  
Injection Date: 21-Apr-2018 14:33:30 Instrument ID: SMS\_Y  
Lims ID: STD120 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 7 Worklist Smp#: 8  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**64 Benzoic acid, CAS: 65-85-0**

Signal: 1

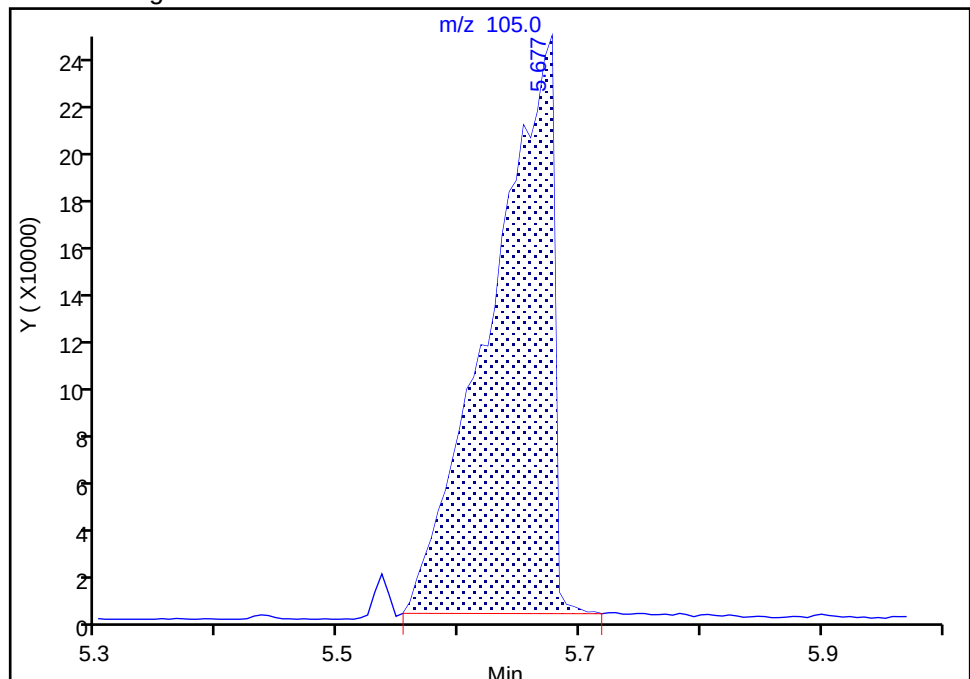
RT: 5.68  
Area: 239101  
Amount: 95.628055  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.68  
Area: 873420  
Amount: 235.9229  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:32:49

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Denver

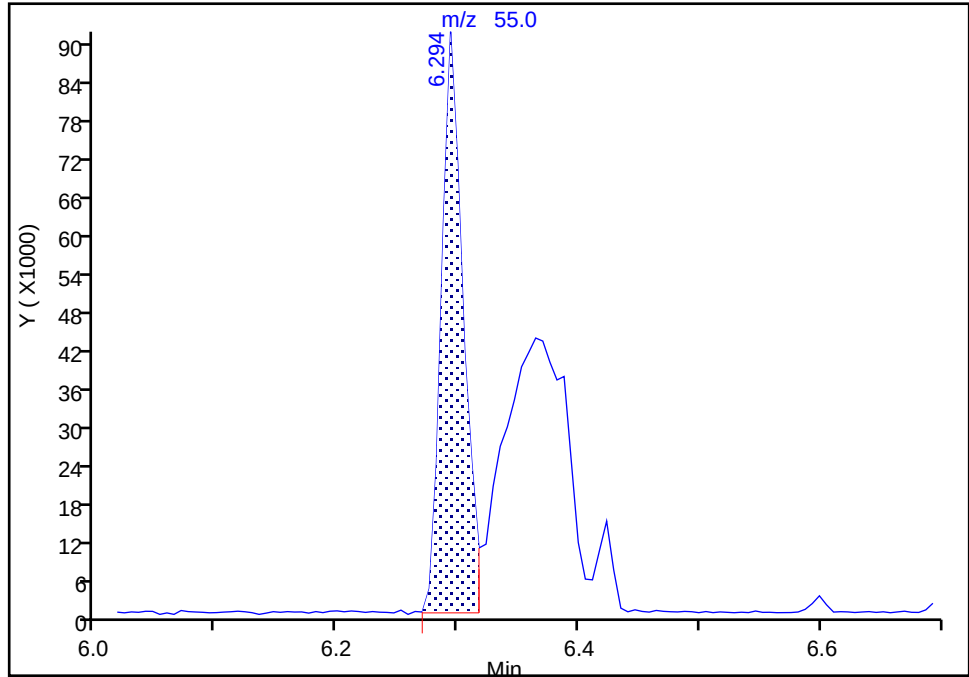
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Injection Date: 21-Apr-2018 14:33:30 Instrument ID: SMS\_Y  
Lims ID: STD120 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 7 Worklist Smp#: 8  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**79 Caprolactam, CAS: 105-60-2**

Signal: 1

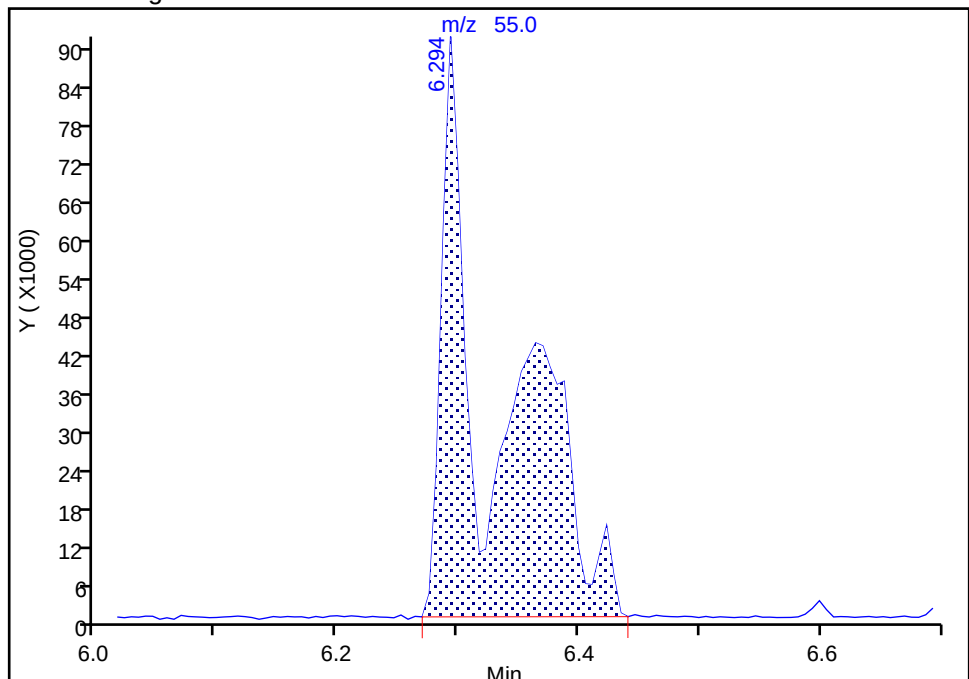
RT: 6.29  
Area: 115018  
Amount: 62.209833  
Amount Units: ug/ml

## Processing Integration Results



RT: 6.29  
Area: 281143  
Amount: 119.8968  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:32:57

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Denver

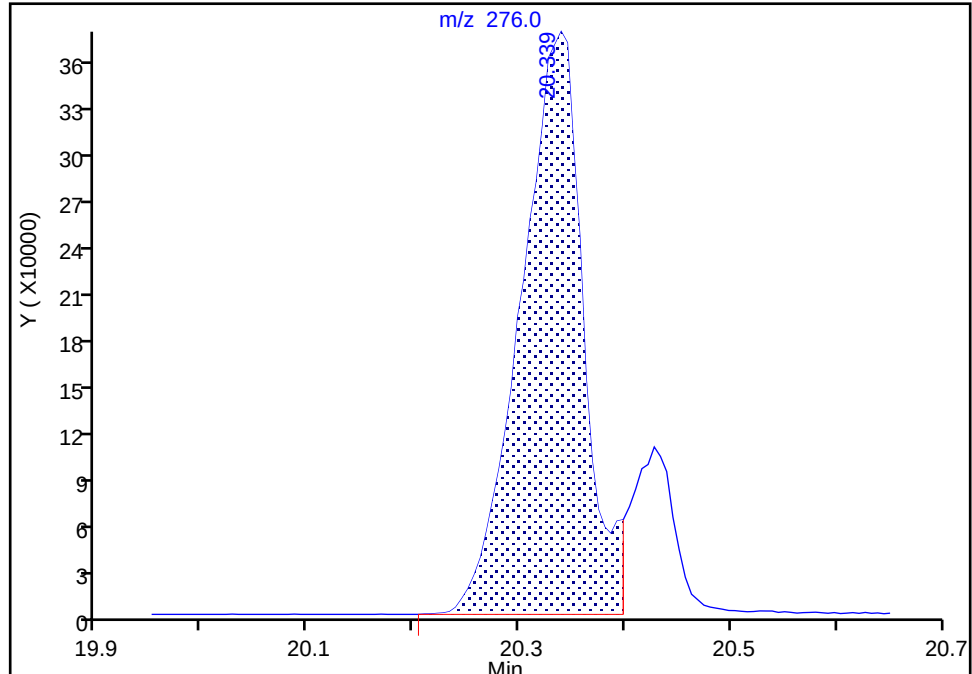
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19206.D  
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Lims ID: STD120 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 7 Worklist Smp#: 8  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector MS SCAN

207 Indeno[1,2,3-cd]pyrene, CAS: 193-39-5

Signal: 1

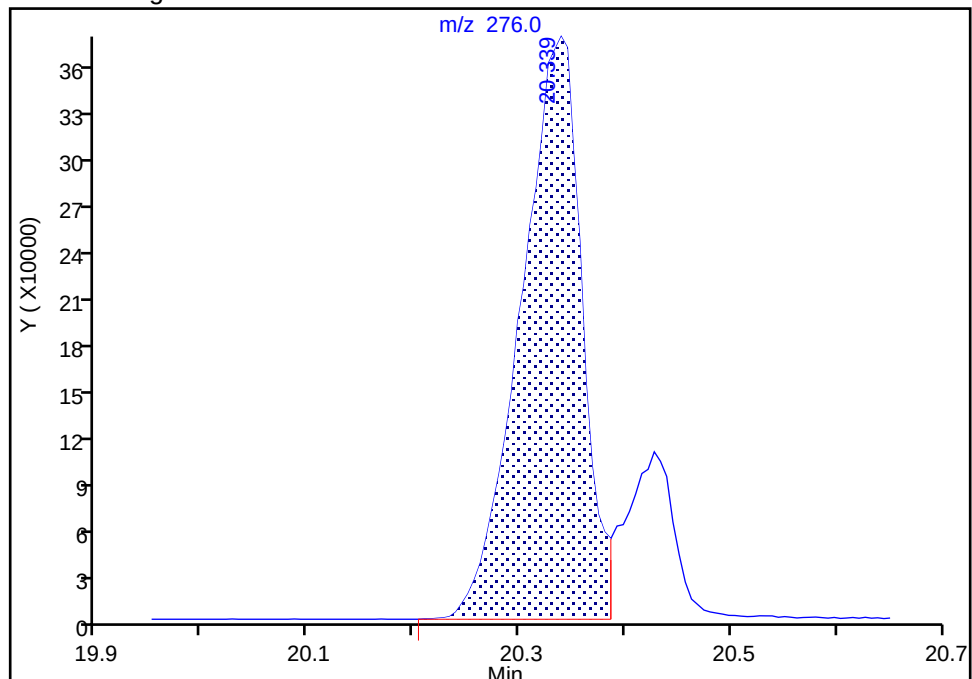
RT: 20.34  
Area: 1546836  
Amount: 114.2919  
Amount Units: ug/ml

## Processing Integration Results



RT: 20.34  
Area: 1504297  
Amount: 112.5626  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:37:55

Audit Action: Split an Integrated Peak

Audit Reason: Shouldering

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19207.D  
 Lims ID: STD160 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 7  
 Inject. Date: 21-Apr-2018 15:01:30 ALS Bottle#: 8 Worklist Smp#: 9  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD160 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:46 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:33:25

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.680     | 4.678         | 0.002         | 97  | 113514   | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8            | 136 | 5.896     | 5.894         | 0.002         | 99  | 487064   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10          | 164 | 7.647     | 7.645         | 0.002         | 93  | 280554   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10          | 188 | 9.145     | 9.143         | 0.002         | 97  | 510896   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12              | 240 | 13.251    | 13.249        | 0.002         | 98  | 498078   | 40.0          | 40.0            |       |
| * 6 Perylene-d12              | 264 | 17.193    | 17.197        | -0.004        | 96  | 471744   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol           | 112 | 3.523     | 3.521         | 0.002         | 93  | 611897   | 160.0         | 146.6           |       |
| \$ 8 Phenol-d5                | 99  | 4.310     | 4.302         | 0.008         | 0   | 763475   | 160.0         | 146.8           |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.191     | 5.189         | 0.002         | 90  | 698354   | 160.0         | 142.4           |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.960     | 6.958         | 0.002         | 100 | 1288903  | 160.0         | 142.4           |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.440     | 8.438         | 0.002         | 88  | 155329   | 160.0         | 147.5           |       |
| \$ 13 Terphenyl-d14           | 244 | 11.119    | 11.117        | 0.002         | 98  | 1582431  | 160.0         | 145.8           |       |
| 15 1,4-Dioxane                | 88  | 2.254     | 2.258         | -0.004        | 97  | 254379   | 160.0         | 143.5           |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.466     | 2.464         | 0.002         | 93  | 456762   | 160.0         | 155.7           |       |
| 18 Pyridine                   | 79  | 2.513     | 2.511         | 0.002         | 95  | 1398351  | 320.0         | 291.8           |       |
| 28 Phenol                     | 94  | 4.322     | 4.320         | 0.002         | 99  | 775978   | 160.0         | 140.9           |       |
| 30 Aniline                    | 93  | 4.375     | 4.367         | 0.008         | 97  | 1029312  | 160.0         | 147.5           |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.410     | 4.408         | 0.002         | 99  | 593014   | 160.0         | 144.0           |       |
| 32 Alpha Methyl Styrene       | 118 | 4.422     | 4.426         | -0.004        | 93  | 593047   | 160.0         | 139.3           |       |
| 34 2-Chlorophenol             | 128 | 4.492     | 4.490         | 0.002         | 97  | 604662   | 160.0         | 144.0           |       |
| 35 n-Decane                   | 43  | 4.522     | 4.520         | 0.002         | 93  | 664806   | 160.0         | 142.3           |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.633     | 4.631         | 0.002         | 97  | 653178   | 160.0         | 141.2           |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.698     | 4.696         | 0.002         | 92  | 650810   | 160.0         | 141.7           |       |
| 39 Benzyl alcohol             | 108 | 4.786     | 4.784         | 0.002         | 91  | 414995   | 160.0         | 147.2           |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.845     | 4.843         | 0.002         | 96  | 643006   | 160.0         | 146.5           |       |
| 41 2-Methylphenol             | 108 | 4.880     | 4.878         | 0.002         | 97  | 562463   | 160.0         | 145.9           |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.915     | 4.913         | 0.002         | 93  | 876909   | 160.0         | 140.2           |       |
| 44 Indene                     | 116 | 4.927     | 4.925         | 0.002         | 90  | 1835576  | 320.0         | 326.3           |       |
| 46 3-Methylphenol             | 108 | 5.027     | 5.019         | 0.008         | 89  | 568673   | 160.0         | 139.0           |       |
| 47 4-Methylphenol             | 108 | 5.027     | 5.019         | 0.008         | 98  | 568673   | 160.0         | 139.0           |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.027     | 5.019         | 0.008         | 0  | 568673   | 160.0         | 139.0           |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.039     | 5.031         | 0.008         | 89 | 466467   | 160.0         | 139.5           |       |
| 51 Acetophenone                | 105 | 5.045     | 5.043         | 0.002         | 95 | 749083   | 160.0         | 157.3           |       |
| 53 Hexachloroethane            | 117 | 5.168     | 5.166         | 0.002         | 95 | 252565   | 160.0         | 145.6           |       |
| 54 Nitrobenzene                | 77  | 5.209     | 5.207         | 0.002         | 90 | 698415   | 160.0         | 144.3           |       |
| 57 Isophorone                  | 82  | 5.444     | 5.436         | 0.008         | 99 | 1248556  | 160.0         | 144.2           |       |
| 58 2-Nitrophenol               | 139 | 5.514     | 5.512         | 0.002         | 95 | 364692   | 160.0         | 150.5           |       |
| 59 2,4-Dimethylphenol          | 107 | 5.538     | 5.536         | 0.002         | 95 | 597104   | 160.0         | 138.8           |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.626     | 5.624         | 0.002         | 99 | 750763   | 160.0         | 140.4           |       |
| 64 Benzoic acid                | 105 | 5.691     | 5.653         | 0.038         | 42 | 1175692  | 320.0         | 314.3           | M     |
| 66 3,5-Dimethylphenol          | 107 | 5.667     | 5.659         | 0.008         | 87 | 595900   | 160.0         | 135.7           |       |
| 68 2,4-Dichlorophenol          | 162 | 5.749     | 5.747         | 0.002         | 95 | 509470   | 160.0         | 141.0           |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.838     | 5.841         | -0.003        | 94 | 534511   | 160.0         | 144.7           |       |
| 71 Naphthalene                 | 128 | 5.920     | 5.918         | 0.002         | 98 | 1662732  | 160.0         | 138.4           |       |
| 72 4-Chloroaniline             | 127 | 5.955     | 5.953         | 0.002         | 95 | 772222   | 160.0         | 135.3           |       |
| 73 2,6-Dichlorophenol          | 162 | 5.973     | 5.971         | 0.002         | 97 | 499410   | 160.0         | 140.2           |       |
| 75 Hexachlorobutadiene         | 225 | 6.043     | 6.041         | 0.002         | 97 | 270891   | 160.0         | 142.0           |       |
| 79 Caprolactam                 | 55  | 6.308     | 6.282         | 0.026         | 80 | 365427   | 160.0         | 154.8           | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.425     | 6.423         | 0.002         | 95 | 541598   | 160.0         | 138.3           |       |
| 86 2-Methylnaphthalene         | 142 | 6.601     | 6.599         | 0.002         | 92 | 1157858  | 160.0         | 135.6           |       |
| 88 1-Methylnaphthalene         | 142 | 6.701     | 6.699         | 0.002         | 92 | 1091324  | 160.0         | 135.6           |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.772     | 6.770         | 0.002         | 97 | 487923   | 160.0         | 135.8           |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.766     | 6.764         | 0.002         | 95 | 325380   | 160.0         | 149.0           |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.877     | 6.875         | 0.002         | 84 | 351434   | 160.0         | 139.7           |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.877     | 6.875         | 0.002         | 90 | 573159   | 160.0         | 137.6           |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.913     | 6.911         | 0.002         | 95 | 421131   | 160.0         | 147.4           |       |
| 98 1,1'-Biphenyl               | 154 | 7.059     | 7.057         | 0.002         | 96 | 1366171  | 160.0         | 139.7           |       |
| 99 2-Chloronaphthalene         | 162 | 7.089     | 7.087         | 0.002         | 96 | 1129943  | 160.0         | 142.2           |       |
| 101 2-Nitroaniline             | 65  | 7.177     | 7.169         | 0.008         | 83 | 422845   | 160.0         | 149.7           |       |
| 104 Dimethyl phthalate         | 163 | 7.353     | 7.351         | 0.002         | 99 | 1328796  | 160.0         | 144.7           |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.383     | 7.381         | 0.002         | 87 | 254051   | 160.0         | 162.9           |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.412     | 7.410         | 0.002         | 96 | 332616   | 160.0         | 150.5           |       |
| 107 Acenaphthylene             | 152 | 7.506     | 7.504         | 0.002         | 99 | 1711692  | 160.0         | 143.0           |       |
| 108 3-Nitroaniline             | 138 | 7.588     | 7.580         | 0.008         | 95 | 417889   | 160.0         | 151.7           |       |
| 109 Acenaphthene               | 153 | 7.682     | 7.680         | 0.002         | 94 | 1053079  | 160.0         | 138.8           |       |
| 111 2,4-Dinitrophenol          | 184 | 7.694     | 7.692         | 0.002         | 85 | 480286   | 320.0         | 317.5           |       |
| 112 4-Nitrophenol              | 109 | 7.758     | 7.745         | 0.013         | 93 | 425142   | 320.0         | 302.7           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.823     | 7.821         | 0.002         | 94 | 450202   | 160.0         | 150.6           |       |
| 116 Dibenzofuran               | 168 | 7.852     | 7.850         | 0.002         | 96 | 1551680  | 160.0         | 142.8           |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.976     | 7.974         | 0.002         | 75 | 315502   | 160.0         | 148.0           |       |
| 123 Diethyl phthalate          | 149 | 8.058     | 8.056         | 0.002         | 98 | 1252837  | 160.0         | 136.9           |       |
| 124 Hexadecane                 | 57  | 8.076     | 8.074         | 0.002         | 95 | 776780   | 160.0         | 136.6           |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.181     | 8.179         | 0.002         | 96 | 604002   | 160.0         | 141.5           |       |
| 129 Fluorene                   | 166 | 8.199     | 8.197         | 0.002         | 95 | 1235837  | 160.0         | 138.6           |       |
| 130 4-Nitroaniline             | 138 | 8.217     | 8.203         | 0.014         | 86 | 433890   | 160.0         | 154.7           |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.246     | 8.238         | 0.008         | 85 | 546781   | 320.0         | 306.5           |       |
| 134 Diphenylamine              | 169 | 8.305     | 8.297         | 0.008         | 97 | 1050515  | 136.0         | 119.2           |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.305     | 8.297         | 0.008         | 62 | 1050515  | 160.0         | 137.6           |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.346     | 8.344         | 0.002         | 99 | 1469472  | 161.8         | 144.4           |       |
| 137 Azobenzene                 | 77  | 8.346     | 8.344         | 0.002         | 99 | 1469472  | 160.0         | 142.8           |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.440     | 8.438         | 0.002         | 88 | 155903   | 160.0         | 147.2           |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.681     | 8.679         | 0.002         | 70 | 333672   | 160.0         | 140.2           |       |



| Compound                       | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|--------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.769        | 8.767            | 0.002            | 92  | 308385   | 160.0            | 142.7              |       |
| 152 Atrazine                   | 200 | 8.828        | 8.820            | 0.008            | 93  | 358067   | 160.0            | 141.2              |       |
| 155 Pentachlorophenol          | 266 | 8.957        | 8.955            | 0.002            | 90  | 436609   | 320.0            | 305.4              |       |
| 158 n-Octadecane               | 85  | 8.998        | 8.996            | 0.002            | 96  | 362057   | 160.0            | 151.6              |       |
| 161 Phenanthrene               | 178 | 9.174        | 9.166            | 0.008            | 98  | 1922351  | 160.0            | 136.2              |       |
| 162 Anthracene                 | 178 | 9.221        | 9.219            | 0.002            | 98  | 2037672  | 160.0            | 138.2              |       |
| 164 Carbazole                  | 167 | 9.374        | 9.372            | 0.002            | 96  | 1920926  | 160.0            | 138.0              |       |
| 166 Alachlor                   | 188 | 9.509        | 9.507            | 0.002            | 98  | 285269   | 160.0            | 140.8              |       |
| 168 Di-n-butyl phthalate       | 149 | 9.715        | 9.719            | -0.004           | 100 | 2318369  | 160.0            | 137.3              |       |
| 175 Fluoranthene               | 202 | 10.555       | 10.553           | 0.002            | 98  | 2305622  | 160.0            | 139.8              |       |
| 178 Pyrene                     | 202 | 10.895       | 10.893           | 0.002            | 97  | 2376271  | 160.0            | 144.2              |       |
| 185 Famphur                    | 218 | 11.888       | 11.886           | 0.002            | 89  | 771967   | 160.0            | 135.8              |       |
| 187 Butyl benzyl phthalate     | 149 | 12.006       | 12.010           | -0.004           | 98  | 1216839  | 160.0            | 150.3              |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.181       | 13.173           | 0.008            | 74  | 756007   | 160.0            | 147.0              |       |
| 191 Benzo[a]anthracene         | 228 | 13.228       | 13.226           | 0.002            | 99  | 2316211  | 160.0            | 148.2              |       |
| 192 Chrysene                   | 228 | 13.322       | 13.314           | 0.008            | 97  | 2219096  | 160.0            | 146.9              |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.386       | 13.390           | -0.004           | 97  | 1660754  | 160.0            | 150.3              |       |
| 195 Di-n-octyl phthalate       | 149 | 15.195       | 15.199           | -0.004           | 99  | 2992451  | 160.0            | 151.3              |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.112       | 16.104           | 0.008            | 98  | 2318222  | 160.0            | 152.2              |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.200       | 16.180           | 0.020            | 99  | 2274255  | 160.0            | 148.2              |       |
| 200 Benzo[e]pyrene             | 252 | 16.899       | 16.885           | 0.014            | 98  | 2117095  | 160.0            | 149.3              |       |
| 201 Benzo[a]pyrene             | 252 | 17.052       | 17.038           | 0.014            | 78  | 2300777  | 160.0            | 151.9              |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.347       | 20.328           | 0.019            | 98  | 1964191  | 160.0            | 148.1              | M     |
| 208 Dibenz(a,h)anthracene      | 278 | 20.441       | 20.422           | 0.019            | 96  | 1933092  | 160.0            | 149.8              |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.099       | 21.074           | 0.025            | 96  | 2073184  | 160.0            | 149.4              |       |
| S 219 Total Cresols            | 108 |              |                  |                  | 0   |          |                  | 284.9              |       |
| S 220 Methyl Phenols, Total    | 108 |              |                  |                  | 0   |          |                  | 284.9              |       |

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

MS-HSLA160\_00035

Amount Added: 200.00

Units: uL

Report Date: 22-Apr-2018 07:59:47

Chrom Revision: 2.2 17-Apr-2018 19:19:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19207.D

Injection Date: 21-Apr-2018 15:01:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD160 HSL

Worklist Smp#: 9

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

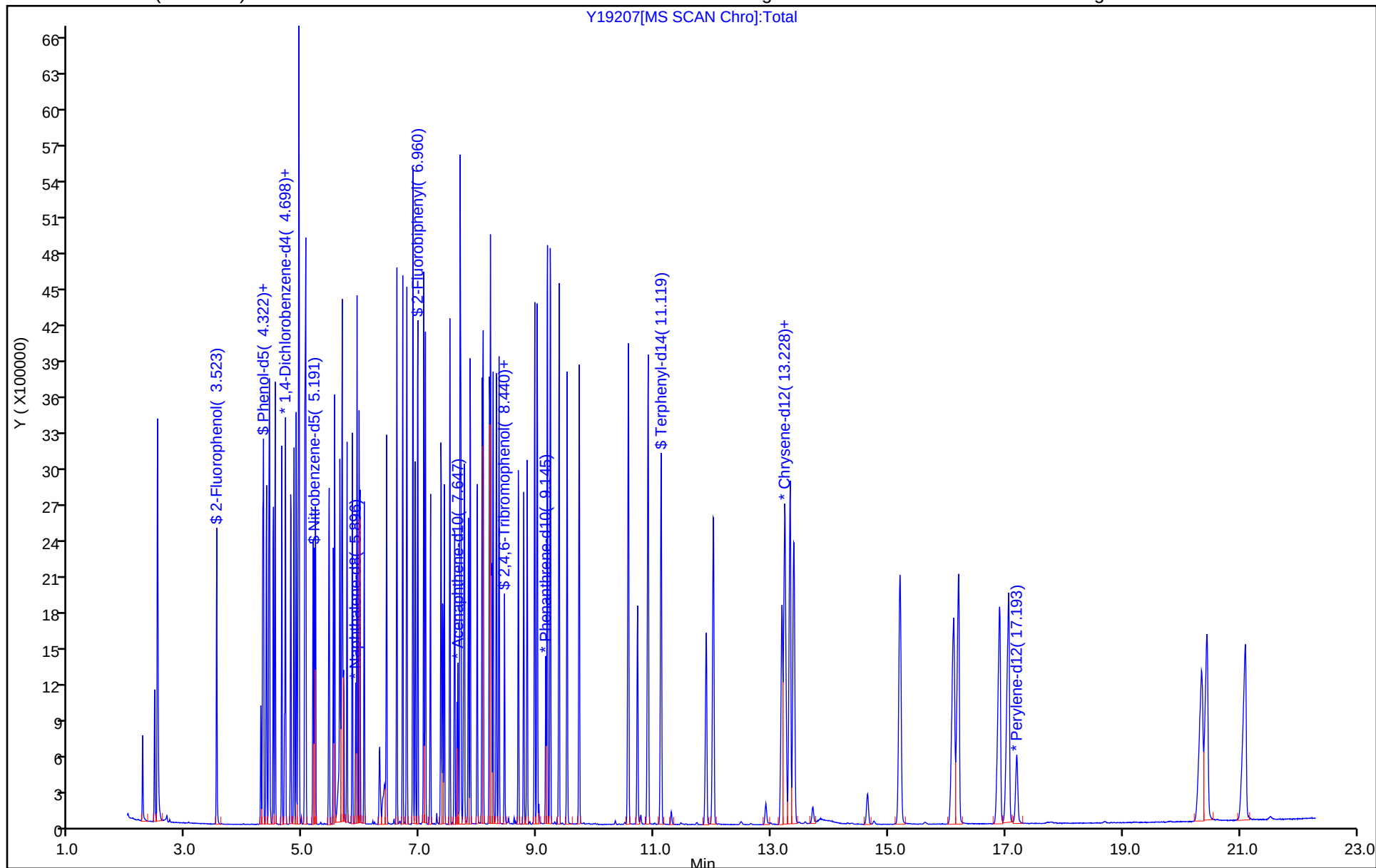
ALS Bottle#: 8

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19207.D

Injection Date: 21-Apr-2018 15:01:30

Instrument ID: SMS\_Y

Lims ID: STD160 HSL

Client ID:

Operator ID: KIEKELD

ALS Bottle#:

8

Worklist Smp#: 9

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

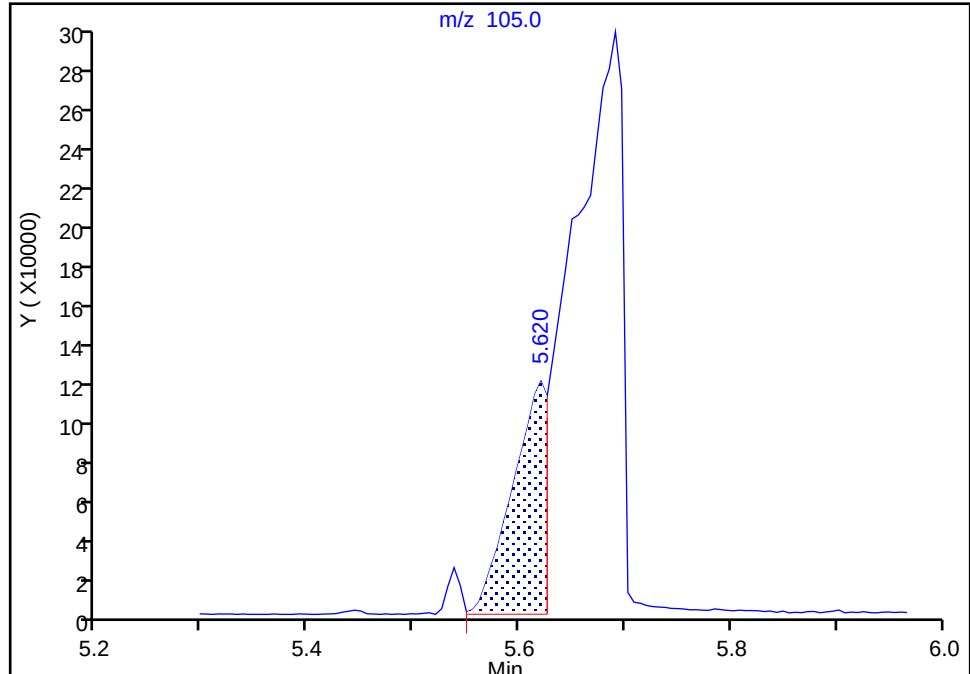
Detector: MS SCAN

## 64 Benzoic acid, CAS: 65-85-0

Signal: 1

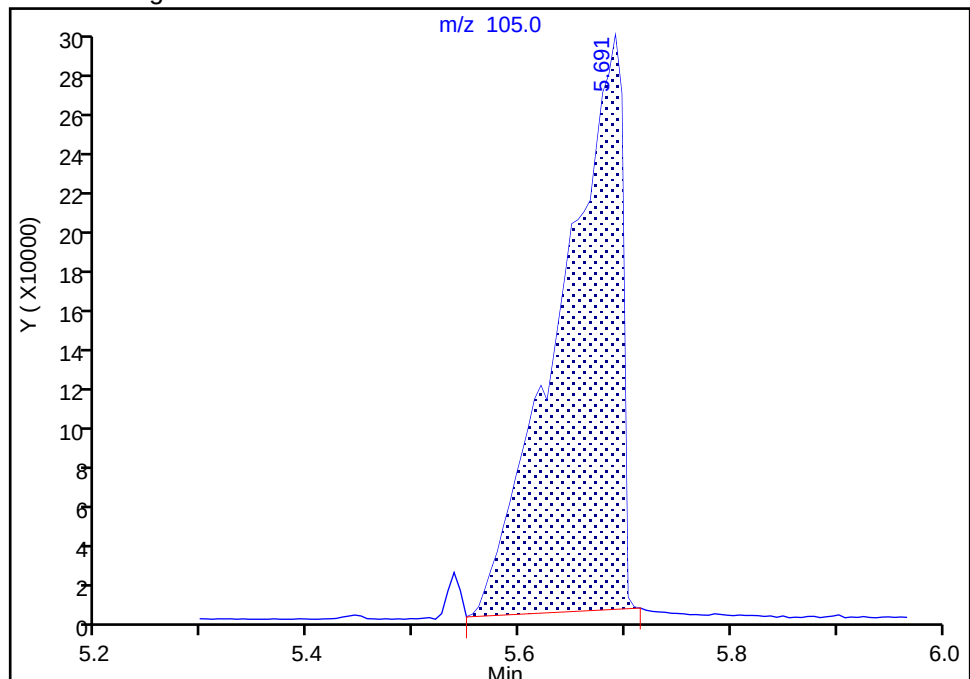
RT: 5.62  
Area: 275898  
Amount: 96.832498  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.69  
Area: 1175692  
Amount: 314.2776  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:33:15

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Denver

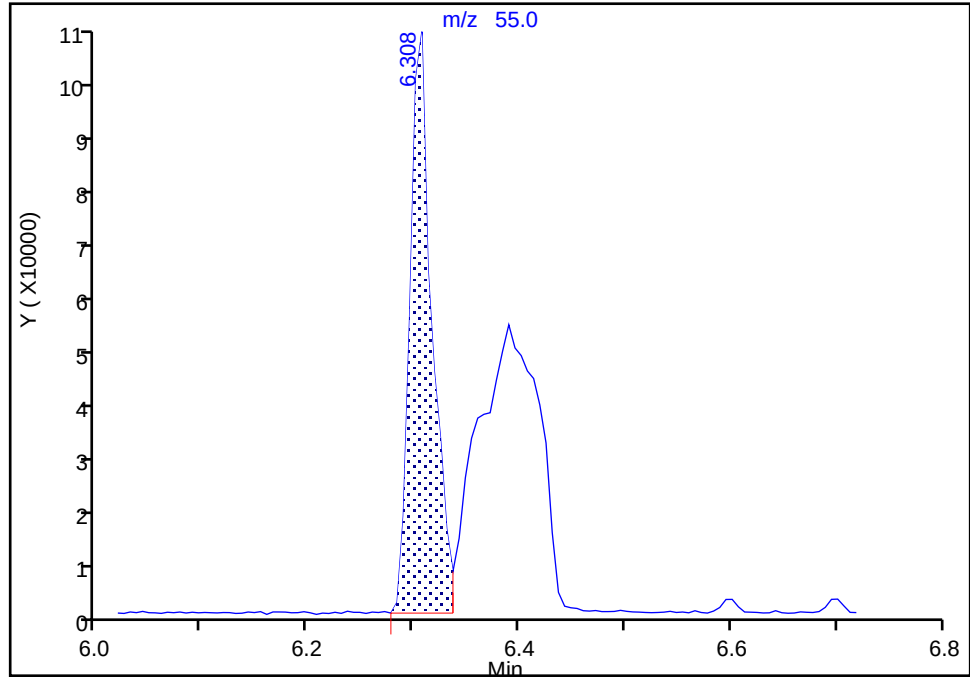
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19207.D  
Injection Date: 21-Apr-2018 15:01:30 Instrument ID: SMS\_Y  
Lims ID: STD160 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 8 Worklist Smp#: 9  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**79 Caprolactam, CAS: 105-60-2**

Signal: 1

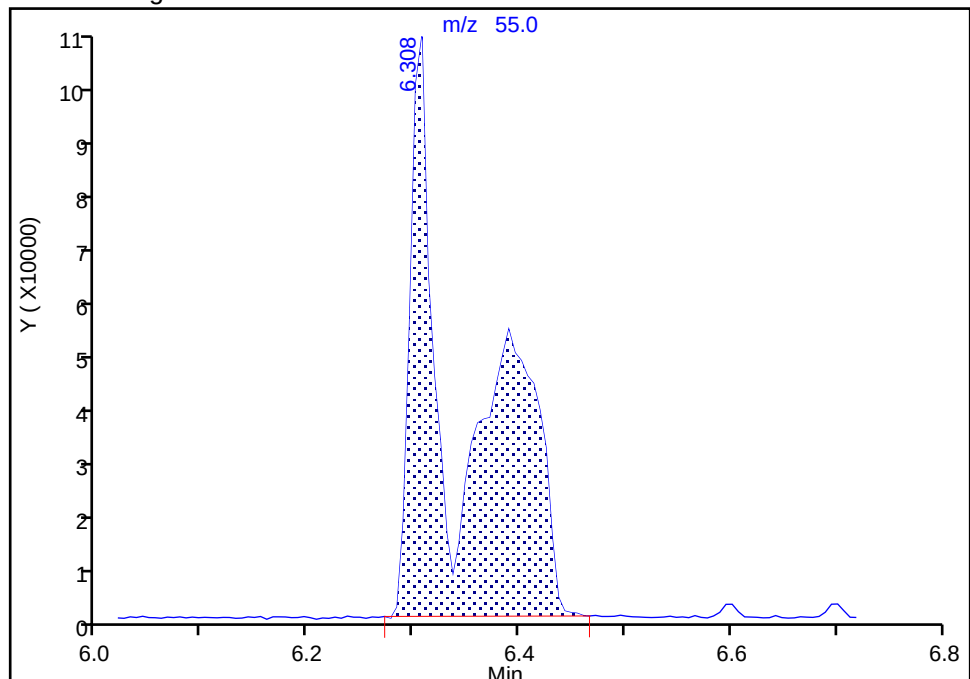
RT: 6.31  
Area: 156536  
Amount: 76.915978  
Amount Units: ug/ml

## Processing Integration Results



RT: 6.31  
Area: 365427  
Amount: 154.8271  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:33:23

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Denver

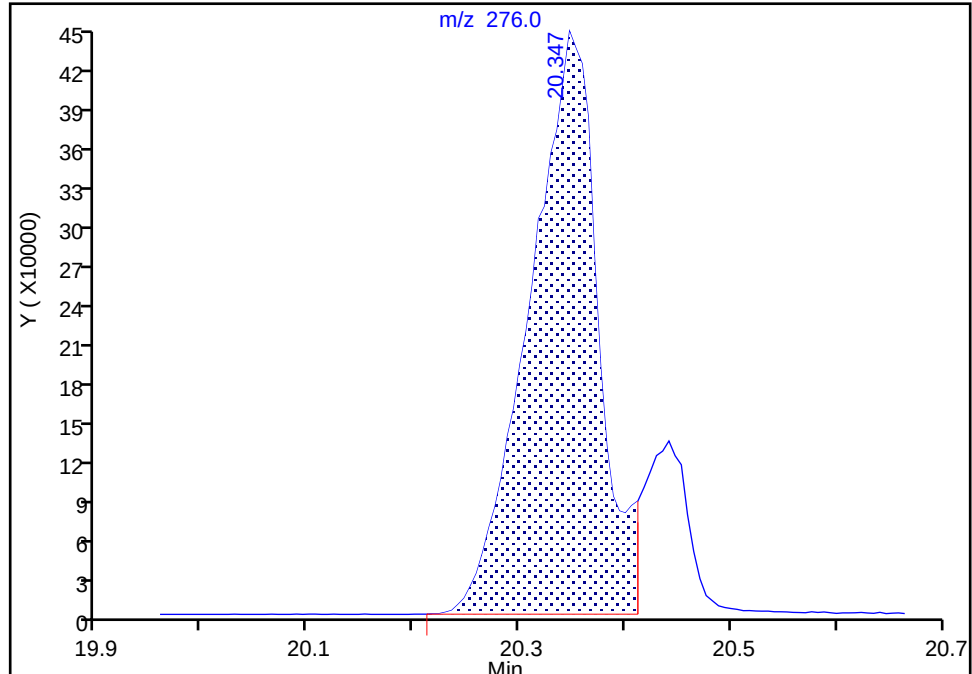
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19207.D  
Injection Date: 21-Apr-2018 15:01:30 Instrument ID: SMS\_Y  
Lims ID: STD160 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 8 Worklist Smp#: 9  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

207 Indeno[1,2,3-cd]pyrene, CAS: 193-39-5

Signal: 1

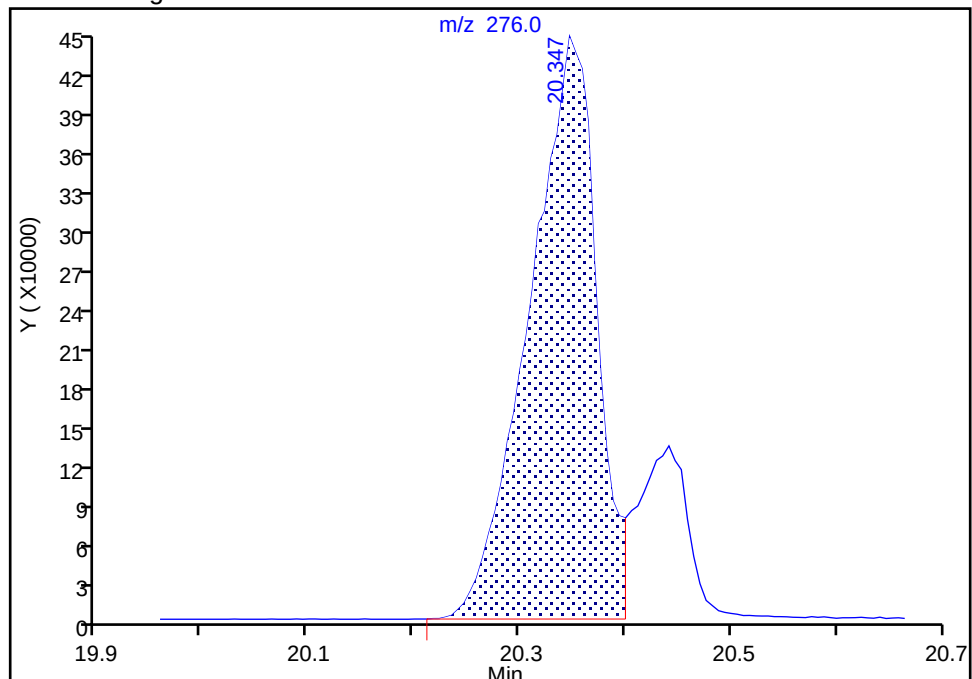
RT: 20.35  
Area: 2023724  
Amount: 151.1796  
Amount Units: ug/ml

## Processing Integration Results



RT: 20.35  
Area: 1964191  
Amount: 148.1122  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:38:41

Audit Action: Split an Integrated Peak

Audit Reason: Shouldering

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19208.D  
 Lims ID: STD200 HSL  
 Client ID:  
 Sample Type: IC Calib Level: 8  
 Inject. Date: 21-Apr-2018 15:30:30 ALS Bottle#: 9 Worklist Smp#: 10  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: STD200 HSL  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:18 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 07:49:39

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.678     | 4.674         | 0.004         | 97  | 112577   | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8            | 136 | 5.900     | 5.890         | 0.010         | 99  | 482572   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10          | 164 | 7.644     | 7.641         | 0.003         | 92  | 277383   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10          | 188 | 9.148     | 9.139         | 0.009         | 97  | 504323   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12              | 240 | 13.254    | 13.228        | 0.026         | 98  | 484777   | 40.0          | 40.0            |       |
| * 6 Perylene-d12              | 264 | 17.196    | 17.169        | 0.027         | 96  | 465476   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol           | 112 | 3.526     | 3.521         | 0.005         | 93  | 723232   | 200.0         | 174.7           |       |
| \$ 8 Phenol-d5                | 99  | 4.313     | 4.302         | 0.011         | 0   | 908346   | 200.0         | 176.2           |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.195     | 5.189         | 0.006         | 89  | 845554   | 200.0         | 174.1           |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.957     | 6.958         | -0.001        | 100 | 1518027  | 200.0         | 169.6           |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.443     | 8.438         | 0.005         | 89  | 183801   | 200.0         | 176.5           |       |
| \$ 13 Terphenyl-d14           | 244 | 11.116    | 11.117        | -0.001        | 98  | 1886480  | 200.0         | 178.6           |       |
| 15 1,4-Dioxane                | 88  | 2.257     | 2.258         | -0.001        | 97  | 307872   | 200.0         | 175.2           |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.463     | 2.464         | -0.001        | 93  | 537315   | 200.0         | 184.7           |       |
| 18 Pyridine                   | 79  | 2.510     | 2.511         | -0.001        | 94  | 1667737  | 400.0         | 350.9           |       |
| 28 Phenol                     | 94  | 4.325     | 4.320         | 0.005         | 99  | 928781   | 200.0         | 170.1           |       |
| 30 Aniline                    | 93  | 4.372     | 4.367         | 0.005         | 97  | 1244741  | 200.0         | 179.9           |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.413     | 4.408         | 0.005         | 95  | 688518   | 200.0         | 168.6           |       |
| 32 Alpha Methyl Styrene       | 118 | 4.425     | 4.426         | -0.001        | 92  | 703548   | 200.0         | 166.7           |       |
| 34 2-Chlorophenol             | 128 | 4.490     | 4.490         | 0.000         | 98  | 722069   | 200.0         | 173.4           |       |
| 35 n-Decane                   | 43  | 4.519     | 4.520         | -0.001        | 94  | 799164   | 200.0         | 172.5           |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.637     | 4.631         | 0.006         | 97  | 784636   | 200.0         | 171.1           |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.695     | 4.696         | -0.001        | 93  | 781812   | 200.0         | 171.6           |       |
| 39 Benzyl alcohol             | 108 | 4.789     | 4.784         | 0.005         | 91  | 498669   | 200.0         | 178.3           |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.842     | 4.843         | -0.001        | 96  | 744715   | 200.0         | 171.1           |       |
| 41 2-Methylphenol             | 108 | 4.883     | 4.878         | 0.005         | 97  | 660268   | 200.0         | 172.7           |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.913     | 4.913         | 0.000         | 93  | 1049631  | 200.0         | 169.2           |       |
| 44 Indene                     | 116 | 4.930     | 4.925         | 0.005         | 91  | 2190769  | 400.0         | 455.6           |       |
| 46 3-Methylphenol             | 108 | 5.030     | 5.019         | 0.011         | 90  | 685664   | 200.0         | 169.0           |       |
| 47 4-Methylphenol             | 108 | 5.030     | 5.019         | 0.011         | 97  | 685664   | 200.0         | 169.0           |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 5.030     | 5.019         | 0.011         | 0  | 685664   | 200.0         | 169.0           |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 5.042     | 5.031         | 0.011         | 87 | 558680   | 200.0         | 168.5           |       |
| 51 Acetophenone                | 105 | 5.048     | 5.043         | 0.005         | 96 | 882402   | 200.0         | 202.6           |       |
| 53 Hexachloroethane            | 117 | 5.171     | 5.166         | 0.005         | 94 | 295997   | 200.0         | 172.0           |       |
| 54 Nitrobenzene                | 77  | 5.212     | 5.207         | 0.005         | 89 | 836886   | 200.0         | 174.5           |       |
| 57 Isophorone                  | 82  | 5.447     | 5.436         | 0.011         | 99 | 1495968  | 200.0         | 174.4           |       |
| 58 2-Nitrophenol               | 139 | 5.518     | 5.512         | 0.006         | 95 | 436148   | 200.0         | 181.7           |       |
| 59 2,4-Dimethylphenol          | 107 | 5.541     | 5.536         | 0.005         | 95 | 724566   | 200.0         | 170.0           |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.629     | 5.624         | 0.005         | 98 | 888912   | 200.0         | 167.8           |       |
| 64 Benzoic acid                | 105 | 5.712     | 5.653         | 0.059         | 75 | 1453878  | 400.0         | 391.4           | M     |
| 66 3,5-Dimethylphenol          | 107 | 5.670     | 5.659         | 0.011         | 87 | 701579   | 200.0         | 161.2           |       |
| 68 2,4-Dichlorophenol          | 162 | 5.753     | 5.747         | 0.006         | 94 | 623749   | 200.0         | 174.3           |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.841     | 5.841         | 0.000         | 94 | 628535   | 200.0         | 171.8           |       |
| 71 Naphthalene                 | 128 | 5.923     | 5.918         | 0.005         | 98 | 1921888  | 200.0         | 161.5           |       |
| 72 4-Chloroaniline             | 127 | 5.958     | 5.953         | 0.005         | 95 | 913178   | 200.0         | 161.5           |       |
| 73 2,6-Dichlorophenol          | 162 | 5.970     | 5.971         | -0.001        | 97 | 606258   | 200.0         | 171.7           |       |
| 75 Hexachlorobutadiene         | 225 | 6.046     | 6.041         | 0.005         | 96 | 330057   | 200.0         | 174.6           |       |
| 79 Caprolactam                 | 55  | 6.317     | 6.282         | 0.035         | 79 | 446167   | 200.0         | 190.8           | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.428     | 6.423         | 0.005         | 97 | 651922   | 200.0         | 168.0           |       |
| 86 2-Methylnaphthalene         | 142 | 6.605     | 6.599         | 0.005         | 93 | 1377564  | 200.0         | 162.8           |       |
| 88 1-Methylnaphthalene         | 142 | 6.704     | 6.699         | 0.005         | 94 | 1323816  | 200.0         | 166.0           |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.775     | 6.770         | 0.005         | 98 | 584933   | 200.0         | 164.3           |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.769     | 6.764         | 0.005         | 95 | 400118   | 200.0         | 185.3           |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.881     | 6.875         | 0.006         | 92 | 422101   | 200.0         | 169.7           |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.875     | 6.875         | 0.000         | 95 | 655417   | 200.0         | 159.1           |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.916     | 6.911         | 0.005         | 95 | 511421   | 200.0         | 181.1           |       |
| 98 1,1'-Biphenyl               | 154 | 7.063     | 7.057         | 0.006         | 95 | 1608828  | 200.0         | 166.4           |       |
| 99 2-Chloronaphthalene         | 162 | 7.092     | 7.087         | 0.005         | 96 | 1344123  | 200.0         | 171.0           |       |
| 101 2-Nitroaniline             | 65  | 7.180     | 7.169         | 0.011         | 84 | 507275   | 200.0         | 181.7           |       |
| 104 Dimethyl phthalate         | 163 | 7.362     | 7.351         | 0.011         | 99 | 1607333  | 200.0         | 177.1           |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.392     | 7.381         | 0.011         | 89 | 306228   | 200.0         | 198.6           |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.415     | 7.410         | 0.005         | 96 | 392935   | 200.0         | 179.8           |       |
| 107 Acenaphthylene             | 152 | 7.509     | 7.504         | 0.005         | 98 | 2009812  | 200.0         | 169.8           |       |
| 108 3-Nitroaniline             | 138 | 7.597     | 7.580         | 0.017         | 95 | 503793   | 200.0         | 185.0           |       |
| 109 Acenaphthene               | 153 | 7.685     | 7.680         | 0.005         | 95 | 1220355  | 200.0         | 162.7           |       |
| 111 2,4-Dinitrophenol          | 184 | 7.703     | 7.692         | 0.011         | 87 | 592716   | 400.0         | 395.8           |       |
| 112 4-Nitrophenol              | 109 | 7.762     | 7.745         | 0.017         | 96 | 520782   | 400.0         | 375.0           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.826     | 7.821         | 0.005         | 95 | 551255   | 200.0         | 186.5           |       |
| 116 Dibenzofuran               | 168 | 7.856     | 7.850         | 0.006         | 97 | 1832458  | 200.0         | 170.5           |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.979     | 7.974         | 0.005         | 74 | 381317   | 200.0         | 180.9           |       |
| 123 Diethyl phthalate          | 149 | 8.061     | 8.056         | 0.005         | 98 | 1488859  | 200.0         | 164.5           |       |
| 124 Hexadecane                 | 57  | 8.073     | 8.074         | -0.001        | 95 | 901312   | 200.0         | 160.3           |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.185     | 8.179         | 0.006         | 93 | 720520   | 200.0         | 170.7           |       |
| 129 Fluorene                   | 166 | 8.202     | 8.197         | 0.005         | 93 | 1486568  | 200.0         | 168.6           |       |
| 130 4-Nitroaniline             | 138 | 8.226     | 8.203         | 0.023         | 85 | 537223   | 200.0         | 193.9           |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.249     | 8.238         | 0.011         | 86 | 664197   | 400.0         | 377.3           |       |
| 134 Diphenylamine              | 169 | 8.302     | 8.297         | 0.005         | 97 | 1264299  | 170.0         | 145.2           |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.302     | 8.297         | 0.005         | 60 | 1264299  | 200.0         | 167.8           |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.349     | 8.344         | 0.005         | 99 | 1740553  | 202.2         | 172.9           |       |
| 137 Azobenzene                 | 77  | 8.349     | 8.344         | 0.005         | 99 | 1740553  | 200.0         | 171.1           |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.443     | 8.438         | 0.005         | 89 | 183585   | 200.0         | 175.3           |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.678     | 8.679         | -0.001        | 70 | 397557   | 200.0         | 169.2           |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.772     | 8.767         | 0.005         | 92  | 365478   | 200.0         | 171.4           |       |
| 152 Atrazine                   | 200 | 8.831     | 8.820         | 0.011         | 93  | 412260   | 200.0         | 164.7           |       |
| 155 Pentachlorophenol          | 266 | 8.960     | 8.955         | 0.005         | 89  | 511790   | 400.0         | 363.1           |       |
| 158 n-Octadecane               | 85  | 9.001     | 8.996         | 0.005         | 96  | 439098   | 200.0         | 187.0           |       |
| 161 Phenanthrene               | 178 | 9.177     | 9.166         | 0.011         | 98  | 2310136  | 200.0         | 165.8           |       |
| 162 Anthracene                 | 178 | 9.224     | 9.219         | 0.005         | 98  | 2381793  | 200.0         | 163.7           |       |
| 164 Carbazole                  | 167 | 9.377     | 9.372         | 0.005         | 96  | 2288558  | 200.0         | 166.6           |       |
| 166 Alachlor                   | 188 | 9.512     | 9.507         | 0.005         | 99  | 335186   | 200.0         | 167.6           |       |
| 168 Di-n-butyl phthalate       | 149 | 9.718     | 9.719         | -0.001        | 100 | 2733618  | 200.0         | 164.0           |       |
| 175 Fluoranthene               | 202 | 10.558    | 10.553        | 0.005         | 98  | 2768803  | 200.0         | 170.1           |       |
| 178 Pyrene                     | 202 | 10.899    | 10.893        | 0.006         | 97  | 2910358  | 200.0         | 181.5           |       |
| 185 Famphur                    | 218 | 11.891    | 11.886        | 0.005         | 84  | 864162   | 200.0         | 156.1           |       |
| 187 Butyl benzyl phthalate     | 149 | 12.009    | 12.010        | -0.001        | 98  | 1444319  | 200.0         | 183.3           |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.184    | 13.173        | 0.011         | 74  | 901802   | 200.0         | 180.2           |       |
| 191 Benzo[a]anthracene         | 228 | 13.237    | 13.226        | 0.011         | 99  | 2803518  | 200.0         | 184.3           |       |
| 192 Chrysene                   | 228 | 13.331    | 13.314        | 0.017         | 97  | 2674984  | 200.0         | 181.9           |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.384    | 13.390        | -0.006        | 97  | 2005760  | 200.0         | 186.5           |       |
| 195 Di-n-octyl phthalate       | 149 | 15.199    | 15.199        | 0.000         | 99  | 3610177  | 200.0         | 187.6           |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.121    | 16.104        | 0.017         | 98  | 2891855  | 200.0         | 192.4           |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.203    | 16.180        | 0.023         | 99  | 2678663  | 200.0         | 176.9           |       |
| 200 Benzo[e]pyrene             | 252 | 16.908    | 16.885        | 0.023         | 98  | 2579762  | 200.0         | 184.4           |       |
| 201 Benzo[a]pyrene             | 252 | 17.061    | 17.038        | 0.023         | 78  | 2753957  | 200.0         | 184.3           |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.362    | 20.328        | 0.034         | 98  | 2468589  | 200.0         | 191.3           | M     |
| 208 Dibenz(a,h)anthracene      | 278 | 20.456    | 20.422        | 0.034         | 94  | 2347983  | 200.0         | 184.4           |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.114    | 21.074        | 0.040         | 95  | 2534070  | 200.0         | 185.1           |       |
| S 219 Total Cresols            | 108 |           |               |               | 0   |          |               | 341.7           |       |
| S 220 Methyl Phenols, Total    | 108 |           |               |               | 0   |          |               | 341.7           |       |

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

MS-HSLA200\_00035

Amount Added: 200.00

Units: uL



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19208.D

Injection Date: 21-Apr-2018 15:30:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: STD200 HSL

Worklist Smp#: 10

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

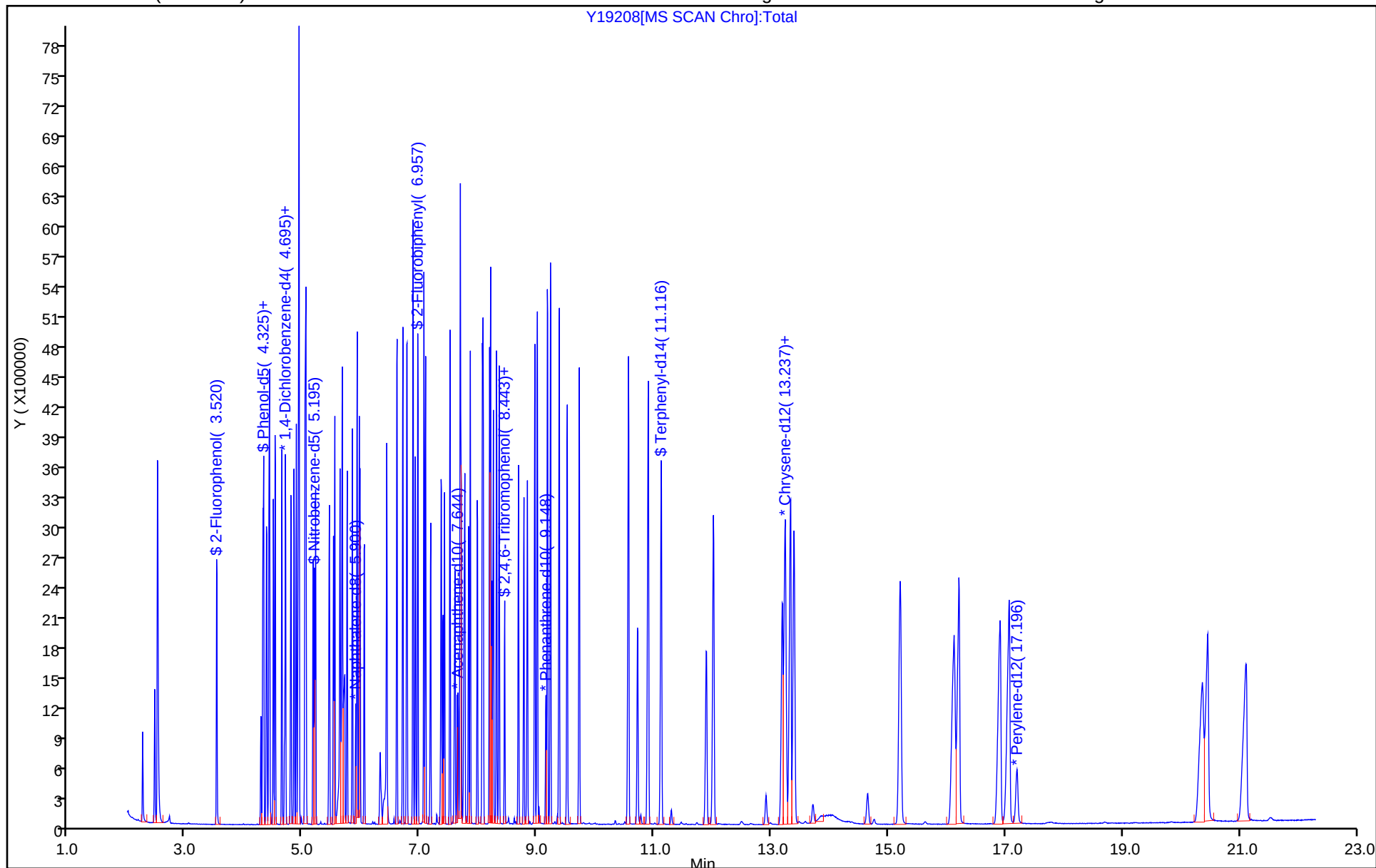
ALS Bottle#: 9

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

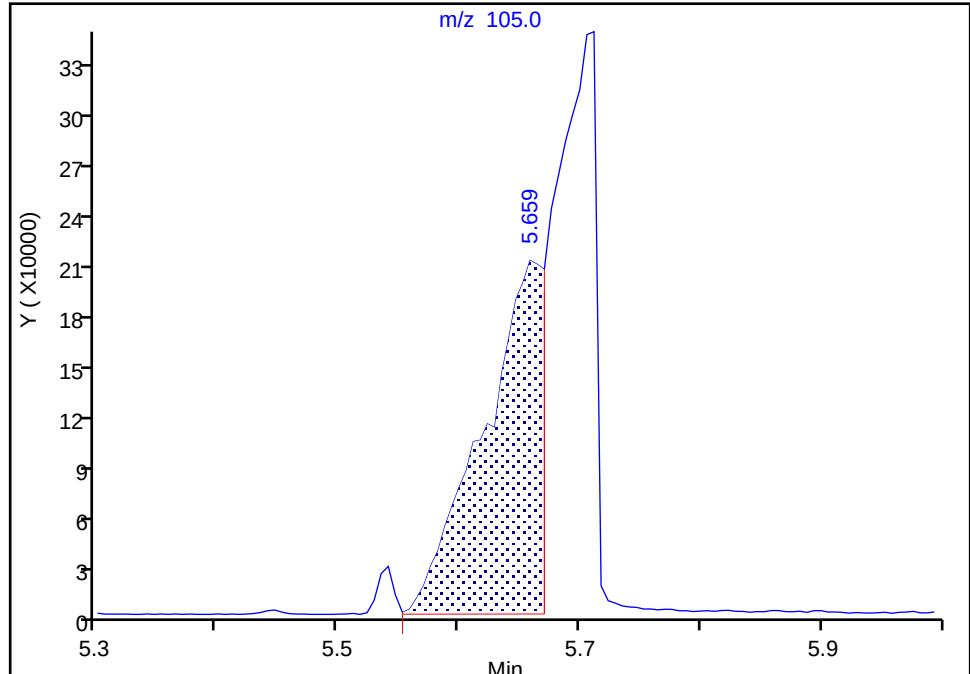
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19208.D  
Injection Date: 21-Apr-2018 15:30:30 Instrument ID: SMS\_Y  
Lims ID: STD200 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 9 Worklist Smp#: 10  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**64 Benzoic acid, CAS: 65-85-0**

Signal: 1

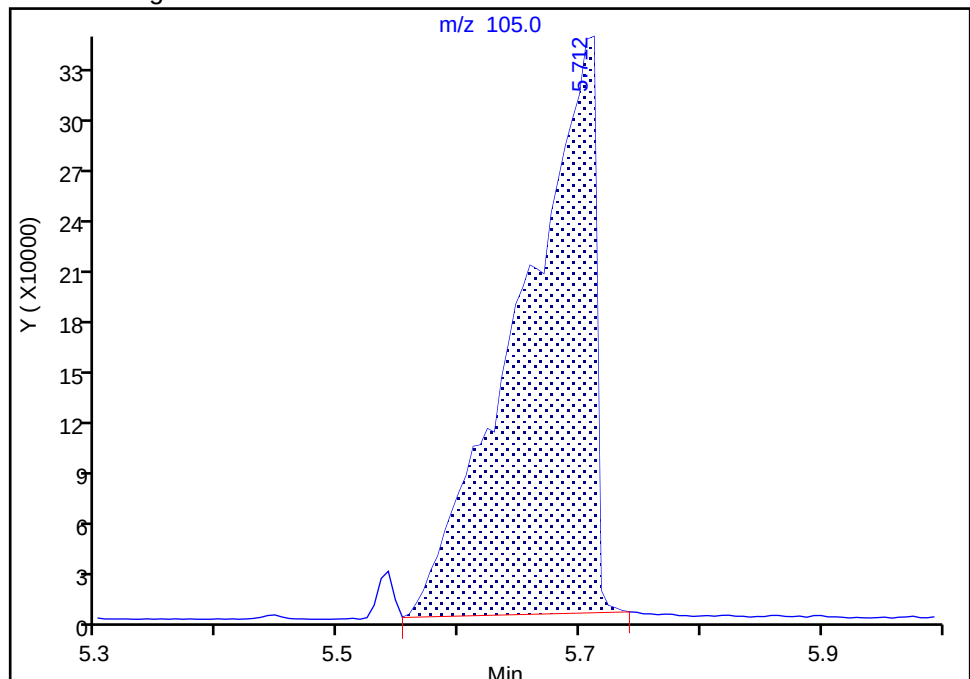
RT: 5.66  
Area: 740557  
Amount: 233.5263  
Amount Units: ug/ml

## Processing Integration Results



RT: 5.71  
Area: 1453878  
Amount: 391.3549  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:33:45  
Audit Action: Manually Integrated

Audit Reason: Split Peak  
Page 1600 of 3863

## TestAmerica Denver

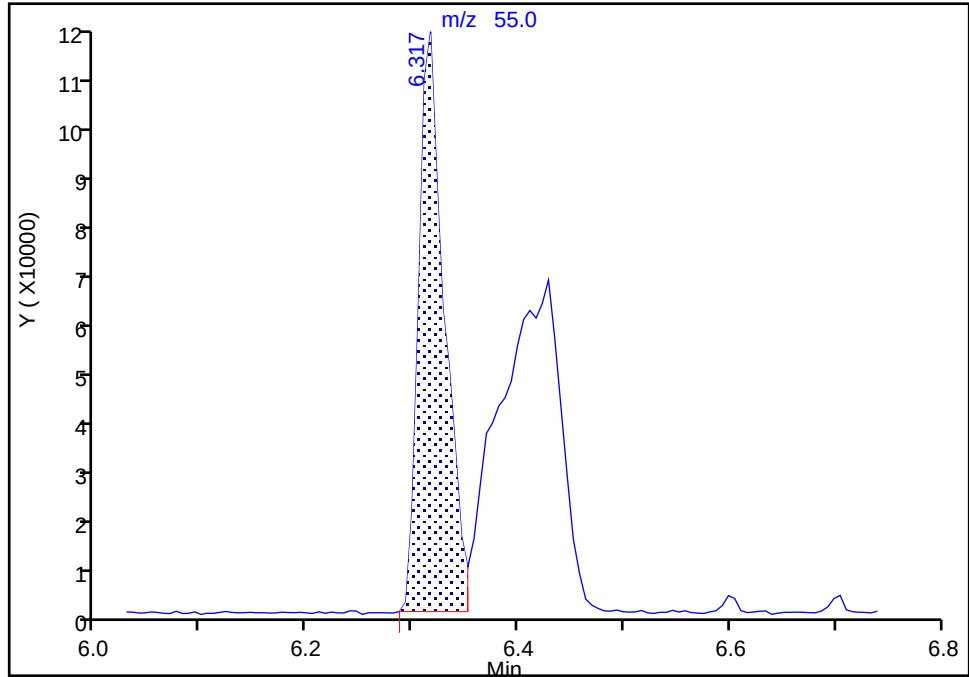
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19208.D  
Injection Date: 21-Apr-2018 15:30:30 Instrument ID: SMS\_Y  
Lims ID: STD200 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 9 Worklist Smp#: 10  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**79 Caprolactam, CAS: 105-60-2**

Signal: 1

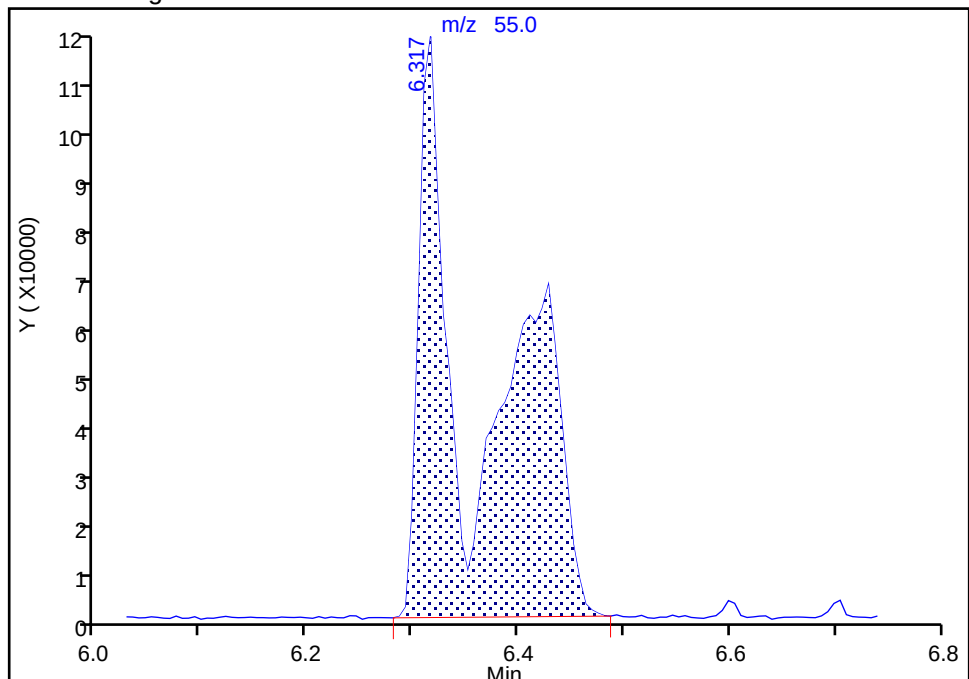
RT: 6.32  
Area: 189557  
Amount: 87.029507  
Amount Units: ug/ml

## Processing Integration Results



RT: 6.32  
Area: 446167  
Amount: 190.7953  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:33:53

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Denver

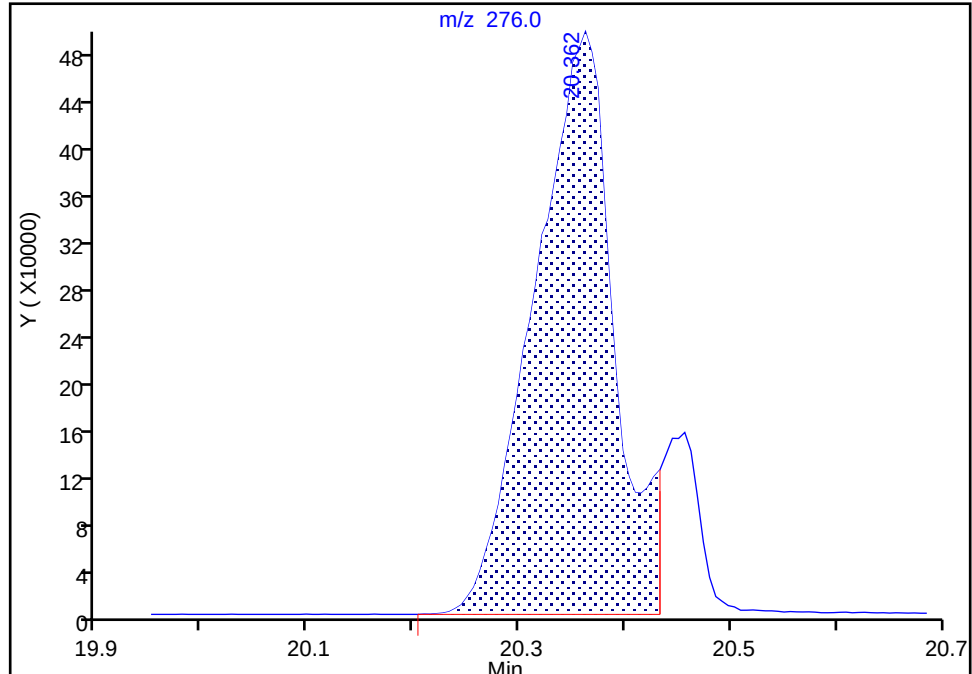
Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19208.D  
Injection Date: 21-Apr-2018 15:30:30 Instrument ID: SMS\_Y  
Lims ID: STD200 HSL  
Client ID:  
Operator ID: KIEKELD ALS Bottle#: 9 Worklist Smp#: 10  
Injection Vol: 0.5 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625  
Column: VF-5ms ( 0.50 mm) Detector: MS SCAN

**207 Indeno[1,2,3-cd]pyrene, CAS: 193-39-5**

Signal: 1

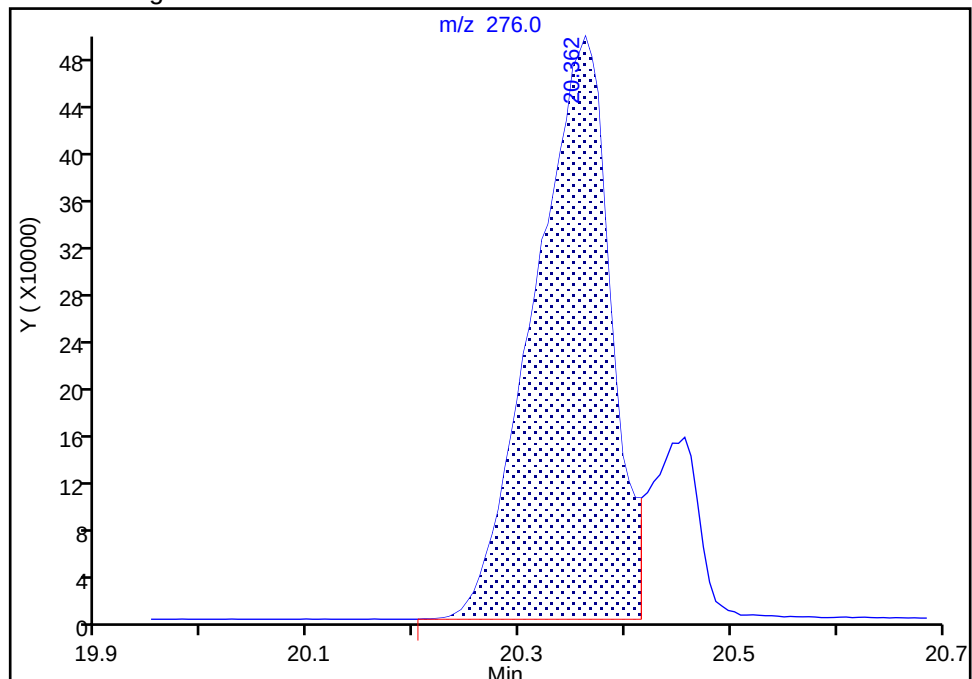
RT: 20.36  
Area: 2590373  
Amount: 199.5130  
Amount Units: ug/ml

## Processing Integration Results



RT: 20.36  
Area: 2468589  
Amount: 191.2543  
Amount Units: ug/ml

## Manual Integration Results



Reviewer: kiekeld, 22-Apr-2018 06:39:32

Audit Action: Split an Integrated Peak

Audit Reason: Shouldering

# Calibration

/ 1,4-Dioxane

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

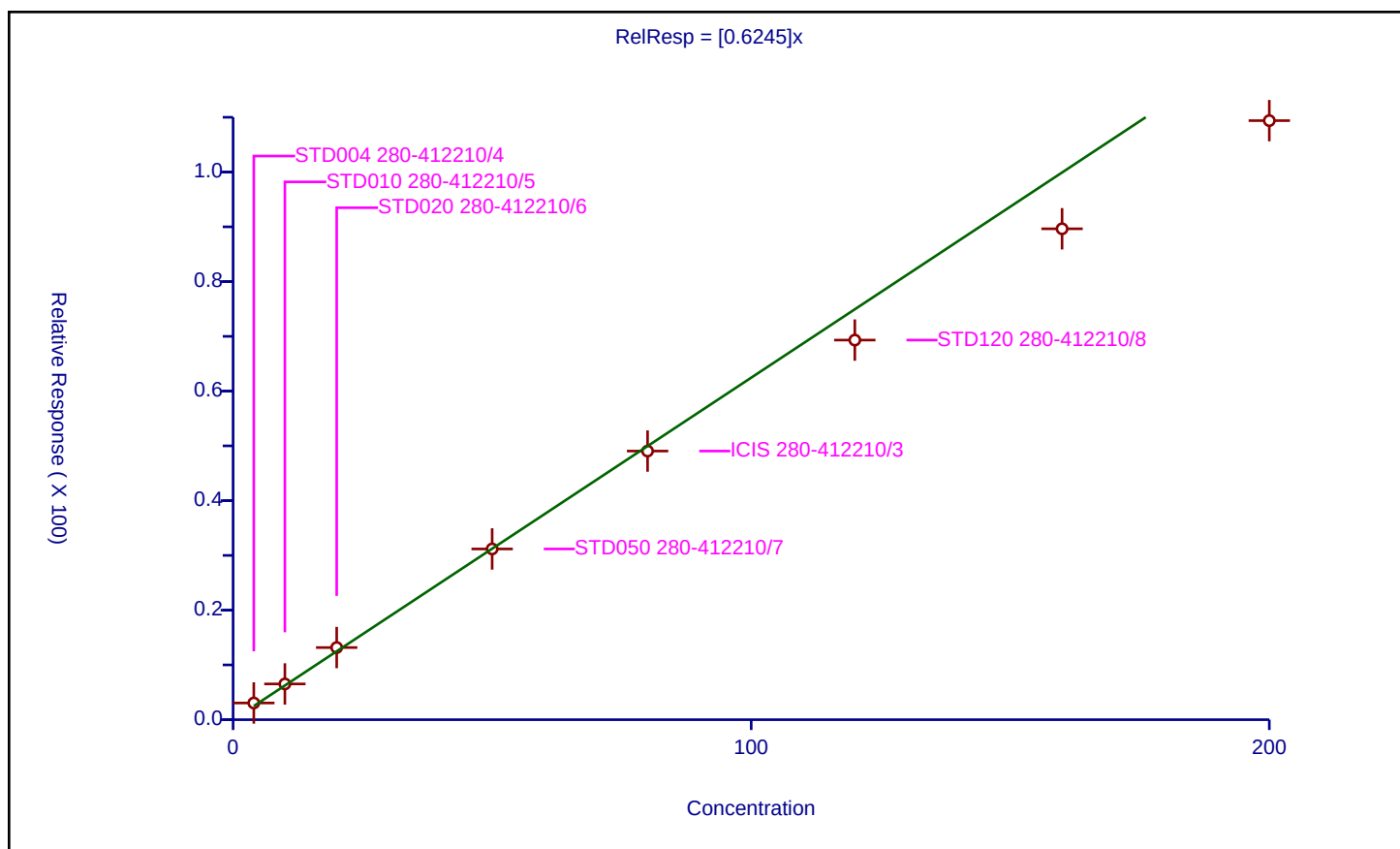
## Curve Coefficients

Intercept: 0  
 Slope: 0.6245

## Error Coefficients

Standard Error: 180000  
 Relative Standard Error: 11.1  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.981

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 3.052324   | 40.0      | 111823.0    | 0.763081 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 6.526904   | 40.0      | 108756.0    | 0.65269  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 13.173114  | 40.0      | 104856.0    | 0.658656 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 31.1763    | 40.0      | 106971.0    | 0.623526 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 49.051748  | 40.0      | 113145.0    | 0.613147 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 69.319539  | 40.0      | 115025.0    | 0.577663 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 89.63793   | 40.0      | 113514.0    | 0.560237 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 109.390728 | 40.0      | 112577.0    | 0.546954 | Y    |



## Calibration

/ N-Nitrosodimethylamine

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

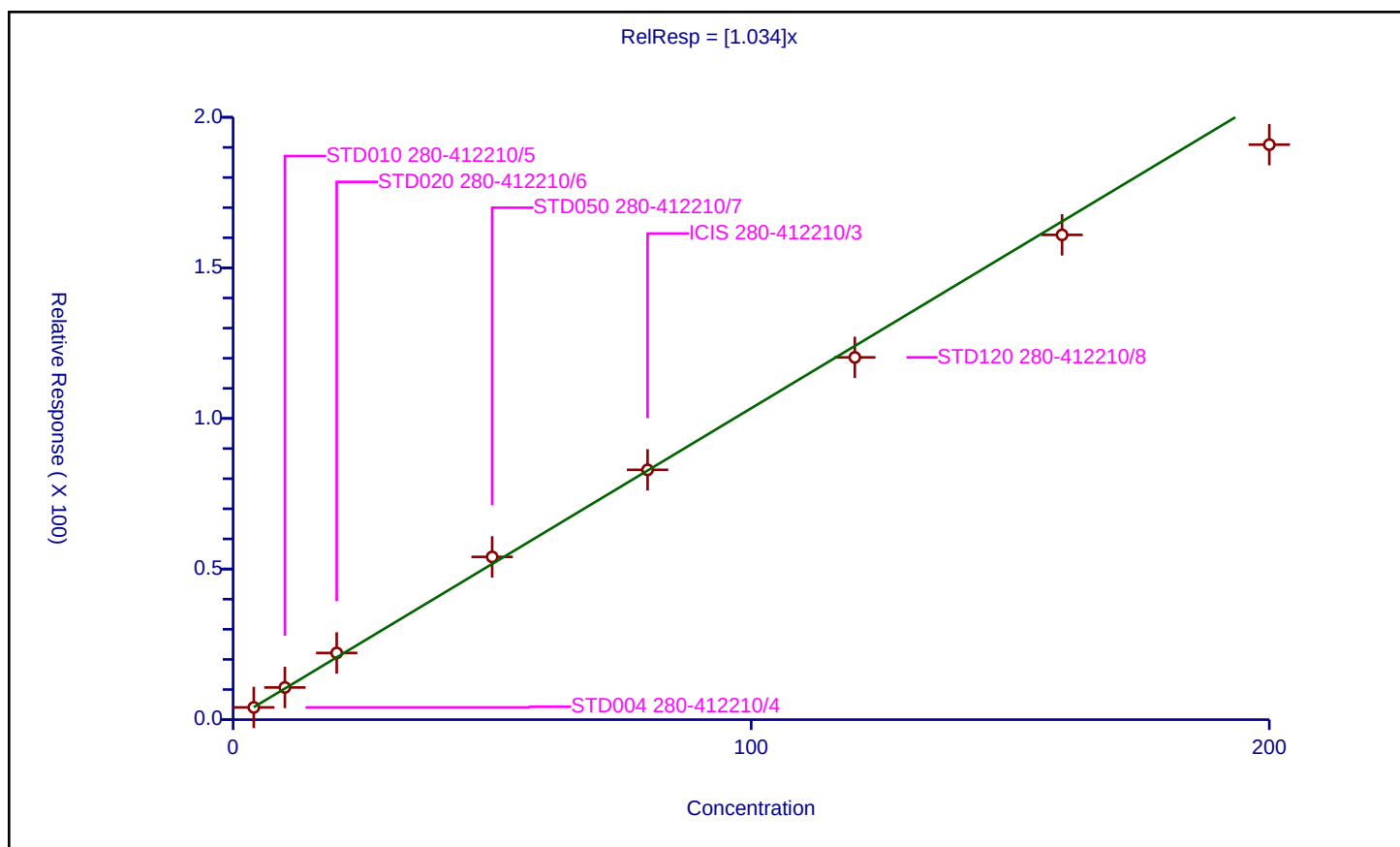
### Curve Coefficients

Intercept: 0  
 Slope: 1.034

### Error Coefficients

Standard Error: 315000  
 Relative Standard Error: 4.8  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.061776   | 40.0      | 111823.0    | 1.015444 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 10.683732  | 40.0      | 108756.0    | 1.068373 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 22.1458    | 40.0      | 104856.0    | 1.10729  | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 54.034458  | 40.0      | 106971.0    | 1.080689 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 82.942065  | 40.0      | 113145.0    | 1.036776 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 120.277505 | 40.0      | 115025.0    | 1.002313 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 160.953539 | 40.0      | 113514.0    | 1.00596  | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 190.914663 | 40.0      | 112577.0    | 0.954573 | Y    |



## Calibration

/ Pyridine

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

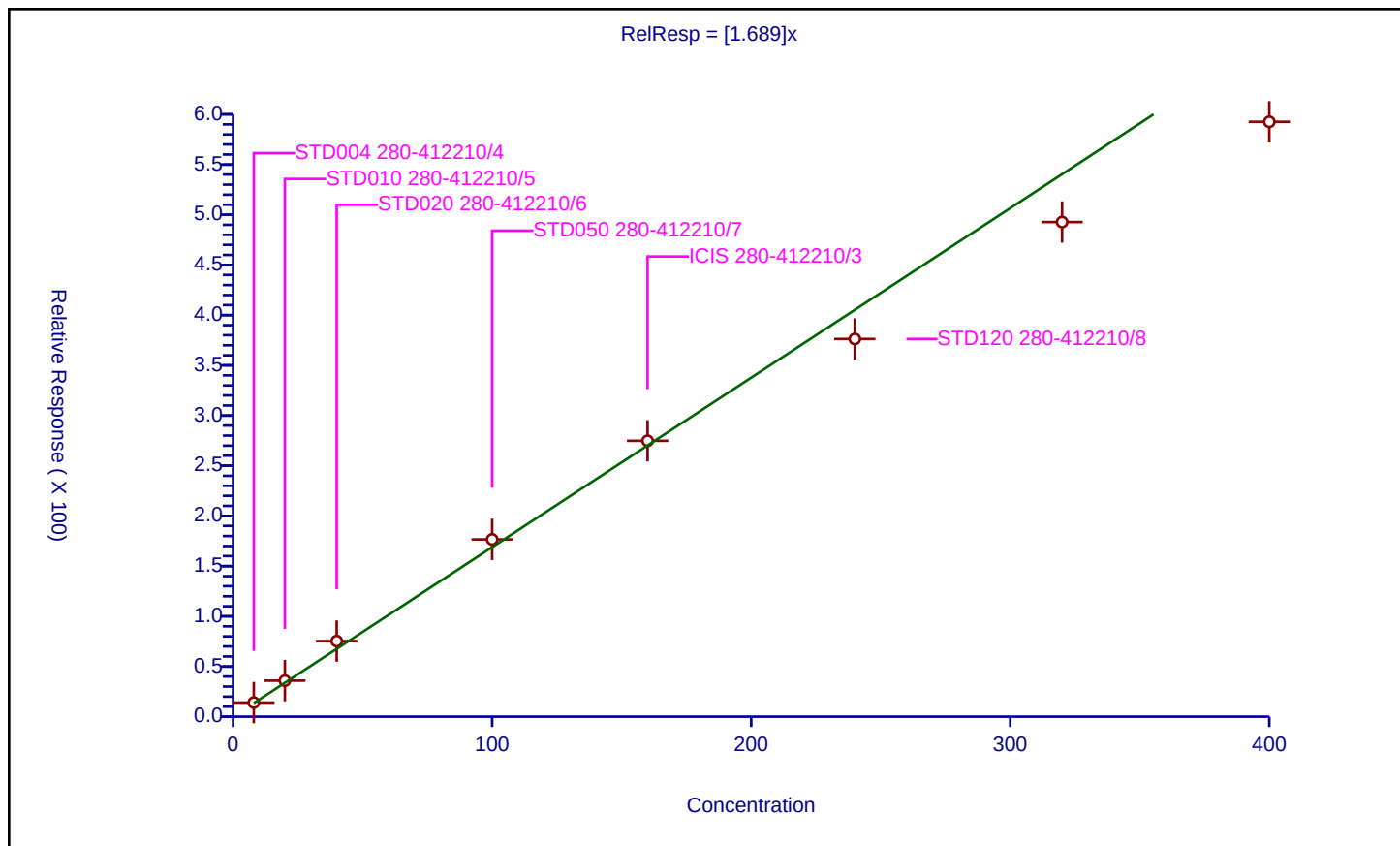
### Curve Coefficients

Intercept: 0  
 Slope: 1.689

### Error Coefficients

Standard Error: 984000  
 Relative Standard Error: 8.4  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.990

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 8.0           | 14.062939  | 40.0      | 111823.0    | 1.757867 | Y    |
| 2  | STD010 280-412210/5  | 20.0          | 35.903858  | 40.0      | 108756.0    | 1.795193 | Y    |
| 3  | STD020 280-412210/6  | 40.0          | 75.326925  | 40.0      | 104856.0    | 1.883173 | Y    |
| 4  | STD050 280-412210/7  | 100.0         | 176.610109 | 40.0      | 106971.0    | 1.766101 | Y    |
| 5  | ICIS 280-412210/3    | 160.0         | 274.816209 | 40.0      | 113145.0    | 1.717601 | Y    |
| 6  | STD120 280-412210/8  | 240.0         | 376.283417 | 40.0      | 115025.0    | 1.567848 | Y    |
| 7  | STD160 280-412210/9  | 320.0         | 492.750145 | 40.0      | 113514.0    | 1.539844 | Y    |
| 8  | STD200 280-412210/10 | 400.0         | 592.567576 | 40.0      | 112577.0    | 1.481419 | Y    |



## Calibration

/ 2-Fluorophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

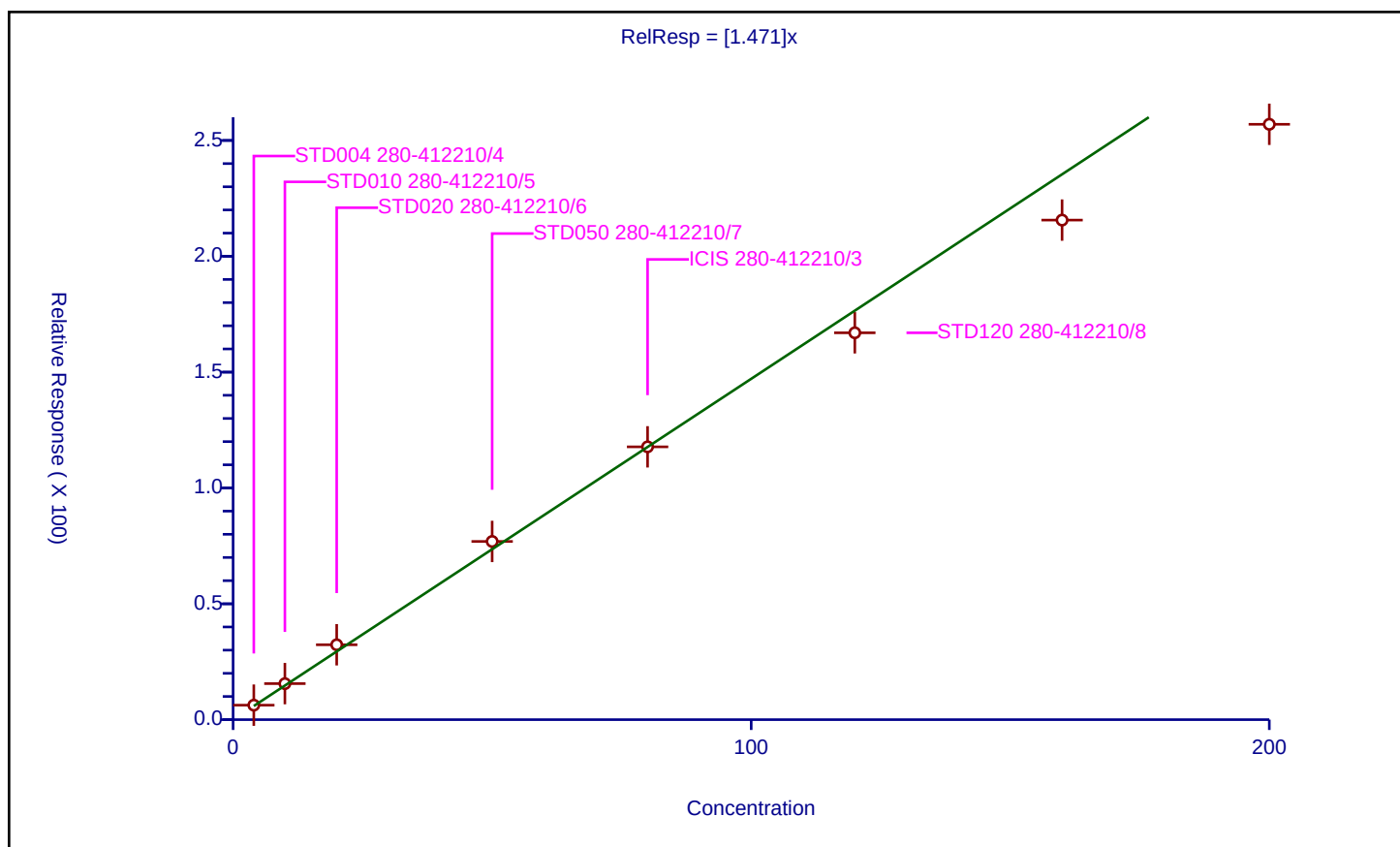
### Curve Coefficients

Intercept: 0  
 Slope: 1.471

### Error Coefficients

Standard Error: 429000  
 Relative Standard Error: 8.0  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.991

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.252739   | 40.0      | 111823.0    | 1.563185 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 15.549303  | 40.0      | 108756.0    | 1.55493  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 32.324712  | 40.0      | 104856.0    | 1.616236 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 76.918791  | 40.0      | 106971.0    | 1.538376 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 117.756507 | 40.0      | 113145.0    | 1.471956 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 166.971702 | 40.0      | 115025.0    | 1.391431 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 215.619924 | 40.0      | 113514.0    | 1.347625 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 256.973272 | 40.0      | 112577.0    | 1.284866 | Y    |





## Calibration

/ Phenol-d5

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

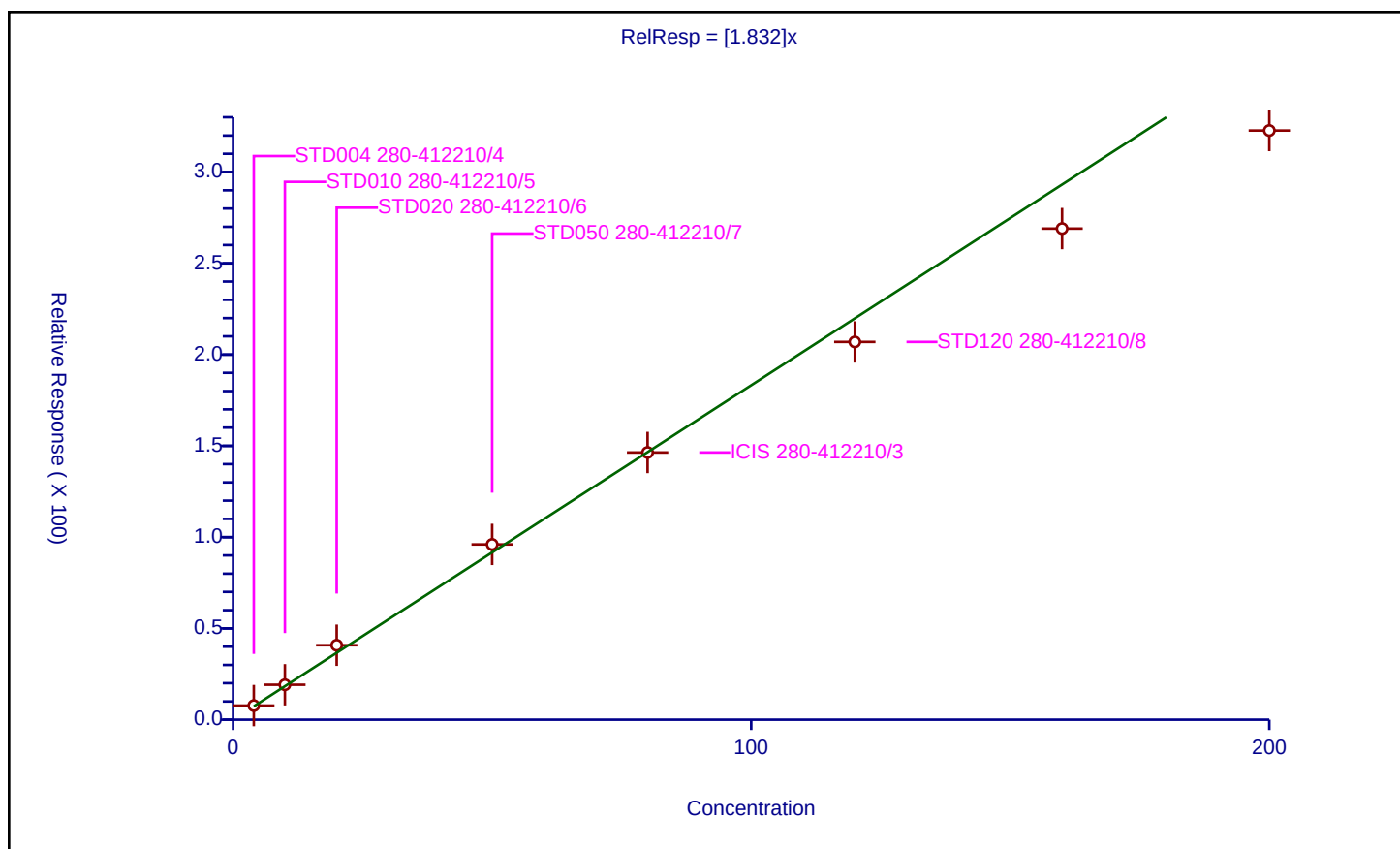
## Curve Coefficients

Intercept: 0  
Slope: 1.832

## Error Coefficients

Standard Error: 536000  
Relative Standard Error: 8.0  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.991

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 7.731504   | 40.0      | 111823.0    | 1.932876 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 19.137887  | 40.0      | 108756.0    | 1.913789 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 40.80148   | 40.0      | 104856.0    | 2.040074 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 96.030887  | 40.0      | 106971.0    | 1.920618 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 146.378187 | 40.0      | 113145.0    | 1.829727 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 206.932754 | 40.0      | 115025.0    | 1.72444  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 269.032895 | 40.0      | 113514.0    | 1.681456 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 322.746565 | 40.0      | 112577.0    | 1.613733 | Y    |



## Calibration

/ Phenol

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

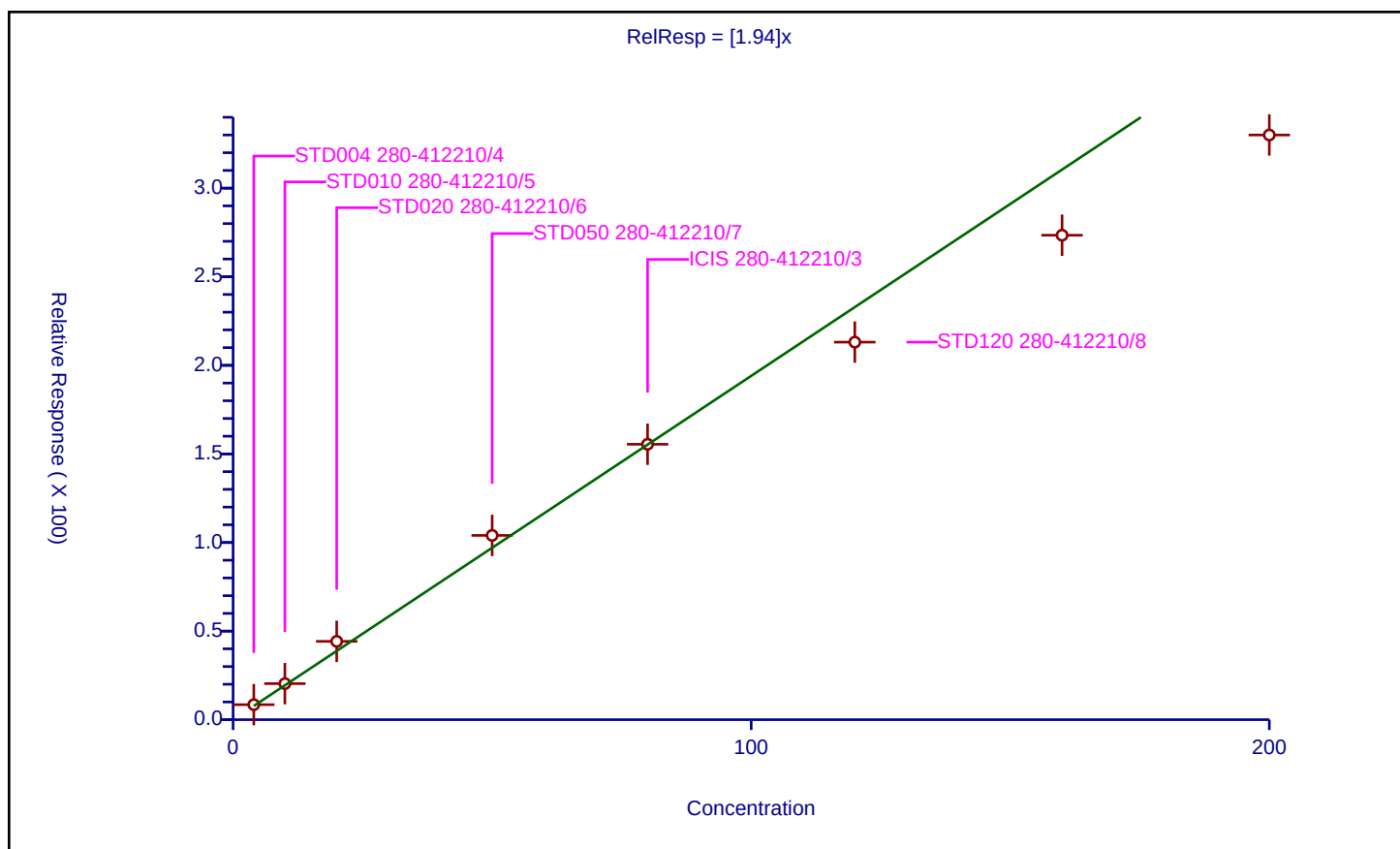
## Curve Coefficients

Intercept: 0  
Slope: 1.94

## Error Coefficients

Standard Error: 551000  
Relative Standard Error: 10.6  
Correlation Coefficient: 0.995  
Coefficient of Determination (Adjusted): 0.984

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 8.474822   | 40.0      | 111823.0    | 2.118705 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 20.356762  | 40.0      | 108756.0    | 2.035676 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 44.216831  | 40.0      | 104856.0    | 2.210842 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 104.016603 | 40.0      | 106971.0    | 2.080332 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 155.459985 | 40.0      | 113145.0    | 1.94325  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 213.094545 | 40.0      | 115025.0    | 1.775788 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 273.438695 | 40.0      | 113514.0    | 1.708992 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 330.007373 | 40.0      | 112577.0    | 1.650037 | Y    |



## Calibration

/ Aniline

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

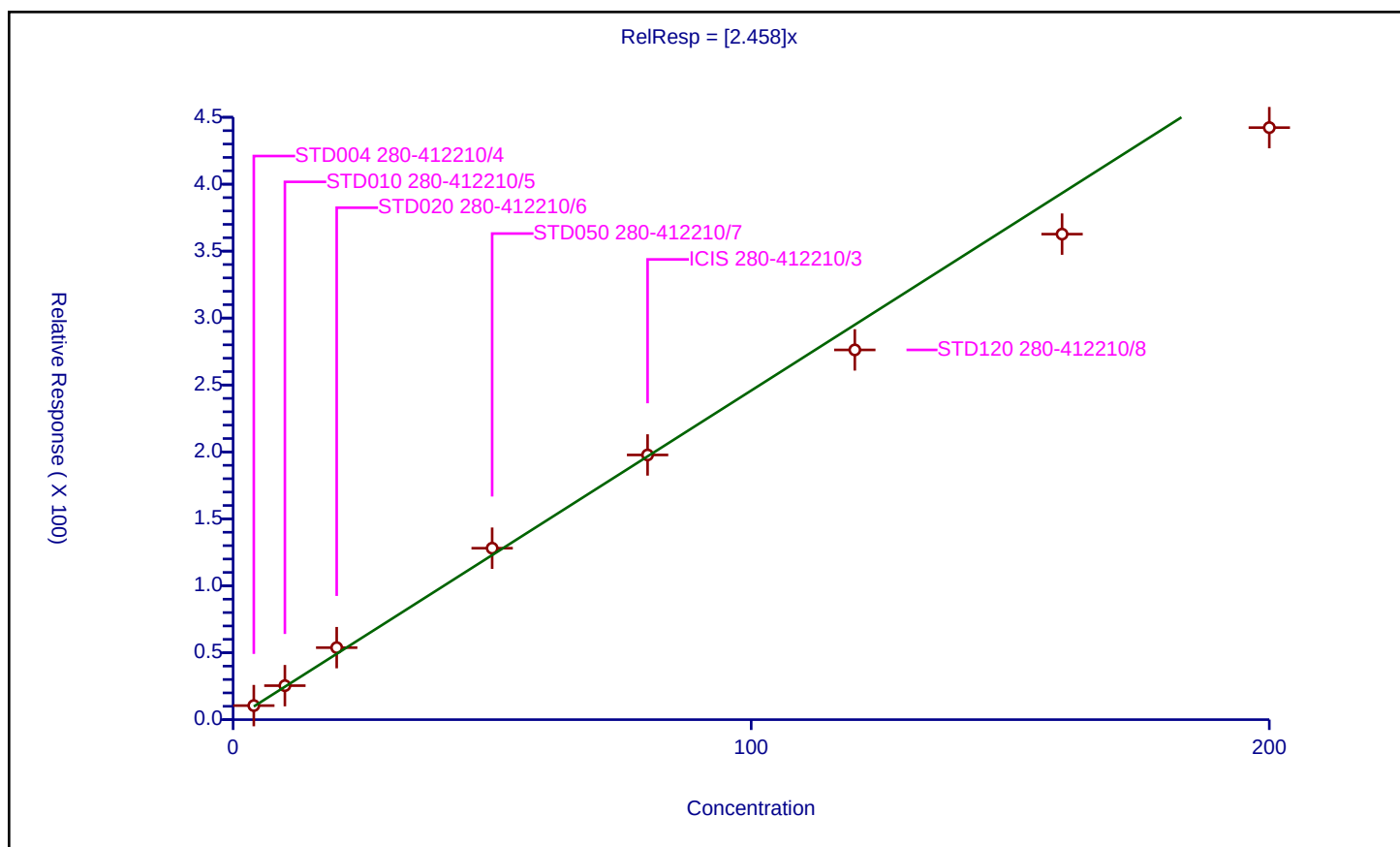
### Curve Coefficients

**Intercept:** 0  
**Slope:** 2.458

### Error Coefficients

**Standard Error:** 726000  
**Relative Standard Error:** 7.2  
**Correlation Coefficient:** 0.998  
**Coefficient of Determination (Adjusted):** 0.993

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 10.501596  | 40.0      | 111823.0    | 2.625399 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 25.388208  | 40.0      | 108756.0    | 2.538821 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 53.793011  | 40.0      | 104856.0    | 2.689651 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 128.083686 | 40.0      | 106971.0    | 2.561674 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 197.749437 | 40.0      | 113145.0    | 2.471868 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 276.210215 | 40.0      | 115025.0    | 2.301752 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 362.708388 | 40.0      | 113514.0    | 2.266927 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 442.271867 | 40.0      | 112577.0    | 2.211359 | Y    |



Calibration

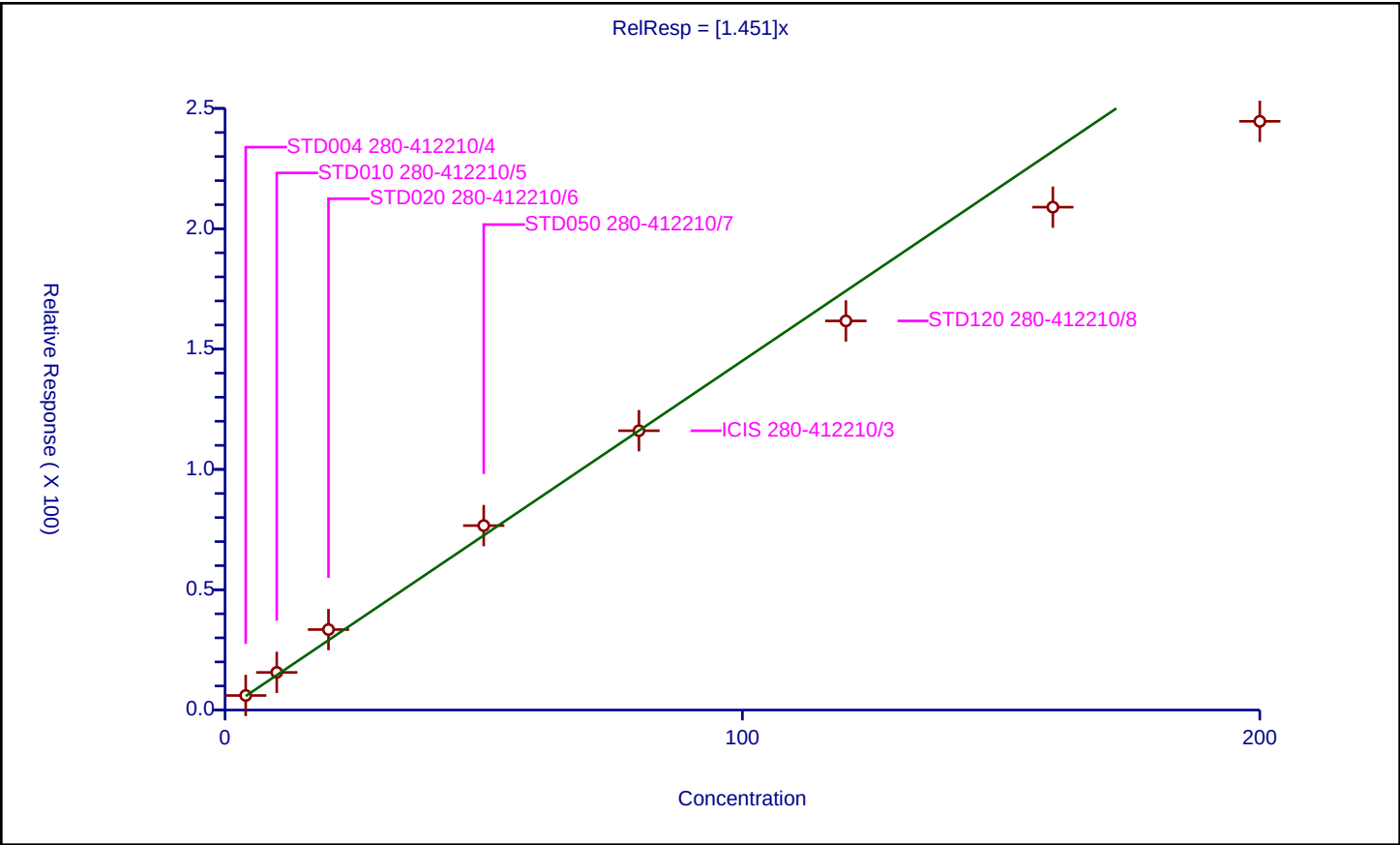
/ Bis(2-chloroethyl)ether

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients |       |
|--------------------|-------|
| Intercept:         | 0     |
| Slope:             | 1.451 |

| Error Coefficients                       |        |
|------------------------------------------|--------|
| Standard Error:                          | 414000 |
| Relative Standard Error:                 | 10.3   |
| Correlation Coefficient:                 | 0.993  |
| Coefficient of Determination (Adjusted): | 0.985  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.053138   | 40.0      | 111823.0    | 1.513284 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 15.63831   | 40.0      | 108756.0    | 1.563831 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 33.447013  | 40.0      | 104856.0    | 1.672351 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 76.653672  | 40.0      | 106971.0    | 1.533073 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 116.07866  | 40.0      | 113145.0    | 1.450983 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 161.703977 | 40.0      | 115025.0    | 1.347533 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 208.965943 | 40.0      | 113514.0    | 1.306037 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 244.638958 | 40.0      | 112577.0    | 1.223195 | Y    |



## Calibration

/ 2-Chlorophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

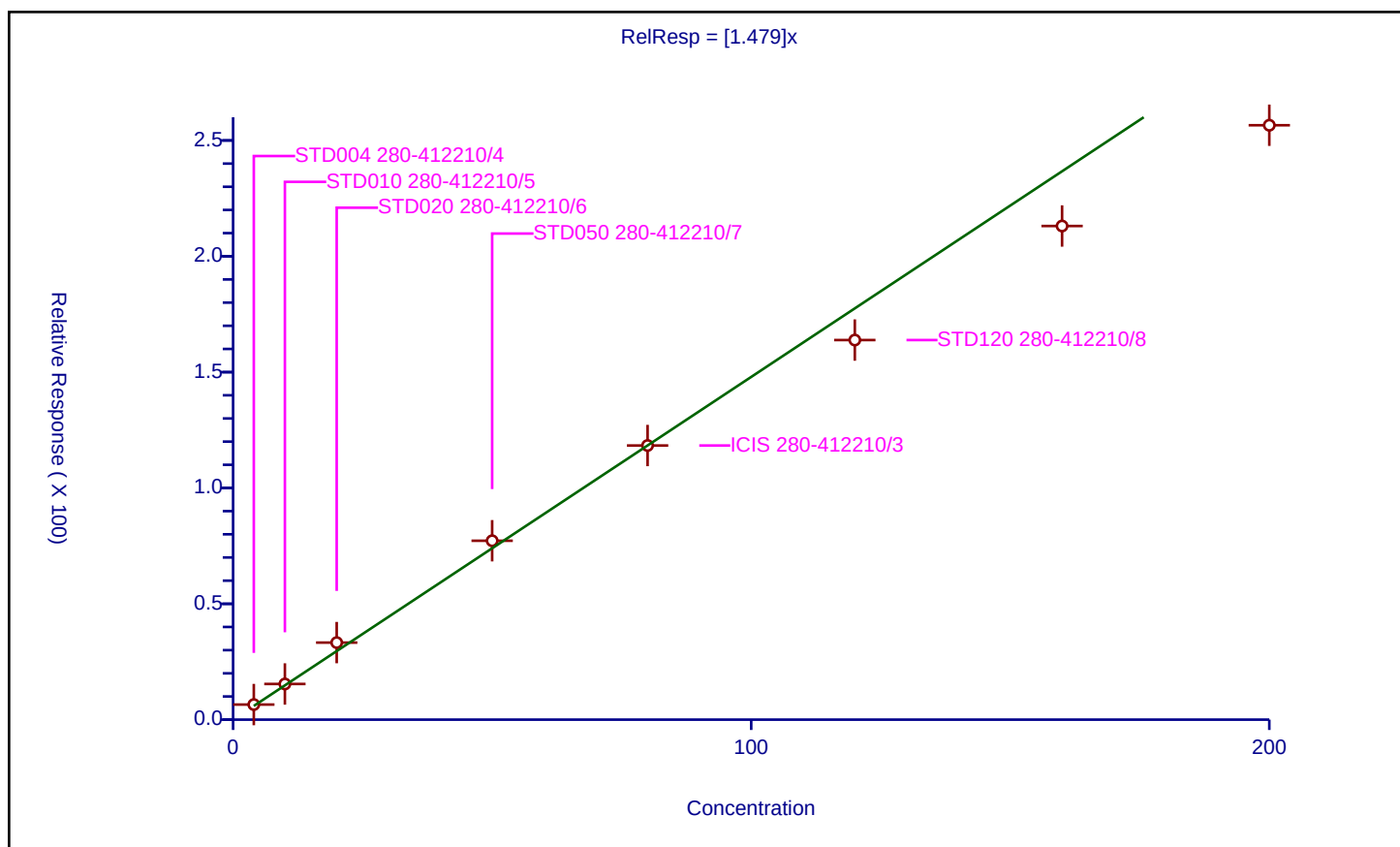
### Curve Coefficients

Intercept: 0  
 Slope: 1.479

### Error Coefficients

Standard Error: 426000  
 Relative Standard Error: 9.5  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.987

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.51315    | 40.0      | 111823.0    | 1.628288 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 15.395932  | 40.0      | 108756.0    | 1.539593 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 33.259327  | 40.0      | 104856.0    | 1.662966 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 77.217564  | 40.0      | 106971.0    | 1.544351 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 118.325335 | 40.0      | 113145.0    | 1.479067 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 163.843338 | 40.0      | 115025.0    | 1.365361 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 213.070458 | 40.0      | 113514.0    | 1.33169  | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 256.560043 | 40.0      | 112577.0    | 1.2828   | Y    |



## Calibration

/ 1,3-Dichlorobenzene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

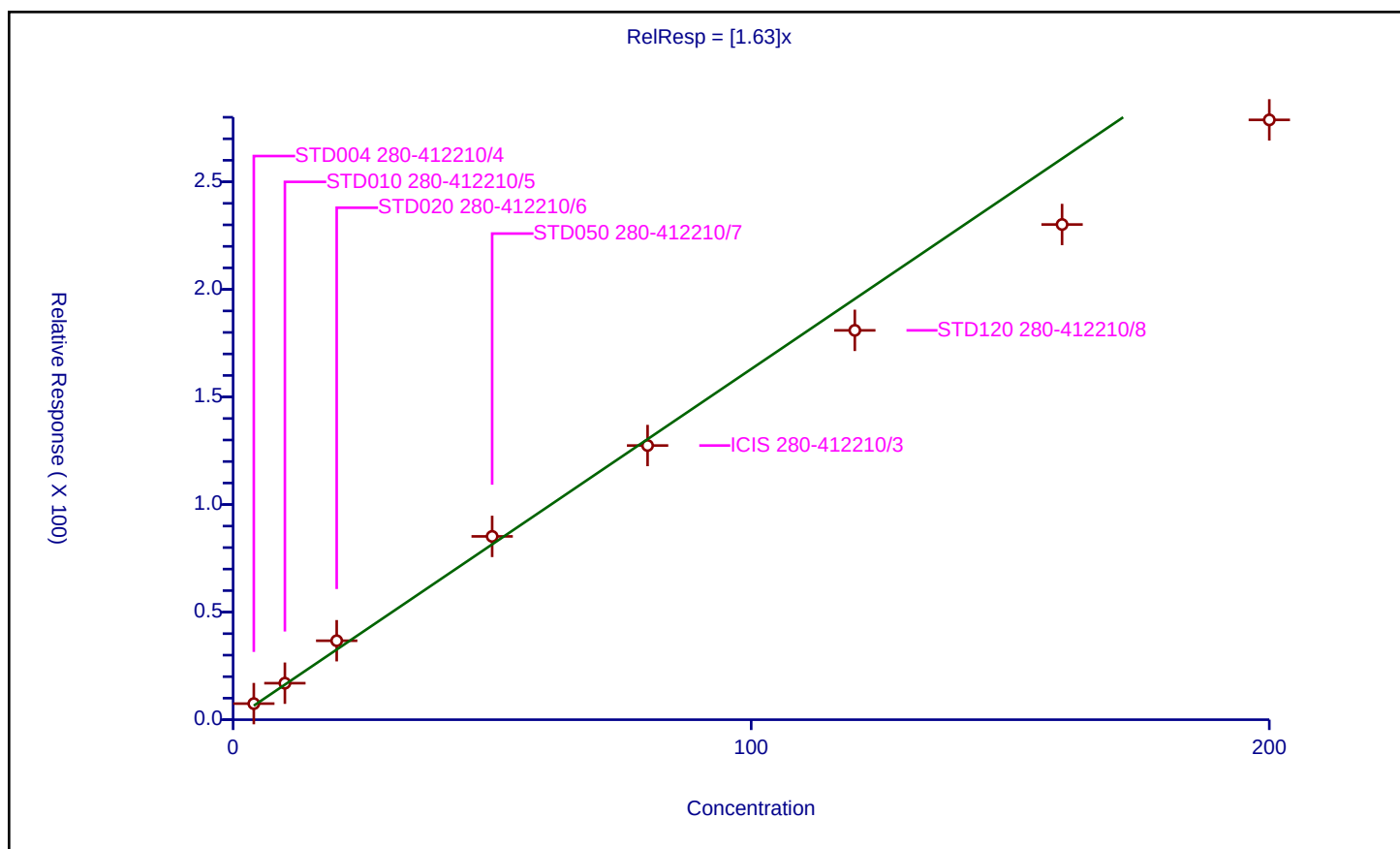
## Curve Coefficients

Intercept: 0  
Slope: 1.63

## Error Coefficients

Standard Error: 464000  
Relative Standard Error: 10.8  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.983

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 7.477889   | 40.0      | 111823.0    | 1.869472 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 16.96973   | 40.0      | 108756.0    | 1.696973 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 36.702144  | 40.0      | 104856.0    | 1.835107 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 85.196923  | 40.0      | 106971.0    | 1.703938 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 127.434354 | 40.0      | 113145.0    | 1.592929 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 180.966572 | 40.0      | 115025.0    | 1.508055 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 230.166499 | 40.0      | 113514.0    | 1.438541 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 278.790872 | 40.0      | 112577.0    | 1.393954 | Y    |



Calibration

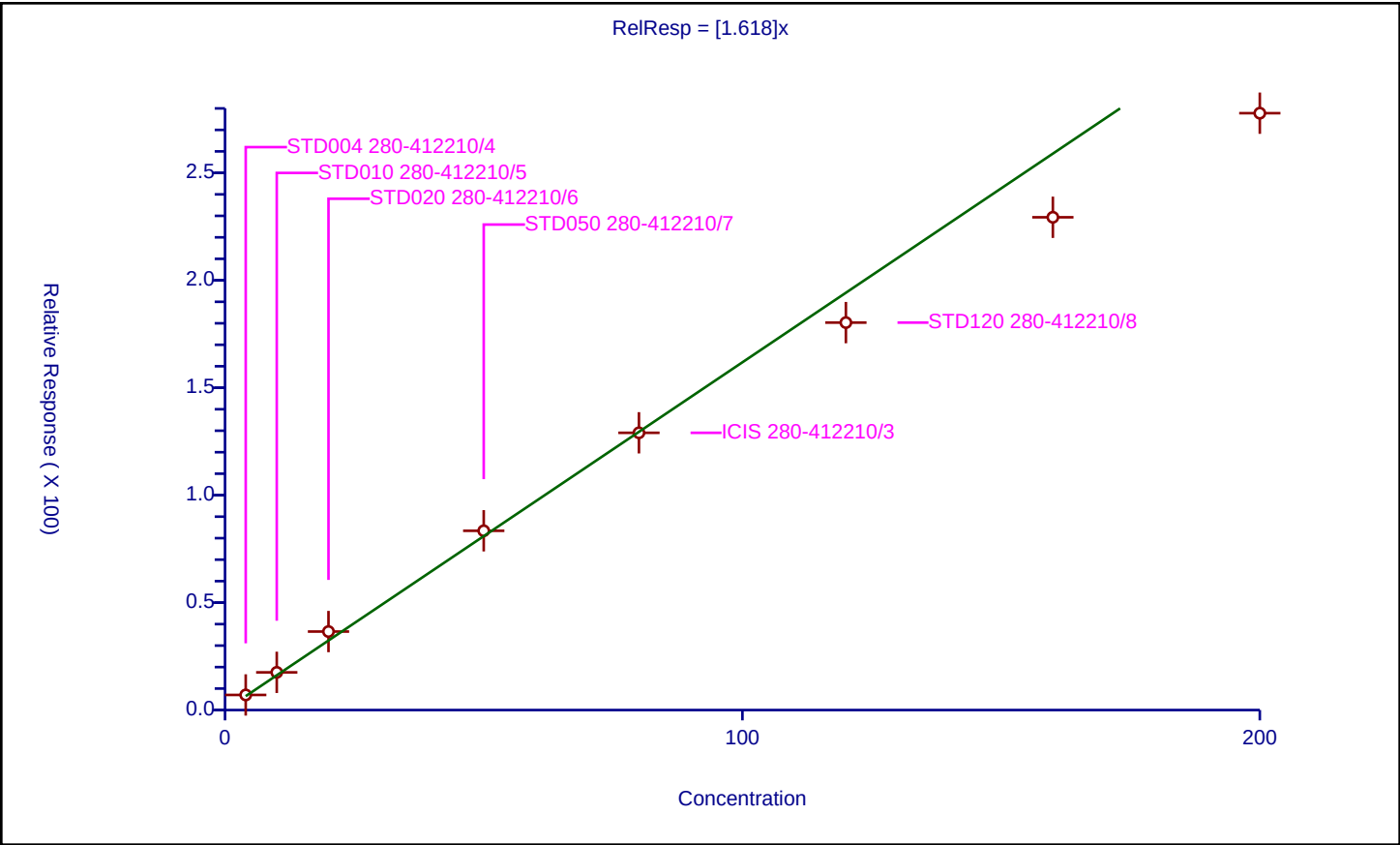
/ 1,4-Dichlorobenzene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients |       |
|--------------------|-------|
| Intercept:         | 0     |
| Slope:             | 1.618 |

| Error Coefficients                       |        |
|------------------------------------------|--------|
| Standard Error:                          | 462000 |
| Relative Standard Error:                 | 10.0   |
| Correlation Coefficient:                 | 0.995  |
| Coefficient of Determination (Adjusted): | 0.986  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 7.039339   | 40.0      | 111823.0    | 1.759835 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 17.546066  | 40.0      | 108756.0    | 1.754607 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 36.537728  | 40.0      | 104856.0    | 1.826886 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 83.43308   | 40.0      | 106971.0    | 1.668662 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 129.031243 | 40.0      | 113145.0    | 1.612891 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 180.326364 | 40.0      | 115025.0    | 1.50272  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 229.332065 | 40.0      | 113514.0    | 1.433325 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 277.78747  | 40.0      | 112577.0    | 1.388937 | Y    |



## Calibration

/ Benzyl alcohol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

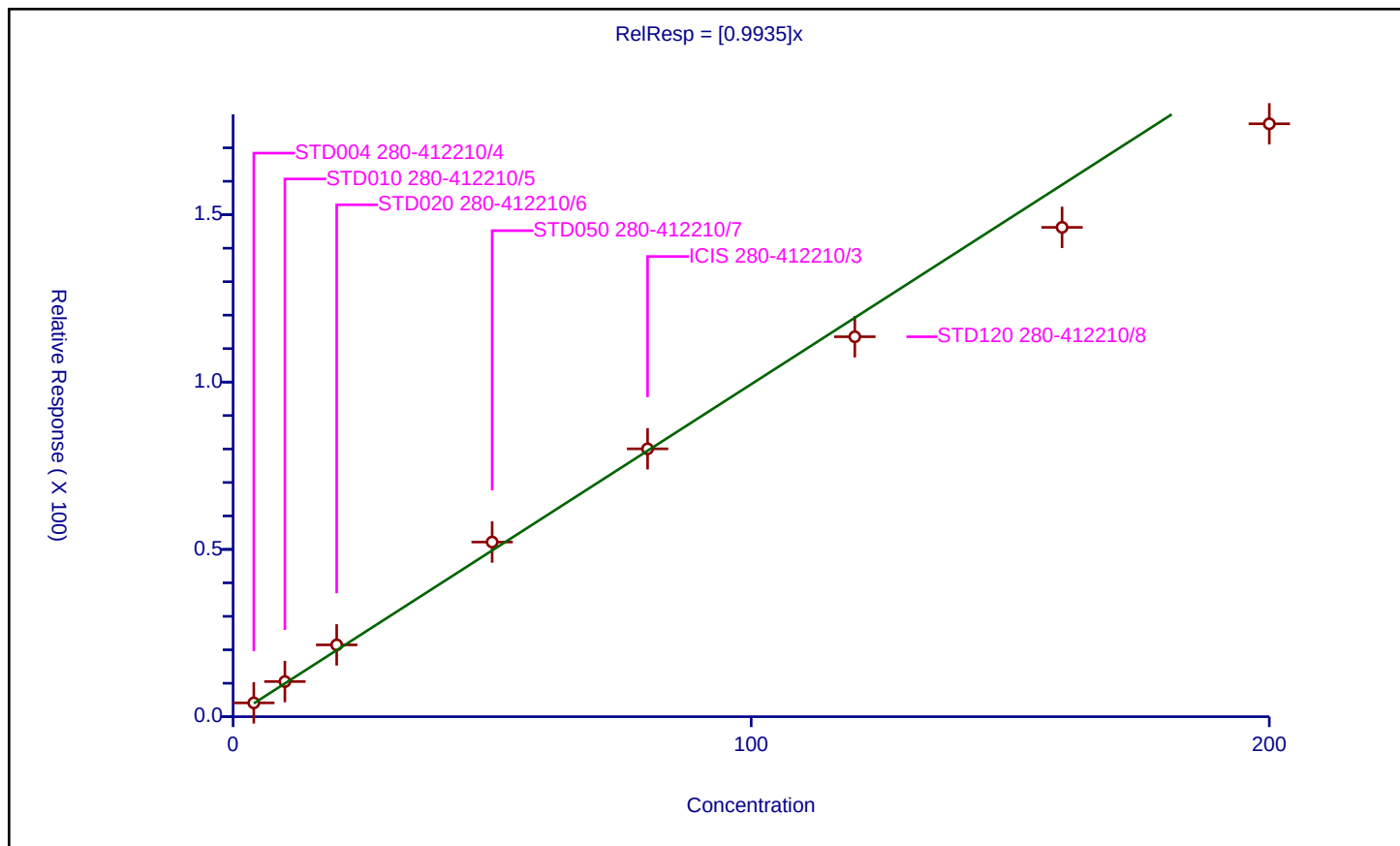
### Curve Coefficients

Intercept: 0  
 Slope: 0.9935

### Error Coefficients

Standard Error: 293000  
 Relative Standard Error: 7.0  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.993

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.134749   | 40.0      | 111823.0    | 1.033687 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 10.505351  | 40.0      | 108756.0    | 1.050535 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 21.465248  | 40.0      | 104856.0    | 1.073262 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 52.199568  | 40.0      | 106971.0    | 1.043991 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 80.053029  | 40.0      | 113145.0    | 1.000663 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 113.541578 | 40.0      | 115025.0    | 0.94618  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 146.235707 | 40.0      | 113514.0    | 0.913973 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 177.183261 | 40.0      | 112577.0    | 0.885916 | Y    |





# Calibration

/ 1,2-Dichlorobenzene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

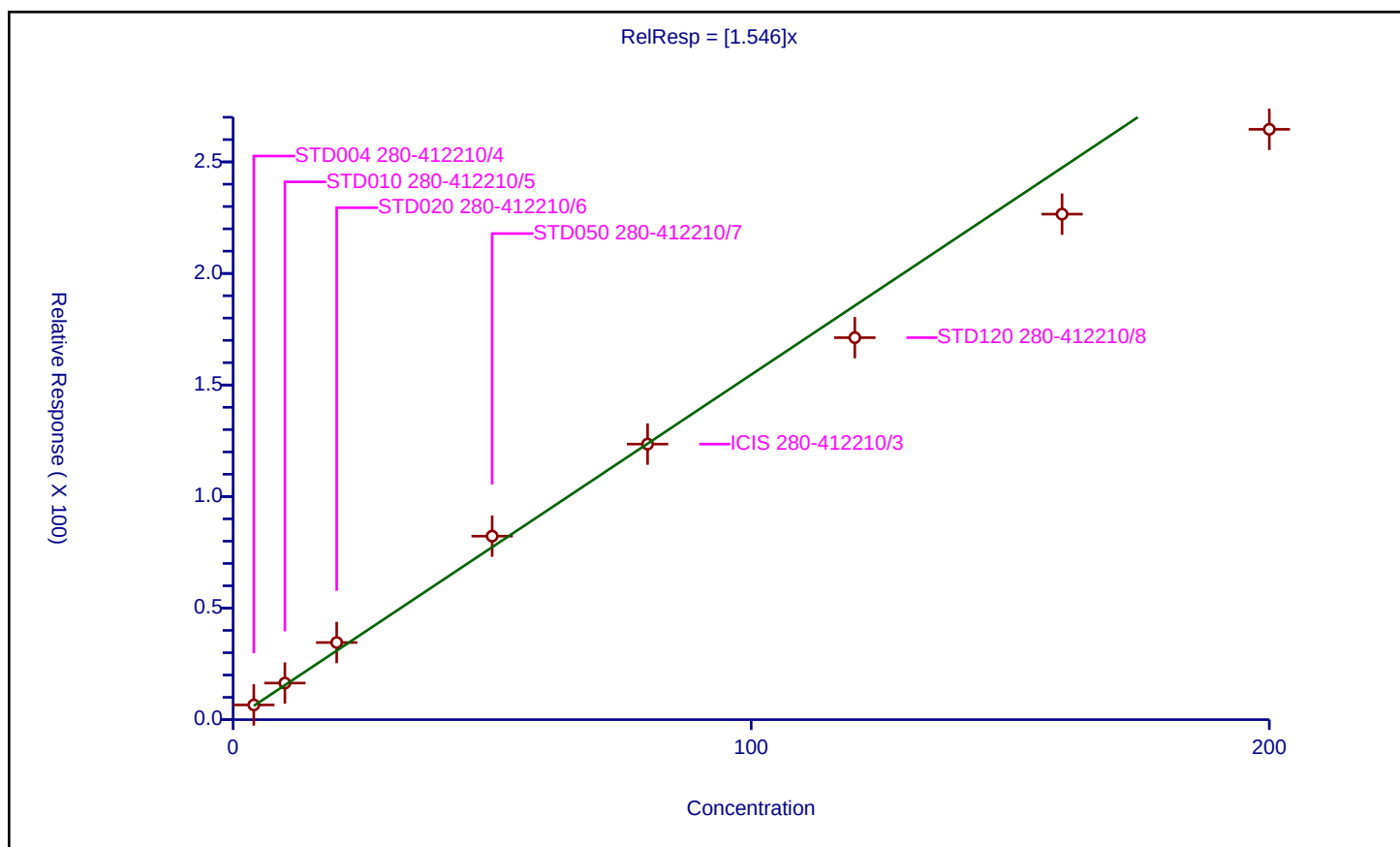
## Curve Coefficients

Intercept: 0  
 Slope: 1.546

## Error Coefficients

Standard Error: 446000  
 Relative Standard Error: 9.2  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.988

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.591488   | 40.0      | 111823.0    | 1.647872 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 16.395233  | 40.0      | 108756.0    | 1.639523 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 34.565499  | 40.0      | 104856.0    | 1.728275 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 82.24659   | 40.0      | 106971.0    | 1.644932 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 123.509125 | 40.0      | 113145.0    | 1.543864 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 171.221213 | 40.0      | 115025.0    | 1.426843 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 226.582096 | 40.0      | 113514.0    | 1.416138 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 264.606447 | 40.0      | 112577.0    | 1.323032 | Y    |



# Calibration

/ 2-Methylphenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

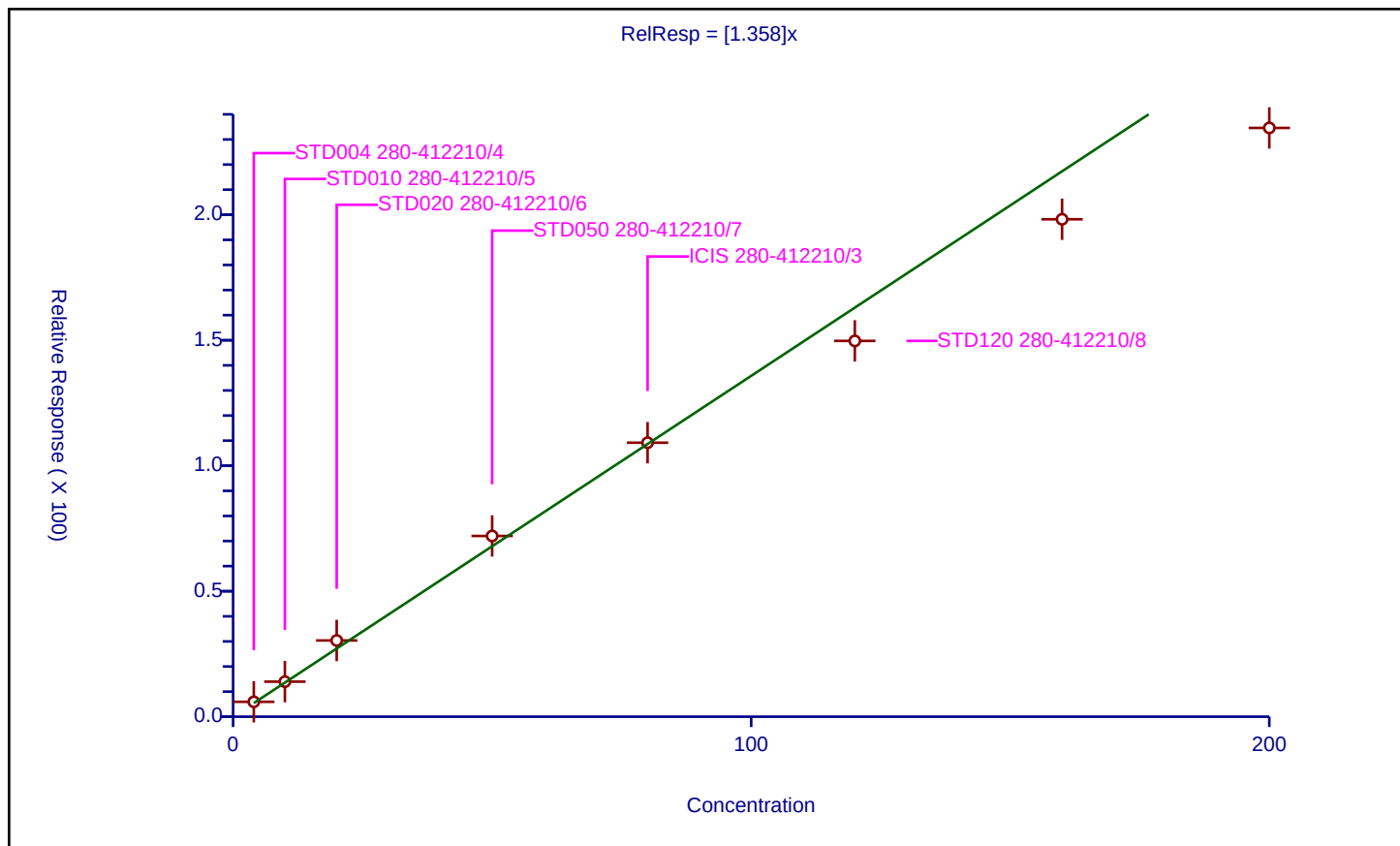
## Curve Coefficients

Intercept: 0  
 Slope: 1.358

## Error Coefficients

Standard Error: 392000  
 Relative Standard Error: 9.3  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.988

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.940102   | 40.0      | 111823.0    | 1.485025 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 13.965942  | 40.0      | 108756.0    | 1.396594 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 30.379568  | 40.0      | 104856.0    | 1.518978 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 72.016528  | 40.0      | 106971.0    | 1.440331 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 109.177781 | 40.0      | 113145.0    | 1.364722 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 149.736492 | 40.0      | 115025.0    | 1.247804 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 198.200398 | 40.0      | 113514.0    | 1.238752 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 234.601384 | 40.0      | 112577.0    | 1.173007 | Y    |



## Calibration

/ 2,2'-oxybis[1-chloropropane]

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

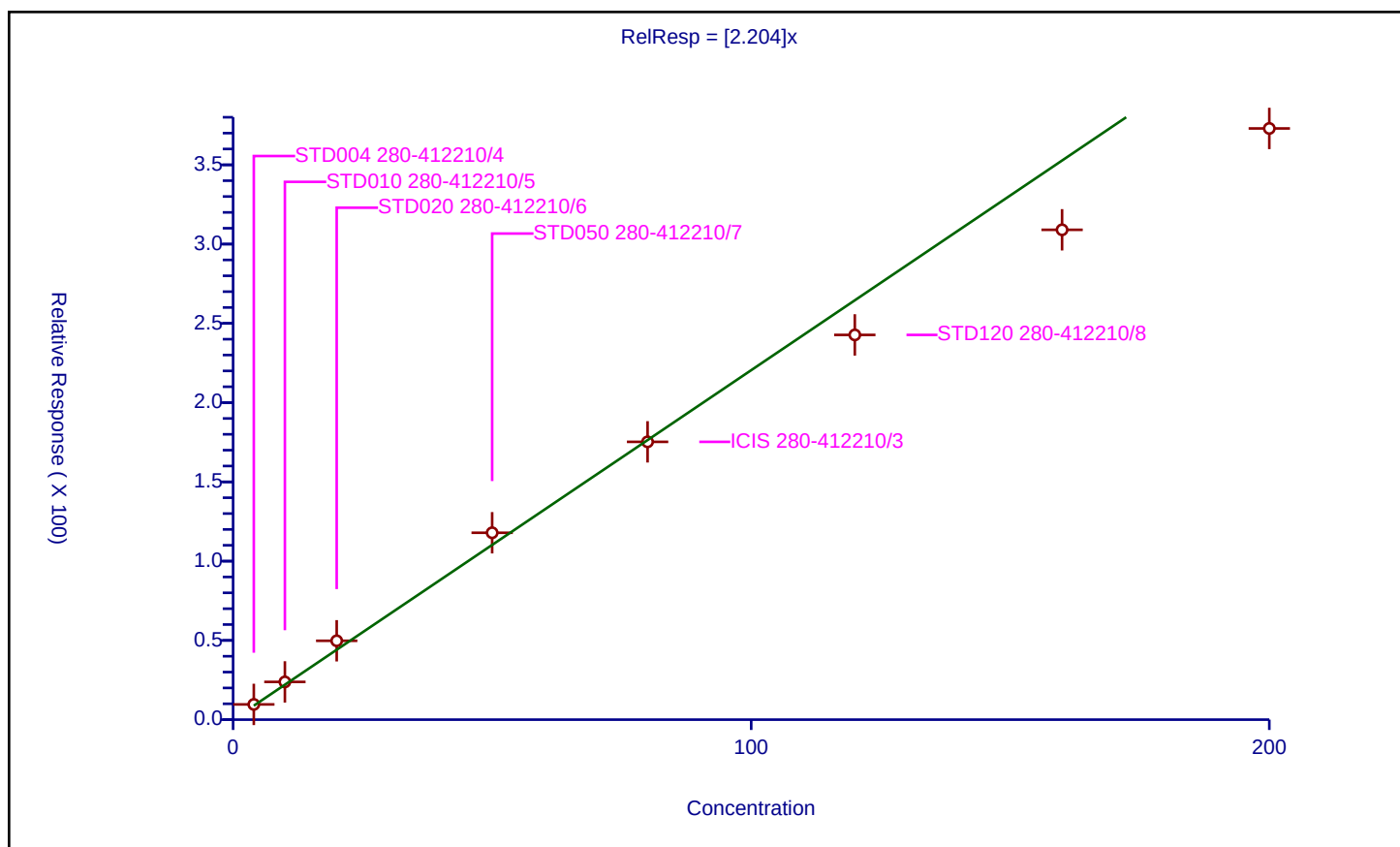
### Curve Coefficients

Intercept: 0  
 Slope: 2.204

### Error Coefficients

Standard Error: 624000  
 Relative Standard Error: 10.8  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.983

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 9.602676   | 40.0      | 111823.0    | 2.400669 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 23.811836  | 40.0      | 108756.0    | 2.381184 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 49.742504  | 40.0      | 104856.0    | 2.487125 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 117.887278 | 40.0      | 106971.0    | 2.357746 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 175.250873 | 40.0      | 113145.0    | 2.190636 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 242.699587 | 40.0      | 115025.0    | 2.022497 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 309.004704 | 40.0      | 113514.0    | 1.931279 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 372.946872 | 40.0      | 112577.0    | 1.864734 | Y    |



## Calibration

## / 3 & 4 Methylphenol

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

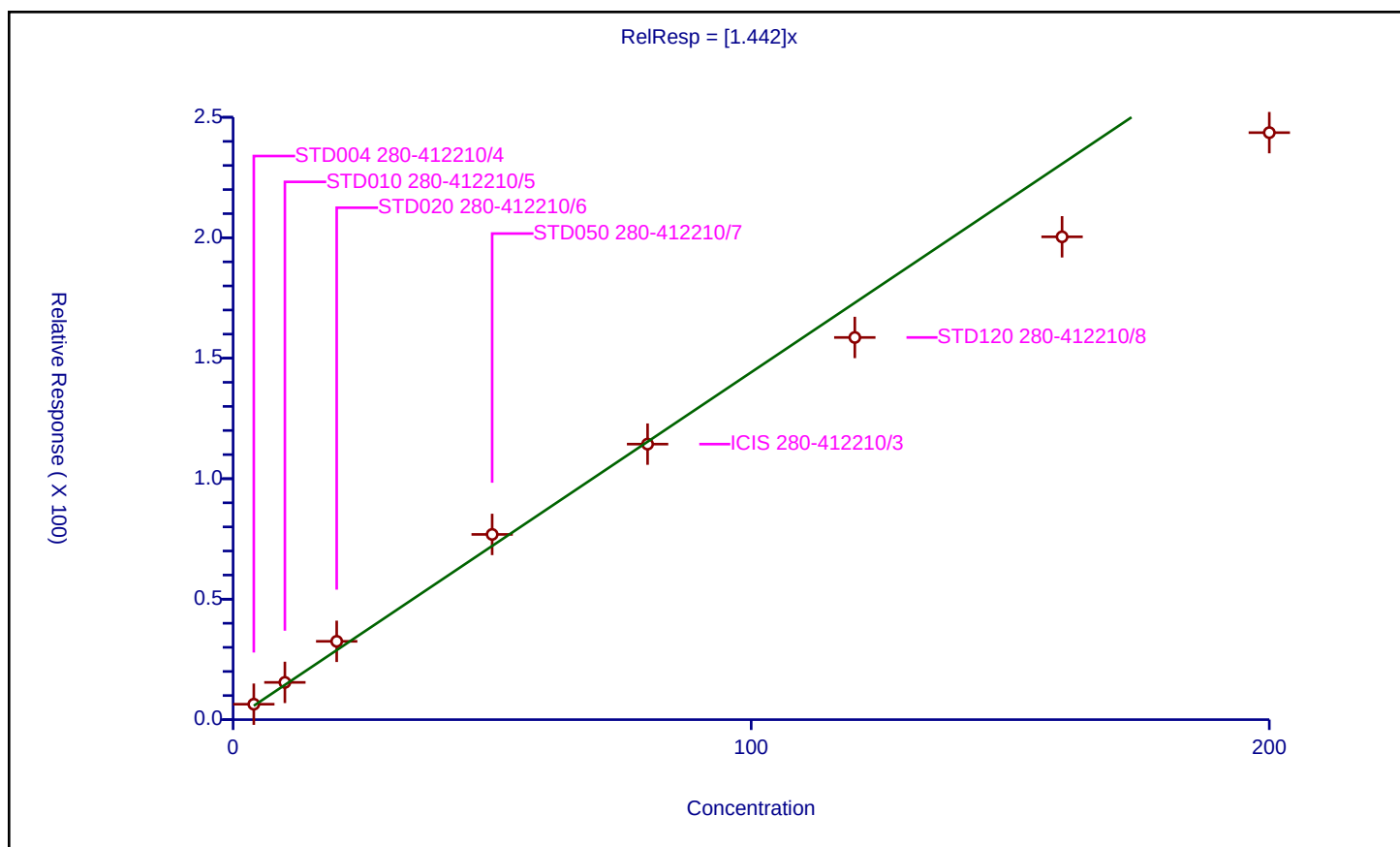
### Curve Coefficients

**Intercept:** 0  
**Slope:** 1.442

### Error Coefficients

**Standard Error:** 407000  
**Relative Standard Error:** 11.1  
**Correlation Coefficient:** 0.995  
**Coefficient of Determination (Adjusted):** 0.982

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.412992   | 40.0      | 111823.0    | 1.603248 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 15.46471   | 40.0      | 108756.0    | 1.546471 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 32.500191  | 40.0      | 104856.0    | 1.62501  | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 76.872049  | 40.0      | 106971.0    | 1.537441 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 114.352733 | 40.0      | 113145.0    | 1.429409 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 158.612823 | 40.0      | 115025.0    | 1.321774 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 200.388675 | 40.0      | 113514.0    | 1.252429 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 243.624897 | 40.0      | 112577.0    | 1.218124 | Y    |



## Calibration

/ N-Nitrosodi-n-propylamine

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

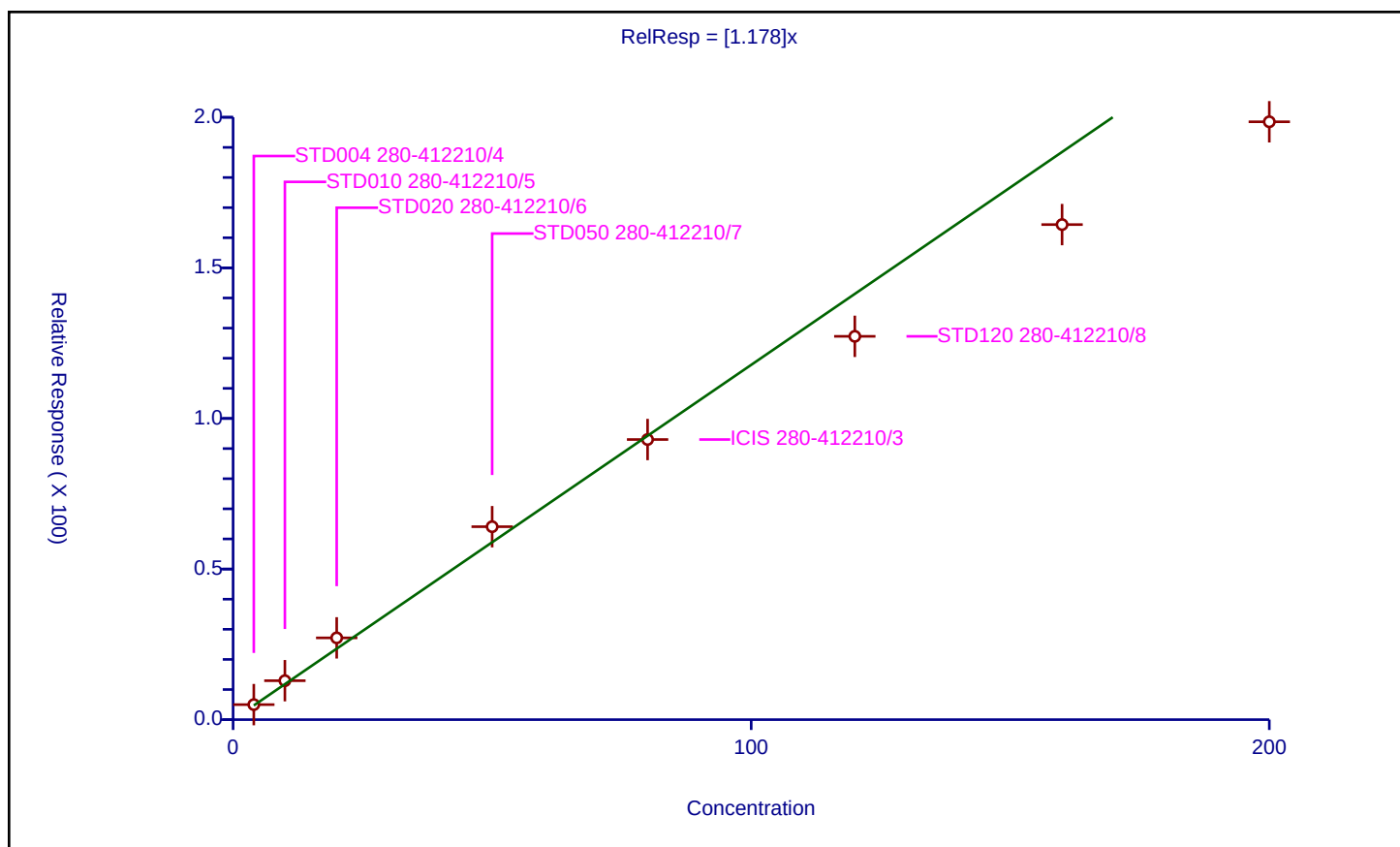
### Curve Coefficients

Intercept: 0  
 Slope: 1.178

### Error Coefficients

Standard Error: 331000  
 Relative Standard Error: 11.7  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.981

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.993606   | 40.0      | 111823.0    | 1.248401 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.934275  | 40.0      | 108756.0    | 1.293427 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 27.155718  | 40.0      | 104856.0    | 1.357786 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 64.063344  | 40.0      | 106971.0    | 1.281267 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 93.004552  | 40.0      | 113145.0    | 1.162557 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 127.264508 | 40.0      | 115025.0    | 1.060538 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 164.373381 | 40.0      | 113514.0    | 1.027334 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 198.505912 | 40.0      | 112577.0    | 0.99253  | Y    |



# Calibration

/ Acetophenone

Curve Type: Quadratic  
 Weighting: None  
 Origin: None  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

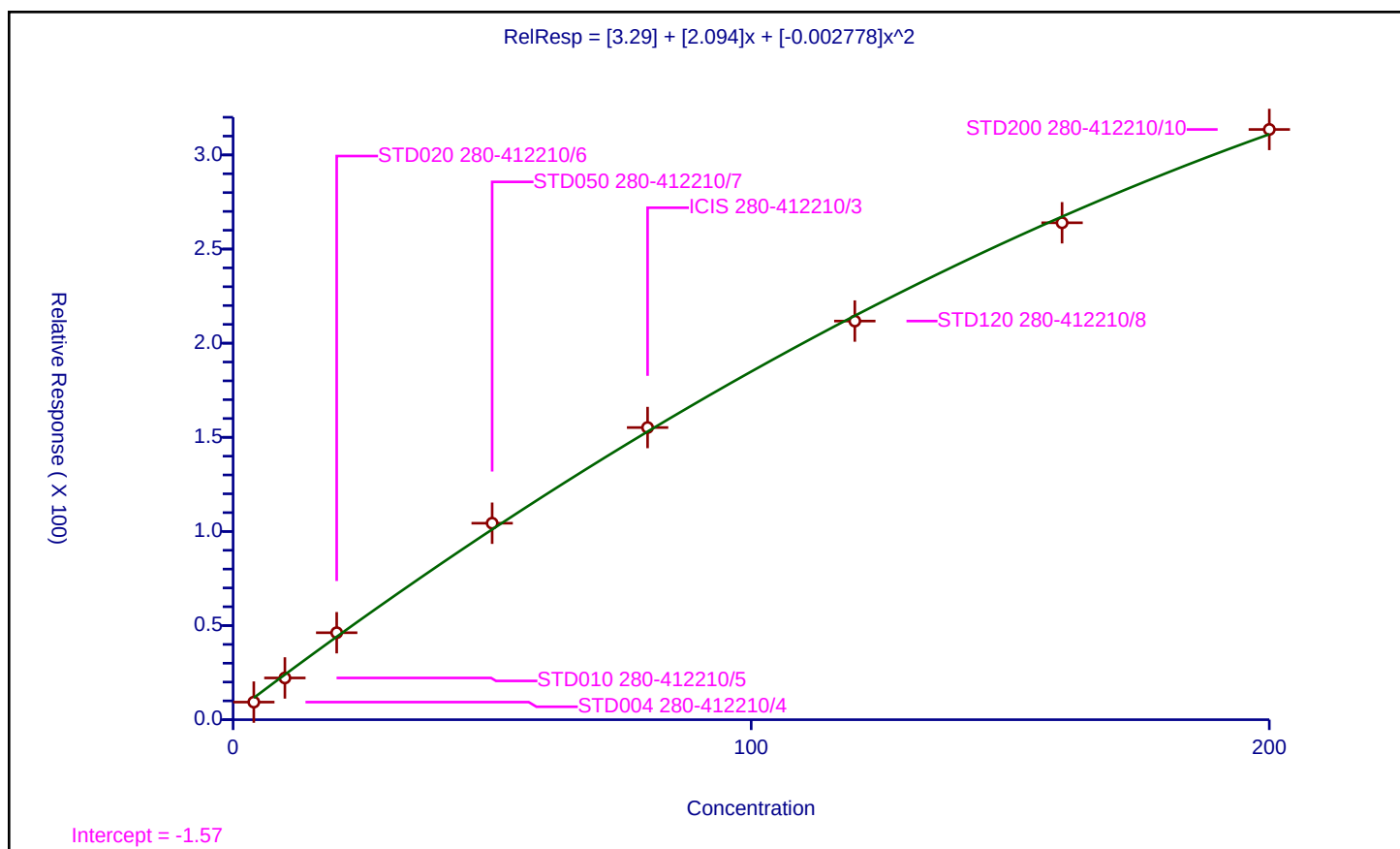
## Curve Coefficients

Intercept: 3.29  
 Slope: 2.094  
 Second Order: -0.002778

## Error Coefficients

Standard Error: 632000  
 Relative Standard Error: 13.3  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.999

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 9.343337   | 40.0      | 111823.0    | 2.335834 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 22.17257   | 40.0      | 108756.0    | 2.217257 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 46.208896  | 40.0      | 104856.0    | 2.310445 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 104.374083 | 40.0      | 106971.0    | 2.087482 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 155.188475 | 40.0      | 113145.0    | 1.939856 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 211.751185 | 40.0      | 115025.0    | 1.764593 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 263.96145  | 40.0      | 113514.0    | 1.649759 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 313.528341 | 40.0      | 112577.0    | 1.567642 | Y    |



# Calibration

/ Hexachloroethane

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

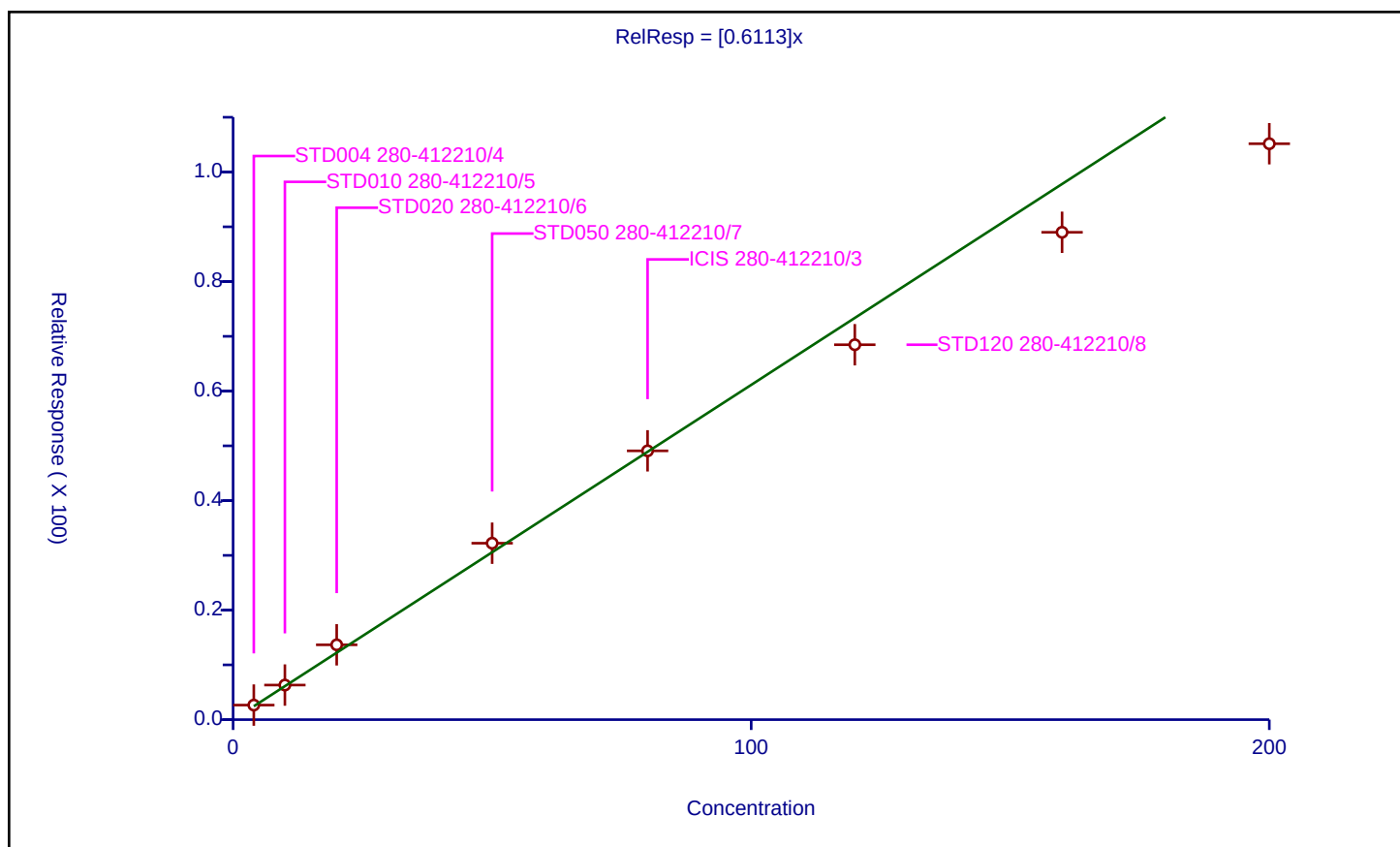
## Curve Coefficients

Intercept: 0  
Slope: 0.6113

## Error Coefficients

Standard Error: 177000  
Relative Standard Error: 9.1  
Correlation Coefficient: 0.995  
Coefficient of Determination (Adjusted): 0.988

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.660633   | 40.0      | 111823.0    | 0.665158 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 6.316893   | 40.0      | 108756.0    | 0.631689 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 13.662547  | 40.0      | 104856.0    | 0.683127 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 32.221443  | 40.0      | 106971.0    | 0.644429 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 49.085687  | 40.0      | 113145.0    | 0.613571 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 68.464073  | 40.0      | 115025.0    | 0.570534 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 88.998714  | 40.0      | 113514.0    | 0.556242 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 105.171394 | 40.0      | 112577.0    | 0.525857 | Y    |



## Calibration

/ Nitrobenzene-d5

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

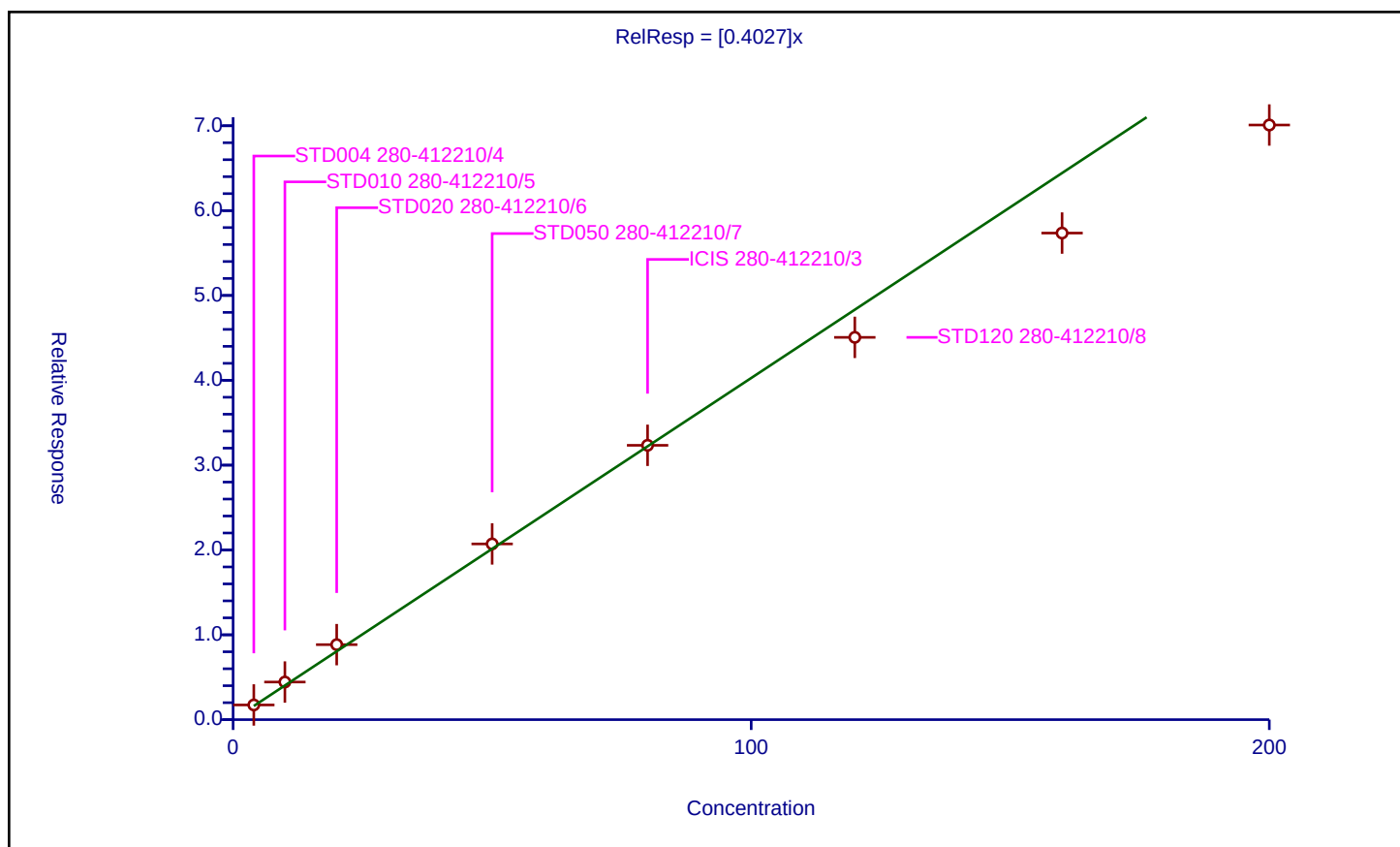
## Curve Coefficients

Intercept: 0  
Slope: 0.4027

## Error Coefficients

Standard Error: 495000  
Relative Standard Error: 9.2  
Correlation Coefficient: 0.997  
Coefficient of Determination (Adjusted): 0.988

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.732555   | 40.0      | 464701.0    | 0.433139 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.434615   | 40.0      | 439966.0    | 0.443462 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 8.839746   | 40.0      | 439266.0    | 0.441987 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 20.710548  | 40.0      | 462460.0    | 0.414211 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 32.335567  | 40.0      | 469796.0    | 0.404195 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 45.059269  | 40.0      | 483896.0    | 0.375494 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 57.352134  | 40.0      | 487064.0    | 0.358451 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 70.087282  | 40.0      | 482572.0    | 0.350436 | Y    |





## Calibration

/ Nitrobenzene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

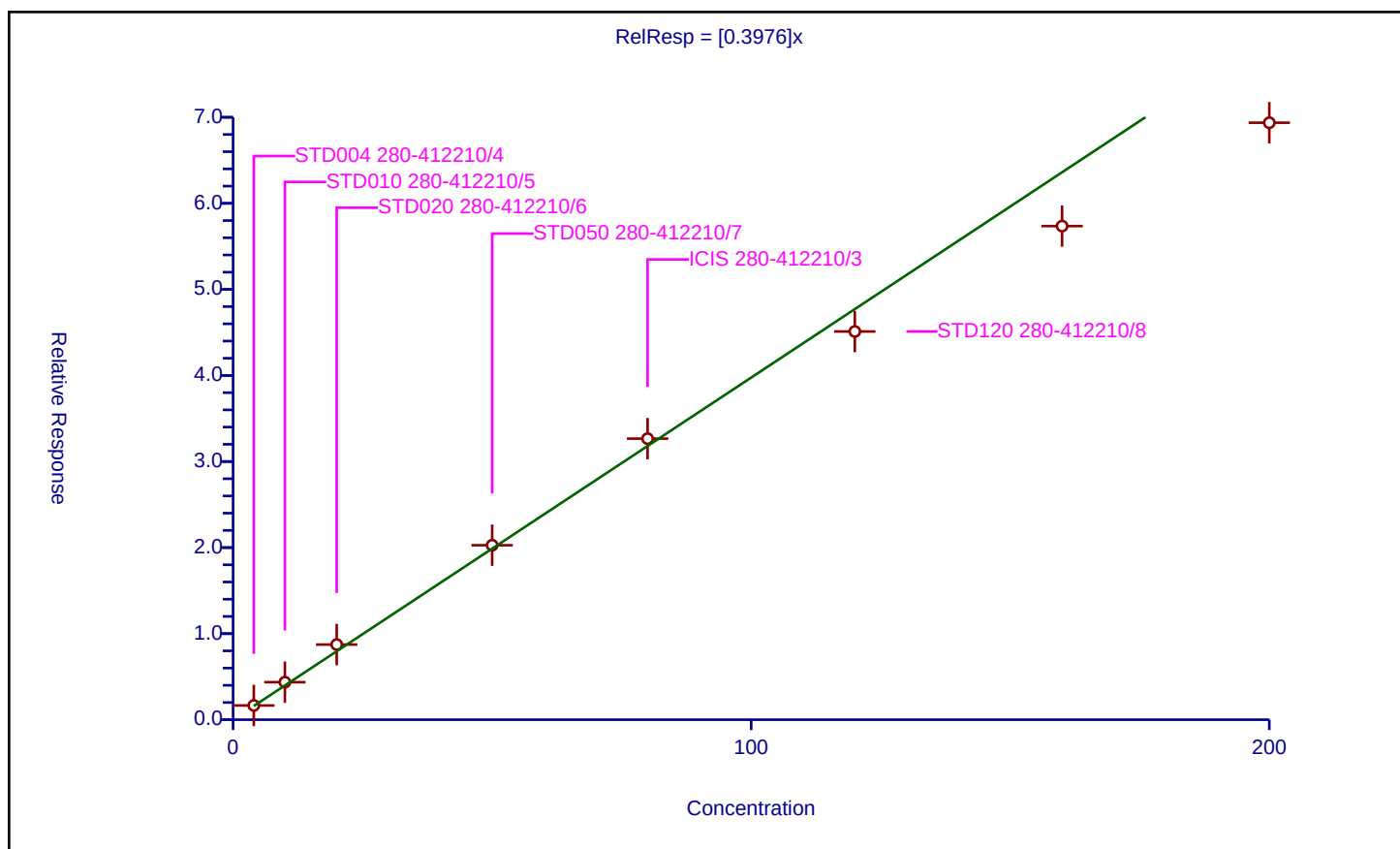
## Curve Coefficients

Intercept: 0  
Slope: 0.3976

## Error Coefficients

Standard Error: 493000  
Relative Standard Error: 8.5  
Correlation Coefficient: 0.997  
Coefficient of Determination (Adjusted): 0.990

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.652503   | 40.0      | 464701.0    | 0.413126 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.358064   | 40.0      | 439966.0    | 0.435806 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 8.732021   | 40.0      | 439266.0    | 0.436601 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 20.272283  | 40.0      | 462460.0    | 0.405446 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 32.657324  | 40.0      | 469796.0    | 0.408217 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 45.108701  | 40.0      | 483896.0    | 0.375906 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 57.357144  | 40.0      | 487064.0    | 0.358482 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 69.368799  | 40.0      | 482572.0    | 0.346844 | Y    |



## Calibration

/ Isophorone

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

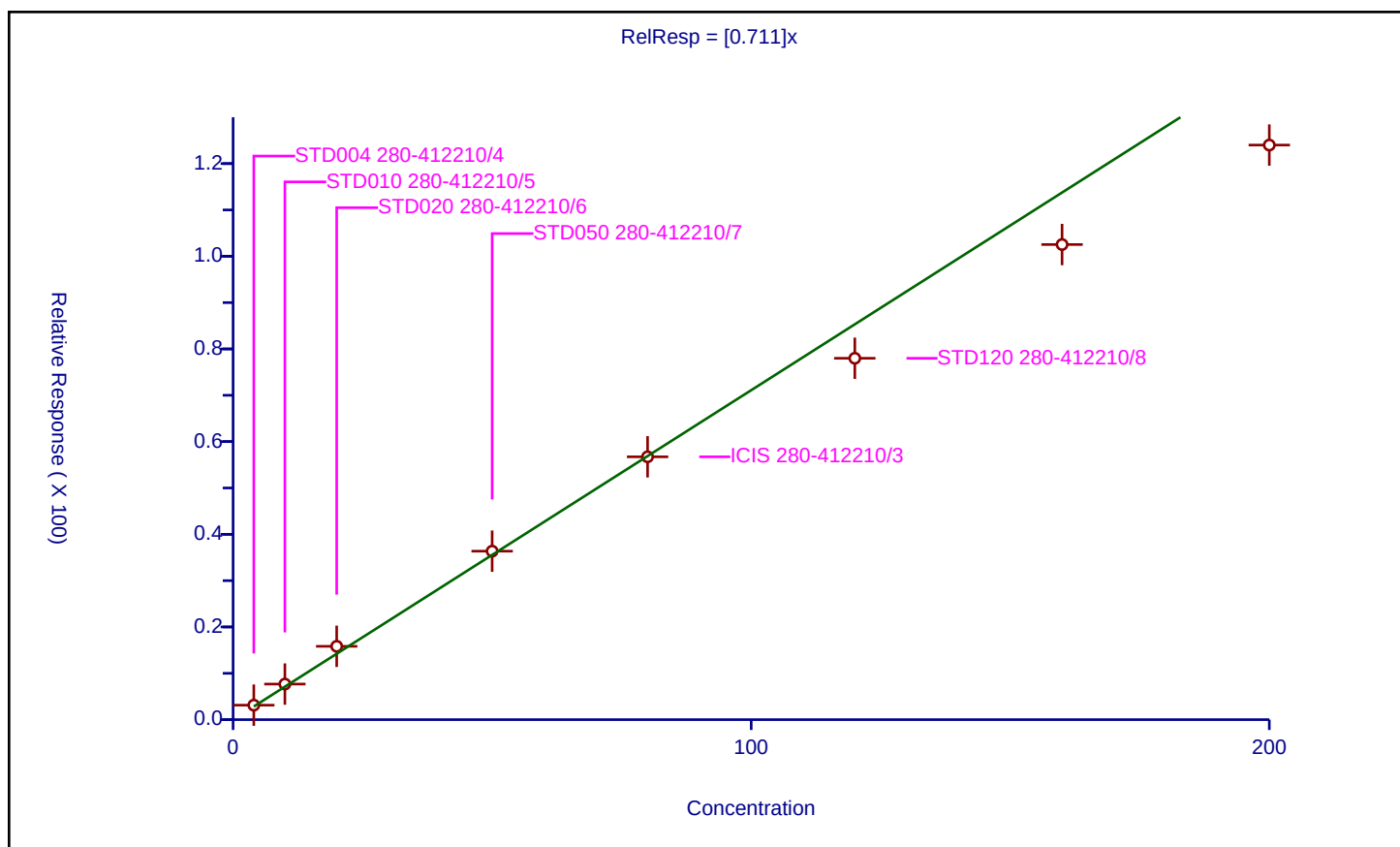
### Curve Coefficients

Intercept: 0  
 Slope: 0.711

### Error Coefficients

Standard Error: 874000  
 Relative Standard Error: 9.5  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.987

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 3.126656   | 40.0      | 464701.0    | 0.781664 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 7.678593   | 40.0      | 439966.0    | 0.767859 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 15.827494  | 40.0      | 439266.0    | 0.791375 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 36.359901  | 40.0      | 462460.0    | 0.727198 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 56.723003  | 40.0      | 469796.0    | 0.709038 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 77.987005  | 40.0      | 483896.0    | 0.649892 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 102.537326 | 40.0      | 487064.0    | 0.640858 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 123.999569 | 40.0      | 482572.0    | 0.619998 | Y    |



## Calibration

/ 2-Nitrophenol

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

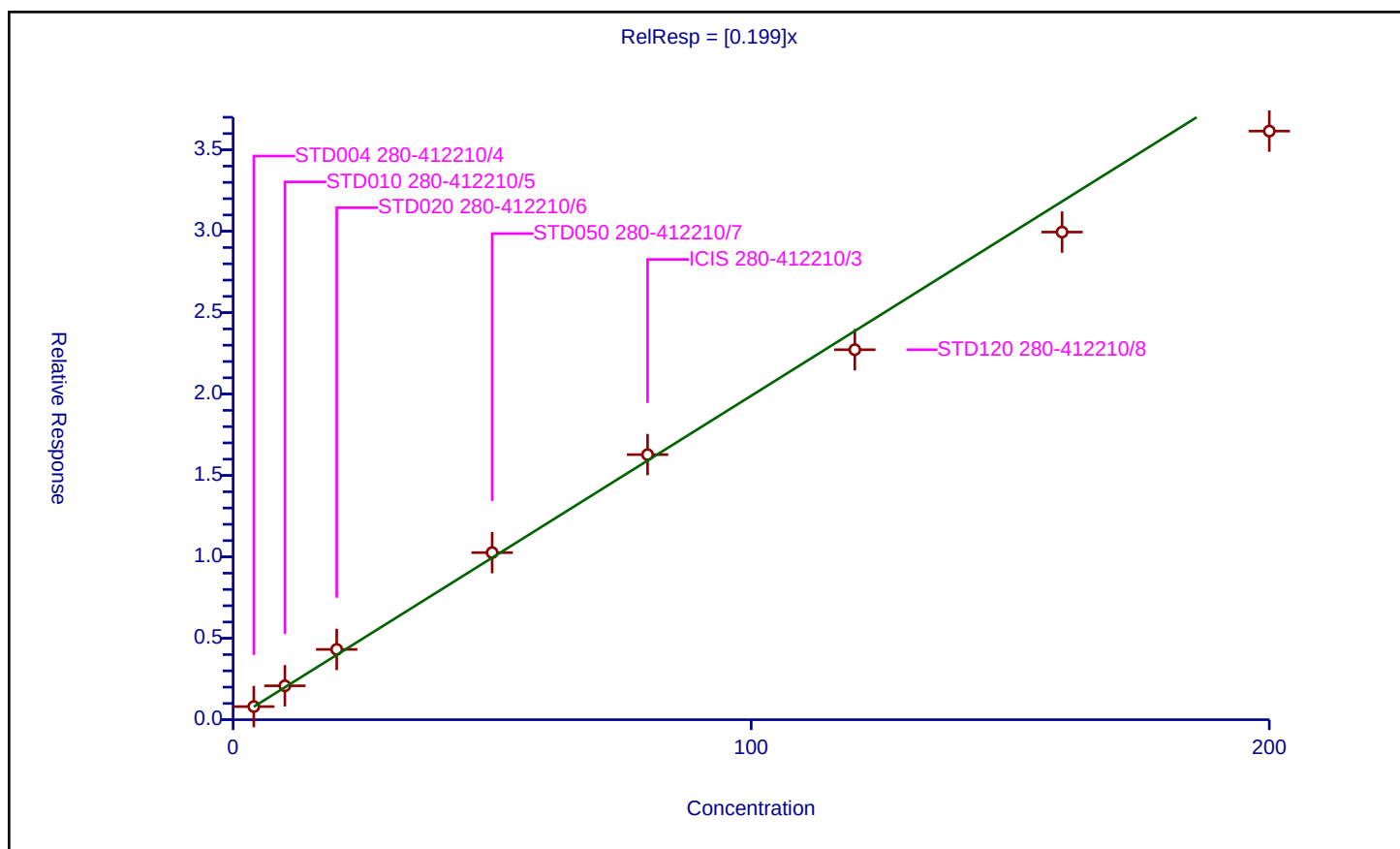
## Curve Coefficients

Intercept: 0  
Slope: 0.199

## Error Coefficients

Standard Error: 254000  
Relative Standard Error: 6.0  
Correlation Coefficient: 0.998  
Coefficient of Determination (Adjusted): 0.995

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.806282   | 40.0      | 464701.0    | 0.20157  | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 2.081615   | 40.0      | 439966.0    | 0.208162 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 4.31702    | 40.0      | 439266.0    | 0.215851 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 10.261904  | 40.0      | 462460.0    | 0.205238 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 16.280769  | 40.0      | 469796.0    | 0.20351  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 22.723643  | 40.0      | 483896.0    | 0.189364 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 29.950232  | 40.0      | 487064.0    | 0.187189 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 36.151952  | 40.0      | 482572.0    | 0.18076  | Y    |



## Calibration

/ 2,4-Dimethylphenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

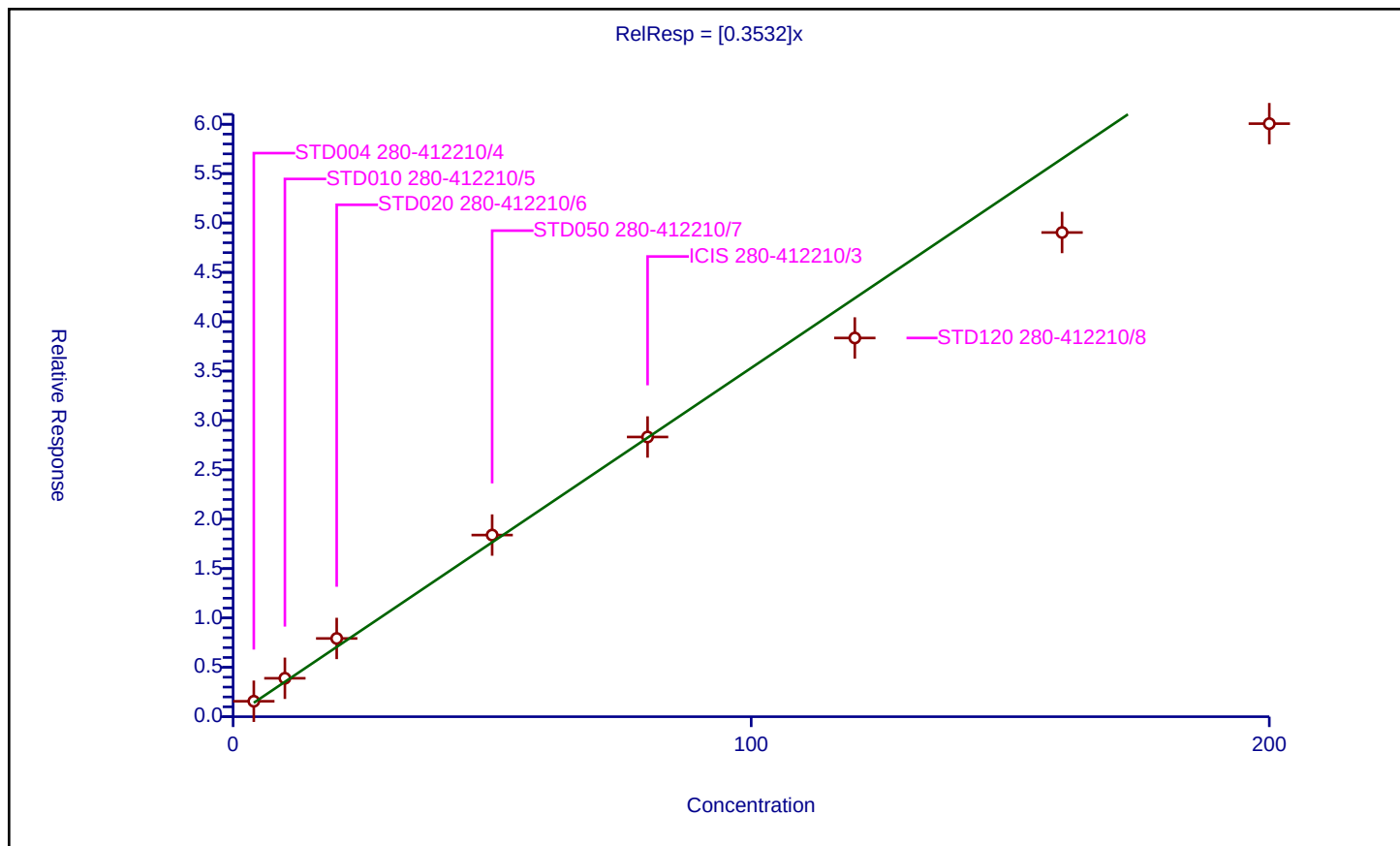
### Curve Coefficients

Intercept: 0  
 Slope: 0.3532

### Error Coefficients

Standard Error: 425000  
 Relative Standard Error: 11.2  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.982

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.566427   | 40.0      | 464701.0    | 0.391607 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.892664   | 40.0      | 439966.0    | 0.389266 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 7.925221   | 40.0      | 439266.0    | 0.396261 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 18.396834  | 40.0      | 462460.0    | 0.367937 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 28.327274  | 40.0      | 469796.0    | 0.354091 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 38.354853  | 40.0      | 483896.0    | 0.319624 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 49.037005  | 40.0      | 487064.0    | 0.306481 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 60.058686  | 40.0      | 482572.0    | 0.300293 | Y    |



## Calibration

/ Benzoic acid

Curve Type: Linear  
Weighting: Conc\_Sq  
Origin: None  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

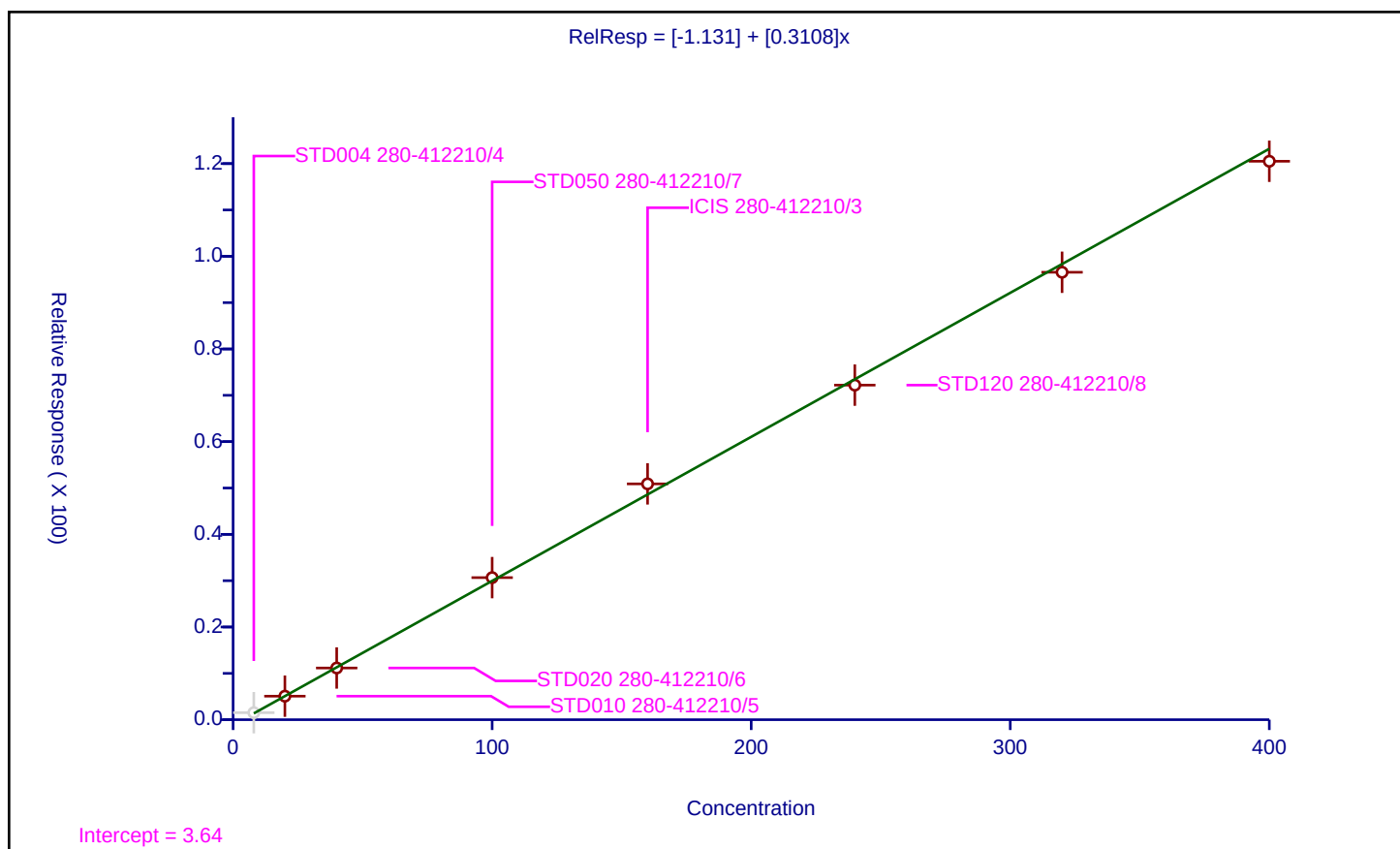
## Curve Coefficients

Intercept: -1.131  
Slope: 0.3108

## Error Coefficients

Standard Error: 976000  
Relative Standard Error: 2.8  
Correlation Coefficient: 1.000  
Coefficient of Determination (Adjusted): 0.999

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 8.0           | 1.513748   | 40.0      | 464701.0    | 0.189218 | N    |
| 2  | STD010 280-412210/5  | 20.0          | 5.07912    | 40.0      | 439966.0    | 0.253956 | Y    |
| 3  | STD020 280-412210/6  | 40.0          | 11.158979  | 40.0      | 439266.0    | 0.278974 | Y    |
| 4  | STD050 280-412210/7  | 100.0         | 30.663236  | 40.0      | 462460.0    | 0.306632 | Y    |
| 5  | ICIS 280-412210/3    | 160.0         | 50.889663  | 40.0      | 469796.0    | 0.31806  | Y    |
| 6  | STD120 280-412210/8  | 240.0         | 72.198985  | 40.0      | 483896.0    | 0.300829 | Y    |
| 7  | STD160 280-412210/9  | 320.0         | 96.553389  | 40.0      | 487064.0    | 0.301729 | Y    |
| 8  | STD200 280-412210/10 | 400.0         | 120.510763 | 40.0      | 482572.0    | 0.301277 | Y    |



Calibration

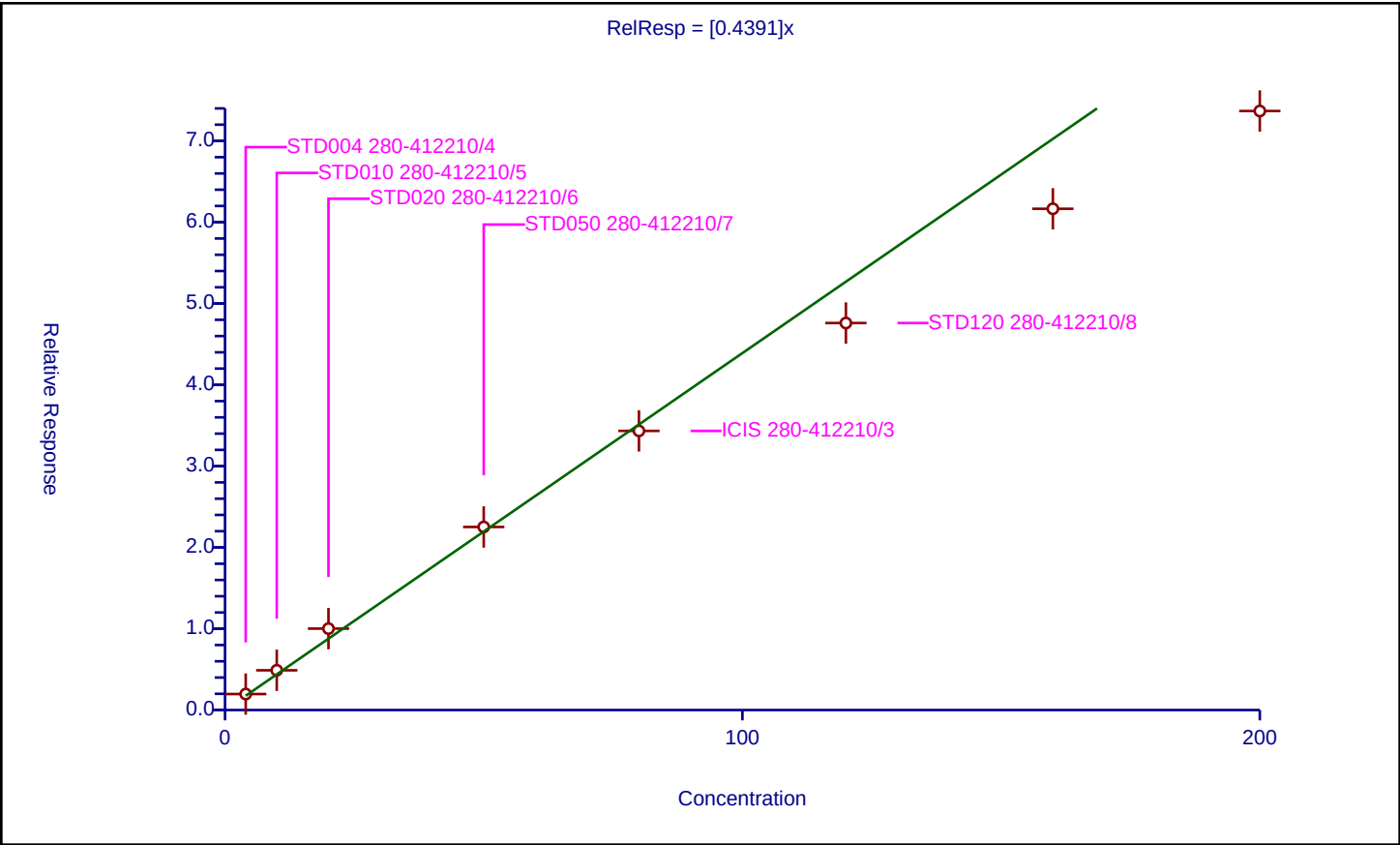
/ Bis(2-chloroethoxy)methane

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients |        |
|--------------------|--------|
| Intercept:         | 0      |
| Slope:             | 0.4391 |

| Error Coefficients                       |        |
|------------------------------------------|--------|
| Standard Error:                          | 525000 |
| Relative Standard Error:                 | 11.9   |
| Correlation Coefficient:                 | 0.997  |
| Coefficient of Determination (Adjusted): | 0.979  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.969352   | 40.0      | 464701.0    | 0.492338 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.890378   | 40.0      | 439966.0    | 0.489038 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 10.01935   | 40.0      | 439266.0    | 0.500968 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 22.520953  | 40.0      | 462460.0    | 0.450419 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 34.337883  | 40.0      | 469796.0    | 0.429224 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 47.602212  | 40.0      | 483896.0    | 0.396685 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 61.656209  | 40.0      | 487064.0    | 0.385351 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 73.681192  | 40.0      | 482572.0    | 0.368406 | Y    |



## Calibration

/ 2,4-Dichlorophenol

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

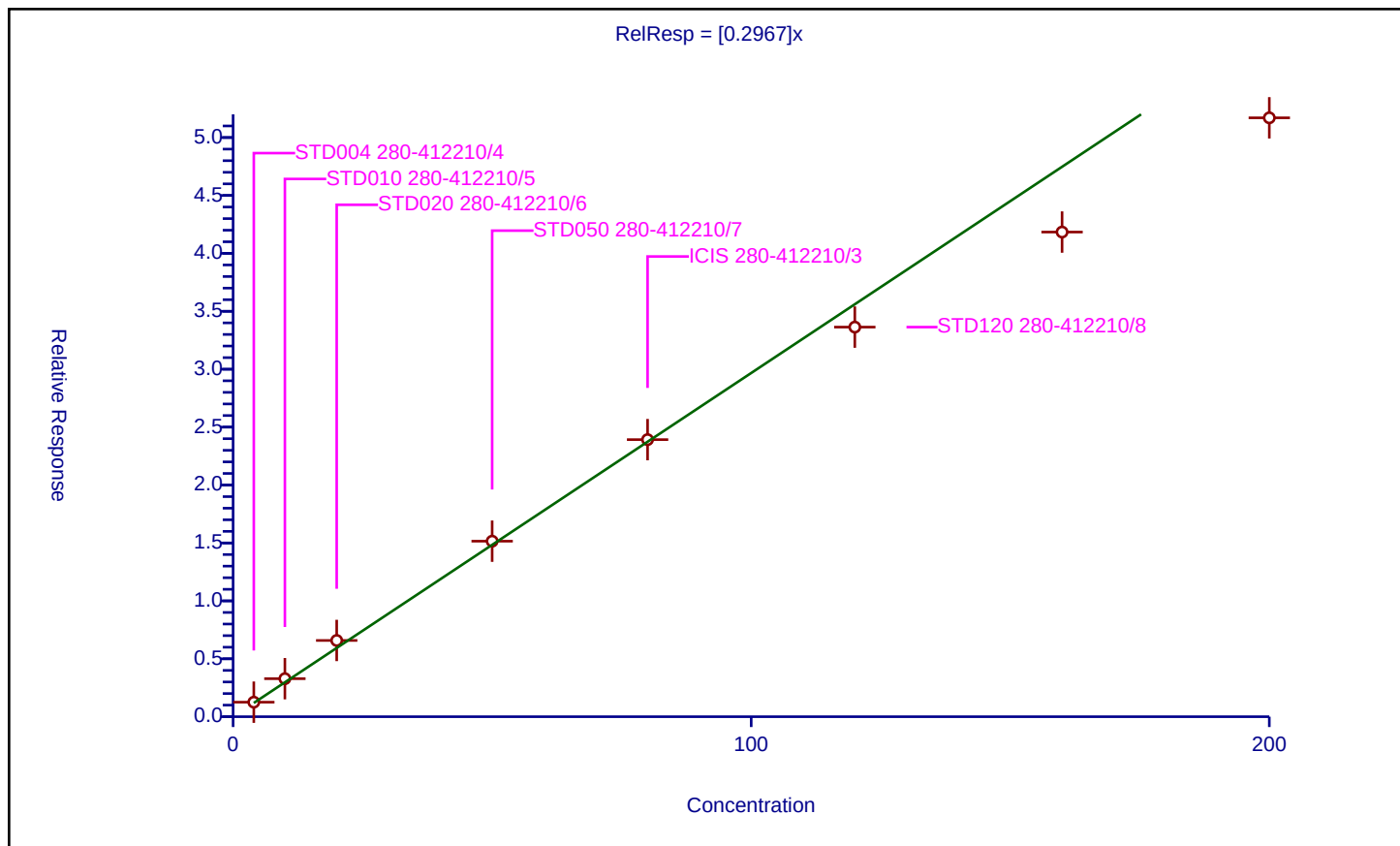
### Curve Coefficients

**Intercept:** 0  
**Slope:** 0.2967

### Error Coefficients

**Standard Error:** 365000  
**Relative Standard Error:** 9.3  
**Correlation Coefficient:** 0.997  
**Coefficient of Determination (Adjusted):** 0.988

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.255345   | 40.0      | 464701.0    | 0.313836 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.283254   | 40.0      | 439966.0    | 0.328325 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.583164   | 40.0      | 439266.0    | 0.329158 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 15.15357   | 40.0      | 462460.0    | 0.303071 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 23.920084  | 40.0      | 469796.0    | 0.299001 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 33.633591  | 40.0      | 483896.0    | 0.28028  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 41.840087  | 40.0      | 487064.0    | 0.261501 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 51.702047  | 40.0      | 482572.0    | 0.25851  | Y    |



# Calibration

/ 1,2,4-Trichlorobenzene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

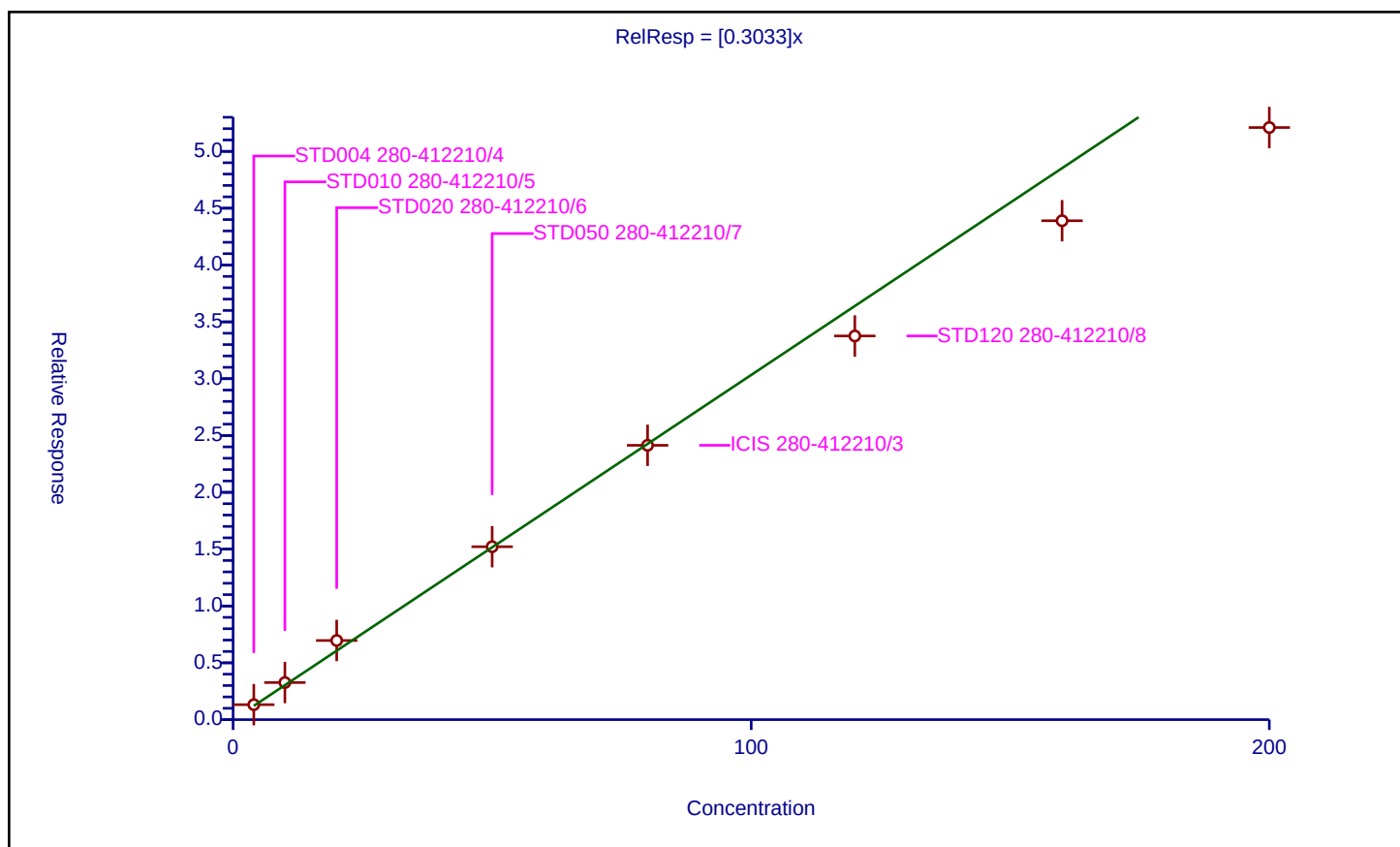
## Curve Coefficients

Intercept: 0  
 Slope: 0.3033

## Error Coefficients

Standard Error: 371000  
 Relative Standard Error: 10.0  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.986

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.317492   | 40.0      | 464701.0    | 0.329373 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.26407    | 40.0      | 439966.0    | 0.326407 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.962615   | 40.0      | 439266.0    | 0.348131 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 15.215413  | 40.0      | 462460.0    | 0.304308 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 24.136689  | 40.0      | 469796.0    | 0.301709 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 33.757998  | 40.0      | 483896.0    | 0.281317 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 43.896572  | 40.0      | 487064.0    | 0.274354 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 52.098754  | 40.0      | 482572.0    | 0.260494 | Y    |





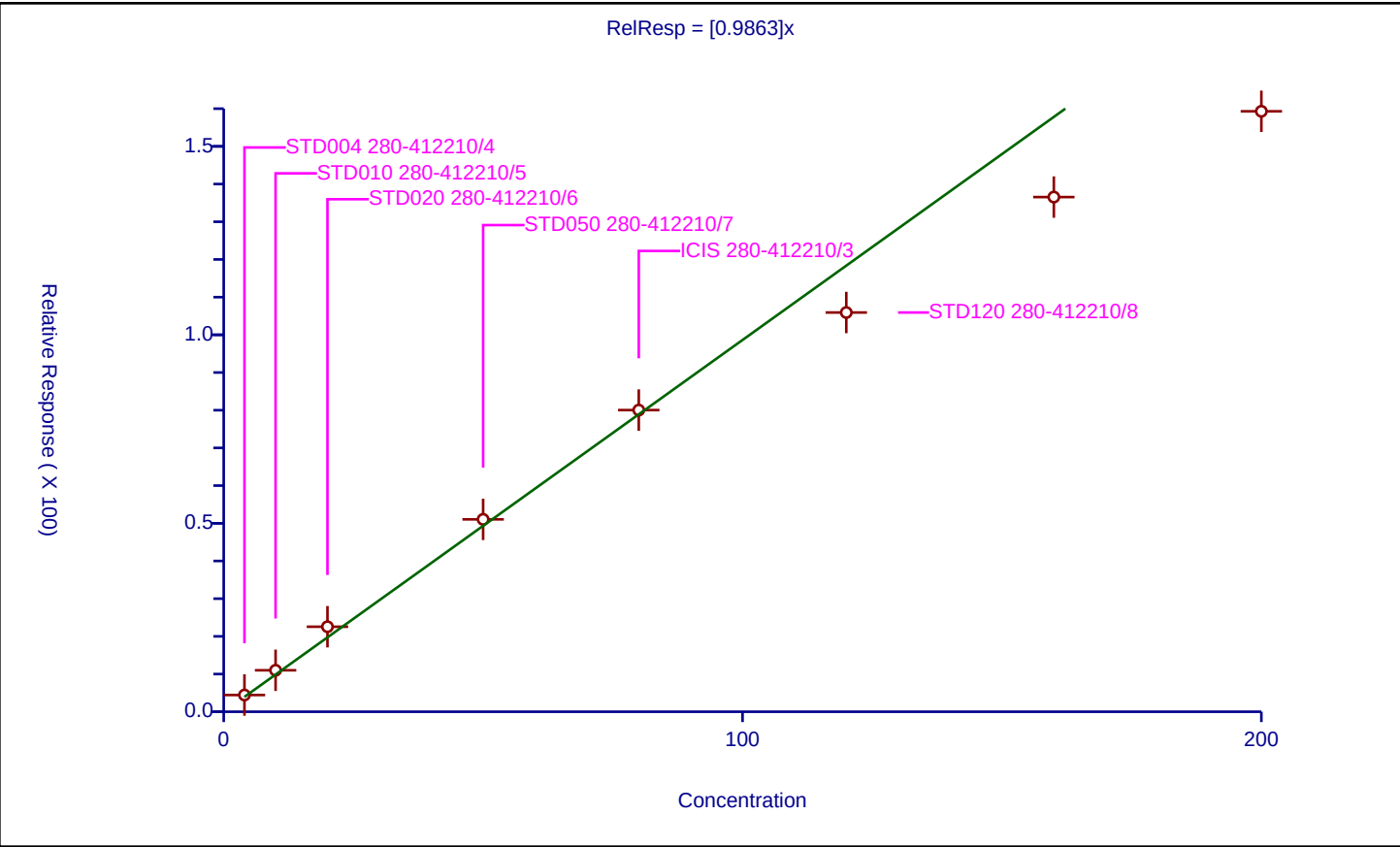
Calibration

/ Naphthalene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 0.9863  |
| Error Coefficients                       |         |
| Standard Error:                          | 1160000 |
| Relative Standard Error:                 | 12.9    |
| Correlation Coefficient:                 | 0.992   |
| Coefficient of Determination (Adjusted): | 0.976   |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.435282   | 40.0      | 464701.0    | 1.108821 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 11.002941  | 40.0      | 439966.0    | 1.100294 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 22.553624  | 40.0      | 439266.0    | 1.127681 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 51.036111  | 40.0      | 462460.0    | 1.020722 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 80.033717  | 40.0      | 469796.0    | 1.000421 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 105.916726 | 40.0      | 483896.0    | 0.882639 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 136.551418 | 40.0      | 487064.0    | 0.853446 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 159.303731 | 40.0      | 482572.0    | 0.796519 | Y    |



## Calibration

/ 4-Chloroaniline

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

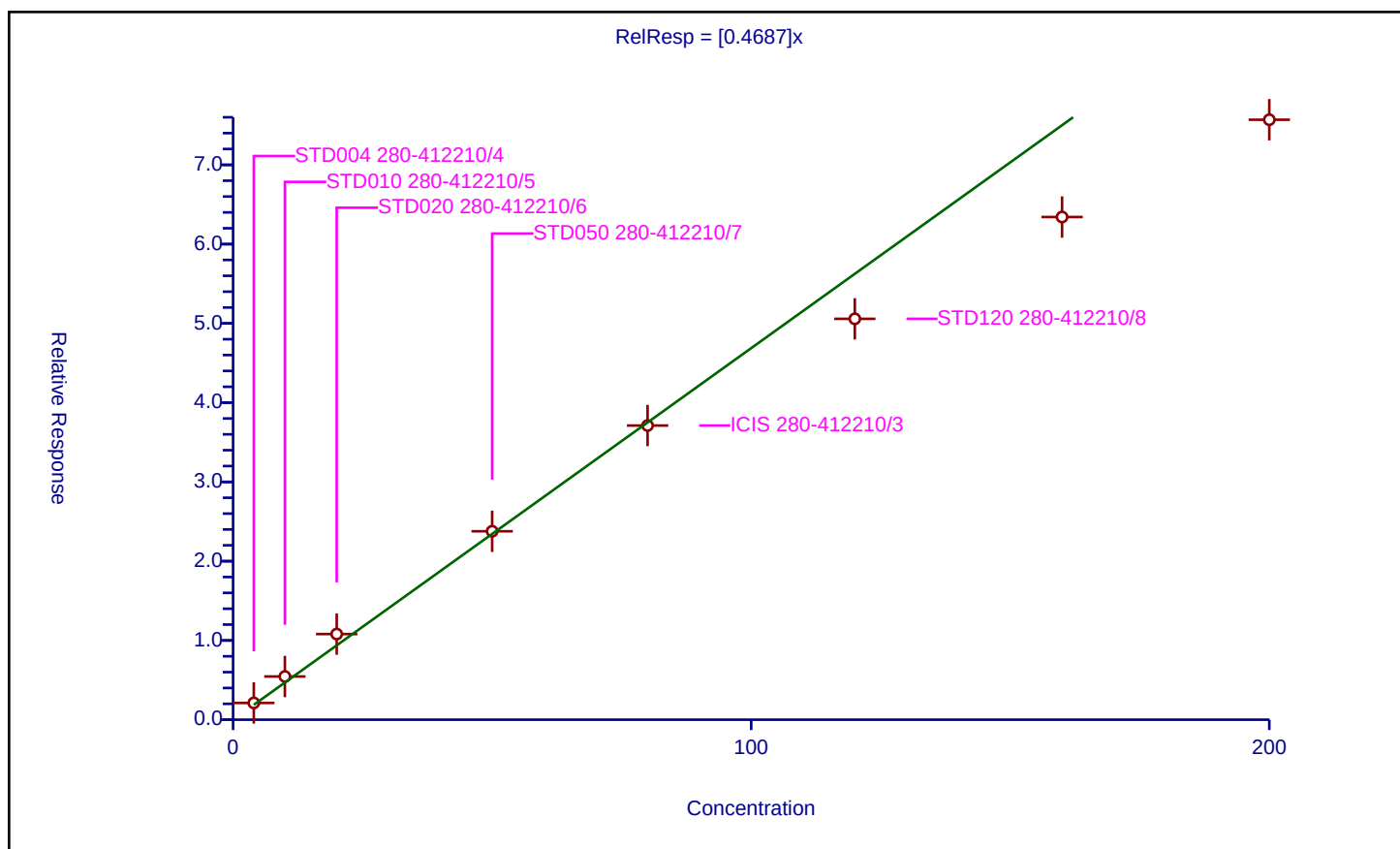
## Curve Coefficients

Intercept: 0  
Slope: 0.4687

## Error Coefficients

Standard Error: 546000  
Relative Standard Error: 14.0  
Correlation Coefficient: 0.994  
Coefficient of Determination (Adjusted): 0.971

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.115941   | 40.0      | 464701.0    | 0.528985 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 5.45133    | 40.0      | 439966.0    | 0.545133 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 10.804387  | 40.0      | 439266.0    | 0.540219 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 23.771656  | 40.0      | 462460.0    | 0.475433 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 37.110491  | 40.0      | 469796.0    | 0.463881 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 50.571528  | 40.0      | 483896.0    | 0.421429 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 63.418524  | 40.0      | 487064.0    | 0.396366 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 75.692581  | 40.0      | 482572.0    | 0.378463 | Y    |



# Calibration

/ 2,6-Dichlorophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

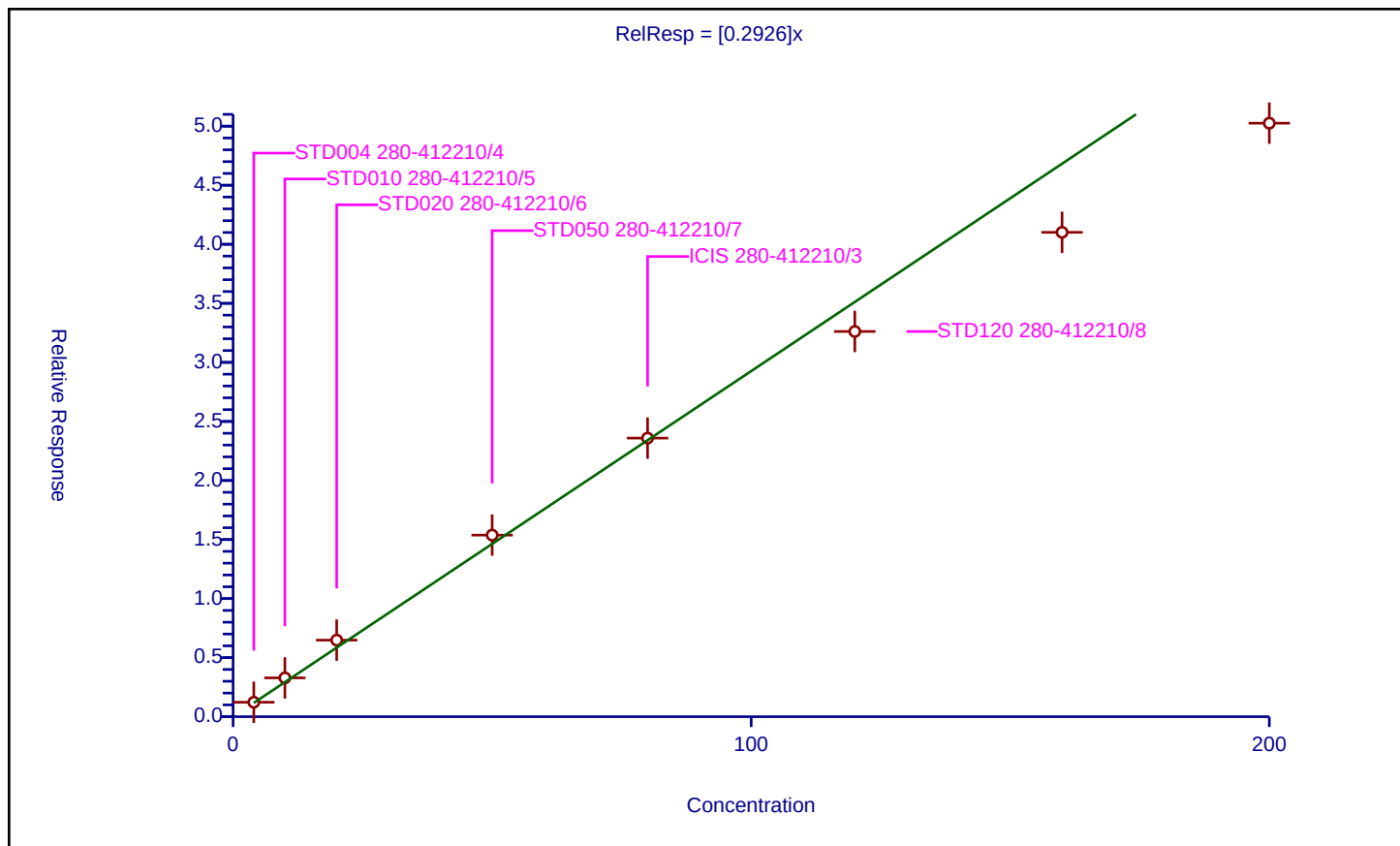
## Curve Coefficients

Intercept: 0  
 Slope: 0.2926

## Error Coefficients

Standard Error: 356000  
 Relative Standard Error: 10.2  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.986

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.225132   | 40.0      | 464701.0    | 0.306283 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.288345   | 40.0      | 439966.0    | 0.328835 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.484636   | 40.0      | 439266.0    | 0.324232 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 15.37586   | 40.0      | 462460.0    | 0.307517 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 23.588111  | 40.0      | 469796.0    | 0.294851 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 32.616595  | 40.0      | 483896.0    | 0.271805 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 41.013912  | 40.0      | 487064.0    | 0.256337 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 50.252232  | 40.0      | 482572.0    | 0.251261 | Y    |



# Calibration

/ Hexachlorobutadiene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

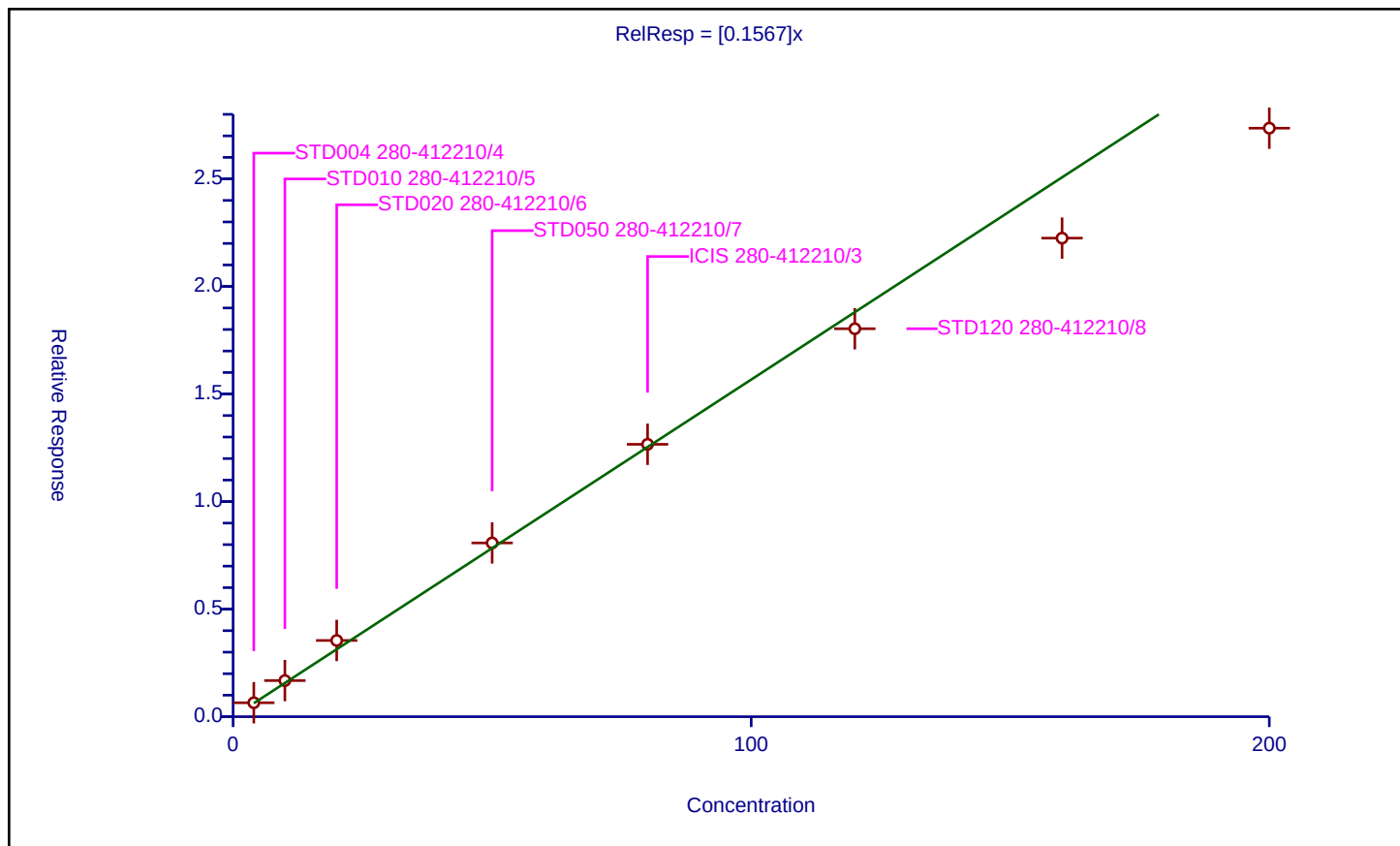
## Curve Coefficients

Intercept: 0  
 Slope: 0.1567

## Error Coefficients

Standard Error: 194000  
 Relative Standard Error: 8.9  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.989

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.649622   | 40.0      | 464701.0    | 0.162406 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 1.680312   | 40.0      | 439966.0    | 0.168031 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 3.54464    | 40.0      | 439266.0    | 0.177232 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 8.077672   | 40.0      | 462460.0    | 0.161553 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 12.662517  | 40.0      | 469796.0    | 0.158281 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 18.034867  | 40.0      | 483896.0    | 0.150291 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 22.246851  | 40.0      | 487064.0    | 0.139043 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 27.358156  | 40.0      | 482572.0    | 0.136791 | Y    |



## Calibration

/ Caprolactam

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

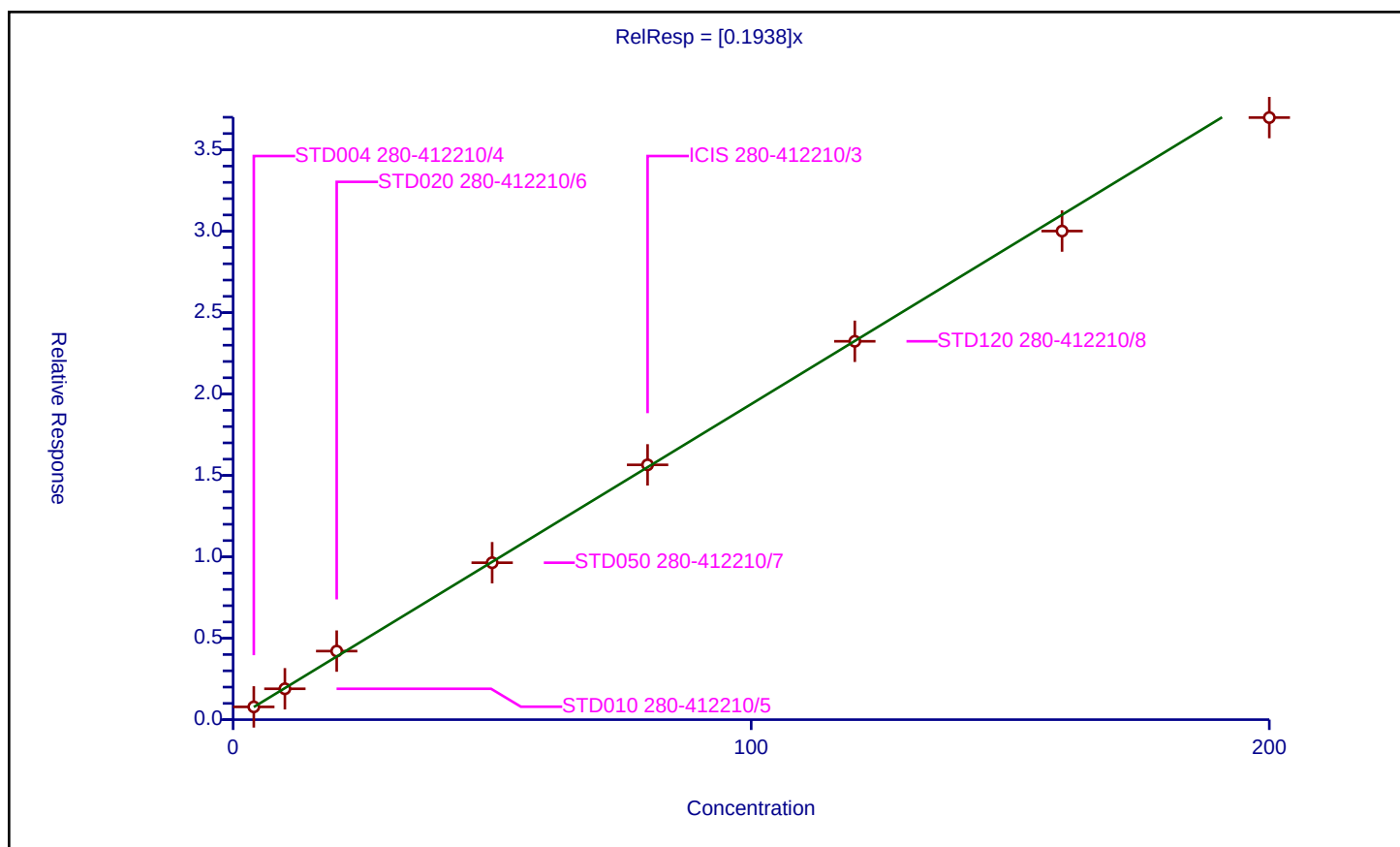
### Curve Coefficients

Intercept: 0  
 Slope: 0.1938

### Error Coefficients

Standard Error: 256000  
 Relative Standard Error: 4.0  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.998

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.784074   | 40.0      | 464701.0    | 0.196019 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 1.89551    | 40.0      | 439966.0    | 0.189551 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 4.210387   | 40.0      | 439266.0    | 0.210519 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 9.639753   | 40.0      | 462460.0    | 0.192795 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 15.650793  | 40.0      | 469796.0    | 0.195635 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 23.239952  | 40.0      | 483896.0    | 0.193666 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 30.010594  | 40.0      | 487064.0    | 0.187566 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 36.982419  | 40.0      | 482572.0    | 0.184912 | Y    |



# Calibration

/ 4-Chloro-3-methylphenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

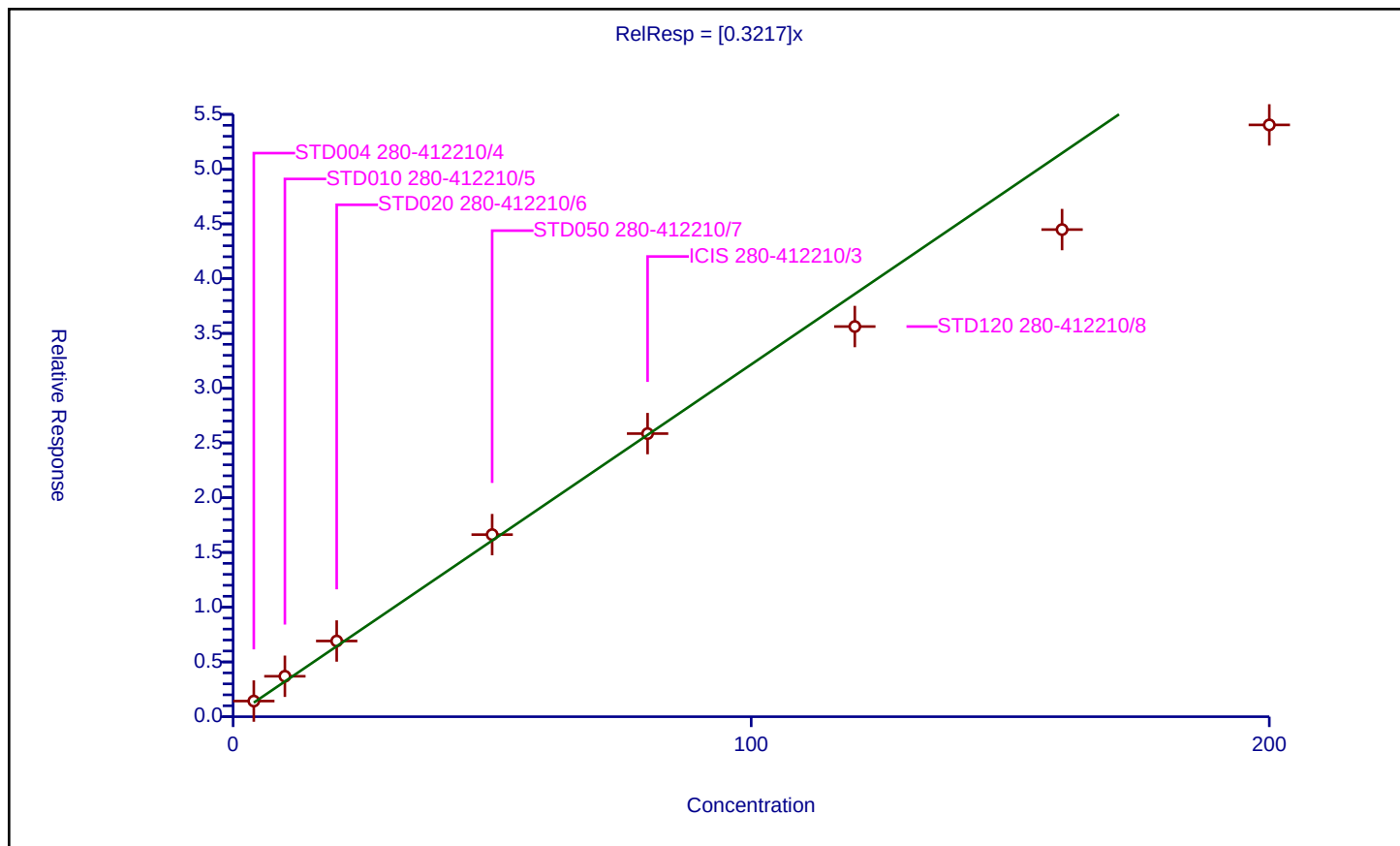
## Curve Coefficients

Intercept: 0  
 Slope: 0.3217

## Error Coefficients

Standard Error: 386000  
 Relative Standard Error: 11.4  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.981

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.429737   | 40.0      | 464701.0    | 0.357434 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.694649   | 40.0      | 439966.0    | 0.369465 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.912076   | 40.0      | 439266.0    | 0.345604 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 16.626995  | 40.0      | 462460.0    | 0.33254  | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 25.850454  | 40.0      | 469796.0    | 0.323131 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 35.626746  | 40.0      | 483896.0    | 0.29689  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 44.47859   | 40.0      | 487064.0    | 0.277991 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 54.037284  | 40.0      | 482572.0    | 0.270186 | Y    |



## Calibration

## / 2-Methylnaphthalene

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

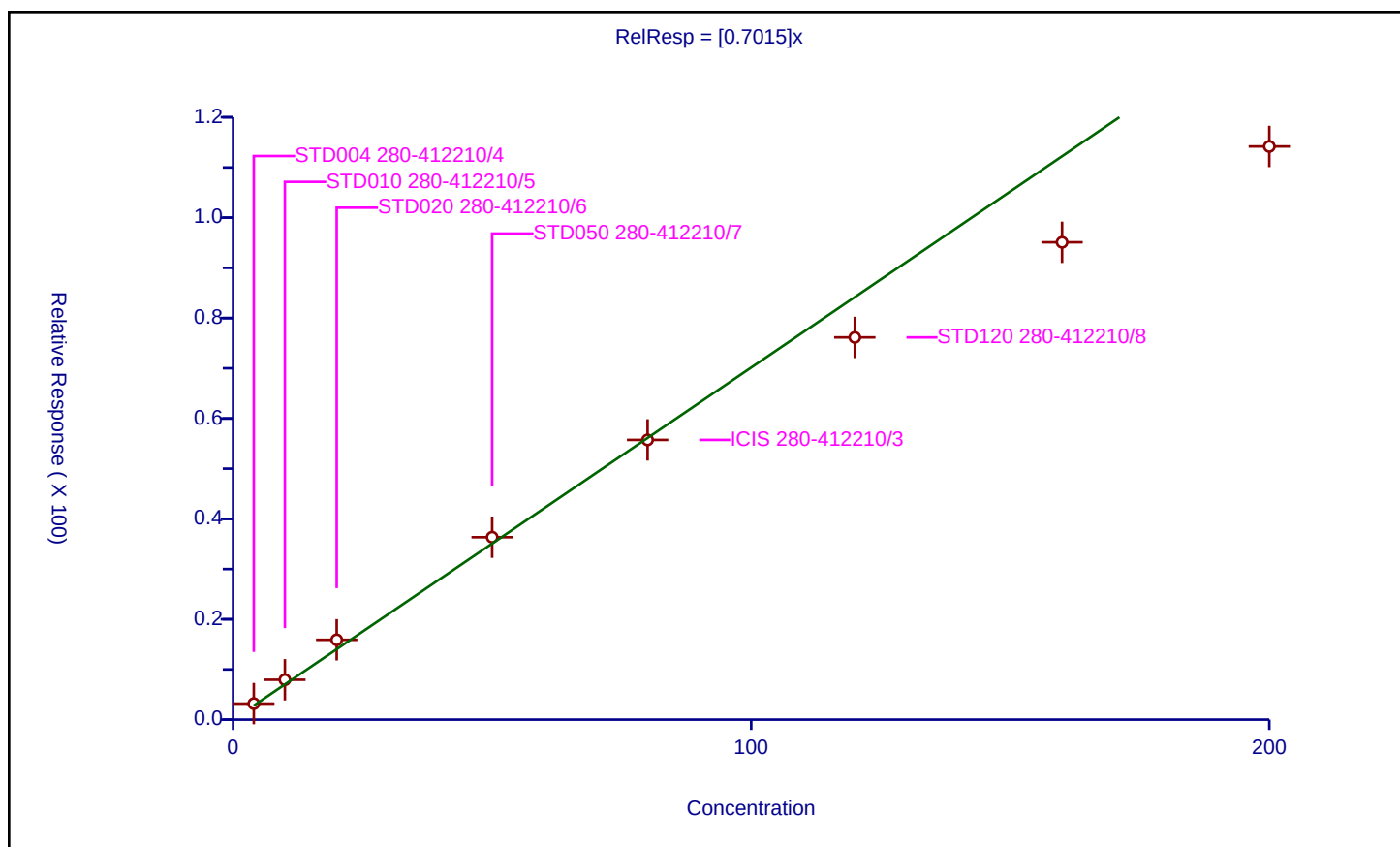
### Curve Coefficients

**Intercept:** 0  
**Slope:** 0.7015

### Error Coefficients

**Standard Error:** 822000  
**Relative Standard Error:** 13.3  
**Correlation Coefficient:** 0.994  
**Coefficient of Determination (Adjusted):** 0.974

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 3.19612    | 40.0      | 464701.0    | 0.79903  | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 7.941068   | 40.0      | 439966.0    | 0.794107 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 15.905533  | 40.0      | 439266.0    | 0.795277 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 36.3439    | 40.0      | 462460.0    | 0.726878 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 55.72623   | 40.0      | 469796.0    | 0.696578 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 76.146445  | 40.0      | 483896.0    | 0.634554 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 95.088777  | 40.0      | 487064.0    | 0.594305 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 114.185158 | 40.0      | 482572.0    | 0.570926 | Y    |



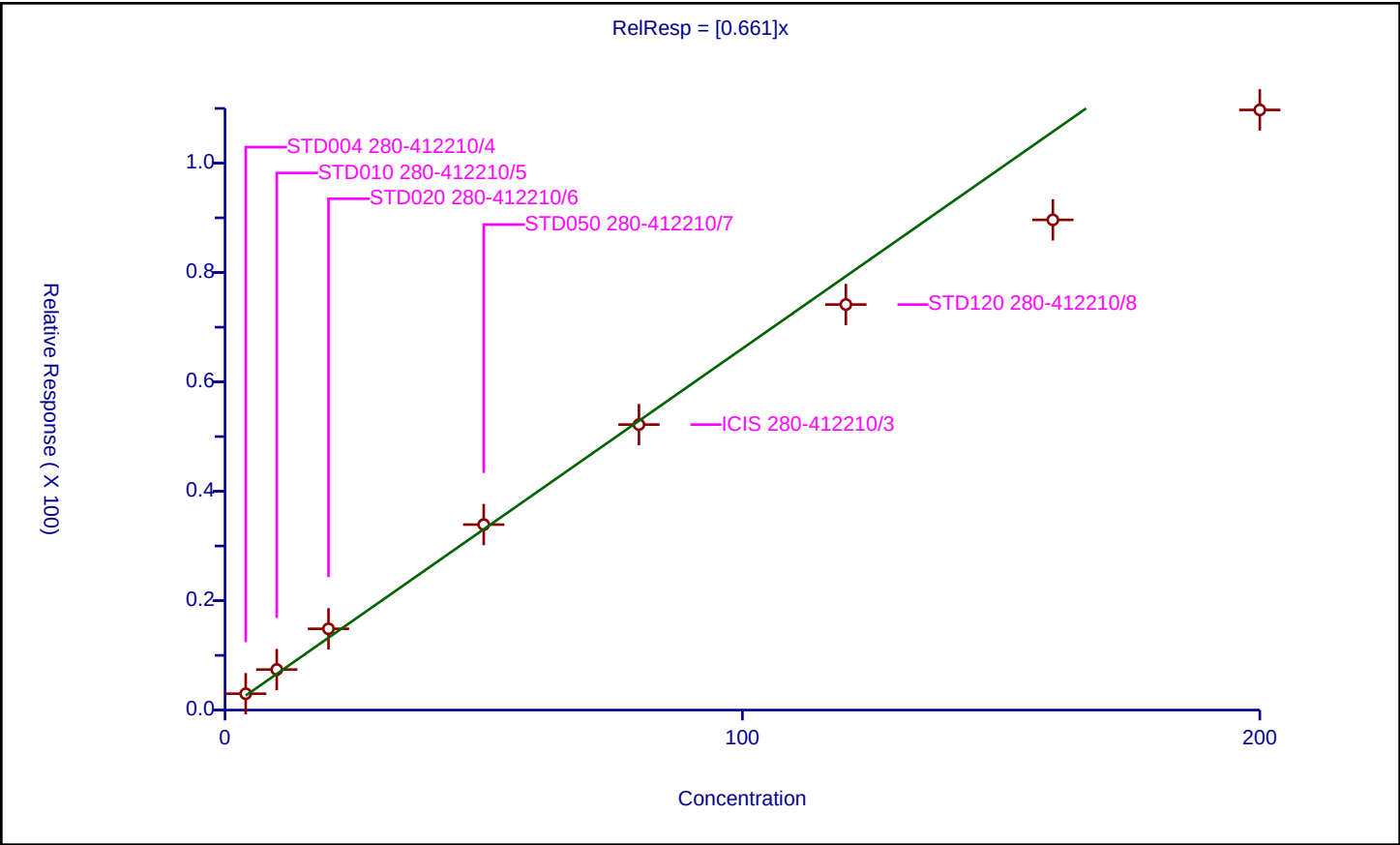
Calibration

/ 1-Methylnaphthalene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |        |
|------------------------------------------|--------|
| Intercept:                               | 0      |
| Slope:                                   | 0.661  |
| Error Coefficients                       |        |
| Standard Error:                          | 785000 |
| Relative Standard Error:                 | 12.2   |
| Correlation Coefficient:                 | 0.994  |
| Coefficient of Determination (Adjusted): | 0.978  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.988933   | 40.0      | 464701.0    | 0.747233 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 7.402481   | 40.0      | 439966.0    | 0.740248 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 14.860426  | 40.0      | 439266.0    | 0.743021 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 33.911517  | 40.0      | 462460.0    | 0.67823  | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 52.193037  | 40.0      | 469796.0    | 0.652413 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 74.141055  | 40.0      | 483896.0    | 0.617842 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 89.62469   | 40.0      | 487064.0    | 0.560154 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 109.73003  | 40.0      | 482572.0    | 0.54865  | Y    |





## Calibration

/ Hexachlorocyclopentadiene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

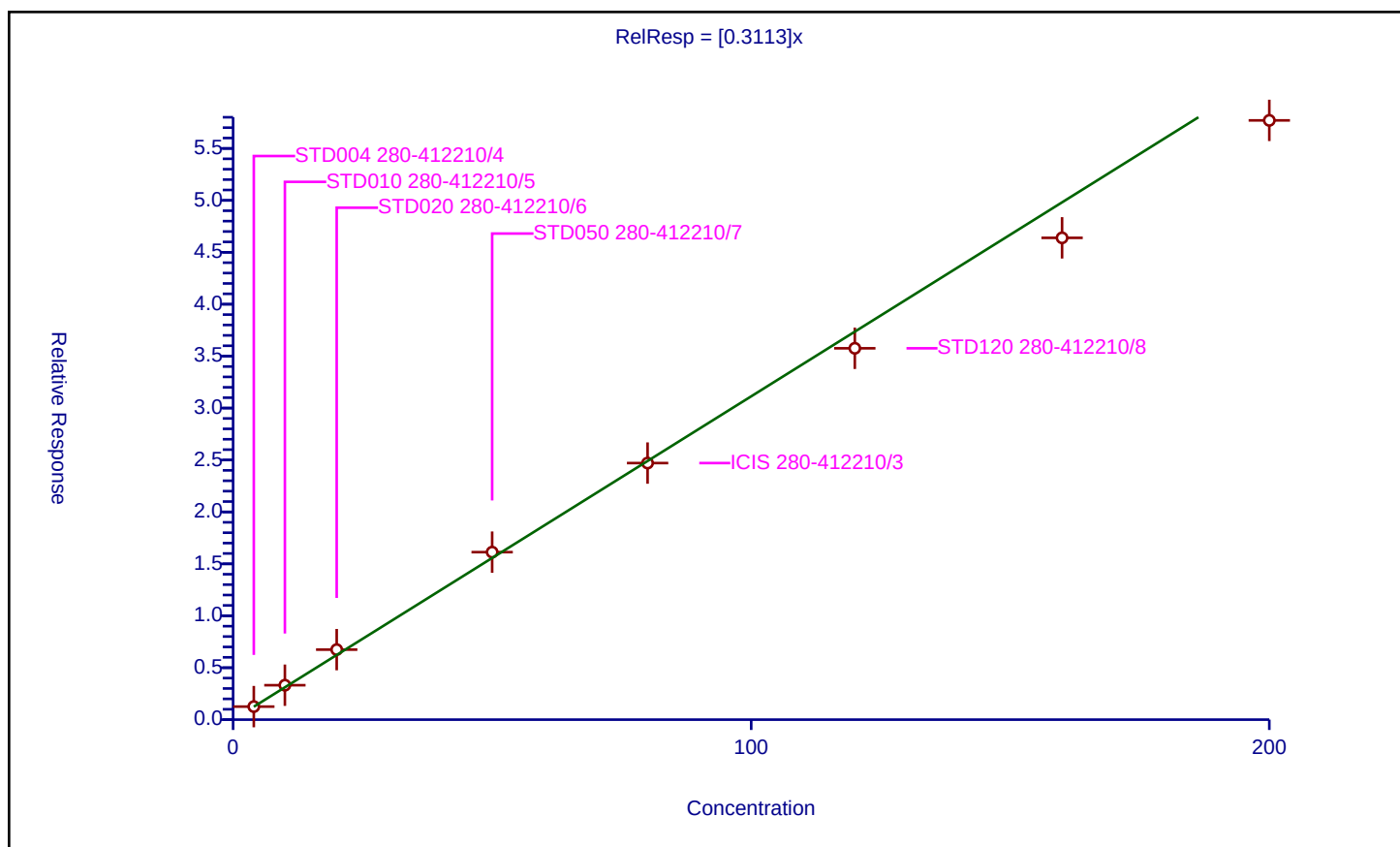
### Curve Coefficients

Intercept: 0  
 Slope: 0.3113

### Error Coefficients

Standard Error: 232000  
 Relative Standard Error: 5.9  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.995

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.255434   | 40.0      | 274869.0    | 0.313859 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.31602    | 40.0      | 262230.0    | 0.331602 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.743189   | 40.0      | 261971.0    | 0.337159 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 16.129086  | 40.0      | 276405.0    | 0.322582 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 24.706234  | 40.0      | 280768.0    | 0.308828 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 35.755395  | 40.0      | 283739.0    | 0.297962 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 46.391069  | 40.0      | 280554.0    | 0.289944 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 57.698994  | 40.0      | 277383.0    | 0.288495 | Y    |



Calibration

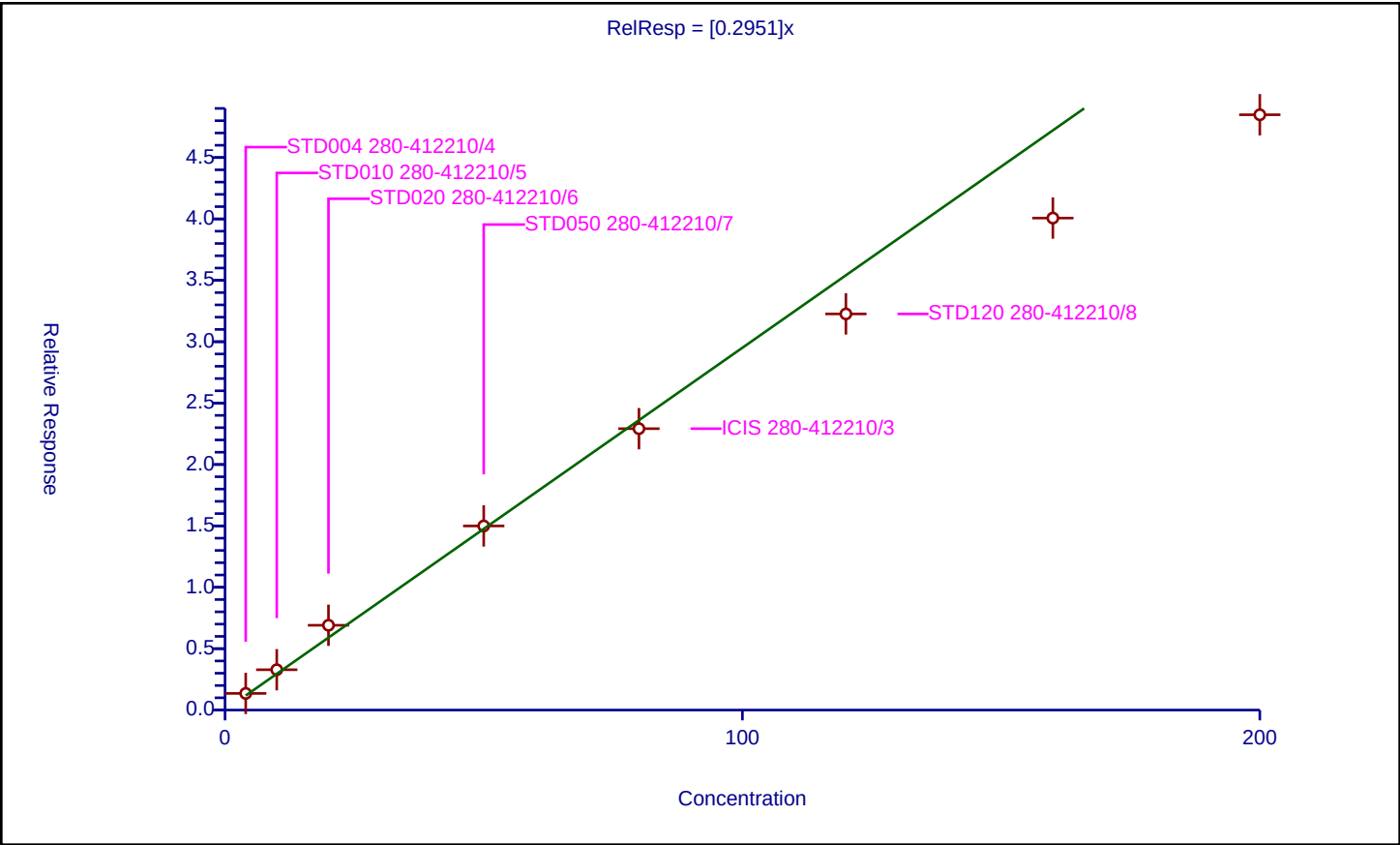
/ 1,2,4,5-Tetrachlorobenzene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients |        |
|--------------------|--------|
| Intercept:         | 0      |
| Slope:             | 0.2951 |

| Error Coefficients                       |        |
|------------------------------------------|--------|
| Standard Error:                          | 347000 |
| Relative Standard Error:                 | 13.5   |
| Correlation Coefficient:                 | 0.995  |
| Coefficient of Determination (Adjusted): | 0.973  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.355538   | 40.0      | 464701.0    | 0.338885 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.284436   | 40.0      | 439966.0    | 0.328444 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.905246   | 40.0      | 439266.0    | 0.345262 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 14.99347   | 40.0      | 462460.0    | 0.299869 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 22.917777  | 40.0      | 469796.0    | 0.286472 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 32.262552  | 40.0      | 483896.0    | 0.268855 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 40.070545  | 40.0      | 487064.0    | 0.250441 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 48.48462   | 40.0      | 482572.0    | 0.242423 | Y    |



## Calibration

/ 2,4,6-Trichlorophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

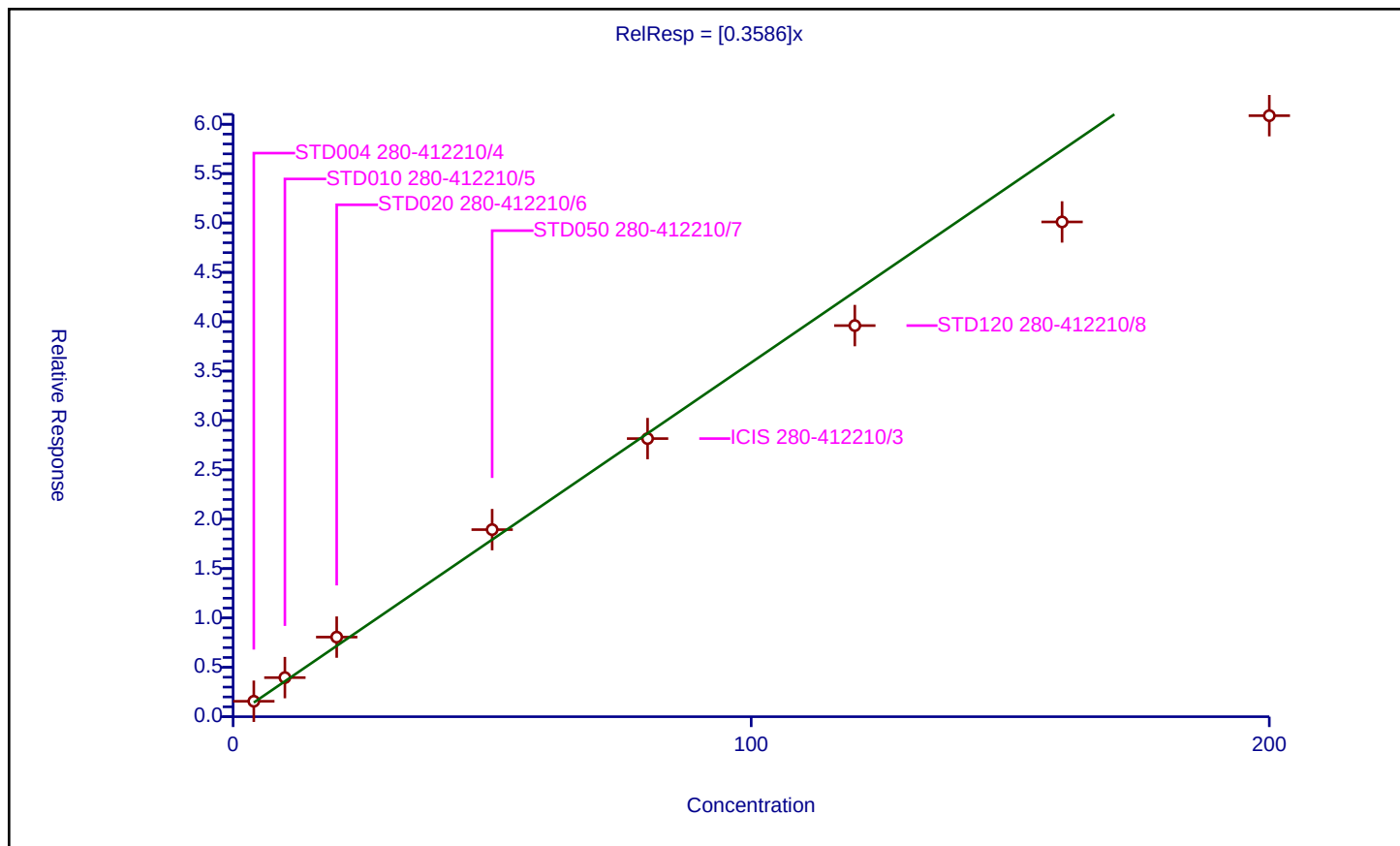
### Curve Coefficients

Intercept: 0  
 Slope: 0.3586

### Error Coefficients

Standard Error: 251000  
 Relative Standard Error: 10.9  
 Correlation Coefficient: 0.994  
 Coefficient of Determination (Adjusted): 0.983

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.565255   | 40.0      | 274869.0    | 0.391314 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.96034    | 40.0      | 262230.0    | 0.396034 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 8.060434   | 40.0      | 261971.0    | 0.403022 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 18.945678  | 40.0      | 276405.0    | 0.378914 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 28.166885  | 40.0      | 280768.0    | 0.352086 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 39.609641  | 40.0      | 283739.0    | 0.33008  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 50.105719  | 40.0      | 280554.0    | 0.313161 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 60.869051  | 40.0      | 277383.0    | 0.304345 | Y    |



# Calibration

/ 2,4,5-Trichlorophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

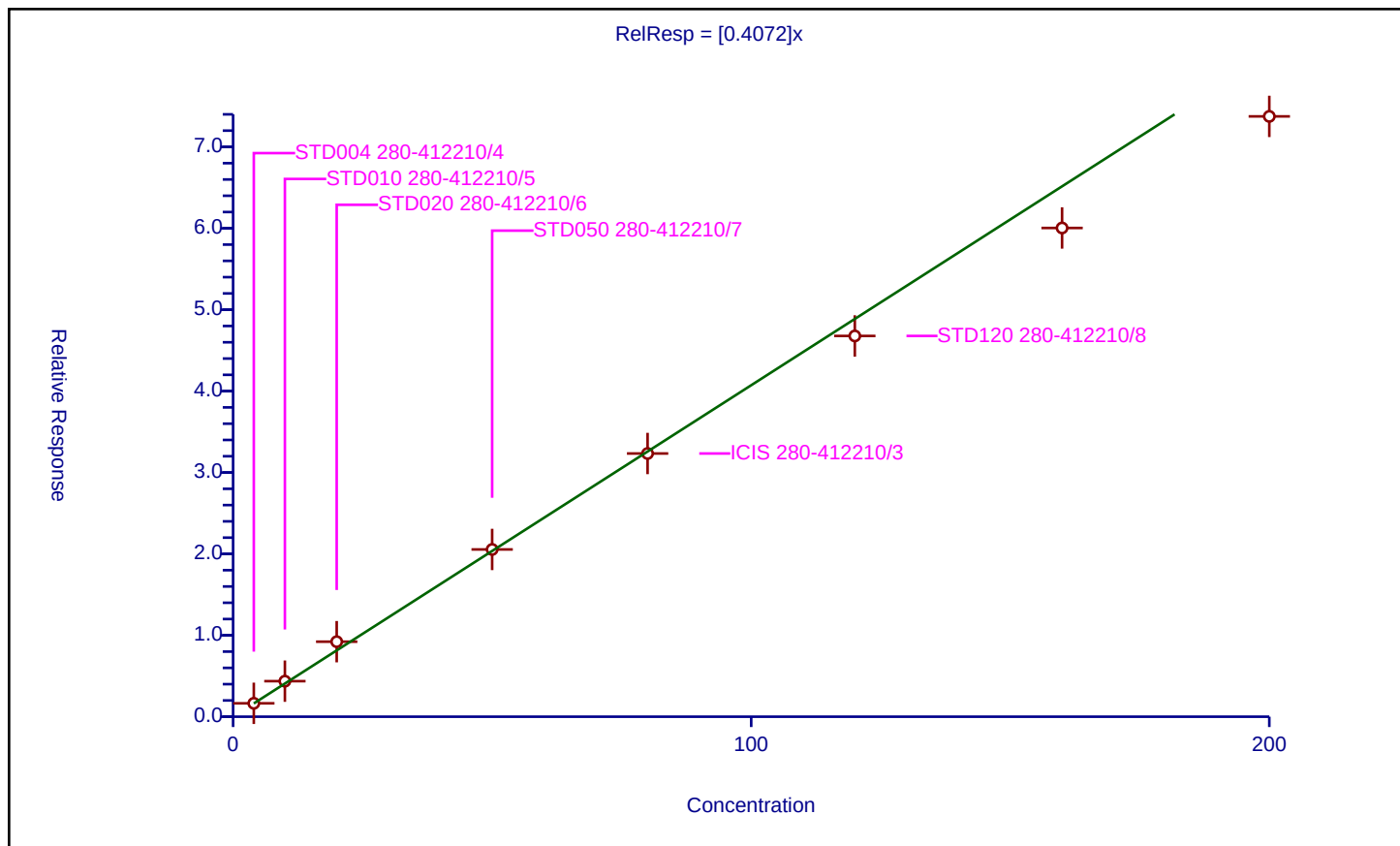
## Curve Coefficients

Intercept: 0  
 Slope: 0.4072

## Error Coefficients

Standard Error: 299000  
 Relative Standard Error: 7.5  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.992

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.644565   | 40.0      | 274869.0    | 0.411141 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.366854   | 40.0      | 262230.0    | 0.436685 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 9.219341   | 40.0      | 261971.0    | 0.460967 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 20.548253  | 40.0      | 276405.0    | 0.410965 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 32.337303  | 40.0      | 280768.0    | 0.404216 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 46.777073  | 40.0      | 283739.0    | 0.389809 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 60.042773  | 40.0      | 280554.0    | 0.375267 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 73.749437  | 40.0      | 277383.0    | 0.368747 | Y    |



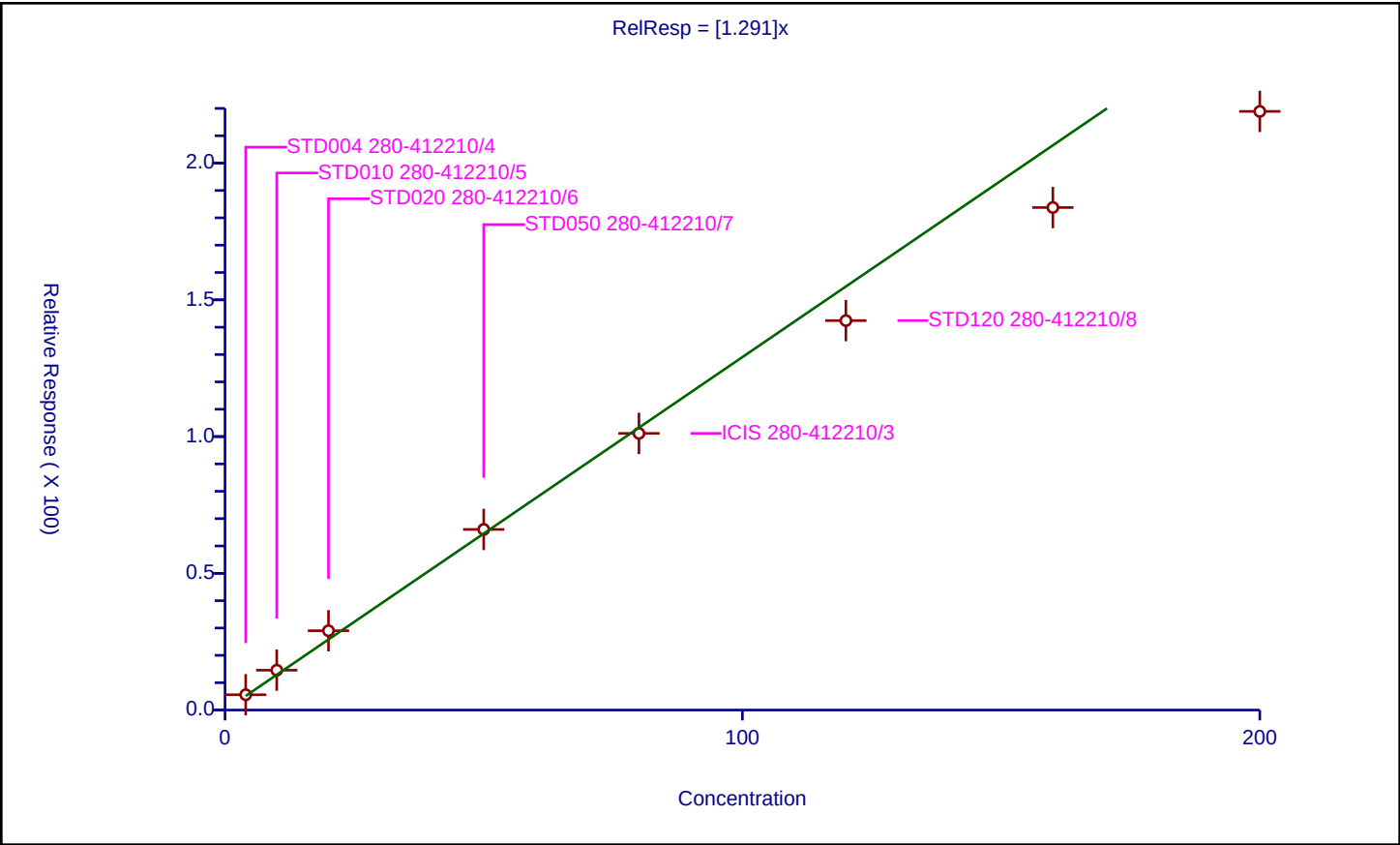
Calibration

/ 2-Fluorobiphenyl

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |        |
|------------------------------------------|--------|
| Intercept:                               | 0      |
| Slope:                                   | 1.291  |
| Error Coefficients                       |        |
| Standard Error:                          | 906000 |
| Relative Standard Error:                 | 10.8   |
| Correlation Coefficient:                 | 0.995  |
| Coefficient of Determination (Adjusted): | 0.983  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.605434   | 40.0      | 274869.0    | 1.401358 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.5785    | 40.0      | 262230.0    | 1.45785  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 29.008554  | 40.0      | 261971.0    | 1.450428 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 66.045549  | 40.0      | 276405.0    | 1.320911 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 101.168367 | 40.0      | 280768.0    | 1.264605 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 142.414825 | 40.0      | 283739.0    | 1.18679  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 183.765407 | 40.0      | 280554.0    | 1.148534 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 218.906999 | 40.0      | 277383.0    | 1.094535 | Y    |



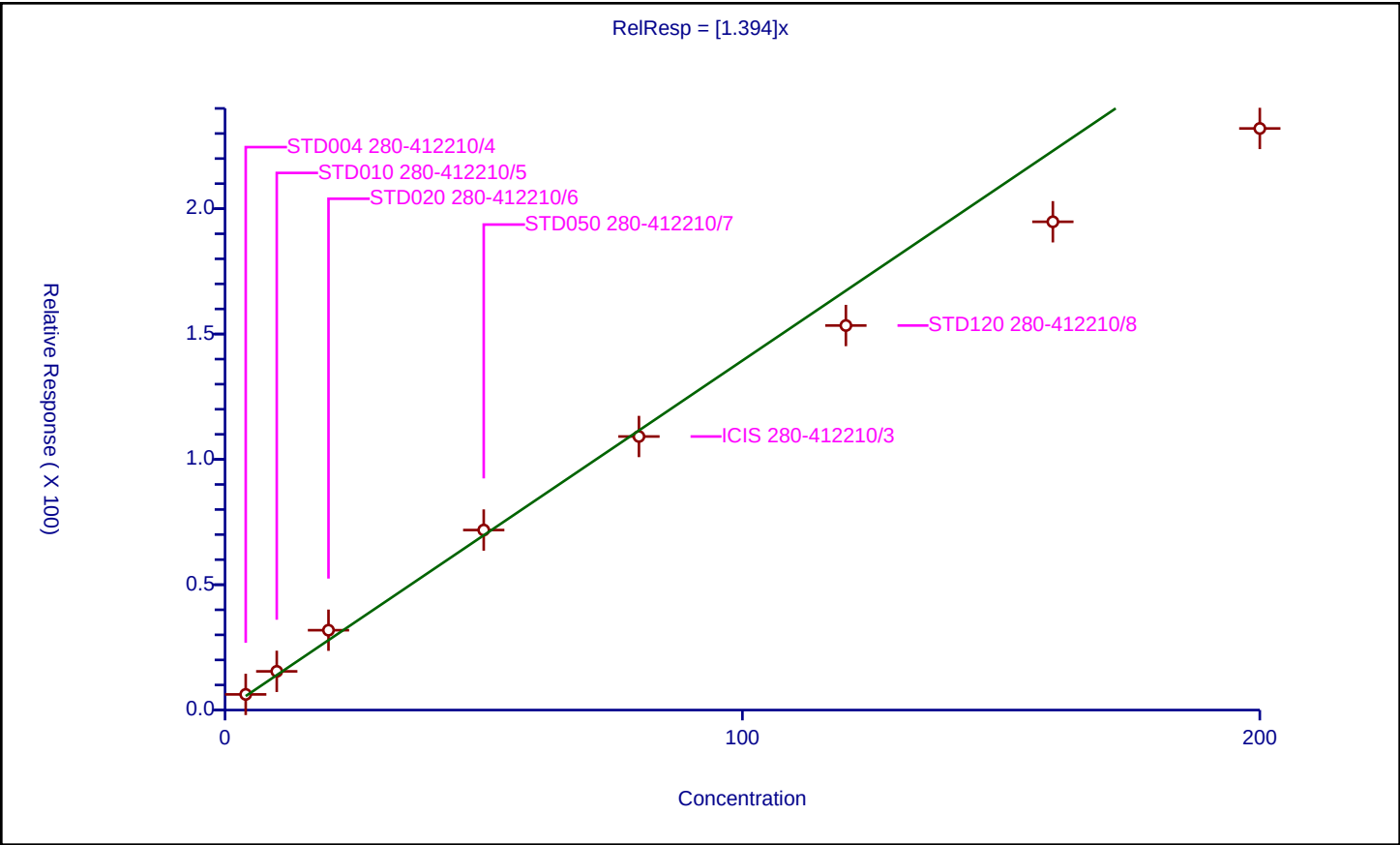
Calibration

/ 1,1'-Biphenyl

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |        |
|------------------------------------------|--------|
| Intercept:                               | 0      |
| Slope:                                   | 1.394  |
| Error Coefficients                       |        |
| Standard Error:                          | 965000 |
| Relative Standard Error:                 | 11.9   |
| Correlation Coefficient:                 | 0.993  |
| Coefficient of Determination (Adjusted): | 0.980  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.242683   | 40.0      | 274869.0    | 1.560671 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 15.439881  | 40.0      | 262230.0    | 1.543988 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 31.855129  | 40.0      | 261971.0    | 1.592756 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 71.811291  | 40.0      | 276405.0    | 1.436226 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 109.128676 | 40.0      | 280768.0    | 1.364108 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 153.39703  | 40.0      | 283739.0    | 1.278309 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 194.781896 | 40.0      | 280554.0    | 1.217387 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 232.000952 | 40.0      | 277383.0    | 1.160005 | Y    |



# Calibration

/ 2-Chloronaphthalene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

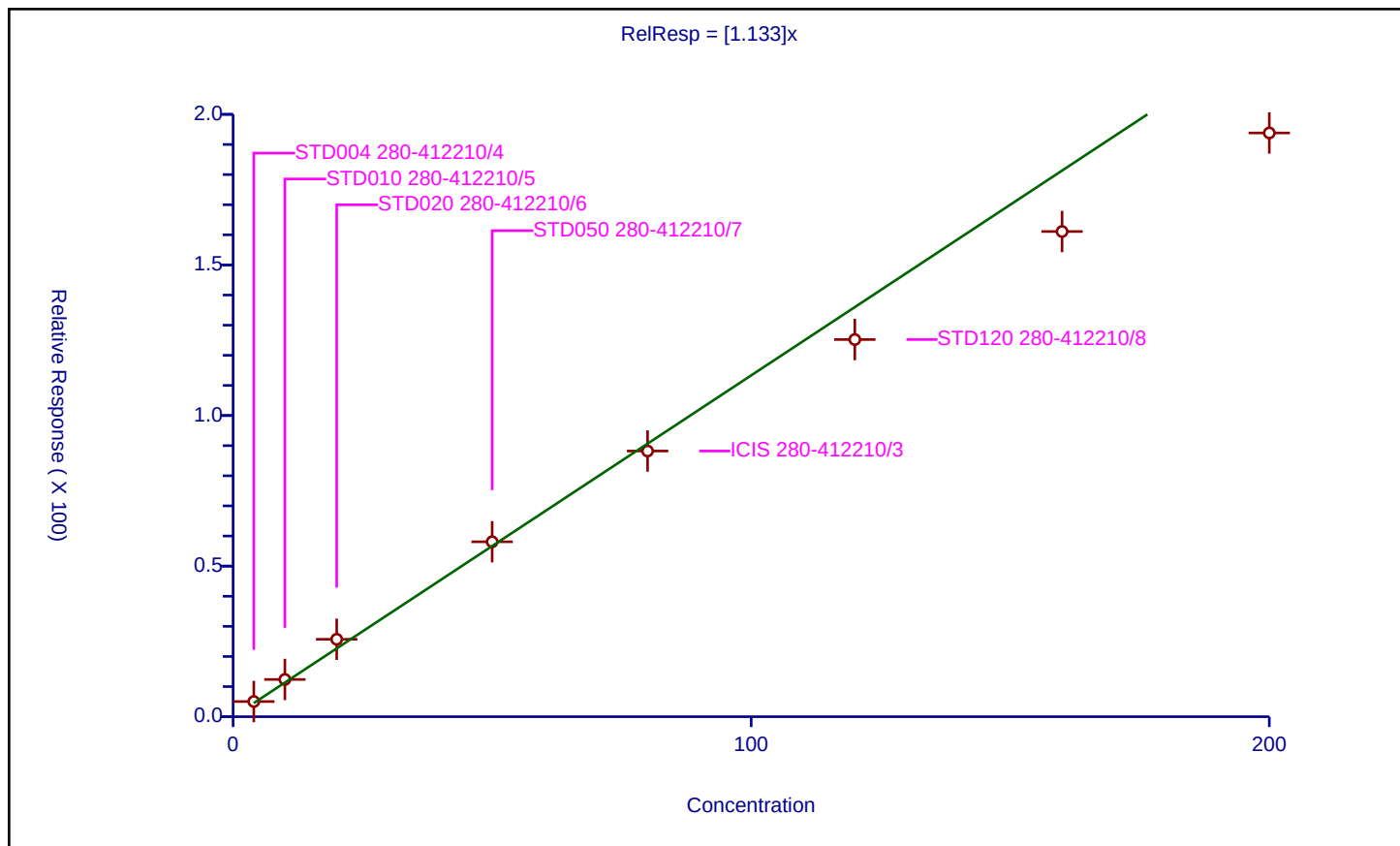
## Curve Coefficients

Intercept: 0  
 Slope: 1.133

## Error Coefficients

Standard Error: 797000  
 Relative Standard Error: 10.7  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.984

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.042548   | 40.0      | 274869.0    | 1.260637 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.365176  | 40.0      | 262230.0    | 1.236518 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 25.707731  | 40.0      | 261971.0    | 1.285387 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 58.081728  | 40.0      | 276405.0    | 1.161635 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 88.220595  | 40.0      | 280768.0    | 1.102757 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 125.232837 | 40.0      | 283739.0    | 1.043607 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 161.101677 | 40.0      | 280554.0    | 1.006885 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 193.829182 | 40.0      | 277383.0    | 0.969146 | Y    |



## Calibration

/ 2-Nitroaniline

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

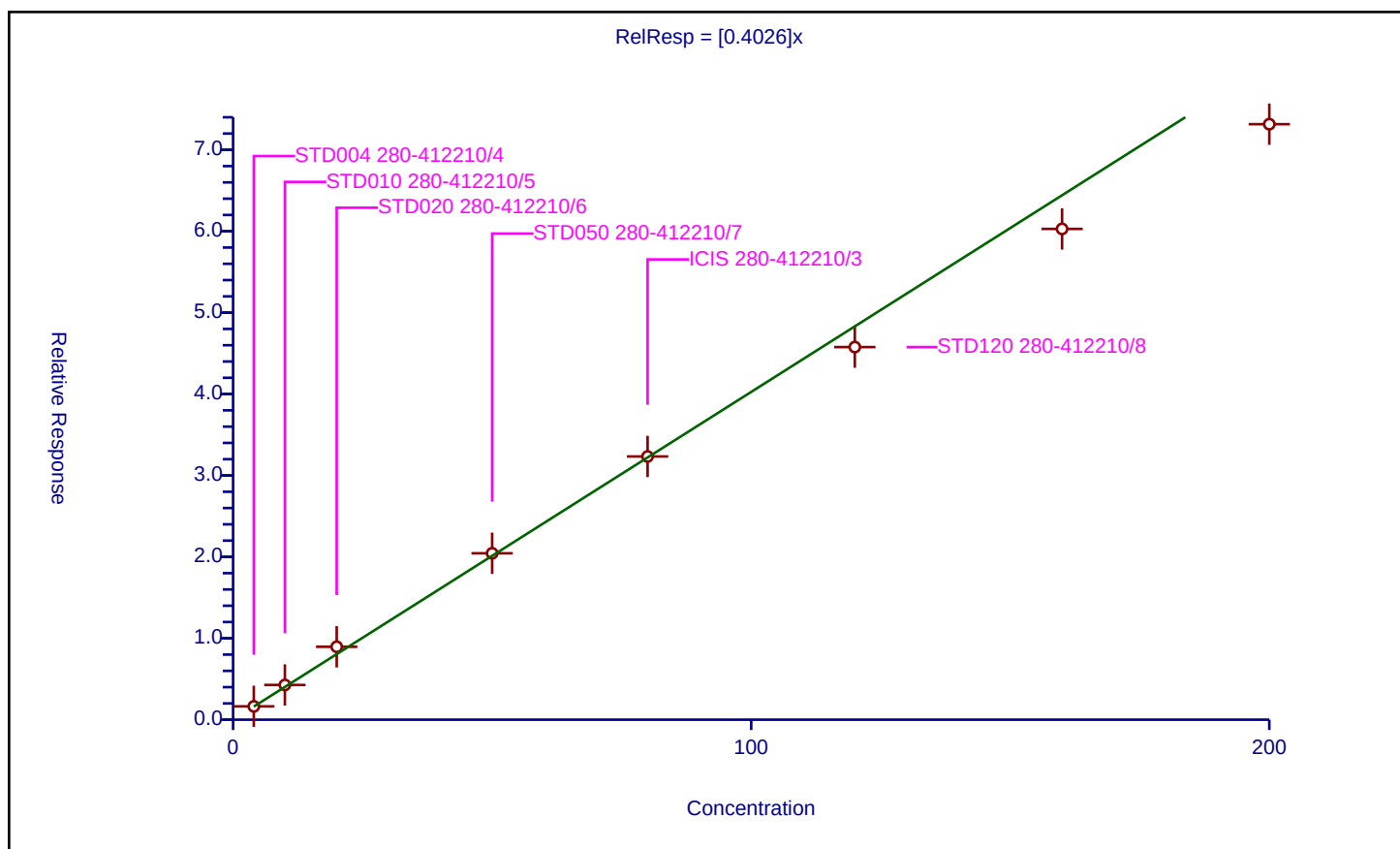
## Curve Coefficients

Intercept: 0  
Slope: 0.4026

## Error Coefficients

Standard Error: 297000  
Relative Standard Error: 6.8  
Correlation Coefficient: 0.998  
Coefficient of Determination (Adjusted): 0.994

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.636707   | 40.0      | 274869.0    | 0.409177 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.269534   | 40.0      | 262230.0    | 0.426953 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 8.959007   | 40.0      | 261971.0    | 0.44795  | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 20.441454  | 40.0      | 276405.0    | 0.408829 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 32.332602  | 40.0      | 280768.0    | 0.404158 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 45.773193  | 40.0      | 283739.0    | 0.381443 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 60.287146  | 40.0      | 280554.0    | 0.376795 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 73.151563  | 40.0      | 277383.0    | 0.365758 | Y    |





## Calibration

/ Dimethyl phthalate

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

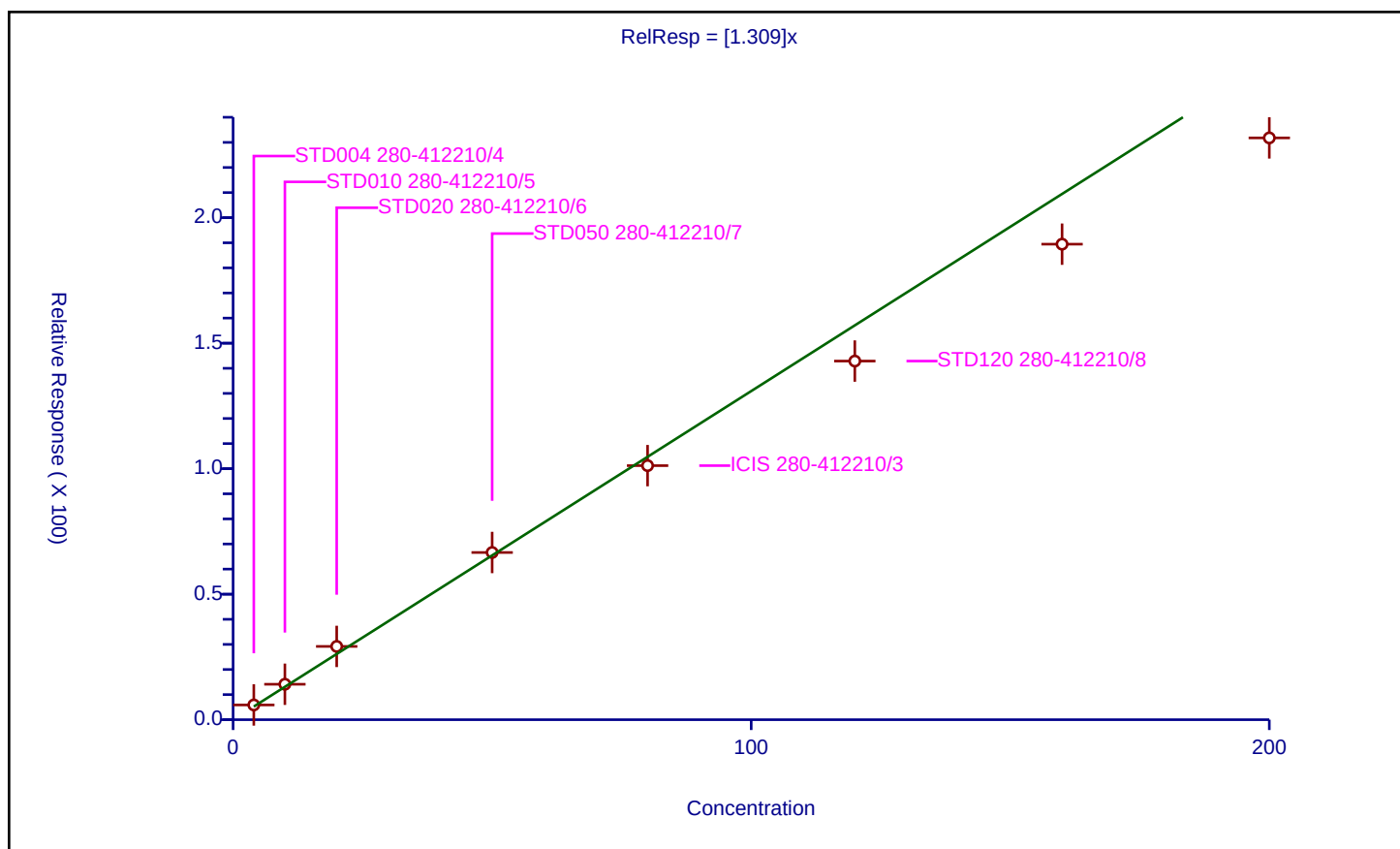
### Curve Coefficients

Intercept: 0  
 Slope: 1.309

### Error Coefficients

Standard Error: 936000  
 Relative Standard Error: 9.7  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.986

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.877272   | 40.0      | 274869.0    | 1.469318 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.12653   | 40.0      | 262230.0    | 1.412653 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 29.194376  | 40.0      | 261971.0    | 1.459719 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 66.614714  | 40.0      | 276405.0    | 1.332294 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 101.222504 | 40.0      | 280768.0    | 1.265281 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 142.881733 | 40.0      | 283739.0    | 1.190681 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 189.453153 | 40.0      | 280554.0    | 1.184082 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 231.785365 | 40.0      | 277383.0    | 1.158927 | Y    |



## Calibration

/ 1,3-Dinitrobenzene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

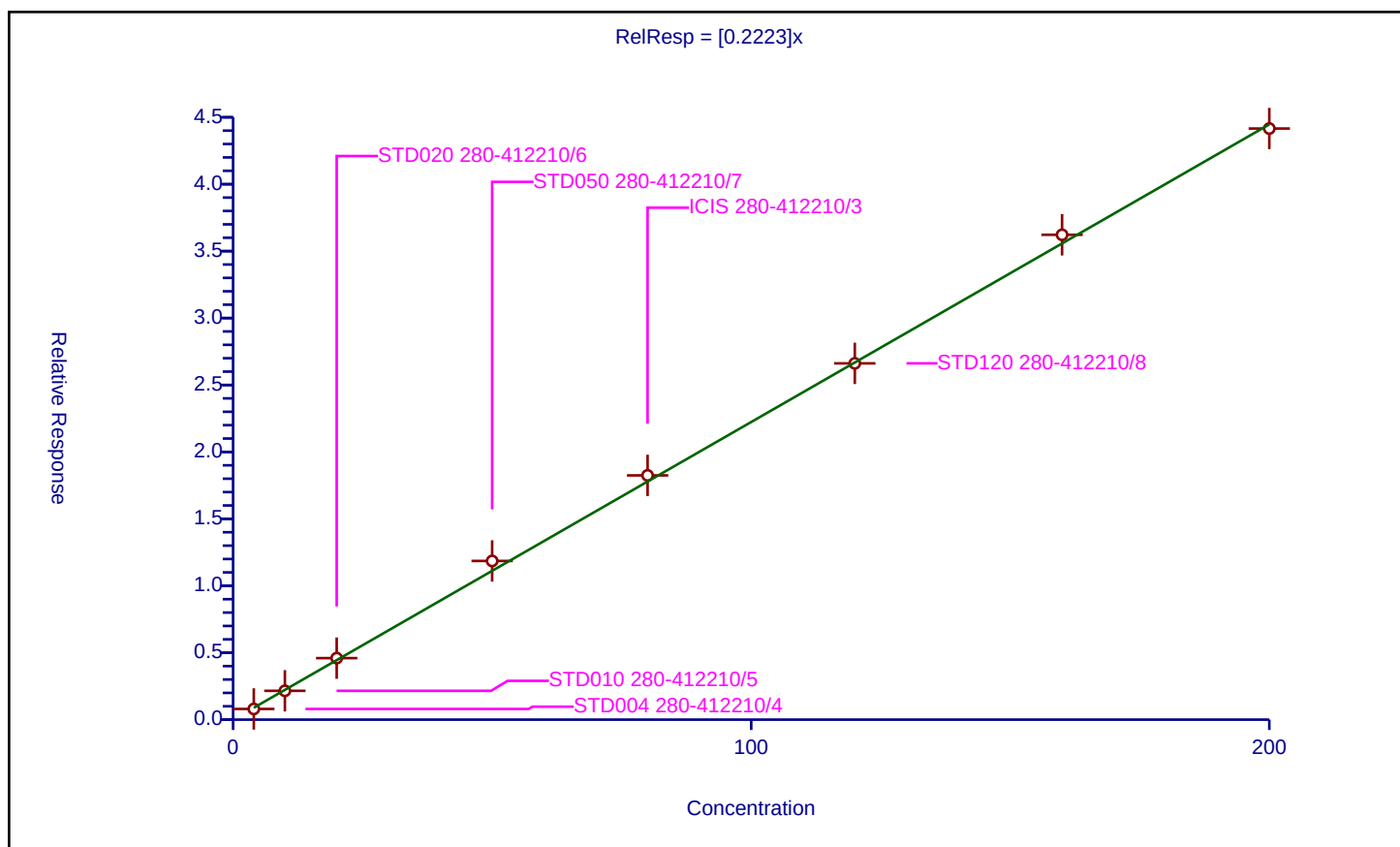
### Curve Coefficients

Intercept: 0  
 Slope: 0.2223

### Error Coefficients

Standard Error: 177000  
 Relative Standard Error: 5.1  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.797907   | 40.0      | 274869.0    | 0.199477 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 2.152614   | 40.0      | 262230.0    | 0.215261 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 4.595776   | 40.0      | 261971.0    | 0.229789 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 11.854489  | 40.0      | 276405.0    | 0.23709  | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 18.246666  | 40.0      | 280768.0    | 0.228083 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 26.616856  | 40.0      | 283739.0    | 0.221807 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 36.221334  | 40.0      | 280554.0    | 0.226383 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 44.159592  | 40.0      | 277383.0    | 0.220798 | Y    |



## Calibration

/ 2,6-Dinitrotoluene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

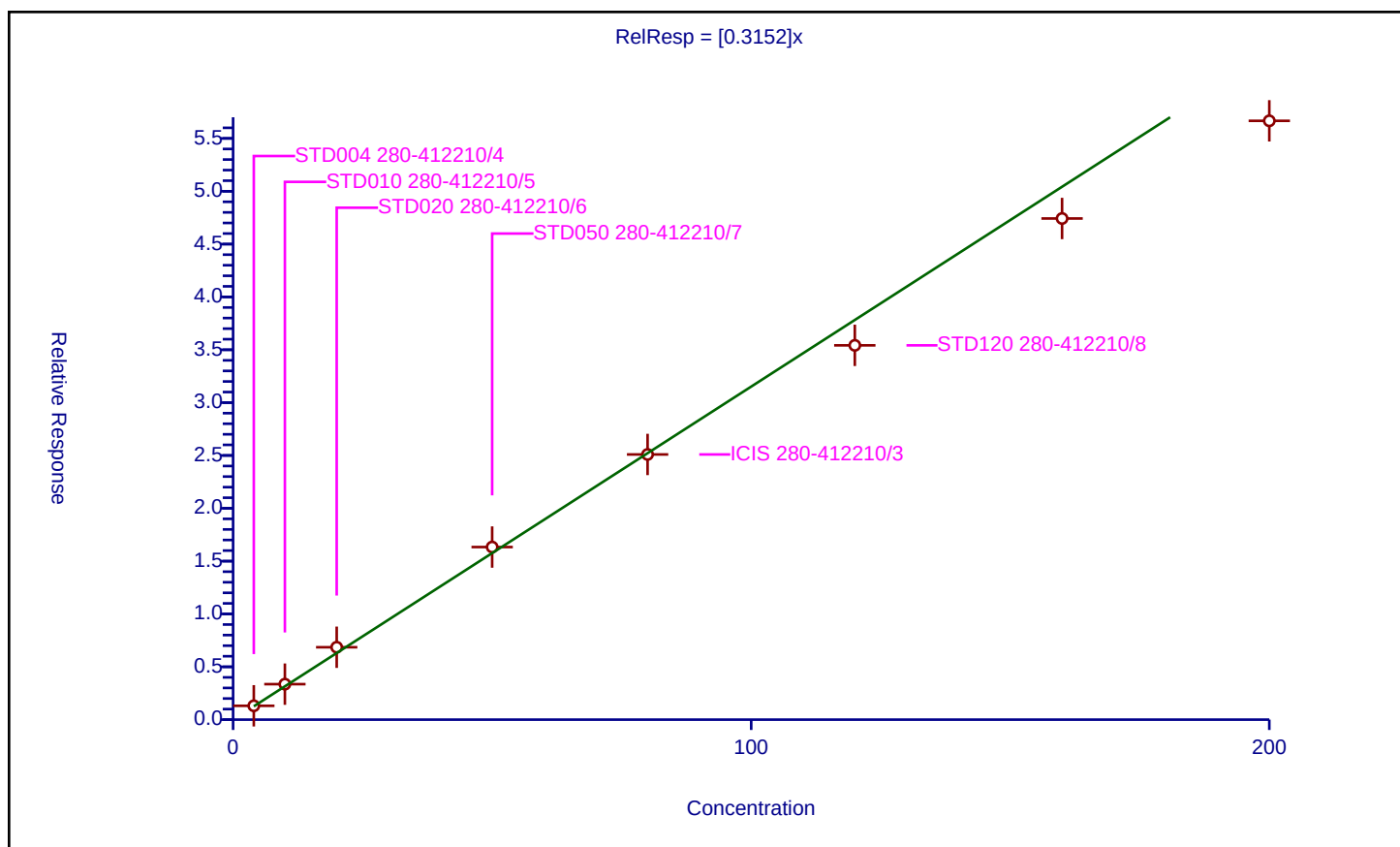
### Curve Coefficients

Intercept: 0  
 Slope: 0.3152

### Error Coefficients

Standard Error: 231000  
 Relative Standard Error: 6.8  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.994

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.310733   | 40.0      | 274869.0    | 0.327683 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.358883   | 40.0      | 262230.0    | 0.335888 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.849613   | 40.0      | 261971.0    | 0.342481 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 16.331832  | 40.0      | 276405.0    | 0.326637 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 25.09474   | 40.0      | 280768.0    | 0.313684 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 35.41917   | 40.0      | 283739.0    | 0.29516  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 47.422742  | 40.0      | 280554.0    | 0.296392 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 56.66317   | 40.0      | 277383.0    | 0.283316 | Y    |



## Calibration

/ Acenaphthylene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

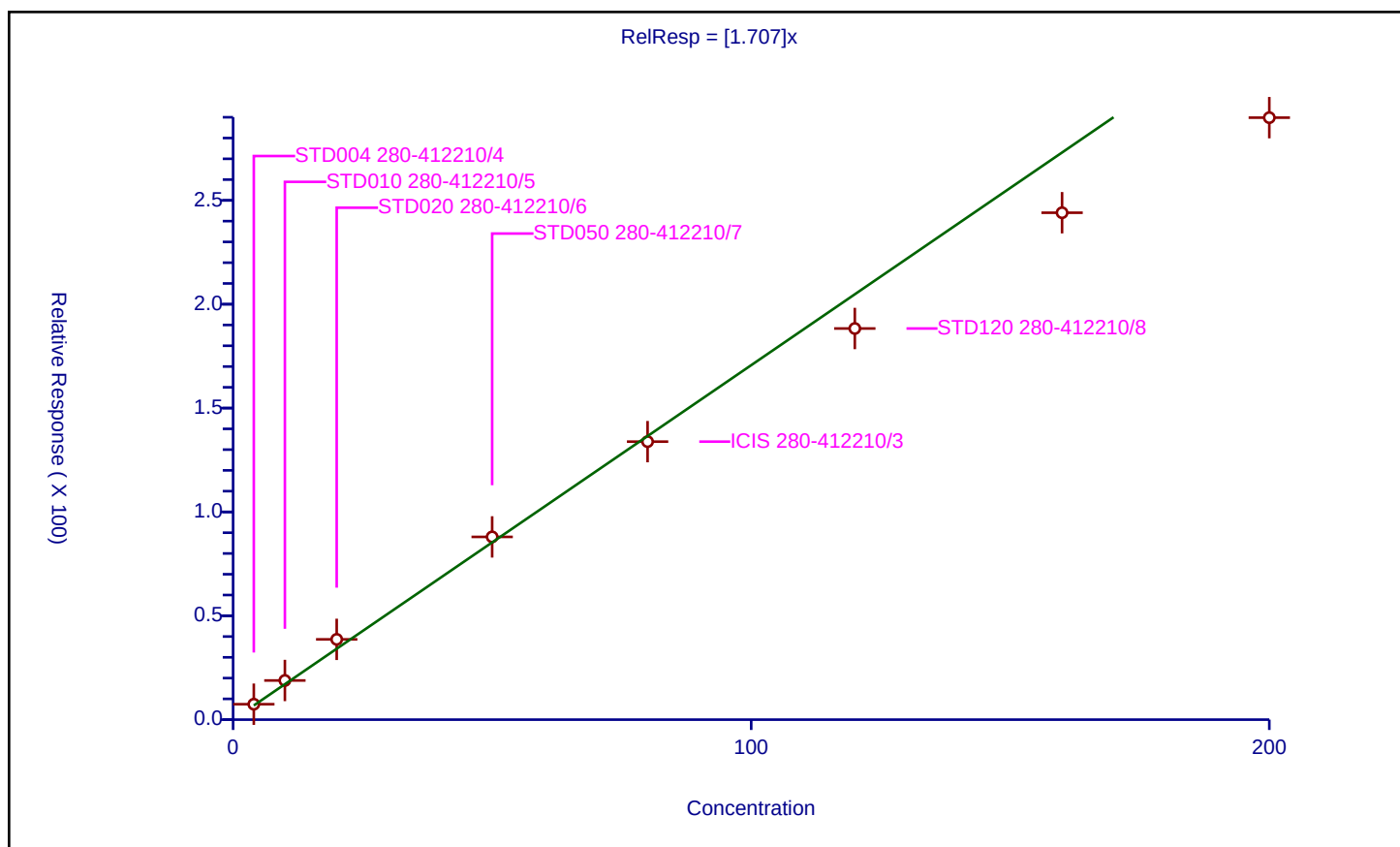
### Curve Coefficients

Intercept: 0  
 Slope: 1.707

### Error Coefficients

Standard Error: 1200000  
 Relative Standard Error: 10.6  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.984

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 7.430885   | 40.0      | 274869.0    | 1.857721 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 18.855509  | 40.0      | 262230.0    | 1.885551 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 38.649316  | 40.0      | 261971.0    | 1.932466 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 87.982924  | 40.0      | 276405.0    | 1.759658 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 133.842176 | 40.0      | 280768.0    | 1.673027 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 188.312639 | 40.0      | 283739.0    | 1.569272 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 244.044569 | 40.0      | 280554.0    | 1.525279 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 289.824827 | 40.0      | 277383.0    | 1.449124 | Y    |



## Calibration

/ 3-Nitroaniline

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

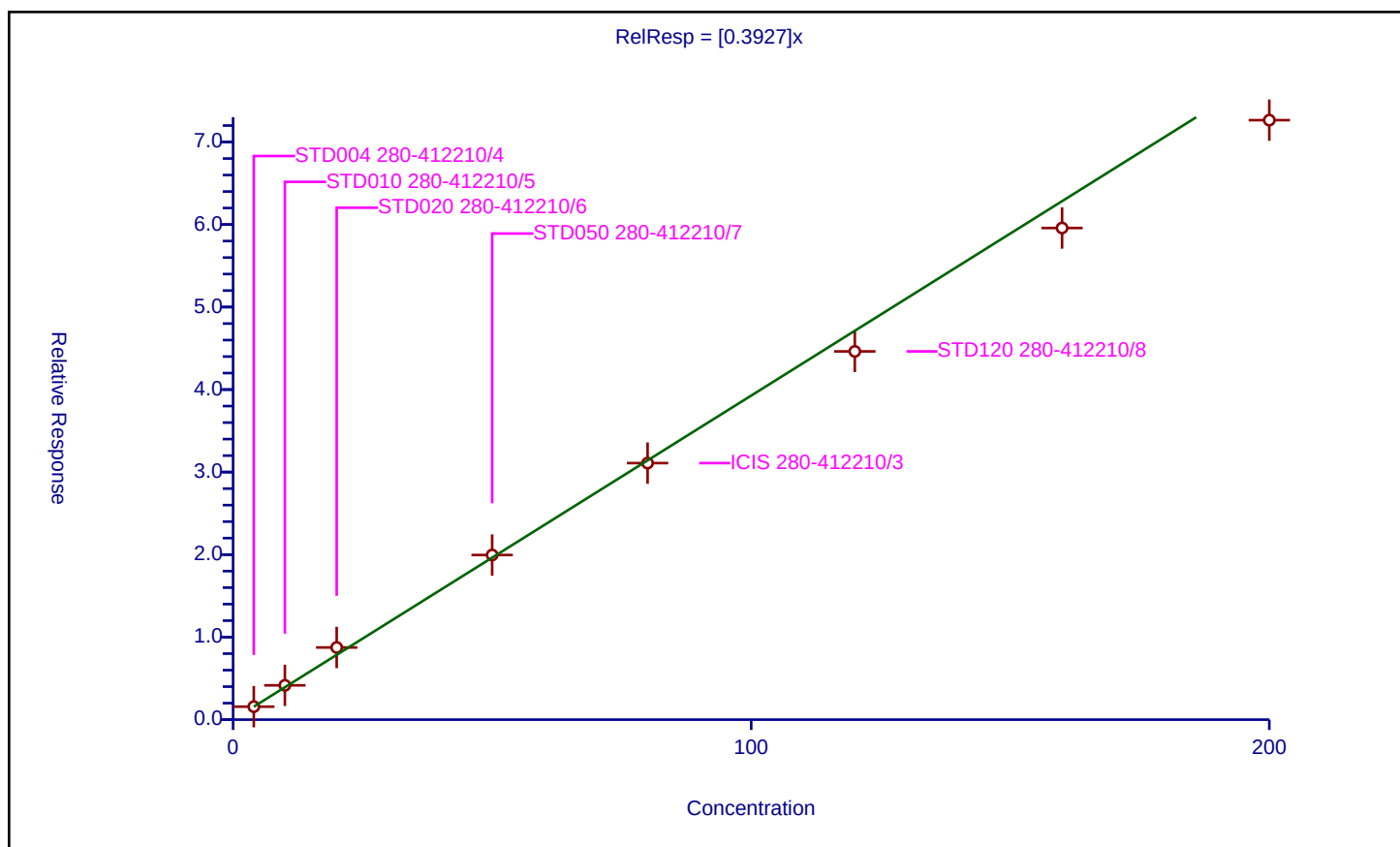
## Curve Coefficients

Intercept: 0  
Slope: 0.3927

## Error Coefficients

Standard Error: 293000  
Relative Standard Error: 6.3  
Correlation Coefficient: 0.999  
Coefficient of Determination (Adjusted): 0.995

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.574277   | 40.0      | 274869.0    | 0.393569 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.156504   | 40.0      | 262230.0    | 0.41565  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 8.74509    | 40.0      | 261971.0    | 0.437255 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 19.951882  | 40.0      | 276405.0    | 0.399038 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 31.09115   | 40.0      | 280768.0    | 0.388639 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 44.627915  | 40.0      | 283739.0    | 0.371899 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 59.580544  | 40.0      | 280554.0    | 0.372378 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 72.649441  | 40.0      | 277383.0    | 0.363247 | Y    |



## Calibration

/ Acenaphthene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

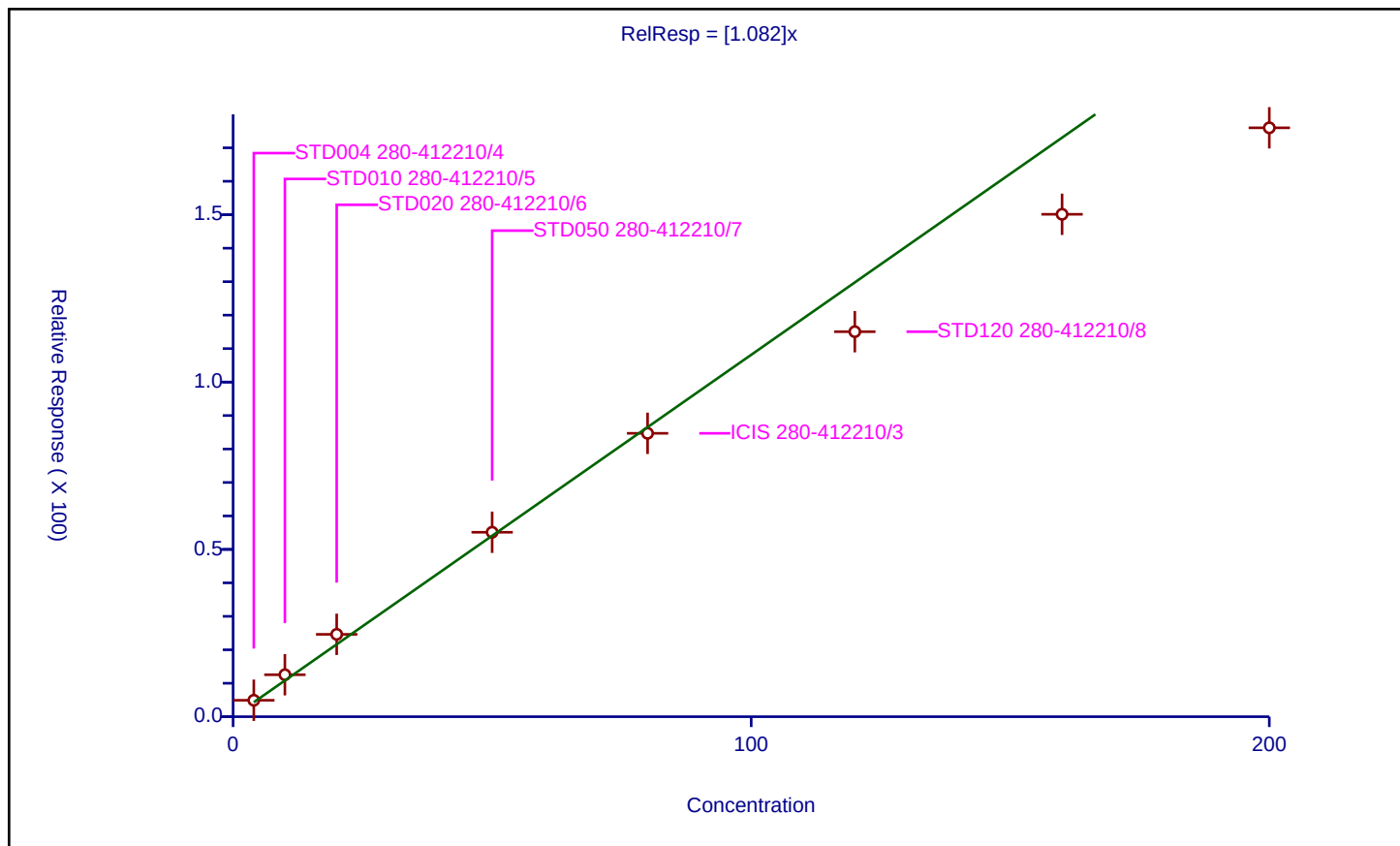
### Curve Coefficients

Intercept: 0  
 Slope: 1.082

### Error Coefficients

Standard Error: 736000  
 Relative Standard Error: 13.6  
 Correlation Coefficient: 0.993  
 Coefficient of Determination (Adjusted): 0.973

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.914195   | 40.0      | 274869.0    | 1.228549 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.545933  | 40.0      | 262230.0    | 1.254593 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 24.618145  | 40.0      | 261971.0    | 1.230907 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 55.119119  | 40.0      | 276405.0    | 1.102382 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 84.683725  | 40.0      | 280768.0    | 1.058547 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 115.055597 | 40.0      | 283739.0    | 0.958797 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 150.142789 | 40.0      | 280554.0    | 0.938392 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 175.981225 | 40.0      | 277383.0    | 0.879906 | Y    |



# Calibration

/ 2,4-Dinitrophenol

Curve Type: Linear  
 Weighting: Conc\_Sq  
 Origin: None  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

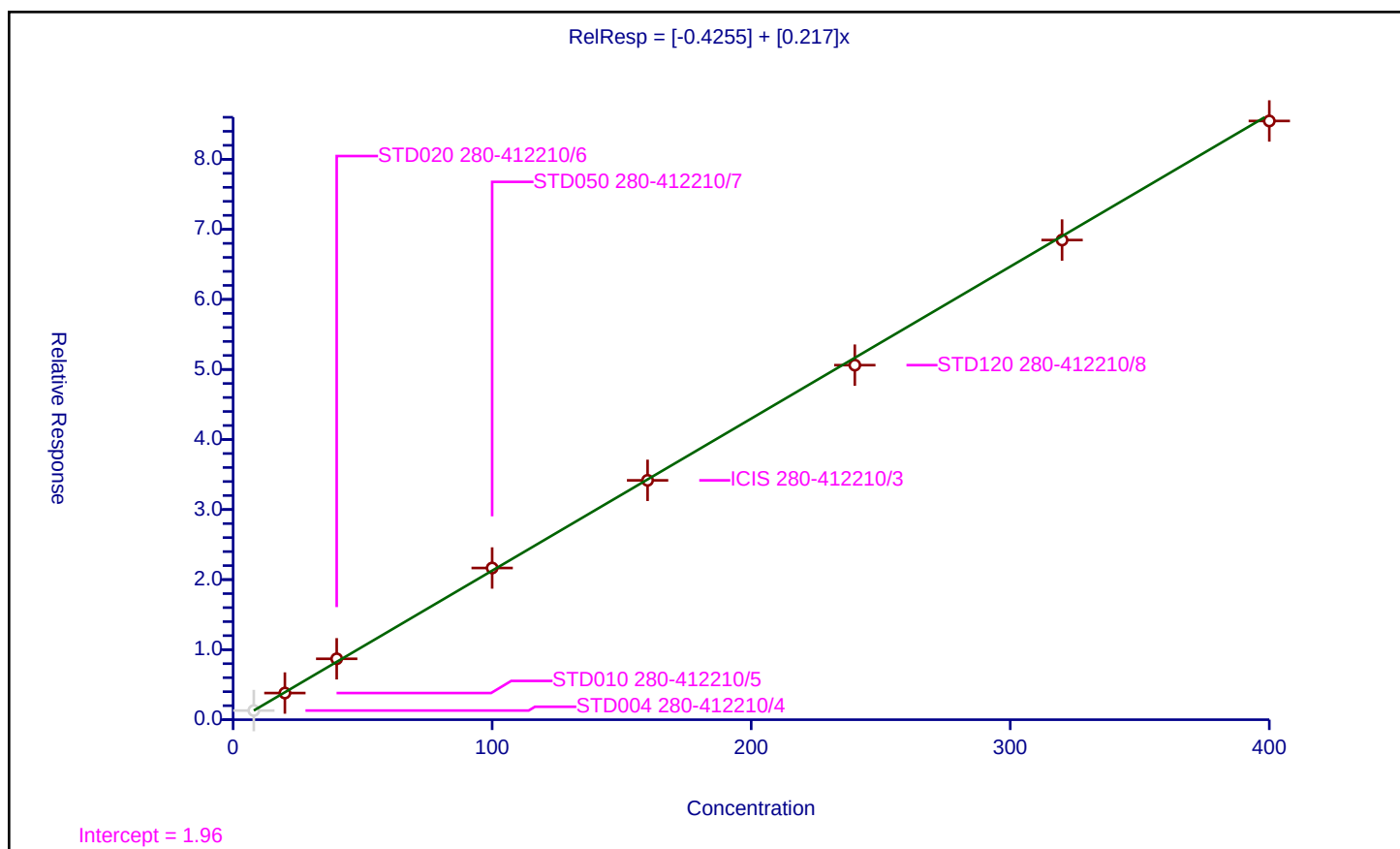
## Curve Coefficients

Intercept: -0.4255  
 Slope: 0.217

## Error Coefficients

Standard Error: 399000  
 Relative Standard Error: 2.9  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.999

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 8.0           | 1.308114   | 40.0      | 274869.0    | 0.163514 | N    |
| 2  | STD010 280-412210/5  | 20.0          | 3.804599   | 40.0      | 262230.0    | 0.19023  | Y    |
| 3  | STD020 280-412210/6  | 40.0          | 8.692718   | 40.0      | 261971.0    | 0.217318 | Y    |
| 4  | STD050 280-412210/7  | 100.0         | 21.656482  | 40.0      | 276405.0    | 0.216565 | Y    |
| 5  | ICIS 280-412210/3    | 160.0         | 34.171843  | 40.0      | 280768.0    | 0.213574 | Y    |
| 6  | STD120 280-412210/8  | 240.0         | 50.615812  | 40.0      | 283739.0    | 0.210899 | Y    |
| 7  | STD160 280-412210/9  | 320.0         | 68.476799  | 40.0      | 280554.0    | 0.21399  | Y    |
| 8  | STD200 280-412210/10 | 400.0         | 85.472578  | 40.0      | 277383.0    | 0.213681 | Y    |



## Calibration

/ 4-Nitrophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

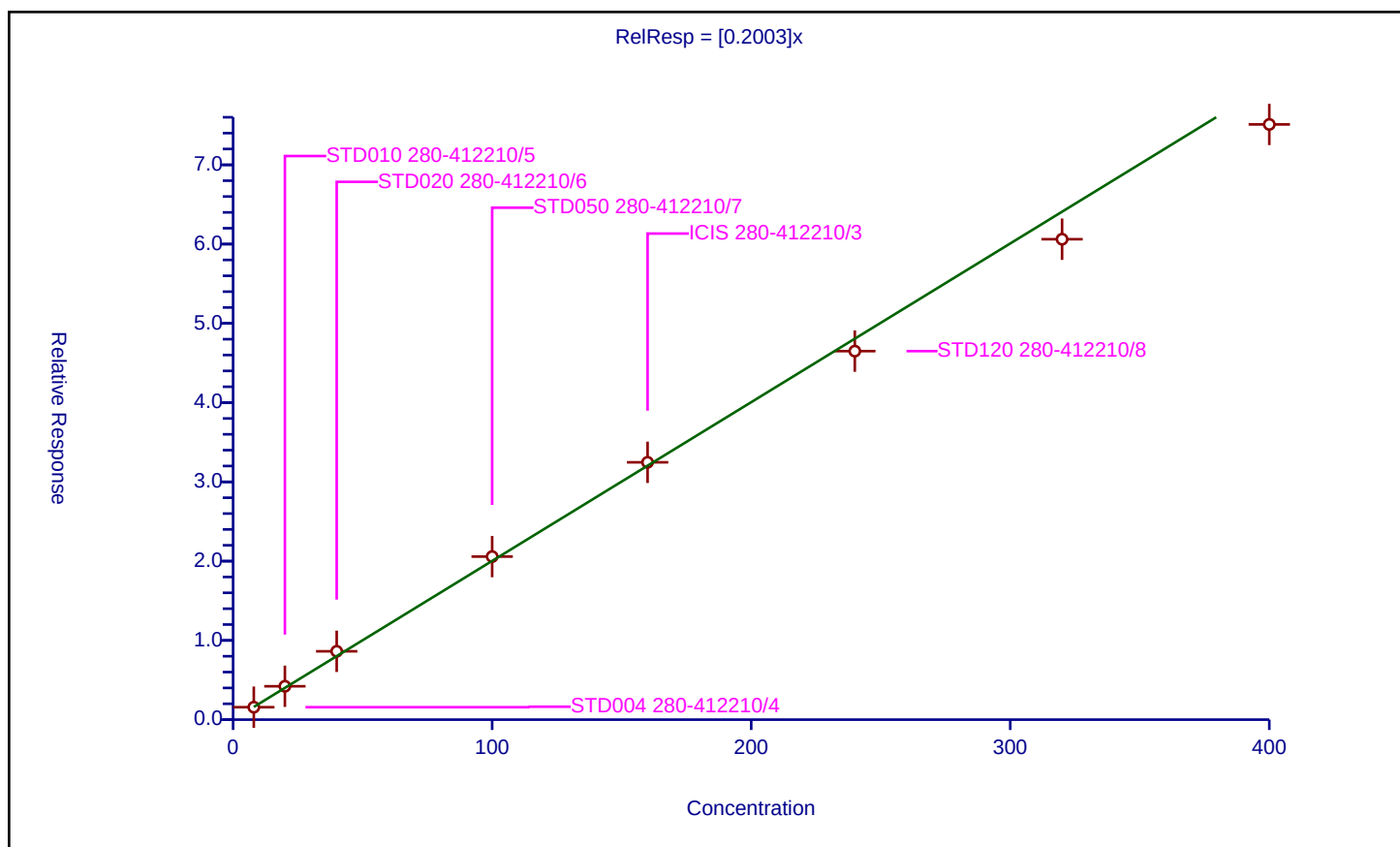
### Curve Coefficients

Intercept: 0  
 Slope: 0.2003

### Error Coefficients

Standard Error: 302000  
 Relative Standard Error: 5.0  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 8.0           | 1.571221   | 40.0      | 274869.0    | 0.196403 | Y    |
| 2  | STD010 280-412210/5  | 20.0          | 4.210807   | 40.0      | 262230.0    | 0.21054  | Y    |
| 3  | STD020 280-412210/6  | 40.0          | 8.622634   | 40.0      | 261971.0    | 0.215566 | Y    |
| 4  | STD050 280-412210/7  | 100.0         | 20.573579  | 40.0      | 276405.0    | 0.205736 | Y    |
| 5  | ICIS 280-412210/3    | 160.0         | 32.467518  | 40.0      | 280768.0    | 0.202922 | Y    |
| 6  | STD120 280-412210/8  | 240.0         | 46.495547  | 40.0      | 283739.0    | 0.193731 | Y    |
| 7  | STD160 280-412210/9  | 320.0         | 60.614641  | 40.0      | 280554.0    | 0.189421 | Y    |
| 8  | STD200 280-412210/10 | 400.0         | 75.099339  | 40.0      | 277383.0    | 0.187748 | Y    |





## Calibration

/ 2,4-Dinitrotoluene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

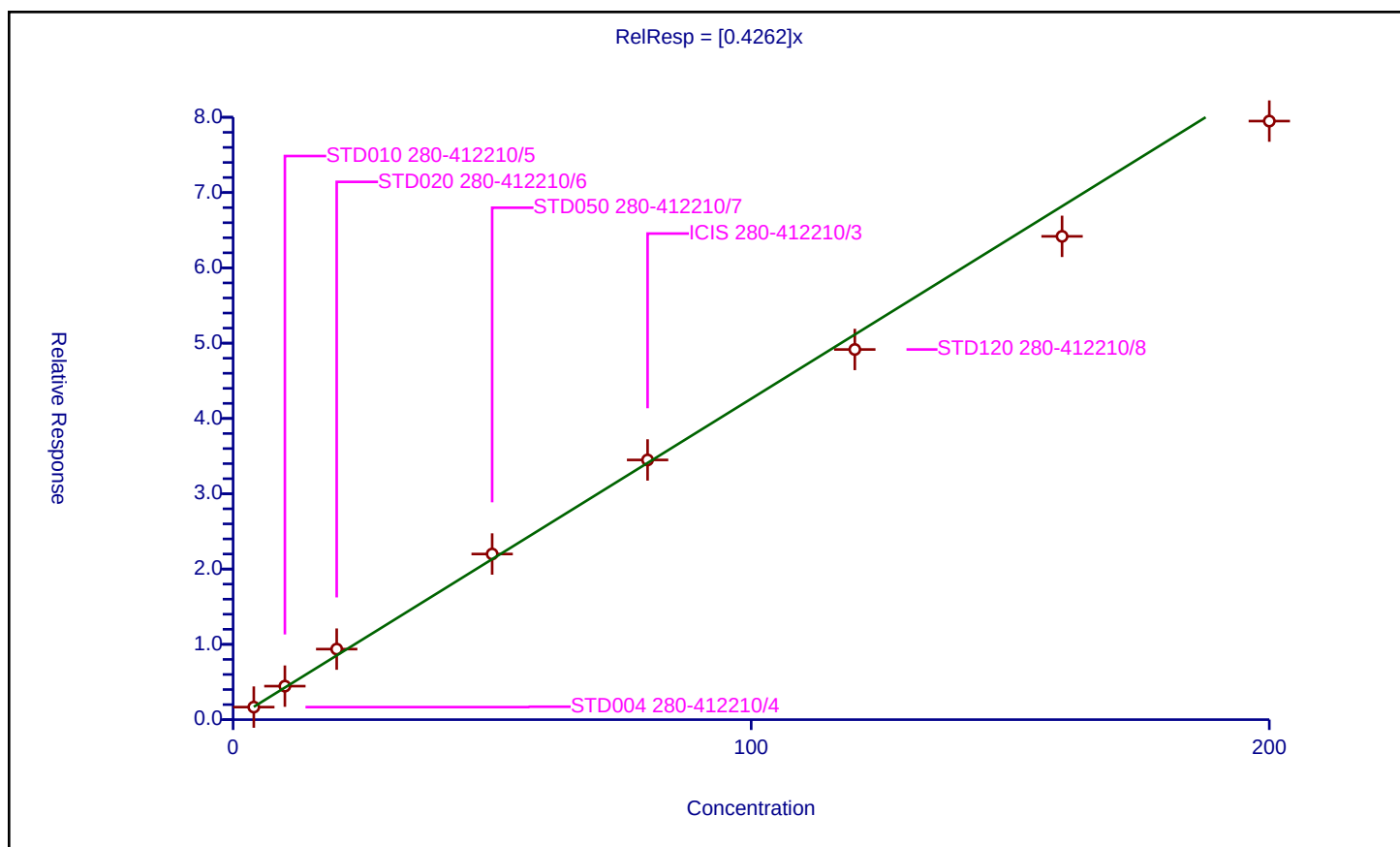
### Curve Coefficients

Intercept: 0  
 Slope: 0.4262

### Error Coefficients

Standard Error: 319000  
 Relative Standard Error: 5.7  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.996

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.666103   | 40.0      | 274869.0    | 0.416526 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.450292   | 40.0      | 262230.0    | 0.445029 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 9.369739   | 40.0      | 261971.0    | 0.468487 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 21.999602  | 40.0      | 276405.0    | 0.439992 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 34.490398  | 40.0      | 280768.0    | 0.43113  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 49.15884   | 40.0      | 283739.0    | 0.409657 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 64.187572  | 40.0      | 280554.0    | 0.401172 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 79.493696  | 40.0      | 277383.0    | 0.397468 | Y    |



## Calibration

/ Dibenzofuran

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

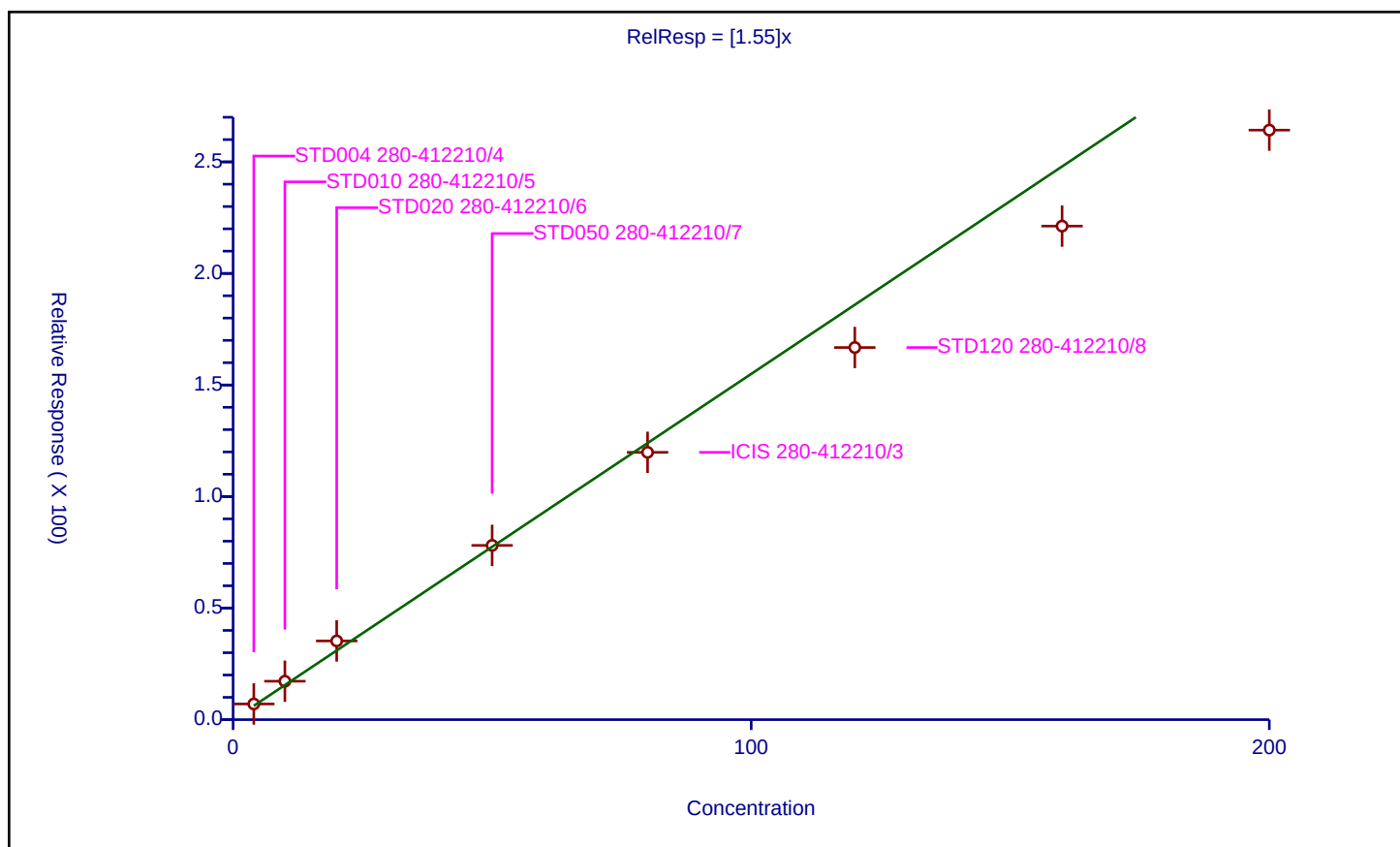
## Curve Coefficients

Intercept: 0  
Slope: 1.55

## Error Coefficients

Standard Error: 1080000  
Relative Standard Error: 11.6  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.980

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 7.027784   | 40.0      | 274869.0    | 1.756946 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 17.224574  | 40.0      | 262230.0    | 1.722457 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 35.271843  | 40.0      | 261971.0    | 1.763592 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 78.107415  | 40.0      | 276405.0    | 1.562148 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 119.813512 | 40.0      | 280768.0    | 1.497669 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 166.796951 | 40.0      | 283739.0    | 1.389975 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 221.23085  | 40.0      | 280554.0    | 1.382693 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 264.249503 | 40.0      | 277383.0    | 1.321248 | Y    |



## Calibration

/ 2,3,4,6-Tetrachlorophenol

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

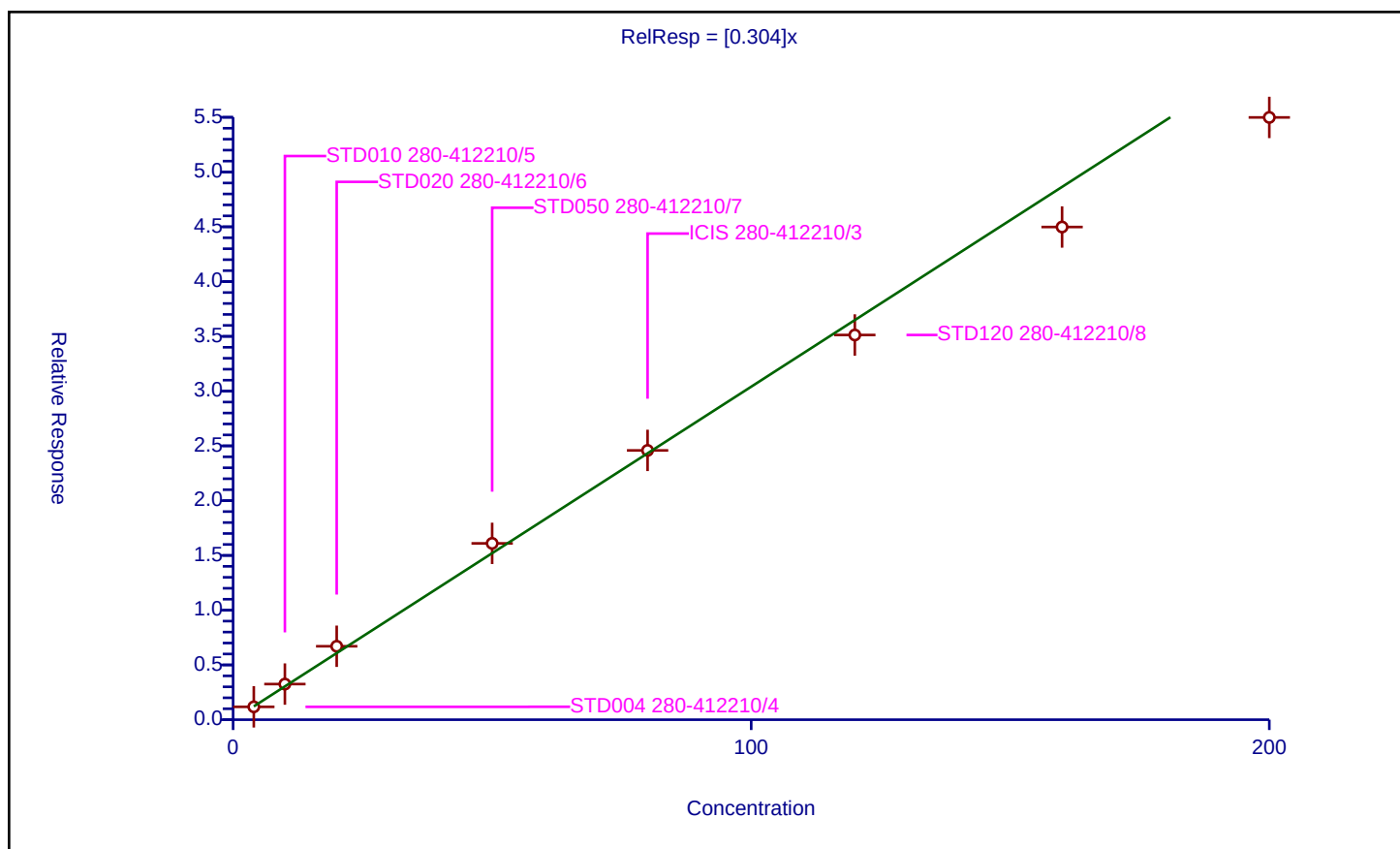
### Curve Coefficients

Intercept: 0  
 Slope: 0.304

### Error Coefficients

Standard Error: 224000  
 Relative Standard Error: 7.2  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.993

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.174814   | 40.0      | 274869.0    | 0.293704 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 3.252107   | 40.0      | 262230.0    | 0.325211 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 6.704864   | 40.0      | 261971.0    | 0.335243 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 16.098696  | 40.0      | 276405.0    | 0.321974 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 24.58585   | 40.0      | 280768.0    | 0.307323 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 35.124674  | 40.0      | 283739.0    | 0.292706 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 44.982713  | 40.0      | 280554.0    | 0.281142 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 54.987797  | 40.0      | 277383.0    | 0.274939 | Y    |



## Calibration

/ Diethyl phthalate

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

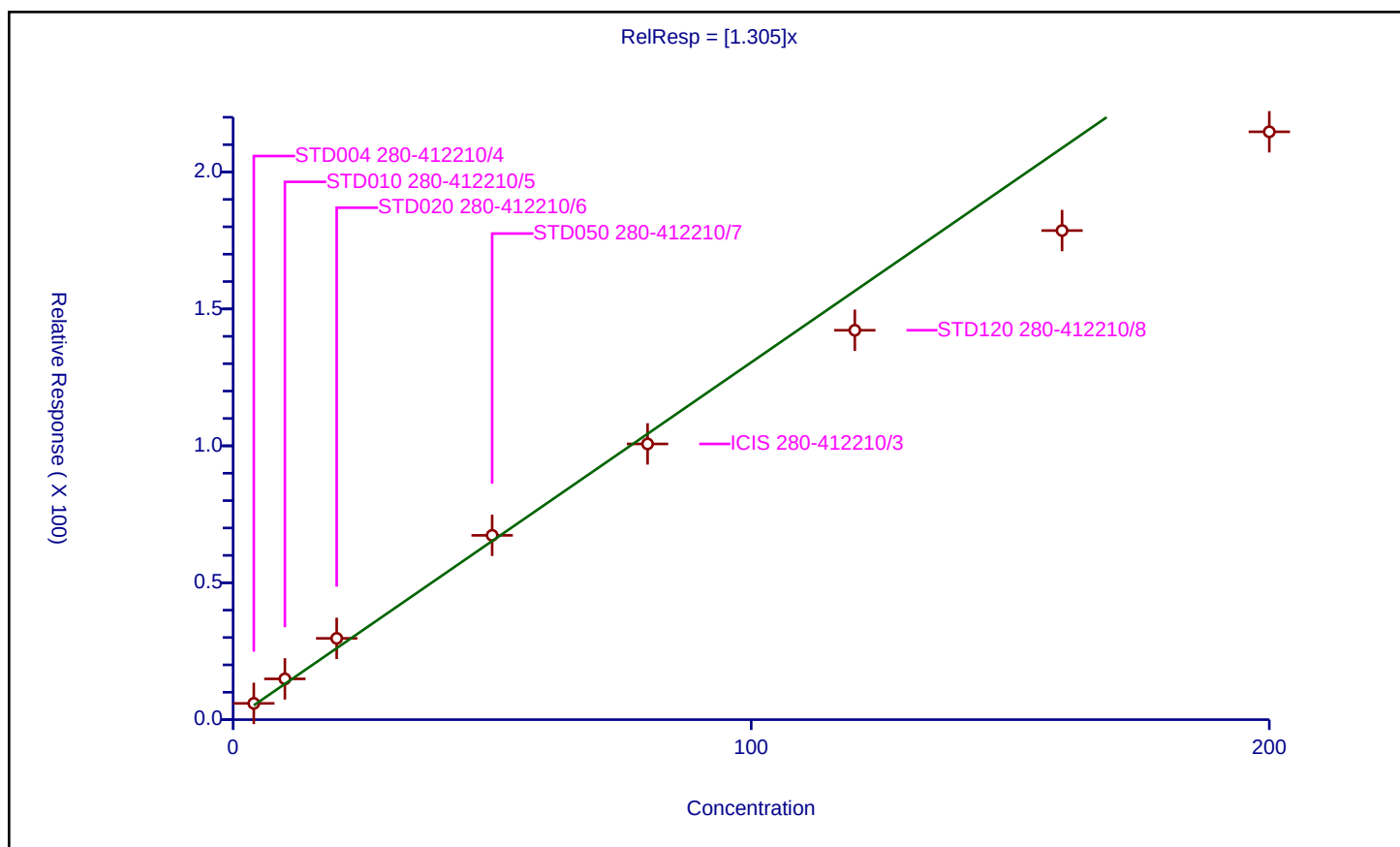
### Curve Coefficients

**Intercept:** 0  
**Slope:** 1.305

### Error Coefficients

**Standard Error:** 892000  
**Relative Standard Error:** 13.1  
**Correlation Coefficient:** 0.993  
**Coefficient of Determination (Adjusted):** 0.975

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.944213   | 40.0      | 274869.0    | 1.486053 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.886016  | 40.0      | 262230.0    | 1.488602 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 29.684354  | 40.0      | 261971.0    | 1.484218 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 67.306452  | 40.0      | 276405.0    | 1.346129 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 100.703214 | 40.0      | 280768.0    | 1.25879  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 142.213372 | 40.0      | 283739.0    | 1.185111 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 178.623295 | 40.0      | 280554.0    | 1.116396 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 214.700829 | 40.0      | 277383.0    | 1.073504 | Y    |



## Calibration

/ 4-Chlorophenyl phenyl ether

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

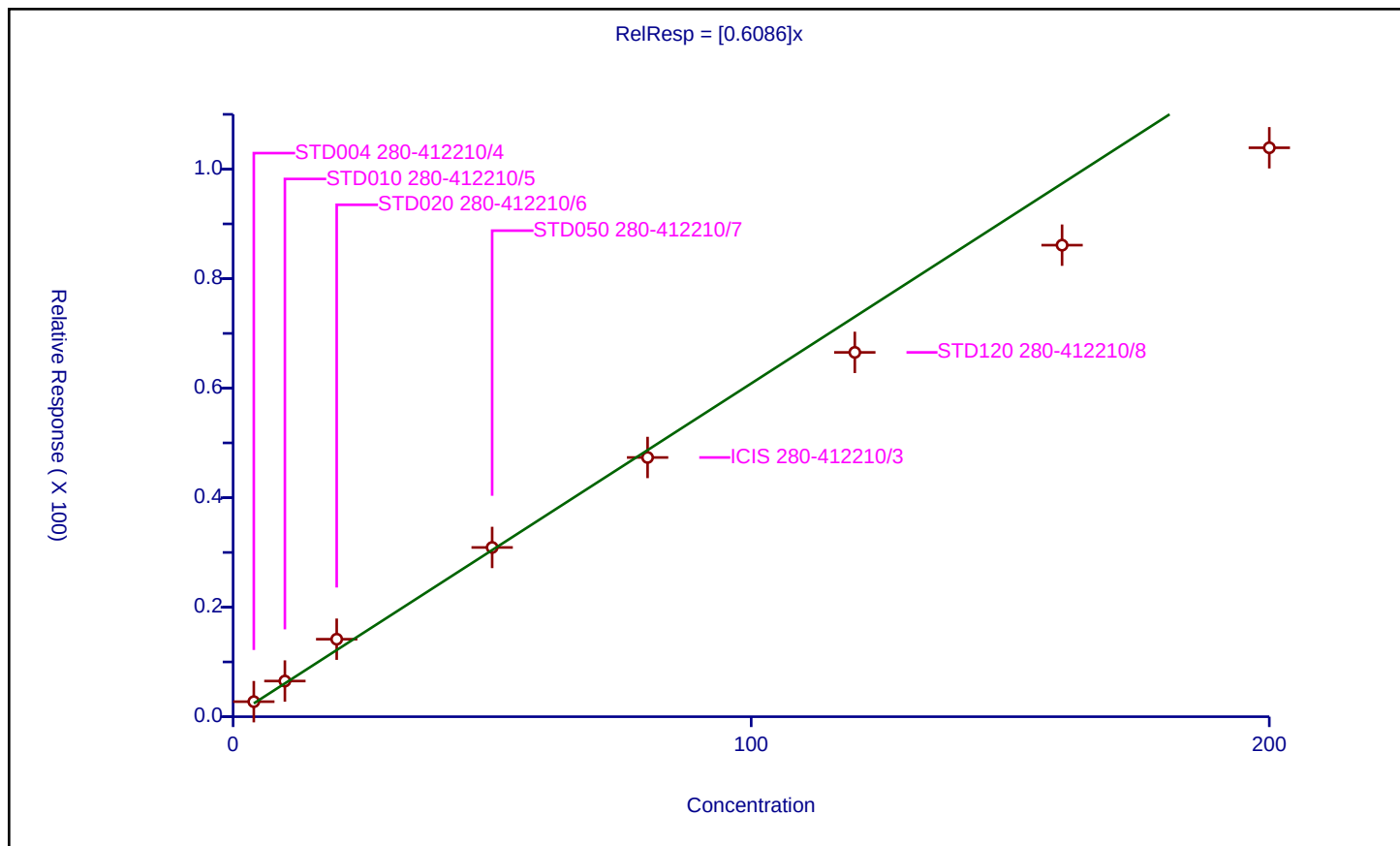
### Curve Coefficients

Intercept: 0  
 Slope: 0.6086

### Error Coefficients

Standard Error: 426000  
 Relative Standard Error: 11.5  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.981

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.748946   | 40.0      | 274869.0    | 0.687236 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 6.515197   | 40.0      | 262230.0    | 0.65152  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 14.154391  | 40.0      | 261971.0    | 0.70772  | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 30.9074    | 40.0      | 276405.0    | 0.618148 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 47.34115   | 40.0      | 280768.0    | 0.591764 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 66.53213   | 40.0      | 283739.0    | 0.554434 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 86.115614  | 40.0      | 280554.0    | 0.538223 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 103.902546 | 40.0      | 277383.0    | 0.519513 | Y    |



# Calibration

/ 4-Nitroaniline

Curve Type: Linear  
 Weighting: Conc\_Sq  
 Origin: None  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

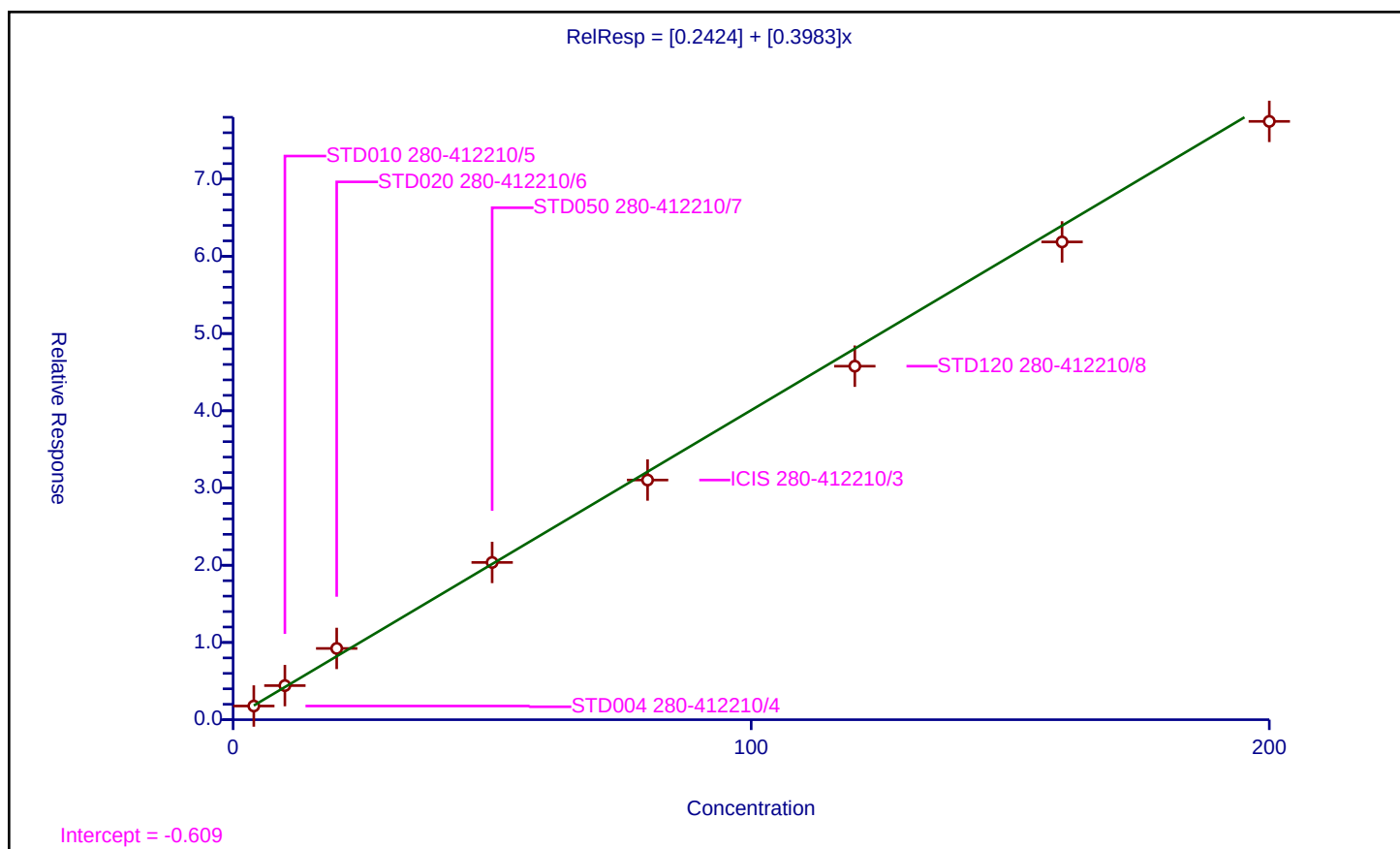
## Curve Coefficients

Intercept: 0.2424  
 Slope: 0.3983

## Error Coefficients

Standard Error: 330000  
 Relative Standard Error: 6.6  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.995

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.770734   | 40.0      | 274869.0    | 0.442684 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.416276   | 40.0      | 262230.0    | 0.441628 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 9.227128   | 40.0      | 261971.0    | 0.461356 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 20.359545  | 40.0      | 276405.0    | 0.407191 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 31.031599  | 40.0      | 280768.0    | 0.387895 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 45.773616  | 40.0      | 283739.0    | 0.381447 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 61.861888  | 40.0      | 280554.0    | 0.386637 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 77.470213  | 40.0      | 277383.0    | 0.387351 | Y    |



## Calibration

/ Fluorene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

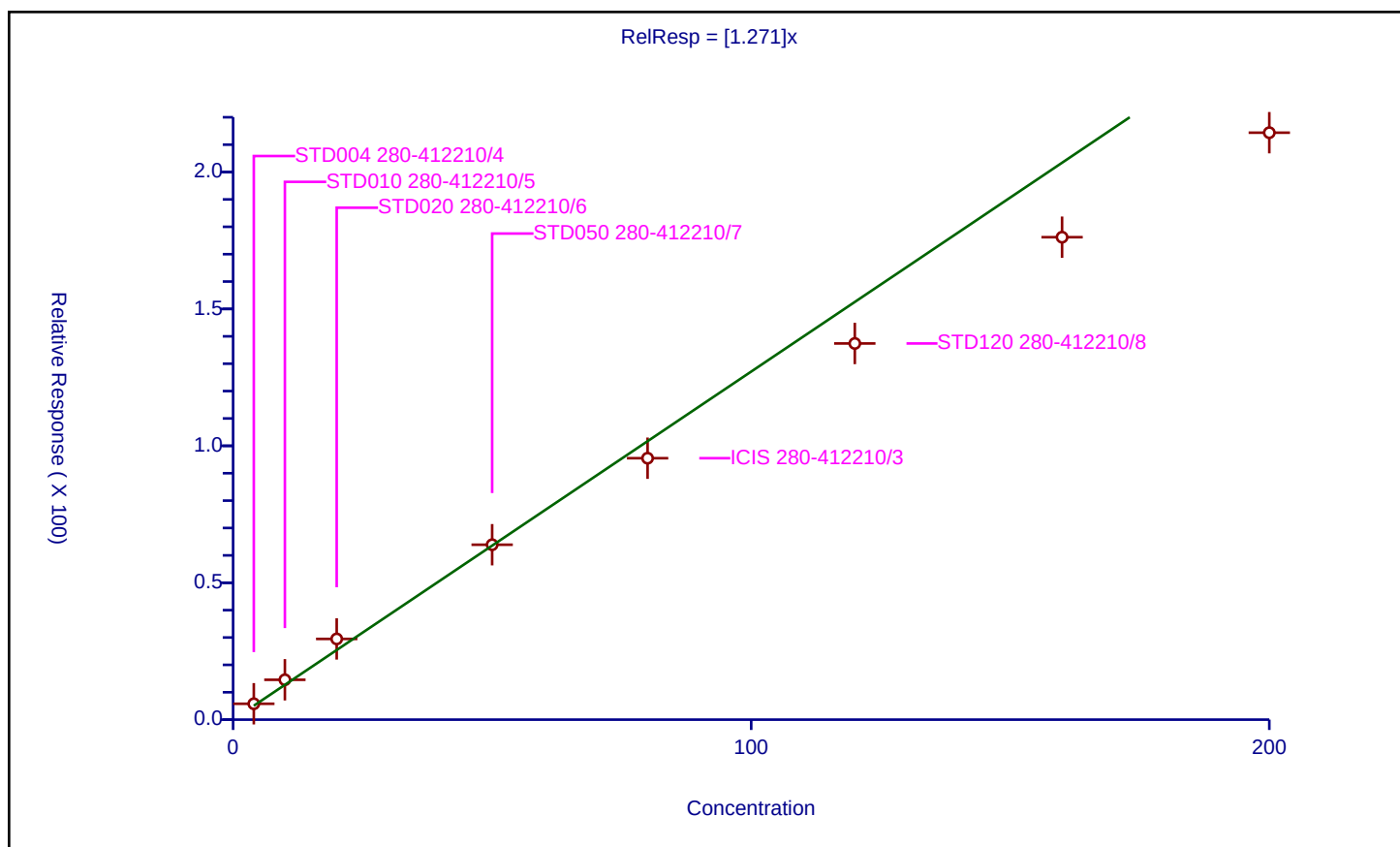
## Curve Coefficients

Intercept: 0  
Slope: 1.271

## Error Coefficients

Standard Error: 876000  
Relative Standard Error: 13.2  
Correlation Coefficient: 0.997  
Coefficient of Determination (Adjusted): 0.974

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.800581   | 40.0      | 274869.0    | 1.450145 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.56111   | 40.0      | 262230.0    | 1.456111 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 29.484485  | 40.0      | 261971.0    | 1.474224 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 63.884373  | 40.0      | 276405.0    | 1.277687 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 95.48695   | 40.0      | 280768.0    | 1.193587 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 137.386401 | 40.0      | 283739.0    | 1.144887 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 176.19952  | 40.0      | 280554.0    | 1.101247 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 214.370455 | 40.0      | 277383.0    | 1.071852 | Y    |



# Calibration

/ 4,6-Dinitro-2-methylphenol

Curve Type: Linear  
 Weighting: Conc\_Sq  
 Origin: None  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

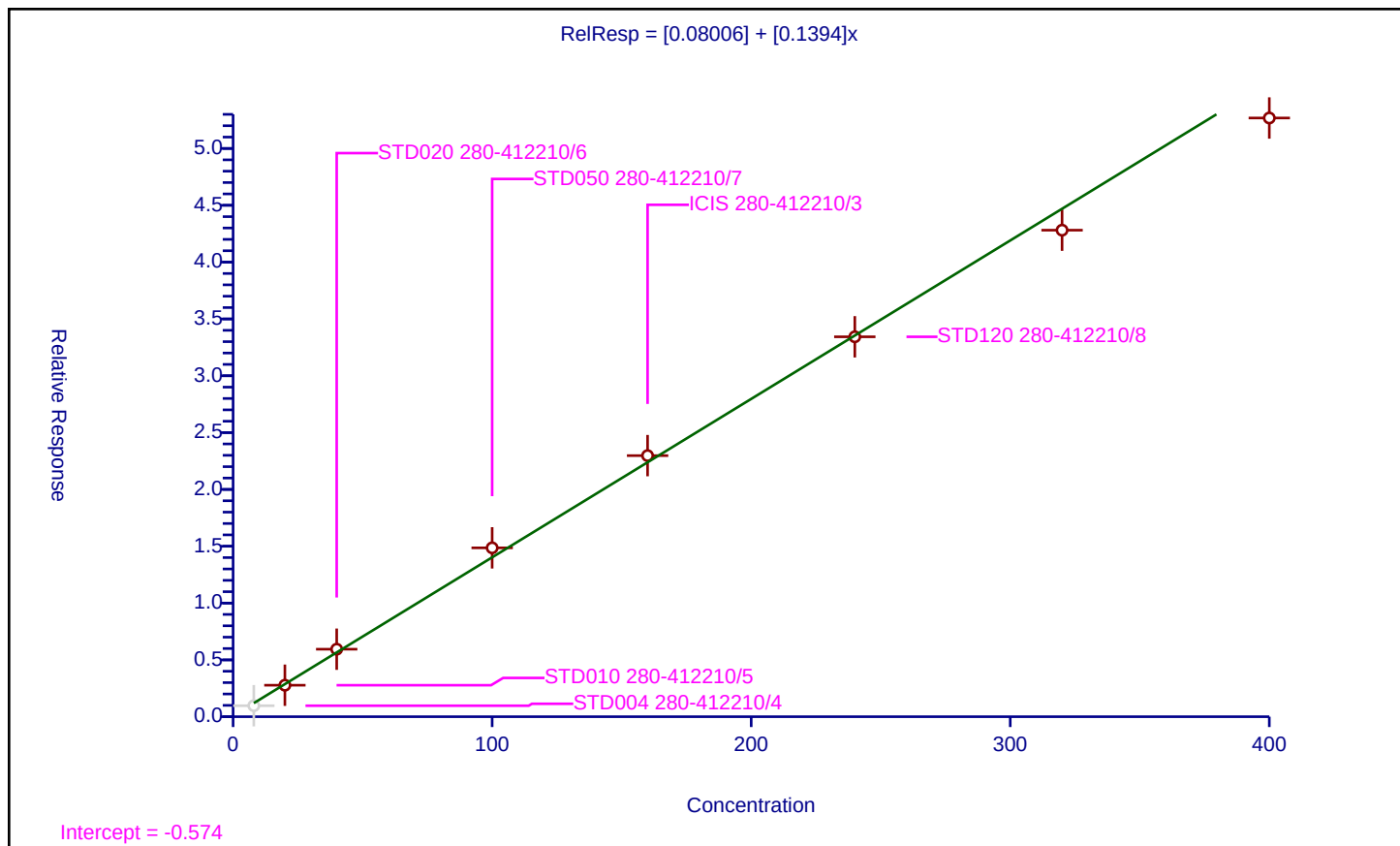
## Curve Coefficients

Intercept: 0.08006  
 Slope: 0.1394

## Error Coefficients

Standard Error: 456000  
 Relative Standard Error: 5.1  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 8.0           | 0.967789   | 40.0      | 483783.0    | 0.120974 | N    |
| 2  | STD010 280-412210/5  | 20.0          | 2.770847   | 40.0      | 466601.0    | 0.138542 | Y    |
| 3  | STD020 280-412210/6  | 40.0          | 5.939781   | 40.0      | 468226.0    | 0.148495 | Y    |
| 4  | STD050 280-412210/7  | 100.0         | 14.858895  | 40.0      | 497539.0    | 0.148589 | Y    |
| 5  | ICIS 280-412210/3    | 160.0         | 22.973262  | 40.0      | 494023.0    | 0.143583 | Y    |
| 6  | STD120 280-412210/8  | 240.0         | 33.428591  | 40.0      | 504878.0    | 0.139286 | Y    |
| 7  | STD160 280-412210/9  | 320.0         | 42.809574  | 40.0      | 510896.0    | 0.13378  | Y    |
| 8  | STD200 280-412210/10 | 400.0         | 52.680286  | 40.0      | 504323.0    | 0.131701 | Y    |





## Calibration

/ Diphenylamine

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

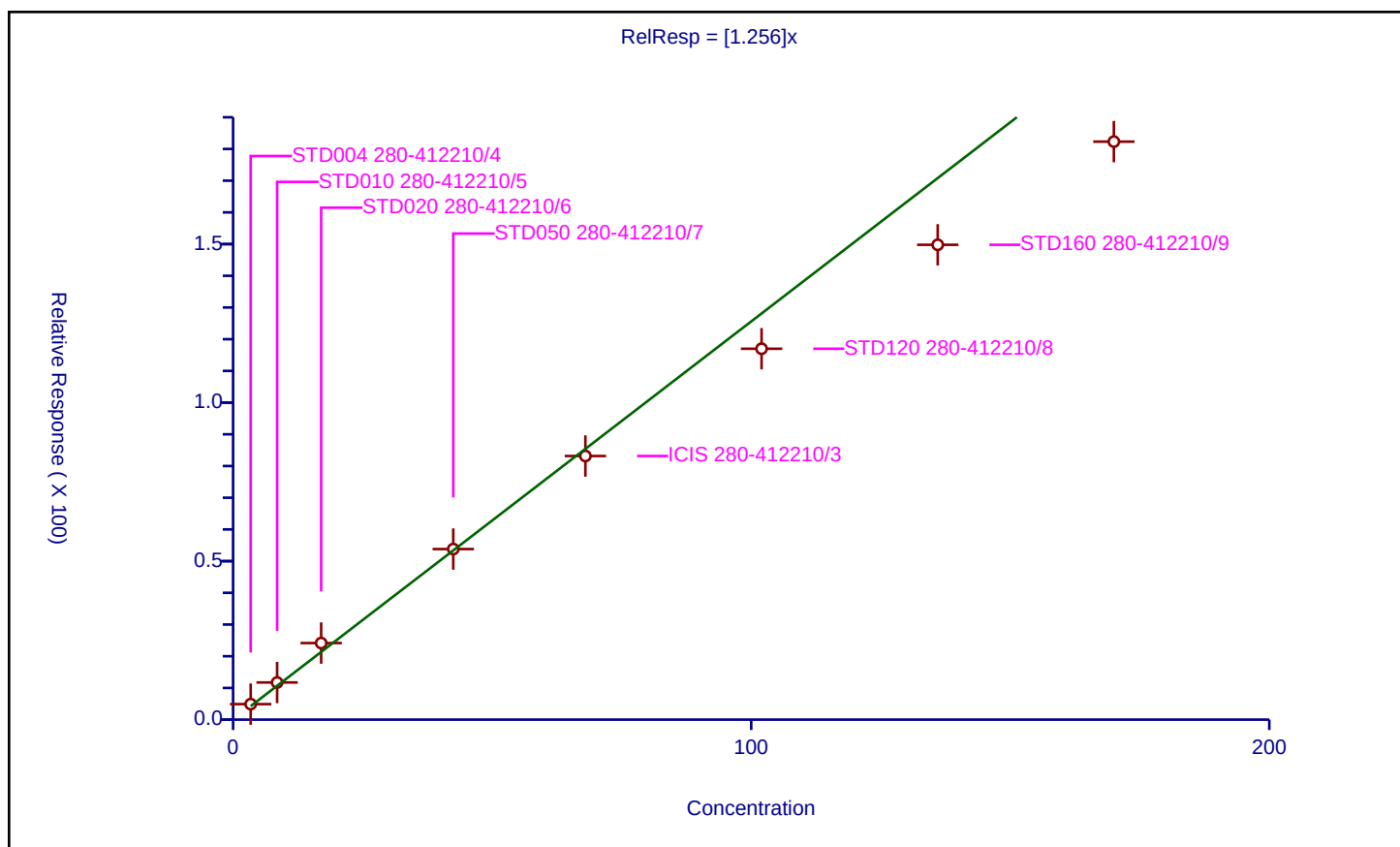
### Curve Coefficients

Intercept: 0  
 Slope: 1.256

### Error Coefficients

Standard Error: 746000  
 Relative Standard Error: 11.5  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.980

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 3.4           | 4.891639   | 40.0      | 274869.0    | 1.438717 | Y    |
| 2  | STD010 280-412210/5  | 8.5           | 11.721618  | 40.0      | 262230.0    | 1.379014 | Y    |
| 3  | STD020 280-412210/6  | 17.0          | 24.154429  | 40.0      | 261971.0    | 1.420849 | Y    |
| 4  | STD050 280-412210/7  | 42.5          | 53.800619  | 40.0      | 276405.0    | 1.265897 | Y    |
| 5  | ICIS 280-412210/3    | 68.0          | 83.157197  | 40.0      | 280768.0    | 1.2229   | Y    |
| 6  | STD120 280-412210/8  | 102.0         | 116.994985 | 40.0      | 283739.0    | 1.14701  | Y    |
| 7  | STD160 280-412210/9  | 136.0         | 149.777226 | 40.0      | 280554.0    | 1.101303 | Y    |
| 8  | STD200 280-412210/10 | 170.0         | 182.318167 | 40.0      | 277383.0    | 1.07246  | Y    |



Calibration

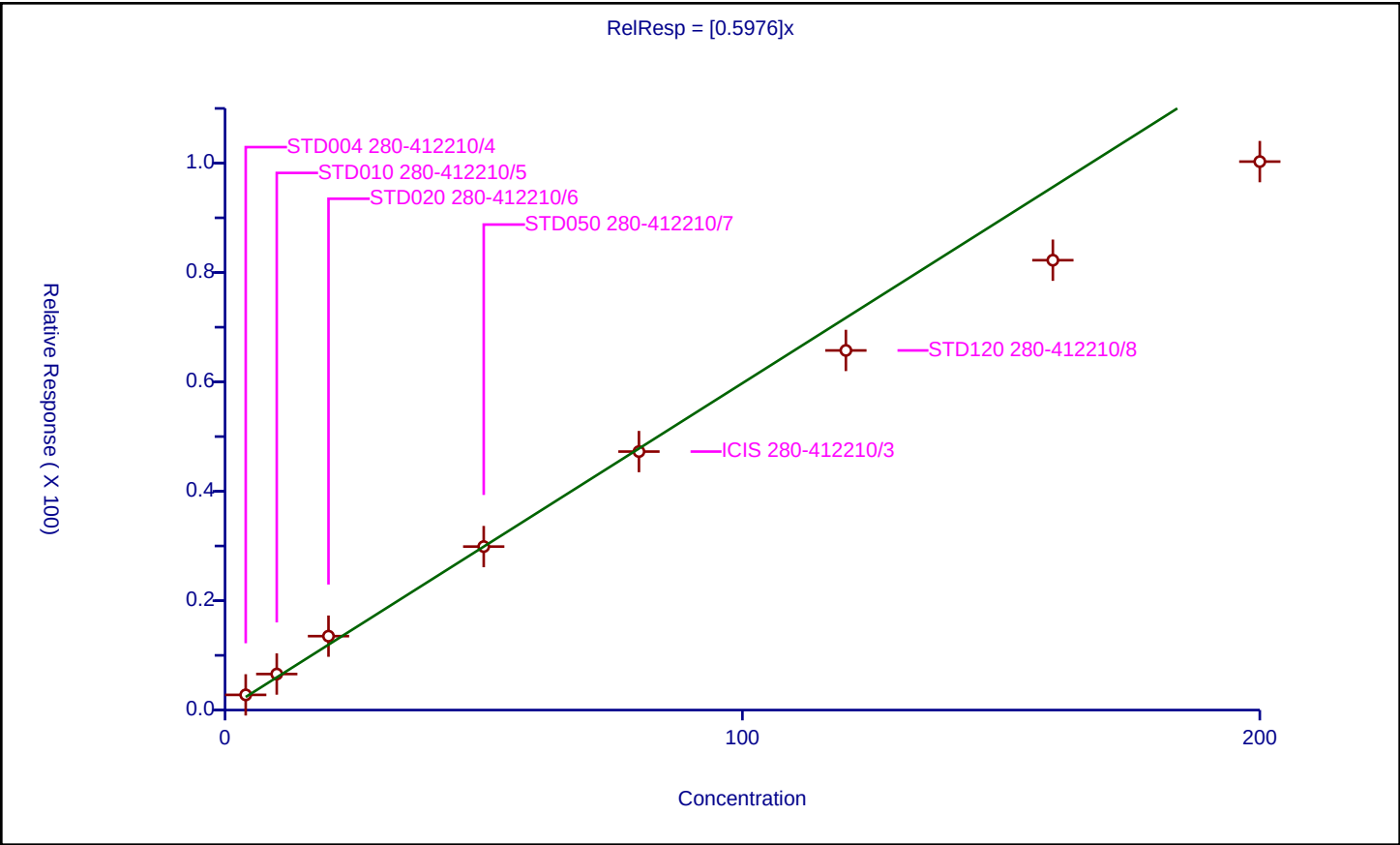
/ N-Nitrosodiphenylamine

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients |        |
|--------------------|--------|
| Intercept:         | 0      |
| Slope:             | 0.5976 |

| Error Coefficients                       |        |
|------------------------------------------|--------|
| Standard Error:                          | 747000 |
| Relative Standard Error:                 | 12.3   |
| Correlation Coefficient:                 | 0.996  |
| Coefficient of Determination (Adjusted): | 0.977  |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.779263   | 40.0      | 483783.0    | 0.694816 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 6.587556   | 40.0      | 466601.0    | 0.658756 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 13.514329  | 40.0      | 468226.0    | 0.675716 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 29.888632  | 40.0      | 497539.0    | 0.597773 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 47.260715  | 40.0      | 494023.0    | 0.590759 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 65.750617  | 40.0      | 504878.0    | 0.547922 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 82.248833  | 40.0      | 510896.0    | 0.514055 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 100.276926 | 40.0      | 504323.0    | 0.501385 | Y    |



## Calibration

/ 1,2-Diphenylhydrazine

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

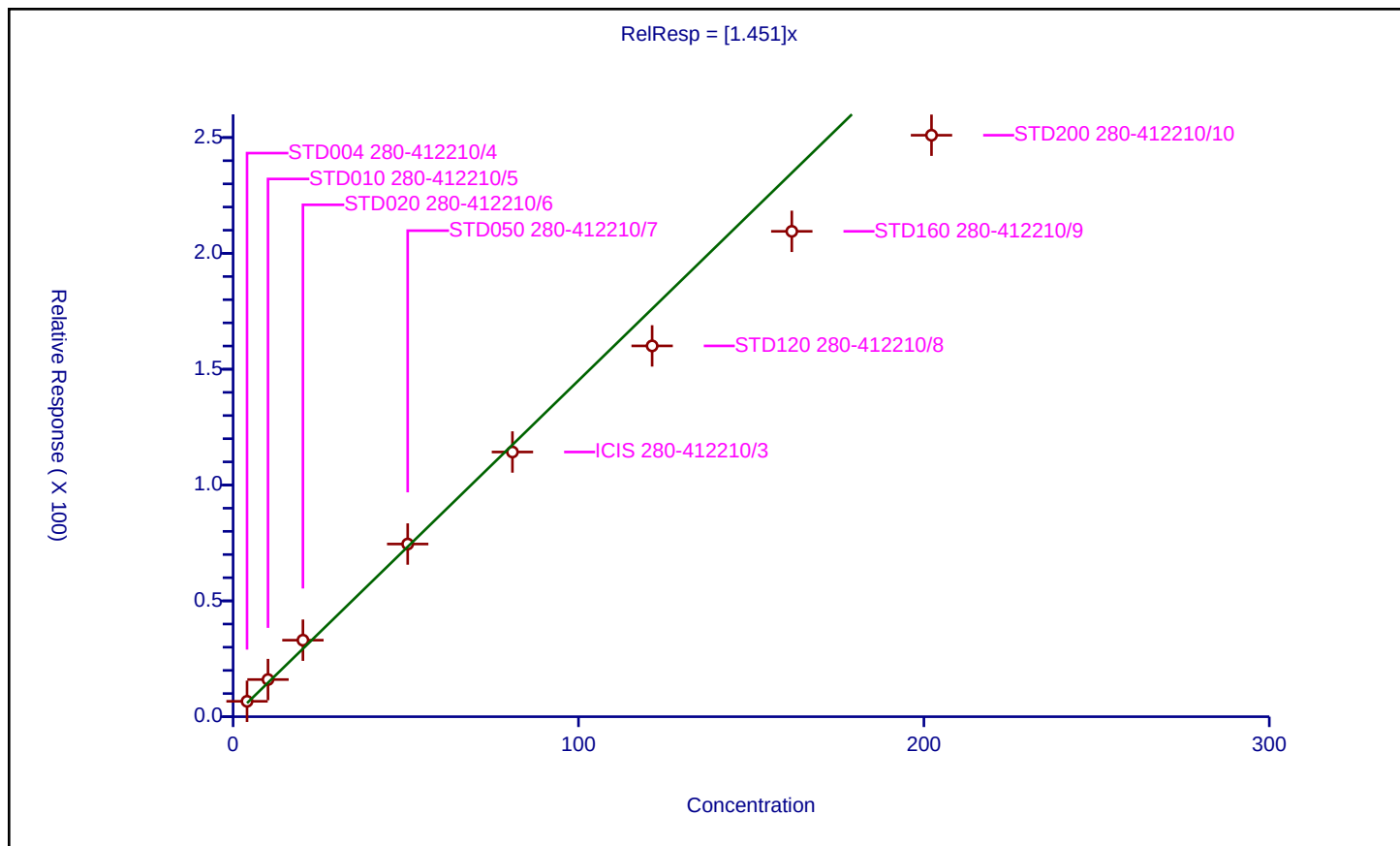
## Curve Coefficients

Intercept: 0  
Slope: 1.451

## Error Coefficients

Standard Error: 1030000  
Relative Standard Error: 11.0  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.982

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.043898      | 6.656262   | 40.0      | 274869.0    | 1.646001 | Y    |
| 2  | STD010 280-412210/5  | 10.109745     | 16.046066  | 40.0      | 262230.0    | 1.587188 | Y    |
| 3  | STD020 280-412210/6  | 20.219491     | 33.031595  | 40.0      | 261971.0    | 1.633651 | Y    |
| 4  | STD050 280-412210/7  | 50.548727     | 74.541777  | 40.0      | 276405.0    | 1.474652 | Y    |
| 5  | ICIS 280-412210/3    | 80.877963     | 114.259175 | 40.0      | 280768.0    | 1.412736 | Y    |
| 6  | STD120 280-412210/8  | 121.316945    | 160.065553 | 40.0      | 283739.0    | 1.3194   | Y    |
| 7  | STD160 280-412210/9  | 161.755926    | 209.510041 | 40.0      | 280554.0    | 1.295223 | Y    |
| 8  | STD200 280-412210/10 | 202.194908    | 250.996348 | 40.0      | 277383.0    | 1.241358 | Y    |



## Calibration

/ Azobenzene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

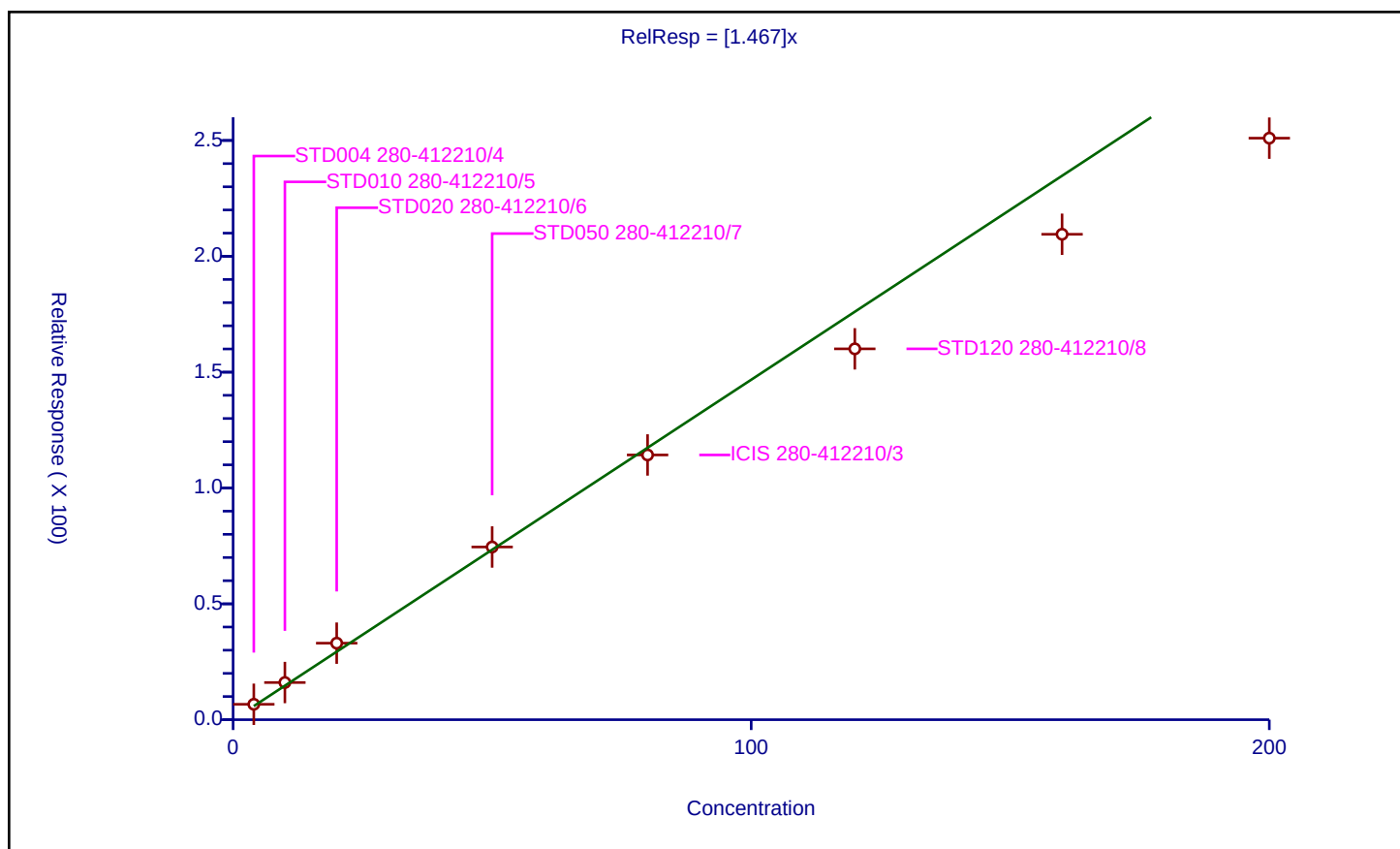
## Curve Coefficients

Intercept: 0  
Slope: 1.467

## Error Coefficients

Standard Error: 1030000  
Relative Standard Error: 11.0  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.982

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.656262   | 40.0      | 274869.0    | 1.664065 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 16.046066  | 40.0      | 262230.0    | 1.604607 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 33.031595  | 40.0      | 261971.0    | 1.65158  | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 74.541777  | 40.0      | 276405.0    | 1.490836 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 114.259175 | 40.0      | 280768.0    | 1.42824  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 160.065553 | 40.0      | 283739.0    | 1.33388  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 209.510041 | 40.0      | 280554.0    | 1.309438 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 250.996348 | 40.0      | 277383.0    | 1.254982 | Y    |



## Calibration

/ 2,4,6-Tribromophenol

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

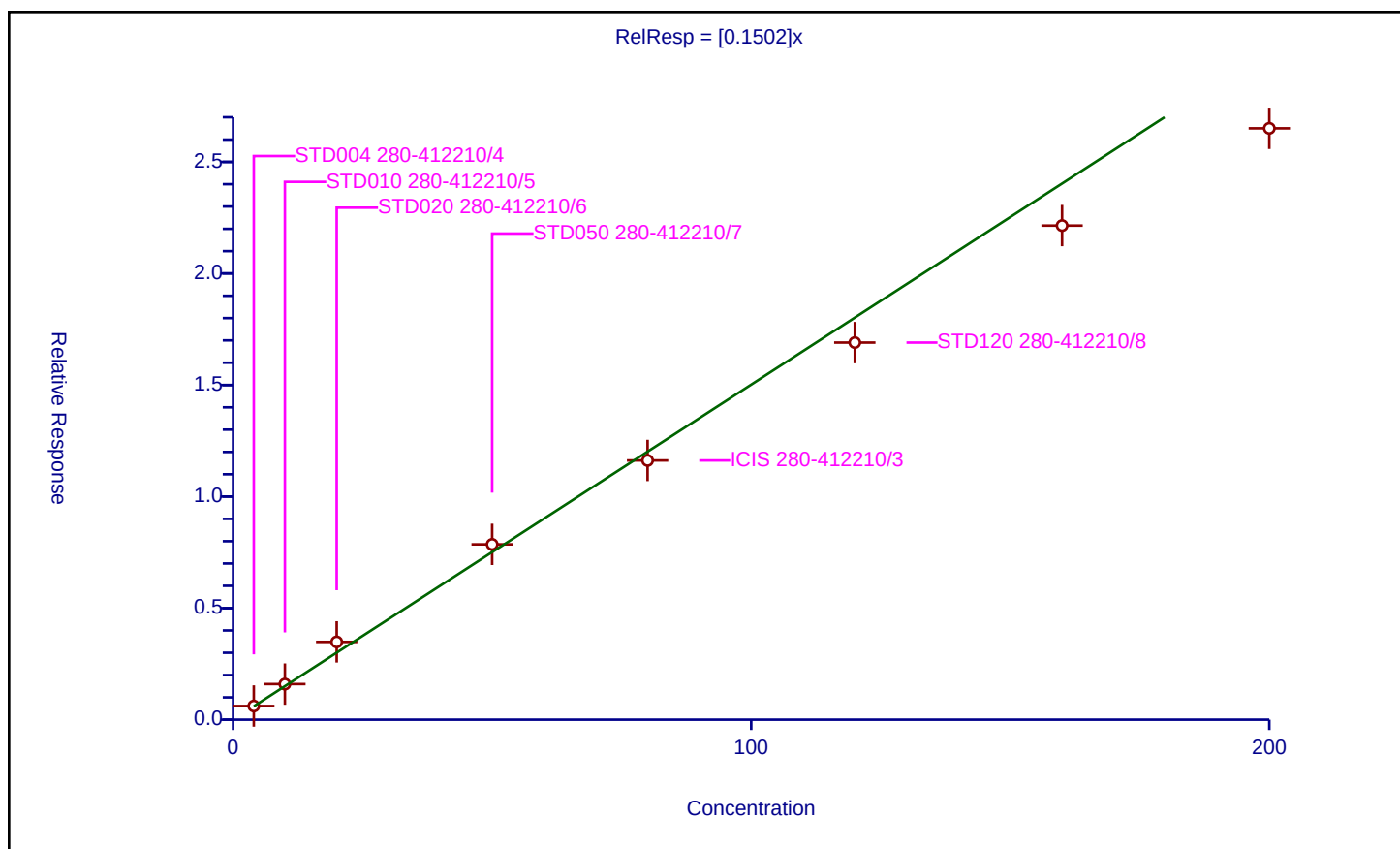
## Curve Coefficients

Intercept: 0  
Slope: 0.1502

## Error Coefficients

Standard Error: 109000  
Relative Standard Error: 9.1  
Correlation Coefficient: 0.997  
Coefficient of Determination (Adjusted): 0.989

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.613529   | 40.0      | 274869.0    | 0.153382 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 1.595241   | 40.0      | 262230.0    | 0.159524 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 3.487562   | 40.0      | 261971.0    | 0.174378 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 7.858613   | 40.0      | 276405.0    | 0.157172 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 11.618418  | 40.0      | 280768.0    | 0.14523  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 16.902576  | 40.0      | 283739.0    | 0.140855 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 22.14604   | 40.0      | 280554.0    | 0.138413 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 26.505013  | 40.0      | 277383.0    | 0.132525 | Y    |



## Calibration

/ 4-Bromophenyl phenyl ether

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

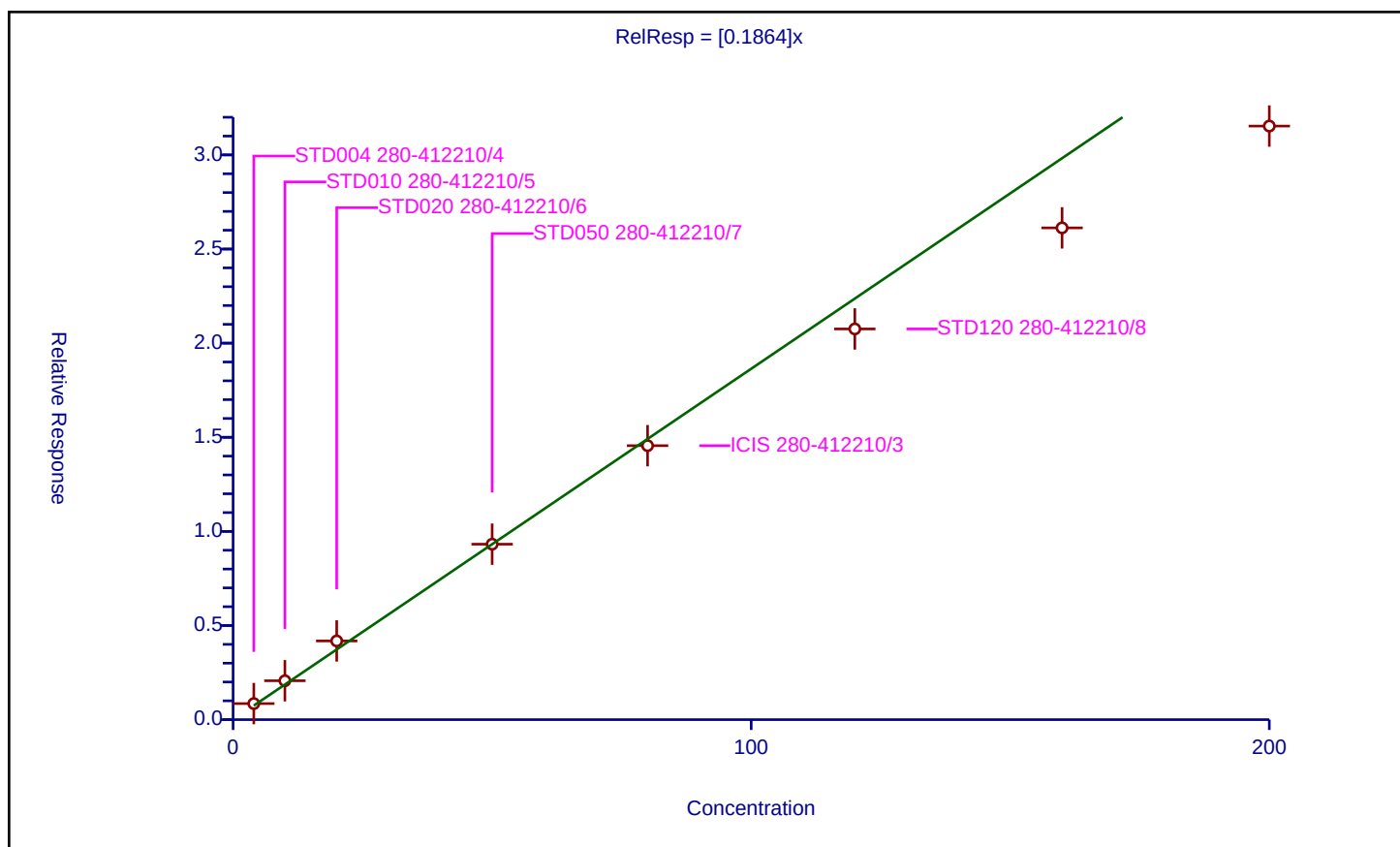
### Curve Coefficients

Intercept: 0  
 Slope: 0.1864

### Error Coefficients

Standard Error: 235000  
 Relative Standard Error: 11.5  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.981

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.853027   | 40.0      | 483783.0    | 0.213257 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 2.066176   | 40.0      | 466601.0    | 0.206618 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 4.181656   | 40.0      | 468226.0    | 0.209083 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 9.320998   | 40.0      | 497539.0    | 0.18642  | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 14.553816  | 40.0      | 494023.0    | 0.181923 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 20.755113  | 40.0      | 504878.0    | 0.172959 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 26.124456  | 40.0      | 510896.0    | 0.163278 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 31.531935  | 40.0      | 504323.0    | 0.15766  | Y    |



# Calibration

/ Hexachlorobenzene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

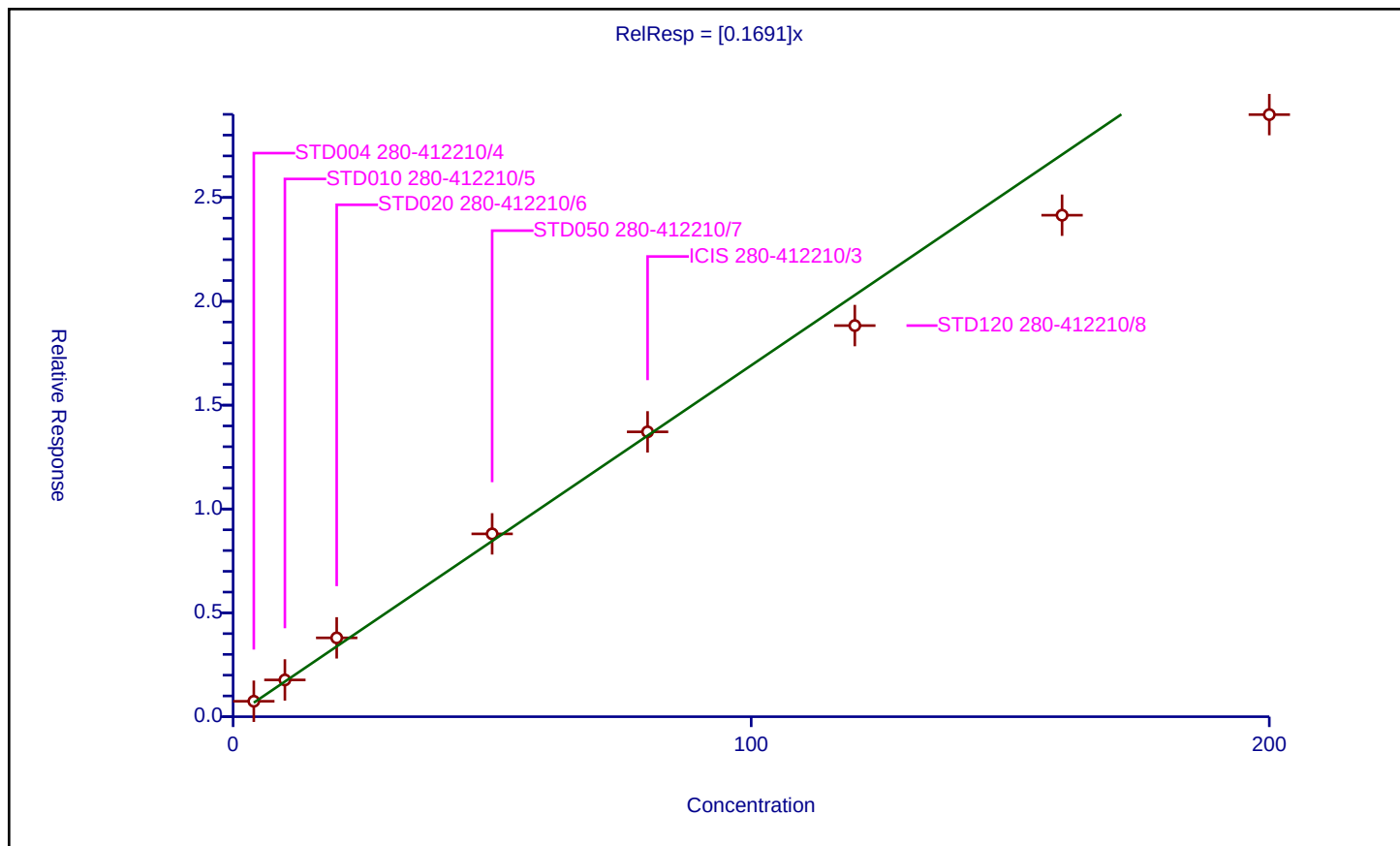
## Curve Coefficients

Intercept: 0  
Slope: 0.1691

## Error Coefficients

Standard Error: 217000  
Relative Standard Error: 9.7  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.987

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.744135   | 40.0      | 483783.0    | 0.186034 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 1.770763   | 40.0      | 466601.0    | 0.177076 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 3.796372   | 40.0      | 468226.0    | 0.189819 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 8.803089   | 40.0      | 497539.0    | 0.176062 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 13.714665  | 40.0      | 494023.0    | 0.171433 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 18.830529  | 40.0      | 504878.0    | 0.156921 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 24.14464   | 40.0      | 510896.0    | 0.150904 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 28.987613  | 40.0      | 504323.0    | 0.144938 | Y    |



# Calibration

/ Atrazine

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

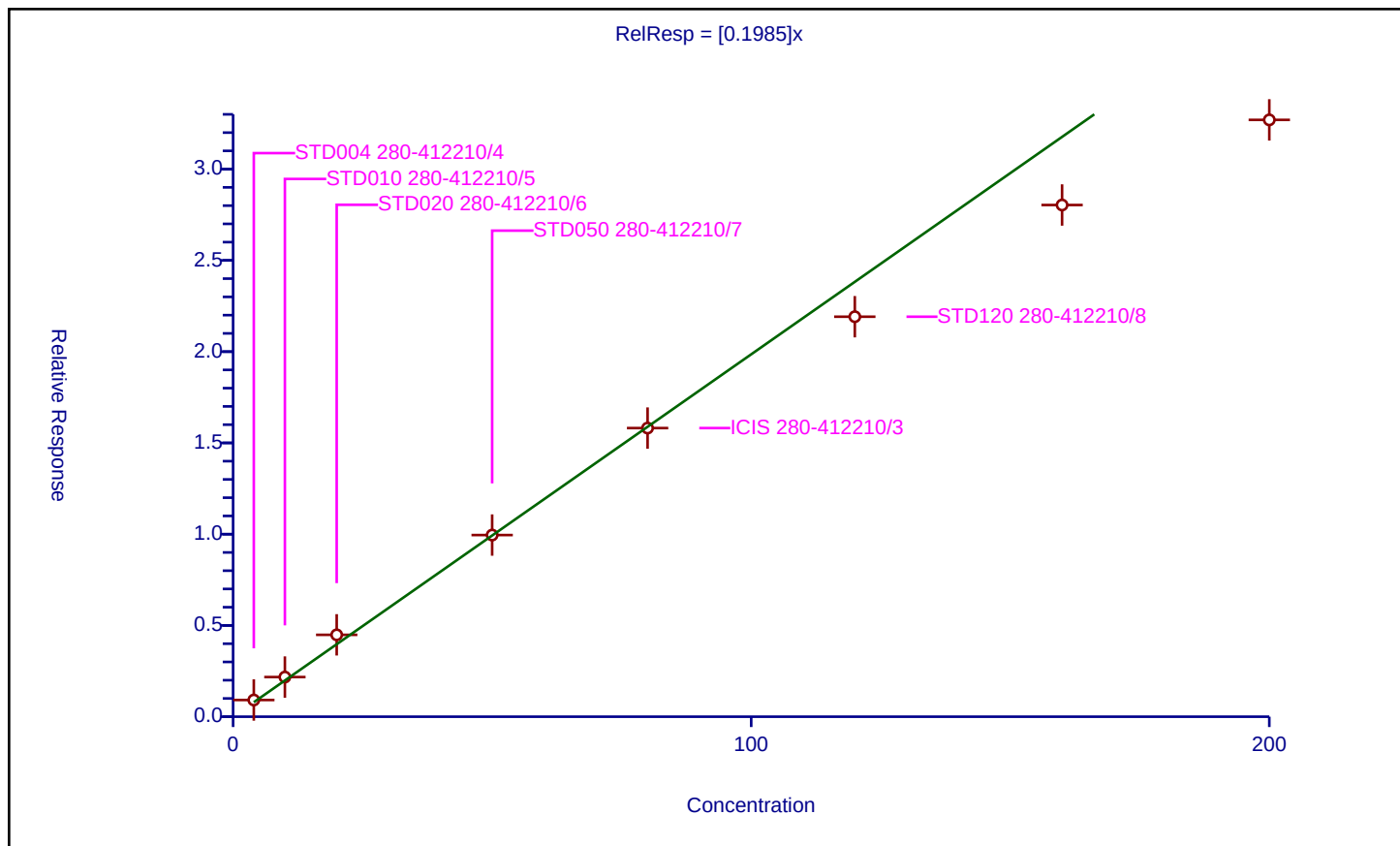
## Curve Coefficients

Intercept: 0  
 Slope: 0.1985

## Error Coefficients

Standard Error: 248000  
 Relative Standard Error: 12.0  
 Correlation Coefficient: 0.994  
 Coefficient of Determination (Adjusted): 0.979

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.914873   | 40.0      | 483783.0    | 0.228718 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 2.172306   | 40.0      | 466601.0    | 0.217231 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 4.486124   | 40.0      | 468226.0    | 0.224306 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 9.951863   | 40.0      | 497539.0    | 0.199037 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 15.813434  | 40.0      | 494023.0    | 0.197668 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 21.913967  | 40.0      | 504878.0    | 0.182616 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 28.034434  | 40.0      | 510896.0    | 0.175215 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 32.698092  | 40.0      | 504323.0    | 0.16349  | Y    |





# Calibration

/ Pentachlorophenol

Curve Type: Linear  
 Weighting: Conc\_Sq  
 Origin: None  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

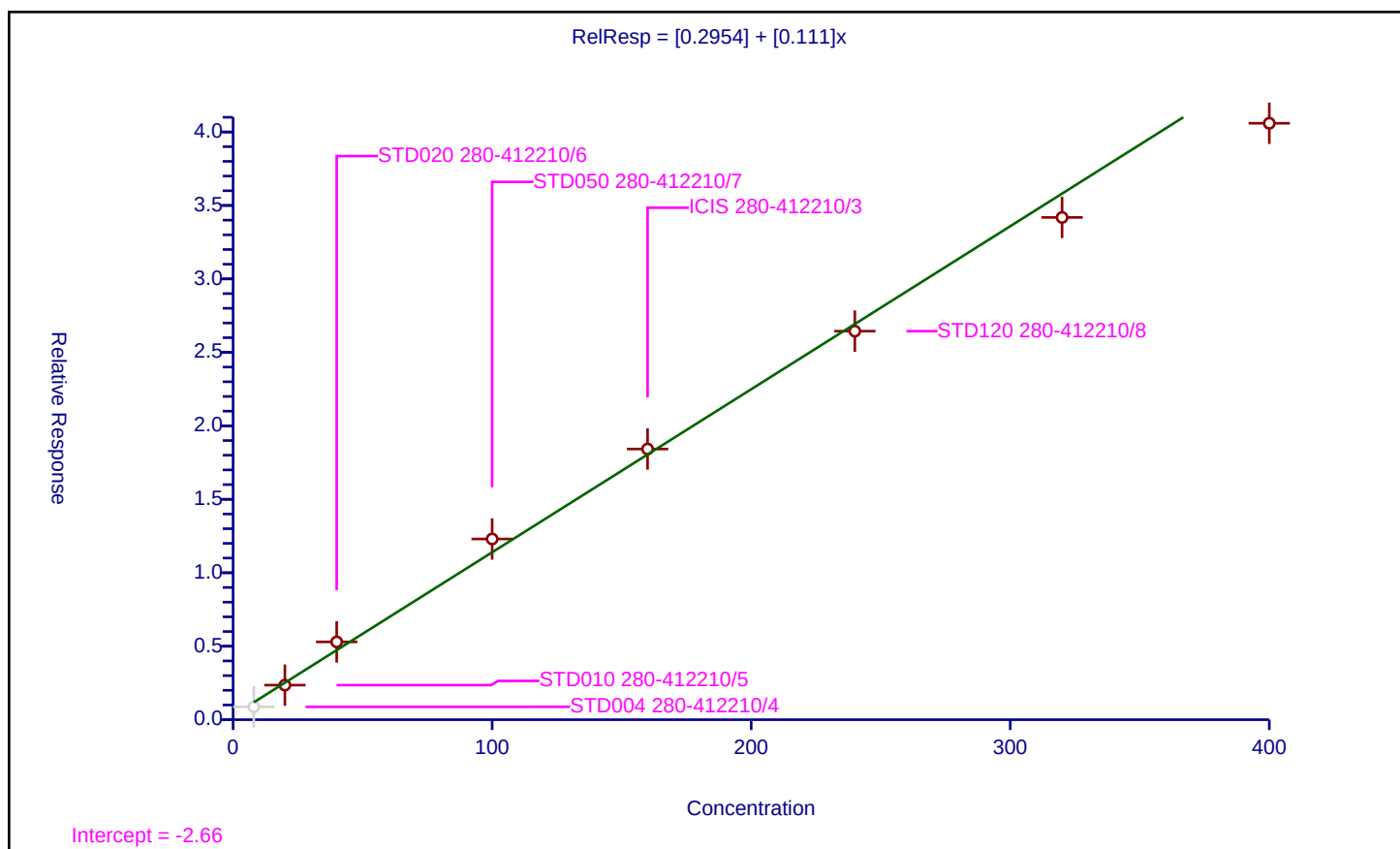
## Curve Coefficients

Intercept: 0.2954  
 Slope: 0.111

## Error Coefficients

Standard Error: 359000  
 Relative Standard Error: 8.9  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.990

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 8.0           | 0.874359   | 40.0      | 483783.0    | 0.109295 | N    |
| 2  | STD010 280-412210/5  | 20.0          | 2.35216    | 40.0      | 466601.0    | 0.117608 | Y    |
| 3  | STD020 280-412210/6  | 40.0          | 5.29599    | 40.0      | 468226.0    | 0.1324   | Y    |
| 4  | STD050 280-412210/7  | 100.0         | 12.29982   | 40.0      | 497539.0    | 0.122998 | Y    |
| 5  | ICIS 280-412210/3    | 160.0         | 18.421895  | 40.0      | 494023.0    | 0.115137 | Y    |
| 6  | STD120 280-412210/8  | 240.0         | 26.444408  | 40.0      | 504878.0    | 0.110185 | Y    |
| 7  | STD160 280-412210/9  | 320.0         | 34.183787  | 40.0      | 510896.0    | 0.106824 | Y    |
| 8  | STD200 280-412210/10 | 400.0         | 40.592239  | 40.0      | 504323.0    | 0.101481 | Y    |



## Calibration

/ Phenanthrene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

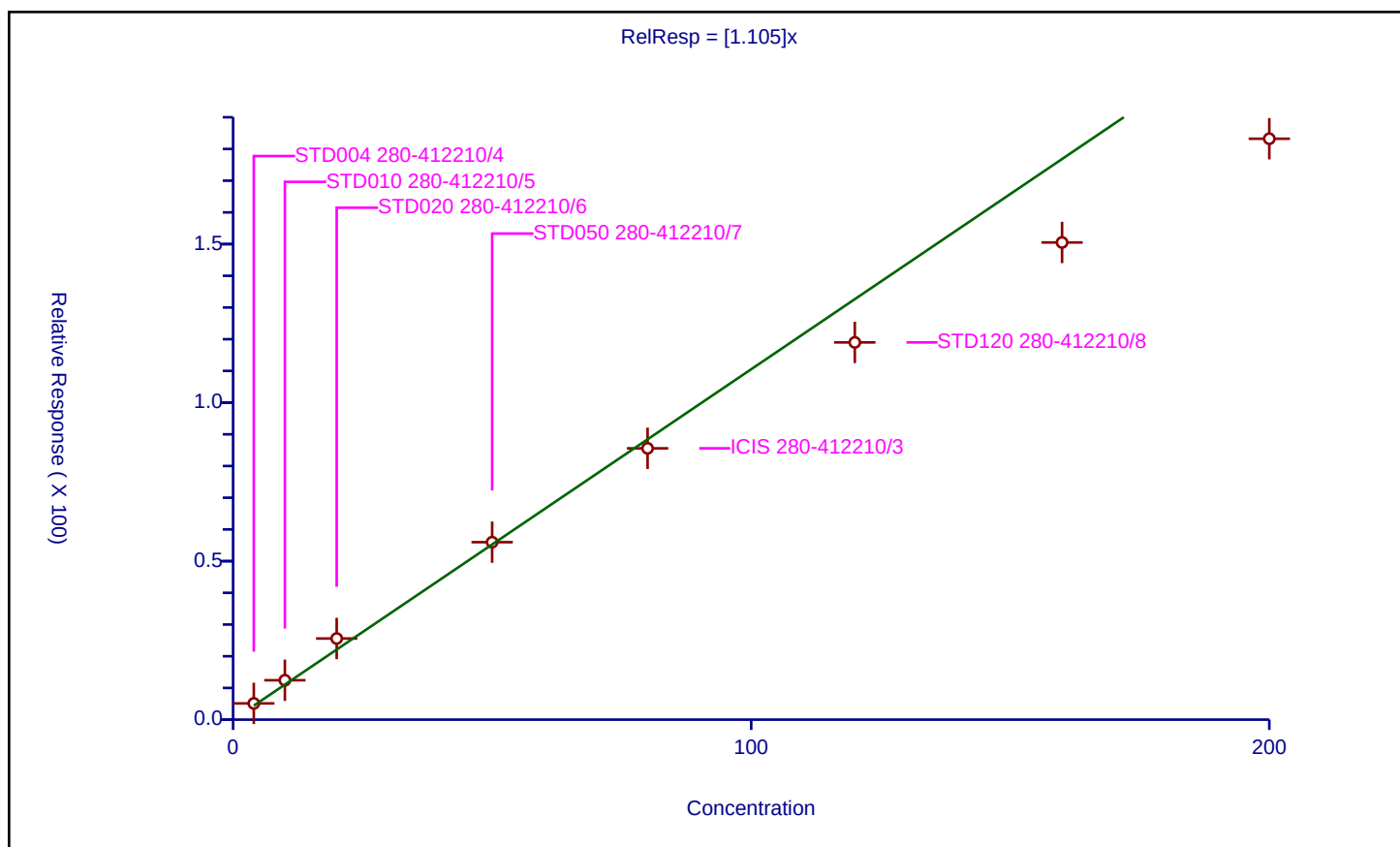
## Curve Coefficients

Intercept: 0  
Slope: 1.105

## Error Coefficients

Standard Error: 1360000  
Relative Standard Error: 13.6  
Correlation Coefficient: 0.996  
Coefficient of Determination (Adjusted): 0.973

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.126265   | 40.0      | 483783.0    | 1.281566 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.429206  | 40.0      | 466601.0    | 1.242921 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 25.592513  | 40.0      | 468226.0    | 1.279626 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 55.975753  | 40.0      | 497539.0    | 1.119515 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 85.577878  | 40.0      | 494023.0    | 1.069723 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 118.985577 | 40.0      | 504878.0    | 0.991546 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 150.508205 | 40.0      | 510896.0    | 0.940676 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 183.226702 | 40.0      | 504323.0    | 0.916134 | Y    |



## Calibration

/ Anthracene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

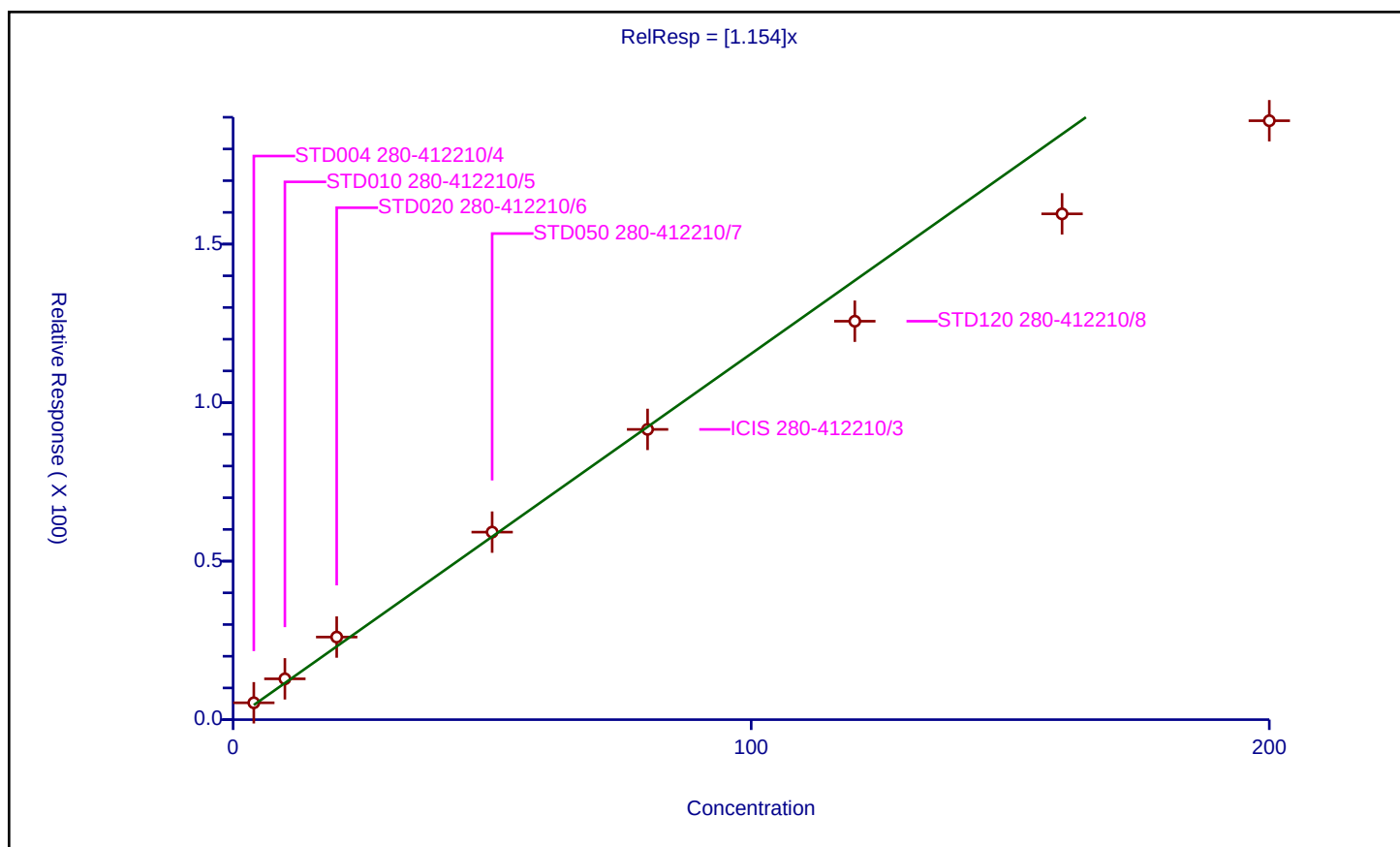
## Curve Coefficients

Intercept: 0  
Slope: 1.154

## Error Coefficients

Standard Error: 1430000  
Relative Standard Error: 12.7  
Correlation Coefficient: 0.994  
Coefficient of Determination (Adjusted): 0.976

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.314697   | 40.0      | 483783.0    | 1.328674 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.87224   | 40.0      | 466601.0    | 1.287224 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 26.043919  | 40.0      | 468226.0    | 1.302196 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 59.148569  | 40.0      | 497539.0    | 1.182971 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 91.552094  | 40.0      | 494023.0    | 1.144401 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 125.676698 | 40.0      | 504878.0    | 1.047306 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 159.537127 | 40.0      | 510896.0    | 0.997107 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 188.910123 | 40.0      | 504323.0    | 0.944551 | Y    |



## Calibration

/ Carbazole

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

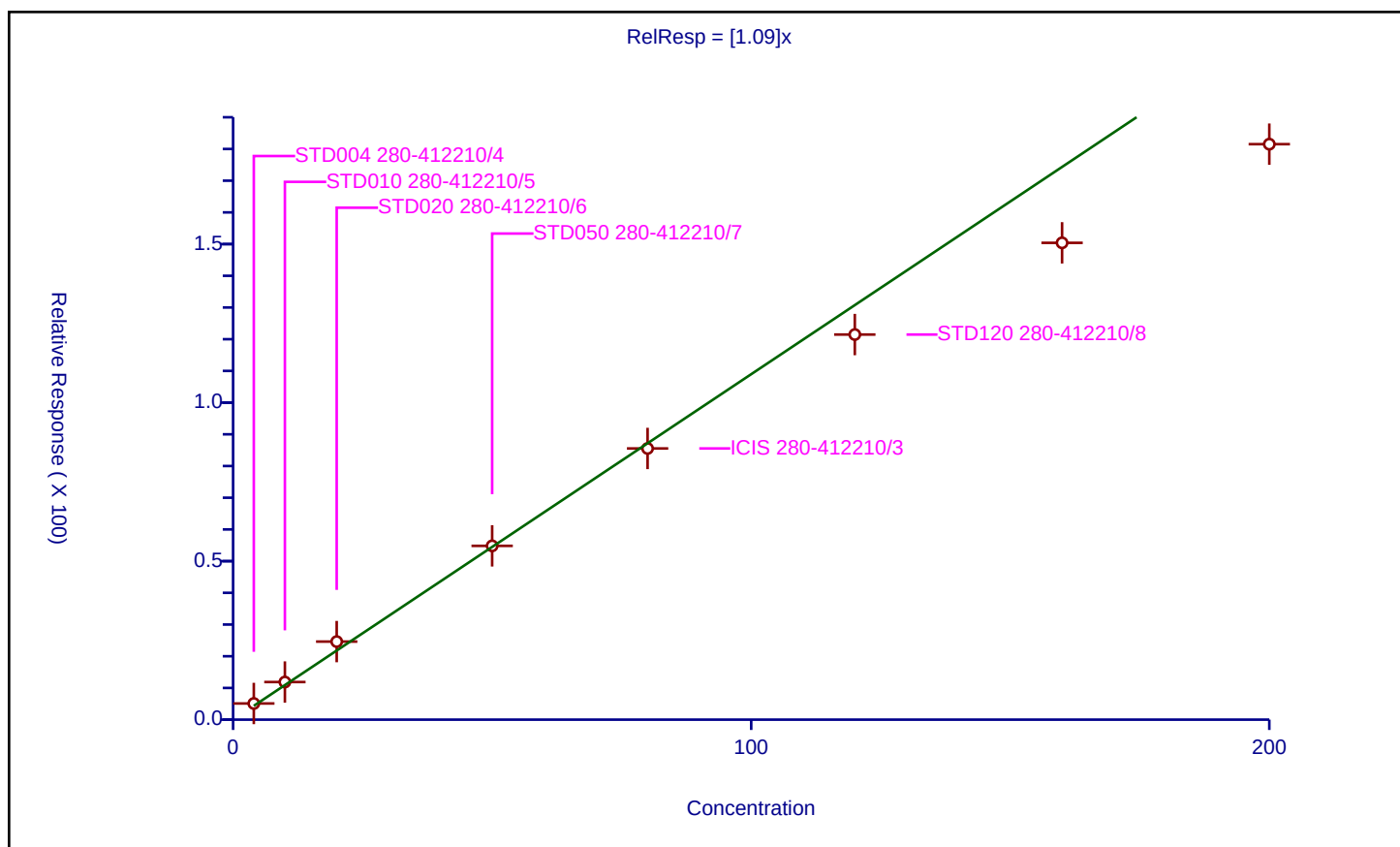
## Curve Coefficients

Intercept: 0  
Slope: 1.09

## Error Coefficients

Standard Error: 1360000  
Relative Standard Error: 12.3  
Correlation Coefficient: 0.995  
Coefficient of Determination (Adjusted): 0.978

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.095425   | 40.0      | 483783.0    | 1.273856 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 11.866498  | 40.0      | 466601.0    | 1.18665  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 24.620845  | 40.0      | 468226.0    | 1.231042 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 54.813793  | 40.0      | 497539.0    | 1.096276 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 85.533022  | 40.0      | 494023.0    | 1.069163 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 121.468157 | 40.0      | 504878.0    | 1.012235 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 150.396636 | 40.0      | 510896.0    | 0.939979 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 181.515259 | 40.0      | 504323.0    | 0.907576 | Y    |



## Calibration

/ Alachlor

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

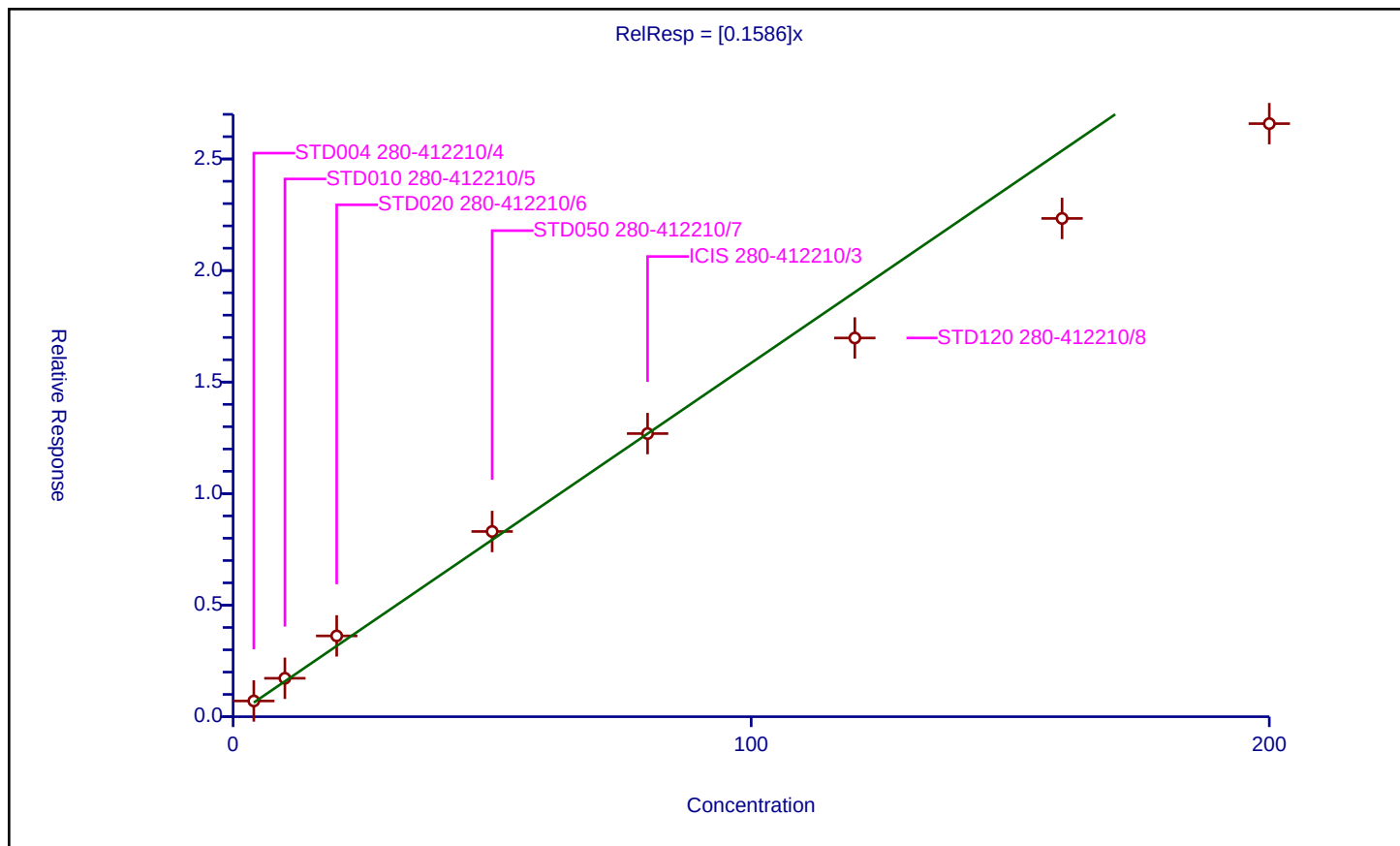
### Curve Coefficients

Intercept: 0  
 Slope: 0.1586

### Error Coefficients

Standard Error: 199000  
 Relative Standard Error: 11.6  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.980

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 0.705936   | 40.0      | 483783.0    | 0.176484 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 1.723614   | 40.0      | 466601.0    | 0.172361 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 3.62261    | 40.0      | 468226.0    | 0.18113  | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 8.302384   | 40.0      | 497539.0    | 0.166048 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 12.691879  | 40.0      | 494023.0    | 0.158648 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 16.975903  | 40.0      | 504878.0    | 0.141466 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 22.3348    | 40.0      | 510896.0    | 0.139593 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 26.585026  | 40.0      | 504323.0    | 0.132925 | Y    |



## Calibration

/ Di-n-butyl phthalate

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

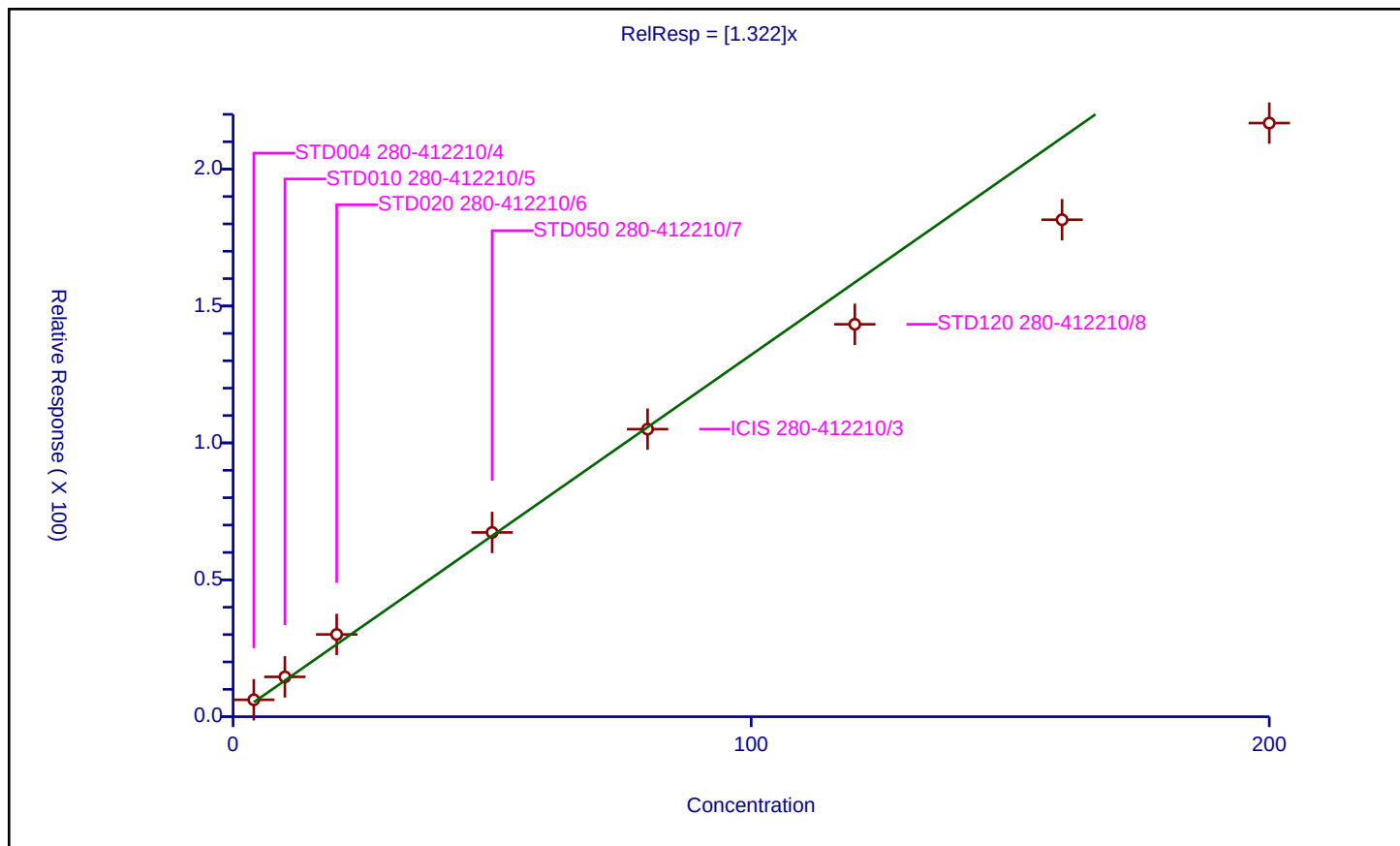
## Curve Coefficients

Intercept: 0  
Slope: 1.322

## Error Coefficients

Standard Error: 1630000  
Relative Standard Error: 13.1  
Correlation Coefficient: 0.994  
Coefficient of Determination (Adjusted): 0.975

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.181201   | 40.0      | 483783.0    | 1.5453   | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.544932  | 40.0      | 466601.0    | 1.454493 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 30.050958  | 40.0      | 468226.0    | 1.502548 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 67.3019    | 40.0      | 497539.0    | 1.346038 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 105.02677  | 40.0      | 494023.0    | 1.312835 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 143.331181 | 40.0      | 504878.0    | 1.194427 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 181.513968 | 40.0      | 510896.0    | 1.134462 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 216.814859 | 40.0      | 504323.0    | 1.084074 | Y    |



# Calibration

/ Fluoranthene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

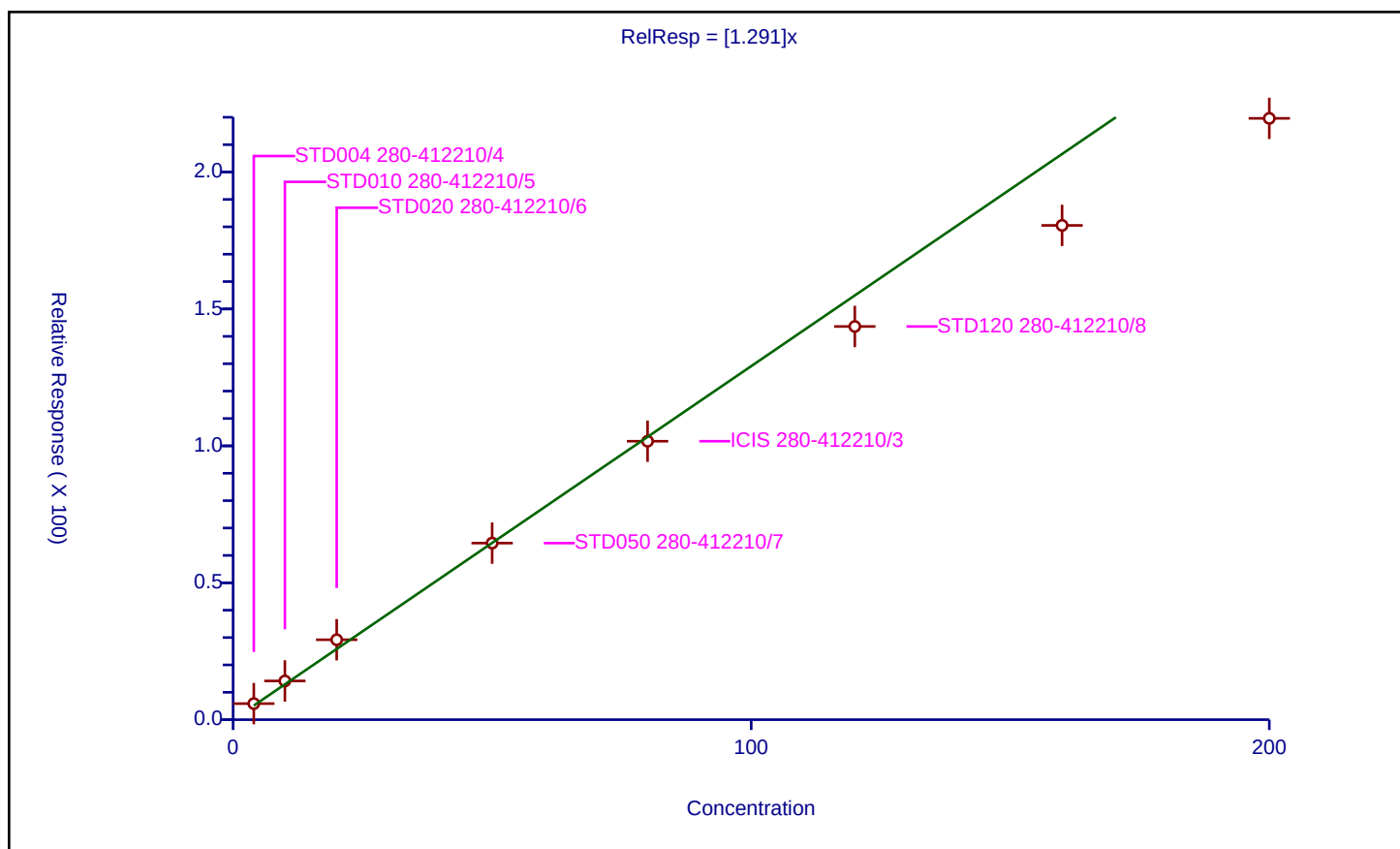
## Curve Coefficients

Intercept: 0  
 Slope: 1.291

## Error Coefficients

Standard Error: 1630000  
 Relative Standard Error: 11.3  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.981

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.87933    | 40.0      | 483783.0    | 1.469833 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.154192  | 40.0      | 466601.0    | 1.415419 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 29.197951  | 40.0      | 468226.0    | 1.459898 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 64.489899  | 40.0      | 497539.0    | 1.289798 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 101.705386 | 40.0      | 494023.0    | 1.271317 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 143.602058 | 40.0      | 504878.0    | 1.196684 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 180.515956 | 40.0      | 510896.0    | 1.128225 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 219.605531 | 40.0      | 504323.0    | 1.098028 | Y    |



## Calibration

/ Pyrene

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

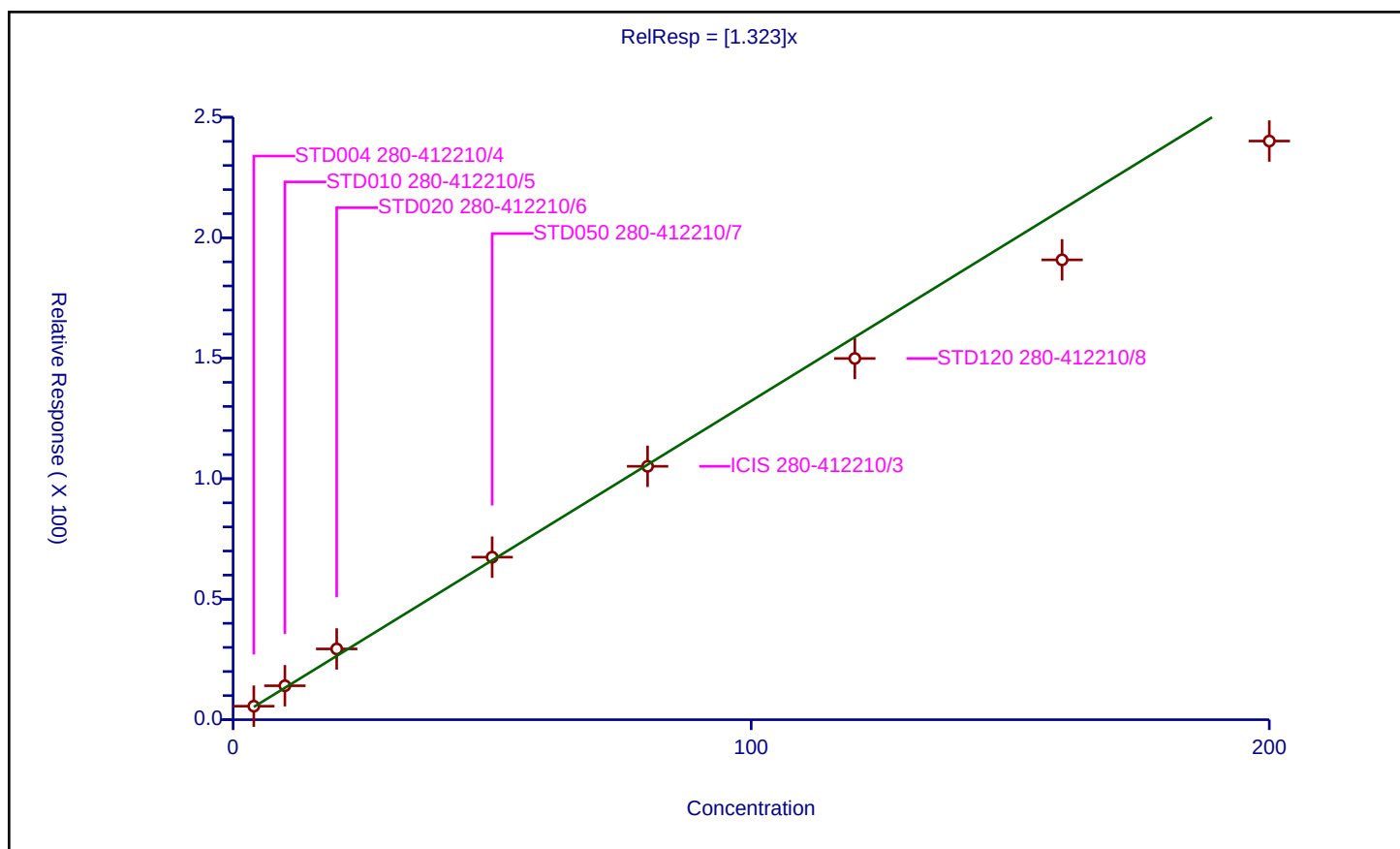
### Curve Coefficients

**Intercept:** 0  
**Slope:** 1.323

### Error Coefficients

**Standard Error:** 1700000  
**Relative Standard Error:** 7.7  
**Correlation Coefficient:** 0.997  
**Coefficient of Determination (Adjusted):** 0.992

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.605576   | 40.0      | 510192.0    | 1.401394 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 14.089545  | 40.0      | 489810.0    | 1.408954 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 29.367333  | 40.0      | 475764.0    | 1.468367 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 67.442915  | 40.0      | 495357.0    | 1.348858 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 105.152937 | 40.0      | 495007.0    | 1.314412 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 149.904588 | 40.0      | 501931.0    | 1.249205 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 190.835251 | 40.0      | 498078.0    | 1.19272  | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 240.139941 | 40.0      | 484777.0    | 1.2007   | Y    |





# Calibration

/ Terphenyl-d14

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

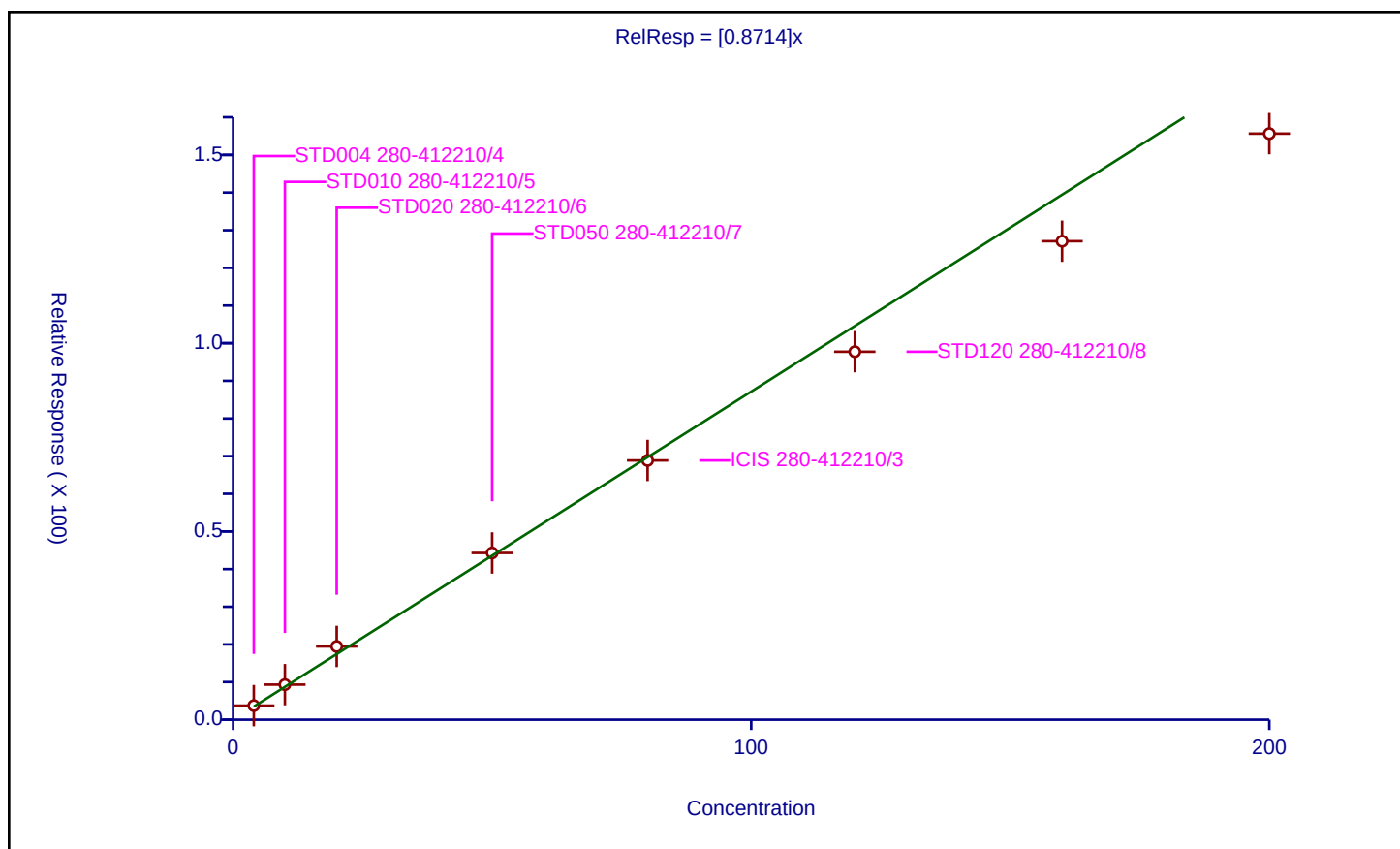
## Curve Coefficients

Intercept: 0  
 Slope: 0.8714

## Error Coefficients

Standard Error: 1110000  
 Relative Standard Error: 8.2  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.991

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 3.736789   | 40.0      | 510192.0    | 0.934197 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 9.309977   | 40.0      | 489810.0    | 0.930998 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 19.456874  | 40.0      | 475764.0    | 0.972844 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 44.285313  | 40.0      | 495357.0    | 0.885706 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 68.855026  | 40.0      | 495007.0    | 0.860688 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 97.735187  | 40.0      | 501931.0    | 0.81446  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 127.082987 | 40.0      | 498078.0    | 0.794269 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 155.65755  | 40.0      | 484777.0    | 0.778288 | Y    |



## Calibration

/ Famphur

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

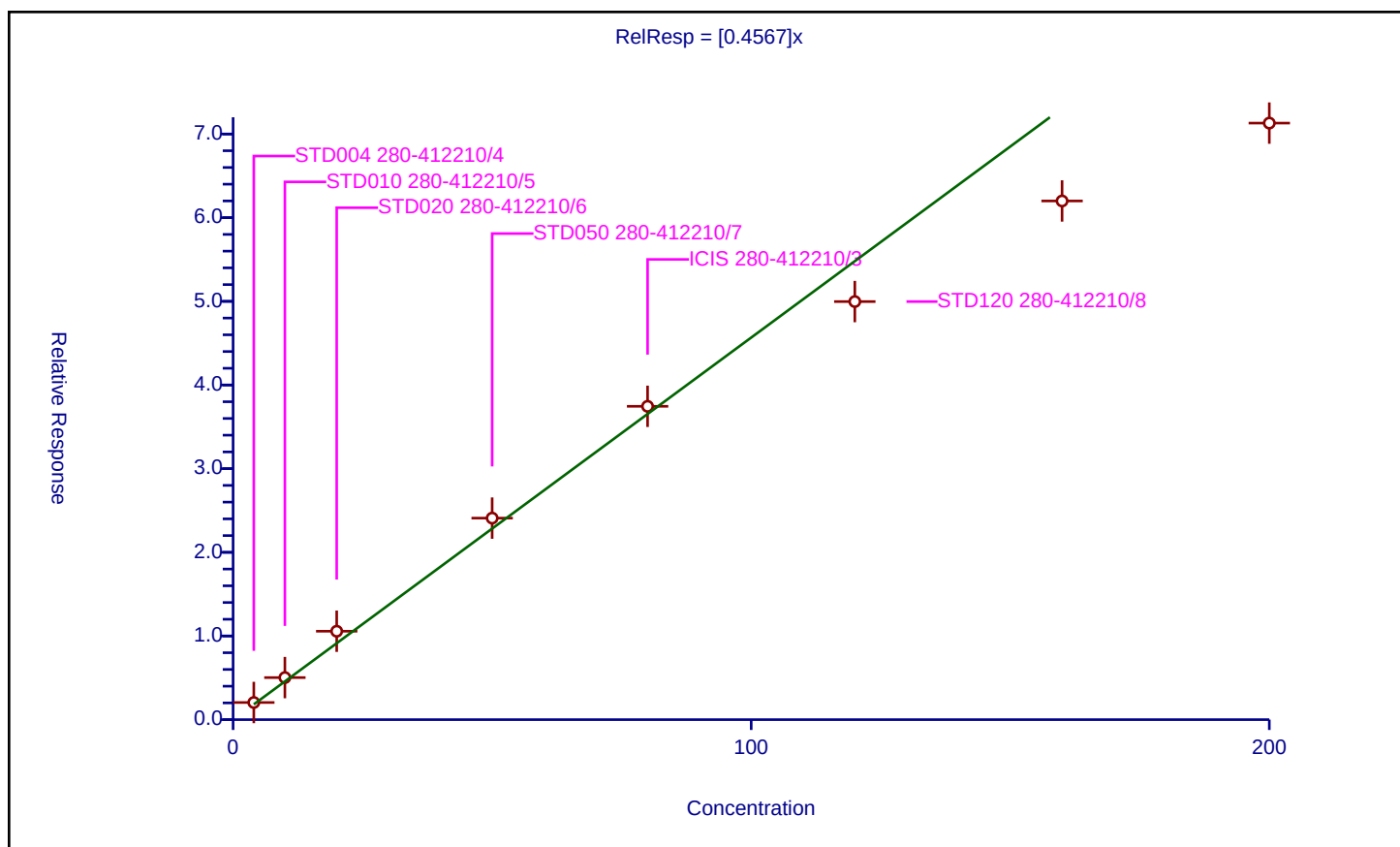
### Curve Coefficients

**Intercept:** 0  
**Slope:** 0.4567

### Error Coefficients

**Standard Error:** 542000  
**Relative Standard Error:** 13.7  
**Correlation Coefficient:** 0.981  
**Coefficient of Determination (Adjusted):** 0.973

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.048092   | 40.0      | 510192.0    | 0.512023 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 5.026031   | 40.0      | 489810.0    | 0.502603 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 10.56919   | 40.0      | 475764.0    | 0.528459 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 24.090181  | 40.0      | 495357.0    | 0.481804 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 37.450299  | 40.0      | 495007.0    | 0.468129 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 49.972685  | 40.0      | 501931.0    | 0.416439 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 61.995671  | 40.0      | 498078.0    | 0.387473 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 71.303878  | 40.0      | 484777.0    | 0.356519 | Y    |



## Calibration

/ Butyl benzyl phthalate

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

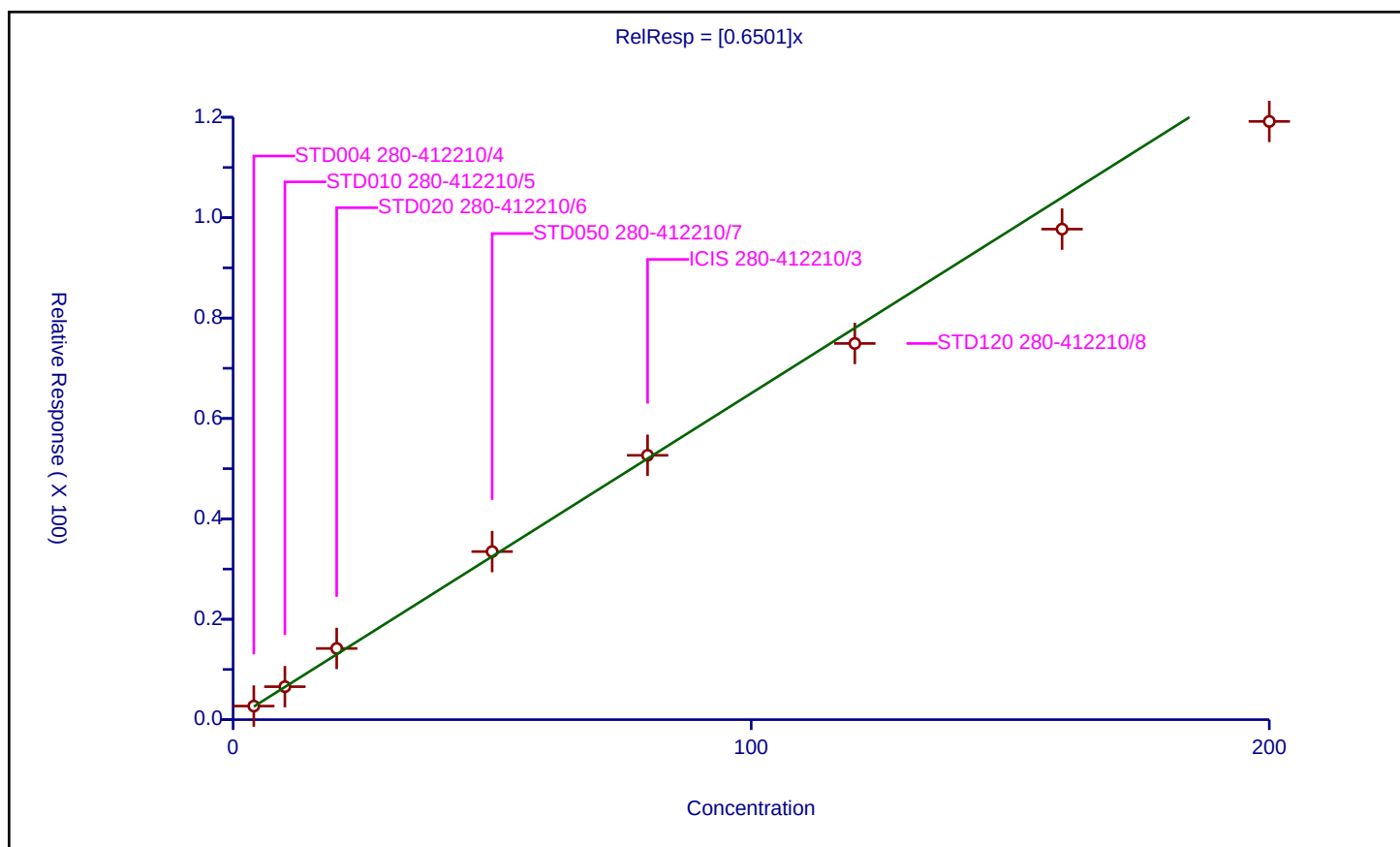
### Curve Coefficients

Intercept: 0  
 Slope: 0.6501

### Error Coefficients

Standard Error: 852000  
 Relative Standard Error: 5.8  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.995

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 2.70455    | 40.0      | 510192.0    | 0.676138 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 6.568751   | 40.0      | 489810.0    | 0.656875 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 14.181653  | 40.0      | 475764.0    | 0.709083 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 33.478966  | 40.0      | 495357.0    | 0.669579 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 52.660427  | 40.0      | 495007.0    | 0.658255 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 74.939145  | 40.0      | 501931.0    | 0.624493 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 97.722766  | 40.0      | 498078.0    | 0.610767 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 119.173888 | 40.0      | 484777.0    | 0.595869 | Y    |



## Calibration

/ 3,3'-Dichlorobenzidine

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

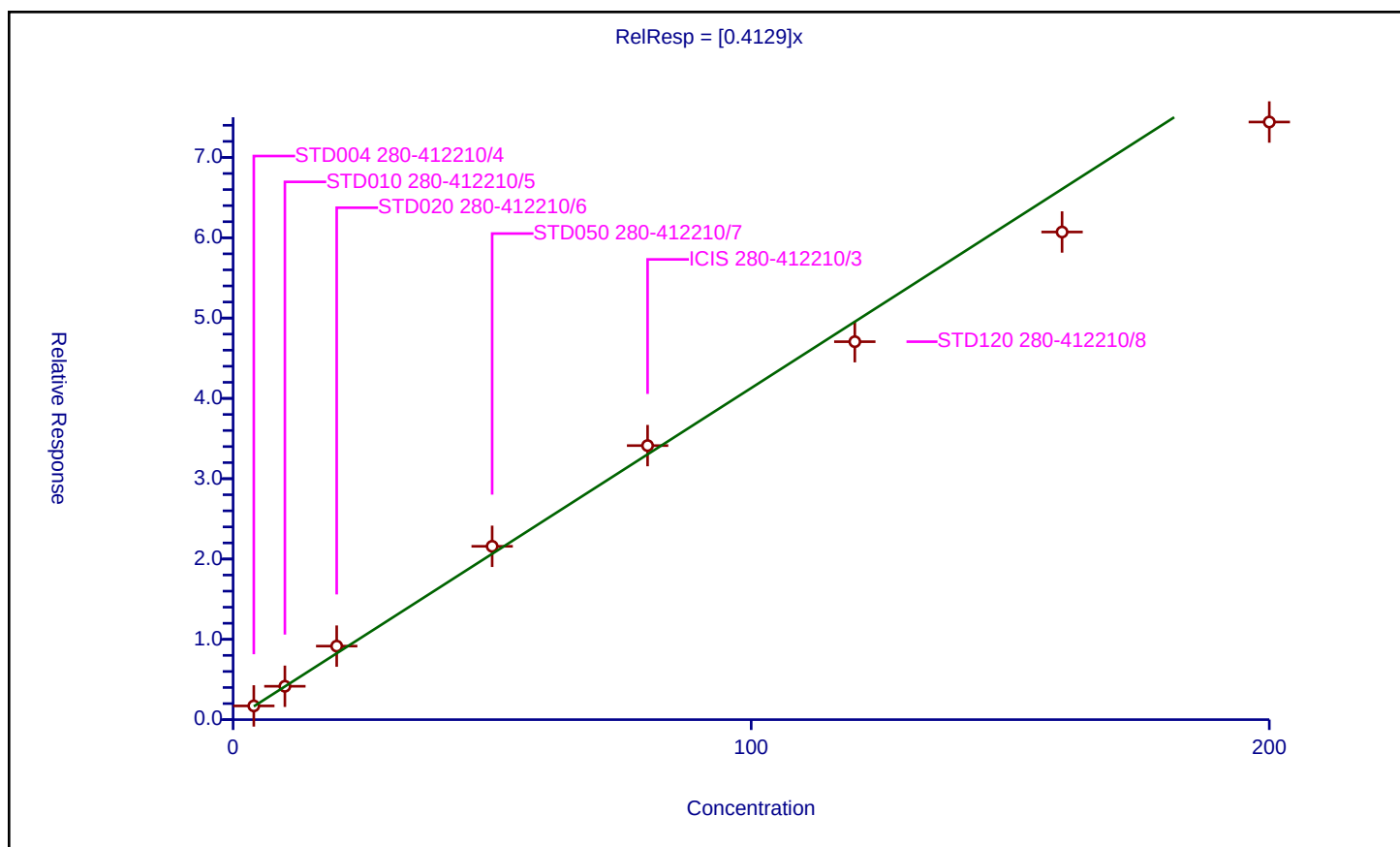
## Curve Coefficients

Intercept: 0  
Slope: 0.4129

## Error Coefficients

Standard Error: 534000  
Relative Standard Error: 7.1  
Correlation Coefficient: 0.995  
Coefficient of Determination (Adjusted): 0.993

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 1.711748   | 40.0      | 510192.0    | 0.427937 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 4.155326   | 40.0      | 489810.0    | 0.415533 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 9.154875   | 40.0      | 475764.0    | 0.457744 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 21.583383  | 40.0      | 495357.0    | 0.431668 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 34.12275   | 40.0      | 495007.0    | 0.426534 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 47.0585    | 40.0      | 501931.0    | 0.392154 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 60.713944  | 40.0      | 498078.0    | 0.379462 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 74.409636  | 40.0      | 484777.0    | 0.372048 | Y    |



## Calibration

/ Benzo[a]anthracene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

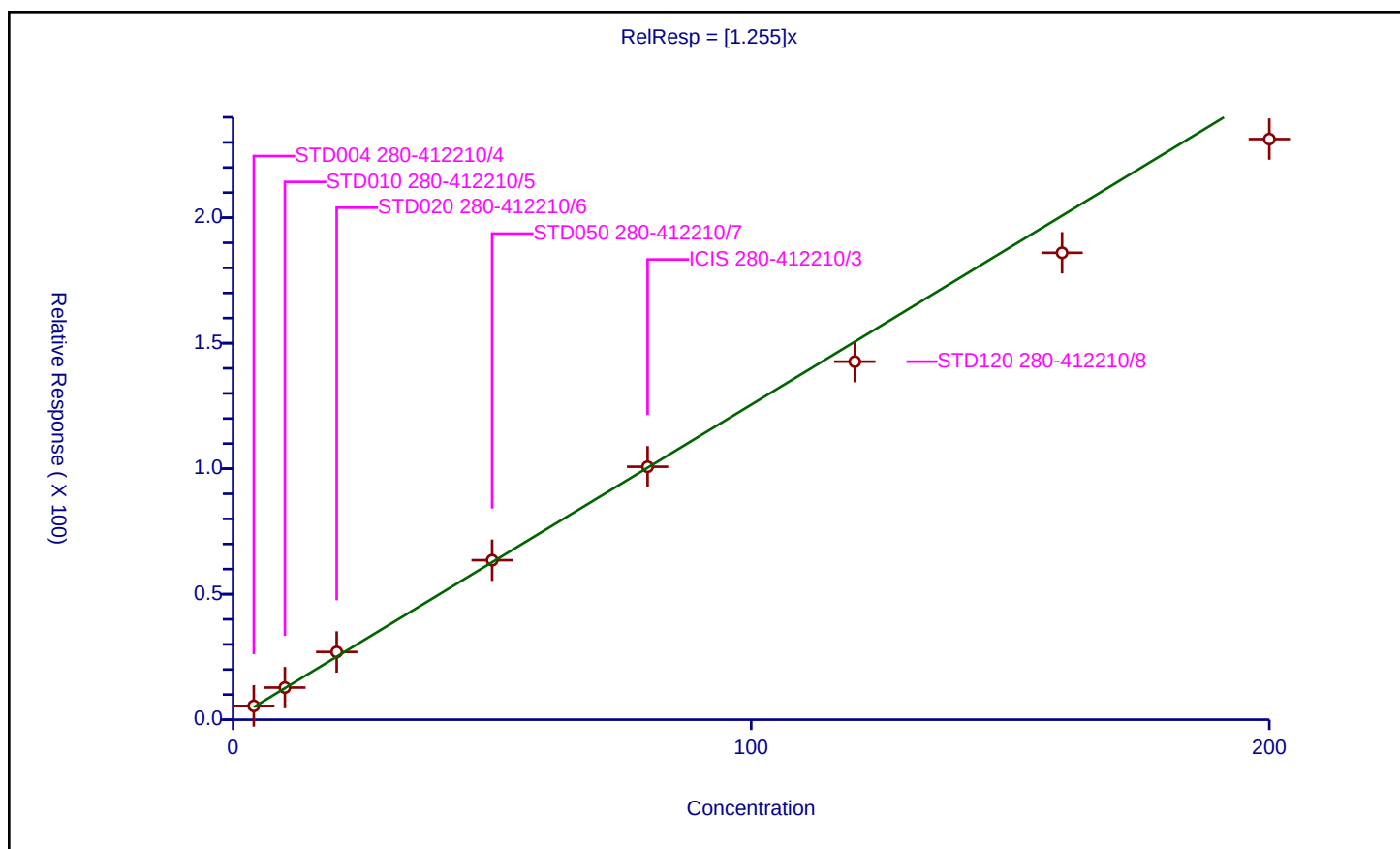
## Curve Coefficients

Intercept: 0  
Slope: 1.255

## Error Coefficients

Standard Error: 1640000  
Relative Standard Error: 6.5  
Correlation Coefficient: 0.998  
Coefficient of Determination (Adjusted): 0.994

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.490247   | 40.0      | 510192.0    | 1.372562 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.794839  | 40.0      | 489810.0    | 1.279484 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 26.97825   | 40.0      | 475764.0    | 1.348912 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 63.543101  | 40.0      | 495357.0    | 1.270862 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 100.774494 | 40.0      | 495007.0    | 1.259681 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 142.65674  | 40.0      | 501931.0    | 1.188806 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 186.01191  | 40.0      | 498078.0    | 1.162574 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 231.324341 | 40.0      | 484777.0    | 1.156622 | Y    |



## Calibration

/ Chrysene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

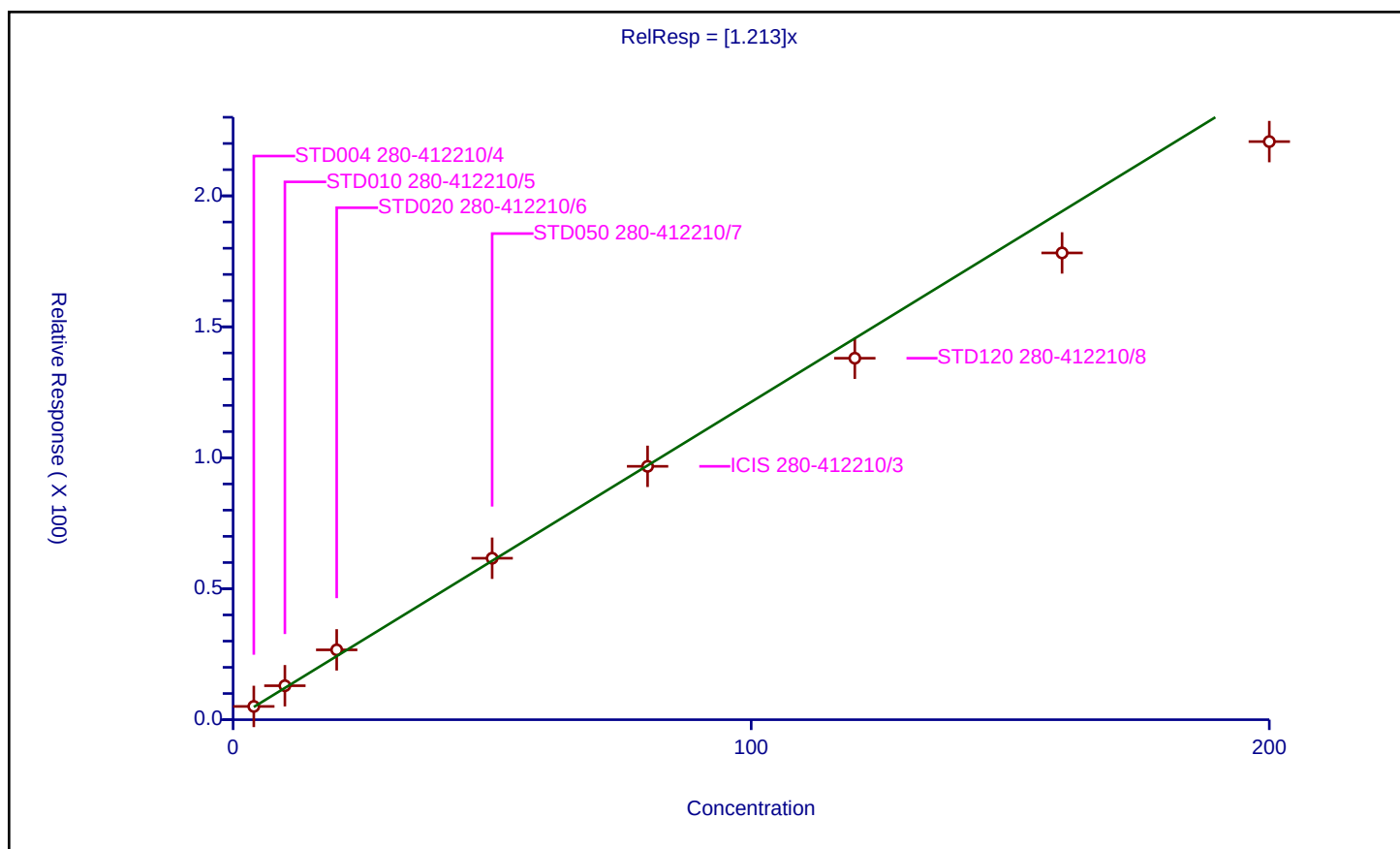
## Curve Coefficients

Intercept: 0  
Slope: 1.213

## Error Coefficients

Standard Error: 1570000  
Relative Standard Error: 7.0  
Correlation Coefficient: 0.997  
Coefficient of Determination (Adjusted): 0.993

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.063506   | 40.0      | 510192.0    | 1.265876 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.968702  | 40.0      | 489810.0    | 1.29687  | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 26.663304  | 40.0      | 475764.0    | 1.333165 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 61.644672  | 40.0      | 495357.0    | 1.232893 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 96.731723  | 40.0      | 495007.0    | 1.209147 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 138.014349 | 40.0      | 501931.0    | 1.15012  | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 178.21273  | 40.0      | 498078.0    | 1.11383  | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 220.718722 | 40.0      | 484777.0    | 1.103594 | Y    |



## Calibration

/ Bis(2-ethylhexyl) phthalate

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

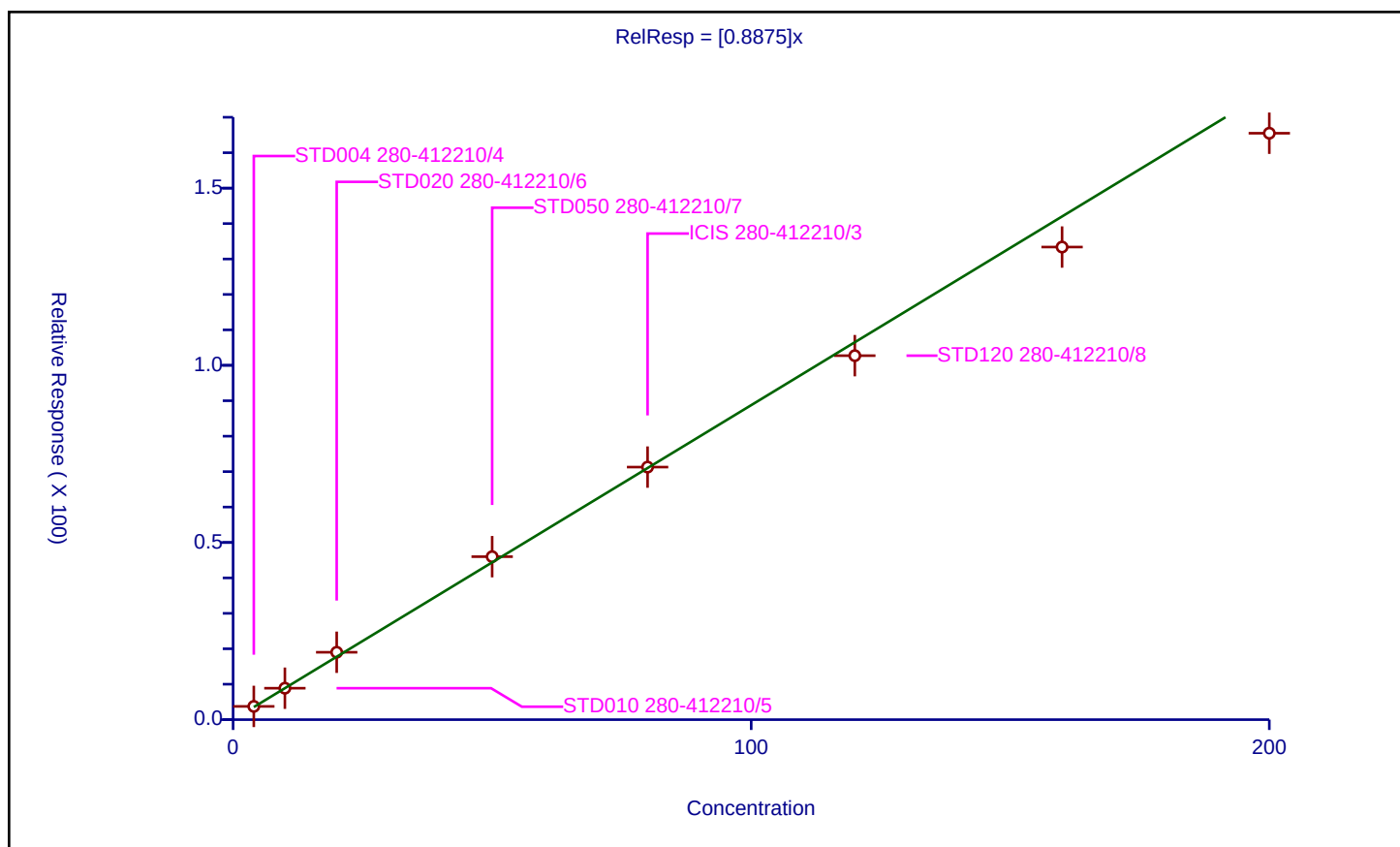
### Curve Coefficients

Intercept: 0  
 Slope: 0.8875

### Error Coefficients

Standard Error: 1170000  
 Relative Standard Error: 5.2  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.996

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 3.73624    | 40.0      | 510192.0    | 0.93406  | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 8.874053   | 40.0      | 489810.0    | 0.887405 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 19.019346  | 40.0      | 475764.0    | 0.950967 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 45.992688  | 40.0      | 495357.0    | 0.919854 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 71.272851  | 40.0      | 495007.0    | 0.890911 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 102.722486 | 40.0      | 501931.0    | 0.856021 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 133.373006 | 40.0      | 498078.0    | 0.833581 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 165.499601 | 40.0      | 484777.0    | 0.827498 | Y    |



## Calibration

/ Di-n-octyl phthalate

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** ISTD  
**Response Base:**  
**RF Rounding:** 0

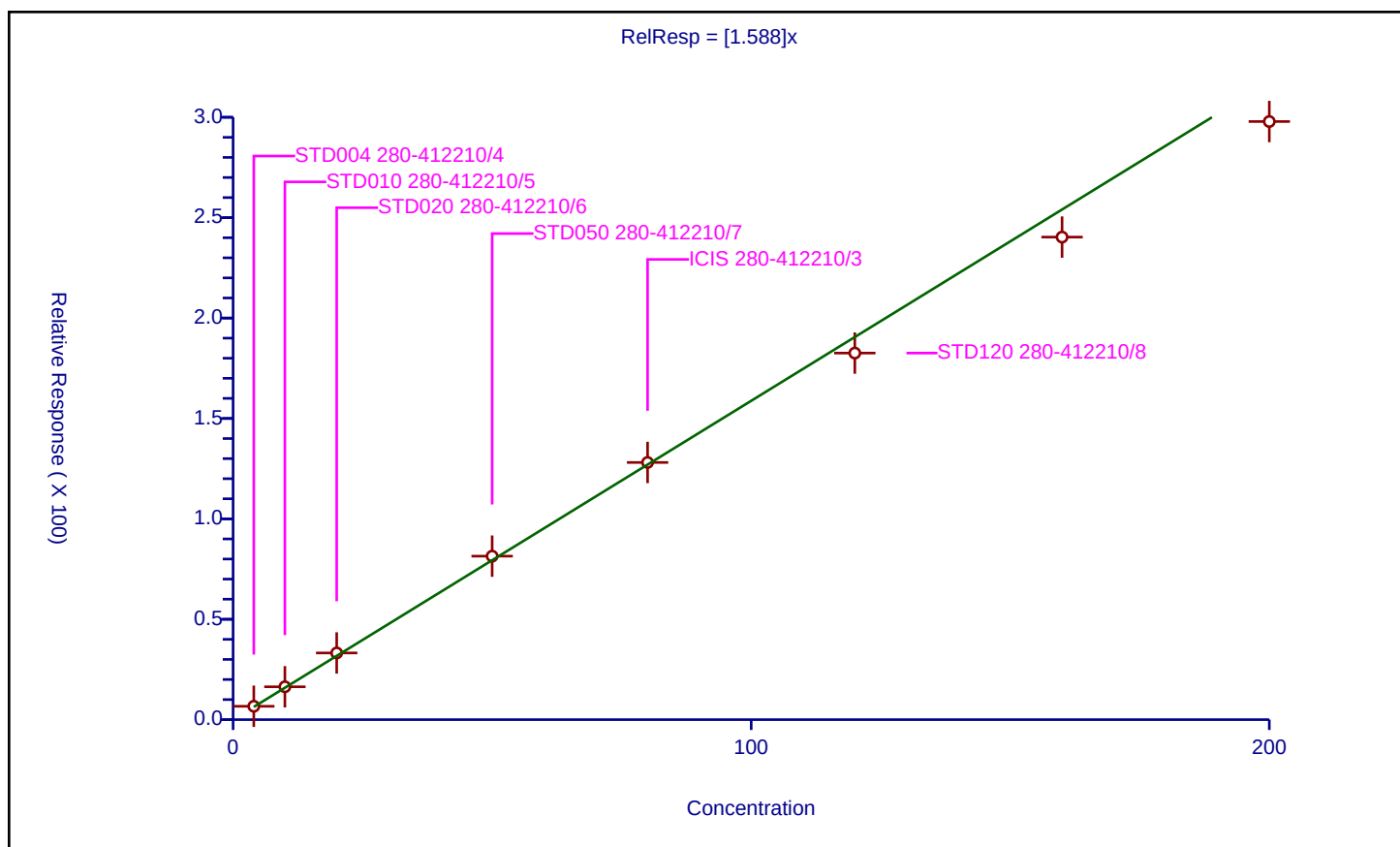
### Curve Coefficients

**Intercept:** 0  
**Slope:** 1.588

### Error Coefficients

**Standard Error:** 2100000  
**Relative Standard Error:** 4.6  
**Correlation Coefficient:** 0.998  
**Coefficient of Determination (Adjusted):** 0.997

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 6.656239   | 40.0      | 510192.0    | 1.66406  | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 16.360466  | 40.0      | 489810.0    | 1.636047 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 33.210079  | 40.0      | 475764.0    | 1.660504 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 81.424427  | 40.0      | 495357.0    | 1.628489 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 128.081098 | 40.0      | 495007.0    | 1.601014 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 182.567803 | 40.0      | 501931.0    | 1.521398 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 240.31987  | 40.0      | 498078.0    | 1.501999 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 297.883522 | 40.0      | 484777.0    | 1.489418 | Y    |





## Calibration

/ Benzo[b]fluoranthene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

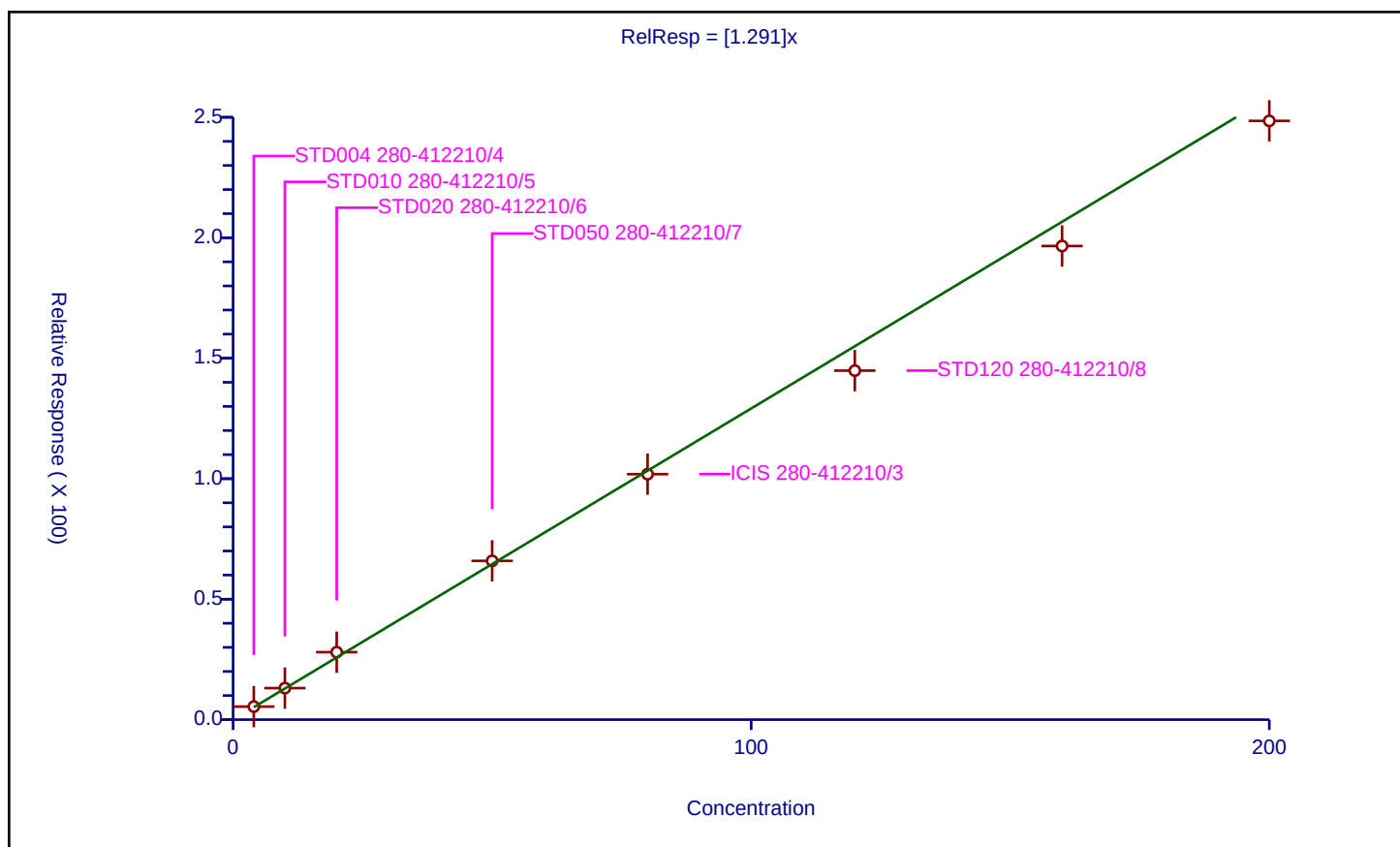
### Curve Coefficients

Intercept: 0  
 Slope: 1.291

### Error Coefficients

Standard Error: 1650000  
 Relative Standard Error: 5.1  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.996

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.408108   | 40.0      | 484909.0    | 1.352027 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 13.094978  | 40.0      | 465412.0    | 1.309498 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 28.006615  | 40.0      | 452316.0    | 1.400331 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 65.890623  | 40.0      | 464871.0    | 1.317812 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 101.887513 | 40.0      | 477337.0    | 1.273594 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 144.851817 | 40.0      | 483287.0    | 1.207098 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 196.566104 | 40.0      | 471744.0    | 1.228538 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 248.507334 | 40.0      | 465476.0    | 1.242537 | Y    |



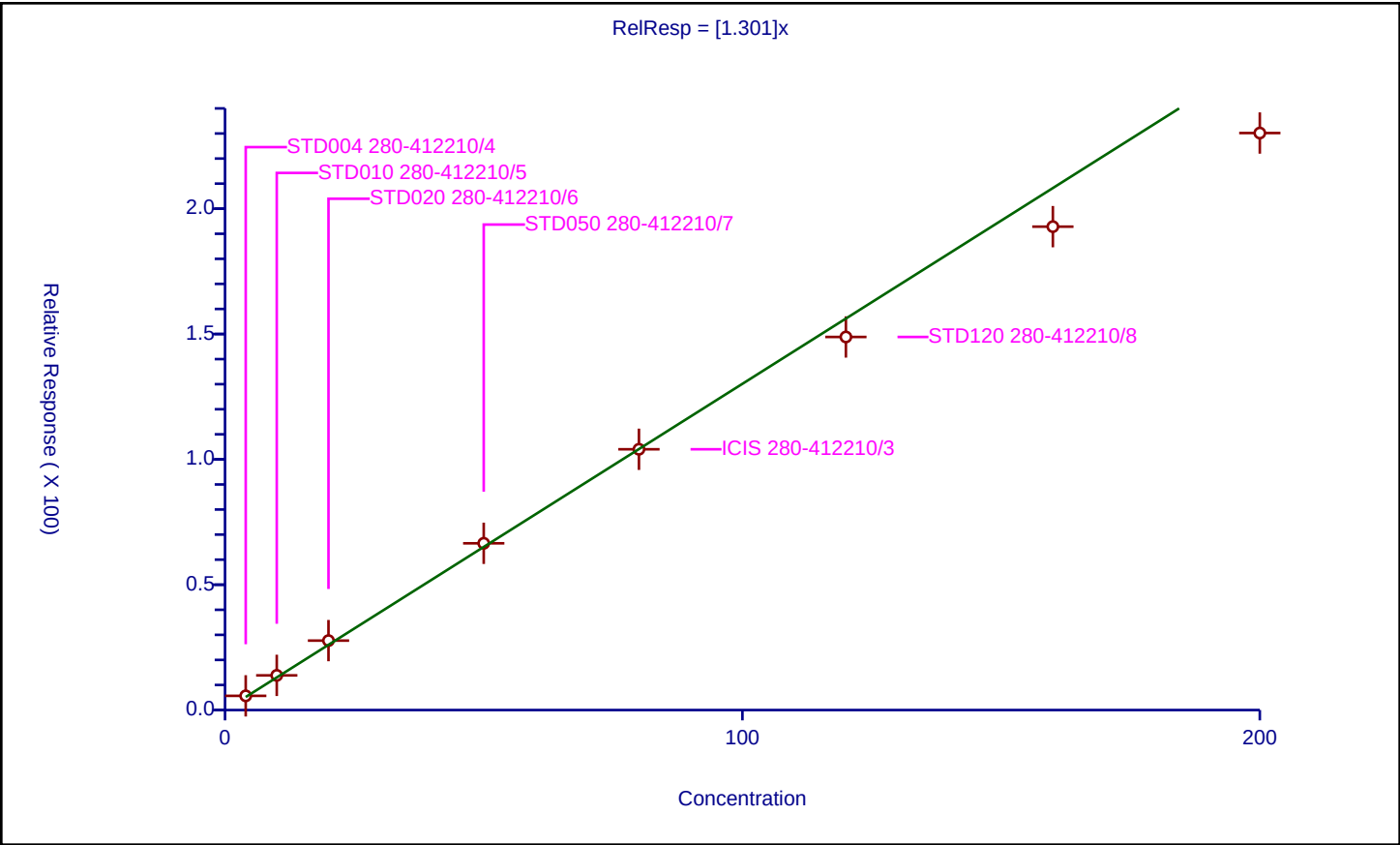
Calibration

/ Benzo[k]fluoranthene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 1.301   |
| Error Coefficients                       |         |
| Standard Error:                          | 1600000 |
| Relative Standard Error:                 | 7.3     |
| Correlation Coefficient:                 | 0.995   |
| Coefficient of Determination (Adjusted): | 0.992   |

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.665063   | 40.0      | 484909.0    | 1.416266 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 13.828866  | 40.0      | 465412.0    | 1.382887 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 27.705233  | 40.0      | 452316.0    | 1.385262 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 66.521594  | 40.0      | 464871.0    | 1.330432 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 104.033586 | 40.0      | 477337.0    | 1.30042  | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 148.829412 | 40.0      | 483287.0    | 1.240245 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 192.838065 | 40.0      | 471744.0    | 1.205238 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 230.186991 | 40.0      | 465476.0    | 1.150935 | Y    |



## Calibration

/ Benzo[a]pyrene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

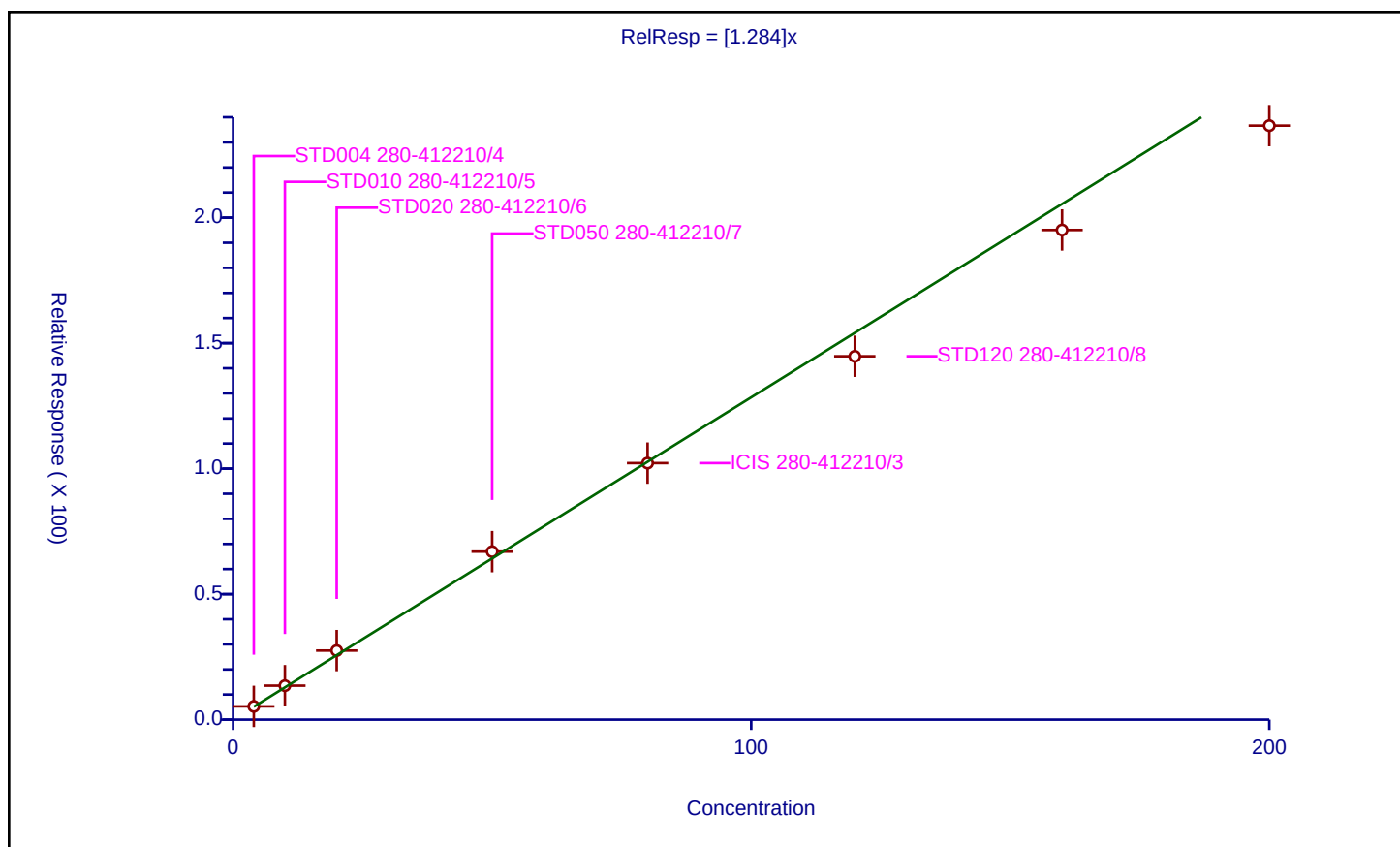
## Curve Coefficients

Intercept: 0  
Slope: 1.284

## Error Coefficients

Standard Error: 1610000  
Relative Standard Error: 5.7  
Correlation Coefficient: 0.998  
Coefficient of Determination (Adjusted): 0.996

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.274144   | 40.0      | 484909.0    | 1.318536 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 13.534073  | 40.0      | 465412.0    | 1.353407 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 27.517488  | 40.0      | 452316.0    | 1.375874 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 66.942528  | 40.0      | 464871.0    | 1.338851 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 102.209215 | 40.0      | 477337.0    | 1.277615 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 144.770292 | 40.0      | 483287.0    | 1.206419 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 195.086912 | 40.0      | 471744.0    | 1.219293 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 236.657271 | 40.0      | 465476.0    | 1.183286 | Y    |



## Calibration

/ Indeno[1,2,3-cd]pyrene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

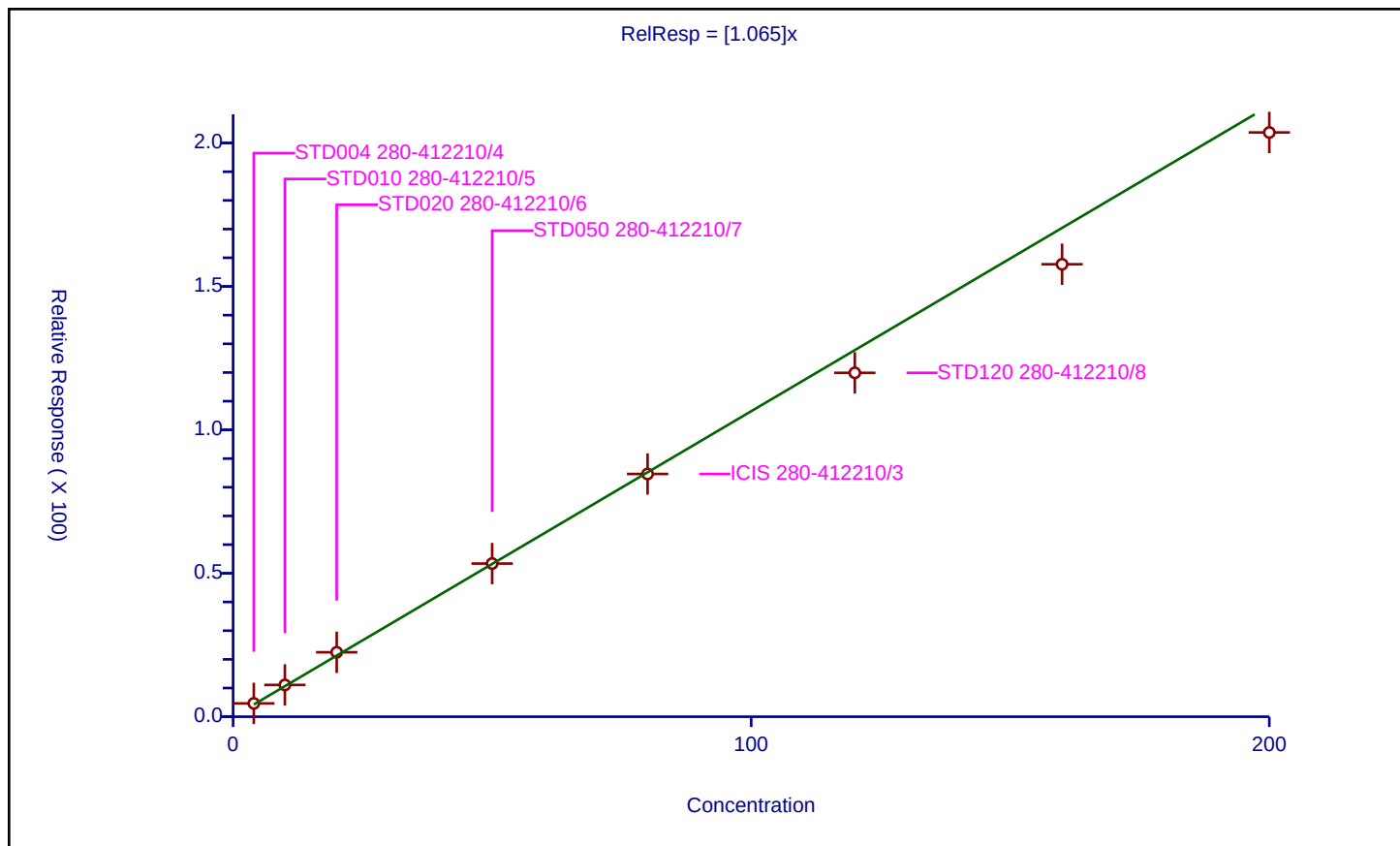
### Curve Coefficients

Intercept: 0  
 Slope: 1.065

### Error Coefficients

Standard Error: 1410000  
 Relative Standard Error: 5.8  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.995

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.638254   | 40.0      | 510192.0    | 1.159563 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 11.080378  | 40.0      | 489810.0    | 1.108038 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 22.46719   | 40.0      | 475764.0    | 1.123359 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 53.395995  | 40.0      | 495357.0    | 1.06792  | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 84.632015  | 40.0      | 495007.0    | 1.0579   | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 119.88078  | 40.0      | 501931.0    | 0.999007 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 157.741639 | 40.0      | 498078.0    | 0.985885 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 203.688624 | 40.0      | 484777.0    | 1.018443 | Y    |



## Calibration

/ Dibenz(a,h)anthracene

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: ISTD  
Response Base:  
RF Rounding: 0

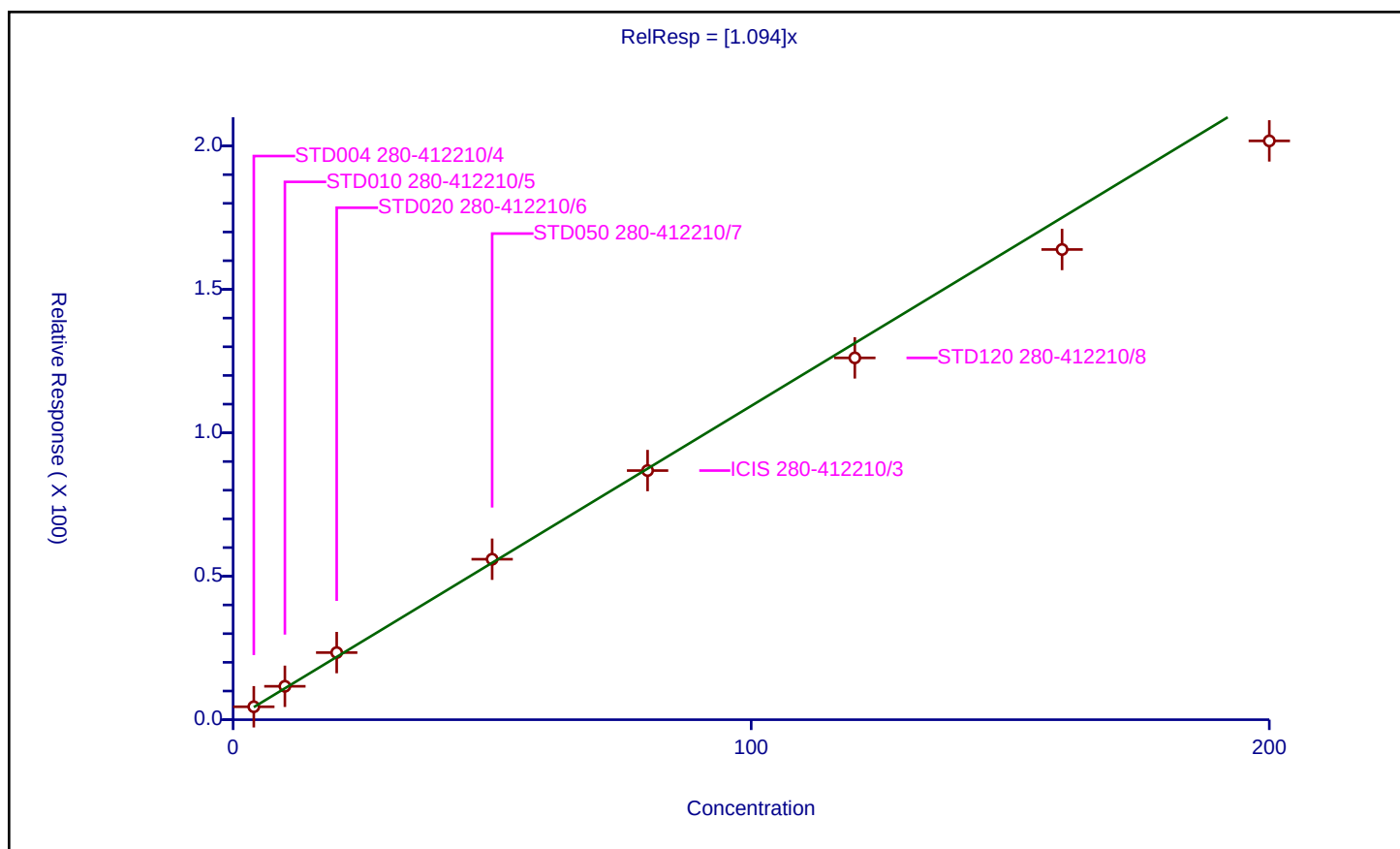
## Curve Coefficients

Intercept: 0  
Slope: 1.094

## Error Coefficients

Standard Error: 1370000  
Relative Standard Error: 5.6  
Correlation Coefficient: 0.998  
Coefficient of Determination (Adjusted): 0.996

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 4.513259   | 40.0      | 484909.0    | 1.128315 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 11.644135  | 40.0      | 465412.0    | 1.164413 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 23.393557  | 40.0      | 452316.0    | 1.169678 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 55.948338  | 40.0      | 464871.0    | 1.118967 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 86.846316  | 40.0      | 477337.0    | 1.085579 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 126.129939 | 40.0      | 483287.0    | 1.051083 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 163.910256 | 40.0      | 471744.0    | 1.024439 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 201.770489 | 40.0      | 465476.0    | 1.008852 | Y    |



## Calibration

/ Benzo[g,h,i]perylene

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: ISTD  
 Response Base:  
 RF Rounding: 0

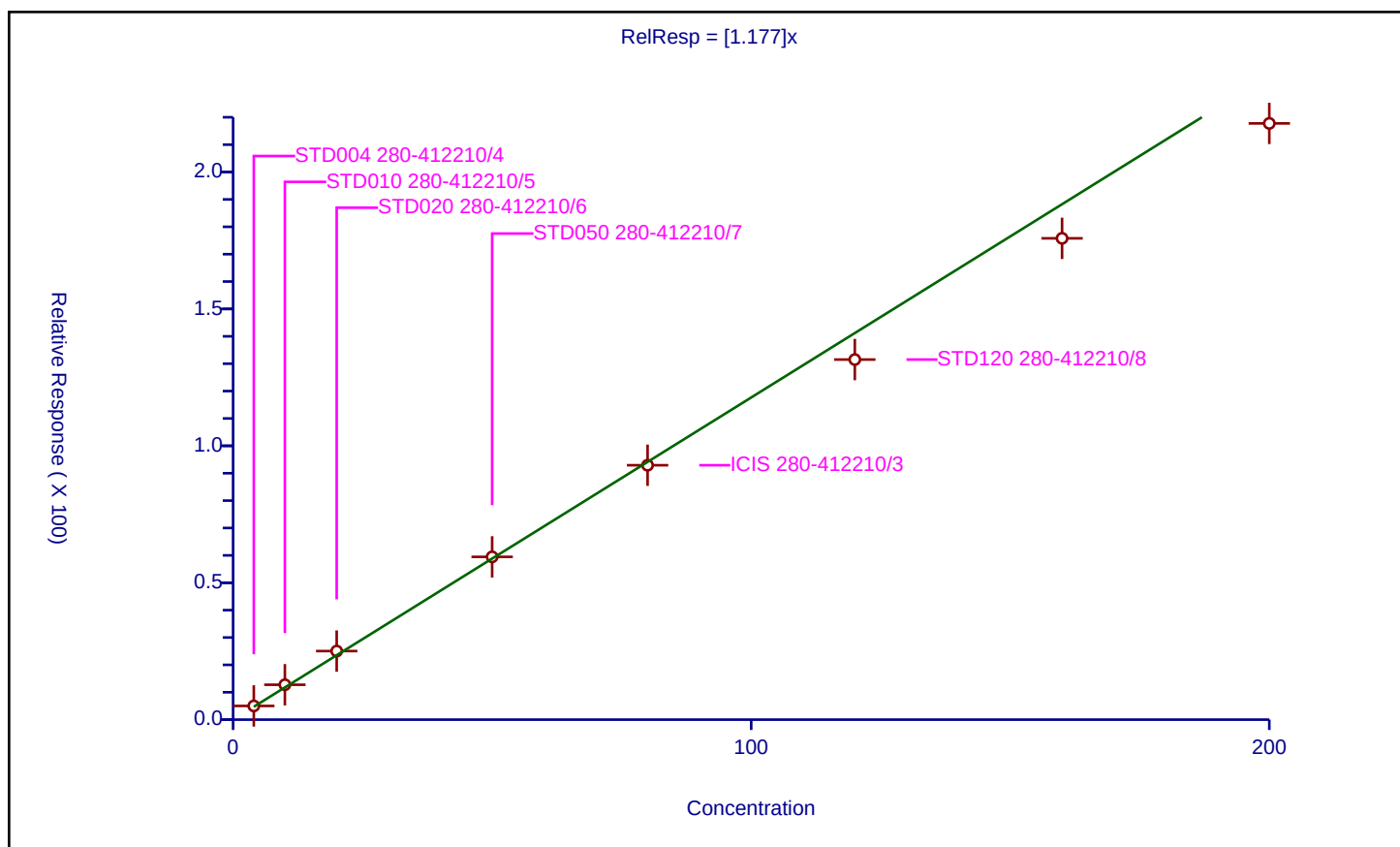
### Curve Coefficients

Intercept: 0  
 Slope: 1.177

### Error Coefficients

Standard Error: 1470000  
 Relative Standard Error: 6.6  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.994

| ID | Level                | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|----------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | STD004 280-412210/4  | 4.0           | 5.006383   | 40.0      | 484909.0    | 1.251596 | Y    |
| 2  | STD010 280-412210/5  | 10.0          | 12.747845  | 40.0      | 465412.0    | 1.274784 | Y    |
| 3  | STD020 280-412210/6  | 20.0          | 25.043377  | 40.0      | 452316.0    | 1.252169 | Y    |
| 4  | STD050 280-412210/7  | 50.0          | 59.452364  | 40.0      | 464871.0    | 1.189047 | Y    |
| 5  | ICIS 280-412210/3    | 80.0          | 92.91532   | 40.0      | 477337.0    | 1.161441 | Y    |
| 6  | STD120 280-412210/8  | 120.0         | 131.507531 | 40.0      | 483287.0    | 1.095896 | Y    |
| 7  | STD160 280-412210/9  | 160.0         | 175.788902 | 40.0      | 471744.0    | 1.098681 | Y    |
| 8  | STD200 280-412210/10 | 200.0         | 217.761603 | 40.0      | 465476.0    | 1.088808 | Y    |



FORM VII  
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: ICV 280-412210/11 Calibration Date: 04/21/2018 15:59

Instrument ID: SMS\_Y Calib Start Date: 04/21/2018 12:10

GC Column: Rxi-5Sil MS ID: 0.25 (mm) Calib End Date: 04/21/2018 15:30

Lab File ID: Y19209.D Conc. Units: ug/mL

| ANALYTE                | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|------------------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| Pyridine               | Ave           | 1.689   | 1.519  |         | 180            | 200             | -10.1 | 20.0      |
| Phenol                 | Ave           | 1.940   | 1.769  | 0.8000  | 91.1           | 100             | -8.9  | 20.0      |
| 2-Chlorophenol         | Ave           | 1.479   | 1.319  | 0.8000  | 89.2           | 100             | -10.8 | 20.0      |
| 1,4-Dichlorobenzene    | Ave           | 1.618   | 1.483  |         | 91.6           | 100             | -8.4  | 20.0      |
| 2-Methylphenol         | Ave           | 1.358   | 1.262  | 0.7000  | 92.9           | 100             | -7.1  | 20.0      |
| 3 & 4 Methylphenol     | Ave           | 1.442   | 1.282  |         | 88.9           | 100             | -11.1 | 20.0      |
| Hexachloroethane       | Ave           | 0.6113  | 0.5518 | 0.3000  | 90.3           | 100             | -9.7  | 20.0      |
| Nitrobenzene           | Ave           | 0.3976  | 0.3709 |         | 93.3           | 100             | -6.7  | 20.0      |
| Benzoic acid           | Lin2          |         | 0.3012 |         | 197            | 200             | -1.3  | 20.0      |
| 1,2,4-Trichlorobenzene | Ave           | 0.3033  | 0.2805 |         | 92.5           | 100             | -7.5  | 20.0      |
| Naphthalene            | Ave           | 0.9863  | 0.9005 | 0.7000  | 91.3           | 100             | -8.7  | 20.0      |
| Hexachlorobutadiene    | Ave           | 0.1567  | 0.1539 | 0.0100  | 98.2           | 100             | -1.8  | 20.0      |
| 2-Methylnaphthalene    | Ave           | 0.7015  | 0.6281 | 0.4000  | 89.5           | 100             | -10.5 | 20.0      |
| 1-Methylnaphthalene    | Ave           | 0.6610  | 0.5918 |         | 89.5           | 100             | -10.5 | 20.0      |
| 2,4,6-Trichlorophenol  | Ave           | 0.3586  | 0.3271 | 0.2000  | 91.2           | 100             | -8.8  | 20.0      |
| 2,4,5-Trichlorophenol  | Ave           | 0.4072  | 0.3848 | 0.2000  | 94.5           | 100             | -5.5  | 20.0      |
| 1,1'-Biphenyl          | Ave           | 1.394   | 1.267  |         | 90.9           | 100             | -9.1  | 50.0      |
| Acenaphthylene         | Ave           | 1.707   | 1.640  | 0.9000  | 96.1           | 100             | -3.9  | 20.0      |
| Acenaphthene           | Ave           | 1.082   | 0.9574 | 0.9000  | 88.5           | 100             | -11.5 | 20.0      |
| 2,4-Dinitrotoluene     | Ave           | 0.4262  | 0.3926 | 0.2000  | 92.1           | 100             | -7.9  | 20.0      |
| Dibenzofuran           | Ave           | 1.550   | 1.392  | 0.8000  | 89.8           | 100             | -10.2 | 20.0      |
| Fluorene               | Ave           | 1.271   | 1.126  | 0.9000  | 88.6           | 100             | -11.4 | 20.0      |
| Hexachlorobenzene      | Ave           | 0.1691  | 0.1503 | 0.1000  | 88.8           | 100             | -11.2 | 20.0      |
| Pentachlorophenol      | Lin2          |         | 0.1113 | 0.0500  | 198            | 200             | -1.0  | 20.0      |
| Phenanthrene           | Ave           | 1.105   | 0.9385 | 0.7000  | 84.9           | 100             | -15.1 | 20.0      |
| Anthracene             | Ave           | 1.154   | 0.9684 | 0.7000  | 83.9           | 100             | -16.1 | 20.0      |
| Fluoranthene           | Ave           | 1.291   | 1.111  | 0.6000  | 86.0           | 100             | -14.0 | 20.0      |
| Pyrene                 | Ave           | 1.323   | 1.177  | 0.6000  | 89.0           | 100             | -11.0 | 20.0      |
| Benzo[a]anthracene     | Ave           | 1.255   | 1.119  | 0.8000  | 89.2           | 100             | -10.8 | 20.0      |
| Chrysene               | Ave           | 1.213   | 1.110  | 0.7000  | 91.5           | 100             | -8.5  | 20.0      |
| Benzo[b]fluoranthene   | Ave           | 1.291   | 1.124  | 0.7000  | 87.0           | 100             | -13.0 | 20.0      |
| Benzo[k]fluoranthene   | Ave           | 1.301   | 1.163  | 0.7000  | 89.3           | 100             | -10.7 | 20.0      |
| Benzo[a]pyrene         | Ave           | 1.284   | 1.141  | 0.7000  | 88.9           | 100             | -11.1 | 20.0      |
| Indeno[1,2,3-cd]pyrene | Ave           | 1.065   | 0.9309 | 0.5000  | 87.4           | 100             | -12.6 | 20.0      |
| Dibenz(a,h)anthracene  | Ave           | 1.094   | 0.9684 | 0.4000  | 88.5           | 100             | -11.5 | 20.0      |
| Benzo[g,h,i]perylene   | Ave           | 1.177   | 1.004  | 0.5000  | 85.3           | 100             | -14.7 | 20.0      |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19209.D  
 Lims ID: ICV HSL 1  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 21-Apr-2018 15:59:30 ALS Bottle#: 10 Worklist Smp#: 11  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: ICV HSL 1  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Sublist:  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:46 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 06:43:21

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.677     | 4.678         | -0.001        | 97 | 110620   | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8            | 136 | 5.893     | 5.894         | -0.001        | 99 | 453931   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10          | 164 | 7.644     | 7.645         | -0.001        | 93 | 272481   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10          | 188 | 9.142     | 9.143         | -0.001        | 97 | 501731   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12              | 240 | 13.236    | 13.249        | -0.013        | 98 | 492891   | 40.0          | 40.0            |       |
| * 6 Perylene-d12              | 264 | 17.184    | 17.197        | -0.013        | 96 | 486318   | 40.0          | 40.0            |       |
| 15 1,4-Dioxane                | 88  | 2.257     | 2.258         | -0.001        | 98 | 149198   | 100.0         | 86.4            |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.457     | 2.464         | -0.007        | 93 | 260724   | 100.0         | 91.2            |       |
| 18 Pyridine                   | 79  | 2.510     | 2.511         | -0.001        | 94 | 839935   | 200.0         | 179.9           |       |
| 28 Phenol                     | 94  | 4.313     | 4.320         | -0.007        | 99 | 489112   | 100.0         | 91.1            |       |
| 30 Aniline                    | 93  | 4.366     | 4.367         | -0.001        | 98 | 610892   | 100.0         | 89.9            |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.407     | 4.408         | -0.001        | 97 | 361654   | 100.0         | 90.1            |       |
| 32 Alpha Methyl Styrene       | 118 | 4.425     | 4.426         | -0.001        | 92 | 369843   | 100.0         | 89.2            |       |
| 34 2-Chlorophenol             | 128 | 4.489     | 4.490         | -0.001        | 97 | 364861   | 100.0         | 89.2            |       |
| 35 n-Decane                   | 43  | 4.519     | 4.520         | -0.001        | 93 | 407010   | 100.0         | 89.4            |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.630     | 4.631         | -0.001        | 97 | 407253   | 100.0         | 90.4            |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.695     | 4.696         | -0.001        | 93 | 410144   | 100.0         | 91.6            |       |
| 39 Benzyl alcohol             | 108 | 4.783     | 4.784         | -0.001        | 92 | 252415   | 100.0         | 91.9            |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.842     | 4.843         | -0.001        | 97 | 396285   | 100.0         | 92.7            |       |
| 41 2-Methylphenol             | 108 | 4.877     | 4.878         | -0.001        | 96 | 349045   | 100.0         | 92.9            |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.912     | 4.913         | -0.001        | 93 | 523451   | 100.0         | 85.9            |       |
| 44 Indene                     | 116 | 4.924     | 4.925         | -0.001        | 91 | 1028904  | 200.0         | 157.8           |       |
| 46 3-Methylphenol             | 108 | 5.018     | 5.019         | -0.001        | 92 | 354634   | 100.0         | 88.9            |       |
| 47 4-Methylphenol             | 108 | 5.018     | 5.019         | -0.001        | 95 | 354634   | 100.0         | 88.9            |       |
| 48 3 & 4 Methylphenol         | 108 | 5.018     | 5.019         | -0.001        | 0  | 354634   | 100.0         | 88.9            |       |
| 50 N-Nitrosodi-n-propylamine  | 70  | 5.036     | 5.031         | 0.005         | 91 | 293912   | 100.0         | 90.2            |       |
| 51 Acetophenone               | 105 | 5.042     | 5.043         | -0.001        | 97 | 470345   | 100.0         | 90.5            |       |
| 53 Hexachloroethane           | 117 | 5.165     | 5.166         | -0.001        | 97 | 152587   | 100.0         | 90.3            |       |
| 54 Nitrobenzene               | 77  | 5.206     | 5.207         | -0.001        | 88 | 420855   | 100.0         | 93.3            |       |
| 57 Isophorone                 | 82  | 5.435     | 5.436         | -0.001        | 99 | 757163   | 100.0         | 93.8            |       |



| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| 58 2-Nitrophenol               | 139 | 5.511     | 5.512         | -0.001        | 95  | 211822   | 100.0         | 93.8            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.535     | 5.536         | -0.001        | 94  | 363567   | 100.0         | 90.7            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.623     | 5.624         | -0.001        | 98  | 449417   | 100.0         | 90.2            |       |
| 64 Benzoic acid                | 105 | 5.658     | 5.653         | 0.005         | 89  | 683649   | 200.0         | 197.5           |       |
| 66 3,5-Dimethylphenol          | 107 | 5.664     | 5.659         | 0.005         | 91  | 367596   | 100.0         | 89.8            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.746     | 5.747         | -0.001        | 95  | 308041   | 100.0         | 91.5            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.835     | 5.841         | -0.006        | 94  | 318288   | 100.0         | 92.5            |       |
| 71 Naphthalene                 | 128 | 5.917     | 5.918         | -0.001        | 98  | 1021860  | 100.0         | 91.3            |       |
| 72 4-Chloroaniline             | 127 | 5.952     | 5.953         | -0.001        | 96  | 481215   | 100.0         | 90.5            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.964     | 5.971         | -0.007        | 97  | 304678   | 100.0         | 91.7            |       |
| 75 Hexachlorobutadiene         | 225 | 6.040     | 6.041         | -0.001        | 97  | 174611   | 100.0         | 98.2            |       |
| 83 4-Chloro-3-methylphenol     | 107 | 6.416     | 6.423         | -0.007        | 95  | 326877   | 100.0         | 89.5            |       |
| 86 2-Methylnaphthalene         | 142 | 6.598     | 6.599         | -0.001        | 93  | 712808   | 100.0         | 89.5            |       |
| 88 1-Methylnaphthalene         | 142 | 6.698     | 6.699         | -0.001        | 93  | 671610   | 100.0         | 89.5            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.769     | 6.770         | -0.001        | 97  | 300929   | 100.0         | 89.9            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.763     | 6.764         | -0.001        | 95  | 207800   | 100.0         | 98.0            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.868     | 6.875         | -0.007        | 82  | 222846   | 100.0         | 91.2            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.868     | 6.875         | -0.007        | 90  | 355974   | 100.0         | 88.0            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.904     | 6.911         | -0.007        | 96  | 262142   | 100.0         | 94.5            |       |
| 98 1,1'-Biphenyl               | 154 | 7.056     | 7.057         | -0.001        | 95  | 863071   | 100.0         | 90.9            |       |
| 99 2-Chloronaphthalene         | 162 | 7.086     | 7.087         | -0.001        | 96  | 698682   | 100.0         | 90.5            |       |
| 101 2-Nitroaniline             | 65  | 7.168     | 7.169         | -0.001        | 88  | 247579   | 100.0         | 90.3            |       |
| 104 Dimethyl phthalate         | 163 | 7.350     | 7.351         | -0.001        | 99  | 810174   | 100.0         | 90.8            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.380     | 7.381         | -0.001        | 88  | 148503   | 100.0         | 98.1            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.409     | 7.410         | -0.001        | 97  | 200267   | 100.0         | 93.3            |       |
| 107 Acenaphthylene             | 152 | 7.503     | 7.504         | -0.001        | 98  | 1117296  | 100.0         | 96.1            |       |
| 108 3-Nitroaniline             | 138 | 7.579     | 7.580         | -0.001        | 98  | 244752   | 100.0         | 91.5            |       |
| 109 Acenaphthene               | 153 | 7.679     | 7.680         | -0.001        | 93  | 652184   | 100.0         | 88.5            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.685     | 7.692         | -0.007        | 84  | 288666   | 200.0         | 197.2           |       |
| 112 4-Nitrophenol              | 109 | 7.738     | 7.745         | -0.007        | 96  | 254567   | 200.0         | 186.6           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.814     | 7.821         | -0.007        | 94  | 267470   | 100.0         | 92.1            |       |
| 116 Dibenzofuran               | 168 | 7.849     | 7.850         | -0.001        | 96  | 948248   | 100.0         | 89.8            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.967     | 7.974         | -0.007        | 75  | 192891   | 100.0         | 93.1            |       |
| 123 Diethyl phthalate          | 149 | 8.055     | 8.056         | -0.001        | 98  | 806303   | 100.0         | 90.7            |       |
| 124 Hexadecane                 | 57  | 8.073     | 8.074         | -0.001        | 95  | 484963   | 100.0         | 87.8            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.178     | 8.179         | -0.001        | 95  | 367053   | 100.0         | 88.5            |       |
| 129 Fluorene                   | 166 | 8.196     | 8.197         | -0.001        | 96  | 767355   | 100.0         | 88.6            |       |
| 130 4-Nitroaniline             | 138 | 8.202     | 8.203         | -0.001        | 86  | 223910   | 100.0         | 81.9            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.237     | 8.238         | -0.001        | 86  | 368799   | 200.0         | 210.3           |       |
| 134 Diphenylamine              | 169 | 8.296     | 8.297         | -0.001        | 97  | 647537   | 85.0          | 75.7            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.296     | 8.297         | -0.001        | 60  | 647537   | 100.0         | 86.4            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.343     | 8.344         | -0.001        | 99  | 913891   | 101.1         | 92.4            |       |
| 137 Azobenzene                 | 77  | 8.343     | 8.344         | -0.001        | 99  | 913891   | 100.0         | 91.4            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.672     | 8.679         | -0.007        | 70  | 200173   | 100.0         | 85.6            |       |
| 151 Hexachlorobenzene          | 284 | 8.766     | 8.767         | -0.001        | 91  | 188508   | 100.0         | 88.8            |       |
| 155 Pentachlorophenol          | 266 | 8.948     | 8.955         | -0.007        | 90  | 279301   | 200.0         | 198.0           |       |
| 158 n-Octadecane               | 85  | 8.995     | 8.996         | -0.001        | 96  | 229900   | 100.0         | 96.9            |       |
| 161 Phenanthrene               | 178 | 9.165     | 9.166         | -0.001        | 98  | 1177175  | 100.0         | 84.9            |       |
| 162 Anthracene                 | 178 | 9.218     | 9.219         | -0.001        | 98  | 1214659  | 100.0         | 83.9            |       |
| 164 Carbazole                  | 167 | 9.365     | 9.372         | -0.007        | 96  | 1182349  | 100.0         | 86.5            |       |
| 166 Alachlor                   | 188 | 9.506     | 9.507         | -0.001        | 99  | 173207   | 100.0         | 87.1            |       |
| 168 Di-n-butyl phthalate       | 149 | 9.712     | 9.719         | -0.007        | 100 | 1440617  | 100.0         | 86.9            |       |

| Compound                       | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|--------------------------------|-----|--------------|------------------|------------------|----|----------|------------------|--------------------|-------|
| 175 Fluoranthene               | 202 | 10.552       | 10.553           | -0.001           | 98 | 1393126  | 100.0            | 86.0               |       |
| 178 Pyrene                     | 202 | 10.887       | 10.893           | -0.006           | 96 | 1450670  | 100.0            | 89.0               |       |
| 187 Butyl benzyl phthalate     | 149 | 12.003       | 12.010           | -0.007           | 98 | 729779   | 100.0            | 91.1               |       |
| 191 Benzo[a]anthracene         | 228 | 13.213       | 13.226           | -0.013           | 99 | 1379066  | 100.0            | 89.2               |       |
| 192 Chrysene                   | 228 | 13.307       | 13.314           | -0.007           | 97 | 1368183  | 100.0            | 91.5               |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.377       | 13.390           | -0.013           | 97 | 991526   | 100.0            | 90.7               |       |
| 195 Di-n-octyl phthalate       | 149 | 15.187       | 15.199           | -0.012           | 99 | 1822124  | 100.0            | 93.1               |       |
| 196 Benzo[b]fluoranthene       | 252 | 16.091       | 16.104           | -0.013           | 98 | 1366130  | 100.0            | 87.0               |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.174       | 16.180           | -0.006           | 99 | 1413376  | 100.0            | 89.3               |       |
| 200 Benzo[e]pyrene             | 252 | 16.878       | 16.885           | -0.007           | 98 | 1292841  | 100.0            | 88.4               |       |
| 201 Benzo[a]pyrene             | 252 | 17.025       | 17.038           | -0.013           | 78 | 1387535  | 100.0            | 88.9               |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.321       | 20.328           | -0.007           | 97 | 1147135  | 100.0            | 87.4               |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.415       | 20.422           | -0.007           | 96 | 1177424  | 100.0            | 88.5               |       |
| 209 Benzo[g,h,i]perylene       | 276 | 21.061       | 21.074           | -0.013           | 96 | 1220290  | 100.0            | 85.3               |       |

**Reagents:**

MS-HSLB1B3SSV\_00046

Amount Added: 200.00

Units: uL

Report Date: 22-Apr-2018 07:59:49

Chrom Revision: 2.2 17-Apr-2018 19:19:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19209.D

Injection Date: 21-Apr-2018 15:59:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: ICV HSL 1

Worklist Smp#: 11

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

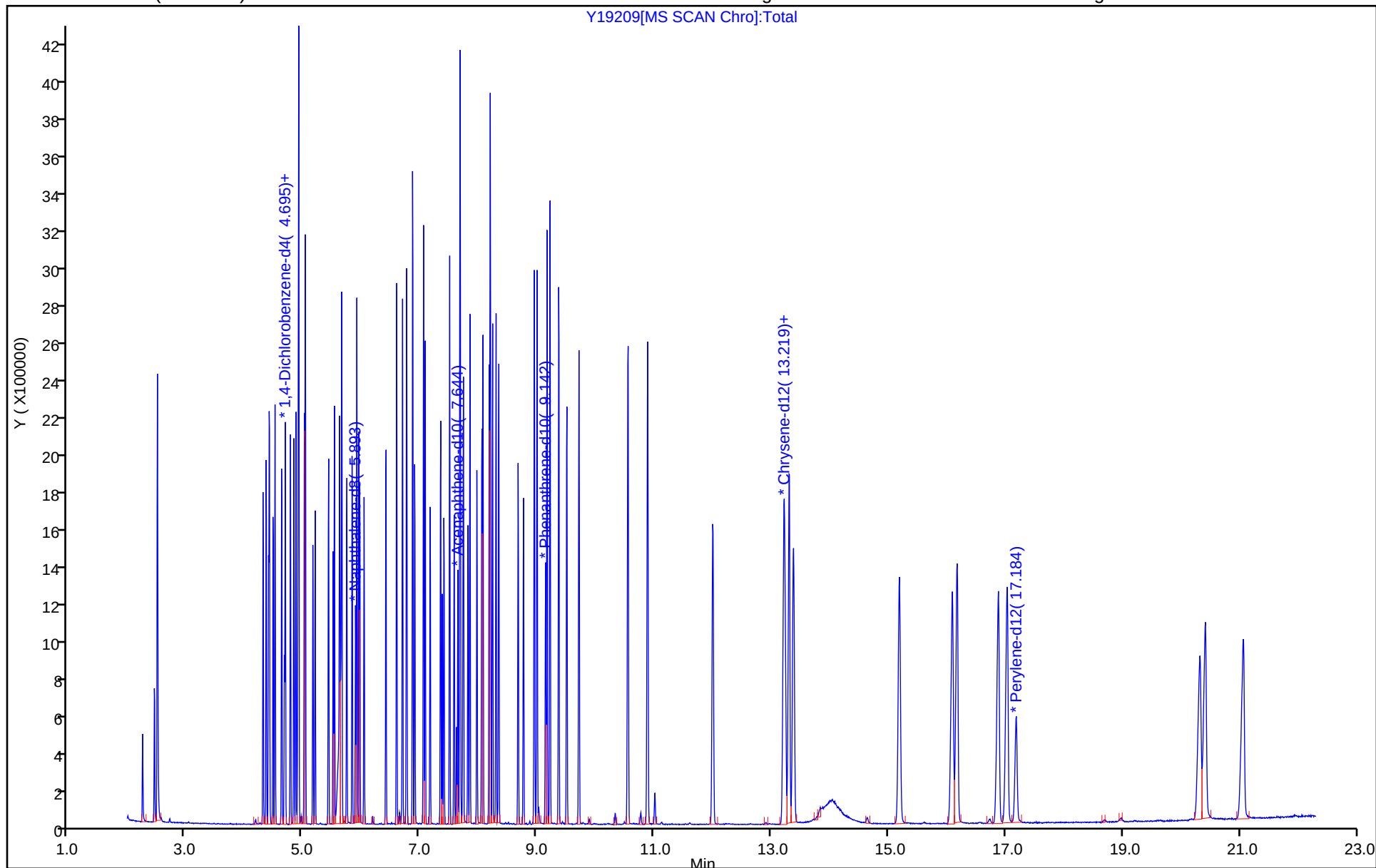
ALS Bottle#: 10

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII  
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 280-416357/3 Calibration Date: 05/25/2018 16:31

Instrument ID: SMS\_Y Calib Start Date: 04/21/2018 12:10

GC Column: Rxi-5Sil MS ID: 0.25 (mm) Calib End Date: 04/21/2018 15:30

Lab File ID: Y19663.D Conc. Units: ug/mL

| ANALYTE                | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|------------------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| Pyridine               | Ave           | 1.689   | 1.704  |         | 161            | 160             | 0.9   | 20.0      |
| Phenol                 | Ave           | 1.940   | 1.890  | 0.8000  | 77.9           | 80.0            | -2.6  | 20.0      |
| 2-Chlorophenol         | Ave           | 1.479   | 1.444  | 0.8000  | 78.1           | 80.0            | -2.4  | 20.0      |
| 1,4-Dichlorobenzene    | Ave           | 1.618   | 1.593  |         | 78.7           | 80.0            | -1.6  | 20.0      |
| 2-Methylphenol         | Ave           | 1.358   | 1.328  | 0.7000  | 78.2           | 80.0            | -2.2  | 20.0      |
| 3 & 4 Methylphenol     | Ave           | 1.442   | 1.279  |         | 71.0           | 80.0            | -11.3 | 20.0      |
| Hexachloroethane       | Ave           | 0.6113  | 0.5877 | 0.3000  | 76.9           | 80.0            | -3.9  | 20.0      |
| Nitrobenzene           | Ave           | 0.3976  | 0.3968 |         | 79.9           | 80.0            | -0.2  | 20.0      |
| Benzoic acid           | Lin2          |         | 0.3002 |         | 158            | 160             | -1.2  | 20.0      |
| 1,2,4-Trichlorobenzene | Ave           | 0.3033  | 0.3057 |         | 80.7           | 80.0            | 0.8   | 20.0      |
| Naphthalene            | Ave           | 0.9863  | 0.9655 | 0.7000  | 78.3           | 80.0            | -2.1  | 20.0      |
| Hexachlorobutadiene    | Ave           | 0.1567  | 0.1594 | 0.0100  | 81.4           | 80.0            | 1.7   | 20.0      |
| 2-Methylnaphthalene    | Ave           | 0.7015  | 0.6741 | 0.4000  | 76.9           | 80.0            | -3.9  | 20.0      |
| 1-Methylnaphthalene    | Ave           | 0.6610  | 0.6423 |         | 77.7           | 80.0            | -2.8  | 20.0      |
| 2,4,6-Trichlorophenol  | Ave           | 0.3586  | 0.3663 | 0.2000  | 81.7           | 80.0            | 2.1   | 20.0      |
| 2,4,5-Trichlorophenol  | Ave           | 0.4072  | 0.4039 | 0.2000  | 79.3           | 80.0            | -0.8  | 20.0      |
| 1,1'-Biphenyl          | Ave           | 1.394   | 1.396  |         | 80.1           | 80.0            | 0.1   | 20.0      |
| Acenaphthylene         | Ave           | 1.707   | 1.692  | 0.9000  | 79.3           | 80.0            | -0.9  | 20.0      |
| Acenaphthene           | Ave           | 1.082   | 1.079  | 0.9000  | 79.8           | 80.0            | -0.3  | 20.0      |
| 2,4-Dinitrotoluene     | Ave           | 0.4262  | 0.4345 | 0.2000  | 81.6           | 80.0            | 1.9   | 20.0      |
| Dibenzofuran           | Ave           | 1.550   | 1.540  | 0.8000  | 79.5           | 80.0            | -0.6  | 20.0      |
| Fluorene               | Ave           | 1.271   | 1.236  | 0.9000  | 77.8           | 80.0            | -2.8  | 20.0      |
| Hexachlorobenzene      | Ave           | 0.1691  | 0.1681 | 0.1000  | 79.5           | 80.0            | -0.6  | 20.0      |
| Atrazine               | Ave           | 0.1985  | 0.1835 |         | 73.9           | 80.0            | -7.6  | 20.0      |
| Pentachlorophenol      | Lin2          |         | 0.1008 | 0.0500  | 143            | 160             | -10.8 | 20.0      |
| Phenanthrene           | Ave           | 1.105   | 1.083  | 0.7000  | 78.4           | 80.0            | -2.0  | 20.0      |
| Anthracene             | Ave           | 1.154   | 1.120  | 0.7000  | 77.6           | 80.0            | -3.0  | 20.0      |
| Fluoranthene           | Ave           | 1.291   | 1.249  | 0.6000  | 77.4           | 80.0            | -3.2  | 20.0      |
| Pyrene                 | Ave           | 1.323   | 1.320  | 0.6000  | 79.8           | 80.0            | -0.2  | 20.0      |
| Benzo[a]anthracene     | Ave           | 1.255   | 1.232  | 0.8000  | 78.5           | 80.0            | -1.9  | 20.0      |
| Chrysene               | Ave           | 1.213   | 1.178  | 0.7000  | 77.7           | 80.0            | -2.9  | 20.0      |
| Benzo[b]fluoranthene   | Ave           | 1.291   | 1.307  | 0.7000  | 80.9           | 80.0            | 1.2   | 20.0      |
| Benzo[k]fluoranthene   | Ave           | 1.301   | 1.317  | 0.7000  | 80.9           | 80.0            | 1.2   | 20.0      |
| Benzo[a]pyrene         | Ave           | 1.284   | 1.297  | 0.7000  | 80.8           | 80.0            | 1.0   | 20.0      |
| Indeno[1,2,3-cd]pyrene | Ave           | 1.065   | 0.9643 | 0.5000  | 72.4           | 80.0            | -9.5  | 20.0      |
| Dibenz(a,h)anthracene  | Ave           | 1.094   | 1.062  | 0.4000  | 77.7           | 80.0            | -2.9  | 20.0      |
| Benzo[g,h,i]perylene   | Ave           | 1.177   | 1.148  | 0.5000  | 78.0           | 80.0            | -2.5  | 20.0      |
| 2-Fluorophenol (Surr)  | Ave           | 1.471   | 1.421  |         | 77.3           | 80.0            | -3.4  | 20.0      |
| Phenol-d5 (Surr)       | Ave           | 1.832   | 1.760  |         | 76.9           | 80.0            | -3.9  | 20.0      |
| Nitrobenzene-d5 (Surr) | Ave           | 0.4027  | 0.3862 |         | 76.7           | 80.0            | -4.1  | 20.0      |
| 2-Fluorobiphenyl       | Ave           | 1.291   | 1.291  |         | 80.0           | 80.0            | 0.0   | 20.0      |

FORM VII  
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab Sample ID: CCV 280-416357/3 Calibration Date: 05/25/2018 16:31  
Instrument ID: SMS\_Y Calib Start Date: 04/21/2018 12:10  
GC Column: Rxi-5Sil MS ID: 0.25 (mm) Calib End Date: 04/21/2018 15:30  
Lab File ID: Y19663.D Conc. Units: ug/mL

| ANALYTE                     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-----------------------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 2,4,6-Tribromophenol (Surr) | Ave           | 0.1502  | 0.1508 |         | 80.3           | 80.0            | 0.4  | 20.0      |
| Terphenyl-d14 (Surr)        | Ave           | 0.8714  | 0.8518 |         | 78.2           | 80.0            | -2.3 | 20.0      |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19663.D  
 Lims ID: CCV HSL  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 25-May-2018 16:31:30 ALS Bottle#: 2 Worklist Smp#: 3  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV HSL  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 25-May-2018 16:56:40

| Compound                      | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.625        | 4.625            | 0.000            | 96  | 121259   | 40.0             | 40.0               |       |
| * 2 Naphthalene-d8            | 136 | 5.858        | 5.858            | 0.000            | 99  | 502368   | 40.0             | 40.0               |       |
| * 3 Acenaphthene-d10          | 164 | 7.603        | 7.603            | 0.000            | 92  | 289711   | 40.0             | 40.0               |       |
| * 4 Phenanthrene-d10          | 188 | 9.095        | 9.095            | 0.000            | 97  | 512275   | 40.0             | 40.0               |       |
| * 5 Chrysene-d12              | 240 | 13.125       | 13.125           | 0.000            | 98  | 506954   | 40.0             | 40.0               |       |
| * 6 Perylene-d12              | 264 | 17.025       | 17.025           | 0.000            | 96  | 459711   | 40.0             | 40.0               |       |
| \$ 7 2-Fluorophenol           | 112 | 3.432        | 3.432            | 0.000            | 93  | 344693   | 80.0             | 77.3               |       |
| \$ 8 Phenol-d5                | 99  | 4.266        | 4.266            | 0.000            | 0   | 426894   | 80.0             | 76.9               |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.147        | 5.147            | 0.000            | 89  | 388064   | 80.0             | 76.7               |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.916        | 6.916            | 0.000            | 100 | 748054   | 80.0             | 80.0               |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.396        | 8.396            | 0.000            | 89  | 87375    | 80.0             | 80.3               |       |
| \$ 13 Terphenyl-d14           | 244 | 11.022       | 11.022           | 0.000            | 98  | 863629   | 80.0             | 78.2               |       |
| 15 1,4-Dioxane                | 88  | 2.016        | 2.016            | 0.000            | 96  | 143228   | 80.0             | 75.7               |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.251        | 2.251            | 0.000            | 92  | 248700   | 80.0             | 79.3               |       |
| 18 Pyridine                   | 79  | 2.310        | 2.310            | 0.000            | 95  | 826302   | 160.0            | 161.4              |       |
| 28 Phenol                     | 94  | 4.278        | 4.278            | 0.000            | 99  | 458238   | 80.0             | 77.9               |       |
| 30 Aniline                    | 93  | 4.307        | 4.307            | 0.000            | 97  | 572864   | 80.0             | 76.9               |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.354        | 4.354            | 0.000            | 94  | 334112   | 80.0             | 75.9               |       |
| 32 Alpha Methyl Styrene       | 118 | 4.360        | 4.360            | 0.000            | 92  | 341042   | 80.0             | 75.0               |       |
| 34 2-Chlorophenol             | 128 | 4.437        | 4.437            | 0.000            | 97  | 350299   | 80.0             | 78.1               |       |
| 35 n-Decane                   | 43  | 4.460        | 4.460            | 0.000            | 92  | 374344   | 80.0             | 75.0               |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.578        | 4.578            | 0.000            | 98  | 383831   | 80.0             | 77.7               |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.642        | 4.642            | 0.000            | 94  | 386211   | 80.0             | 78.7               |       |
| 39 Benzyl alcohol             | 108 | 4.742        | 4.742            | 0.000            | 91  | 228392   | 80.0             | 75.8               |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.789        | 4.789            | 0.000            | 96  | 370677   | 80.0             | 79.1               |       |
| 41 2-Methylphenol             | 108 | 4.848        | 4.848            | 0.000            | 97  | 322067   | 80.0             | 78.2               |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.865        | 4.865            | 0.000            | 92  | 480173   | 80.0             | 71.9               |       |
| 44 Indene                     | 116 | 4.877        | 4.877            | 0.000            | 90  | 1123327  | 160.0            | 157.0              |       |
| 46 3-Methylphenol             | 108 | 4.995        | 4.995            | 0.000            | 89  | 310241   | 80.0             | 71.0               |       |
| 47 4-Methylphenol             | 108 | 4.995        | 4.995            | 0.000            | 89  | 310241   | 80.0             | 71.0               |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 4.995     | 4.995         | 0.000         | 0  | 310241   | 80.0          | 71.0            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 4.989     | 4.989         | 0.000         | 89 | 255522   | 80.0          | 71.6            |       |
| 51 Acetophenone                | 105 | 4.995     | 4.995         | 0.000         | 94 | 442975   | 80.0          | 75.8            |       |
| 53 Hexachloroethane            | 117 | 5.118     | 5.118         | 0.000         | 95 | 142515   | 80.0          | 76.9            |       |
| 54 Nitrobenzene                | 77  | 5.165     | 5.165         | 0.000         | 88 | 398723   | 80.0          | 79.9            |       |
| 57 Isophorone                  | 82  | 5.394     | 5.394         | 0.000         | 99 | 683149   | 80.0          | 76.5            |       |
| 58 2-Nitrophenol               | 139 | 5.476     | 5.476         | 0.000         | 95 | 199094   | 80.0          | 79.7            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.506     | 5.506         | 0.000         | 95 | 347509   | 80.0          | 78.3            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.588     | 5.588         | 0.000         | 99 | 429117   | 80.0          | 77.8            |       |
| 64 Benzoic acid                | 105 | 5.653     | 5.653         | 0.000         | 88 | 603174   | 160.0         | 158.2           |       |
| 66 3,5-Dimethylphenol          | 107 | 5.641     | 5.641         | 0.000         | 90 | 353897   | 80.0          | 78.1            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.717     | 5.717         | 0.000         | 95 | 300108   | 80.0          | 80.5            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.800     | 5.800         | 0.000         | 94 | 307183   | 80.0          | 80.7            |       |
| 71 Naphthalene                 | 128 | 5.882     | 5.882         | 0.000         | 98 | 970081   | 80.0          | 78.3            |       |
| 72 4-Chloroaniline             | 127 | 5.917     | 5.917         | 0.000         | 95 | 452419   | 80.0          | 76.9            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.935     | 5.935         | 0.000         | 97 | 294319   | 80.0          | 80.1            |       |
| 75 Hexachlorobutadiene         | 225 | 6.005     | 6.005         | 0.000         | 97 | 160104   | 80.0          | 81.4            |       |
| 79 Caprolactam                 | 55  | 6.269     | 6.269         | 0.000         | 79 | 180735   | 80.0          | 74.2            | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.405     | 6.405         | 0.000         | 96 | 319327   | 80.0          | 79.0            |       |
| 86 2-Methylnaphthalene         | 142 | 6.563     | 6.563         | 0.000         | 93 | 677290   | 80.0          | 76.9            |       |
| 88 1-Methylnaphthalene         | 142 | 6.663     | 6.663         | 0.000         | 93 | 645353   | 80.0          | 77.7            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.734     | 6.734         | 0.000         | 97 | 290950   | 80.0          | 78.5            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.728     | 6.728         | 0.000         | 96 | 179383   | 80.0          | 79.6            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.845     | 6.845         | 0.000         | 92 | 212220   | 80.0          | 81.7            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.839     | 6.839         | 0.000         | 95 | 343387   | 80.0          | 79.8            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.886     | 6.886         | 0.000         | 94 | 234012   | 80.0          | 79.3            |       |
| 98 1,1'-Biphenyl               | 154 | 7.021     | 7.021         | 0.000         | 95 | 808923   | 80.0          | 80.1            |       |
| 99 2-Chloronaphthalene         | 162 | 7.051     | 7.051         | 0.000         | 96 | 662832   | 80.0          | 80.8            |       |
| 101 2-Nitroaniline             | 65  | 7.139     | 7.139         | 0.000         | 83 | 227674   | 80.0          | 78.1            |       |
| 104 Dimethyl phthalate         | 163 | 7.315     | 7.315         | 0.000         | 99 | 741205   | 80.0          | 78.2            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.344     | 7.344         | 0.000         | 85 | 128807   | 80.0          | 80.0            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.374     | 7.374         | 0.000         | 96 | 184331   | 80.0          | 80.8            |       |
| 107 Acenaphthylene             | 152 | 7.468     | 7.468         | 0.000         | 98 | 980383   | 80.0          | 79.3            |       |
| 108 3-Nitroaniline             | 138 | 7.550     | 7.550         | 0.000         | 95 | 220026   | 80.0          | 77.4            |       |
| 109 Acenaphthene               | 153 | 7.638     | 7.638         | 0.000         | 95 | 625056   | 80.0          | 79.8            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.650     | 7.650         | 0.000         | 86 | 236257   | 160.0         | 152.3           |       |
| 112 4-Nitrophenol              | 109 | 7.732     | 7.732         | 0.000         | 95 | 232103   | 160.0         | 160.0           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.779     | 7.779         | 0.000         | 94 | 251736   | 80.0          | 81.6            |       |
| 116 Dibenzofuran               | 168 | 7.809     | 7.809         | 0.000         | 96 | 892120   | 80.0          | 79.5            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.938     | 7.938         | 0.000         | 75 | 175448   | 80.0          | 79.7            |       |
| 123 Diethyl phthalate          | 149 | 8.014     | 8.014         | 0.000         | 98 | 731278   | 80.0          | 77.4            |       |
| 124 Hexadecane                 | 57  | 8.026     | 8.026         | 0.000         | 95 | 436883   | 80.0          | 74.4            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.138     | 8.138         | 0.000         | 96 | 344716   | 80.0          | 78.2            |       |
| 129 Fluorene                   | 166 | 8.155     | 8.155         | 0.000         | 94 | 715920   | 80.0          | 77.8            |       |
| 130 4-Nitroaniline             | 138 | 8.167     | 8.167         | 0.000         | 85 | 238448   | 80.0          | 82.0            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.196     | 8.196         | 0.000         | 85 | 288271   | 160.0         | 160.9           |       |
| 134 Diphenylamine              | 169 | 8.255     | 8.255         | 0.000         | 97 | 593705   | 68.0          | 65.3            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.255     | 8.255         | 0.000         | 61 | 593705   | 80.0          | 77.6            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.302     | 8.302         | 0.000         | 98 | 831116   | 80.9          | 79.1            |       |
| 137 Azobenzene                 | 77  | 8.302     | 8.302         | 0.000         | 99 | 831116   | 80.0          | 78.2            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.396     | 8.396         | 0.000         | 89 | 87527    | 80.0          | 80.0            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.631     | 8.631         | 0.000         | 71 | 185611   | 80.0          | 77.8            |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.719     | 8.719         | 0.000         | 90  | 172238   | 80.0          | 79.5            |       |
| 152 Atrazine                   | 200 | 8.778     | 8.778         | 0.000         | 92  | 188018   | 80.0          | 73.9            |       |
| 155 Pentachlorophenol          | 266 | 8.913     | 8.913         | 0.000         | 89  | 206550   | 160.0         | 142.7           |       |
| 158 n-Octadecane               | 85  | 8.948     | 8.948         | 0.000         | 96  | 204750   | 80.0          | 84.1            |       |
| 161 Phenanthrene               | 178 | 9.119     | 9.119         | 0.000         | 98  | 1109426  | 80.0          | 78.4            |       |
| 162 Anthracene                 | 178 | 9.171     | 9.171         | 0.000         | 98  | 1147696  | 80.0          | 77.6            |       |
| 164 Carbazole                  | 167 | 9.324     | 9.324         | 0.000         | 96  | 1064103  | 80.0          | 76.3            |       |
| 166 Alachlor                   | 188 | 9.453     | 9.453         | 0.000         | 98  | 155182   | 80.0          | 76.4            |       |
| 168 Di-n-butyl phthalate       | 149 | 9.659     | 9.659         | 0.000         | 100 | 1269111  | 80.0          | 75.0            |       |
| 175 Fluoranthene               | 202 | 10.476    | 10.476        | 0.000         | 98  | 1280131  | 80.0          | 77.4            |       |
| 178 Pyrene                     | 202 | 10.804    | 10.804        | 0.000         | 97  | 1338189  | 80.0          | 79.8            |       |
| 185 Famphur                    | 218 | 11.786    | 11.786        | 0.000         | 85  | 413049   | 80.0          | 71.4            |       |
| 187 Butyl benzyl phthalate     | 149 | 11.903    | 11.903        | 0.000         | 98  | 618166   | 80.0          | 75.0            |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.054    | 13.054        | 0.000         | 75  | 420186   | 80.0          | 80.3            |       |
| 191 Benzo[a]anthracene         | 228 | 13.101    | 13.101        | 0.000         | 99  | 1248623  | 80.0          | 78.5            |       |
| 192 Chrysene                   | 228 | 13.190    | 13.190        | 0.000         | 97  | 1194506  | 80.0          | 77.7            |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.254    | 13.254        | 0.000         | 97  | 817752   | 80.0          | 72.7            |       |
| 195 Di-n-octyl phthalate       | 149 | 15.040    | 15.040        | 0.000         | 99  | 1383901  | 80.0          | 68.8            |       |
| 196 Benzo[b]fluoranthene       | 252 | 15.945    | 15.945        | 0.000         | 98  | 1201364  | 80.0          | 80.9            |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.027    | 16.027        | 0.000         | 99  | 1210455  | 80.0          | 80.9            |       |
| 200 Benzo[e]pyrene             | 252 | 16.720    | 16.720        | 0.000         | 98  | 1129714  | 80.0          | 81.7            |       |
| 201 Benzo[a]pyrene             | 252 | 16.867    | 16.867        | 0.000         | 79  | 1192516  | 80.0          | 80.8            |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 | 20.133    | 20.133        | 0.000         | 97  | 977698   | 80.0          | 72.4            |       |
| 208 Dibenz(a,h)anthracene      | 278 | 20.221    | 20.221        | 0.000         | 95  | 976483   | 80.0          | 77.7            |       |
| 209 Benzo[g,h,i]perylene       | 276 | 20.867    | 20.867        | 0.000         | 96  | 1055181  | 80.0          | 78.0            |       |

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

MS-HSLACCV080\_00154

Amount Added: 200.00

Units: uL



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19663.D

Injection Date: 25-May-2018 16:31:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: CCV HSL

Worklist Smp#: 3

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

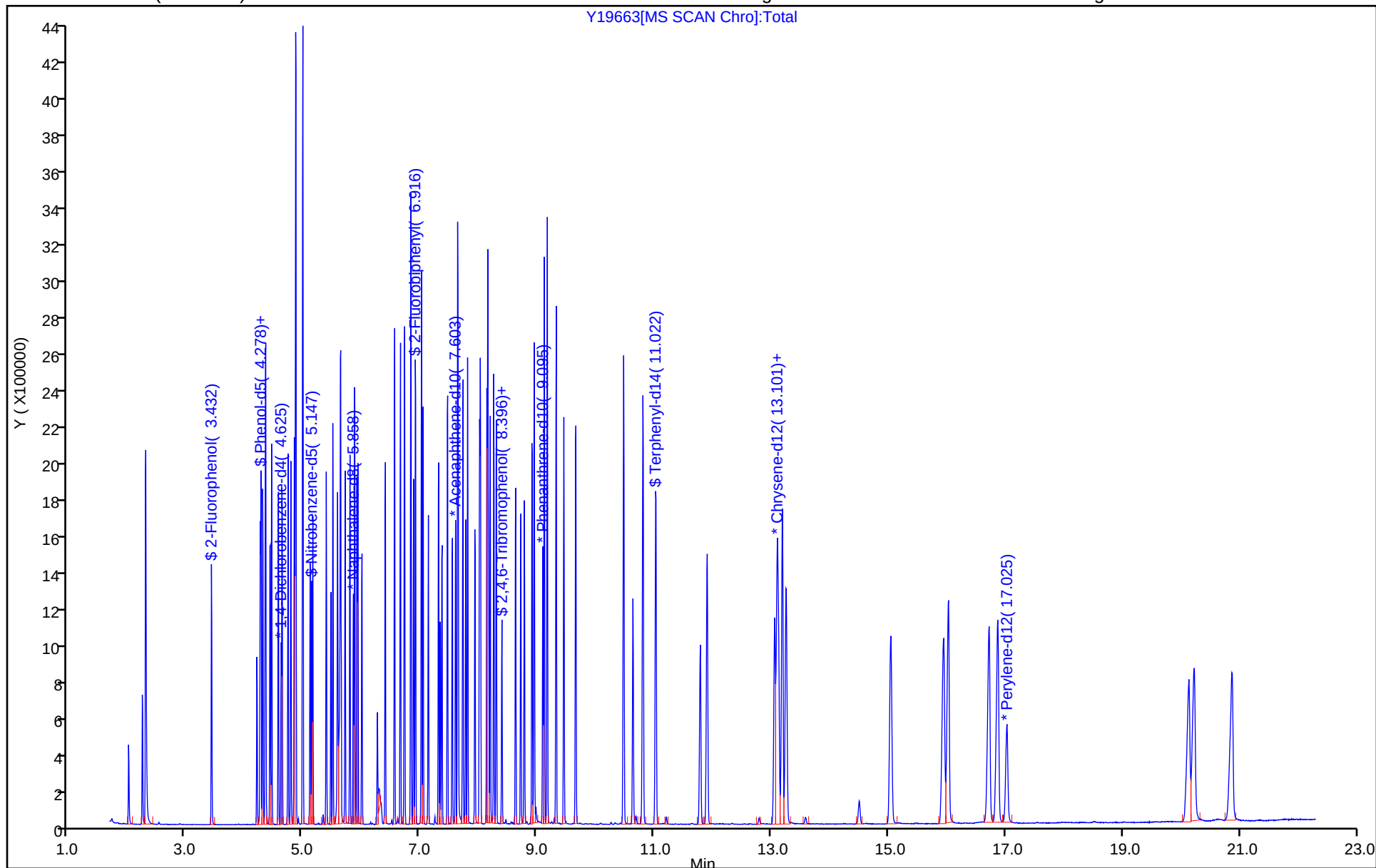
ALS Bottle#: 2

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



FORM VII  
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVC 280-416357/18 Calibration Date: 05/25/2018 22:50

Instrument ID: SMS\_Y Calib Start Date: 04/21/2018 12:10

GC Column: Rxi-5Sil MS ID: 0.25 (mm) Calib End Date: 04/21/2018 15:30

Lab File ID: Y19678.D Conc. Units: ug/mL

| ANALYTE                | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Pyridine               | Ave        | 1.689   | 1.676  |         | 159         | 160          | -0.7  | 50.0   |
| Phenol                 | Ave        | 1.940   | 1.906  | 0.8000  | 78.6        | 80.0         | -1.8  | 50.0   |
| 2-Chlorophenol         | Ave        | 1.479   | 1.447  | 0.8000  | 78.2        | 80.0         | -2.2  | 50.0   |
| 1,4-Dichlorobenzene    | Ave        | 1.618   | 1.595  |         | 78.8        | 80.0         | -1.5  | 50.0   |
| 2-Methylphenol         | Ave        | 1.358   | 1.331  | 0.7000  | 78.4        | 80.0         | -2.0  | 50.0   |
| 3 & 4 Methylphenol     | Ave        | 1.442   | 1.279  |         | 71.0        | 80.0         | -11.3 | 50.0   |
| Hexachloroethane       | Ave        | 0.6113  | 0.6010 | 0.3000  | 78.6        | 80.0         | -1.7  | 50.0   |
| Nitrobenzene           | Ave        | 0.3976  | 0.3745 |         | 75.4        | 80.0         | -5.8  | 50.0   |
| Benzoic acid           | Lin2       |         | 0.2826 |         | 149         | 160          | -6.8  | 50.0   |
| 1,2,4-Trichlorobenzene | Ave        | 0.3033  | 0.2949 |         | 77.8        | 80.0         | -2.8  | 50.0   |
| Naphthalene            | Ave        | 0.9863  | 0.9321 | 0.7000  | 75.6        | 80.0         | -5.5  | 50.0   |
| Hexachlorobutadiene    | Ave        | 0.1567  | 0.1512 | 0.0100  | 77.2        | 80.0         | -3.5  | 50.0   |
| 2-Methylnaphthalene    | Ave        | 0.7015  | 0.6523 | 0.4000  | 74.4        | 80.0         | -7.0  | 50.0   |
| 1-Methylnaphthalene    | Ave        | 0.6610  | 0.6249 |         | 75.6        | 80.0         | -5.5  | 50.0   |
| 2,4,6-Trichlorophenol  | Ave        | 0.3586  | 0.3642 | 0.2000  | 81.2        | 80.0         | 1.5   | 50.0   |
| 2,4,5-Trichlorophenol  | Ave        | 0.4072  | 0.4173 | 0.2000  | 82.0        | 80.0         | 2.5   | 50.0   |
| 1,1'-Biphenyl          | Ave        | 1.394   | 1.407  |         | 80.7        | 80.0         | 0.9   | 50.0   |
| Acenaphthylene         | Ave        | 1.707   | 1.705  | 0.9000  | 79.9        | 80.0         | -0.1  | 50.0   |
| Acenaphthene           | Ave        | 1.082   | 1.092  | 0.9000  | 80.8        | 80.0         | 1.0   | 50.0   |
| 2,4-Dinitrotoluene     | Ave        | 0.4262  | 0.4370 | 0.2000  | 82.0        | 80.0         | 2.5   | 50.0   |
| Dibenzofuran           | Ave        | 1.550   | 1.567  | 0.8000  | 80.9        | 80.0         | 1.1   | 50.0   |
| Fluorene               | Ave        | 1.271   | 1.268  | 0.9000  | 79.8        | 80.0         | -0.2  | 50.0   |
| Hexachlorobenzene      | Ave        | 0.1691  | 0.1526 | 0.1000  | 72.2        | 80.0         | -9.8  | 50.0   |
| Atrazine               | Ave        | 0.1985  | 0.1807 |         | 72.8        | 80.0         | -9.0  | 50.0   |
| Pentachlorophenol      | Lin2       |         | 0.0948 | 0.0500  | 134         | 160          | -16.2 | 50.0   |
| Phenanthrene           | Ave        | 1.105   | 0.9950 | 0.7000  | 72.0        | 80.0         | -10.0 | 50.0   |
| Anthracene             | Ave        | 1.154   | 1.044  | 0.7000  | 72.3        | 80.0         | -9.6  | 50.0   |
| Fluoranthene           | Ave        | 1.291   | 1.162  | 0.6000  | 72.0        | 80.0         | -10.0 | 50.0   |
| Pyrene                 | Ave        | 1.323   | 1.227  | 0.6000  | 74.2        | 80.0         | -7.2  | 50.0   |
| Benzo[a]anthracene     | Ave        | 1.255   | 1.156  | 0.8000  | 73.7        | 80.0         | -7.9  | 50.0   |
| Chrysene               | Ave        | 1.213   | 1.131  | 0.7000  | 74.6        | 80.0         | -6.8  | 50.0   |
| Benzo[b]fluoranthene   | Ave        | 1.291   | 1.186  | 0.7000  | 73.5        | 80.0         | -8.2  | 50.0   |
| Benzo[k]fluoranthene   | Ave        | 1.301   | 1.224  | 0.7000  | 75.2        | 80.0         | -6.0  | 50.0   |
| Benzo[a]pyrene         | Ave        | 1.284   | 1.178  | 0.7000  | 73.4        | 80.0         | -8.3  | 50.0   |
| Benzo[g,h,i]perylene   | Ave        | 1.177   |        | 0.5000  | 1.00        | 80.0         |       | 50.0   |
| Dibenz(a,h)anthracene  | Ave        | 1.094   |        | 0.4000  | 2.00        | 80.0         |       | 50.0   |
| Indeno[1,2,3-cd]pyrene | Ave        | 1.065   |        | 0.5000  | 2.00        | 80.0         |       | 50.0   |
| 2-Fluorophenol (Surr)  | Ave        | 1.471   | 1.409  |         | 76.6        | 80.0         | -4.2  | 50.0   |
| Phenol-d5 (Surr)       | Ave        | 1.832   | 1.744  |         | 76.1        | 80.0         | -4.8  | 50.0   |
| Nitrobenzene-d5 (Surr) | Ave        | 0.4027  | 0.3638 |         | 72.3        | 80.0         | -9.6  | 50.0   |
| 2-Fluorobiphenyl       | Ave        | 1.291   | 1.291  |         | 80.0        | 80.0         | 0.0   | 50.0   |

FORM VII  
GC/MS SEMI VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab Sample ID: CCVC 280-416357/18 Calibration Date: 05/25/2018 22:50  
Instrument ID: SMS\_Y Calib Start Date: 04/21/2018 12:10  
GC Column: Rxi-5Sil MS ID: 0.25 (mm) Calib End Date: 04/21/2018 15:30  
Lab File ID: Y19678.D Conc. Units: ug/mL

| ANALYTE                     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-----------------------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 2,4,6-Tribromophenol (Surr) | Ave           | 0.1502  | 0.1487 |         | 79.2           | 80.0            | -1.0 | 50.0      |
| Terphenyl-d14 (Surr)        | Ave           | 0.8714  | 0.7918 |         | 72.7           | 80.0            | -9.1 | 50.0      |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19678.D  
 Lims ID: CCVC HSL  
 Client ID:  
 Sample Type: CCVC  
 Inject. Date: 25-May-2018 22:50:30 ALS Bottle#: 17 Worklist Smp#: 18  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVC HSL  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Sublist: chrom-SMSY\_8270C\*sub25  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:57 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 08:25:06

| Compound                      | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| * 1 1,4-Dichlorobenzene-d4    | 152 | 4.624        | 4.625            | -0.001           | 96  | 100965   | 40.0             | 40.0               |       |
| * 2 Naphthalene-d8            | 136 | 5.858        | 5.858            | 0.000            | 99  | 438976   | 40.0             | 40.0               |       |
| * 3 Acenaphthene-d10          | 164 | 7.603        | 7.603            | 0.000            | 96  | 240298   | 40.0             | 40.0               |       |
| * 4 Phenanthrene-d10          | 188 | 9.095        | 9.095            | 0.000            | 98  | 465310   | 40.0             | 40.0               |       |
| * 5 Chrysene-d12              | 240 | 13.119       | 13.125           | -0.006           | 98  | 452648   | 40.0             | 40.0               |       |
| * 6 Perylene-d12              | 264 | 17.008       | 17.025           | -0.017           | 96  | 423326   | 40.0             | 40.0               |       |
| \$ 7 2-Fluorophenol           | 112 | 3.432        | 3.432            | 0.000            | 93  | 284571   | 80.0             | 76.6               |       |
| \$ 8 Phenol-d5                | 99  | 4.266        | 4.266            | 0.000            | 0   | 352118   | 80.0             | 76.1               |       |
| \$ 9 Nitrobenzene-d5          | 82  | 5.141        | 5.147            | -0.006           | 89  | 319432   | 80.0             | 72.3               |       |
| \$ 11 2-Fluorobiphenyl        | 172 | 6.915        | 6.916            | -0.001           | 100 | 620539   | 80.0             | 80.0               |       |
| \$ 12 2,4,6-Tribromophenol    | 330 | 8.396        | 8.396            | 0.000            | 91  | 71459    | 80.0             | 79.2               |       |
| \$ 13 Terphenyl-d14           | 244 | 11.022       | 11.022           | 0.000            | 98  | 716836   | 80.0             | 72.7               |       |
| 15 1,4-Dioxane                | 88  | 2.016        | 2.016            | 0.000            | 97  | 117262   | 80.0             | 74.4               |       |
| 17 N-Nitrosodimethylamine     | 74  | 2.251        | 2.251            | 0.000            | 91  | 197157   | 80.0             | 75.5               |       |
| 18 Pyridine                   | 79  | 2.304        | 2.310            | -0.006           | 96  | 676873   | 160.0            | 158.8              |       |
| 28 Phenol                     | 94  | 4.278        | 4.278            | 0.000            | 99  | 384807   | 80.0             | 78.6               |       |
| 30 Aniline                    | 93  | 4.307        | 4.307            | 0.000            | 97  | 472321   | 80.0             | 76.1               |       |
| 31 Bis(2-chloroethyl)ether    | 93  | 4.348        | 4.354            | -0.006           | 96  | 276199   | 80.0             | 75.4               |       |
| 32 Alpha Methyl Styrene       | 118 | 4.360        | 4.360            | 0.000            | 92  | 283144   | 80.0             | 74.8               |       |
| 34 2-Chlorophenol             | 128 | 4.431        | 4.437            | -0.006           | 97  | 292095   | 80.0             | 78.2               |       |
| 35 n-Decane                   | 43  | 4.460        | 4.460            | 0.000            | 92  | 311705   | 80.0             | 75.0               |       |
| 37 1,3-Dichlorobenzene        | 146 | 4.572        | 4.578            | -0.006           | 98  | 319828   | 80.0             | 77.7               |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.636        | 4.642            | -0.006           | 93  | 322044   | 80.0             | 78.8               |       |
| 39 Benzyl alcohol             | 108 | 4.742        | 4.742            | 0.000            | 91  | 195298   | 80.0             | 77.9               |       |
| 40 1,2-Dichlorobenzene        | 146 | 4.789        | 4.789            | 0.000            | 96  | 306985   | 80.0             | 78.7               |       |
| 41 2-Methylphenol             | 108 | 4.848        | 4.848            | 0.000            | 97  | 268711   | 80.0             | 78.4               |       |
| 43 2,2'-oxybis[1-chloropropan | 45  | 4.859        | 4.865            | -0.006           | 92  | 404631   | 80.0             | 72.7               |       |
| 44 Indene                     | 116 | 4.871        | 4.877            | -0.006           | 90  | 878935   | 160.0            | 145.8              |       |
| 46 3-Methylphenol             | 108 | 4.989        | 4.995            | -0.006           | 85  | 258368   | 80.0             | 71.0               |       |
| 47 4-Methylphenol             | 108 | 4.989        | 4.995            | -0.006           | 91  | 258368   | 80.0             | 71.0               |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 48 3 & 4 Methylphenol          | 108 | 4.989     | 4.995         | -0.006        | 0  | 258368   | 80.0          | 71.0            |       |
| 50 N-Nitrosodi-n-propylamine   | 70  | 4.989     | 4.989         | 0.000         | 88 | 213984   | 80.0          | 72.0            |       |
| 51 Acetophenone                | 105 | 4.994     | 4.995         | -0.001        | 88 | 370185   | 80.0          | 76.2            |       |
| 53 Hexachloroethane            | 117 | 5.118     | 5.118         | 0.000         | 95 | 121349   | 80.0          | 78.6            |       |
| 54 Nitrobenzene                | 77  | 5.159     | 5.165         | -0.006        | 89 | 328756   | 80.0          | 75.4            |       |
| 57 Isophorone                  | 82  | 5.388     | 5.394         | -0.006        | 99 | 571095   | 80.0          | 73.2            |       |
| 58 2-Nitrophenol               | 139 | 5.470     | 5.476         | -0.006        | 96 | 167166   | 80.0          | 76.6            |       |
| 59 2,4-Dimethylphenol          | 107 | 5.506     | 5.506         | 0.000         | 95 | 296040   | 80.0          | 76.4            |       |
| 63 Bis(2-chloroethoxy)methane  | 93  | 5.588     | 5.588         | 0.000         | 99 | 356655   | 80.0          | 74.0            |       |
| 64 Benzoic acid                | 105 | 5.629     | 5.653         | -0.024        | 76 | 496283   | 160.0         | 149.1           |       |
| 66 3,5-Dimethylphenol          | 107 | 5.635     | 5.641         | -0.006        | 87 | 293297   | 80.0          | 74.1            |       |
| 68 2,4-Dichlorophenol          | 162 | 5.717     | 5.717         | 0.000         | 94 | 254317   | 80.0          | 78.1            |       |
| 69 1,2,4-Trichlorobenzene      | 180 | 5.799     | 5.800         | -0.001        | 94 | 258892   | 80.0          | 77.8            |       |
| 71 Naphthalene                 | 128 | 5.876     | 5.882         | -0.006        | 98 | 818313   | 80.0          | 75.6            |       |
| 72 4-Chloroaniline             | 127 | 5.917     | 5.917         | 0.000         | 95 | 382808   | 80.0          | 74.4            |       |
| 73 2,6-Dichlorophenol          | 162 | 5.934     | 5.935         | -0.001        | 98 | 251950   | 80.0          | 78.5            |       |
| 75 Hexachlorobutadiene         | 225 | 5.999     | 6.005         | -0.006        | 97 | 132754   | 80.0          | 77.2            |       |
| 79 Caprolactam                 | 55  | 6.257     | 6.269         | -0.012        | 80 | 152991   | 80.0          | 71.9            | M     |
| 83 4-Chloro-3-methylphenol     | 107 | 6.398     | 6.405         | -0.007        | 96 | 262694   | 80.0          | 74.4            |       |
| 86 2-Methylnaphthalene         | 142 | 6.557     | 6.563         | -0.006        | 93 | 572694   | 80.0          | 74.4            |       |
| 88 1-Methylnaphthalene         | 142 | 6.657     | 6.663         | -0.006        | 93 | 548644   | 80.0          | 75.6            |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 | 6.733     | 6.734         | -0.001        | 97 | 241942   | 80.0          | 74.7            |       |
| 90 Hexachlorocyclopentadiene   | 237 | 6.727     | 6.728         | -0.001        | 95 | 143190   | 80.0          | 76.6            |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.839     | 6.845         | -0.006        | 94 | 175020   | 80.0          | 81.2            |       |
| 93 2,3-Dichlorobenzenamine     | 161 | 6.833     | 6.839         | -0.006        | 96 | 283273   | 80.0          | 79.4            |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.886     | 6.886         | 0.000         | 96 | 200541   | 80.0          | 82.0            |       |
| 98 1,1'-Biphenyl               | 154 | 7.021     | 7.021         | 0.000         | 95 | 676140   | 80.0          | 80.7            |       |
| 99 2-Chloronaphthalene         | 162 | 7.045     | 7.051         | -0.006        | 96 | 556686   | 80.0          | 81.8            |       |
| 101 2-Nitroaniline             | 65  | 7.139     | 7.139         | 0.000         | 85 | 191164   | 80.0          | 79.0            |       |
| 104 Dimethyl phthalate         | 163 | 7.309     | 7.315         | -0.006        | 98 | 630130   | 80.0          | 80.1            |       |
| 105 1,3-Dinitrobenzene         | 168 | 7.338     | 7.344         | -0.006        | 86 | 112976   | 80.0          | 84.6            |       |
| 106 2,6-Dinitrotoluene         | 165 | 7.368     | 7.374         | -0.006        | 96 | 154677   | 80.0          | 81.7            |       |
| 107 Acenaphthylene             | 152 | 7.462     | 7.468         | -0.006        | 98 | 819182   | 80.0          | 79.9            |       |
| 108 3-Nitroaniline             | 138 | 7.544     | 7.550         | -0.006        | 96 | 189588   | 80.0          | 80.4            |       |
| 109 Acenaphthene               | 153 | 7.638     | 7.638         | 0.000         | 95 | 524807   | 80.0          | 80.8            |       |
| 111 2,4-Dinitrophenol          | 184 | 7.650     | 7.650         | 0.000         | 89 | 191192   | 160.0         | 148.6           |       |
| 112 4-Nitrophenol              | 109 | 7.726     | 7.732         | -0.006        | 95 | 193557   | 160.0         | 160.9           |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.773     | 7.779         | -0.006        | 95 | 210025   | 80.0          | 82.0            |       |
| 116 Dibenzofuran               | 168 | 7.808     | 7.809         | -0.001        | 96 | 753282   | 80.0          | 80.9            |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 | 7.932     | 7.938         | -0.006        | 75 | 147460   | 80.0          | 80.7            |       |
| 123 Diethyl phthalate          | 149 | 8.008     | 8.014         | -0.006        | 98 | 627025   | 80.0          | 80.0            |       |
| 124 Hexadecane                 | 57  | 8.026     | 8.026         | 0.000         | 95 | 363956   | 80.0          | 74.7            |       |
| 127 4-Chlorophenyl phenyl ethe | 204 | 8.137     | 8.138         | 0.000         | 93 | 292123   | 80.0          | 79.9            |       |
| 129 Fluorene                   | 166 | 8.149     | 8.155         | -0.006        | 95 | 609445   | 80.0          | 79.8            |       |
| 130 4-Nitroaniline             | 138 | 8.161     | 8.167         | -0.006        | 86 | 203528   | 80.0          | 84.4            |       |
| 131 4,6-Dinitro-2-methylphenol | 198 | 8.190     | 8.196         | -0.006        | 87 | 242833   | 160.0         | 149.2           |       |
| 134 Diphenylamine              | 169 | 8.255     | 8.255         | 0.000         | 97 | 503813   | 68.0          | 66.8            |       |
| 135 N-Nitrosodiphenylamine     | 169 | 8.255     | 8.255         | 0.000         | 60 | 503813   | 80.0          | 72.5            |       |
| 136 1,2-Diphenylhydrazine      | 77  | 8.296     | 8.302         | -0.006        | 99 | 695482   | 80.9          | 79.8            |       |
| 137 Azobenzene                 | 77  | 8.296     | 8.302         | -0.006        | 99 | 695482   | 80.0          | 78.9            |       |
| 139 2,4,6 - Tribromophenol     | 330 | 8.396     | 8.396         | 0.000         | 91 | 70756    | 80.0          | 78.0            |       |
| 148 4-Bromophenyl phenyl ether | 248 | 8.631     | 8.631         | 0.000         | 70 | 158144   | 80.0          | 72.9            |       |

| Compound                       | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q   | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|--------------------------------|-----|--------------|------------------|------------------|-----|----------|------------------|--------------------|-------|
| 151 Hexachlorobenzene          | 284 | 8.719        | 8.719            | 0.000            | 89  | 141997   | 80.0             | 72.2               |       |
| 152 Atrazine                   | 200 | 8.778        | 8.778            | 0.000            | 92  | 168156   | 80.0             | 72.8               |       |
| 155 Pentachlorophenol          | 266 | 8.907        | 8.913            | -0.006           | 90  | 176459   | 160.0            | 134.0              |       |
| 158 n-Octadecane               | 85  | 8.948        | 8.948            | 0.000            | 96  | 168431   | 80.0             | 75.9               |       |
| 161 Phenanthrene               | 178 | 9.118        | 9.119            | -0.001           | 98  | 925960   | 80.0             | 72.0               |       |
| 162 Anthracene                 | 178 | 9.171        | 9.171            | 0.000            | 98  | 971206   | 80.0             | 72.3               |       |
| 164 Carbazole                  | 167 | 9.318        | 9.324            | -0.006           | 96  | 919186   | 80.0             | 72.5               |       |
| 166 Alachlor                   | 188 | 9.453        | 9.453            | 0.000            | 98  | 127421   | 80.0             | 69.1               |       |
| 168 Di-n-butyl phthalate       | 149 | 9.653        | 9.659            | -0.006           | 100 | 1088284  | 80.0             | 70.8               |       |
| 175 Fluoranthene               | 202 | 10.469       | 10.476           | -0.007           | 98  | 1081821  | 80.0             | 72.0               |       |
| 178 Pyrene                     | 202 | 10.798       | 10.804           | -0.006           | 97  | 1111050  | 80.0             | 74.2               |       |
| 185 Famphur                    | 218 | 11.779       | 11.786           | -0.007           | 89  | 367397   | 80.0             | 71.1               |       |
| 187 Butyl benzyl phthalate     | 149 | 11.897       | 11.903           | -0.006           | 98  | 540515   | 80.0             | 73.5               |       |
| 189 3,3'-Dichlorobenzidine     | 252 | 13.048       | 13.054           | -0.006           | 75  | 340997   | 80.0             | 73.0               |       |
| 191 Benzo[a]anthracene         | 228 | 13.089       | 13.101           | -0.012           | 99  | 1046637  | 80.0             | 73.7               |       |
| 192 Chrysene                   | 228 | 13.178       | 13.190           | -0.012           | 97  | 1023475  | 80.0             | 74.6               |       |
| 193 Bis(2-ethylhexyl) phthalat | 149 | 13.242       | 13.254           | -0.012           | 97  | 707444   | 80.0             | 70.4               |       |
| 195 Di-n-octyl phthalate       | 149 | 15.034       | 15.040           | -0.006           | 99  | 1203299  | 80.0             | 67.0               |       |
| 196 Benzo[b]fluoranthene       | 252 | 15.927       | 15.945           | -0.018           | 98  | 1004185  | 80.0             | 73.5               |       |
| 198 Benzo[k]fluoranthene       | 252 | 16.009       | 16.027           | -0.018           | 99  | 1035904  | 80.0             | 75.2               |       |
| 200 Benzo[e]pyrene             | 252 | 16.708       | 16.720           | -0.012           | 98  | 927194   | 80.0             | 72.9               |       |
| 201 Benzo[a]pyrene             | 252 | 16.855       | 16.867           | -0.012           | 83  | 997334   | 80.0             | 73.4               |       |
| 207 Indeno[1,2,3-cd]pyrene     | 276 |              | 20.133           |                  |     |          | ND               | ND                 |       |
| 208 Dibenz(a,h)anthracene      | 278 |              | 20.221           |                  |     |          | ND               | ND                 |       |
| 209 Benzo[g,h,i]perylene       | 276 |              | 20.867           |                  |     |          | ND               | ND                 |       |
| S 219 Total Cresols            | 108 |              |                  |                  | 0   |          |                  | 149.4              |       |
| S 220 Methyl Phenols, Total    | 108 |              |                  |                  | 0   |          |                  | 149.4              |       |

**QC Flag Legend**

Processing Flags

ND - Not Detected or Marked ND

Review Flags

M - Manually Integrated

**Reagents:**

MS-HSLACCV080\_00154

Amount Added: 200.00

Units: uL

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19678.D

Injection Date: 25-May-2018 22:50:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: CCVC HSL

Worklist Smp#: 18

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

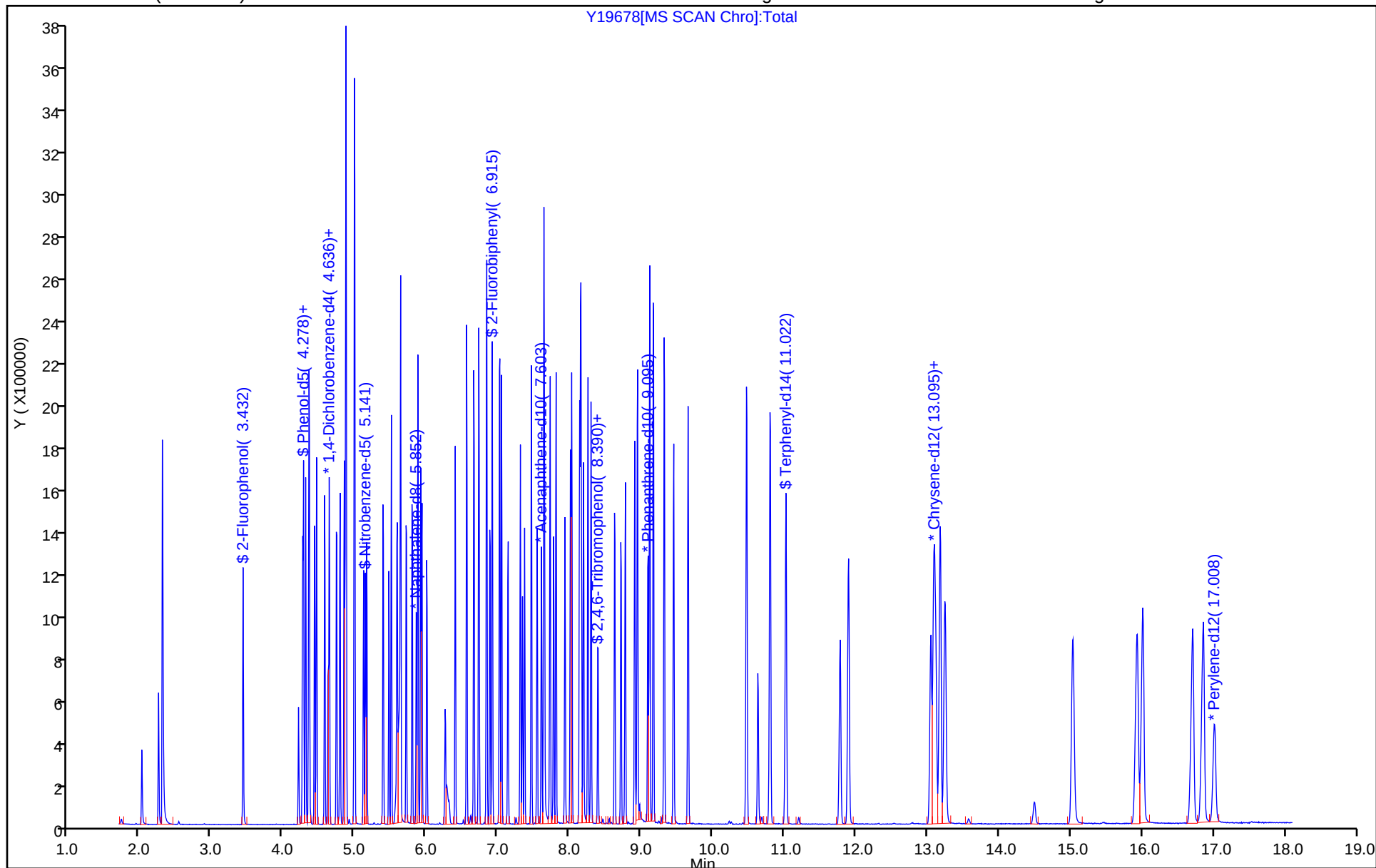
ALS Bottle#: 17

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D  
 Lims ID: DFTPP  
 Client ID:  
 Sample Type: DFTPP  
 Inject. Date: 21-Apr-2018 11:56:30 ALS Bottle#: 1 Worklist Smp#: 2  
 Injection Vol: 0.5 ul Dil. Factor: 1.0000  
 Sample Info: DFTPP  
 Operator ID: KIEKELD Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 22-Apr-2018 07:59:27 Calib Date: 21-Apr-2018 20:16:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19218.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: XAWRK004

First Level Reviewer: kiekeld

Date: 22-Apr-2018 07:35:37

| Compound               | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|------------------------|-----|--------------|------------------|------------------|----|----------|------------------|--------------------|-------|
| 25 Pentachlorophenol_T | 266 | 3.815        | 3.815            | 0.000            | 89 | 129074   | NR               | NR                 |       |
| 42 Benzidine_T         | 184 | 4.895        | 4.895            | 0.000            | 99 | 1109220  | NR               | NR                 |       |
| 215 DFTPP              |     |              |                  |                  |    |          |                  |                    |       |
| 216 4,4'-DDE           | 246 | 5.033        | 5.033            | 0.000            | 18 | 496      | NR               | NR                 | a     |
| 217 4,4'-DDD           | 235 | 5.324        | 5.324            | 0.000            | 94 | 6350     | NR               | NR                 | a     |
| 218 4,4'-DDT           | 235 | 5.547        | 5.547            | 0.000            | 97 | 411919   | NR               | NR                 | a     |

**QC Flag Legend**

Processing Flags

NR - Missing Quant Standard

Review Flags

a - User Assigned ID

**Reagents:**

MS-DFTPP\_00046

Amount Added: 200.00

Units: uL



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D

Injection Date: 21-Apr-2018 11:56:30

Instrument ID: SMS\_Y

Lims ID: DFTPP

Client ID:

Operator ID: KIEKELD

ALS Bottle#: 1 Worklist Smp#: 2

Injection Vol: 0.5 ul

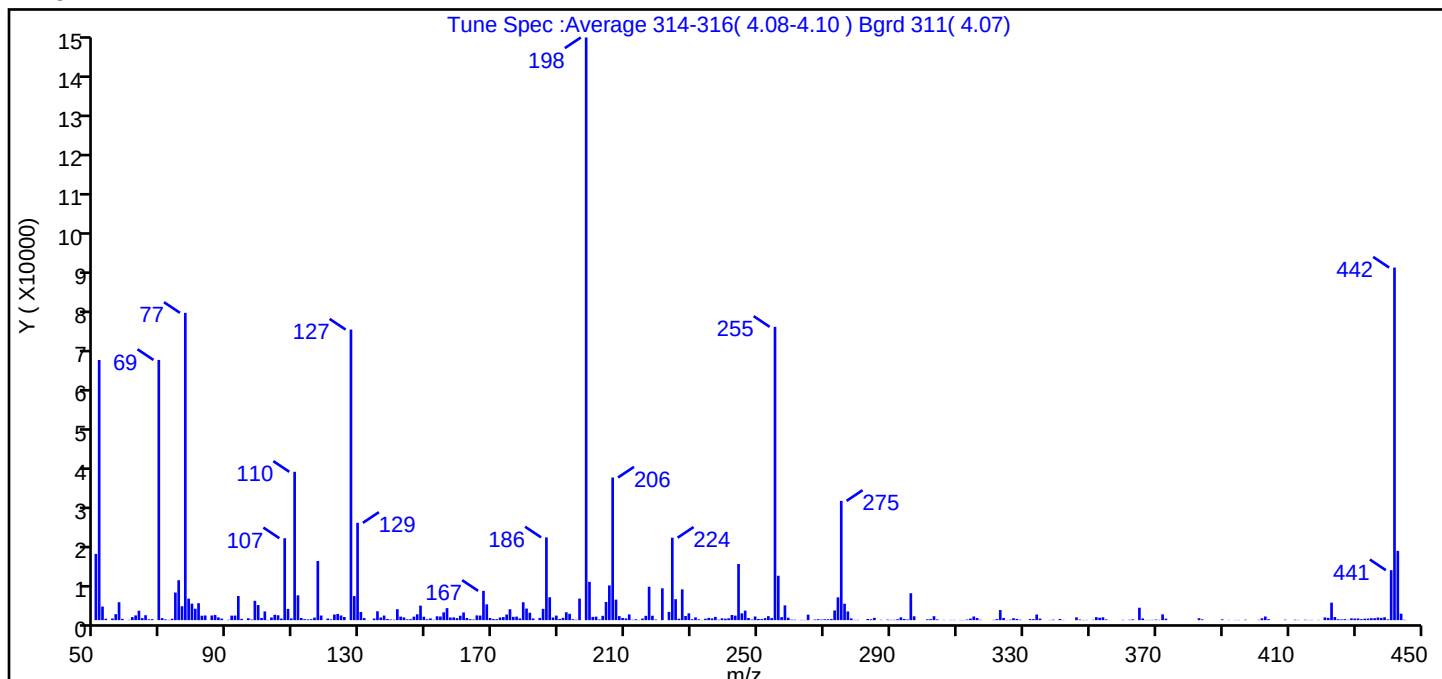
Dil. Factor: 1.0000

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Tune Method: DFTPP Method 8270

## 215 DFTPP



| m/z | Ion Abundance Criteria             | % Relative Abundance |
|-----|------------------------------------|----------------------|
| 198 | Base peak, 100% relative abundance | 100.0                |
| 51  | 30-60% of mass 198                 | 44.6                 |
| 68  | <2% of mass 69                     | 0.0 (0.0)            |
| 69  | Present                            | 44.7                 |
| 70  | <2% of mass 69                     | 0.3 (0.8)            |
| 127 | 40-60% of mass 198                 | 49.9                 |
| 197 | <1% of mass 198                    | 0.0                  |
| 199 | 5-9% of mass 198                   | 6.6                  |
| 275 | 10-30% of mass 198                 | 20.5                 |
| 365 | >1% of mass 198                    | 2.1                  |
| 441 | Present but less than mass 443     | 8.6 (72.1)           |
| 442 | >40% of mass 198                   | 60.5                 |
| 443 | 17-23% of mass 442                 | 11.9 (19.7)          |

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D\SMSY\_8270C.rslt\spectra.d  
Injection Date: 21-Apr-2018 11:56:30  
Spectrum: Tune Spec :Average 314-316( 4.08-4.10 ) Bgrd 311( 4.07)  
Base Peak: 198.00  
Minimum % Base Peak: 0  
Number of Points: 326

| m/z   | Y     | m/z    | Y    | m/z    | Y     | m/z    | Y    |
|-------|-------|--------|------|--------|-------|--------|------|
| 50.00 | 16672 | 140.00 | 110  | 225.00 | 5278  | 322.00 | 258  |
| 51.00 | 65464 | 141.00 | 2752 | 226.00 | 355   | 323.00 | 2537 |
| 52.00 | 3424  | 142.00 | 883  | 227.00 | 7741  | 324.00 | 540  |
| 53.00 | 357   | 143.00 | 691  | 228.00 | 1045  | 325.00 | 60   |
| 55.00 | 411   | 144.00 | 204  | 229.00 | 1725  | 326.00 | 119  |
| 56.00 | 1503  | 145.00 | 236  | 230.00 | 237   | 327.00 | 481  |
| 57.00 | 4510  | 146.00 | 876  | 231.00 | 693   | 328.00 | 300  |
| 58.00 | 318   | 147.00 | 1467 | 232.00 | 199   | 329.00 | 108  |
| 60.00 | 72    | 148.00 | 3655 | 233.00 | 57    | 332.00 | 261  |
| 61.00 | 754   | 149.00 | 860  | 234.00 | 343   | 333.00 | 251  |
| 62.00 | 1193  | 150.00 | 238  | 235.00 | 567   | 334.00 | 1416 |
| 63.00 | 2381  | 151.00 | 440  | 236.00 | 435   | 335.00 | 396  |
| 64.00 | 509   | 152.00 | 81   | 237.00 | 819   | 338.00 | 58   |
| 65.00 | 1240  | 153.00 | 973  | 238.00 | 106   | 339.00 | 123  |
| 66.00 | 199   | 154.00 | 917  | 239.00 | 454   | 341.00 | 307  |
| 67.00 | 247   | 155.00 | 1968 | 240.00 | 371   | 342.00 | 55   |
| 69.00 | 65480 | 156.00 | 3022 | 241.00 | 459   | 346.00 | 706  |
| 70.00 | 508   | 157.00 | 663  | 242.00 | 1309  | 347.00 | 162  |
| 71.00 | 199   | 158.00 | 693  | 243.00 | 1132  | 348.00 | 56   |
| 72.00 | 74    | 159.00 | 511  | 244.00 | 14128 | 349.00 | 62   |
| 73.00 | 344   | 160.00 | 1107 | 245.00 | 1712  | 351.00 | 84   |
| 74.00 | 6947  | 161.00 | 1938 | 246.00 | 2382  | 352.00 | 758  |
| 75.00 | 10049 | 162.00 | 546  | 247.00 | 549   | 353.00 | 602  |
| 76.00 | 3501  | 163.00 | 250  | 248.00 | 154   | 354.00 | 724  |
| 77.00 | 77328 | 164.00 | 150  | 249.00 | 919   | 355.00 | 184  |
| 78.00 | 5411  | 165.00 | 1190 | 250.00 | 301   | 360.00 | 82   |
| 79.00 | 4156  | 166.00 | 1152 | 251.00 | 263   | 362.00 | 94   |
| 80.00 | 2871  | 167.00 | 7371 | 252.00 | 499   | 363.00 | 201  |
| 81.00 | 4261  | 168.00 | 3968 | 253.00 | 1005  | 365.00 | 3124 |
| 82.00 | 1114  | 169.00 | 539  | 254.00 | 525   | 366.00 | 437  |
| 83.00 | 1175  | 170.00 | 279  | 255.00 | 73808 | 367.00 | 53   |
| 85.00 | 1166  | 171.00 | 243  | 256.00 | 11166 | 368.00 | 64   |
| 86.00 | 1287  | 172.00 | 659  | 257.00 | 757   | 369.00 | 70   |

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D\SMYS\_8270C.rslt\spectra.d

Injection Date: 21-Apr-2018 11:56:30

Spectrum: Tune Spec :Average 314-316( 4.08-4.10 ) Bgrd 311( 4.07)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 326

| m/z    | Y     | m/z    | Y      | m/z    | Y     | m/z    | Y    |
|--------|-------|--------|--------|--------|-------|--------|------|
| 87.00  | 699   | 173.00 | 763    | 258.00 | 3719  | 370.00 | 142  |
| 88.00  | 387   | 174.00 | 1407   | 259.00 | 618   | 371.00 | 72   |
| 89.00  | 4     | 175.00 | 2750   | 260.00 | 122   | 372.00 | 1455 |
| 90.00  | 90    | 176.00 | 832    | 261.00 | 112   | 373.00 | 370  |
| 91.00  | 1136  | 177.00 | 890    | 263.00 | 67    | 383.00 | 479  |
| 92.00  | 1152  | 178.00 | 433    | 264.00 | 63    | 384.00 | 185  |
| 93.00  | 6078  | 179.00 | 4499   | 265.00 | 1380  | 390.00 | 205  |
| 94.00  | 320   | 180.00 | 2919   | 267.00 | 149   | 392.00 | 55   |
| 96.00  | 482   | 181.00 | 1870   | 268.00 | 239   | 394.00 | 53   |
| 97.00  | 163   | 182.00 | 431    | 269.00 | 146   | 395.00 | 58   |
| 98.00  | 4871  | 183.00 | 14     | 270.00 | 209   | 397.00 | 117  |
| 99.00  | 3798  | 184.00 | 559    | 271.00 | 225   | 401.00 | 66   |
| 100.00 | 555   | 185.00 | 2838   | 272.00 | 273   | 402.00 | 469  |
| 101.00 | 2199  | 186.00 | 20824  | 273.00 | 2438  | 403.00 | 917  |
| 102.00 | 77    | 187.00 | 5763   | 274.00 | 5731  | 404.00 | 236  |
| 103.00 | 665   | 188.00 | 678    | 275.00 | 30016 | 409.00 | 122  |
| 104.00 | 1350  | 189.00 | 1148   | 276.00 | 4124  | 412.00 | 120  |
| 105.00 | 1228  | 190.00 | 293    | 277.00 | 2191  | 413.00 | 59   |
| 106.00 | 388   | 191.00 | 576    | 278.00 | 427   | 415.00 | 113  |
| 107.00 | 20616 | 192.00 | 1983   | 279.00 | 67    | 416.00 | 54   |
| 108.00 | 2830  | 193.00 | 1600   | 280.00 | 81    | 417.00 | 57   |
| 109.00 | 433   | 194.00 | 225    | 283.00 | 294   | 419.00 | 62   |
| 110.00 | 37328 | 195.00 | 105    | 284.00 | 212   | 421.00 | 688  |
| 111.00 | 6248  | 196.00 | 5421   | 285.00 | 579   | 422.00 | 561  |
| 112.00 | 545   | 198.00 | 146624 | 287.00 | 89    | 423.00 | 4400 |
| 113.00 | 242   | 199.00 | 9640   | 289.00 | 135   | 424.00 | 790  |
| 114.00 | 197   | 200.00 | 809    | 290.00 | 73    | 425.00 | 234  |
| 115.00 | 244   | 201.00 | 879    | 291.00 | 84    | 426.00 | 175  |
| 116.00 | 643   | 202.00 | 182    | 292.00 | 224   | 427.00 | 248  |
| 117.00 | 14886 | 203.00 | 1081   | 293.00 | 708   | 428.00 | 72   |
| 118.00 | 1159  | 204.00 | 4575   | 294.00 | 297   | 429.00 | 447  |
| 120.00 | 398   | 205.00 | 8739   | 295.00 | 163   | 430.00 | 403  |
| 121.00 | 193   | 206.00 | 35888  | 296.00 | 6771  | 431.00 | 423  |
| 122.00 | 1407  | 207.00 | 5158   | 297.00 | 967   | 432.00 | 240  |

Report Date: 22-Apr-2018 07:59:28

Chrom Revision: 2.2 17-Apr-2018 19:19:24

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D\SMSY\_8270C.rslt\spectra.d

Injection Date: 21-Apr-2018 11:56:30

Spectrum: Tune Spec :Average 314-316( 4.08-4.10 ) Bgrd 311( 4.07)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 326

| m/z    | Y     | m/z    | Y     | m/z    | Y   | m/z    | Y     |
|--------|-------|--------|-------|--------|-----|--------|-------|
| 123.00 | 1558  | 208.00 | 1016  | 301.00 | 209 | 433.00 | 358   |
| 124.00 | 1173  | 209.00 | 548   | 302.00 | 257 | 434.00 | 388   |
| 125.00 | 796   | 210.00 | 441   | 303.00 | 988 | 435.00 | 496   |
| 127.00 | 73120 | 211.00 | 1441  | 304.00 | 175 | 436.00 | 487   |
| 128.00 | 6057  | 212.00 | 91    | 306.00 | 64  | 437.00 | 656   |
| 129.00 | 24488 | 213.00 | 221   | 308.00 | 55  | 438.00 | 570   |
| 130.00 | 2037  | 214.00 | 52    | 309.00 | 70  | 439.00 | 721   |
| 131.00 | 519   | 215.00 | 399   | 311.00 | 57  | 440.00 | 199   |
| 132.00 | 27    | 216.00 | 1090  | 312.00 | 62  | 441.00 | 12570 |
| 134.00 | 396   | 217.00 | 8402  | 313.00 | 152 | 442.00 | 88720 |
| 135.00 | 2231  | 218.00 | 1106  | 314.00 | 392 | 443.00 | 17440 |
| 136.00 | 664   | 219.00 | 152   | 315.00 | 924 | 444.00 | 1614  |
| 137.00 | 1151  | 221.00 | 8014  | 316.00 | 545 | 445.00 | 87    |
| 138.00 | 295   | 223.00 | 2084  | 317.00 | 102 |        |       |
| 139.00 | 161   | 224.00 | 20744 | 321.00 | 76  |        |       |

Report Date: 22-Apr-2018 07:59:28

Chrom Revision: 2.2 17-Apr-2018 19:19:24

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D

Injection Date: 21-Apr-2018 11:56:30

Instrument ID: SMS\_Y

Operator ID: KIEKELD

Lims ID: DFTPP

Worklist Smp#: 2

Client ID:

Injection Vol: 0.5 ul

Dil. Factor: 1.0000

ALS Bottle#: 1

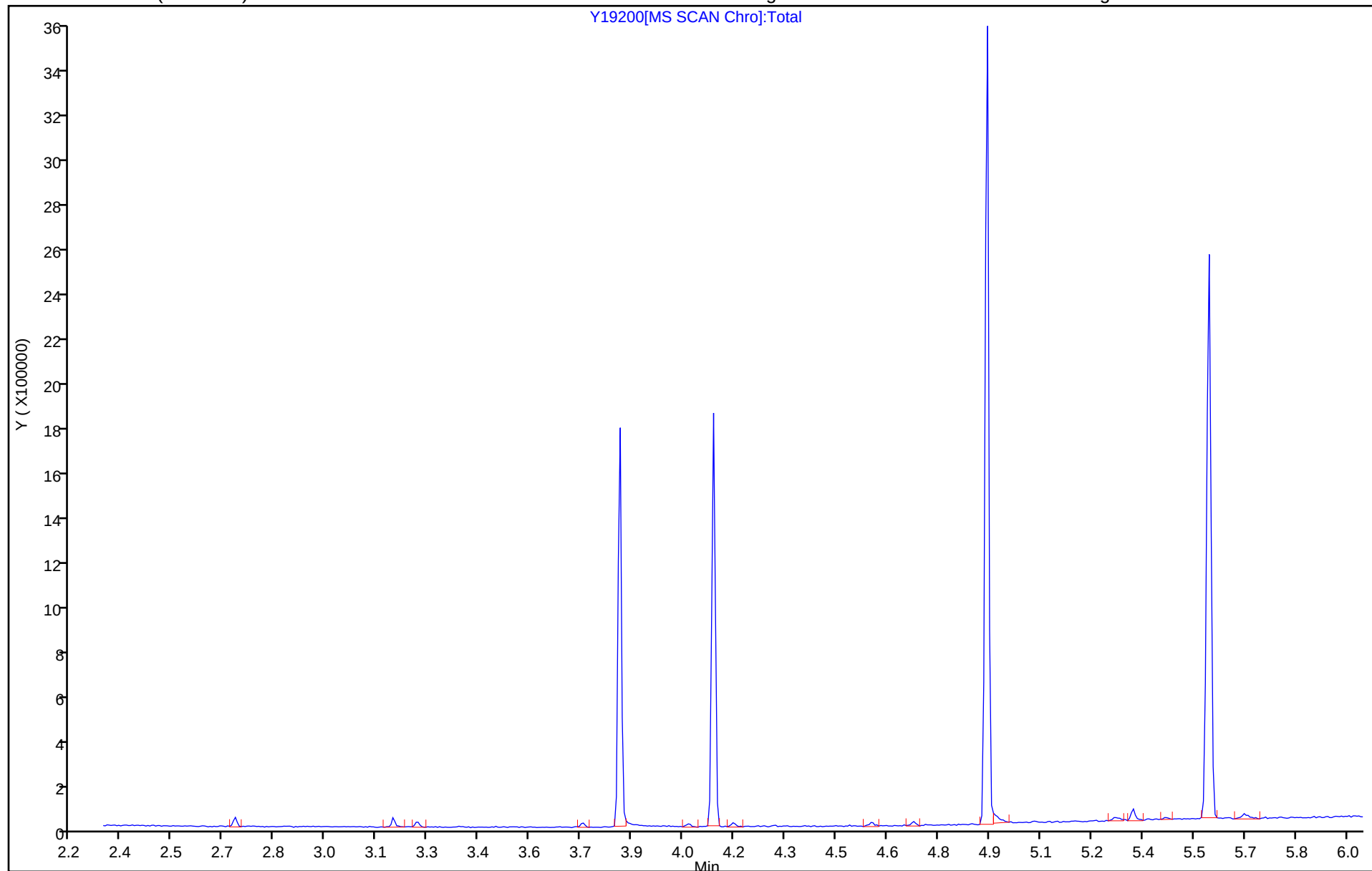
Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1

Y19200[MS SCAN Chro]:Total



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D  
Injection Date: 21-Apr-2018 11:56:30 Instrument ID: SMS\_Y  
Lims ID: DFTPP  
Client ID:  
Operator ID: KIEKELD  
Injection Vol: 0.5 ul  
Method: SMSY\_8270C

ALS Bottle#: 1 Worklist Smp#: 2  
Dil. Factor: 1.0000  
Limit Group: MSSV - 8270C\_625

218 4,4'-DDT, Detector: MS SCAN

## SW-846 Method

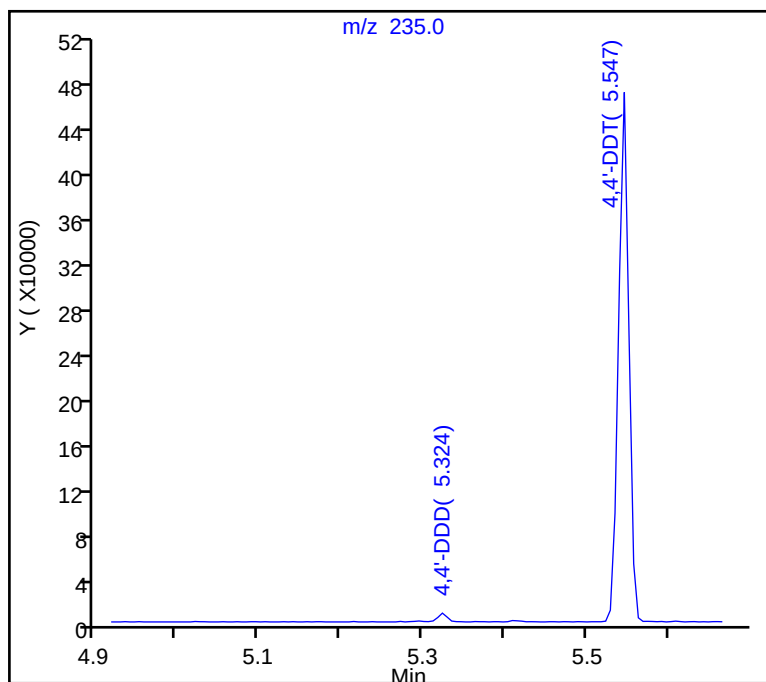
%Breakdown =  
(Area Breakdown Cpnds/  
Total Area Breakdown Cpnds) \* 100

218 4,4'-DDT, Area = 411919

217 4,4'-DDD, Area = 6350

216 4,4'-DDE, Area = 496

%Breakdown: 1.63%, Max Limit: 20.00%  
Passed



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D  
Injection Date: 21-Apr-2018 11:56:30 Instrument ID: SMS\_Y  
Lims ID: DFTPP  
Client ID:  
Operator ID: KIEKELD  
Injection Vol: 0.5 ul  
Method: SMSY\_8270C

ALS Bottle#: 1 Worklist Smp#: 2  
Dil. Factor: 1.0000  
Limit Group: MSSV - 8270C\_625

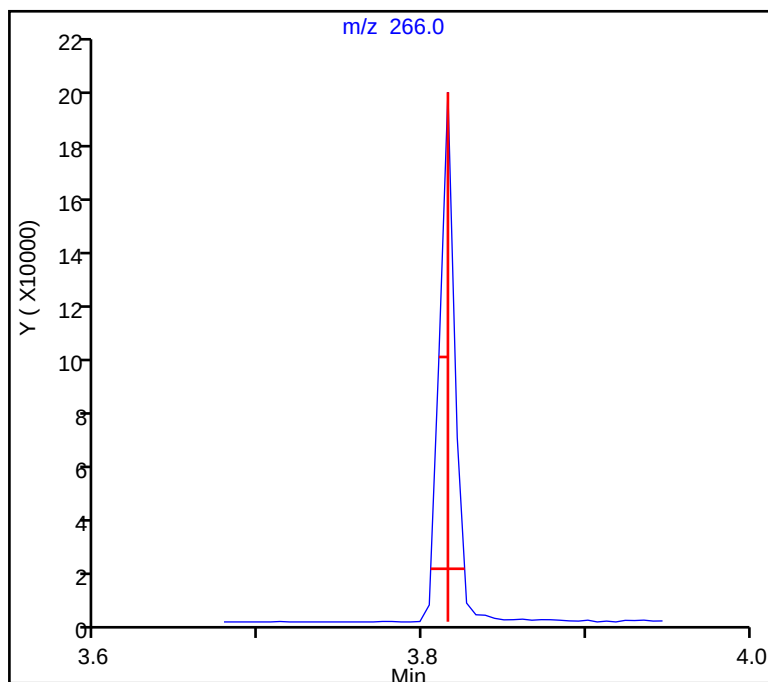
25 Pentachlorophenol\_T, Detector: MS SCAN

Peak Tailing Factor =  
BackWidth/FrontWidth @ 10% Peak Height

Back Width = 0.010 (min.)  
Front Width = 0.011 (min.)

Tailing Factor = 1.0, Max. Tailing < 5.00  
Passed

-----



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180421-69134.b\Y19200.D  
Injection Date: 21-Apr-2018 11:56:30 Instrument ID: SMS\_Y  
Lims ID: DFTPP  
Client ID:  
Operator ID: KIEKELD  
Injection Vol: 0.5 ul  
Method: SMSY\_8270C

ALS Bottle#: 1 Worklist Smp#: 2  
Dil. Factor: 1.0000  
Limit Group: MSSV - 8270C\_625

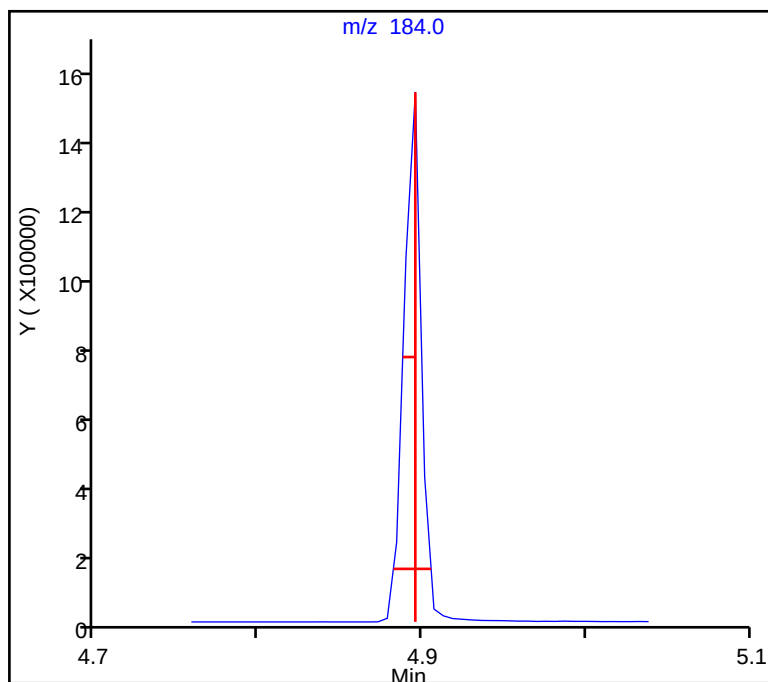
42 Benzidine\_T, Detector: MS SCAN

Peak Tailing Factor =  
BackWidth/FrontWidth @ 10% Peak Height

Back Width = 0.010 (min.)  
Front Width = 0.013 (min.)

Tailing Factor = 0.7, Max. Tailing < 3.00  
Passed

-----





TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D  
 Lims ID: DFTPP  
 Client ID:  
 Sample Type: DFTPP  
 Inject. Date: 25-May-2018 16:18:30 ALS Bottle#: 1 Worklist Smp#: 2  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: DFTPP  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:38 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 25-May-2018 16:27:05

| Compound               | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|------------------------|-----|--------------|------------------|------------------|----|----------|------------------|--------------------|-------|
| 25 Pentachlorophenol_T | 266 | 3.767        | 3.767            | 0.000            | 89 | 63746    | NR               | NR                 |       |
| 42 Benzidine_T         | 184 | 4.842        | 4.842            | 0.000            | 99 | 622828   | NR               | NR                 | a     |
| 215 DFTPP              |     |              |                  |                  |    |          |                  |                    |       |
| 216 4,4'-DDE           | 246 |              | 5.009            |                  |    |          | ND               | ND                 |       |
| 217 4,4'-DDD           | 235 | 5.259        | 5.259            | 0.000            | 91 | 2401     | NR               | NR                 | a     |
| 218 4,4'-DDT           | 235 | 5.476        | 5.476            | 0.000            | 97 | 244866   | NR               | NR                 | a     |

**QC Flag Legend**

## Processing Flags

NR - Missing Quant Standard

ND - Not Detected or Marked ND

## Review Flags

a - User Assigned ID

**Reagents:**

MS-DFTPP\_00046

Amount Added: 200.00

Units: uL

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D

Injection Date: 25-May-2018 16:18:30

Instrument ID: SMS\_Y

Lims ID: DFTPP

Client ID:

Operator ID: HOEFLERA

ALS Bottle#: 1 Worklist Smp#: 2

Injection Vol: 1.0 ul

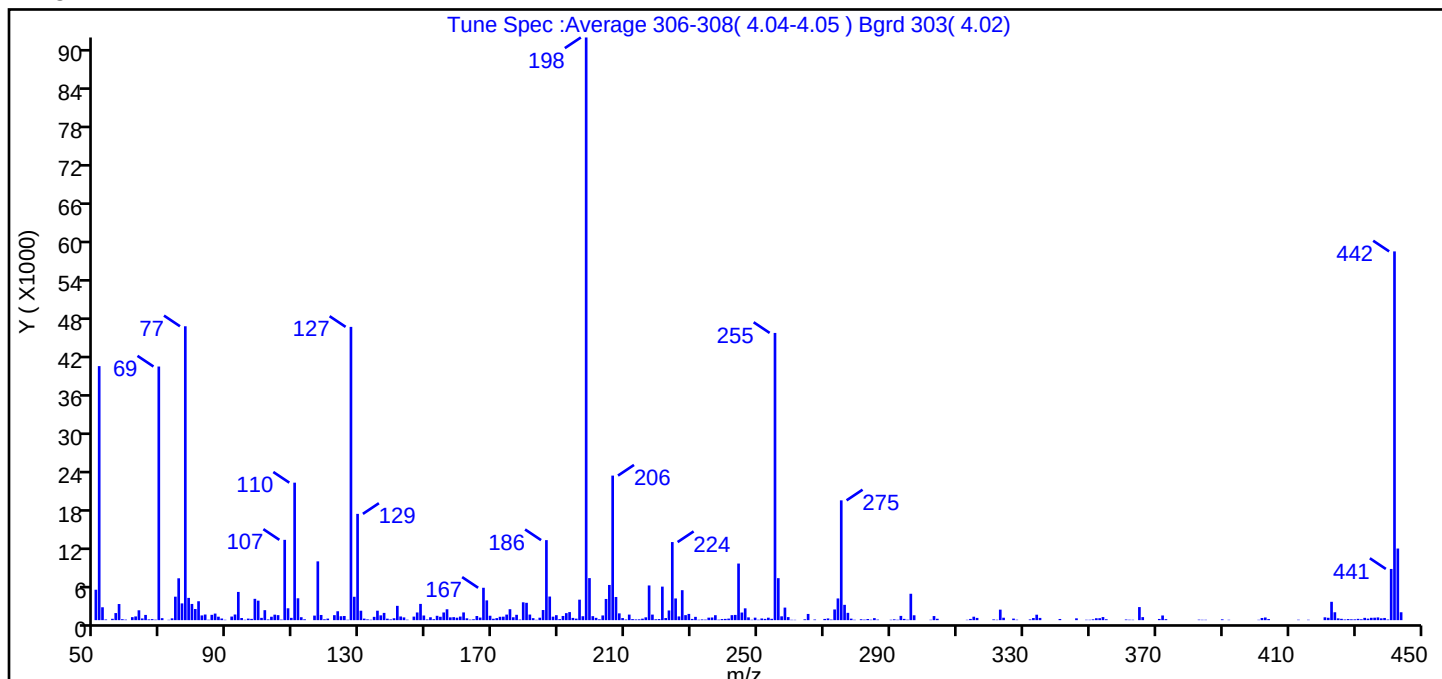
Dil. Factor: 1.0000

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Tune Method: DFTPP Method 8270

## 215 DFTPP



| m/z | Ion Abundance Criteria             | % Relative Abundance |
|-----|------------------------------------|----------------------|
| 198 | Base peak, 100% relative abundance | 100.0                |
| 51  | 30-60% of mass 198                 | 43.6                 |
| 68  | <2% of mass 69                     | 0.1 (0.2)            |
| 69  | Present                            | 43.5                 |
| 70  | <2% of mass 69                     | 0.3 (0.8)            |
| 127 | 40-60% of mass 198                 | 50.3                 |
| 197 | <1% of mass 198                    | 0.7                  |
| 199 | 5-9% of mass 198                   | 7.2                  |
| 275 | 10-30% of mass 198                 | 20.6                 |
| 365 | >1% of mass 198                    | 2.2                  |
| 441 | Present but less than mass 443     | 8.8 (71.5)           |
| 442 | >40% of mass 198                   | 63.3                 |
| 443 | 17-23% of mass 442                 | 12.3 (19.4)          |

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D\SMSY\_8270C.rslt\spectra.d  
Injection Date: 25-May-2018 16:18:30  
Spectrum: Tune Spec :Average 306-308( 4.04-4.05 ) Bgrd 303( 4.02)  
Base Peak: 198.00  
Minimum % Base Peak: 0  
Number of Points: 300

| m/z   | Y     | m/z    | Y    | m/z    | Y     | m/z    | Y    |
|-------|-------|--------|------|--------|-------|--------|------|
| 50.00 | 4788  | 132.00 | 121  | 208.00 | 1068  | 292.00 | 62   |
| 51.00 | 39984 | 133.00 | 70   | 209.00 | 326   | 293.00 | 668  |
| 52.00 | 2026  | 134.00 | 518  | 210.00 | 99    | 294.00 | 197  |
| 53.00 | 107   | 135.00 | 1485 | 211.00 | 872   | 295.00 | 74   |
| 55.00 | 212   | 136.00 | 754  | 212.00 | 165   | 296.00 | 4152 |
| 56.00 | 1114  | 137.00 | 1141 | 213.00 | 113   | 297.00 | 764  |
| 57.00 | 2538  | 138.00 | 231  | 214.00 | 129   | 302.00 | 65   |
| 58.00 | 149   | 139.00 | 114  | 215.00 | 232   | 303.00 | 643  |
| 59.00 | 82    | 140.00 | 295  | 216.00 | 443   | 304.00 | 215  |
| 61.00 | 471   | 141.00 | 2250 | 217.00 | 5461  | 313.00 | 53   |
| 62.00 | 584   | 142.00 | 577  | 218.00 | 874   | 314.00 | 191  |
| 63.00 | 1551  | 143.00 | 432  | 219.00 | 135   | 315.00 | 541  |
| 64.00 | 265   | 144.00 | 73   | 220.00 | 170   | 316.00 | 350  |
| 65.00 | 822   | 146.00 | 556  | 221.00 | 5276  | 321.00 | 117  |
| 66.00 | 115   | 147.00 | 1209 | 222.00 | 330   | 322.00 | 63   |
| 67.00 | 162   | 148.00 | 2555 | 223.00 | 1526  | 323.00 | 1653 |
| 68.00 | 76    | 149.00 | 731  | 224.00 | 12289 | 324.00 | 379  |
| 69.00 | 39920 | 150.00 | 110  | 225.00 | 3414  | 327.00 | 244  |
| 70.00 | 310   | 151.00 | 454  | 226.00 | 585   | 328.00 | 71   |
| 72.00 | 51    | 152.00 | 151  | 227.00 | 4715  | 332.00 | 114  |
| 73.00 | 283   | 153.00 | 684  | 228.00 | 790   | 333.00 | 334  |
| 74.00 | 3692  | 154.00 | 531  | 229.00 | 981   | 334.00 | 856  |
| 75.00 | 6588  | 155.00 | 1209 | 230.00 | 191   | 335.00 | 350  |
| 76.00 | 2637  | 156.00 | 1713 | 231.00 | 519   | 341.00 | 182  |
| 77.00 | 46256 | 157.00 | 441  | 232.00 | 65    | 346.00 | 284  |
| 78.00 | 3503  | 158.00 | 474  | 233.00 | 116   | 349.00 | 63   |
| 79.00 | 2551  | 159.00 | 388  | 234.00 | 88    | 350.00 | 58   |
| 80.00 | 1755  | 160.00 | 562  | 235.00 | 392   | 351.00 | 126  |
| 81.00 | 2975  | 161.00 | 1215 | 236.00 | 420   | 352.00 | 301  |
| 82.00 | 743   | 162.00 | 288  | 237.00 | 777   | 353.00 | 307  |
| 83.00 | 884   | 163.00 | 81   | 238.00 | 76    | 354.00 | 484  |
| 84.00 | 67    | 164.00 | 142  | 239.00 | 171   | 355.00 | 144  |
| 85.00 | 836   | 165.00 | 650  | 240.00 | 197   | 361.00 | 103  |

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D\SMSY\_8270C.rslt\spectra.d

Injection Date: 25-May-2018 16:18:30

Spectrum: Tune Spec :Average 306-308( 4.04-4.05 ) Bgrd 303( 4.02)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 300

| m/z    | Y     | m/z    | Y     | m/z    | Y     | m/z    | Y    |
|--------|-------|--------|-------|--------|-------|--------|------|
| 86.00  | 1034  | 166.00 | 406   | 241.00 | 242   | 362.00 | 67   |
| 87.00  | 541   | 167.00 | 5096  | 242.00 | 784   | 363.00 | 61   |
| 88.00  | 257   | 168.00 | 3113  | 243.00 | 823   | 365.00 | 2056 |
| 89.00  | 58    | 169.00 | 692   | 244.00 | 8909  | 366.00 | 475  |
| 91.00  | 563   | 170.00 | 217   | 245.00 | 1199  | 371.00 | 187  |
| 92.00  | 888   | 171.00 | 316   | 246.00 | 1859  | 372.00 | 735  |
| 93.00  | 4441  | 172.00 | 530   | 247.00 | 435   | 373.00 | 156  |
| 94.00  | 334   | 173.00 | 547   | 248.00 | 64    | 383.00 | 81   |
| 95.00  | 62    | 174.00 | 874   | 249.00 | 391   | 384.00 | 58   |
| 96.00  | 243   | 175.00 | 1720  | 250.00 | 67    | 385.00 | 58   |
| 97.00  | 199   | 176.00 | 454   | 251.00 | 262   | 390.00 | 127  |
| 98.00  | 3356  | 177.00 | 841   | 252.00 | 199   | 392.00 | 58   |
| 99.00  | 3068  | 178.00 | 94    | 253.00 | 386   | 401.00 | 55   |
| 100.00 | 358   | 179.00 | 2810  | 254.00 | 209   | 402.00 | 340  |
| 101.00 | 1569  | 180.00 | 2727  | 255.00 | 45208 | 403.00 | 418  |
| 102.00 | 111   | 181.00 | 880   | 256.00 | 6609  | 404.00 | 169  |
| 103.00 | 535   | 182.00 | 312   | 257.00 | 601   | 413.00 | 69   |
| 104.00 | 863   | 183.00 | 54    | 258.00 | 1975  | 416.00 | 64   |
| 105.00 | 788   | 184.00 | 384   | 259.00 | 478   | 421.00 | 444  |
| 106.00 | 87    | 185.00 | 1592  | 260.00 | 57    | 422.00 | 371  |
| 107.00 | 12640 | 186.00 | 12595 | 261.00 | 51    | 423.00 | 2887 |
| 108.00 | 1868  | 187.00 | 3715  | 264.00 | 133   | 424.00 | 1241 |
| 109.00 | 360   | 188.00 | 549   | 265.00 | 976   | 425.00 | 279  |
| 110.00 | 21640 | 189.00 | 782   | 267.00 | 99    | 426.00 | 209  |
| 111.00 | 3442  | 190.00 | 161   | 270.00 | 192   | 427.00 | 104  |
| 112.00 | 463   | 191.00 | 659   | 271.00 | 268   | 428.00 | 168  |
| 113.00 | 134   | 192.00 | 1102  | 272.00 | 90    | 429.00 | 130  |
| 116.00 | 715   | 193.00 | 1268  | 273.00 | 1683  | 430.00 | 123  |
| 117.00 | 9253  | 194.00 | 352   | 274.00 | 3416  | 431.00 | 203  |
| 118.00 | 814   | 195.00 | 240   | 275.00 | 18856 | 432.00 | 131  |
| 119.00 | 135   | 196.00 | 3224  | 276.00 | 2409  | 433.00 | 359  |
| 120.00 | 242   | 197.00 | 617   | 277.00 | 1148  | 434.00 | 238  |
| 122.00 | 785   | 198.00 | 91712 | 278.00 | 234   | 435.00 | 369  |
| 123.00 | 1400  | 199.00 | 6617  | 279.00 | 60    | 436.00 | 385  |

Report Date: 26-May-2018 13:27:38

Chrom Revision: 2.2 11-May-2018 08:54:46

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D\SMSY\_8270C.rslt\spectra.d

Injection Date: 25-May-2018 16:18:30

Spectrum: Tune Spec :Average 306-308( 4.04-4.05 ) Bgrd 303( 4.02)

Base Peak: 198.00

Minimum % Base Peak: 0

Number of Points: 300

| m/z    | Y     | m/z    | Y     | m/z    | Y   | m/z    | Y     |
|--------|-------|--------|-------|--------|-----|--------|-------|
| 124.00 | 616   | 200.00 | 627   | 281.00 | 137 | 437.00 | 429   |
| 125.00 | 654   | 201.00 | 365   | 282.00 | 81  | 438.00 | 284   |
| 126.00 | 65    | 202.00 | 133   | 283.00 | 175 | 439.00 | 344   |
| 127.00 | 46160 | 203.00 | 740   | 284.00 | 68  | 440.00 | 100   |
| 128.00 | 3678  | 204.00 | 3335  | 285.00 | 318 | 441.00 | 8060  |
| 129.00 | 16728 | 205.00 | 5539  | 286.00 | 85  | 442.00 | 58040 |
| 130.00 | 1483  | 206.00 | 22752 | 290.00 | 62  | 443.00 | 11272 |
| 131.00 | 239   | 207.00 | 3645  | 291.00 | 128 | 444.00 | 1242  |

Report Date: 26-May-2018 13:27:38

Chrom Revision: 2.2 11-May-2018 08:54:46

TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D

Injection Date: 25-May-2018 16:18:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: DFTPP

Worklist Smp#: 2

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

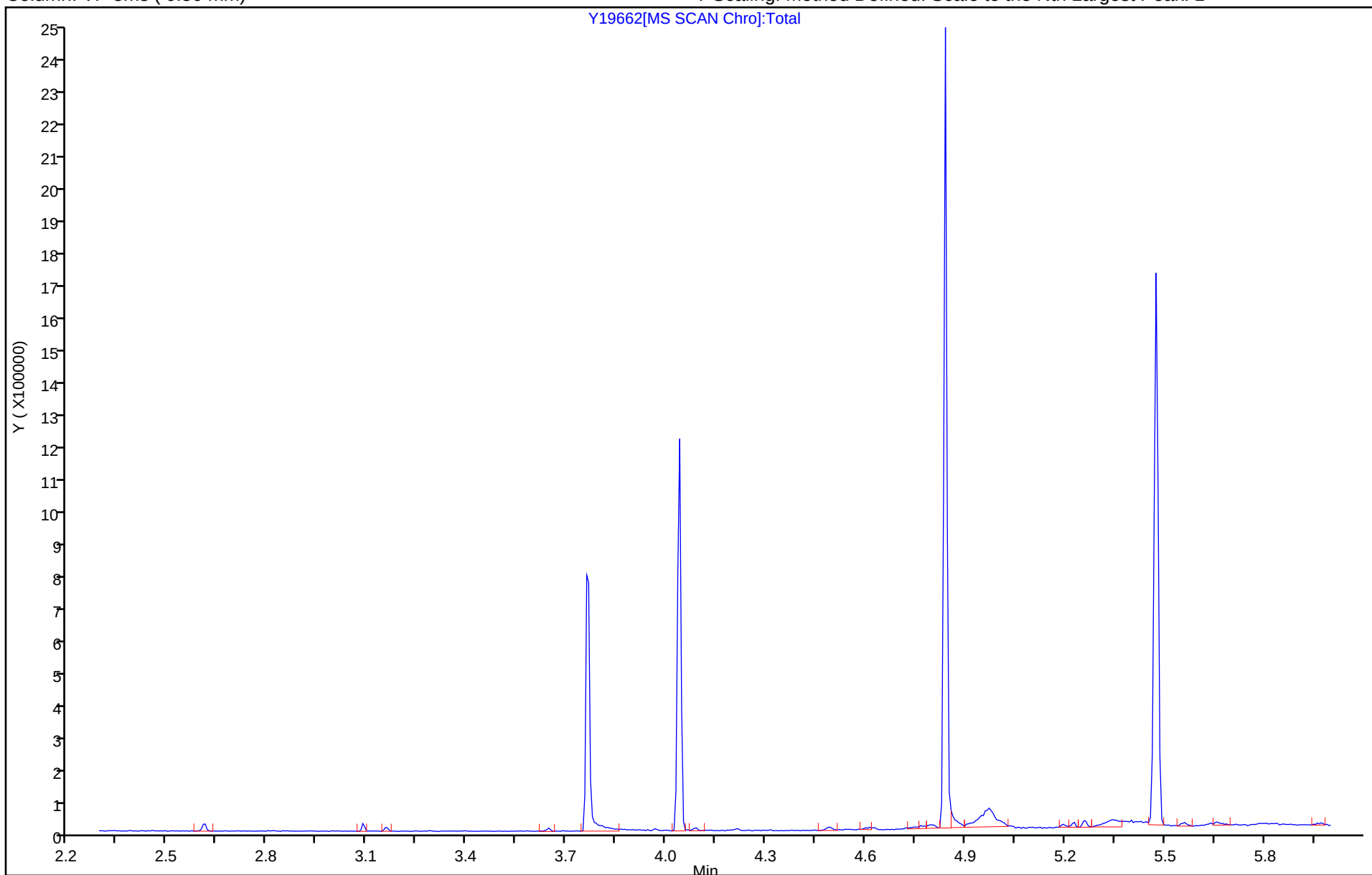
ALS Bottle#: 1

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D  
Injection Date: 25-May-2018 16:18:30 Instrument ID: SMS\_Y  
Lims ID: DFTPP  
Client ID:  
Operator ID: HOEFLERA  
Injection Vol: 1.0 ul  
Method: SMSY\_8270C

ALS Bottle#: 1 Worklist Smp#: 2  
Dil. Factor: 1.0000  
Limit Group: MSSV - 8270C\_625

218 4,4'-DDT, Detector: MS SCAN

## SW-846 Method

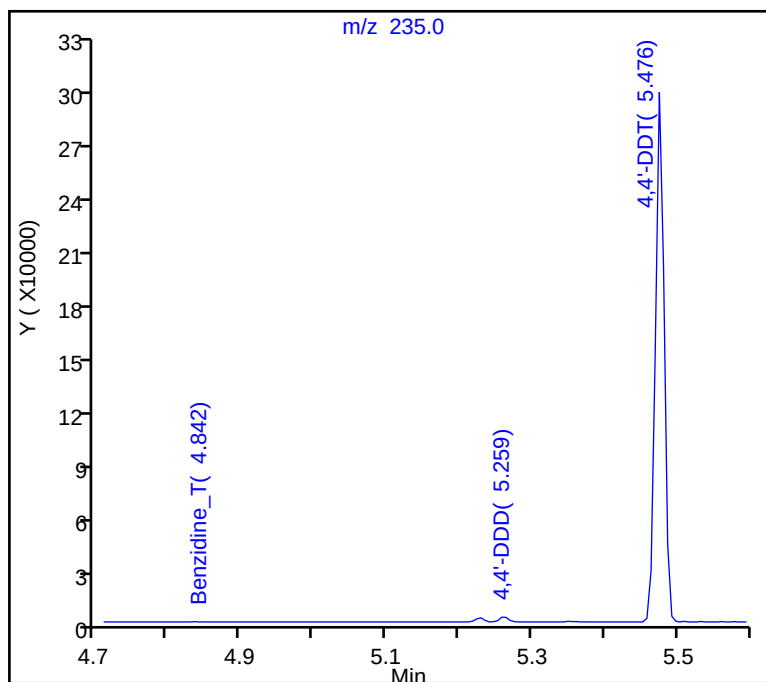
%Breakdown =  
(Area Breakdown Cpnds/  
Total Area Breakdown Cpnds) \* 100

218 4,4'-DDT, Area = 244866

217 4,4'-DDD, Area = 2401

216 4,4'-DDE, Area = 0

%Breakdown: 0.97%, Max Limit: 20.00%  
Passed



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D  
Injection Date: 25-May-2018 16:18:30 Instrument ID: SMS\_Y  
Lims ID: DFTPP  
Client ID:  
Operator ID: HOEFLERA ALS Bottle#: 1 Worklist Smp#: 2  
Injection Vol: 1.0 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625

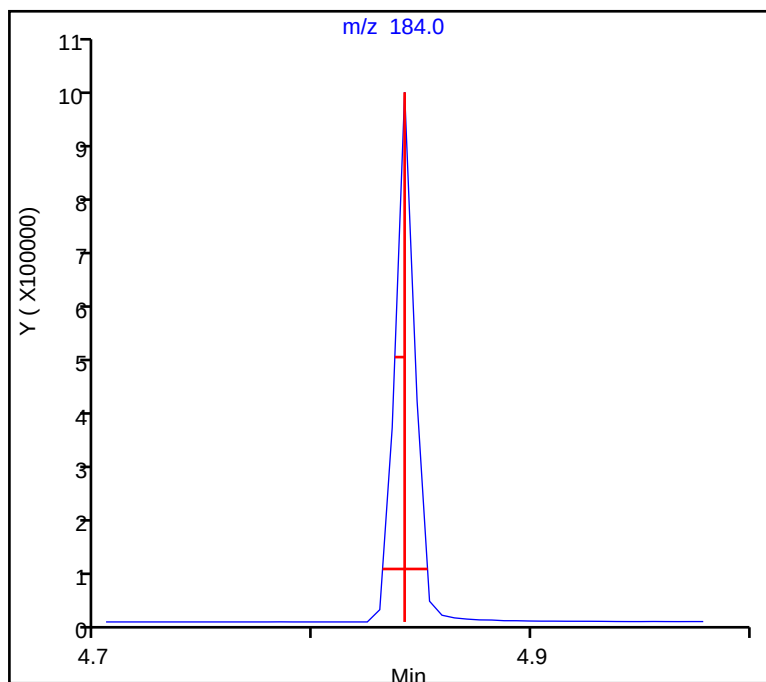
42 Benzidine\_T, Detector: MS SCAN

Peak Tailing Factor =  
BackWidth/FrontWidth @ 10% Peak Height

Back Width = 0.011 (min.)  
Front Width = 0.010 (min.)

Tailing Factor = 1.0, Max. Tailing < 3.00  
Passed

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## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19662.D  
Injection Date: 25-May-2018 16:18:30 Instrument ID: SMS\_Y  
Lims ID: DFTPP  
Client ID:  
Operator ID: HOEFLERA ALS Bottle#: 1 Worklist Smp#: 2  
Injection Vol: 1.0 ul Dil. Factor: 1.0000  
Method: SMSY\_8270C Limit Group: MSSV - 8270C\_625

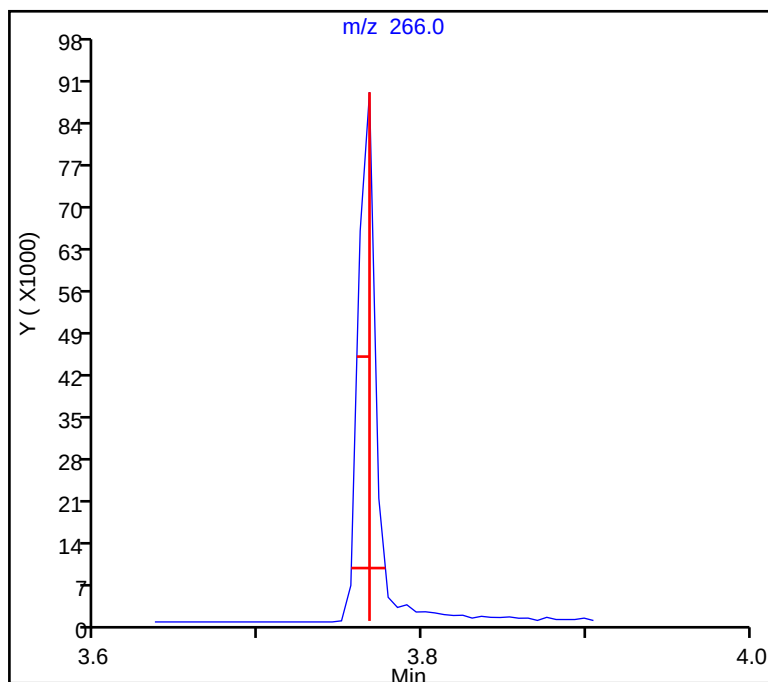
25 Pentachlorophenol\_T, Detector: MS SCAN

Peak Tailing Factor =  
BackWidth/FrontWidth @ 10% Peak Height

Back Width = 0.010 (min.)  
Front Width = 0.011 (min.)

Tailing Factor = 0.9, Max. Tailing < 5.00  
Passed

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FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LB 280-415138/1-C  
 Matrix: Solid (TCLP) Lab File ID: Y19666.D  
 Analysis Method: 8270D Date Collected: \_\_\_\_\_  
 Extract. Method: 3510C Date Extracted: 05/21/2018 08:55  
 Sample wt/vol: 200 (mL) Date Analyzed: 05/25/2018 17:51  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 416357 Units: mg/L

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.010  | U | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.0025 | U | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.020  | U | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.022  | U | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.010  | U | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.050  | U | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.022  | U | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.010  | U | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.20   | U | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.022  | U | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.0050 | U | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.0050 | U | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 79   |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 67   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 87   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 66   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 55   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 92   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19666.D  
 Lims ID: LB 280-415138/1-C  
 Client ID:  
 Sample Type: LB  
 Inject. Date: 25-May-2018 17:51:30 ALS Bottle#: 5 Worklist Smp#: 6  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LB280-415138\_1-C  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:18:53

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4     | 152 | 4.620     | 4.625         | -0.005        | 97  | 87020    | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8             | 136 | 5.853     | 5.858         | -0.005        | 99  | 368844   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10           | 164 | 7.604     | 7.603         | 0.001         | 96  | 191788   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10           | 188 | 9.090     | 9.095         | -0.005        | 98  | 382635   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12               | 240 | 13.108    | 13.125        | -0.017        | 98  | 361646   | 40.0          | 40.0            |       |
| * 6 Perylene-d12               | 264 | 17.009    | 17.025        | -0.016        | 96  | 341397   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol            | 112 | 3.433     | 3.432         | 0.001         | 93  | 213883   | 100.0         | 66.8            |       |
| \$ 8 Phenol-d5                 | 99  | 4.261     | 4.266         | -0.005        | 0   | 220542   | 100.0         | 55.3            |       |
| \$ 9 Nitrobenzene-d5           | 82  | 5.142     | 5.147         | -0.005        | 89  | 245751   | 100.0         | 66.2            |       |
| \$ 10 2,4,6-Trichlorophenol-d2 | 198 |           | 6.872         |               |     |          |               | ND              |       |
| \$ 11 2-Fluorobiphenyl         | 172 | 6.916     | 6.916         | 0.000         | 100 | 490257   | 100.0         | 79.2            |       |
| \$ 12 2,4,6-Tribromophenol     | 330 | 8.391     | 8.396         | -0.005        | 87  | 62485    | 100.0         | 86.8            |       |
| \$ 13 Terphenyl-d14            | 244 | 11.023    | 11.022        | 0.001         | 98  | 725327   | 100.0         | 92.1            |       |
| 14 Triethyl amine              | 86  |           | 2.105         |               |     |          |               | ND              |       |
| 15 1,4-Dioxane                 | 88  |           | 2.016         |               |     |          |               | ND              |       |
| 16 2-Ethoxyethanol             | 59  |           | 2.252         |               |     |          |               | ND              |       |
| 17 N-Nitrosodimethylamine      | 74  |           | 2.251         |               |     |          |               | ND              | U     |
| 18 Pyridine                    | 79  |           | 2.310         |               |     |          |               | ND              |       |
| 19 Dimethylformamide           | 73  |           | 2.745         |               |     |          |               | ND              |       |
| 20 2-Picoline                  | 93  |           | 2.941         |               |     |          |               | ND              |       |
| 21 N-Nitrosomethylethylamine   | 88  |           | 3.012         |               |     |          |               | ND              |       |
| 22 Acrylamide                  | 71  |           | 3.264         |               |     |          |               | ND              |       |
| 23 Methyl methanesulfonate     | 80  |           | 3.270         |               |     |          |               | ND              |       |
| 24 N-Nitrosodiethylamine       | 102 |           | 3.634         |               |     |          |               | ND              |       |
| 25 Pentachlorophenol_T         | 266 |           | 3.767         |               |     |          |               | ND              |       |
| 26 Ethyl methanesulfonate      | 79  |           | 3.887         |               |     |          |               | ND              |       |
| 27 Benzaldehyde                | 106 |           | 4.250         |               |     |          |               | ND              |       |
| 28 Phenol                      | 94  |           | 4.278         |               |     |          |               | ND              |       |
| 29 Phenylmercaptan             | 110 |           | 4.266         |               |     |          |               | ND              |       |
| 30 Aniline                     | 93  |           | 4.307         |               |     |          |               | ND              |       |
| 31 Bis(2-chloroethyl)ether     | 93  |           | 4.354         |               |     |          |               | ND              |       |

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 32 Alpha Methyl Styrene       | 118 |           | 4.360         |               |    |          |               | ND              |       |
| 33 Pentachloroethane          | 117 |           | 4.369         |               |    |          |               | ND              |       |
| 34 2-Chlorophenol             | 128 |           | 4.437         |               |    |          |               | ND              |       |
| 35 n-Decane                   | 43  |           | 4.460         |               |    |          |               | ND              |       |
| 36 Methyl styrene             | 118 | 4.625     | 4.497         | 0.125         | 42 | 1241     |               | NC              |       |
| 37 1,3-Dichlorobenzene        | 146 |           | 4.578         |               |    |          |               | ND              |       |
| 38 1,4-Dichlorobenzene        | 146 |           | 4.642         |               |    |          |               | ND              |       |
| 39 Benzyl alcohol             | 108 |           | 4.742         |               |    |          |               | ND              |       |
| 40 1,2-Dichlorobenzene        | 146 |           | 4.789         |               |    |          |               | ND              |       |
| 41 2-Methylphenol             | 108 |           | 4.848         |               |    |          |               | ND              |       |
| 42 Benzidine_T                | 184 |           | 4.842         |               |    |          |               | ND              |       |
| 43 2,2'-oxybis[1-chloropropan | 45  |           | 4.865         |               |    |          |               | ND              |       |
| 44 Indene                     | 116 |           | 4.877         |               |    |          |               | ND              |       |
| 45 N-Nitrosopyrrolidine       | 100 |           | 4.968         |               |    |          |               | ND              |       |
| 46 3-Methylphenol             | 108 |           | 4.995         |               |    |          |               | ND              |       |
| 47 4-Methylphenol             | 108 |           | 4.995         |               |    |          |               | ND              |       |
| 48 3 & 4 Methylphenol         | 108 |           | 4.995         |               |    |          |               | ND              |       |
| 49 N-Nitrosomorpholine        | 116 |           | 5.003         |               |    |          |               | ND              |       |
| 50 N-Nitrosodi-n-propylamine  | 70  |           | 4.989         |               |    |          |               | ND              |       |
| 51 Acetophenone               | 105 |           | 4.995         |               |    |          |               | ND              |       |
| 52 2-Toluidine                | 106 |           | 5.038         |               |    |          |               | ND              |       |
| 53 Hexachloroethane           | 117 |           | 5.118         |               |    |          |               | ND              |       |
| 54 Nitrobenzene               | 77  |           | 5.165         |               |    |          |               | ND              |       |
| 55 Triethyl phosphate         | 99  |           | 5.289         |               |    |          |               | ND              |       |
| 56 N-Nitrosopiperidine        | 114 |           | 5.309         |               |    |          |               | ND              |       |
| 57 Isophorone                 | 82  |           | 5.394         |               |    |          |               | ND              |       |
| 58 2-Nitrophenol              | 139 |           | 5.476         |               |    |          |               | ND              |       |
| 59 2,4-Dimethylphenol         | 107 |           | 5.506         |               |    |          |               | ND              |       |
| 60 Benzyl dichloride          | 125 |           | 5.547         |               |    |          |               | ND              |       |
| 61 o,o',o''-Triethylphosphoro | 198 |           | 5.561         |               |    |          |               | ND              |       |
| 62 2,4-Xylidine               | 121 |           | 5.712         |               |    |          |               | ND              |       |
| 63 Bis(2-chloroethoxy)methane | 93  |           | 5.588         |               |    |          |               | ND              |       |
| 64 Benzoic acid               | 105 |           | 5.653         |               |    |          |               | ND              |       |
| 65 o-Anisidine                | 80  |           | 5.753         |               |    |          |               | ND              |       |
| 66 3,5-Dimethylphenol         | 107 |           | 5.641         |               |    |          |               | ND              |       |
| 67 alpha,alpha-Dimethyl phene | 58  |           | 5.714         |               |    |          |               | ND              |       |
| 68 2,4-Dichlorophenol         | 162 |           | 5.717         |               |    |          |               | ND              |       |
| 69 1,2,4-Trichlorobenzene     | 180 |           | 5.800         |               |    |          |               | ND              |       |
| 70 Alpha-Terpineol            | 59  |           | 5.876         |               |    |          |               | ND              |       |
| 71 Naphthalene                | 128 |           | 5.882         |               |    |          |               | ND              |       |
| 72 4-Chloroaniline            | 127 |           | 5.917         |               |    |          |               | ND              |       |
| 73 2,6-Dichlorophenol         | 162 |           | 5.935         |               |    |          |               | ND              |       |
| 74 Hexachloropropene          | 213 |           | 5.972         |               |    |          |               | ND              |       |
| 75 Hexachlorobutadiene        | 225 |           | 6.005         |               |    |          |               | ND              |       |
| 76 4-chlorobenzenethiol       | 144 |           | 6.086         |               |    |          |               | ND              |       |
| 77 Quinoline                  | 129 |           | 6.201         |               |    |          |               | ND              |       |
| 78 5-Methyl-o-Anisidine       | 122 |           | 6.364         |               |    |          |               | ND              |       |
| 79 Caprolactam                | 55  |           | 6.269         |               |    |          |               | ND              |       |
| 80 N-Nitrosodi-n-butylamine   | 84  |           | 6.248         |               |    |          |               | ND              |       |
| 81 p-Phenylene diamine        | 108 |           | 6.266         |               |    |          |               | ND              |       |
| 82 1,3-phenylenediamine       | 108 |           | 6.488         |               |    |          |               | ND              |       |
| 83 4-Chloro-3-methylphenol    | 107 |           | 6.405         |               |    |          |               | ND              |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 84 Safrole, Total              | 162 |           | 6.466         |               |    |          |               | ND              |       |
| 85 Carbofuran phenol           | 164 |           | 6.511         |               |    |          |               | ND              |       |
| 86 2-Methylnaphthalene         | 142 |           | 6.563         |               |    |          |               | ND              |       |
| 87 Phthalic anhydride          | 76  |           | 6.598         |               |    |          |               | ND              |       |
| 88 1-Methylnaphthalene         | 142 |           | 6.663         |               |    |          |               | ND              |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 |           | 6.734         |               |    |          |               | ND              |       |
| 90 Hexachlorocyclopentadiene   | 237 |           | 6.728         |               |    |          |               | ND              |       |
| 91 Isosafrole Peak 1           | 162 |           | 6.754         |               |    |          |               | ND              |       |
| 92 2,4,6-Trichlorophenol       | 196 |           | 6.845         |               |    |          |               | ND              |       |
| 93 2,3-Dichlorobenzenamine     | 161 |           | 6.839         |               |    |          |               | ND              |       |
| 94 2,4,5-Trichlorophenol       | 196 |           | 6.886         |               |    |          |               | ND              |       |
| 95 Methyl 4-chlorophenyl sulf  | 158 | 6.916     | 6.889         | 0.023         | 48 | 959      |               | NC              |       |
| 96 Isosafrole Peak 2           | 104 |           | 6.983         |               |    |          |               | ND              |       |
| 97 Toluene diamine (2,4- + 2,  | 122 |           | 7.033         |               |    |          |               | ND              |       |
| 98 1,1'-Biphenyl               | 154 |           | 7.021         |               |    |          |               | ND              |       |
| 99 2-Chloronaphthalene         | 162 |           | 7.051         |               |    |          |               | ND              |       |
| 100 1-Chloronaphthalene        | 162 |           | 7.077         |               |    |          |               | ND              |       |
| 101 2-Nitroaniline             | 65  |           | 7.139         |               |    |          |               | ND              |       |
| 102 1,4-Naphthoquinone         | 158 |           | 7.212         |               |    |          |               | ND              |       |
| 103 1,4-Dinitrobenzene         | 168 |           | 7.265         |               |    |          |               | ND              |       |
| 104 Dimethyl phthalate         | 163 |           | 7.315         |               |    |          |               | ND              |       |
| 105 1,3-Dinitrobenzene         | 168 |           | 7.344         |               |    |          |               | ND              |       |
| 106 2,6-Dinitrotoluene         | 165 |           | 7.374         |               |    |          |               | ND              |       |
| 107 Acenaphthylene             | 152 |           | 7.468         |               |    |          |               | ND              |       |
| 108 3-Nitroaniline             | 138 |           | 7.550         |               |    |          |               | ND              |       |
| 109 Acenaphthene               | 153 |           | 7.638         |               |    |          |               | ND              |       |
| 110 1,3-Dimethyl-2,4-Dinitrobe | 77  |           | 7.635         |               |    |          |               | ND              |       |
| 111 2,4-Dinitrophenol          | 184 |           | 7.650         |               |    |          |               | ND              |       |
| 112 4-Nitrophenol              | 109 |           | 7.732         |               |    |          |               | ND              |       |
| 113 1,3-Dimethyl-2,5-Dinitrobe | 179 | 7.974     | 7.876         | 0.095         | 0  | 129      |               | NC              |       |
| 114 2,4-Dinitrotoluene         | 165 |           | 7.779         |               |    |          |               | ND              |       |
| 115 Pentachlorobenzene         | 250 |           | 7.782         |               |    |          |               | ND              |       |
| 116 Dibenzofuran               | 168 |           | 7.809         |               |    |          |               | ND              |       |
| 117 1,4-Dimethyl-2,3-Dinitrobe | 77  |           | 7.885         |               |    |          |               | ND              |       |
| 118 1-Naphthylamine            | 143 |           | 7.887         |               |    |          |               | ND              |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 |           | 7.938         |               |    |          |               | ND              |       |
| 120 1,4-Dimethyl-2,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 121 2-Naphthylamine            | 143 |           | 7.964         |               |    |          |               | ND              |       |
| 122 1,4-Dimethyl-2,5-Dinitrobe | 179 | 7.974     | 7.966         | 0.004         | 0  | 129      |               | NC              |       |
| 123 Diethyl phthalate          | 149 |           | 8.014         |               |    |          |               | ND              |       |
| 124 Hexadecane                 | 57  |           | 8.026         |               |    |          |               | ND              |       |
| 125 1,2-Dimethyl-3,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 126 Thionazin                  | 97  |           | 8.099         |               |    |          |               | ND              |       |
| 127 4-Chlorophenyl phenyl ethe | 204 |           | 8.138         |               |    |          |               | ND              |       |
| 128 N-Nitro-o-toluidine        | 152 |           | 8.158         |               |    |          |               | ND              |       |
| 129 Fluorene                   | 166 |           | 8.155         |               |    |          |               | ND              |       |
| 130 4-Nitroaniline             | 138 |           | 8.167         |               |    |          |               | ND              |       |
| 131 4,6-Dinitro-2-methylphenol | 198 |           | 8.196         |               |    |          |               | ND              |       |
| 132 1,5-Dimethyl-2,4-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 133 Tributyl phosphate         | 99  |           | 8.244         |               |    |          |               | ND              |       |
| 134 Diphenylamine              | 169 |           | 8.255         |               |    |          |               | ND              |       |
| 135 N-Nitrosodiphenylamine     | 169 |           | 8.255         |               |    |          |               | ND              |       |

| Compound                            | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------------|-----|--------------|------------------|------------------|----|----------|------------------|--------------------|-------|
| 136 1,2-Diphenylhydrazine           | 77  |              | 8.302            |                  |    |          |                  | ND                 |       |
| 137 Azobenzene                      | 77  |              | 8.302            |                  |    |          |                  | ND                 |       |
| 138 1,5-Dimethyl-2,3-Dinitrobenzene | 179 |              | 8.299            |                  |    |          |                  | ND                 |       |
| 139 2,4,6 - Tribromophenol          | 330 |              | 8.396            |                  |    |          | ND               | ND                 | U     |
| 140 Sulfotep                        | 97  |              | 8.404            |                  |    |          |                  | ND                 |       |
| 141 1,2-Dimethyl-3,5-Dinitrobenzene | 179 |              | 8.520            |                  |    |          |                  | ND                 |       |
| 142 1,3,5-Trinitrobenzene           | 213 |              | 8.504            |                  |    |          |                  | ND                 |       |
| 143 Diallate Peak 1                 | 86  |              | 8.545            |                  |    |          |                  | ND                 |       |
| 144 Phorate                         | 121 |              | 8.557            |                  |    |          |                  | ND                 |       |
| 145 Phenacetin                      | 108 |              | 8.563            |                  |    |          |                  | ND                 |       |
| 146 1,2-Dimethyl-3,4-Dinitrobenzene | 179 |              | 8.557            |                  |    |          |                  | ND                 |       |
| 147 Phenyl sulfide                  | 186 |              | 8.615            |                  |    |          |                  | ND                 |       |
| 148 4-Bromophenyl phenyl ether      | 248 |              | 8.631            |                  |    |          |                  | ND                 |       |
| 149 Diallate Peak 2                 | 86  |              | 8.639            |                  |    |          |                  | ND                 |       |
| 150 Dimethoate                      | 87  |              | 8.727            |                  |    |          |                  | ND                 |       |
| 151 Hexachlorobenzene               | 284 |              | 8.719            |                  |    |          |                  | ND                 |       |
| 152 Atrazine                        | 200 |              | 8.778            |                  |    |          |                  | ND                 |       |
| 153 1,2-Dimethyl-4,5-Dinitrobenzene | 91  |              | 8.784            |                  |    |          |                  | ND                 |       |
| 154 4-Aminobiphenyl                 | 169 |              | 8.898            |                  |    |          |                  | ND                 |       |
| 155 Pentachlorophenol               | 266 |              | 8.913            |                  |    |          |                  | ND                 |       |
| 156 Pentachloronitrobenzene         | 237 |              | 8.927            |                  |    |          |                  | ND                 |       |
| 157 Pronamide                       | 173 |              | 8.951            |                  |    |          |                  | ND                 |       |
| 158 n-Octadecane                    | 85  |              | 8.948            |                  |    |          |                  | ND                 |       |
| 159 Disulfoton                      | 88  |              | 9.080            |                  |    |          |                  | ND                 |       |
| 160 Dinoseb                         | 211 |              | 9.086            |                  |    |          |                  | ND                 |       |
| 161 Phenanthrene                    | 178 |              | 9.119            |                  |    |          |                  | ND                 |       |
| 162 Anthracene                      | 178 |              | 9.171            |                  |    |          |                  | ND                 |       |
| 163 n-hydroxymethylphthalimide      | 147 | 9.090        | 9.173            | -0.087           | 38 | 790      |                  | NC                 |       |
| 164 Carbazole                       | 167 |              | 9.324            |                  |    |          |                  | ND                 |       |
| 165 Methyl parathion                | 109 |              | 9.456            |                  |    |          |                  | ND                 |       |
| 166 Alachlor                        | 188 |              | 9.453            |                  |    |          |                  | ND                 |       |
| 167 Phenyl disulfide                | 109 |              | 9.589            |                  |    |          |                  | ND                 |       |
| 168 Di-n-butyl phthalate            | 149 |              | 9.659            |                  |    |          |                  | ND                 |       |
| 169 Ethyl Parathion                 | 109 |              | 9.879            |                  |    |          |                  | ND                 |       |
| 170 4-Nitroquinoline-1-oxide        | 190 |              | 9.932            |                  |    |          |                  | ND                 |       |
| 171 Diphenylsulfone                 | 125 |              | 9.984            |                  |    |          |                  | ND                 |       |
| 172 Methapyrilene                   | 97  |              | 10.014           |                  |    |          |                  | ND                 |       |
| 173 Isodrin                         | 193 |              | 10.290           |                  |    |          |                  | ND                 |       |
| 174 Octachlorostyrene               | 308 |              | 10.360           |                  |    |          |                  | ND                 |       |
| 175 Fluoranthene                    | 202 |              | 10.476           |                  |    |          |                  | ND                 |       |
| 176 Benzidine                       | 184 |              | 10.647           |                  |    |          |                  | ND                 |       |
| 177 4,4-Dichlorobenzil              | 139 |              | 10.529           |                  |    |          |                  | ND                 |       |
| 178 Pyrene                          | 202 |              | 10.804           |                  |    |          |                  | ND                 |       |
| 180 Aramite Peak 1                  | 185 |              | 10.989           |                  |    |          |                  | ND                 |       |
| 181 p-chlorophenyl sulfone          | 159 | 11.023       | 11.018           | -0.013           | 43 | 8747     |                  | NC                 |       |
| 182 Aramite Peak 2                  | 185 |              | 11.112           |                  |    |          |                  | ND                 |       |
| 183 p-Dimethylamino azobenzene      | 120 |              | 11.271           |                  |    |          |                  | ND                 |       |
| 184 Chlorobenzilate                 | 251 |              | 11.353           |                  |    |          |                  | ND                 |       |
| 185 Famphur                         | 218 |              | 11.786           |                  |    |          |                  | ND                 |       |
| 186 3,3'-Dimethylbenzidine          | 212 |              | 11.882           |                  |    |          |                  | ND                 |       |
| 187 Butyl benzyl phthalate          | 149 |              | 11.903           |                  |    |          |                  | ND                 |       |
| 188 2-Acetylaminofluorene           | 181 |              | 12.411           |                  |    |          |                  | ND                 |       |

| Compound                         | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|----------------------------------|-----|--------------|------------------|------------------|---|----------|------------------|--------------------|-------|
| 189 3,3'-Dichlorobenzidine       | 252 |              | 13.054           |                  |   |          |                  | ND                 |       |
| 190 4,4'-Methylene bis(2-chlor   | 231 |              | 13.069           |                  |   |          |                  | ND                 |       |
| 191 Benzo[a]anthracene           | 228 |              | 13.101           |                  |   |          |                  | ND                 |       |
| 192 Chrysene                     | 228 |              | 13.190           |                  |   |          |                  | ND                 |       |
| 193 Bis(2-ethylhexyl) phthalat   | 149 |              | 13.254           |                  |   |          |                  | ND                 |       |
| 194 6-Methylchrysene             | 242 |              | 14.349           |                  |   |          |                  | ND                 |       |
| 195 Di-n-octyl phthalate         | 149 |              | 15.040           |                  |   |          |                  | ND                 |       |
| 196 Benzo[b]fluoranthene         | 252 |              | 15.945           |                  |   |          |                  | ND                 |       |
| 197 7,12-Dimethylbenz(a)anthra   | 256 |              | 15.959           |                  |   |          |                  | ND                 |       |
| 198 Benzo[k]fluoranthene         | 252 |              | 16.027           |                  |   |          |                  | ND                 |       |
| 199 Hexachlorophene              | 196 |              | 16.657           |                  |   |          |                  | ND                 |       |
| 200 Benzo[e]pyrene               | 252 |              | 16.720           |                  |   |          |                  | ND                 |       |
| 201 Benzo[a]pyrene               | 252 |              | 16.867           |                  |   |          |                  | ND                 |       |
| 202 Perylene                     | 252 |              | 17.249           |                  |   |          |                  | ND                 |       |
| 203 3-Methylcholanthrene         | 268 |              | 17.956           |                  |   |          |                  | ND                 |       |
| 204 Tris(2,3-dibromopropyl)pho   | 119 |              | 18.700           |                  |   |          |                  | ND                 |       |
| 205 Dibenz[a,h]acridine          | 279 |              | 19.525           |                  |   |          |                  | ND                 |       |
| 206 Dibenz[a,j]acridine          | 279 |              | 19.683           |                  |   |          |                  | ND                 |       |
| 207 Indeno[1,2,3-cd]pyrene       | 276 |              | 20.133           |                  |   |          |                  | ND                 |       |
| 208 Dibenz(a,h)anthracene        | 278 |              | 20.221           |                  |   |          |                  | ND                 |       |
| 209 Benzo[g,h,i]perylene         | 276 |              | 20.867           |                  |   |          |                  | ND                 |       |
| 210 Dibenzo[a,e]pyrene           | 302 |              | 25.234           |                  |   |          |                  | ND                 |       |
| S 219 Total Cresols              | 108 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 220 Methyl Phenols, Total      | 108 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 221 Isosafrole                 | 162 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 222 Diallate                   | 86  |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 223 Aramite, Total             | 185 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 224 Phthalic acid              | 148 |              | 19.829           |                  |   |          |                  | ND                 |       |
| 211 2-Phenoxyethanol             | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 212 1,2,3,4-Tetrahydronaphthal   | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 213 4-Methylacetophenone         | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 214 2-Butoxyethanol              | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 216 4,4'-DDE                     | 246 |              | 5.009            |                  |   |          |                  | ND                 |       |
| 217 4,4'-DDD                     | 235 |              | 5.259            |                  |   |          |                  | ND                 |       |
| 218 4,4'-DDT                     | 235 |              | 5.476            |                  |   |          |                  | ND                 |       |
| S 225 TPAH                       | 1   |              | 0.000            |                  |   |          |                  | ND                 |       |
| T 226 Pentachlorodibenzofurans T | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 227 Octadecane (TIC)           | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 228 Pentachlorodibenzo-p-dioxi | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 229 2,6-Dimethylphenol         | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 230 Tetrachlorodibenzo-p-dioxi | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 231 Tetrachlorodibenzofurans T | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 232 Hexachlorodibenzofurans TI | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 233 Hexachlorodibenzo-p-dioxin | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

**Reagents:**

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent



## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19666.D

Injection Date: 25-May-2018 17:51:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: LB 280-415138/1-C

Worklist Smp#: 6

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

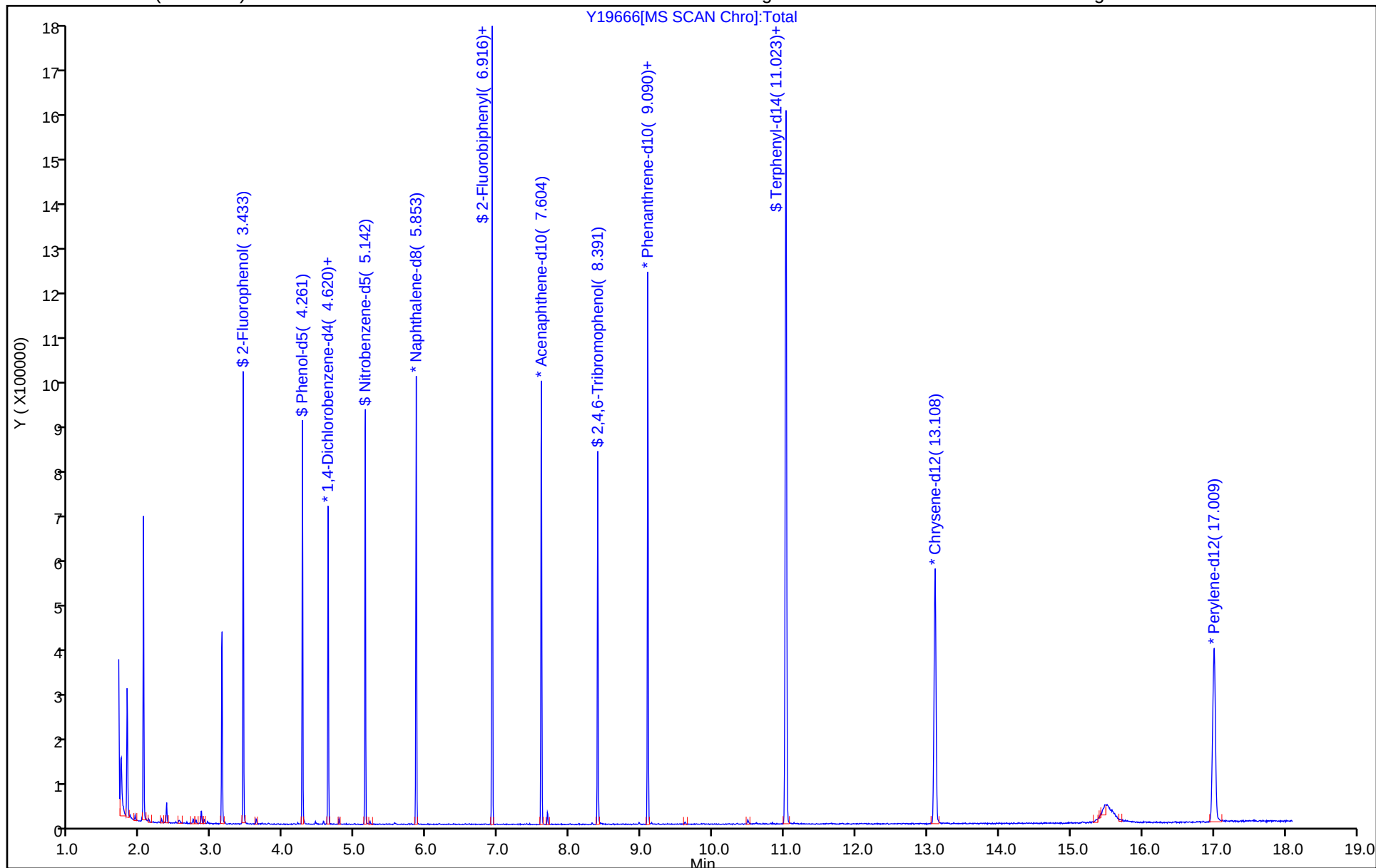
ALS Bottle#: 5

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19666.D  
 Lims ID: LB 280-415138/1-C  
 Client ID:  
 Sample Type: LB  
 Inject. Date: 25-May-2018 17:51:30 ALS Bottle#: 5 Worklist Smp#: 6  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LB280-415138\_1-C  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:18:53

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 66.8             | 66.83  |
| \$ 8 Phenol-d5             | 100.0        | 55.3             | 55.33  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 66.2             | 66.19  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 79.2             | 79.22  |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 86.8             | 86.77  |
| \$ 13 Terphenyl-d14        | 100.0        | 92.1             | 92.06  |

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LB3 280-416023/1-A  
 Matrix: Water Lab File ID: Y19664.D  
 Analysis Method: 8270D Date Collected: \_\_\_\_\_  
 Extract. Method: 3510C Date Extracted: 05/21/2018 08:46  
 Sample wt/vol: 200 (mL) Date Analyzed: 05/25/2018 17:01  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 416357 Units: mg/L

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.010  | U | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.0025 | U | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.020  | U | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.022  | U | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.010  | U | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.050  | U | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.022  | U | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.010  | U | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.20   | U | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.022  | U | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.0050 | U | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.0050 | U | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 89   |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 77   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 89   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 74   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 64   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 95   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19664.D  
 Lims ID: LB3 280-416023/1-A  
 Client ID:  
 Sample Type: LB3  
 Inject. Date: 25-May-2018 17:01:30 ALS Bottle#: 3 Worklist Smp#: 4  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LB3280-416023\_1-A  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:18:12

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4     | 152 | 4.619     | 4.625         | -0.006        | 98  | 90107    | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8             | 136 | 5.853     | 5.858         | -0.005        | 99  | 377609   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10           | 164 | 7.603     | 7.603         | 0.000         | 96  | 198660   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10           | 188 | 9.089     | 9.095         | -0.006        | 97  | 384452   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12               | 240 | 13.108    | 13.125        | -0.017        | 99  | 385863   | 40.0          | 40.0            |       |
| * 6 Perylene-d12               | 264 | 17.002    | 17.025        | -0.023        | 96  | 346042   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol            | 112 | 3.432     | 3.432         | 0.000         | 93  | 255371   | 100.0         | 77.1            |       |
| \$ 8 Phenol-d5                 | 99  | 4.261     | 4.266         | -0.005        | 0   | 265183   | 100.0         | 64.3            |       |
| \$ 9 Nitrobenzene-d5           | 82  | 5.142     | 5.147         | -0.005        | 89  | 280897   | 100.0         | 73.9            |       |
| \$ 10 2,4,6-Trichlorophenol-d2 | 198 |           | 6.872         |               |     |          |               | ND              |       |
| \$ 11 2-Fluorobiphenyl         | 172 | 6.916     | 6.916         | 0.000         | 100 | 573517   | 100.0         | 89.5            |       |
| \$ 12 2,4,6-Tribromophenol     | 330 | 8.390     | 8.396         | -0.006        | 87  | 66641    | 100.0         | 89.3            |       |
| \$ 13 Terphenyl-d14            | 244 | 11.022    | 11.022        | 0.000         | 98  | 794947   | 100.0         | 94.6            |       |
| 14 Triethyl amine              | 86  |           | 2.105         |               |     |          |               | ND              |       |
| 15 1,4-Dioxane                 | 88  |           | 2.016         |               |     |          |               | ND              |       |
| 16 2-Ethoxyethanol             | 59  |           | 2.252         |               |     |          |               | ND              |       |
| 17 N-Nitrosodimethylamine      | 74  |           | 2.251         |               |     |          |               | ND              |       |
| 18 Pyridine                    | 79  |           | 2.310         |               |     |          |               | ND              |       |
| 19 Dimethylformamide           | 73  |           | 2.745         |               |     |          |               | ND              |       |
| 20 2-Picoline                  | 93  |           | 2.941         |               |     |          |               | ND              |       |
| 21 N-Nitrosomethylethylamine   | 88  |           | 3.012         |               |     |          |               | ND              |       |
| 22 Acrylamide                  | 71  |           | 3.264         |               |     |          |               | ND              |       |
| 23 Methyl methanesulfonate     | 80  |           | 3.270         |               |     |          |               | ND              |       |
| 24 N-Nitrosodiethylamine       | 102 |           | 3.634         |               |     |          |               | ND              |       |
| 25 Pentachlorophenol_T         | 266 |           | 3.767         |               |     |          |               | ND              |       |
| 26 Ethyl methanesulfonate      | 79  |           | 3.887         |               |     |          |               | ND              |       |
| 27 Benzaldehyde                | 106 |           | 4.250         |               |     |          |               | ND              |       |
| 28 Phenol                      | 94  |           | 4.278         |               |     |          |               | ND              |       |
| 29 Phenylmercaptan             | 110 |           | 4.266         |               |     |          |               | ND              |       |
| 30 Aniline                     | 93  |           | 4.307         |               |     |          |               | ND              |       |
| 31 Bis(2-chloroethyl)ether     | 93  |           | 4.354         |               |     |          |               | ND              |       |

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 32 Alpha Methyl Styrene       | 118 |           | 4.360         |               |    |          |               | ND              |       |
| 33 Pentachloroethane          | 117 |           | 4.369         |               |    |          |               | ND              |       |
| 34 2-Chlorophenol             | 128 |           | 4.437         |               |    |          |               | ND              |       |
| 35 n-Decane                   | 43  |           | 4.460         |               |    |          |               | ND              |       |
| 36 Methyl styrene             | 118 | 4.619     | 4.497         | 0.119         | 42 | 1200     |               | NC              |       |
| 37 1,3-Dichlorobenzene        | 146 |           | 4.578         |               |    |          |               | ND              |       |
| 38 1,4-Dichlorobenzene        | 146 |           | 4.642         |               |    |          |               | ND              |       |
| 39 Benzyl alcohol             | 108 |           | 4.742         |               |    |          |               | ND              |       |
| 40 1,2-Dichlorobenzene        | 146 |           | 4.789         |               |    |          |               | ND              |       |
| 41 2-Methylphenol             | 108 |           | 4.848         |               |    |          |               | ND              |       |
| 42 Benzidine_T                | 184 |           | 4.842         |               |    |          |               | ND              |       |
| 43 2,2'-oxybis[1-chloropropan | 45  |           | 4.865         |               |    |          |               | ND              |       |
| 44 Indene                     | 116 |           | 4.877         |               |    |          |               | ND              |       |
| 45 N-Nitrosopyrrolidine       | 100 |           | 4.968         |               |    |          |               | ND              |       |
| 46 3-Methylphenol             | 108 |           | 4.995         |               |    |          |               | ND              |       |
| 47 4-Methylphenol             | 108 |           | 4.995         |               |    |          |               | ND              |       |
| 48 3 & 4 Methylphenol         | 108 |           | 4.995         |               |    |          |               | ND              |       |
| 49 N-Nitrosomorpholine        | 116 |           | 5.003         |               |    |          |               | ND              |       |
| 50 N-Nitrosodi-n-propylamine  | 70  |           | 4.989         |               |    |          |               | ND              |       |
| 51 Acetophenone               | 105 |           | 4.995         |               |    |          |               | ND              |       |
| 52 2-Toluidine                | 106 |           | 5.038         |               |    |          |               | ND              |       |
| 53 Hexachloroethane           | 117 |           | 5.118         |               |    |          |               | ND              |       |
| 54 Nitrobenzene               | 77  |           | 5.165         |               |    |          |               | ND              |       |
| 55 Triethyl phosphate         | 99  |           | 5.289         |               |    |          |               | ND              |       |
| 56 N-Nitrosopiperidine        | 114 |           | 5.309         |               |    |          |               | ND              |       |
| 57 Isophorone                 | 82  |           | 5.394         |               |    |          |               | ND              |       |
| 58 2-Nitrophenol              | 139 |           | 5.476         |               |    |          |               | ND              |       |
| 59 2,4-Dimethylphenol         | 107 |           | 5.506         |               |    |          |               | ND              |       |
| 60 Benzyl dichloride          | 125 |           | 5.547         |               |    |          |               | ND              |       |
| 61 o,o',o''-Triethylphosphoro | 198 |           | 5.561         |               |    |          |               | ND              |       |
| 62 2,4-Xylidine               | 121 |           | 5.712         |               |    |          |               | ND              |       |
| 63 Bis(2-chloroethoxy)methane | 93  |           | 5.588         |               |    |          |               | ND              |       |
| 64 Benzoic acid               | 105 |           | 5.653         |               |    |          |               | ND              |       |
| 65 o-Anisidine                | 80  |           | 5.753         |               |    |          |               | ND              |       |
| 66 3,5-Dimethylphenol         | 107 |           | 5.641         |               |    |          |               | ND              |       |
| 67 alpha,alpha-Dimethyl phene | 58  |           | 5.714         |               |    |          |               | ND              |       |
| 68 2,4-Dichlorophenol         | 162 |           | 5.717         |               |    |          |               | ND              |       |
| 69 1,2,4-Trichlorobenzene     | 180 |           | 5.800         |               |    |          |               | ND              |       |
| 70 Alpha-Terpineol            | 59  |           | 5.876         |               |    |          |               | ND              |       |
| 71 Naphthalene                | 128 |           | 5.882         |               |    |          |               | ND              |       |
| 72 4-Chloroaniline            | 127 |           | 5.917         |               |    |          |               | ND              |       |
| 73 2,6-Dichlorophenol         | 162 |           | 5.935         |               |    |          |               | ND              |       |
| 74 Hexachloropropene          | 213 |           | 5.972         |               |    |          |               | ND              |       |
| 75 Hexachlorobutadiene        | 225 |           | 6.005         |               |    |          |               | ND              |       |
| 76 4-chlorobenzenethiol       | 144 |           | 6.086         |               |    |          |               | ND              |       |
| 77 Quinoline                  | 129 |           | 6.201         |               |    |          |               | ND              |       |
| 78 5-Methyl-o-Anisidine       | 122 |           | 6.364         |               |    |          |               | ND              |       |
| 79 Caprolactam                | 55  |           | 6.269         |               |    |          |               | ND              |       |
| 80 N-Nitrosodi-n-butylamine   | 84  |           | 6.248         |               |    |          |               | ND              |       |
| 81 p-Phenylene diamine        | 108 |           | 6.266         |               |    |          |               | ND              |       |
| 82 1,3-phenylenediamine       | 108 |           | 6.488         |               |    |          |               | ND              |       |
| 83 4-Chloro-3-methylphenol    | 107 |           | 6.405         |               |    |          |               | ND              |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 84 Safrole, Total              | 162 |           | 6.466         |               |    |          |               | ND              |       |
| 85 Carbofuran phenol           | 164 |           | 6.511         |               |    |          |               | ND              |       |
| 86 2-Methylnaphthalene         | 142 |           | 6.563         |               |    |          |               | ND              |       |
| 87 Phthalic anhydride          | 76  |           | 6.598         |               |    |          |               | ND              |       |
| 88 1-Methylnaphthalene         | 142 |           | 6.663         |               |    |          |               | ND              |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 |           | 6.734         |               |    |          |               | ND              |       |
| 90 Hexachlorocyclopentadiene   | 237 |           | 6.728         |               |    |          |               | ND              |       |
| 91 Isosafrole Peak 1           | 162 |           | 6.754         |               |    |          |               | ND              |       |
| 92 2,4,6-Trichlorophenol       | 196 |           | 6.845         |               |    |          |               | ND              |       |
| 93 2,3-Dichlorobenzenamine     | 161 |           | 6.839         |               |    |          |               | ND              |       |
| 94 2,4,5-Trichlorophenol       | 196 |           | 6.886         |               |    |          |               | ND              |       |
| 95 Methyl 4-chlorophenyl sulf  | 158 | 6.916     | 6.889         | 0.023         | 48 | 1008     |               | NC              |       |
| 96 Isosafrole Peak 2           | 104 |           | 6.983         |               |    |          |               | ND              |       |
| 97 Toluene diamine (2,4- + 2,  | 122 |           | 7.033         |               |    |          |               | ND              |       |
| 98 1,1'-Biphenyl               | 154 |           | 7.021         |               |    |          |               | ND              |       |
| 99 2-Chloronaphthalene         | 162 |           | 7.051         |               |    |          |               | ND              |       |
| 100 1-Chloronaphthalene        | 162 |           | 7.077         |               |    |          |               | ND              |       |
| 101 2-Nitroaniline             | 65  |           | 7.139         |               |    |          |               | ND              |       |
| 102 1,4-Naphthoquinone         | 158 |           | 7.212         |               |    |          |               | ND              |       |
| 103 1,4-Dinitrobenzene         | 168 |           | 7.265         |               |    |          |               | ND              |       |
| 104 Dimethyl phthalate         | 163 |           | 7.315         |               |    |          |               | ND              |       |
| 105 1,3-Dinitrobenzene         | 168 |           | 7.344         |               |    |          |               | ND              |       |
| 106 2,6-Dinitrotoluene         | 165 |           | 7.374         |               |    |          |               | ND              |       |
| 107 Acenaphthylene             | 152 |           | 7.468         |               |    |          |               | ND              |       |
| 108 3-Nitroaniline             | 138 |           | 7.550         |               |    |          |               | ND              |       |
| 109 Acenaphthene               | 153 |           | 7.638         |               |    |          |               | ND              |       |
| 110 1,3-Dimethyl-2,4-Dinitrobe | 77  |           | 7.635         |               |    |          |               | ND              |       |
| 111 2,4-Dinitrophenol          | 184 |           | 7.650         |               |    |          |               | ND              |       |
| 112 4-Nitrophenol              | 109 |           | 7.732         |               |    |          |               | ND              |       |
| 113 1,3-Dimethyl-2,5-Dinitrobe | 179 |           | 7.879         |               |    |          |               | ND              |       |
| 114 2,4-Dinitrotoluene         | 165 |           | 7.779         |               |    |          |               | ND              |       |
| 115 Pentachlorobenzene         | 250 |           | 7.782         |               |    |          |               | ND              |       |
| 116 Dibenzofuran               | 168 |           | 7.809         |               |    |          |               | ND              |       |
| 117 1,4-Dimethyl-2,3-Dinitrobe | 77  |           | 7.885         |               |    |          |               | ND              |       |
| 118 1-Naphthylamine            | 143 |           | 7.887         |               |    |          |               | ND              |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 |           | 7.938         |               |    |          |               | ND              |       |
| 120 1,4-Dimethyl-2,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 121 2-Naphthylamine            | 143 |           | 7.964         |               |    |          |               | ND              |       |
| 122 1,4-Dimethyl-2,5-Dinitrobe | 179 |           | 7.970         |               |    |          |               | ND              |       |
| 123 Diethyl phthalate          | 149 |           | 8.014         |               |    |          |               | ND              |       |
| 124 Hexadecane                 | 57  |           | 8.026         |               |    |          |               | ND              |       |
| 125 1,2-Dimethyl-3,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 126 Thionazin                  | 97  |           | 8.099         |               |    |          |               | ND              |       |
| 127 4-Chlorophenyl phenyl ethe | 204 |           | 8.138         |               |    |          |               | ND              |       |
| 128 N-Nitro-o-toluidine        | 152 |           | 8.158         |               |    |          |               | ND              |       |
| 129 Fluorene                   | 166 |           | 8.155         |               |    |          |               | ND              |       |
| 130 4-Nitroaniline             | 138 |           | 8.167         |               |    |          |               | ND              |       |
| 131 4,6-Dinitro-2-methylphenol | 198 |           | 8.196         |               |    |          |               | ND              |       |
| 132 1,5-Dimethyl-2,4-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 133 Tributyl phosphate         | 99  |           | 8.244         |               |    |          |               | ND              |       |
| 134 Diphenylamine              | 169 |           | 8.255         |               |    |          |               | ND              |       |
| 135 N-Nitrosodiphenylamine     | 169 |           | 8.255         |               |    |          |               | ND              |       |

| Compound                            | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q  | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|-------------------------------------|-----|--------------|------------------|------------------|----|----------|------------------|--------------------|-------|
| 136 1,2-Diphenylhydrazine           | 77  |              | 8.302            |                  |    |          |                  | ND                 |       |
| 137 Azobenzene                      | 77  |              | 8.302            |                  |    |          |                  | ND                 |       |
| 138 1,5-Dimethyl-2,3-Dinitrobenzene | 179 |              | 8.299            |                  |    |          |                  | ND                 |       |
| 139 2,4,6 - Tribromophenol          | 330 |              | 8.396            |                  |    |          | ND               | ND                 | U     |
| 140 Sulfotep                        | 97  |              | 8.404            |                  |    |          |                  | ND                 |       |
| 141 1,2-Dimethyl-3,5-Dinitrobenzene | 179 |              | 8.520            |                  |    |          |                  | ND                 |       |
| 142 1,3,5-Trinitrobenzene           | 213 |              | 8.504            |                  |    |          |                  | ND                 |       |
| 143 Diallyl Peak 1                  | 86  |              | 8.545            |                  |    |          |                  | ND                 |       |
| 144 Phorate                         | 121 |              | 8.557            |                  |    |          |                  | ND                 |       |
| 145 Phenacetin                      | 108 |              | 8.563            |                  |    |          |                  | ND                 |       |
| 146 1,2-Dimethyl-3,4-Dinitrobenzene | 179 |              | 8.557            |                  |    |          |                  | ND                 |       |
| 147 Phenyl sulfide                  | 186 |              | 8.615            |                  |    |          |                  | ND                 |       |
| 148 4-Bromophenyl phenyl ether      | 248 |              | 8.631            |                  |    |          |                  | ND                 |       |
| 149 Diallyl Peak 2                  | 86  |              | 8.639            |                  |    |          |                  | ND                 |       |
| 150 Dimethoate                      | 87  |              | 8.727            |                  |    |          |                  | ND                 |       |
| 151 Hexachlorobenzene               | 284 |              | 8.719            |                  |    |          |                  | ND                 |       |
| 152 Atrazine                        | 200 |              | 8.778            |                  |    |          |                  | ND                 |       |
| 153 1,2-Dimethyl-4,5-Dinitrobenzene | 91  |              | 8.784            |                  |    |          |                  | ND                 |       |
| 154 4-Aminobiphenyl                 | 169 |              | 8.898            |                  |    |          |                  | ND                 |       |
| 155 Pentachlorophenol               | 266 |              | 8.913            |                  |    |          |                  | ND                 |       |
| 156 Pentachloronitrobenzene         | 237 |              | 8.927            |                  |    |          |                  | ND                 |       |
| 157 Pronamide                       | 173 |              | 8.951            |                  |    |          |                  | ND                 |       |
| 158 n-Octadecane                    | 85  |              | 8.948            |                  |    |          |                  | ND                 |       |
| 159 Disulfoton                      | 88  |              | 9.080            |                  |    |          |                  | ND                 | U     |
| 160 Dinoseb                         | 211 |              | 9.086            |                  |    |          |                  | ND                 |       |
| 161 Phenanthrene                    | 178 |              | 9.119            |                  |    |          |                  | ND                 |       |
| 162 Anthracene                      | 178 |              | 9.171            |                  |    |          |                  | ND                 |       |
| 163 n-hydroxymethylphthalimide      | 147 | 9.089        | 9.173            | -0.088           | 38 | 590      |                  | NC                 |       |
| 164 Carbazole                       | 167 |              | 9.324            |                  |    |          |                  | ND                 |       |
| 165 Methyl parathion                | 109 |              | 9.456            |                  |    |          |                  | ND                 |       |
| 166 Alachlor                        | 188 |              | 9.453            |                  |    |          |                  | ND                 |       |
| 167 Phenyl disulfide                | 109 |              | 9.589            |                  |    |          |                  | ND                 |       |
| 168 Di-n-butyl phthalate            | 149 |              | 9.659            |                  |    |          |                  | ND                 |       |
| 169 Ethyl Parathion                 | 109 |              | 9.879            |                  |    |          |                  | ND                 |       |
| 170 4-Nitroquinoline-1-oxide        | 190 |              | 9.932            |                  |    |          |                  | ND                 |       |
| 171 Diphenylsulfone                 | 125 |              | 9.984            |                  |    |          |                  | ND                 |       |
| 172 Methapyrilene                   | 97  |              | 10.014           |                  |    |          |                  | ND                 |       |
| 173 Isodrin                         | 193 |              | 10.290           |                  |    |          |                  | ND                 |       |
| 174 Octachlorostyrene               | 308 |              | 10.360           |                  |    |          |                  | ND                 |       |
| 175 Fluoranthene                    | 202 |              | 10.476           |                  |    |          |                  | ND                 |       |
| 176 Benzidine                       | 184 |              | 10.647           |                  |    |          |                  | ND                 |       |
| 177 4,4-Dichlorobenzil              | 139 |              | 10.529           |                  |    |          |                  | ND                 |       |
| 178 Pyrene                          | 202 |              | 10.804           |                  |    |          |                  | ND                 |       |
| 180 Aramite Peak 1                  | 185 |              | 10.989           |                  |    |          |                  | ND                 |       |
| 181 p-chlorophenyl sulfone          | 159 | 11.022       | 11.018           | -0.014           | 44 | 8950     |                  | NC                 |       |
| 182 Aramite Peak 2                  | 185 |              | 11.112           |                  |    |          |                  | ND                 |       |
| 183 p-Dimethylamino azobenzene      | 120 |              | 11.271           |                  |    |          |                  | ND                 |       |
| 184 Chlorobenzilate                 | 251 |              | 11.353           |                  |    |          |                  | ND                 |       |
| 185 Famphur                         | 218 |              | 11.786           |                  |    |          |                  | ND                 |       |
| 186 3,3'-Dimethylbenzidine          | 212 |              | 11.882           |                  |    |          |                  | ND                 |       |
| 187 Butyl benzyl phthalate          | 149 |              | 11.903           |                  |    |          |                  | ND                 |       |
| 188 2-Acetylaminofluorene           | 181 |              | 12.411           |                  |    |          |                  | ND                 |       |

| Compound                         | Sig | RT<br>(min.) | Adj RT<br>(min.) | Dlt RT<br>(min.) | Q | Response | Cal Amt<br>ug/ml | OnCol Amt<br>ug/ml | Flags |
|----------------------------------|-----|--------------|------------------|------------------|---|----------|------------------|--------------------|-------|
| 189 3,3'-Dichlorobenzidine       | 252 |              | 13.054           |                  |   |          |                  | ND                 |       |
| 190 4,4'-Methylene bis(2-chlor   | 231 |              | 13.069           |                  |   |          |                  | ND                 |       |
| 191 Benzo[a]anthracene           | 228 |              | 13.101           |                  |   |          |                  | ND                 |       |
| 192 Chrysene                     | 228 |              | 13.190           |                  |   |          |                  | ND                 |       |
| 193 Bis(2-ethylhexyl) phthalat   | 149 |              | 13.254           |                  |   |          |                  | ND                 |       |
| 194 6-Methylchrysene             | 242 |              | 14.349           |                  |   |          |                  | ND                 |       |
| 195 Di-n-octyl phthalate         | 149 |              | 15.040           |                  |   |          |                  | ND                 |       |
| 196 Benzo[b]fluoranthene         | 252 |              | 15.945           |                  |   |          |                  | ND                 |       |
| 197 7,12-Dimethylbenz(a)anthra   | 256 |              | 15.959           |                  |   |          |                  | ND                 |       |
| 198 Benzo[k]fluoranthene         | 252 |              | 16.027           |                  |   |          |                  | ND                 |       |
| 199 Hexachlorophene              | 196 |              | 16.657           |                  |   |          |                  | ND                 |       |
| 200 Benzo[e]pyrene               | 252 |              | 16.720           |                  |   |          |                  | ND                 |       |
| 201 Benzo[a]pyrene               | 252 |              | 16.867           |                  |   |          |                  | ND                 |       |
| 202 Perylene                     | 252 |              | 17.249           |                  |   |          |                  | ND                 |       |
| 203 3-Methylcholanthrene         | 268 |              | 17.956           |                  |   |          |                  | ND                 |       |
| 204 Tris(2,3-dibromopropyl)pho   | 119 |              | 18.700           |                  |   |          |                  | ND                 |       |
| 205 Dibenz[a,h]acridine          | 279 |              | 19.525           |                  |   |          |                  | ND                 |       |
| 206 Dibenz[a,j]acridine          | 279 |              | 19.683           |                  |   |          |                  | ND                 |       |
| 207 Indeno[1,2,3-cd]pyrene       | 276 |              | 20.133           |                  |   |          |                  | ND                 |       |
| 208 Dibenz(a,h)anthracene        | 278 |              | 20.221           |                  |   |          |                  | ND                 |       |
| 209 Benzo[g,h,i]perylene         | 276 |              | 20.867           |                  |   |          |                  | ND                 |       |
| 210 Dibenzo[a,e]pyrene           | 302 |              | 25.234           |                  |   |          |                  | ND                 |       |
| S 219 Total Cresols              | 108 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 220 Methyl Phenols, Total      | 108 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 221 Isosafrole                 | 162 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 222 Diallate                   | 86  |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 223 Aramite, Total             | 185 |              | 15.636           |                  |   |          |                  | ND                 |       |
| S 224 Phthalic acid              | 148 |              | 19.829           |                  |   |          |                  | ND                 |       |
| 211 2-Phenoxyethanol             | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 212 1,2,3,4-Tetrahydronaphthal   | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 213 4-Methylacetophenone         | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 214 2-Butoxyethanol              | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| 216 4,4'-DDE                     | 246 |              | 5.009            |                  |   |          |                  | ND                 |       |
| 217 4,4'-DDD                     | 235 |              | 5.259            |                  |   |          |                  | ND                 |       |
| 218 4,4'-DDT                     | 235 |              | 5.476            |                  |   |          |                  | ND                 |       |
| S 225 TPAH                       | 1   |              | 0.000            |                  |   |          |                  | ND                 |       |
| T 226 Pentachlorodibenzofurans T | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 227 Octadecane (TIC)           | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 228 Pentachlorodibenzo-p-dioxi | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 229 2,6-Dimethylphenol         | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 230 Tetrachlorodibenzo-p-dioxi | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 231 Tetrachlorodibenzofurans T | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 232 Hexachlorodibenzofurans TI | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |
| T 233 Hexachlorodibenzo-p-dioxin | 1   |              | 0.140            |                  |   |          |                  | ND                 |       |



**QC Flag Legend**

Processing Flags

NC - Not Calibrated

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

**Reagents:**

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19664.D

Injection Date: 25-May-2018 17:01:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: LB3 280-416023/1-A

Worklist Smp#: 4

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

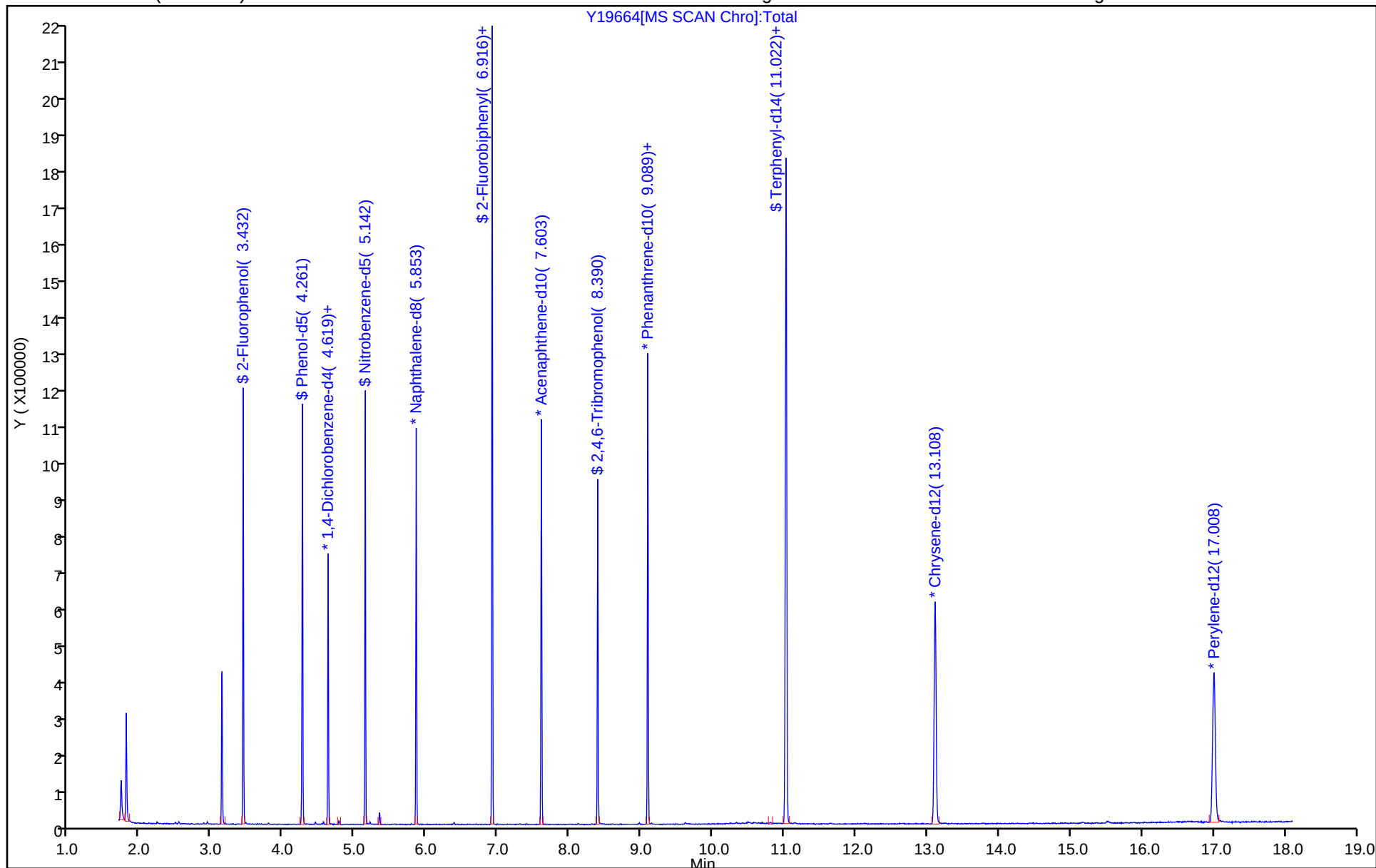
ALS Bottle#: 3

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19664.D  
 Lims ID: LB3 280-416023/1-A  
 Client ID:  
 Sample Type: LB3  
 Inject. Date: 25-May-2018 17:01:30 ALS Bottle#: 3 Worklist Smp#: 4  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LB3280-416023\_1-A  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:18:12

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 77.1             | 77.06  |
| \$ 8 Phenol-d5             | 100.0        | 64.3             | 64.25  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 73.9             | 73.89  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 89.5             | 89.47  |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 89.3             | 89.34  |
| \$ 13 Terphenyl-d14        | 100.0        | 94.6             | 94.57  |

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 280-415138/2-C  
 Matrix: Solid (TCLP) Lab File ID: Y19667.D  
 Analysis Method: 8270D Date Collected: \_\_\_\_\_  
 Extract. Method: 3510C Date Extracted: 05/21/2018 08:55  
 Sample wt/vol: 200 (mL) Date Analyzed: 05/25/2018 18:16  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 416357 Units: mg/L

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.217  |   | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.427  |   | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.212  |   | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.0672 |   | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.0902 |   | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.216  |   | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.200  |   | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.224  |   | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.361  |   | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.118  |   | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.258  |   | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.263  |   | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 97   |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 85   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 95   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 86   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 75   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 93   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19667.D  
 Lims ID: LCS 280-415138/2-C  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 25-May-2018 18:16:30 ALS Bottle#: 6 Worklist Smp#: 7  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LCS280-415138\_2-C  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:19:09

| Compound                   | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|----------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4 | 152 | 4.621     | 4.625         | -0.004        | 97  | 91607    | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8         | 136 | 5.854     | 5.858         | -0.004        | 99  | 378763   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10       | 164 | 7.605     | 7.603         | 0.002         | 96  | 199414   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10       | 188 | 9.091     | 9.095         | -0.004        | 98  | 390760   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12           | 240 | 13.109    | 13.125        | -0.016        | 99  | 380283   | 40.0          | 40.0            |       |
| * 6 Perylene-d12           | 264 | 17.004    | 17.025        | -0.021        | 96  | 339510   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol        | 112 | 3.434     | 3.432         | 0.002         | 93  | 287884   | 100.0         | 85.5            |       |
| \$ 8 Phenol-d5             | 99  | 4.262     | 4.266         | -0.004        | 0   | 315566   | 100.0         | 75.2            |       |
| \$ 9 Nitrobenzene-d5       | 82  | 5.143     | 5.147         | -0.004        | 89  | 327148   | 100.0         | 85.8            |       |
| \$ 11 2-Fluorobiphenyl     | 172 | 6.918     | 6.916         | 0.002         | 100 | 621971   | 100.0         | 96.7            |       |
| \$ 12 2,4,6-Tribromophenol | 330 | 8.392     | 8.396         | -0.004        | 89  | 71366    | 100.0         | 95.3            |       |
| \$ 13 Terphenyl-d14        | 244 | 11.024    | 11.022        | 0.002         | 98  | 770814   | 100.0         | 93.0            |       |
| 18 Pyridine                | 79  | 2.318     | 2.310         | 0.008         | 95  | 90954    | 50.0          | 23.5            |       |
| 38 1,4-Dichlorobenzene     | 146 | 4.638     | 4.642         | -0.004        | 93  | 157443   | 50.0          | 42.5            |       |
| 41 2-Methylphenol          | 108 | 4.844     | 4.848         | -0.004        | 97  | 135189   | 50.0          | 43.5            |       |
| 46 3-Methylphenol          | 108 | 4.991     | 4.995         | -0.004        | 89  | 282044   | 100.0         | 85.4            |       |
| 47 4-Methylphenol          | 108 | 4.991     | 4.995         | -0.004        | 92  | 282044   | 100.0         | 85.4            |       |
| 48 3 & 4 Methylphenol      | 108 | 4.991     | 4.995         | -0.004        | 0   | 282044   | 100.0         | 85.4            |       |
| 53 Hexachloroethane        | 117 | 5.114     | 5.118         | -0.004        | 95  | 56002    | 50.0          | 40.0            |       |
| 54 Nitrobenzene            | 77  | 5.161     | 5.165         | -0.004        | 87  | 168545   | 50.0          | 44.8            |       |
| 75 Hexachlorobutadiene     | 225 | 6.001     | 6.005         | -0.004        | 97  | 64175    | 50.0          | 43.2            |       |
| 92 2,4,6-Trichlorophenol   | 196 | 6.841     | 6.845         | -0.004        | 93  | 94116    | 50.0          | 52.6            |       |
| 94 2,4,5-Trichlorophenol   | 196 | 6.882     | 6.886         | -0.004        | 96  | 104810   | 50.0          | 51.6            |       |
| 114 2,4-Dinitrotoluene     | 165 | 7.769     | 7.779         | -0.010        | 94  | 28536    | 20.0          | 13.4            |       |
| 139 2,4,6 - Tribromophenol | 330 |           | 8.396         |               |     |          | ND            | ND              | U     |
| 151 Hexachlorobenzene      | 284 | 8.715     | 8.719         | -0.004        | 89  | 29815    | 20.0          | 18.0            |       |
| 155 Pentachlorophenol      | 266 | 8.903     | 8.913         | -0.010        | 88  | 81077    | 100.0         | 72.1            |       |

[QC Flag Legend](#)

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

[Reagents:](#)

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19667.D

Injection Date: 25-May-2018 18:16:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: LCS 280-415138/2-C

Worklist Smp#: 7

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

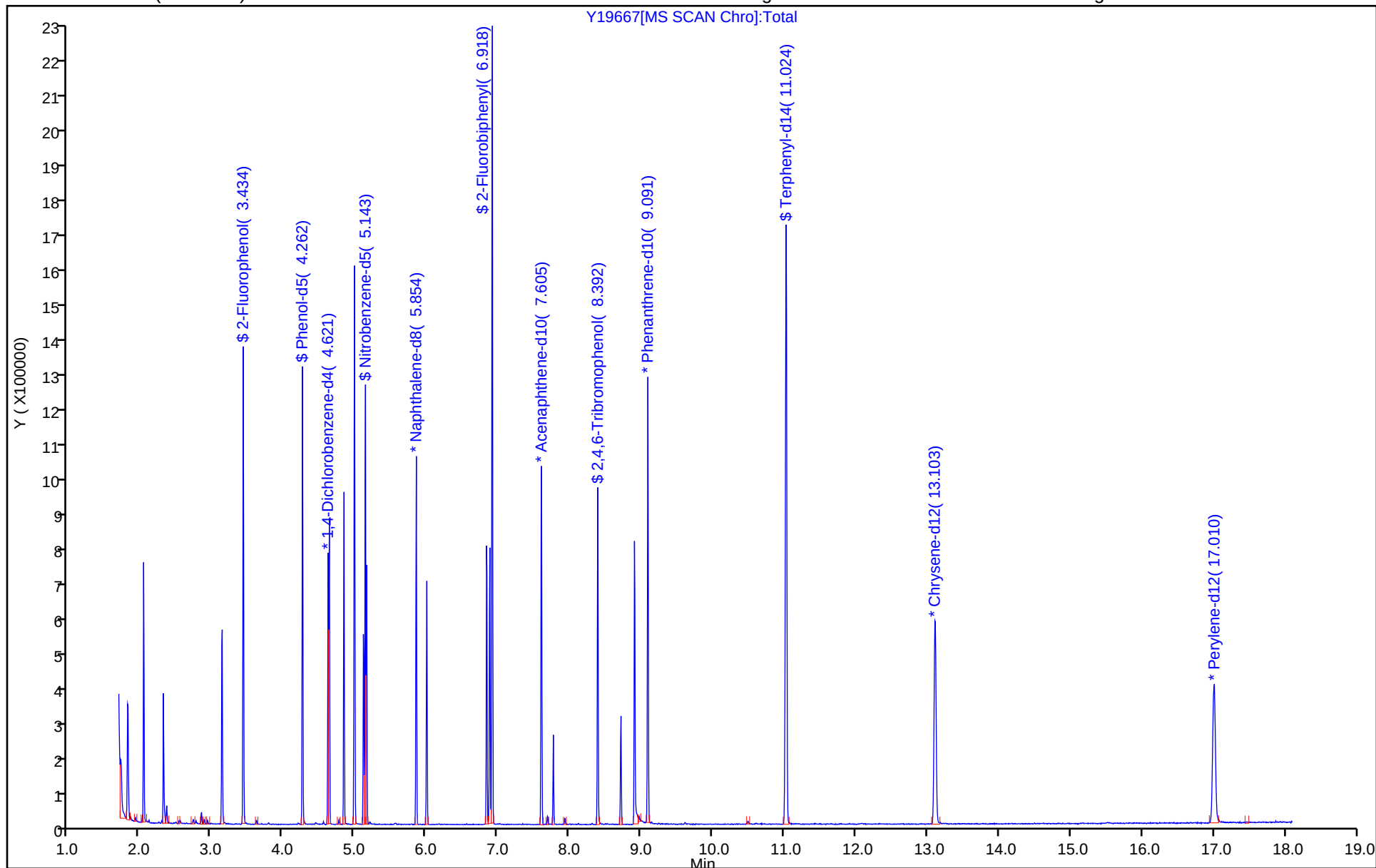
ALS Bottle#: 6

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19667.D  
 Lims ID: LCS 280-415138/2-C  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 25-May-2018 18:16:30 ALS Bottle#: 6 Worklist Smp#: 7  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LCS280-415138\_2-C  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:19:09

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 85.5             | 85.45  |
| \$ 8 Phenol-d5             | 100.0        | 75.2             | 75.21  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 85.8             | 85.80  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 96.7             | 96.67  |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 95.3             | 95.32  |
| \$ 13 Terphenyl-d14        | 100.0        | 93.0             | 93.04  |



FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

|                                     |                                          |
|-------------------------------------|------------------------------------------|
| Lab Name: <u>TestAmerica Denver</u> | Job No.: <u>320-39023-1</u>              |
| SDG No.: _____                      |                                          |
| Client Sample ID: _____             | Lab Sample ID: <u>LCS 280-416023/2-A</u> |
| Matrix: <u>Water</u>                | Lab File ID: <u>Y19665.D</u>             |
| Analysis Method: <u>8270D</u>       | Date Collected: _____                    |
| Extract. Method: <u>3510C</u>       | Date Extracted: <u>05/21/2018 08:46</u>  |
| Sample wt/vol: <u>200 (mL)</u>      | Date Analyzed: <u>05/25/2018 17:26</u>   |
| Con. Extract Vol.: <u>1 (mL)</u>    | Dilution Factor: <u>1</u>                |
| Injection Volume: <u>1 (uL)</u>     | Level: (low/med) <u>Low</u>              |
| % Moisture: _____                   | GPC Cleanup: (Y/N) <u>N</u>              |
| Analysis Batch No.: <u>416357</u>   | Units: <u>mg/L</u>                       |

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.232  |   | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.466  |   | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.237  |   | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.0686 |   | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.0917 |   | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.235  |   | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.220  |   | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.231  |   | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.409  |   | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.0593 | J | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.277  |   | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.278  |   | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 103  |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 92   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 97   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 87   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 80   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 99   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19665.D  
 Lims ID: LCS 280-416023/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 25-May-2018 17:26:30 ALS Bottle#: 4 Worklist Smp#: 5  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LCS280-416023\_2-A  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:18:30

| Compound                   | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|----------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4 | 152 | 4.620     | 4.625         | -0.005        | 97  | 86805    | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8         | 136 | 5.853     | 5.858         | -0.005        | 99  | 377880   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10       | 164 | 7.604     | 7.603         | 0.001         | 97  | 193911   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10       | 188 | 9.090     | 9.095         | -0.005        | 98  | 390843   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12           | 240 | 13.108    | 13.125        | -0.017        | 99  | 375119   | 40.0          | 40.0            |       |
| * 6 Perylene-d12           | 264 | 17.003    | 17.025        | -0.022        | 96  | 340941   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol        | 112 | 3.433     | 3.432         | 0.001         | 94  | 292550   | 100.0         | 91.6            |       |
| \$ 8 Phenol-d5             | 99  | 4.261     | 4.266         | -0.005        | 0   | 316336   | 100.0         | 79.6            |       |
| \$ 9 Nitrobenzene-d5       | 82  | 5.142     | 5.147         | -0.005        | 89  | 330695   | 100.0         | 86.9            |       |
| \$ 11 2-Fluorobiphenyl     | 172 | 6.916     | 6.916         | 0.000         | 100 | 645329   | 100.0         | 103.1           |       |
| \$ 12 2,4,6-Tribromophenol | 330 | 8.391     | 8.396         | -0.005        | 87  | 70491    | 100.0         | 96.8            |       |
| \$ 13 Terphenyl-d14        | 244 | 11.023    | 11.022        | 0.001         | 98  | 810378   | 100.0         | 99.2            |       |
| 18 Pyridine                | 79  | 2.311     | 2.310         | 0.001         | 95  | 43476    | 50.0          | 11.9            |       |
| 38 1,4-Dichlorobenzene     | 146 | 4.637     | 4.642         | -0.005        | 93  | 166413   | 50.0          | 47.4            |       |
| 41 2-Methylphenol          | 108 | 4.843     | 4.848         | -0.005        | 97  | 136513   | 50.0          | 46.3            |       |
| 46 3-Methylphenol          | 108 | 4.990     | 4.995         | -0.005        | 89  | 291680   | 100.0         | 93.2            |       |
| 47 4-Methylphenol          | 108 | 4.990     | 4.995         | -0.005        | 92  | 291680   | 100.0         | 93.2            |       |
| 48 3 & 4 Methylphenol      | 108 | 4.990     | 4.995         | -0.005        | 0   | 291680   | 100.0         | 93.2            |       |
| 53 Hexachloroethane        | 117 | 5.119     | 5.118         | 0.001         | 95  | 58358    | 50.0          | 44.0            |       |
| 54 Nitrobenzene            | 77  | 5.160     | 5.165         | -0.005        | 88  | 173718   | 50.0          | 46.3            |       |
| 75 Hexachlorobutadiene     | 225 | 6.000     | 6.005         | -0.005        | 97  | 69593    | 50.0          | 47.0            |       |
| 92 2,4,6-Trichlorophenol   | 196 | 6.840     | 6.845         | -0.005        | 92  | 96753    | 50.0          | 55.7            |       |
| 94 2,4,5-Trichlorophenol   | 196 | 6.881     | 6.886         | -0.005        | 95  | 109232   | 50.0          | 55.3            |       |
| 114 2,4-Dinitrotoluene     | 165 | 7.768     | 7.779         | -0.011        | 92  | 28329    | 20.0          | 13.7            |       |
| 139 2,4,6 - Tribromophenol | 330 |           | 8.396         |               |     |          | ND            | ND              | U     |
| 151 Hexachlorobenzene      | 284 | 8.714     | 8.719         | -0.005        | 89  | 30324    | 20.0          | 18.3            |       |
| 155 Pentachlorophenol      | 266 | 8.908     | 8.913         | -0.005        | 90  | 91644    | 100.0         | 81.9            |       |

[QC Flag Legend](#)

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

[Reagents:](#)

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19665.D

Injection Date: 25-May-2018 17:26:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: LCS 280-416023/2-A

Worklist Smp#: 5

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

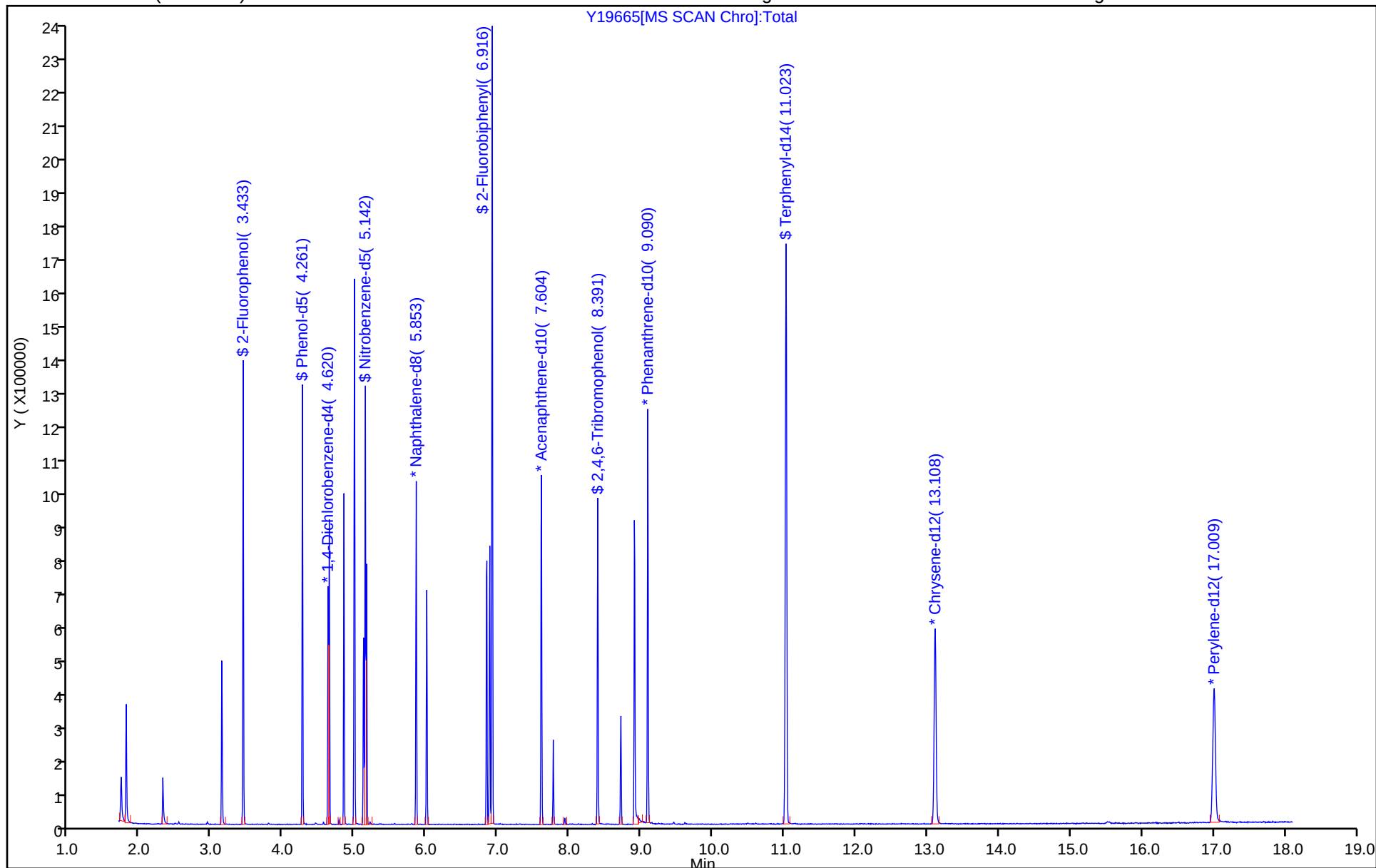
ALS Bottle#: 4

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19665.D  
 Lims ID: LCS 280-416023/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 25-May-2018 17:26:30 ALS Bottle#: 4 Worklist Smp#: 5  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: LCS280-416023\_2-A  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:18:30

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 91.6             | 91.64  |
| \$ 8 Phenol-d5             | 100.0        | 79.6             | 79.56  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 86.9             | 86.93  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 103.1            | 103.14 |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 96.8             | 96.82  |
| \$ 13 Terphenyl-d14        | 100.0        | 99.2             | 99.16  |

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: IDW-KINGSLEY-SO-LDOS01 MS Lab Sample ID: 320-39023-57 MS  
 Matrix: Solid (TCLP) Lab File ID: Y19676.D  
 Analysis Method: 8270D Date Collected: 05/07/2018 09:45  
 Extract. Method: 3510C Date Extracted: 05/21/2018 08:55  
 Sample wt/vol: 200 (mL) Date Analyzed: 05/25/2018 22:01  
 Con. Extract Vol.: 1 (mL) Dilution Factor: 1  
 Injection Volume: 1 (uL) Level: (low/med) Low  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 416357 Units: mg/L

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.217  |   | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.422  |   | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.213  |   | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.0731 |   | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.0841 |   | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.215  |   | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.198  |   | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.215  |   | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.368  |   | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.142  |   | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.244  |   | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.252  |   | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 90   |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 81   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 91   |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 79   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 70   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 88   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19676.D  
 Lims ID: 320-39023-A-57-C MS  
 Client ID:  
 Sample Type: MS  
 Inject. Date: 25-May-2018 22:01:30 ALS Bottle#: 15 Worklist Smp#: 16  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-A-57-CMS  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:23:01

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4     | 152 | 4.619     | 4.625         | -0.006        | 97  | 101621   | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8             | 136 | 5.853     | 5.858         | -0.005        | 99  | 433735   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10           | 164 | 7.603     | 7.603         | 0.000         | 95  | 237467   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10           | 188 | 9.090     | 9.095         | -0.005        | 98  | 466481   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12               | 240 | 13.108    | 13.125        | -0.017        | 98  | 453161   | 40.0          | 40.0            |       |
| * 6 Perylene-d12               | 264 | 17.003    | 17.025        | -0.022        | 97  | 429498   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol            | 112 | 3.433     | 3.432         | 0.001         | 93  | 304172   | 100.0         | 81.4            |       |
| \$ 8 Phenol-d5                 | 99  | 4.261     | 4.266         | -0.005        | 0   | 324990   | 100.0         | 69.8            |       |
| \$ 9 Nitrobenzene-d5           | 82  | 5.142     | 5.147         | -0.005        | 90  | 345870   | 100.0         | 79.2            |       |
| \$ 10 2,4,6-Trichlorophenol-d2 | 198 |           | 6.872         |               |     |          |               | ND              |       |
| \$ 11 2-Fluorobiphenyl         | 172 | 6.916     | 6.916         | 0.000         | 100 | 689347   | 100.0         | 90.0            |       |
| \$ 12 2,4,6-Tribromophenol     | 330 | 8.391     | 8.396         | -0.005        | 89  | 81212    | 100.0         | 91.1            |       |
| \$ 13 Terphenyl-d14            | 244 | 11.022    | 11.022        | 0.000         | 98  | 872985   | 100.0         | 88.4            |       |
| 14 Triethyl amine              | 86  |           | 2.105         |               |     |          |               | ND              |       |
| 15 1,4-Dioxane                 | 88  |           | 2.016         |               |     |          |               | ND              |       |
| 16 2-Ethoxyethanol             | 59  |           | 2.252         |               |     |          |               | ND              |       |
| 17 N-Nitrosodimethylamine      | 74  |           | 2.251         |               |     |          |               | ND              |       |
| 18 Pyridine                    | 79  | 2.317     | 2.310         | 0.007         | 96  | 121706   | 50.0          | 28.4            |       |
| 19 Dimethylformamide           | 73  |           | 2.745         |               |     |          |               | ND              |       |
| 20 2-Picoline                  | 93  |           | 2.941         |               |     |          |               | ND              |       |
| 21 N-Nitrosomethylethylamine   | 88  |           | 3.012         |               |     |          |               | ND              |       |
| 22 Acrylamide                  | 71  |           | 3.264         |               |     |          |               | ND              |       |
| 23 Methyl methanesulfonate     | 80  |           | 3.270         |               |     |          |               | ND              |       |
| 24 N-Nitrosodiethylamine       | 102 |           | 3.634         |               |     |          |               | ND              |       |
| 25 Pentachlorophenol_T         | 266 |           | 3.767         |               |     |          |               | ND              |       |
| 26 Ethyl methanesulfonate      | 79  |           | 3.887         |               |     |          |               | ND              |       |
| 27 Benzaldehyde                | 106 |           | 4.250         |               |     |          |               | ND              |       |
| 28 Phenol                      | 94  |           | 4.278         |               |     |          |               | ND              |       |
| 29 Phenylmercaptan             | 110 |           | 4.266         |               |     |          |               | ND              |       |
| 30 Aniline                     | 93  |           | 4.307         |               |     |          |               | ND              |       |
| 31 Bis(2-chloroethyl)ether     | 93  |           | 4.354         |               |     |          |               | ND              |       |

| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 32 Alpha Methyl Styrene       | 118 |           | 4.360         |               |    |          |               | ND              |       |
| 33 Pentachloroethane          | 117 |           | 4.369         |               |    |          |               | ND              |       |
| 34 2-Chlorophenol             | 128 |           | 4.437         |               |    |          |               | ND              |       |
| 35 n-Decane                   | 43  |           | 4.460         |               |    |          |               | ND              |       |
| 36 Methyl styrene             | 118 |           | 4.500         |               |    |          |               | ND              |       |
| 37 1,3-Dichlorobenzene        | 146 |           | 4.578         |               |    |          |               | ND              |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.637     | 4.642         | -0.005        | 94 | 175329   | 50.0          | 42.6            |       |
| 39 Benzyl alcohol             | 108 |           | 4.742         |               |    |          |               | ND              |       |
| 40 1,2-Dichlorobenzene        | 146 |           | 4.789         |               |    |          |               | ND              |       |
| 41 2-Methylphenol             | 108 | 4.843     | 4.848         | -0.005        | 97 | 150070   | 50.0          | 43.5            |       |
| 42 Benzidine_T                | 184 |           | 4.842         |               |    |          |               | ND              |       |
| 43 2,2'-oxybis[1-chloropropan | 45  |           | 4.865         |               |    |          |               | ND              |       |
| 44 Indene                     | 116 |           | 4.877         |               |    |          |               | ND              |       |
| 45 N-Nitrosopyrrolidine       | 100 |           | 4.968         |               |    |          |               | ND              |       |
| 46 3-Methylphenol             | 108 | 4.989     | 4.995         | -0.006        | 89 | 308952   | 100.0         | 84.3            |       |
| 47 4-Methylphenol             | 108 | 4.989     | 4.995         | -0.006        | 92 | 308952   | 100.0         | 84.3            |       |
| 48 3 & 4 Methylphenol         | 108 | 4.989     | 4.995         | -0.006        | 0  | 308952   | 100.0         | 84.3            |       |
| 49 N-Nitrosomorpholine        | 116 |           | 5.003         |               |    |          |               | ND              |       |
| 50 N-Nitrosodi-n-propylamine  | 70  |           | 4.989         |               |    |          |               | ND              |       |
| 51 Acetophenone               | 105 |           | 4.995         |               |    |          |               | ND              |       |
| 52 2-Toluidine                | 106 |           | 5.038         |               |    |          |               | ND              |       |
| 53 Hexachloroethane           | 117 | 5.119     | 5.118         | 0.001         | 95 | 61655    | 50.0          | 39.7            |       |
| 54 Nitrobenzene               | 77  | 5.160     | 5.165         | -0.005        | 88 | 185543   | 50.0          | 43.0            |       |
| 55 Triethyl phosphate         | 99  |           | 5.289         |               |    |          |               | ND              |       |
| 56 N-Nitrosopiperidine        | 114 |           | 5.309         |               |    |          |               | ND              |       |
| 57 Isophorone                 | 82  |           | 5.394         |               |    |          |               | ND              |       |
| 58 2-Nitrophenol              | 139 |           | 5.476         |               |    |          |               | ND              |       |
| 59 2,4-Dimethylphenol         | 107 |           | 5.506         |               |    |          |               | ND              |       |
| 60 Benzyl dichloride          | 125 |           | 5.547         |               |    |          |               | ND              |       |
| 61 o,o',o"-Triethylphosphoro  | 198 |           | 5.561         |               |    |          |               | ND              |       |
| 62 2,4-Xylidine               | 121 |           | 5.712         |               |    |          |               | ND              |       |
| 63 Bis(2-chloroethoxy)methane | 93  |           | 5.588         |               |    |          |               | ND              |       |
| 64 Benzoic acid               | 105 |           | 5.653         |               |    |          |               | ND              |       |
| 65 o-Anisidine                | 80  |           | 5.753         |               |    |          |               | ND              |       |
| 66 3,5-Dimethylphenol         | 107 |           | 5.641         |               |    |          |               | ND              |       |
| 67 alpha,alpha-Dimethyl phene | 58  |           | 5.714         |               |    |          |               | ND              |       |
| 68 2,4-Dichlorophenol         | 162 |           | 5.717         |               |    |          |               | ND              |       |
| 69 1,2,4-Trichlorobenzene     | 180 |           | 5.800         |               |    |          |               | ND              |       |
| 70 Alpha-Terpineol            | 59  |           | 5.876         |               |    |          |               | ND              |       |
| 71 Naphthalene                | 128 |           | 5.882         |               |    |          |               | ND              |       |
| 72 4-Chloroaniline            | 127 |           | 5.917         |               |    |          |               | ND              |       |
| 73 2,6-Dichlorophenol         | 162 |           | 5.935         |               |    |          |               | ND              |       |
| 74 Hexachloropropene          | 213 |           | 5.972         |               |    |          |               | ND              |       |
| 75 Hexachlorobutadiene        | 225 | 6.000     | 6.005         | -0.005        | 96 | 73066    | 50.0          | 43.0            |       |
| 76 4-chlorobenzenethiol       | 144 |           | 6.086         |               |    |          |               | ND              |       |
| 77 Quinoline                  | 129 |           | 6.201         |               |    |          |               | ND              |       |
| 78 5-Methyl-o-Anisidine       | 122 |           | 6.364         |               |    |          |               | ND              |       |
| 79 Caprolactam                | 55  |           | 6.269         |               |    |          |               | ND              |       |
| 80 N-Nitrosodi-n-butylamine   | 84  |           | 6.248         |               |    |          |               | ND              |       |
| 81 p-Phenylene diamine        | 108 |           | 6.266         |               |    |          |               | ND              |       |
| 82 1,3-phenylenediamine       | 108 |           | 6.488         |               |    |          |               | ND              |       |
| 83 4-Chloro-3-methylphenol    | 107 |           | 6.405         |               |    |          |               | ND              |       |



| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 84 Safrole, Total              | 162 |           | 6.466         |               |    |          |               | ND              |       |
| 85 Carbofuran phenol           | 164 |           | 6.511         |               |    |          |               | ND              |       |
| 86 2-Methylnaphthalene         | 142 |           | 6.563         |               |    |          |               | ND              |       |
| 87 Phthalic anhydride          | 76  |           | 6.598         |               |    |          |               | ND              |       |
| 88 1-Methylnaphthalene         | 142 |           | 6.663         |               |    |          |               | ND              |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 |           | 6.734         |               |    |          |               | ND              |       |
| 90 Hexachlorocyclopentadiene   | 237 |           | 6.728         |               |    |          |               | ND              |       |
| 91 Isosafrole Peak 1           | 162 |           | 6.754         |               |    |          |               | ND              |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.840     | 6.845         | -0.005        | 92 | 107343   | 50.0          | 50.4            |       |
| 93 2,3-Dichlorobenzenamine     | 161 |           | 6.839         |               |    |          |               | ND              |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.881     | 6.886         | -0.005        | 95 | 117744   | 50.0          | 48.7            |       |
| 95 Methyl 4-chlorophenyl sulf  | 158 |           | 6.893         |               |    |          |               | ND              |       |
| 96 Isosafrole Peak 2           | 104 |           | 6.983         |               |    |          |               | ND              |       |
| 97 Toluene diamine (2,4- + 2,  | 122 |           | 7.033         |               |    |          |               | ND              |       |
| 98 1,1'-Biphenyl               | 154 |           | 7.021         |               |    |          |               | ND              |       |
| 99 2-Chloronaphthalene         | 162 |           | 7.051         |               |    |          |               | ND              |       |
| 100 1-Chloronaphthalene        | 162 |           | 7.077         |               |    |          |               | ND              |       |
| 101 2-Nitroaniline             | 65  |           | 7.139         |               |    |          |               | ND              |       |
| 102 1,4-Naphthoquinone         | 158 |           | 7.212         |               |    |          |               | ND              |       |
| 103 1,4-Dinitrobenzene         | 168 |           | 7.265         |               |    |          |               | ND              |       |
| 104 Dimethyl phthalate         | 163 |           | 7.315         |               |    |          |               | ND              |       |
| 105 1,3-Dinitrobenzene         | 168 |           | 7.344         |               |    |          |               | ND              |       |
| 106 2,6-Dinitrotoluene         | 165 |           | 7.374         |               |    |          |               | ND              |       |
| 107 Acenaphthylene             | 152 |           | 7.468         |               |    |          |               | ND              |       |
| 108 3-Nitroaniline             | 138 |           | 7.550         |               |    |          |               | ND              |       |
| 109 Acenaphthene               | 153 |           | 7.638         |               |    |          |               | ND              |       |
| 110 1,3-Dimethyl-2,4-Dinitrobe | 77  |           | 7.635         |               |    |          |               | ND              |       |
| 111 2,4-Dinitrophenol          | 184 |           | 7.650         |               |    |          |               | ND              |       |
| 112 4-Nitrophenol              | 109 |           | 7.732         |               |    |          |               | ND              |       |
| 113 1,3-Dimethyl-2,5-Dinitrobe | 179 |           | 7.879         |               |    |          |               | ND              |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.768     | 7.779         | -0.011        | 94 | 36981    | 20.0          | 14.6            |       |
| 115 Pentachlorobenzene         | 250 |           | 7.782         |               |    |          |               | ND              |       |
| 116 Dibenzofuran               | 168 |           | 7.809         |               |    |          |               | ND              |       |
| 117 1,4-Dimethyl-2,3-Dinitrobe | 77  |           | 7.885         |               |    |          |               | ND              |       |
| 118 1-Naphthylamine            | 143 |           | 7.887         |               |    |          |               | ND              |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 |           | 7.938         |               |    |          |               | ND              |       |
| 120 1,4-Dimethyl-2,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 121 2-Naphthylamine            | 143 |           | 7.964         |               |    |          |               | ND              |       |
| 122 1,4-Dimethyl-2,5-Dinitrobe | 179 |           | 7.970         |               |    |          |               | ND              |       |
| 123 Diethyl phthalate          | 149 |           | 8.014         |               |    |          |               | ND              |       |
| 124 Hexadecane                 | 57  |           | 8.026         |               |    |          |               | ND              |       |
| 125 1,2-Dimethyl-3,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 126 Thionazin                  | 97  |           | 8.099         |               |    |          |               | ND              |       |
| 127 4-Chlorophenyl phenyl ethe | 204 |           | 8.138         |               |    |          |               | ND              |       |
| 128 N-Nitro-o-toluidine        | 152 |           | 8.158         |               |    |          |               | ND              |       |
| 129 Fluorene                   | 166 |           | 8.155         |               |    |          |               | ND              |       |
| 130 4-Nitroaniline             | 138 |           | 8.167         |               |    |          |               | ND              |       |
| 131 4,6-Dinitro-2-methylphenol | 198 |           | 8.196         |               |    |          |               | ND              |       |
| 132 1,5-Dimethyl-2,4-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 133 Tributyl phosphate         | 99  |           | 8.244         |               |    |          |               | ND              |       |
| 134 Diphenylamine              | 169 |           | 8.255         |               |    |          |               | ND              |       |
| 135 N-Nitrosodiphenylamine     | 169 |           | 8.255         |               |    |          |               | ND              |       |

| Compound                            | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 136 1,2-Diphenylhydrazine           | 77  |           | 8.302         |               |    |          |               | ND              |       |
| 137 Azobenzene                      | 77  |           | 8.302         |               |    |          |               | ND              |       |
| 138 1,5-Dimethyl-2,3-Dinitrobenzene | 179 |           | 8.299         |               |    |          |               | ND              |       |
| 139 2,4,6 - Tribromophenol          | 330 |           | 8.396         |               |    |          | ND            | ND              | U     |
| 140 Sulfotep                        | 97  |           | 8.404         |               |    |          |               | ND              |       |
| 141 1,2-Dimethyl-3,5-Dinitrobenzene | 179 |           | 8.520         |               |    |          |               | ND              |       |
| 142 1,3,5-Trinitrobenzene           | 213 |           | 8.504         |               |    |          |               | ND              |       |
| 143 Diallate Peak 1                 | 86  |           | 8.545         |               |    |          |               | ND              |       |
| 144 Phorate                         | 121 |           | 8.557         |               |    |          |               | ND              |       |
| 145 Phenacetin                      | 108 |           | 8.563         |               |    |          |               | ND              |       |
| 146 1,2-Dimethyl-3,4-Dinitrobenzene | 179 |           | 8.557         |               |    |          |               | ND              |       |
| 147 Phenyl sulfide                  | 186 |           | 8.615         |               |    |          |               | ND              |       |
| 148 4-Bromophenyl phenyl ether      | 248 |           | 8.631         |               |    |          |               | ND              |       |
| 149 Diallate Peak 2                 | 86  |           | 8.639         |               |    |          |               | ND              |       |
| 150 Dimethoate                      | 87  |           | 8.727         |               |    |          |               | ND              |       |
| 151 Hexachlorobenzene               | 284 | 8.714     | 8.719         | -0.005        | 90 | 33189    | 20.0          | 16.8            |       |
| 152 Atrazine                        | 200 |           | 8.778         |               |    |          |               | ND              |       |
| 153 1,2-Dimethyl-4,5-Dinitrobenzene | 91  |           | 8.784         |               |    |          |               | ND              |       |
| 154 4-Aminobiphenyl                 | 169 |           | 8.898         |               |    |          |               | ND              |       |
| 155 Pentachlorophenol               | 266 | 8.908     | 8.913         | -0.005        | 90 | 98815    | 100.0         | 73.7            |       |
| 156 Pentachloronitrobenzene         | 237 |           | 8.927         |               |    |          |               | ND              |       |
| 157 Pronamide                       | 173 |           | 8.951         |               |    |          |               | ND              |       |
| 158 n-Octadecane                    | 85  |           | 8.948         |               |    |          |               | ND              |       |
| 159 Disulfoton                      | 88  |           | 9.080         |               |    |          |               | ND              |       |
| 160 Dinoseb                         | 211 |           | 9.086         |               |    |          |               | ND              |       |
| 161 Phenanthrene                    | 178 |           | 9.119         |               |    |          |               | ND              |       |
| 162 Anthracene                      | 178 |           | 9.171         |               |    |          |               | ND              |       |
| 163 n-hydroxymethylphthalimide      | 147 |           | 9.177         |               |    |          |               | ND              |       |
| 164 Carbazole                       | 167 |           | 9.324         |               |    |          |               | ND              |       |
| 165 Methyl parathion                | 109 |           | 9.456         |               |    |          |               | ND              |       |
| 166 Alachlor                        | 188 |           | 9.453         |               |    |          |               | ND              |       |
| 167 Phenyl disulfide                | 109 |           | 9.589         |               |    |          |               | ND              |       |
| 168 Di-n-butyl phthalate            | 149 |           | 9.659         |               |    |          |               | ND              |       |
| 169 Ethyl Parathion                 | 109 |           | 9.879         |               |    |          |               | ND              |       |
| 170 4-Nitroquinoline-1-oxide        | 190 |           | 9.932         |               |    |          |               | ND              |       |
| 171 Diphenylsulfone                 | 125 |           | 9.984         |               |    |          |               | ND              |       |
| 172 Methapyrilene                   | 97  |           | 10.014        |               |    |          |               | ND              |       |
| 173 Isodrin                         | 193 |           | 10.290        |               |    |          |               | ND              |       |
| 174 Octachlorostyrene               | 308 |           | 10.360        |               |    |          |               | ND              |       |
| 175 Fluoranthene                    | 202 |           | 10.476        |               |    |          |               | ND              |       |
| 176 Benzidine                       | 184 |           | 10.647        |               |    |          |               | ND              |       |
| 177 4,4-Dichlorobenzil              | 139 |           | 10.529        |               |    |          |               | ND              |       |
| 178 Pyrene                          | 202 |           | 10.804        |               |    |          |               | ND              |       |
| 179 Bis(4-chlorophenyl)disulfide    | 143 |           | 10.971        |               |    |          |               | ND              |       |
| 180 Aramite Peak 1                  | 185 |           | 10.989        |               |    |          |               | ND              |       |
| 181 p-chlorophenyl sulfone          | 159 |           | 11.036        |               |    |          |               | ND              |       |
| 182 Aramite Peak 2                  | 185 |           | 11.112        |               |    |          |               | ND              |       |
| 183 p-Dimethylamino azobenzene      | 120 |           | 11.271        |               |    |          |               | ND              |       |
| 184 Chlorobenzilate                 | 251 |           | 11.353        |               |    |          |               | ND              |       |
| 185 Famphur                         | 218 |           | 11.786        |               |    |          |               | ND              |       |
| 186 3,3'-Dimethylbenzidine          | 212 |           | 11.882        |               |    |          |               | ND              |       |
| 187 Butyl benzyl phthalate          | 149 |           | 11.903        |               |    |          |               | ND              |       |

| Compound                         | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|----------------------------------|-----|-----------|---------------|---------------|---|----------|---------------|-----------------|-------|
| 188 2-Acetylaminofluorene        | 181 |           | 12.411        |               |   |          |               | ND              |       |
| 189 3,3'-Dichlorobenzidine       | 252 |           | 13.054        |               |   |          |               | ND              |       |
| 190 4,4'-Methylene bis(2-chlor   | 231 |           | 13.069        |               |   |          |               | ND              |       |
| 191 Benzo[a]anthracene           | 228 |           | 13.101        |               |   |          |               | ND              |       |
| 192 Chrysene                     | 228 |           | 13.190        |               |   |          |               | ND              |       |
| 193 Bis(2-ethylhexyl) phthalat   | 149 |           | 13.254        |               |   |          |               | ND              |       |
| 194 6-Methylchrysene             | 242 |           | 14.349        |               |   |          |               | ND              |       |
| 195 Di-n-octyl phthalate         | 149 |           | 15.040        |               |   |          |               | ND              |       |
| 196 Benzo[b]fluoranthene         | 252 |           | 15.945        |               |   |          |               | ND              |       |
| 197 7,12-Dimethylbenz(a)anthra   | 256 |           | 15.959        |               |   |          |               | ND              |       |
| 198 Benzo[k]fluoranthene         | 252 |           | 16.027        |               |   |          |               | ND              |       |
| 199 Hexachlorophene              | 196 |           | 16.657        |               |   |          |               | ND              |       |
| 200 Benzo[e]pyrene               | 252 |           | 16.720        |               |   |          |               | ND              |       |
| 201 Benzo[a]pyrene               | 252 |           | 16.867        |               |   |          |               | ND              |       |
| 202 Perylene                     | 252 |           | 17.249        |               |   |          |               | ND              |       |
| 203 3-Methylcholanthrene         | 268 |           | 17.956        |               |   |          |               | ND              |       |
| 204 Tris(2,3-dibromopropyl)pho   | 119 |           | 18.700        |               |   |          |               | ND              |       |
| 205 Dibenz[a,h]acridine          | 279 |           | 19.525        |               |   |          |               | ND              |       |
| 206 Dibenz[a,j]acridine          | 279 |           | 19.683        |               |   |          |               | ND              |       |
| 207 Indeno[1,2,3-cd]pyrene       | 276 |           | 20.133        |               |   |          |               | ND              |       |
| 208 Dibenz(a,h)anthracene        | 278 |           | 20.221        |               |   |          |               | ND              |       |
| 209 Benzo[g,h,i]perylene         | 276 |           | 20.867        |               |   |          |               | ND              |       |
| 210 Dibenzo[a,e]pyrene           | 302 |           | 25.234        |               |   |          |               | ND              |       |
| S 219 Total Cresols              | 108 |           |               |               | 0 |          |               | 127.8           |       |
| S 220 Methyl Phenols, Total      | 108 |           |               |               | 0 |          |               | 127.8           |       |
| S 221 Isosafrole                 | 162 |           | 15.636        |               |   |          |               | ND              |       |
| S 222 Diallate                   | 86  |           | 15.636        |               |   |          |               | ND              |       |
| S 223 Aramite, Total             | 185 |           | 15.636        |               |   |          |               | ND              |       |
| S 224 Phthalic acid              | 148 |           | 19.829        |               |   |          |               | ND              |       |
| 211 2-Phenoxyethanol             | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 212 1,2,3,4-Tetrahydronaphthal   | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 213 4-Methylacetophenone         | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 214 2-Butoxyethanol              | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 216 4,4'-DDE                     | 246 |           | 5.009         |               |   |          |               | ND              |       |
| 217 4,4'-DDD                     | 235 |           | 5.259         |               |   |          |               | ND              |       |
| 218 4,4'-DDT                     | 235 |           | 5.476         |               |   |          |               | ND              |       |
| S 225 TPAH                       | 1   |           | 0.000         |               |   |          |               | ND              |       |
| T 226 Pentachlorodibenzofurans T | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 227 Octadecane (TIC)           | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 228 Pentachlorodibenzo-p-dioxi | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 229 2,6-Dimethylphenol         | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 230 Tetrachlorodibenzo-p-dioxi | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 231 Tetrachlorodibenzofurans T | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 232 Hexachlorodibenzofurans TI | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 233 Hexachlorodibenzo-p-dioxin | 1   |           | 0.140         |               |   |          |               | ND              |       |

[QC Flag Legend](#)

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

[Reagents:](#)

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19676.D

Injection Date: 25-May-2018 22:01:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: 320-39023-A-57-C MS

Worklist Smp#: 16

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

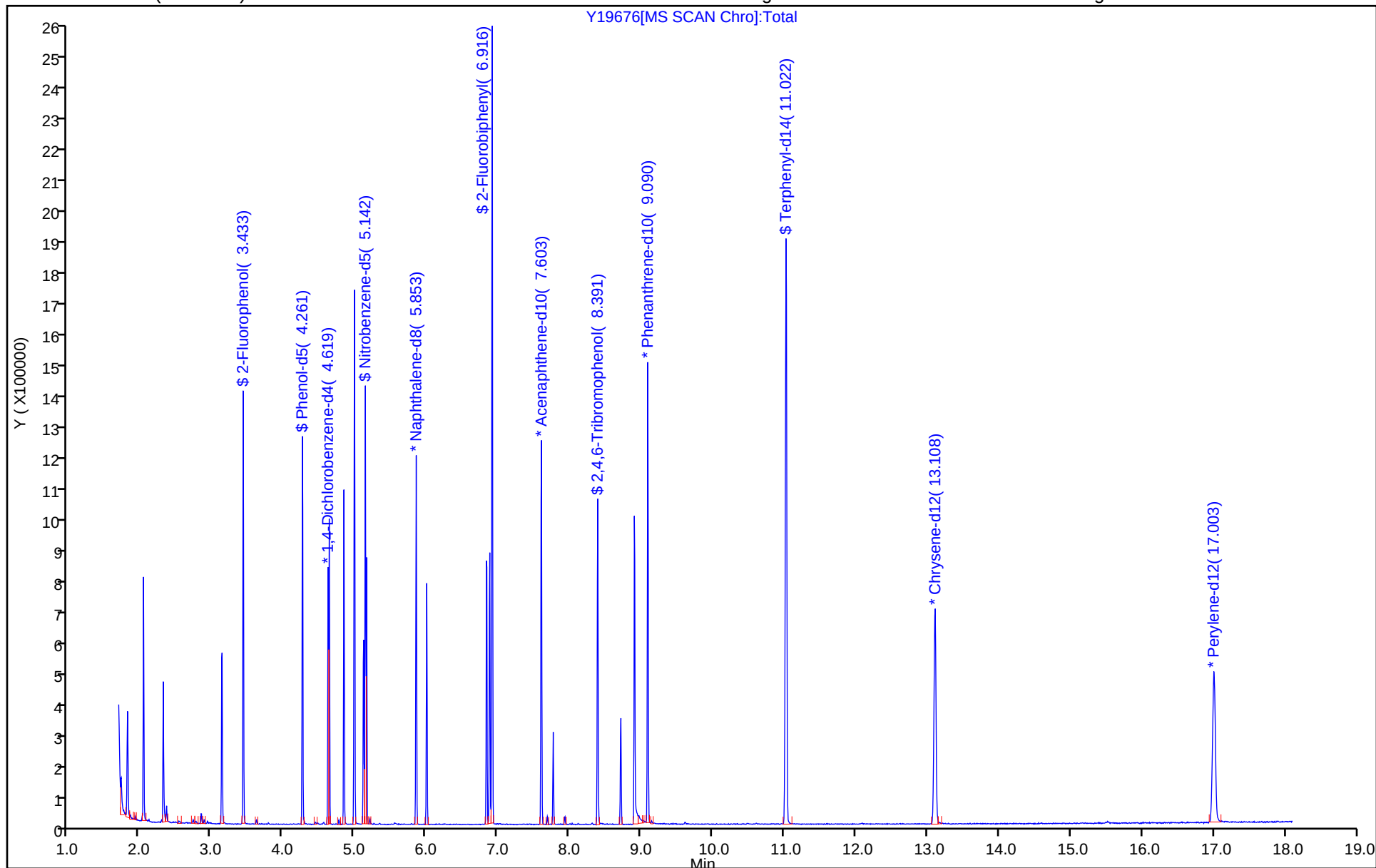
ALS Bottle#: 15

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19676.D  
 Lims ID: 320-39023-A-57-C MS  
 Client ID:  
 Sample Type: MS  
 Inject. Date: 25-May-2018 22:01:30 ALS Bottle#: 15 Worklist Smp#: 16  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-A-57-CMS  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 13:23:01

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 81.4             | 81.39  |
| \$ 8 Phenol-d5             | 100.0        | 69.8             | 69.82  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 79.2             | 79.21  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 90.0             | 89.97  |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 91.1             | 91.09  |
| \$ 13 Terphenyl-d14        | 100.0        | 88.4             | 88.43  |

FORM I  
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Client Sample ID: IDW-KINGSLEY-SO-LDOS01 Lab Sample ID: 320-39023-57 MSD  
MSD

Matrix: Solid (TCLP) Lab File ID: Y19677.D

Analysis Method: 8270D Date Collected: 05/07/2018 09:45

Extract. Method: 3510C Date Extracted: 05/21/2018 08:55

Sample wt/vol: 200 (mL) Date Analyzed: 05/25/2018 22:25

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

Injection Volume: 1 (uL) Level: (low/med) Low

% Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N

Analysis Batch No.: 416357 Units: mg/L

| CAS NO.    | COMPOUND NAME         | RESULT | Q | LOQ   | LOD    | DL     |
|------------|-----------------------|--------|---|-------|--------|--------|
| 95-48-7    | 2-Methylphenol        | 0.245  |   | 0.050 | 0.010  | 0.0049 |
| 15831-10-4 | 3 & 4 Methylphenol    | 0.478  |   | 0.050 | 0.0025 | 0.0013 |
| 106-46-7   | 1,4-Dichlorobenzene   | 0.235  |   | 0.020 | 0.020  | 0.0016 |
| 121-14-2   | 2,4-Dinitrotoluene    | 0.0818 |   | 0.050 | 0.022  | 0.0083 |
| 118-74-1   | Hexachlorobenzene     | 0.0978 |   | 0.050 | 0.010  | 0.0033 |
| 87-68-3    | Hexachlorobutadiene   | 0.226  |   | 0.050 | 0.050  | 0.017  |
| 67-72-1    | Hexachloroethane      | 0.218  |   | 0.050 | 0.022  | 0.011  |
| 98-95-3    | Nitrobenzene          | 0.230  |   | 0.050 | 0.010  | 0.0041 |
| 87-86-5    | Pentachlorophenol     | 0.388  |   | 0.25  | 0.20   | 0.10   |
| 110-86-1   | Pyridine              | 0.136  |   | 0.10  | 0.022  | 0.0057 |
| 95-95-4    | 2,4,5-Trichlorophenol | 0.267  |   | 0.050 | 0.0050 | 0.0022 |
| 88-06-2    | 2,4,6-Trichlorophenol | 0.274  |   | 0.025 | 0.0050 | 0.0014 |

| CAS NO.   | SURROGATE                   | %REC | Q | LIMITS |
|-----------|-----------------------------|------|---|--------|
| 321-60-8  | 2-Fluorobiphenyl            | 95   |   | 49-120 |
| 367-12-4  | 2-Fluorophenol (Surr)       | 88   |   | 50-120 |
| 118-79-6  | 2,4,6-Tribromophenol (Surr) | 100  |   | 51-120 |
| 4165-60-0 | Nitrobenzene-d5 (Surr)      | 85   |   | 51-120 |
| 4165-62-2 | Phenol-d5 (Surr)            | 77   |   | 47-120 |
| 1718-51-0 | Terphenyl-d14 (Surr)        | 95   |   | 56-120 |

TestAmerica Denver  
Target Compound Quantitation Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19677.D  
 Lims ID: 320-39023-A-57-D MSD  
 Client ID:  
 Sample Type: MSD  
 Inject. Date: 25-May-2018 22:25:30 ALS Bottle#: 16 Worklist Smp#: 17  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-A-57-DMSD  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 08:21:59

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q   | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|-----|----------|---------------|-----------------|-------|
| * 1 1,4-Dichlorobenzene-d4     | 152 | 4.622     | 4.625         | -0.003        | 96  | 95154    | 40.0          | 40.0            |       |
| * 2 Naphthalene-d8             | 136 | 5.855     | 5.858         | -0.003        | 99  | 419287   | 40.0          | 40.0            |       |
| * 3 Acenaphthene-d10           | 164 | 7.600     | 7.603         | -0.003        | 96  | 231001   | 40.0          | 40.0            |       |
| * 4 Phenanthrene-d10           | 188 | 9.092     | 9.095         | -0.003        | 98  | 459263   | 40.0          | 40.0            |       |
| * 5 Chrysene-d12               | 240 | 13.104    | 13.125        | -0.021        | 99  | 439919   | 40.0          | 40.0            |       |
| * 6 Perylene-d12               | 264 | 17.005    | 17.025        | -0.020        | 96  | 414859   | 40.0          | 40.0            |       |
| \$ 7 2-Fluorophenol            | 112 | 3.435     | 3.432         | 0.003         | 93  | 308223   | 100.0         | 88.1            |       |
| \$ 8 Phenol-d5                 | 99  | 4.263     | 4.266         | -0.003        | 0   | 335824   | 100.0         | 77.1            |       |
| \$ 9 Nitrobenzene-d5           | 82  | 5.144     | 5.147         | -0.003        | 89  | 359616   | 100.0         | 85.2            |       |
| \$ 10 2,4,6-Trichlorophenol-d2 | 198 |           | 6.872         |               |     |          |               | ND              |       |
| \$ 11 2-Fluorobiphenyl         | 172 | 6.913     | 6.916         | -0.003        | 100 | 711013   | 100.0         | 95.4            |       |
| \$ 12 2,4,6-Tribromophenol     | 330 | 8.393     | 8.396         | -0.003        | 92  | 86966    | 100.0         | 100.3           |       |
| \$ 13 Terphenyl-d14            | 244 | 11.025    | 11.022        | 0.003         | 98  | 909973   | 100.0         | 94.9            |       |
| 14 Triethyl amine              | 86  |           | 2.105         |               |     |          |               | ND              |       |
| 15 1,4-Dioxane                 | 88  |           | 2.016         |               |     |          |               | ND              |       |
| 16 2-Ethoxyethanol             | 59  |           | 2.252         |               |     |          |               | ND              |       |
| 17 N-Nitrosodimethylamine      | 74  |           | 2.251         |               |     |          |               | ND              |       |
| 18 Pyridine                    | 79  | 2.319     | 2.310         | 0.009         | 96  | 109643   | 50.0          | 27.3            |       |
| 19 Dimethylformamide           | 73  |           | 2.745         |               |     |          |               | ND              |       |
| 20 2-Picoline                  | 93  |           | 2.941         |               |     |          |               | ND              |       |
| 21 N-Nitrosomethylethylamine   | 88  |           | 3.012         |               |     |          |               | ND              |       |
| 22 Acrylamide                  | 71  |           | 3.264         |               |     |          |               | ND              |       |
| 23 Methyl methanesulfonate     | 80  |           | 3.270         |               |     |          |               | ND              |       |
| 24 N-Nitrosodiethylamine       | 102 |           | 3.634         |               |     |          |               | ND              |       |
| 25 Pentachlorophenol_T         | 266 |           | 3.767         |               |     |          |               | ND              |       |
| 26 Ethyl methanesulfonate      | 79  |           | 3.887         |               |     |          |               | ND              |       |
| 27 Benzaldehyde                | 106 |           | 4.250         |               |     |          |               | ND              |       |
| 28 Phenol                      | 94  |           | 4.278         |               |     |          |               | ND              |       |
| 29 Phenylmercaptan             | 110 |           | 4.266         |               |     |          |               | ND              |       |
| 30 Aniline                     | 93  |           | 4.307         |               |     |          |               | ND              |       |
| 31 Bis(2-chloroethyl)ether     | 93  |           | 4.354         |               |     |          |               | ND              |       |



| Compound                      | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 32 Alpha Methyl Styrene       | 118 |           | 4.360         |               |    |          |               | ND              |       |
| 33 Pentachloroethane          | 117 |           | 4.369         |               |    |          |               | ND              |       |
| 34 2-Chlorophenol             | 128 |           | 4.437         |               |    |          |               | ND              |       |
| 35 n-Decane                   | 43  |           | 4.460         |               |    |          |               | ND              |       |
| 36 Methyl styrene             | 118 |           | 4.500         |               |    |          |               | ND              |       |
| 37 1,3-Dichlorobenzene        | 146 |           | 4.578         |               |    |          |               | ND              |       |
| 38 1,4-Dichlorobenzene        | 146 | 4.639     | 4.642         | -0.003        | 94 | 180643   | 50.0          | 46.9            |       |
| 39 Benzyl alcohol             | 108 |           | 4.742         |               |    |          |               | ND              |       |
| 40 1,2-Dichlorobenzene        | 146 |           | 4.789         |               |    |          |               | ND              |       |
| 41 2-Methylphenol             | 108 | 4.845     | 4.848         | -0.003        | 97 | 158195   | 50.0          | 49.0            |       |
| 42 Benzidine_T                | 184 |           | 4.842         |               |    |          |               | ND              |       |
| 43 2,2'-oxybis[1-chloropropan | 45  |           | 4.865         |               |    |          |               | ND              |       |
| 44 Indene                     | 116 |           | 4.877         |               |    |          |               | ND              |       |
| 45 N-Nitrosopyrrolidine       | 100 |           | 4.968         |               |    |          |               | ND              |       |
| 46 3-Methylphenol             | 108 | 4.992     | 4.995         | -0.003        | 89 | 327665   | 100.0         | 95.5            |       |
| 47 4-Methylphenol             | 108 | 4.992     | 4.995         | -0.003        | 92 | 327665   | 100.0         | 95.5            |       |
| 48 3 & 4 Methylphenol         | 108 | 4.992     | 4.995         | -0.003        | 0  | 327665   | 100.0         | 95.5            |       |
| 49 N-Nitrosomorpholine        | 116 |           | 5.003         |               |    |          |               | ND              |       |
| 50 N-Nitrosodi-n-propylamine  | 70  |           | 4.989         |               |    |          |               | ND              |       |
| 51 Acetophenone               | 105 |           | 4.995         |               |    |          |               | ND              |       |
| 52 2-Toluidine                | 106 |           | 5.038         |               |    |          |               | ND              |       |
| 53 Hexachloroethane           | 117 | 5.115     | 5.118         | -0.003        | 94 | 63262    | 50.0          | 43.5            |       |
| 54 Nitrobenzene               | 77  | 5.162     | 5.165         | -0.003        | 87 | 191277   | 50.0          | 45.9            |       |
| 55 Triethyl phosphate         | 99  |           | 5.289         |               |    |          |               | ND              |       |
| 56 N-Nitrosopiperidine        | 114 |           | 5.309         |               |    |          |               | ND              |       |
| 57 Isophorone                 | 82  |           | 5.394         |               |    |          |               | ND              |       |
| 58 2-Nitrophenol              | 139 |           | 5.476         |               |    |          |               | ND              |       |
| 59 2,4-Dimethylphenol         | 107 |           | 5.506         |               |    |          |               | ND              |       |
| 60 Benzyl dichloride          | 125 |           | 5.547         |               |    |          |               | ND              |       |
| 61 o,o',o"-Triethylphosphoro  | 198 |           | 5.561         |               |    |          |               | ND              |       |
| 62 2,4-Xylidine               | 121 |           | 5.712         |               |    |          |               | ND              |       |
| 63 Bis(2-chloroethoxy)methane | 93  |           | 5.588         |               |    |          |               | ND              |       |
| 64 Benzoic acid               | 105 |           | 5.653         |               |    |          |               | ND              |       |
| 65 o-Anisidine                | 80  |           | 5.753         |               |    |          |               | ND              |       |
| 66 3,5-Dimethylphenol         | 107 |           | 5.641         |               |    |          |               | ND              |       |
| 67 alpha,alpha-Dimethyl phene | 58  |           | 5.714         |               |    |          |               | ND              |       |
| 68 2,4-Dichlorophenol         | 162 |           | 5.717         |               |    |          |               | ND              |       |
| 69 1,2,4-Trichlorobenzene     | 180 |           | 5.800         |               |    |          |               | ND              |       |
| 70 Alpha-Terpineol            | 59  |           | 5.876         |               |    |          |               | ND              |       |
| 71 Naphthalene                | 128 |           | 5.882         |               |    |          |               | ND              |       |
| 72 4-Chloroaniline            | 127 |           | 5.917         |               |    |          |               | ND              |       |
| 73 2,6-Dichlorophenol         | 162 |           | 5.935         |               |    |          |               | ND              |       |
| 74 Hexachloropropene          | 213 |           | 5.972         |               |    |          |               | ND              |       |
| 75 Hexachlorobutadiene        | 225 | 6.002     | 6.005         | -0.003        | 96 | 74155    | 50.0          | 45.1            |       |
| 76 4-chlorobenzenethiol       | 144 |           | 6.086         |               |    |          |               | ND              |       |
| 77 Quinoline                  | 129 |           | 6.201         |               |    |          |               | ND              |       |
| 78 5-Methyl-o-Anisidine       | 122 |           | 6.364         |               |    |          |               | ND              |       |
| 79 Caprolactam                | 55  |           | 6.269         |               |    |          |               | ND              |       |
| 80 N-Nitrosodi-n-butylamine   | 84  |           | 6.248         |               |    |          |               | ND              |       |
| 81 p-Phenylene diamine        | 108 |           | 6.266         |               |    |          |               | ND              |       |
| 82 1,3-phenylenediamine       | 108 |           | 6.488         |               |    |          |               | ND              |       |
| 83 4-Chloro-3-methylphenol    | 107 |           | 6.405         |               |    |          |               | ND              |       |

| Compound                       | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|--------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 84 Safrole, Total              | 162 |           | 6.466         |               |    |          |               | ND              |       |
| 85 Carbofuran phenol           | 164 |           | 6.511         |               |    |          |               | ND              |       |
| 86 2-Methylnaphthalene         | 142 |           | 6.563         |               |    |          |               | ND              |       |
| 87 Phthalic anhydride          | 76  |           | 6.598         |               |    |          |               | ND              |       |
| 88 1-Methylnaphthalene         | 142 |           | 6.663         |               |    |          |               | ND              |       |
| 89 1,2,4,5-Tetrachlorobenzene  | 216 |           | 6.734         |               |    |          |               | ND              |       |
| 90 Hexachlorocyclopentadiene   | 237 |           | 6.728         |               |    |          |               | ND              |       |
| 91 Isosafrole Peak 1           | 162 |           | 6.754         |               |    |          |               | ND              |       |
| 92 2,4,6-Trichlorophenol       | 196 | 6.836     | 6.845         | -0.009        | 93 | 113298   | 50.0          | 54.7            |       |
| 93 2,3-Dichlorobenzenamine     | 161 |           | 6.839         |               |    |          |               | ND              |       |
| 94 2,4,5-Trichlorophenol       | 196 | 6.877     | 6.886         | -0.009        | 94 | 125513   | 50.0          | 53.4            |       |
| 95 Methyl 4-chlorophenyl sulf  | 158 |           | 6.893         |               |    |          |               | ND              |       |
| 96 Isosafrole Peak 2           | 104 |           | 6.983         |               |    |          |               | ND              |       |
| 97 Toluene diamine (2,4- + 2,  | 122 |           | 7.033         |               |    |          |               | ND              |       |
| 98 1,1'-Biphenyl               | 154 |           | 7.021         |               |    |          |               | ND              |       |
| 99 2-Chloronaphthalene         | 162 |           | 7.051         |               |    |          |               | ND              |       |
| 100 1-Chloronaphthalene        | 162 |           | 7.077         |               |    |          |               | ND              |       |
| 101 2-Nitroaniline             | 65  |           | 7.139         |               |    |          |               | ND              |       |
| 102 1,4-Naphthoquinone         | 158 |           | 7.212         |               |    |          |               | ND              |       |
| 103 1,4-Dinitrobenzene         | 168 |           | 7.265         |               |    |          |               | ND              |       |
| 104 Dimethyl phthalate         | 163 |           | 7.315         |               |    |          |               | ND              |       |
| 105 1,3-Dinitrobenzene         | 168 |           | 7.344         |               |    |          |               | ND              |       |
| 106 2,6-Dinitrotoluene         | 165 |           | 7.374         |               |    |          |               | ND              |       |
| 107 Acenaphthylene             | 152 |           | 7.468         |               |    |          |               | ND              |       |
| 108 3-Nitroaniline             | 138 |           | 7.550         |               |    |          |               | ND              |       |
| 109 Acenaphthene               | 153 |           | 7.638         |               |    |          |               | ND              |       |
| 110 1,3-Dimethyl-2,4-Dinitrobe | 77  |           | 7.635         |               |    |          |               | ND              |       |
| 111 2,4-Dinitrophenol          | 184 |           | 7.650         |               |    |          |               | ND              |       |
| 112 4-Nitrophenol              | 109 |           | 7.732         |               |    |          |               | ND              |       |
| 113 1,3-Dimethyl-2,5-Dinitrobe | 179 |           | 7.879         |               |    |          |               | ND              |       |
| 114 2,4-Dinitrotoluene         | 165 | 7.770     | 7.779         | -0.009        | 95 | 40269    | 20.0          | 16.4            |       |
| 115 Pentachlorobenzene         | 250 |           | 7.782         |               |    |          |               | ND              |       |
| 116 Dibenzofuran               | 168 |           | 7.809         |               |    |          |               | ND              |       |
| 117 1,4-Dimethyl-2,3-Dinitrobe | 77  |           | 7.885         |               |    |          |               | ND              |       |
| 118 1-Naphthylamine            | 143 |           | 7.887         |               |    |          |               | ND              |       |
| 119 2,3,4,6-Tetrachlorophenol  | 232 |           | 7.938         |               |    |          |               | ND              |       |
| 120 1,4-Dimethyl-2,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 121 2-Naphthylamine            | 143 |           | 7.964         |               |    |          |               | ND              |       |
| 122 1,4-Dimethyl-2,5-Dinitrobe | 179 |           | 7.970         |               |    |          |               | ND              |       |
| 123 Diethyl phthalate          | 149 |           | 8.014         |               |    |          |               | ND              |       |
| 124 Hexadecane                 | 57  |           | 8.026         |               |    |          |               | ND              |       |
| 125 1,2-Dimethyl-3,6-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 126 Thionazin                  | 97  |           | 8.099         |               |    |          |               | ND              |       |
| 127 4-Chlorophenyl phenyl ethe | 204 |           | 8.138         |               |    |          |               | ND              |       |
| 128 N-Nitro-o-toluidine        | 152 |           | 8.158         |               |    |          |               | ND              |       |
| 129 Fluorene                   | 166 |           | 8.155         |               |    |          |               | ND              |       |
| 130 4-Nitroaniline             | 138 |           | 8.167         |               |    |          |               | ND              |       |
| 131 4,6-Dinitro-2-methylphenol | 198 |           | 8.196         |               |    |          |               | ND              |       |
| 132 1,5-Dimethyl-2,4-Dinitrobe | 179 |           | 8.020         |               |    |          |               | ND              |       |
| 133 Tributyl phosphate         | 99  |           | 8.244         |               |    |          |               | ND              |       |
| 134 Diphenylamine              | 169 |           | 8.255         |               |    |          |               | ND              |       |
| 135 N-Nitrosodiphenylamine     | 169 |           | 8.255         |               |    |          |               | ND              |       |

| Compound                            | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q  | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|-------------------------------------|-----|-----------|---------------|---------------|----|----------|---------------|-----------------|-------|
| 136 1,2-Diphenylhydrazine           | 77  |           | 8.302         |               |    |          |               | ND              |       |
| 137 Azobenzene                      | 77  |           | 8.302         |               |    |          |               | ND              |       |
| 138 1,5-Dimethyl-2,3-Dinitrobenzene | 179 |           | 8.299         |               |    |          |               | ND              |       |
| 139 2,4,6 - Tribromophenol          | 330 |           | 8.396         |               |    |          | ND            | ND              | U     |
| 140 Sulfotep                        | 97  |           | 8.404         |               |    |          |               | ND              |       |
| 141 1,2-Dimethyl-3,5-Dinitrobenzene | 179 |           | 8.520         |               |    |          |               | ND              |       |
| 142 1,3,5-Trinitrobenzene           | 213 |           | 8.504         |               |    |          |               | ND              |       |
| 143 Diallate Peak 1                 | 86  |           | 8.545         |               |    |          |               | ND              |       |
| 144 Phorate                         | 121 |           | 8.557         |               |    |          |               | ND              |       |
| 145 Phenacetin                      | 108 |           | 8.563         |               |    |          |               | ND              |       |
| 146 1,2-Dimethyl-3,4-Dinitrobenzene | 179 |           | 8.557         |               |    |          |               | ND              |       |
| 147 Phenyl sulfide                  | 186 |           | 8.615         |               |    |          |               | ND              |       |
| 148 4-Bromophenyl phenyl ether      | 248 |           | 8.631         |               |    |          |               | ND              |       |
| 149 Diallate Peak 2                 | 86  |           | 8.639         |               |    |          |               | ND              |       |
| 150 Dimethoate                      | 87  |           | 8.727         |               |    |          |               | ND              |       |
| 151 Hexachlorobenzene               | 284 | 8.716     | 8.719         | -0.003        | 91 | 37977    | 20.0          | 19.6            |       |
| 152 Atrazine                        | 200 |           | 8.778         |               |    |          |               | ND              |       |
| 153 1,2-Dimethyl-4,5-Dinitrobenzene | 91  |           | 8.784         |               |    |          |               | ND              |       |
| 154 4-Aminobiphenyl                 | 169 |           | 8.898         |               |    |          |               | ND              |       |
| 155 Pentachlorophenol               | 266 | 8.904     | 8.913         | -0.009        | 90 | 102323   | 100.0         | 77.6            |       |
| 156 Pentachloronitrobenzene         | 237 |           | 8.927         |               |    |          |               | ND              |       |
| 157 Pronamide                       | 173 |           | 8.951         |               |    |          |               | ND              |       |
| 158 n-Octadecane                    | 85  |           | 8.948         |               |    |          |               | ND              |       |
| 159 Disulfoton                      | 88  |           | 9.080         |               |    |          |               | ND              |       |
| 160 Dinoseb                         | 211 |           | 9.086         |               |    |          |               | ND              |       |
| 161 Phenanthrene                    | 178 |           | 9.119         |               |    |          |               | ND              |       |
| 162 Anthracene                      | 178 |           | 9.171         |               |    |          |               | ND              |       |
| 163 n-hydroxymethylphthalimide      | 147 |           | 9.177         |               |    |          |               | ND              |       |
| 164 Carbazole                       | 167 |           | 9.324         |               |    |          |               | ND              |       |
| 165 Methyl parathion                | 109 |           | 9.456         |               |    |          |               | ND              |       |
| 166 Alachlor                        | 188 |           | 9.453         |               |    |          |               | ND              |       |
| 167 Phenyl disulfide                | 109 |           | 9.589         |               |    |          |               | ND              |       |
| 168 Di-n-butyl phthalate            | 149 |           | 9.659         |               |    |          |               | ND              |       |
| 169 Ethyl Parathion                 | 109 |           | 9.879         |               |    |          |               | ND              |       |
| 170 4-Nitroquinoline-1-oxide        | 190 |           | 9.932         |               |    |          |               | ND              |       |
| 171 Diphenylsulfone                 | 125 |           | 9.984         |               |    |          |               | ND              |       |
| 172 Methapyrilene                   | 97  |           | 10.014        |               |    |          |               | ND              |       |
| 173 Isodrin                         | 193 |           | 10.290        |               |    |          |               | ND              |       |
| 174 Octachlorostyrene               | 308 |           | 10.360        |               |    |          |               | ND              |       |
| 175 Fluoranthene                    | 202 |           | 10.476        |               |    |          |               | ND              |       |
| 176 Benzidine                       | 184 |           | 10.647        |               |    |          |               | ND              |       |
| 177 4,4-Dichlorobenzil              | 139 |           | 10.529        |               |    |          |               | ND              |       |
| 178 Pyrene                          | 202 |           | 10.804        |               |    |          |               | ND              |       |
| 179 Bis(4-chlorophenyl)disulfide    | 143 |           | 10.971        |               |    |          |               | ND              |       |
| 180 Aramite Peak 1                  | 185 |           | 10.989        |               |    |          |               | ND              |       |
| 181 p-chlorophenyl sulfone          | 159 |           | 11.036        |               |    |          |               | ND              |       |
| 182 Aramite Peak 2                  | 185 |           | 11.112        |               |    |          |               | ND              |       |
| 183 p-Dimethylamino azobenzene      | 120 |           | 11.271        |               |    |          |               | ND              |       |
| 184 Chlorobenzilate                 | 251 |           | 11.353        |               |    |          |               | ND              |       |
| 185 Famphur                         | 218 |           | 11.786        |               |    |          |               | ND              |       |
| 186 3,3'-Dimethylbenzidine          | 212 |           | 11.882        |               |    |          |               | ND              |       |
| 187 Butyl benzyl phthalate          | 149 |           | 11.903        |               |    |          |               | ND              |       |

| Compound                         | Sig | RT (min.) | Adj RT (min.) | Dlt RT (min.) | Q | Response | Cal Amt ug/ml | OnCol Amt ug/ml | Flags |
|----------------------------------|-----|-----------|---------------|---------------|---|----------|---------------|-----------------|-------|
| 188 2-Acetylaminofluorene        | 181 |           | 12.411        |               |   |          |               | ND              |       |
| 189 3,3'-Dichlorobenzidine       | 252 |           | 13.054        |               |   |          |               | ND              |       |
| 190 4,4'-Methylene bis(2-chlor   | 231 |           | 13.069        |               |   |          |               | ND              |       |
| 191 Benzo[a]anthracene           | 228 |           | 13.101        |               |   |          |               | ND              |       |
| 192 Chrysene                     | 228 |           | 13.190        |               |   |          |               | ND              |       |
| 193 Bis(2-ethylhexyl) phthalat   | 149 |           | 13.254        |               |   |          |               | ND              |       |
| 194 6-Methylchrysene             | 242 |           | 14.349        |               |   |          |               | ND              |       |
| 195 Di-n-octyl phthalate         | 149 |           | 15.040        |               |   |          |               | ND              |       |
| 196 Benzo[b]fluoranthene         | 252 |           | 15.945        |               |   |          |               | ND              |       |
| 197 7,12-Dimethylbenz(a)anthra   | 256 |           | 15.959        |               |   |          |               | ND              |       |
| 198 Benzo[k]fluoranthene         | 252 |           | 16.027        |               |   |          |               | ND              |       |
| 199 Hexachlorophene              | 196 |           | 16.657        |               |   |          |               | ND              |       |
| 200 Benzo[e]pyrene               | 252 |           | 16.720        |               |   |          |               | ND              |       |
| 201 Benzo[a]pyrene               | 252 |           | 16.867        |               |   |          |               | ND              |       |
| 202 Perylene                     | 252 |           | 17.249        |               |   |          |               | ND              |       |
| 203 3-Methylcholanthrene         | 268 |           | 17.956        |               |   |          |               | ND              |       |
| 204 Tris(2,3-dibromopropyl)pho   | 119 |           | 18.700        |               |   |          |               | ND              |       |
| 205 Dibenz[a,h]acridine          | 279 |           | 19.525        |               |   |          |               | ND              |       |
| 206 Dibenz[a,j]acridine          | 279 |           | 19.683        |               |   |          |               | ND              |       |
| 207 Indeno[1,2,3-cd]pyrene       | 276 |           | 20.133        |               |   |          |               | ND              |       |
| 208 Dibenz(a,h)anthracene        | 278 |           | 20.221        |               |   |          |               | ND              |       |
| 209 Benzo[g,h,i]perylene         | 276 |           | 20.867        |               |   |          |               | ND              |       |
| 210 Dibenzo[a,e]pyrene           | 302 |           | 25.234        |               |   |          |               | ND              |       |
| S 219 Total Cresols              | 108 |           |               |               | 0 |          |               | 144.5           |       |
| S 220 Methyl Phenols, Total      | 108 |           |               |               | 0 |          |               | 144.5           |       |
| S 221 Isosafrole                 | 162 |           | 15.636        |               |   |          |               | ND              |       |
| S 222 Diallate                   | 86  |           | 15.636        |               |   |          |               | ND              |       |
| S 223 Aramite, Total             | 185 |           | 15.636        |               |   |          |               | ND              |       |
| S 224 Phthalic acid              | 148 |           | 19.829        |               |   |          |               | ND              |       |
| 211 2-Phenoxyethanol             | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 212 1,2,3,4-Tetrahydronaphthal   | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 213 4-Methylacetophenone         | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 214 2-Butoxyethanol              | 1   |           | 0.140         |               |   |          |               | ND              |       |
| 216 4,4'-DDE                     | 246 |           | 5.009         |               |   |          |               | ND              |       |
| 217 4,4'-DDD                     | 235 |           | 5.259         |               |   |          |               | ND              |       |
| 218 4,4'-DDT                     | 235 |           | 5.476         |               |   |          |               | ND              |       |
| S 225 TPAH                       | 1   |           | 0.000         |               |   |          |               | ND              |       |
| T 226 Pentachlorodibenzofurans T | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 227 Octadecane (TIC)           | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 228 Pentachlorodibenzo-p-dioxi | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 229 2,6-Dimethylphenol         | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 230 Tetrachlorodibenzo-p-dioxi | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 231 Tetrachlorodibenzofurans T | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 232 Hexachlorodibenzofurans TI | 1   |           | 0.140         |               |   |          |               | ND              |       |
| T 233 Hexachlorodibenzo-p-dioxin | 1   |           | 0.140         |               |   |          |               | ND              |       |

[QC Flag Legend](#)

Processing Flags

ND - Not Detected or Marked ND

Review Flags

U - Marked Undetected

[Reagents:](#)

MS-IS\_00014

Amount Added: 20.00

Units: uL

Run Reagent

## TestAmerica Denver

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19677.D

Injection Date: 25-May-2018 22:25:30

Instrument ID: SMS\_Y

Operator ID: HOEFLERA

Lims ID: 320-39023-A-57-D MSD

Worklist Smp#: 17

Client ID:

Injection Vol: 1.0 ul

Dil. Factor: 1.0000

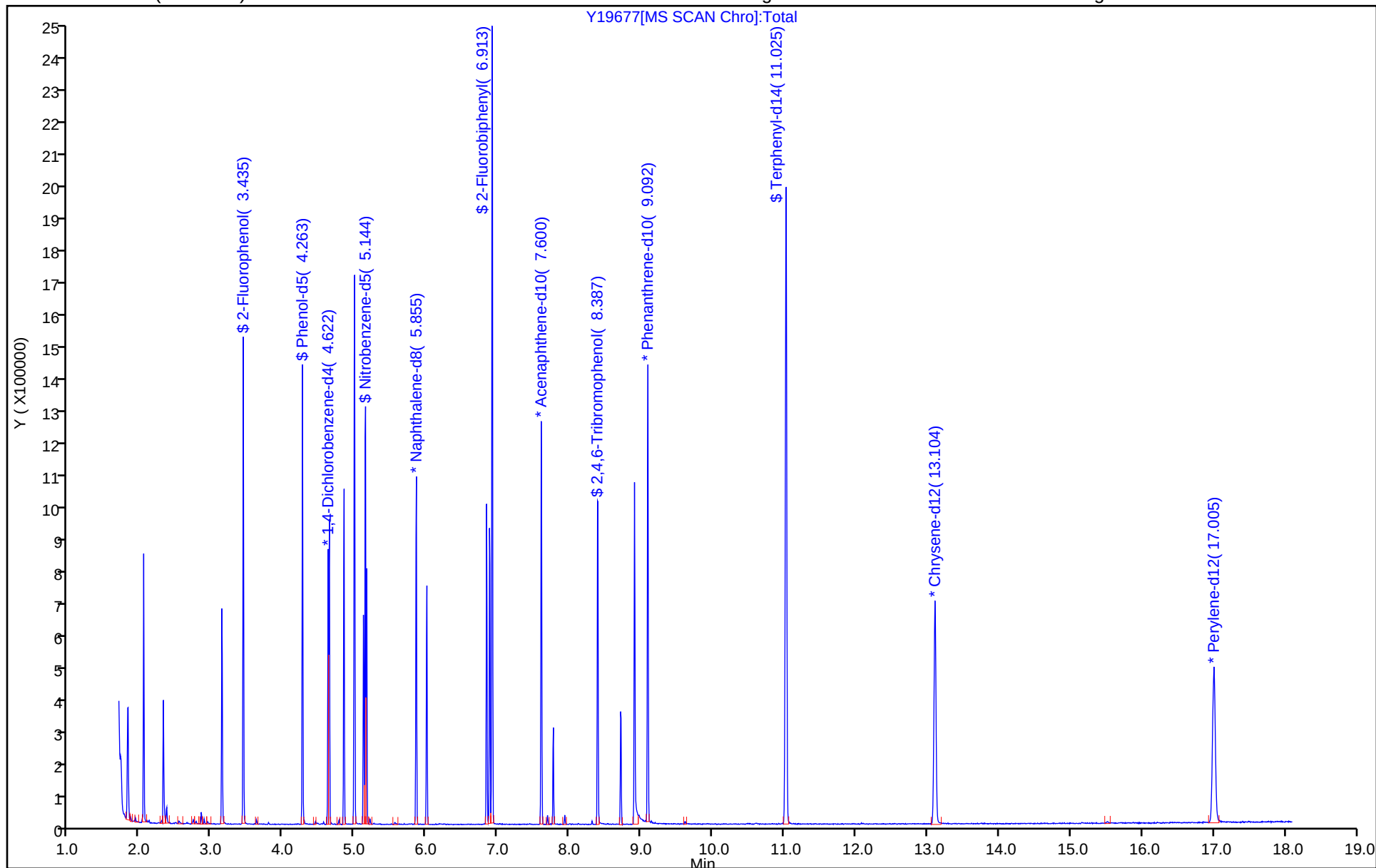
ALS Bottle#: 16

Method: SMSY\_8270C

Limit Group: MSSV - 8270C\_625

Column: VF-5ms ( 0.50 mm)

Y Scaling: Method Defined: Scale to the Nth Largest Peak: 1



TestAmerica Denver  
Recovery Report

Data File: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\Y19677.D  
 Lims ID: 320-39023-A-57-D MSD  
 Client ID:  
 Sample Type: MSD  
 Inject. Date: 25-May-2018 22:25:30 ALS Bottle#: 16 Worklist Smp#: 17  
 Injection Vol: 1.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-A-57-DMSD  
 Operator ID: HOEFLERA Instrument ID: SMS\_Y  
 Method: \\ChromNA\Denver\ChromData\SMS\_Y\20180525-70367.b\SMSY\_8270C.m  
 Limit Group: MSSV - 8270C\_625  
 Method Label: 8270C / 625  
 Last Update: 26-May-2018 13:27:39 Calib Date: 19-May-2018 10:48:30  
 Integrator: RTE ID Type: Deconvolution ID  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Denver\ChromData\SMS\_Y\20180519-70121.b\Y19560.D  
 Column 1 : VF-5ms ( 0.50 mm) Det: MS SCAN  
 Process Host: CTX0304

First Level Reviewer: hoeflera

Date: 26-May-2018 08:21:59

| Compound                   | Amount Added | Amount Recovered | % Rec. |
|----------------------------|--------------|------------------|--------|
| \$ 7 2-Fluorophenol        | 100.0        | 88.1             | 88.08  |
| \$ 8 Phenol-d5             | 100.0        | 77.1             | 77.05  |
| \$ 9 Nitrobenzene-d5       | 100.0        | 85.2             | 85.20  |
| \$ 11 2-Fluorobiphenyl     | 100.0        | 95.4             | 95.39  |
| \$ 12 2,4,6-Tribromophenol | 100.0        | 100.3            | 100.27 |
| \$ 13 Terphenyl-d14        | 100.0        | 94.9             | 94.95  |

## GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_Y Start Date: 04/21/2018 11:56Analysis Batch Number: 412210 End Date: 04/21/2018 16:56

| LAB SAMPLE ID              | CLIENT SAMPLE ID | DATE ANALYZED    | DILUTION<br>FACTOR | LAB FILE ID | COLUMN ID             |
|----------------------------|------------------|------------------|--------------------|-------------|-----------------------|
| DFTPP 280-412210/2         |                  | 04/21/2018 11:56 | 1                  | Y19200.D    | Rxi-5Sil MS 0.25 (mm) |
| ICIS 280-412210/3          |                  | 04/21/2018 12:10 | 1                  | Y19201.D    | Rxi-5Sil MS 0.25 (mm) |
| STD004 280-412210/4<br>IC  |                  | 04/21/2018 12:38 | 1                  | Y19202.D    | Rxi-5Sil MS 0.25 (mm) |
| STD010 280-412210/5<br>IC  |                  | 04/21/2018 13:07 | 1                  | Y19203.D    | Rxi-5Sil MS 0.25 (mm) |
| STD020 280-412210/6<br>IC  |                  | 04/21/2018 13:35 | 1                  | Y19204.D    | Rxi-5Sil MS 0.25 (mm) |
| STD050 280-412210/7<br>IC  |                  | 04/21/2018 14:04 | 1                  | Y19205.D    | Rxi-5Sil MS 0.25 (mm) |
| STD120 280-412210/8<br>IC  |                  | 04/21/2018 14:33 | 1                  | Y19206.D    | Rxi-5Sil MS 0.25 (mm) |
| STD160 280-412210/9<br>IC  |                  | 04/21/2018 15:01 | 1                  | Y19207.D    | Rxi-5Sil MS 0.25 (mm) |
| STD200 280-412210/10<br>IC |                  | 04/21/2018 15:30 | 1                  | Y19208.D    | Rxi-5Sil MS 0.25 (mm) |
| ICV 280-412210/11          |                  | 04/21/2018 15:59 | 1                  | Y19209.D    | Rxi-5Sil MS 0.25 (mm) |
| ICV 280-412210/12          |                  | 04/21/2018 16:27 | 1                  | Y19210.D    | Rxi-5Sil MS 0.25 (mm) |
| ICV 280-412210/13          |                  | 04/21/2018 16:56 | 1                  | Y19211.D    | Rxi-5Sil MS 0.25 (mm) |



## GC/MS SEMI VOA ANALYSIS RUN LOG

Lab Name: TestAmerica DenverJob No.: 320-39023-1

SDG No.: \_\_\_\_\_

Instrument ID: SMS\_YStart Date: 05/25/2018 16:18Analysis Batch Number: 416357End Date: 05/26/2018 03:42

| LAB SAMPLE ID      | CLIENT SAMPLE ID | DATE ANALYZED    | DILUTION<br>FACTOR | LAB FILE ID | COLUMN ID             |
|--------------------|------------------|------------------|--------------------|-------------|-----------------------|
| DFTPP 280-416357/2 |                  | 05/25/2018 16:18 | 1                  | Y19662.D    | Rxi-5Sil MS 0.25 (mm) |
| CCV 280-416357/3   |                  | 05/25/2018 16:31 | 1                  | Y19663.D    | Rxi-5Sil MS 0.25 (mm) |
| LB3 280-416023/1-A |                  | 05/25/2018 17:01 | 1                  | Y19664.D    | Rxi-5Sil MS 0.25 (mm) |
| LCS 280-416023/2-A |                  | 05/25/2018 17:26 | 1                  | Y19665.D    | Rxi-5Sil MS 0.25 (mm) |
| LB 280-415138/1-C  |                  | 05/25/2018 17:51 | 1                  | Y19666.D    | Rxi-5Sil MS 0.25 (mm) |
| LCS 280-415138/2-C |                  | 05/25/2018 18:16 | 1                  | Y19667.D    | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 18:41 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 19:06 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 19:31 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 19:56 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 20:21 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| 320-39023-58       |                  | 05/25/2018 20:46 | 1                  | Y19673.D    | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 21:11 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| 320-39023-57       |                  | 05/25/2018 21:36 | 1                  | Y19675.D    | Rxi-5Sil MS 0.25 (mm) |
| 320-39023-57 MS    |                  | 05/25/2018 22:01 | 1                  | Y19676.D    | Rxi-5Sil MS 0.25 (mm) |
| 320-39023-57 MSD   |                  | 05/25/2018 22:25 | 1                  | Y19677.D    | Rxi-5Sil MS 0.25 (mm) |
| CCVC 280-416357/18 |                  | 05/25/2018 22:50 | 1                  | Y19678.D    | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 23:15 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/25/2018 23:39 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 00:04 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 00:28 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 00:52 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 01:17 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 01:41 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 02:05 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 02:30 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 02:54 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 03:18 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |
| ZZZZZ              |                  | 05/26/2018 03:42 | 1                  |             | Rxi-5Sil MS 0.25 (mm) |

Y  
HSL 4/21/18

## GC/MS Semivolatile Initial Calibration Data Review Checklist

|                                               |                                  |                    |                                    |                  |
|-----------------------------------------------|----------------------------------|--------------------|------------------------------------|------------------|
| LIMS Batch Number: 412210                     | Worldist: 109134                 | ICIS/ICV Line #: 3 | 2 <sup>nd</sup> Day ICV Line #: NA | Instrument ID: Y |
| Analyst/1 <sup>st</sup> Reviewer: Alex Harker | Method (circle): 625 8270C 8270D | Circle: Full Scan  | SIM                                | BP LLSIM         |
| Date: 05/05/18                                |                                  |                    |                                    |                  |
| QC Type (circle): Standard                    | DDT Q4                           | DDT Q5             | QAPP                               | Other            |

| Review Items                                                                                                                                                                                                                                                                         | Yes | No | NA | 2 <sup>nd</sup> Rev | If No, why is data reportable?  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|----|---------------------|---------------------------------|
| <b>1. Tune/Calibration Verification</b>                                                                                                                                                                                                                                              |     |    |    |                     |                                 |
| 1. Did DFTPP meet tune criteria? If SIM, did the PFTBA Tune check meet ion ratio criteria?                                                                                                                                                                                           | /   |    |    | /                   |                                 |
| 2. Are the Benzidine and PCP tailing $\leq 2$ ? (8270D/DoD) Benzidine tailing $\leq 3$ and PCP tailing $\leq 5$ ? (8270C)                                                                                                                                                            | /   |    |    | /                   |                                 |
| 3. Is the DDT degradation $\leq 20\%$                                                                                                                                                                                                                                                | /   |    |    | /                   |                                 |
| 4. Were all standards injected within 12 hr of DFTPP? (or 24 hrs for 625)?                                                                                                                                                                                                           | /   |    |    | /                   |                                 |
| 5. Were $\geq 5$ levels of each compound and surrogate analyzed?                                                                                                                                                                                                                     | /   |    |    | /                   |                                 |
| 6. At least 6 consecutive points used for quadratic curves?                                                                                                                                                                                                                          | /   |    |    | /                   |                                 |
| 7. Was low level standard at or below RL?                                                                                                                                                                                                                                            | /   |    |    | /                   |                                 |
| 8. If calibration points removed, were reasons for removal documented? Did sufficient calibration points remain? (removal from middle of curve not allowed)                                                                                                                          | /   |    |    | /                   | (e.g.; some points <RL removed) |
| 9. Does the low level standard have enough sensitivity to produce at least 5-10 scans across the peak, and all secondary ions are present?                                                                                                                                           | /   |    |    | /                   |                                 |
| 10. Do the average RFs meet minimum RF requirements? (625 – not method defined) (8270C-SPCCs $\geq 0.05$ ) (8270D- all cmpds have min RFs defined in method/SOP)                                                                                                                     | /   |    |    | /                   |                                 |
| 10. Did the calibration %RSD meet method requirements? (625: $\leq 35\%$ all cmpds) (8270C: $\leq 90\%$ for CCCs & $\leq 15\%$ for all other cmpds/surrogates) (8270D: $\leq 20\%$ for all cmpds/surrogates)                                                                         | /   |    |    | /                   |                                 |
| 11. Was a linear or quadratic regression fit used for analytes that exceeded the %RSD requirements?                                                                                                                                                                                  | /   |    |    | /                   |                                 |
| 12. If regression fit used, $r^2 \geq 0.990$ ?                                                                                                                                                                                                                                       | /   |    |    | /                   |                                 |
| 13. Does the low point of a linear regression fit meet the $\pm 30\%$ read-back criteria? (8270D)                                                                                                                                                                                    | /   |    |    | /                   |                                 |
| 14. For quadratic – evaluate curve fitting errors: Does each point fall within criteria when 'read-back' against the curve? (TA requirement – CA-Q-S-005; recommended limits $\pm 30\%$ low point & $\pm 20\%$ all other points) (Chrom Report - Details of Calibration per Analyte) | /   |    |    | /                   |                                 |
| 15. Is the concentration intercept $<  RL $ for each cmpd? ("X" intercept in Chrom)                                                                                                                                                                                                  | /   |    |    | /                   |                                 |
| 16. Were manual integrations performed correctly and properly documented (Dated, Initialed and reason given) for all calibration points? 2 <sup>nd</sup> review of all MIs required                                                                                                  | /   |    |    | /                   |                                 |
| 17. Was the high point checked for detector saturation?                                                                                                                                                                                                                              | /   |    |    | /                   |                                 |
| 18. Do the relative retention times for each analyte in each standard agree within $\pm 0.06$ units (abs RT $\pm 0.5$ min)                                                                                                                                                           | /   |    |    | /                   |                                 |
| 19. Benzo(b & k)fluoranthene: height of the valley between must be less than 50% of the average of the two peak heights?                                                                                                                                                             | /   |    |    | /                   |                                 |

Phurina  
5/23/18

| Review Items                                                                                                                                                                                                                                        | Yes | No | NA | 2 <sup>nd</sup> Rev | If No, why is data reportable?                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|----|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20. Elution order checked isomeric pairs and coeluters?                                                                                                                                                                                             |     |    |    |                     | Chrom: View/Documents/Methods/Isomers)                                                                                                                                                                                                                                                                                                                                |
| • aniline / bis(2-chloroethyl)ether                                                                                                                                                                                                                 | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • N-nitrosodiphenylamine/diphenylamine                                                                                                                                                                                                              | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • 1,3-, 1,4-, 1,2-dichlorobenzene                                                                                                                                                                                                                   | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • benzyl alcohol / 2-methylphenol / 3/4-methylphenol                                                                                                                                                                                                | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • 2,4-dimethylphenol / 3,5-dimethylphenol                                                                                                                                                                                                           | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • 2 & 1 - methyl naphthalene                                                                                                                                                                                                                        | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • 2,4,6- and 2,4,5-trichlorophenol                                                                                                                                                                                                                  | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • phenanthrene / anthracene                                                                                                                                                                                                                         | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • fluoranthene / pyrene                                                                                                                                                                                                                             | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • benzo(a)anthracene / chrysene                                                                                                                                                                                                                     | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • bis(2-ethylhexyl)/di-n-octyl phthalate                                                                                                                                                                                                            | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • benzo(b)fluoranthene / benzo(k)fluoranthene                                                                                                                                                                                                       | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • Indeno(1,2,3-cd)pyrene / benzo(g,h,i)perylene                                                                                                                                                                                                     | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • saffrole/1-chloronaphthalene                                                                                                                                                                                                                      |     |    | NA | NA                  |                                                                                                                                                                                                                                                                                                                                                                       |
| • 1-/2-naphthylamine                                                                                                                                                                                                                                |     |    | NA | NA                  |                                                                                                                                                                                                                                                                                                                                                                       |
| • 1- and 2-chloronaphthalene                                                                                                                                                                                                                        |     |    | NA | NA                  |                                                                                                                                                                                                                                                                                                                                                                       |
| • 2,4,6- and 2,4,5-tribromophenol                                                                                                                                                                                                                   | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| • Benzo(e)pyrene / benzo(a)pyrene                                                                                                                                                                                                                   | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |
| 21. Was the ICV within required criteria?<br>625 = QCS method defined/Table6<br>✓ 8270C = $\pm 35\%$ or $\pm 55\%$ of expected for poor performers;<br>8270D = $\pm 20\%$ , poor performers <50%<br><u>DD = <math>\pm 20\%</math></u><br>QAPP/Other |     | /  |    | /                   | NCM: Indene -217.                                                                                                                                                                                                                                                                                                                                                     |
| 22. If any criteria from Items above were not met, was NCM generated?                                                                                                                                                                               | /   |    |    | /                   | NCM #:                                                                                                                                                                                                                                                                                                                                                                |
| 23. Were manual integrations for ICV performed correctly and properly documented? (dated, initialed and reason given; 2nd review of all MIs required)                                                                                               |     |    | /  | NA                  |                                                                                                                                                                                                                                                                                                                                                                       |
| 24. Are all files and QC linked and processed correctly?                                                                                                                                                                                            | /   |    |    | /                   | <input type="checkbox"/> Files linked properly to calibration levels?<br><input type="checkbox"/> All points are in the most recent active calibration event? [Calibration Events - 'Fix ICAL linkage' if needed]<br><input type="checkbox"/> Runs linked to DFTPP? [QC links]<br><input type="checkbox"/> Checklist & run log scanned, attached & assigned properly? |
| 25. Is the ICAL locked in TALS and Chrom?                                                                                                                                                                                                           | /   |    |    | /                   |                                                                                                                                                                                                                                                                                                                                                                       |

Comments:

2<sup>nd</sup> Reviewer:

Review Date:

05/08/18

Phishing  
slashes

# Injection Log

Directory: C:\HPCHEM\1\DATA\1042118.B

| Line | Vial | FileName | Multiplier | SampleName | Misc Info | Injected          |
|------|------|----------|------------|------------|-----------|-------------------|
| 1    | 100  | Y19199.d | 1.         | PRIMER     |           | 21 Apr 2018 11:30 |
| 2    | 1    | Y19200.d | 1.         | DFTPP      |           | 21 Apr 2018 11:58 |
| 3    | 2    | Y19201.d | 1.         | ICIS HSL   |           | 21 Apr 2018 12:10 |
| 4    | 3    | Y19202.d | 1.         | STD004 HSL |           | 21 Apr 2018 12:38 |
| 5    | 4    | Y19203.d | 1.         | STD010 HSL |           | 21 Apr 2018 13:07 |
| 6    | 5    | Y19204.d | 1.         | STD020 HSL |           | 21 Apr 2018 13:35 |
| 7    | 6    | Y19205.d | 1.         | STD050 HSL |           | 21 Apr 2018 14:04 |
| 8    | 7    | Y19206.d | 1.         | STD120 HSL |           | 21 Apr 2018 14:33 |
| 9    | 8    | Y19207.d | 1.         | STD160 HSL |           | 21 Apr 2018 15:01 |
| 10   | 9    | Y19208.d | 1.         | STD200 HSL |           | 21 Apr 2018 15:30 |
| 11   | 10   | Y19209.d | 1.         | ICV HSL 1  |           | 21 Apr 2018 15:59 |
| 12   | 11   | Y19210.d | 1.         | ICV HSL 2  |           | 21 Apr 2018 16:27 |
| 13   | 12   | Y19211.d | 1.         | ICV FAM    |           | 21 Apr 2018 16:56 |
| 14   | 13   | Y19212.d | 1.         | STD080 AP9 |           | 21 Apr 2018 17:25 |
| 15   | 14   | Y19213.d | 1.         | STD010 AP9 |           | 21 Apr 2018 17:53 |
| 16   | 15   | Y19214.d | 1.         | STD020 AP9 |           | 21 Apr 2018 18:22 |
| 17   | 16   | Y19215.d | 1.         | STD050 AP9 |           | 21 Apr 2018 18:50 |
| 18   | 17   | Y19216.d | 1.         | STD120 AP9 |           | 21 Apr 2018 19:19 |
| 19   | 18   | Y19217.d | 1.         | STD160 AP9 |           | 21 Apr 2018 19:48 |
| 20   | 19   | Y19218.d | 1.         | STD200 AP9 |           | 21 Apr 2018 20:16 |
| 21   | 20   | Y19219.d | 1.         | ICV AP9 1  |           | 21 Apr 2018 20:45 |
| 22   | 21   | Y19220.d | 1.         | ICV AP9 2  |           | 21 Apr 2018 21:13 |
| 23   | 22   | Y19221.d | 1.         | ICV AP9 3  |           | 21 Apr 2018 21:42 |

Dilution Solvent Lot #: N/A Pipette ID: N/A Method(s) Performed: 8270C

Daily Maintenance: Check box if maintenance was performed. No mark indicates the item was not changed.

☒ Changed Septum  
 ☒ Changed Liner  
 ☒ Changed Seal  
 ☒ Changed Ferrule  
 ☒ Clipped Column

*New column*

*Phuray  
5/25/18*

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415138 Batch Start Date: 05/16/18 16:32 Batch Analyst: Bourgery, David FBatch Method: 1311 Batch End Date: 05/17/18 15:25

| Lab Sample ID       | Client Sample ID           | Method Chain          | Basis | ExtractFluid |  |  |  |  |  |
|---------------------|----------------------------|-----------------------|-------|--------------|--|--|--|--|--|
| LB 280-415138/1     |                            | 1311, 3510C,<br>8270D |       | T1           |  |  |  |  |  |
| LCS<br>280-415138/2 |                            | 1311, 3510C,<br>8270D |       | T1           |  |  |  |  |  |
| 320-39023-A-57      | IDW-KINGSLEY-SO-<br>LDOS01 | 1311, 3510C,<br>8270D | P     | T1           |  |  |  |  |  |

| Batch Notes      |                |
|------------------|----------------|
| First End time   | 05/17/18 0835  |
| First Start time | 05/16/18 16:32 |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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.

LogTag ID 1000645053  
User ID TCLP (+0.0)  
First reading 5/11/2018 9:44:26 AM  
Last reading 5/14/2018 1:34:26 PM  
Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time        | Elapsed Time | Readings<br>(°C) |
|-------|-----------|-------------|--------------|------------------|
| 1     | 5/11/2018 | 9:44:26 AM  | 00:00:00     | 22.5             |
| 2     | 5/11/2018 | 9:54:26 AM  | 00:10:00     | 22.6             |
| 3     | 5/11/2018 | 10:04:26 AM | 00:20:00     | 22.6             |
| 4     | 5/11/2018 | 10:14:26 AM | 00:30:00     | 22.7             |
| 5     | 5/11/2018 | 10:24:26 AM | 00:40:00     | 22.7             |
| 6     | 5/11/2018 | 10:34:26 AM | 00:50:00     | 22.8             |
| 7     | 5/11/2018 | 10:44:26 AM | 01:00:00     | 22.9             |
| 8     | 5/11/2018 | 10:54:26 AM | 01:10:00     | 23.0             |
| 9     | 5/11/2018 | 11:04:26 AM | 01:20:00     | 23.2             |
| 10    | 5/11/2018 | 11:14:26 AM | 01:30:00     | 23.3             |
| 11    | 5/11/2018 | 11:24:26 AM | 01:40:00     | 23.5             |
| 12    | 5/11/2018 | 11:34:26 AM | 01:50:00     | 23.6             |
| 13    | 5/11/2018 | 11:44:26 AM | 02:00:00     | 23.5             |
| 14    | 5/11/2018 | 11:54:26 AM | 02:10:00     | 23.5             |
| 15    | 5/11/2018 | 12:04:26 PM | 02:20:00     | 23.4             |
| 16    | 5/11/2018 | 12:14:26 PM | 02:30:00     | 23.4             |
| 17    | 5/11/2018 | 12:24:26 PM | 02:40:00     | 23.3             |
| 18    | 5/11/2018 | 12:34:26 PM | 02:50:00     | 23.4             |
| 19    | 5/11/2018 | 12:44:26 PM | 03:00:00     | 23.5             |
| 20    | 5/11/2018 | 12:54:26 PM | 03:10:00     | 23.5             |
| 21    | 5/11/2018 | 1:04:26 PM  | 03:20:00     | 23.4             |
| 22    | 5/11/2018 | 1:14:26 PM  | 03:30:00     | 23.5             |
| 23    | 5/11/2018 | 1:24:26 PM  | 03:40:00     | 23.5             |
| 24    | 5/11/2018 | 1:34:26 PM  | 03:50:00     | 23.5             |
| 25    | 5/11/2018 | 1:44:26 PM  | 04:00:00     | 23.6             |
| 26    | 5/11/2018 | 1:54:26 PM  | 04:10:00     | 23.8             |
| 27    | 5/11/2018 | 2:04:26 PM  | 04:20:00     | 24.0             |
| 28    | 5/11/2018 | 2:14:26 PM  | 04:30:00     | 24.2             |
| 29    | 5/11/2018 | 2:24:26 PM  | 04:40:00     | 24.3             |
| 30    | 5/11/2018 | 2:34:26 PM  | 04:50:00     | 24.4             |
| 31    | 5/11/2018 | 2:44:26 PM  | 05:00:00     | 24.6             |
| 32    | 5/11/2018 | 2:54:26 PM  | 05:10:00     | 24.8             |
| 33    | 5/11/2018 | 3:04:26 PM  | 05:20:00     | 24.9             |
| 34    | 5/11/2018 | 3:14:26 PM  | 05:30:00     | 25.0             |
| 35    | 5/11/2018 | 3:24:26 PM  | 05:40:00     | 25.1             |
| 36    | 5/11/2018 | 3:34:26 PM  | 05:50:00     | 25.3             |
| 37    | 5/11/2018 | 3:44:26 PM  | 06:00:00     | 25.4             |
| 38    | 5/11/2018 | 3:54:26 PM  | 06:10:00     | 25.6             |
| 39    | 5/11/2018 | 4:04:26 PM  | 06:20:00     | 25.6             |

LogTag ID 1000645053  
User ID TCLP (+0.0)  
First reading 5/11/2018 9:44:26 AM  
Last reading 5/14/2018 1:34:26 PM  
Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time        | Elapsed Time | Readings<br>(°C) |
|-------|-----------|-------------|--------------|------------------|
| 40    | 5/11/2018 | 4:14:26 PM  | 06:30:00     | 25.4             |
| 41    | 5/11/2018 | 4:24:26 PM  | 06:40:00     | 25.2             |
| 42    | 5/11/2018 | 4:34:26 PM  | 06:50:00     | 25.2             |
| 43    | 5/11/2018 | 4:44:26 PM  | 07:00:00     | 25.6             |
| 44    | 5/11/2018 | 4:54:26 PM  | 07:10:00     | 25.8             |
| 45    | 5/11/2018 | 5:04:26 PM  | 07:20:00     | 25.9             |
| 46    | 5/11/2018 | 5:14:26 PM  | 07:30:00     | 26.0             |
| 47    | 5/11/2018 | 5:24:26 PM  | 07:40:00     | 26.0             |
| 48    | 5/11/2018 | 5:34:26 PM  | 07:50:00     | 26.0             |
| 49    | 5/11/2018 | 5:44:26 PM  | 08:00:00     | 26.1             |
| 50    | 5/11/2018 | 5:54:26 PM  | 08:10:00     | 26.1             |
| 51    | 5/11/2018 | 6:04:26 PM  | 08:20:00     | 26.1             |
| 52    | 5/11/2018 | 6:14:26 PM  | 08:30:00     | 26.2             |
| 53    | 5/11/2018 | 6:24:26 PM  | 08:40:00     | 26.2             |
| 54    | 5/11/2018 | 6:34:26 PM  | 08:50:00     | 26.2             |
| 55    | 5/11/2018 | 6:44:26 PM  | 09:00:00     | 26.2             |
| 56    | 5/11/2018 | 6:54:26 PM  | 09:10:00     | 26.2             |
| 57    | 5/11/2018 | 7:04:26 PM  | 09:20:00     | 26.2             |
| 58    | 5/11/2018 | 7:14:26 PM  | 09:30:00     | 26.1             |
| 59    | 5/11/2018 | 7:24:26 PM  | 09:40:00     | 25.9             |
| 60    | 5/11/2018 | 7:34:26 PM  | 09:50:00     | 25.7             |
| 61    | 5/11/2018 | 7:44:26 PM  | 10:00:00     | 25.5             |
| 62    | 5/11/2018 | 7:54:26 PM  | 10:10:00     | 25.6             |
| 63    | 5/11/2018 | 8:04:26 PM  | 10:20:00     | 25.8             |
| 64    | 5/11/2018 | 8:14:26 PM  | 10:30:00     | 25.8             |
| 65    | 5/11/2018 | 8:24:26 PM  | 10:40:00     | 25.9             |
| 66    | 5/11/2018 | 8:34:26 PM  | 10:50:00     | 25.9             |
| 67    | 5/11/2018 | 8:44:26 PM  | 11:00:00     | 26.0             |
| 68    | 5/11/2018 | 8:54:26 PM  | 11:10:00     | 26.0             |
| 69    | 5/11/2018 | 9:04:26 PM  | 11:20:00     | 26.0             |
| 70    | 5/11/2018 | 9:14:26 PM  | 11:30:00     | 26.0             |
| 71    | 5/11/2018 | 9:24:26 PM  | 11:40:00     | 26.0             |
| 72    | 5/11/2018 | 9:34:26 PM  | 11:50:00     | 26.0             |
| 73    | 5/11/2018 | 9:44:26 PM  | 12:00:00     | 25.9             |
| 74    | 5/11/2018 | 9:54:26 PM  | 12:10:00     | 25.9             |
| 75    | 5/11/2018 | 10:04:26 PM | 12:20:00     | 25.9             |
| 76    | 5/11/2018 | 10:14:26 PM | 12:30:00     | 26.0             |
| 77    | 5/11/2018 | 10:24:26 PM | 12:40:00     | 25.9             |
| 78    | 5/11/2018 | 10:34:26 PM | 12:50:00     | 25.9             |

LogTag ID 1000645053  
User ID TCLP (+0.0)  
First reading 5/11/2018 9:44:26 AM  
Last reading 5/14/2018 1:34:26 PM  
Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time        | Elapsed Time | Readings<br>(°C) |
|-------|-----------|-------------|--------------|------------------|
| 79    | 5/11/2018 | 10:44:26 PM | 13:00:00     | 25.9             |
| 80    | 5/11/2018 | 10:54:26 PM | 13:10:00     | 25.8             |
| 81    | 5/11/2018 | 11:04:26 PM | 13:20:00     | 25.8             |
| 82    | 5/11/2018 | 11:14:26 PM | 13:30:00     | 25.8             |
| 83    | 5/11/2018 | 11:24:26 PM | 13:40:00     | 25.7             |
| 84    | 5/11/2018 | 11:34:26 PM | 13:50:00     | 25.8             |
| 85    | 5/11/2018 | 11:44:26 PM | 14:00:00     | 25.8             |
| 86    | 5/11/2018 | 11:54:26 PM | 14:10:00     | 25.7             |
| 87    | 5/12/2018 | 12:04:26 AM | 14:20:00     | 25.7             |
| 88    | 5/12/2018 | 12:14:26 AM | 14:30:00     | 25.6             |
| 89    | 5/12/2018 | 12:24:26 AM | 14:40:00     | 25.6             |
| 90    | 5/12/2018 | 12:34:26 AM | 14:50:00     | 25.6             |
| 91    | 5/12/2018 | 12:44:26 AM | 15:00:00     | 25.7             |
| 92    | 5/12/2018 | 12:54:26 AM | 15:10:00     | 25.6             |
| 93    | 5/12/2018 | 1:04:26 AM  | 15:20:00     | 25.6             |
| 94    | 5/12/2018 | 1:14:26 AM  | 15:30:00     | 25.5             |
| 95    | 5/12/2018 | 1:24:26 AM  | 15:40:00     | 25.5             |
| 96    | 5/12/2018 | 1:34:26 AM  | 15:50:00     | 25.5             |
| 97    | 5/12/2018 | 1:44:26 AM  | 16:00:00     | 25.6             |
| 98    | 5/12/2018 | 1:54:26 AM  | 16:10:00     | 25.5             |
| 99    | 5/12/2018 | 2:04:26 AM  | 16:20:00     | 25.4             |
| 100   | 5/12/2018 | 2:14:26 AM  | 16:30:00     | 25.4             |
| 101   | 5/12/2018 | 2:24:26 AM  | 16:40:00     | 25.3             |
| 102   | 5/12/2018 | 2:34:26 AM  | 16:50:00     | 25.4             |
| 103   | 5/12/2018 | 2:44:26 AM  | 17:00:00     | 25.4             |
| 104   | 5/12/2018 | 2:54:26 AM  | 17:10:00     | 25.4             |
| 105   | 5/12/2018 | 3:04:26 AM  | 17:20:00     | 25.3             |
| 106   | 5/12/2018 | 3:14:26 AM  | 17:30:00     | 25.3             |
| 107   | 5/12/2018 | 3:24:26 AM  | 17:40:00     | 25.3             |
| 108   | 5/12/2018 | 3:34:26 AM  | 17:50:00     | 25.4             |
| 109   | 5/12/2018 | 3:44:26 AM  | 18:00:00     | 25.3             |
| 110   | 5/12/2018 | 3:54:26 AM  | 18:10:00     | 25.3             |
| 111   | 5/12/2018 | 4:04:26 AM  | 18:20:00     | 25.2             |
| 112   | 5/12/2018 | 4:14:26 AM  | 18:30:00     | 25.2             |
| 113   | 5/12/2018 | 4:24:26 AM  | 18:40:00     | 25.4             |
| 114   | 5/12/2018 | 4:34:26 AM  | 18:50:00     | 25.3             |
| 115   | 5/12/2018 | 4:44:26 AM  | 19:00:00     | 25.2             |
| 116   | 5/12/2018 | 4:54:26 AM  | 19:10:00     | 25.2             |
| 117   | 5/12/2018 | 5:04:26 AM  | 19:20:00     | 25.2             |



LogTag ID 1000645053  
User ID TCLP (+0.0)  
First reading 5/11/2018 9:44:26 AM  
Last reading 5/14/2018 1:34:26 PM  
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| Index | Date      | Time        | Elapsed Time   | Readings<br>(°C) |
|-------|-----------|-------------|----------------|------------------|
| 118   | 5/12/2018 | 5:14:26 AM  | 19:30:00       | 25.3             |
| 119   | 5/12/2018 | 5:24:26 AM  | 19:40:00       | 25.2             |
| 120   | 5/12/2018 | 5:34:26 AM  | 19:50:00       | 25.2             |
| 121   | 5/12/2018 | 5:44:26 AM  | 20:00:00       | 25.1             |
| 122   | 5/12/2018 | 5:54:26 AM  | 20:10:00       | 25.2             |
| 123   | 5/12/2018 | 6:04:26 AM  | 20:20:00       | 25.3             |
| 124   | 5/12/2018 | 6:14:26 AM  | 20:30:00       | 25.2             |
| 125   | 5/12/2018 | 6:24:26 AM  | 20:40:00       | 25.1             |
| 126   | 5/12/2018 | 6:34:26 AM  | 20:50:00       | 25.1             |
| 127   | 5/12/2018 | 6:44:26 AM  | 21:00:00       | 25.2             |
| 128   | 5/12/2018 | 6:54:26 AM  | 21:10:00       | 25.2             |
| 129   | 5/12/2018 | 7:04:26 AM  | 21:20:00       | 25.1             |
| 130   | 5/12/2018 | 7:14:26 AM  | 21:30:00       | 25.0             |
| 131   | 5/12/2018 | 7:24:26 AM  | 21:40:00       | 25.1             |
| 132   | 5/12/2018 | 7:34:26 AM  | 21:50:00       | 25.2             |
| 133   | 5/12/2018 | 7:44:26 AM  | 22:00:00       | 25.1             |
| 134   | 5/12/2018 | 7:54:26 AM  | 22:10:00       | 25.1             |
| 135   | 5/12/2018 | 8:04:26 AM  | 22:20:00       | 25.0             |
| 136   | 5/12/2018 | 8:14:26 AM  | 22:30:00       | 25.1             |
| 137   | 5/12/2018 | 8:24:26 AM  | 22:40:00       | 25.2             |
| 138   | 5/12/2018 | 8:34:26 AM  | 22:50:00       | 25.1             |
| 139   | 5/12/2018 | 8:44:26 AM  | 23:00:00       | 24.9             |
| 140   | 5/12/2018 | 8:54:26 AM  | 23:10:00       | 24.9             |
| 141   | 5/12/2018 | 9:04:26 AM  | 23:20:00       | 25.1             |
| 142   | 5/12/2018 | 9:14:26 AM  | 23:30:00       | 25.2             |
| 143   | 5/12/2018 | 9:24:26 AM  | 23:40:00       | 25.1             |
| 144   | 5/12/2018 | 9:34:26 AM  | 23:50:00       | 24.9             |
| 145   | 5/12/2018 | 9:44:26 AM  | 1 Day 00:00:00 | 24.9             |
| 146   | 5/12/2018 | 9:54:26 AM  | 1 Day 00:10:00 | 25.2             |
| 147   | 5/12/2018 | 10:04:26 AM | 1 Day 00:20:00 | 25.1             |
| 148   | 5/12/2018 | 10:14:26 AM | 1 Day 00:30:00 | 25.0             |
| 149   | 5/12/2018 | 10:24:26 AM | 1 Day 00:40:00 | 24.9             |
| 150   | 5/12/2018 | 10:34:26 AM | 1 Day 00:50:00 | 24.9             |
| 151   | 5/12/2018 | 10:44:26 AM | 1 Day 01:00:00 | 25.2             |
| 152   | 5/12/2018 | 10:54:26 AM | 1 Day 01:10:00 | 25.1             |
| 153   | 5/12/2018 | 11:04:26 AM | 1 Day 01:20:00 | 24.9             |
| 154   | 5/12/2018 | 11:14:26 AM | 1 Day 01:30:00 | 24.9             |
| 155   | 5/12/2018 | 11:24:26 AM | 1 Day 01:40:00 | 25.0             |
| 156   | 5/12/2018 | 11:34:26 AM | 1 Day 01:50:00 | 25.1             |

LogTag ID 1000645053  
User ID TCLP (+0.0)  
First reading 5/11/2018 9:44:26 AM  
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Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
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| Index | Date      | Time        | Elapsed Time   | Readings<br>(°C) |
|-------|-----------|-------------|----------------|------------------|
| 157   | 5/12/2018 | 11:44:26 AM | 1 Day 02:00:00 | 25.1             |
| 158   | 5/12/2018 | 11:54:26 AM | 1 Day 02:10:00 | 24.9             |
| 159   | 5/12/2018 | 12:04:26 PM | 1 Day 02:20:00 | 24.9             |
| 160   | 5/12/2018 | 12:14:26 PM | 1 Day 02:30:00 | 25.1             |
| 161   | 5/12/2018 | 12:24:26 PM | 1 Day 02:40:00 | 25.1             |
| 162   | 5/12/2018 | 12:34:26 PM | 1 Day 02:50:00 | 25.0             |
| 163   | 5/12/2018 | 12:44:26 PM | 1 Day 03:00:00 | 24.9             |
| 164   | 5/12/2018 | 12:54:26 PM | 1 Day 03:10:00 | 24.9             |
| 165   | 5/12/2018 | 1:04:26 PM  | 1 Day 03:20:00 | 25.2             |
| 166   | 5/12/2018 | 1:14:26 PM  | 1 Day 03:30:00 | 25.2             |
| 167   | 5/12/2018 | 1:24:26 PM  | 1 Day 03:40:00 | 25.1             |
| 168   | 5/12/2018 | 1:34:26 PM  | 1 Day 03:50:00 | 25.0             |
| 169   | 5/12/2018 | 1:44:26 PM  | 1 Day 04:00:00 | 25.0             |
| 170   | 5/12/2018 | 1:54:26 PM  | 1 Day 04:10:00 | 25.2             |
| 171   | 5/12/2018 | 2:04:26 PM  | 1 Day 04:20:00 | 25.1             |
| 172   | 5/12/2018 | 2:14:26 PM  | 1 Day 04:30:00 | 25.1             |
| 173   | 5/12/2018 | 2:24:26 PM  | 1 Day 04:40:00 | 25.0             |
| 174   | 5/12/2018 | 2:34:26 PM  | 1 Day 04:50:00 | 25.1             |
| 175   | 5/12/2018 | 2:44:26 PM  | 1 Day 05:00:00 | 25.2             |
| 176   | 5/12/2018 | 2:54:26 PM  | 1 Day 05:10:00 | 25.2             |
| 177   | 5/12/2018 | 3:04:26 PM  | 1 Day 05:20:00 | 25.1             |
| 178   | 5/12/2018 | 3:14:26 PM  | 1 Day 05:30:00 | 25.0             |
| 179   | 5/12/2018 | 3:24:26 PM  | 1 Day 05:40:00 | 25.1             |
| 180   | 5/12/2018 | 3:34:26 PM  | 1 Day 05:50:00 | 25.2             |
| 181   | 5/12/2018 | 3:44:26 PM  | 1 Day 06:00:00 | 25.1             |
| 182   | 5/12/2018 | 3:54:26 PM  | 1 Day 06:10:00 | 25.1             |
| 183   | 5/12/2018 | 4:04:26 PM  | 1 Day 06:20:00 | 25.0             |
| 184   | 5/12/2018 | 4:14:26 PM  | 1 Day 06:30:00 | 25.2             |
| 185   | 5/12/2018 | 4:24:26 PM  | 1 Day 06:40:00 | 25.2             |
| 186   | 5/12/2018 | 4:34:26 PM  | 1 Day 06:50:00 | 25.1             |
| 187   | 5/12/2018 | 4:44:26 PM  | 1 Day 07:00:00 | 25.0             |
| 188   | 5/12/2018 | 4:54:26 PM  | 1 Day 07:10:00 | 25.0             |
| 189   | 5/12/2018 | 5:04:26 PM  | 1 Day 07:20:00 | 25.2             |
| 190   | 5/12/2018 | 5:14:26 PM  | 1 Day 07:30:00 | 25.2             |
| 191   | 5/12/2018 | 5:24:26 PM  | 1 Day 07:40:00 | 25.1             |
| 192   | 5/12/2018 | 5:34:26 PM  | 1 Day 07:50:00 | 25.0             |
| 193   | 5/12/2018 | 5:44:26 PM  | 1 Day 08:00:00 | 25.0             |
| 194   | 5/12/2018 | 5:54:26 PM  | 1 Day 08:10:00 | 25.2             |
| 195   | 5/12/2018 | 6:04:26 PM  | 1 Day 08:20:00 | 25.1             |

LogTag ID 1000645053  
 User ID TCLP (+0.0)  
 First reading 5/11/2018 9:44:26 AM  
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 Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
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| Index | Date      | Time        | Elapsed Time   | Readings<br>(°C) |
|-------|-----------|-------------|----------------|------------------|
| 196   | 5/12/2018 | 6:14:26 PM  | 1 Day 08:30:00 | 25.1             |
| 197   | 5/12/2018 | 6:24:26 PM  | 1 Day 08:40:00 | 25.0             |
| 198   | 5/12/2018 | 6:34:26 PM  | 1 Day 08:50:00 | 25.1             |
| 199   | 5/12/2018 | 6:44:26 PM  | 1 Day 09:00:00 | 25.2             |
| 200   | 5/12/2018 | 6:54:26 PM  | 1 Day 09:10:00 | 25.1             |
| 201   | 5/12/2018 | 7:04:26 PM  | 1 Day 09:20:00 | 25.0             |
| 202   | 5/12/2018 | 7:14:26 PM  | 1 Day 09:30:00 | 25.0             |
| 203   | 5/12/2018 | 7:24:26 PM  | 1 Day 09:40:00 | 25.2             |
| 204   | 5/12/2018 | 7:34:26 PM  | 1 Day 09:50:00 | 25.1             |
| 205   | 5/12/2018 | 7:44:26 PM  | 1 Day 10:00:00 | 25.0             |
| 206   | 5/12/2018 | 7:54:26 PM  | 1 Day 10:10:00 | 24.9             |
| 207   | 5/12/2018 | 8:04:26 PM  | 1 Day 10:20:00 | 25.0             |
| 208   | 5/12/2018 | 8:14:26 PM  | 1 Day 10:30:00 | 25.2             |
| 209   | 5/12/2018 | 8:24:26 PM  | 1 Day 10:40:00 | 25.1             |
| 210   | 5/12/2018 | 8:34:26 PM  | 1 Day 10:50:00 | 24.9             |
| 211   | 5/12/2018 | 8:44:26 PM  | 1 Day 11:00:00 | 24.9             |
| 212   | 5/12/2018 | 8:54:26 PM  | 1 Day 11:10:00 | 25.0             |
| 213   | 5/12/2018 | 9:04:26 PM  | 1 Day 11:20:00 | 25.1             |
| 214   | 5/12/2018 | 9:14:26 PM  | 1 Day 11:30:00 | 25.0             |
| 215   | 5/12/2018 | 9:24:26 PM  | 1 Day 11:40:00 | 24.9             |
| 216   | 5/12/2018 | 9:34:26 PM  | 1 Day 11:50:00 | 24.8             |
| 217   | 5/12/2018 | 9:44:26 PM  | 1 Day 12:00:00 | 25.1             |
| 218   | 5/12/2018 | 9:54:26 PM  | 1 Day 12:10:00 | 25.1             |
| 219   | 5/12/2018 | 10:04:26 PM | 1 Day 12:20:00 | 24.9             |
| 220   | 5/12/2018 | 10:14:26 PM | 1 Day 12:30:00 | 24.8             |
| 221   | 5/12/2018 | 10:24:26 PM | 1 Day 12:40:00 | 24.8             |
| 222   | 5/12/2018 | 10:34:26 PM | 1 Day 12:50:00 | 25.1             |
| 223   | 5/12/2018 | 10:44:26 PM | 1 Day 13:00:00 | 25.0             |
| 224   | 5/12/2018 | 10:54:26 PM | 1 Day 13:10:00 | 24.8             |
| 225   | 5/12/2018 | 11:04:26 PM | 1 Day 13:20:00 | 24.7             |
| 226   | 5/12/2018 | 11:14:26 PM | 1 Day 13:30:00 | 24.8             |
| 227   | 5/12/2018 | 11:24:26 PM | 1 Day 13:40:00 | 25.0             |
| 228   | 5/12/2018 | 11:34:26 PM | 1 Day 13:50:00 | 25.0             |
| 229   | 5/12/2018 | 11:44:26 PM | 1 Day 14:00:00 | 24.8             |
| 230   | 5/12/2018 | 11:54:26 PM | 1 Day 14:10:00 | 24.7             |
| 231   | 5/13/2018 | 12:04:26 AM | 1 Day 14:20:00 | 24.7             |
| 232   | 5/13/2018 | 12:14:26 AM | 1 Day 14:30:00 | 24.9             |
| 233   | 5/13/2018 | 12:24:26 AM | 1 Day 14:40:00 | 25.0             |
| 234   | 5/13/2018 | 12:34:26 AM | 1 Day 14:50:00 | 24.8             |

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User ID TCLP (+0.0)  
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| Index | Date      | Time        | Elapsed Time   | Readings<br>(°C) |
|-------|-----------|-------------|----------------|------------------|
| 235   | 5/13/2018 | 12:44:26 AM | 1 Day 15:00:00 | 24.7             |
| 236   | 5/13/2018 | 12:54:26 AM | 1 Day 15:10:00 | 24.7             |
| 237   | 5/13/2018 | 1:04:26 AM  | 1 Day 15:20:00 | 24.9             |
| 238   | 5/13/2018 | 1:14:26 AM  | 1 Day 15:30:00 | 25.1             |
| 239   | 5/13/2018 | 1:24:26 AM  | 1 Day 15:40:00 | 25.1             |
| 240   | 5/13/2018 | 1:34:26 AM  | 1 Day 15:50:00 | 24.9             |
| 241   | 5/13/2018 | 1:44:26 AM  | 1 Day 16:00:00 | 24.7             |
| 242   | 5/13/2018 | 1:54:26 AM  | 1 Day 16:10:00 | 24.6             |
| 243   | 5/13/2018 | 2:04:26 AM  | 1 Day 16:20:00 | 24.8             |
| 244   | 5/13/2018 | 2:14:26 AM  | 1 Day 16:30:00 | 25.0             |
| 245   | 5/13/2018 | 2:24:26 AM  | 1 Day 16:40:00 | 25.1             |
| 246   | 5/13/2018 | 2:34:26 AM  | 1 Day 16:50:00 | 24.9             |
| 247   | 5/13/2018 | 2:44:26 AM  | 1 Day 17:00:00 | 24.7             |
| 248   | 5/13/2018 | 2:54:26 AM  | 1 Day 17:10:00 | 24.5             |
| 249   | 5/13/2018 | 3:04:26 AM  | 1 Day 17:20:00 | 24.8             |
| 250   | 5/13/2018 | 3:14:26 AM  | 1 Day 17:30:00 | 24.9             |
| 251   | 5/13/2018 | 3:24:26 AM  | 1 Day 17:40:00 | 25.1             |
| 252   | 5/13/2018 | 3:34:26 AM  | 1 Day 17:50:00 | 24.9             |
| 253   | 5/13/2018 | 3:44:26 AM  | 1 Day 18:00:00 | 24.7             |
| 254   | 5/13/2018 | 3:54:26 AM  | 1 Day 18:10:00 | 24.5             |
| 255   | 5/13/2018 | 4:04:26 AM  | 1 Day 18:20:00 | 24.6             |
| 256   | 5/13/2018 | 4:14:26 AM  | 1 Day 18:30:00 | 24.9             |
| 257   | 5/13/2018 | 4:24:26 AM  | 1 Day 18:40:00 | 25.0             |
| 258   | 5/13/2018 | 4:34:26 AM  | 1 Day 18:50:00 | 25.1             |
| 259   | 5/13/2018 | 4:44:26 AM  | 1 Day 19:00:00 | 24.9             |
| 260   | 5/13/2018 | 4:54:26 AM  | 1 Day 19:10:00 | 24.7             |
| 261   | 5/13/2018 | 5:04:26 AM  | 1 Day 19:20:00 | 24.5             |
| 262   | 5/13/2018 | 5:14:26 AM  | 1 Day 19:30:00 | 24.7             |
| 263   | 5/13/2018 | 5:24:26 AM  | 1 Day 19:40:00 | 24.8             |
| 264   | 5/13/2018 | 5:34:26 AM  | 1 Day 19:50:00 | 25.0             |
| 265   | 5/13/2018 | 5:44:26 AM  | 1 Day 20:00:00 | 25.1             |
| 266   | 5/13/2018 | 5:54:26 AM  | 1 Day 20:10:00 | 25.1             |
| 267   | 5/13/2018 | 6:04:26 AM  | 1 Day 20:20:00 | 25.1             |
| 268   | 5/13/2018 | 6:14:26 AM  | 1 Day 20:30:00 | 24.8             |
| 269   | 5/13/2018 | 6:24:26 AM  | 1 Day 20:40:00 | 24.5             |
| 270   | 5/13/2018 | 6:34:26 AM  | 1 Day 20:50:00 | 24.5             |
| 271   | 5/13/2018 | 6:44:26 AM  | 1 Day 21:00:00 | 24.7             |
| 272   | 5/13/2018 | 6:54:26 AM  | 1 Day 21:10:00 | 24.9             |
| 273   | 5/13/2018 | 7:04:26 AM  | 1 Day 21:20:00 | 25.0             |

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| Index | Date      | Time        | Elapsed Time    | Readings (°C) |
|-------|-----------|-------------|-----------------|---------------|
| 274   | 5/13/2018 | 7:14:26 AM  | 1 Day 21:30:00  | 25.1          |
| 275   | 5/13/2018 | 7:24:26 AM  | 1 Day 21:40:00  | 25.1          |
| 276   | 5/13/2018 | 7:34:26 AM  | 1 Day 21:50:00  | 24.8          |
| 277   | 5/13/2018 | 7:44:26 AM  | 1 Day 22:00:00  | 24.5          |
| 278   | 5/13/2018 | 7:54:26 AM  | 1 Day 22:10:00  | 24.5          |
| 279   | 5/13/2018 | 8:04:26 AM  | 1 Day 22:20:00  | 24.7          |
| 280   | 5/13/2018 | 8:14:26 AM  | 1 Day 22:30:00  | 24.8          |
| 281   | 5/13/2018 | 8:24:26 AM  | 1 Day 22:40:00  | 24.9          |
| 282   | 5/13/2018 | 8:34:26 AM  | 1 Day 22:50:00  | 25.0          |
| 283   | 5/13/2018 | 8:44:26 AM  | 1 Day 23:00:00  | 25.1          |
| 284   | 5/13/2018 | 8:54:26 AM  | 1 Day 23:10:00  | 25.1          |
| 285   | 5/13/2018 | 9:04:26 AM  | 1 Day 23:20:00  | 25.1          |
| 286   | 5/13/2018 | 9:14:26 AM  | 1 Day 23:30:00  | 25.2          |
| 287   | 5/13/2018 | 9:24:26 AM  | 1 Day 23:40:00  | 25.2          |
| 288   | 5/13/2018 | 9:34:26 AM  | 1 Day 23:50:00  | 25.2          |
| 289   | 5/13/2018 | 9:44:26 AM  | 2 Days 00:00:00 | 25.1          |
| 290   | 5/13/2018 | 9:54:26 AM  | 2 Days 00:10:00 | 24.7          |
| 291   | 5/13/2018 | 10:04:26 AM | 2 Days 00:20:00 | 24.7          |
| 292   | 5/13/2018 | 10:14:26 AM | 2 Days 00:30:00 | 24.8          |
| 293   | 5/13/2018 | 10:24:26 AM | 2 Days 00:40:00 | 24.9          |
| 294   | 5/13/2018 | 10:34:26 AM | 2 Days 00:50:00 | 25.0          |
| 295   | 5/13/2018 | 10:44:26 AM | 2 Days 01:00:00 | 25.1          |
| 296   | 5/13/2018 | 10:54:26 AM | 2 Days 01:10:00 | 25.2          |
| 297   | 5/13/2018 | 11:04:26 AM | 2 Days 01:20:00 | 25.2          |
| 298   | 5/13/2018 | 11:14:26 AM | 2 Days 01:30:00 | 25.0          |
| 299   | 5/13/2018 | 11:24:26 AM | 2 Days 01:40:00 | 24.7          |
| 300   | 5/13/2018 | 11:34:26 AM | 2 Days 01:50:00 | 24.5          |
| 301   | 5/13/2018 | 11:44:26 AM | 2 Days 02:00:00 | 24.6          |
| 302   | 5/13/2018 | 11:54:26 AM | 2 Days 02:10:00 | 24.8          |
| 303   | 5/13/2018 | 12:04:26 PM | 2 Days 02:20:00 | 24.9          |
| 304   | 5/13/2018 | 12:14:26 PM | 2 Days 02:30:00 | 25.0          |
| 305   | 5/13/2018 | 12:24:26 PM | 2 Days 02:40:00 | 25.1          |
| 306   | 5/13/2018 | 12:34:26 PM | 2 Days 02:50:00 | 25.1          |
| 307   | 5/13/2018 | 12:44:26 PM | 2 Days 03:00:00 | 25.2          |
| 308   | 5/13/2018 | 12:54:26 PM | 2 Days 03:10:00 | 24.9          |
| 309   | 5/13/2018 | 1:04:26 PM  | 2 Days 03:20:00 | 24.7          |
| 310   | 5/13/2018 | 1:14:26 PM  | 2 Days 03:30:00 | 24.5          |
| 311   | 5/13/2018 | 1:24:26 PM  | 2 Days 03:40:00 | 24.7          |
| 312   | 5/13/2018 | 1:34:26 PM  | 2 Days 03:50:00 | 24.9          |

LogTag ID 1000645053  
 User ID TCLP (+0.0)  
 First reading 5/11/2018 9:44:26 AM  
 Last reading 5/14/2018 1:34:26 PM  
 Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
 File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time       | Elapsed Time    | Readings<br>(°C) |
|-------|-----------|------------|-----------------|------------------|
| 313   | 5/13/2018 | 1:44:26 PM | 2 Days 04:00:00 | 25.0             |
| 314   | 5/13/2018 | 1:54:26 PM | 2 Days 04:10:00 | 25.1             |
| 315   | 5/13/2018 | 2:04:26 PM | 2 Days 04:20:00 | 24.9             |
| 316   | 5/13/2018 | 2:14:26 PM | 2 Days 04:30:00 | 24.7             |
| 317   | 5/13/2018 | 2:24:26 PM | 2 Days 04:40:00 | 24.5             |
| 318   | 5/13/2018 | 2:34:26 PM | 2 Days 04:50:00 | 24.7             |
| 319   | 5/13/2018 | 2:44:26 PM | 2 Days 05:00:00 | 24.9             |
| 320   | 5/13/2018 | 2:54:26 PM | 2 Days 05:10:00 | 25.0             |
| 321   | 5/13/2018 | 3:04:26 PM | 2 Days 05:20:00 | 25.1             |
| 322   | 5/13/2018 | 3:14:26 PM | 2 Days 05:30:00 | 24.8             |
| 323   | 5/13/2018 | 3:24:26 PM | 2 Days 05:40:00 | 24.6             |
| 324   | 5/13/2018 | 3:34:26 PM | 2 Days 05:50:00 | 24.5             |
| 325   | 5/13/2018 | 3:44:26 PM | 2 Days 06:00:00 | 24.8             |
| 326   | 5/13/2018 | 3:54:26 PM | 2 Days 06:10:00 | 25.0             |
| 327   | 5/13/2018 | 4:04:26 PM | 2 Days 06:20:00 | 25.1             |
| 328   | 5/13/2018 | 4:14:26 PM | 2 Days 06:30:00 | 24.9             |
| 329   | 5/13/2018 | 4:24:26 PM | 2 Days 06:40:00 | 24.7             |
| 330   | 5/13/2018 | 4:34:26 PM | 2 Days 06:50:00 | 24.5             |
| 331   | 5/13/2018 | 4:44:26 PM | 2 Days 07:00:00 | 24.7             |
| 332   | 5/13/2018 | 4:54:26 PM | 2 Days 07:10:00 | 24.9             |
| 333   | 5/13/2018 | 5:04:26 PM | 2 Days 07:20:00 | 25.1             |
| 334   | 5/13/2018 | 5:14:26 PM | 2 Days 07:30:00 | 24.9             |
| 335   | 5/13/2018 | 5:24:26 PM | 2 Days 07:40:00 | 24.7             |
| 336   | 5/13/2018 | 5:34:26 PM | 2 Days 07:50:00 | 24.5             |
| 337   | 5/13/2018 | 5:44:26 PM | 2 Days 08:00:00 | 24.7             |
| 338   | 5/13/2018 | 5:54:26 PM | 2 Days 08:10:00 | 24.9             |
| 339   | 5/13/2018 | 6:04:26 PM | 2 Days 08:20:00 | 25.1             |
| 340   | 5/13/2018 | 6:14:26 PM | 2 Days 08:30:00 | 25.1             |
| 341   | 5/13/2018 | 6:24:26 PM | 2 Days 08:40:00 | 24.8             |
| 342   | 5/13/2018 | 6:34:26 PM | 2 Days 08:50:00 | 24.7             |
| 343   | 5/13/2018 | 6:44:26 PM | 2 Days 09:00:00 | 24.5             |
| 344   | 5/13/2018 | 6:54:26 PM | 2 Days 09:10:00 | 24.8             |
| 345   | 5/13/2018 | 7:04:26 PM | 2 Days 09:20:00 | 25.0             |
| 346   | 5/13/2018 | 7:14:26 PM | 2 Days 09:30:00 | 25.0             |
| 347   | 5/13/2018 | 7:24:26 PM | 2 Days 09:40:00 | 24.8             |
| 348   | 5/13/2018 | 7:34:26 PM | 2 Days 09:50:00 | 24.6             |
| 349   | 5/13/2018 | 7:44:26 PM | 2 Days 10:00:00 | 24.5             |
| 350   | 5/13/2018 | 7:54:26 PM | 2 Days 10:10:00 | 24.8             |
| 351   | 5/13/2018 | 8:04:26 PM | 2 Days 10:20:00 | 24.9             |

LogTag ID 1000645053  
 User ID TCLP (+0.0)  
 First reading 5/11/2018 9:44:26 AM  
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 Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
 File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time        | Elapsed Time    | Readings<br>(°C) |
|-------|-----------|-------------|-----------------|------------------|
| 352   | 5/13/2018 | 8:14:26 PM  | 2 Days 10:30:00 | 25.1             |
| 353   | 5/13/2018 | 8:24:26 PM  | 2 Days 10:40:00 | 25.0             |
| 354   | 5/13/2018 | 8:34:26 PM  | 2 Days 10:50:00 | 24.8             |
| 355   | 5/13/2018 | 8:44:26 PM  | 2 Days 11:00:00 | 24.5             |
| 356   | 5/13/2018 | 8:54:26 PM  | 2 Days 11:10:00 | 24.5             |
| 357   | 5/13/2018 | 9:04:26 PM  | 2 Days 11:20:00 | 24.8             |
| 358   | 5/13/2018 | 9:14:26 PM  | 2 Days 11:30:00 | 24.9             |
| 359   | 5/13/2018 | 9:24:26 PM  | 2 Days 11:40:00 | 25.1             |
| 360   | 5/13/2018 | 9:34:26 PM  | 2 Days 11:50:00 | 25.1             |
| 361   | 5/13/2018 | 9:44:26 PM  | 2 Days 12:00:00 | 24.9             |
| 362   | 5/13/2018 | 9:54:26 PM  | 2 Days 12:10:00 | 24.7             |
| 363   | 5/13/2018 | 10:04:26 PM | 2 Days 12:20:00 | 24.5             |
| 364   | 5/13/2018 | 10:14:26 PM | 2 Days 12:30:00 | 24.7             |
| 365   | 5/13/2018 | 10:24:26 PM | 2 Days 12:40:00 | 24.9             |
| 366   | 5/13/2018 | 10:34:26 PM | 2 Days 12:50:00 | 25.0             |
| 367   | 5/13/2018 | 10:44:26 PM | 2 Days 13:00:00 | 25.1             |
| 368   | 5/13/2018 | 10:54:26 PM | 2 Days 13:10:00 | 24.9             |
| 369   | 5/13/2018 | 11:04:26 PM | 2 Days 13:20:00 | 24.7             |
| 370   | 5/13/2018 | 11:14:26 PM | 2 Days 13:30:00 | 24.5             |
| 371   | 5/13/2018 | 11:24:26 PM | 2 Days 13:40:00 | 24.5             |
| 372   | 5/13/2018 | 11:34:26 PM | 2 Days 13:50:00 | 24.8             |
| 373   | 5/13/2018 | 11:44:26 PM | 2 Days 14:00:00 | 24.9             |
| 374   | 5/13/2018 | 11:54:26 PM | 2 Days 14:10:00 | 25.0             |
| 375   | 5/14/2018 | 12:04:26 AM | 2 Days 14:20:00 | 25.1             |
| 376   | 5/14/2018 | 12:14:26 AM | 2 Days 14:30:00 | 25.1             |
| 377   | 5/14/2018 | 12:24:26 AM | 2 Days 14:40:00 | 24.8             |
| 378   | 5/14/2018 | 12:34:26 AM | 2 Days 14:50:00 | 24.5             |
| 379   | 5/14/2018 | 12:44:26 AM | 2 Days 15:00:00 | 24.4             |
| 380   | 5/14/2018 | 12:54:26 AM | 2 Days 15:10:00 | 24.7             |
| 381   | 5/14/2018 | 1:04:26 AM  | 2 Days 15:20:00 | 24.8             |
| 382   | 5/14/2018 | 1:14:26 AM  | 2 Days 15:30:00 | 24.9             |
| 383   | 5/14/2018 | 1:24:26 AM  | 2 Days 15:40:00 | 25.0             |
| 384   | 5/14/2018 | 1:34:26 AM  | 2 Days 15:50:00 | 25.1             |
| 385   | 5/14/2018 | 1:44:26 AM  | 2 Days 16:00:00 | 25.1             |
| 386   | 5/14/2018 | 1:54:26 AM  | 2 Days 16:10:00 | 25.1             |
| 387   | 5/14/2018 | 2:04:26 AM  | 2 Days 16:20:00 | 25.2             |
| 388   | 5/14/2018 | 2:14:26 AM  | 2 Days 16:30:00 | 25.1             |
| 389   | 5/14/2018 | 2:24:26 AM  | 2 Days 16:40:00 | 24.7             |
| 390   | 5/14/2018 | 2:34:26 AM  | 2 Days 16:50:00 | 24.4             |

LogTag ID 1000645053  
 User ID TCLP (+0.0)  
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 Last reading 5/14/2018 1:34:26 PM  
 Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
 File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time       | Elapsed Time    | Readings<br>(°C) |
|-------|-----------|------------|-----------------|------------------|
| 391   | 5/14/2018 | 2:44:26 AM | 2 Days 17:00:00 | 24.4             |
| 392   | 5/14/2018 | 2:54:26 AM | 2 Days 17:10:00 | 24.7             |
| 393   | 5/14/2018 | 3:04:26 AM | 2 Days 17:20:00 | 24.8             |
| 394   | 5/14/2018 | 3:14:26 AM | 2 Days 17:30:00 | 24.9             |
| 395   | 5/14/2018 | 3:24:26 AM | 2 Days 17:40:00 | 25.0             |
| 396   | 5/14/2018 | 3:34:26 AM | 2 Days 17:50:00 | 25.0             |
| 397   | 5/14/2018 | 3:44:26 AM | 2 Days 18:00:00 | 25.1             |
| 398   | 5/14/2018 | 3:54:26 AM | 2 Days 18:10:00 | 25.1             |
| 399   | 5/14/2018 | 4:04:26 AM | 2 Days 18:20:00 | 25.1             |
| 400   | 5/14/2018 | 4:14:26 AM | 2 Days 18:30:00 | 25.1             |
| 401   | 5/14/2018 | 4:24:26 AM | 2 Days 18:40:00 | 25.1             |
| 402   | 5/14/2018 | 4:34:26 AM | 2 Days 18:50:00 | 25.1             |
| 403   | 5/14/2018 | 4:44:26 AM | 2 Days 19:00:00 | 25.1             |
| 404   | 5/14/2018 | 4:54:26 AM | 2 Days 19:10:00 | 25.1             |
| 405   | 5/14/2018 | 5:04:26 AM | 2 Days 19:20:00 | 25.1             |
| 406   | 5/14/2018 | 5:14:26 AM | 2 Days 19:30:00 | 25.1             |
| 407   | 5/14/2018 | 5:24:26 AM | 2 Days 19:40:00 | 25.1             |
| 408   | 5/14/2018 | 5:34:26 AM | 2 Days 19:50:00 | 25.1             |
| 409   | 5/14/2018 | 5:44:26 AM | 2 Days 20:00:00 | 25.2             |
| 410   | 5/14/2018 | 5:54:26 AM | 2 Days 20:10:00 | 25.2             |
| 411   | 5/14/2018 | 6:04:26 AM | 2 Days 20:20:00 | 25.2             |
| 412   | 5/14/2018 | 6:14:26 AM | 2 Days 20:30:00 | 25.2             |
| 413   | 5/14/2018 | 6:24:26 AM | 2 Days 20:40:00 | 25.2             |
| 414   | 5/14/2018 | 6:34:26 AM | 2 Days 20:50:00 | 25.2             |
| 415   | 5/14/2018 | 6:44:26 AM | 2 Days 21:00:00 | 25.2             |
| 416   | 5/14/2018 | 6:54:26 AM | 2 Days 21:10:00 | 25.2             |
| 417   | 5/14/2018 | 7:04:26 AM | 2 Days 21:20:00 | 25.2             |
| 418   | 5/14/2018 | 7:14:26 AM | 2 Days 21:30:00 | 25.2             |
| 419   | 5/14/2018 | 7:24:26 AM | 2 Days 21:40:00 | 25.2             |
| 420   | 5/14/2018 | 7:34:26 AM | 2 Days 21:50:00 | 25.2             |
| 421   | 5/14/2018 | 7:44:26 AM | 2 Days 22:00:00 | 25.2             |
| 422   | 5/14/2018 | 7:54:26 AM | 2 Days 22:10:00 | 25.2             |
| 423   | 5/14/2018 | 8:04:26 AM | 2 Days 22:20:00 | 25.2             |
| 424   | 5/14/2018 | 8:14:26 AM | 2 Days 22:30:00 | 25.2             |
| 425   | 5/14/2018 | 8:24:26 AM | 2 Days 22:40:00 | 25.2             |
| 426   | 5/14/2018 | 8:34:26 AM | 2 Days 22:50:00 | 25.2             |
| 427   | 5/14/2018 | 8:44:26 AM | 2 Days 23:00:00 | 25.1             |
| 428   | 5/14/2018 | 8:54:26 AM | 2 Days 23:10:00 | 24.8             |
| 429   | 5/14/2018 | 9:04:26 AM | 2 Days 23:20:00 | 24.5             |



LogTag ID 1000645053  
User ID TCLP (+0.0)  
First reading 5/11/2018 9:44:26 AM  
Last reading 5/14/2018 1:34:26 PM  
Name of file 1000645053 Started 5-11-2018, Finished 5-14-2018.ltd  
File location G:\QA\Delete\Lab LogTag Data\2017\

| Index | Date      | Time        | Elapsed Time    | Readings<br>(°C) |
|-------|-----------|-------------|-----------------|------------------|
| 430   | 5/14/2018 | 9:14:26 AM  | 2 Days 23:30:00 | 24.5             |
| 431   | 5/14/2018 | 9:24:26 AM  | 2 Days 23:40:00 | 24.7             |
| 432   | 5/14/2018 | 9:34:26 AM  | 2 Days 23:50:00 | 24.9             |
| 433   | 5/14/2018 | 9:44:26 AM  | 3 Days 00:00:00 | 25.0             |
| 434   | 5/14/2018 | 9:54:26 AM  | 3 Days 00:10:00 | 25.1             |
| 435   | 5/14/2018 | 10:04:26 AM | 3 Days 00:20:00 | 25.1             |
| 436   | 5/14/2018 | 10:14:26 AM | 3 Days 00:30:00 | 25.2             |
| 437   | 5/14/2018 | 10:24:26 AM | 3 Days 00:40:00 | 25.2             |
| 438   | 5/14/2018 | 10:34:26 AM | 3 Days 00:50:00 | 25.0             |
| 439   | 5/14/2018 | 10:44:26 AM | 3 Days 01:00:00 | 24.7             |
| 440   | 5/14/2018 | 10:54:26 AM | 3 Days 01:10:00 | 24.5             |
| 441   | 5/14/2018 | 11:04:26 AM | 3 Days 01:20:00 | 24.6             |
| 442   | 5/14/2018 | 11:14:26 AM | 3 Days 01:30:00 | 24.8             |
| 443   | 5/14/2018 | 11:24:26 AM | 3 Days 01:40:00 | 25.0             |
| 444   | 5/14/2018 | 11:34:26 AM | 3 Days 01:50:00 | 25.1             |
| 445   | 5/14/2018 | 11:44:26 AM | 3 Days 02:00:00 | 25.2             |
| 446   | 5/14/2018 | 11:54:26 AM | 3 Days 02:10:00 | 24.9             |
| 447   | 5/14/2018 | 12:04:26 PM | 3 Days 02:20:00 | 24.7             |
| 448   | 5/14/2018 | 12:14:26 PM | 3 Days 02:30:00 | 24.5             |
| 449   | 5/14/2018 | 12:24:26 PM | 3 Days 02:40:00 | 24.7             |
| 450   | 5/14/2018 | 12:34:26 PM | 3 Days 02:50:00 | 24.9             |
| 451   | 5/14/2018 | 12:44:26 PM | 3 Days 03:00:00 | 25.1             |
| 452   | 5/14/2018 | 12:54:26 PM | 3 Days 03:10:00 | 25.0             |
| 453   | 5/14/2018 | 1:04:26 PM  | 3 Days 03:20:00 | 24.8             |
| 454   | 5/14/2018 | 1:14:26 PM  | 3 Days 03:30:00 | 24.5             |
| 455   | 5/14/2018 | 1:24:26 PM  | 3 Days 03:40:00 | 24.7             |
| 456   | 5/14/2018 | 1:34:26 PM  | 3 Days 03:50:00 | 24.8             |

|                                                                                                                                                                                                          |         |                           |         |                                         |         |         |         |         |         |         |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------|---------|-----------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| Analyst: DB                                                                                                                                                                                              |         | DV-IP-0012                |         | <br>THE LEADER IN ENVIRONMENTAL TESTING |         |         |         |         |         |         |         |
| Date: 5.16.18                                                                                                                                                                                            |         | TCLP/SPLP Worksheet No. 1 |         |                                         |         |         |         |         |         |         |         |
| Sample Description                                                                                                                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| Login No.                                                                                                                                                                                                | 109561  | 320-39023                 | LB      |                                         |         |         |         |         |         |         |         |
| Sample No.                                                                                                                                                                                               | 1       | 57                        |         |                                         |         |         |         |         |         |         |         |
| <b>A. Sample Description</b>                                                                                                                                                                             |         |                           |         |                                         |         |         |         |         |         |         |         |
| Number of phases                                                                                                                                                                                         | 1       | 1                         |         |                                         |         |         |         |         |         |         |         |
| 1. Solid                                                                                                                                                                                                 | X       | X                         |         |                                         |         |         |         |         |         |         |         |
| 2. Liquid                                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. lighter than water                                                                                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. water                                                                                                                                                                                                 |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. heavier than water                                                                                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| <b>B. Percent Solid Phase</b>                                                                                                                                                                            |         |                           |         |                                         |         |         |         |         |         |         |         |
| Balance ID                                                                                                                                                                                               |         |                           |         |                                         |         |         |         |         |         |         |         |
| 1. Weight of filter (g)                                                                                                                                                                                  |         |                           |         |                                         |         |         |         |         |         |         |         |
| 2. Weight of subsample                                                                                                                                                                                   |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. gross weight (g)                                                                                                                                                                                      |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. tare weight (g)                                                                                                                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. net weight (g)                                                                                                                                                                                        | 0.00    | 0.00                      | 0.00    | 0.00                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| 3. Weight of filtrate                                                                                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. gross weight (g)                                                                                                                                                                                      |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. tare weight (g)                                                                                                                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. net weight (g)                                                                                                                                                                                        | 0.00    | 0.00                      | 0.00    | 0.00                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| d. density of filtrate (g/mL)                                                                                                                                                                            |         |                           |         |                                         |         |         |         |         |         |         |         |
| 4. Total weight wet solids (g)                                                                                                                                                                           | 0.00    | 0.00                      | 0.00    | 0.00                                    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Weight percent solids (wet) (%)                                                                                                                                                                       | #DIV/0! | #DIV/0!                   | #DIV/0! | #DIV/0!                                 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Weight percent solids (dry)                                                                                                                                                                           |         |                           |         |                                         |         |         |         |         |         |         |         |
| a. gross dry weight 1 (g)                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| b. gross dry weight 2 (g)                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| c. percent dry solids (%)                                                                                                                                                                                |         |                           |         |                                         |         |         |         |         |         |         |         |
| d. Oven Temp (observed) (°C)                                                                                                                                                                             |         |                           |         |                                         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                                                                                                                                                                            | 0       |                           |         |                                         |         |         |         |         |         |         |         |
| Oven Temp Actual (°C)                                                                                                                                                                                    | 0       | 0                         | 0       | 0                                       | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| 7. Vol. of initial aqueous filtrate (mL)                                                                                                                                                                 | #DIV/0! | #DIV/0!                   | #DIV/0! | #DIV/0!                                 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Vol. of initial organic filtrate (mL)                                                                                                                                                                 |         |                           |         |                                         |         |         |         |         |         |         |         |
| <b>Comments:</b>                                                                                                                                                                                         |         |                           |         |                                         |         |         |         |         |         |         |         |
| $(\text{Weight percent dry solids, B.6.c}) = 100 \times \frac{(\text{Gross dry weight 2 or 1, B.6.b or B.6.a if B.6.a is blank}) - (\text{Weight of filter, B.1})}{(\text{Weight of subsample, B.2.c})}$ |         |                           |         |                                         |         |         |         |         |         |         |         |
| (Net Weight of Subsample, B.2.c) = (gross weight, B.2.a) - (tare weight, B.2.b)                                                                                                                          |         |                           |         |                                         |         |         |         |         |         |         |         |
| (Net Weight of Filtrate, B.3.c) = (gross weight, B.3.a) - (tare weight, B.3.b)                                                                                                                           |         |                           |         |                                         |         |         |         |         |         |         |         |
| (Total weight wet solids, B.4) = (Weight subsample, B.2.c) - (Weight filtrate, B.3.c)                                                                                                                    |         |                           |         |                                         |         |         |         |         |         |         |         |
| $(\text{Vol of initial filtrate, B.7}) = (\text{Weight of filtrate, B.3.c}) / (\text{Density of filtrate, B.3.d})$                                                                                       |         |                           |         |                                         |         |         |         |         |         |         |         |
| (Weight percent wet solids, B.5.) = $100 \times (\text{Total weight wet solids, B.4.}) / (\text{Weight of subsample, B.2.c.})$                                                                           |         |                           |         |                                         |         |         |         |         |         |         |         |

Analyst: DB

**DV-IP-0012**  
**TCLP Worksheet No. 2**  
**Selection of Leach Fluid**



Login No. 109561 320-39023 LB

Sample No. 1 57

**C. Leach Fluid Determination-** Does not apply to determination of volatile organic components or SPLP.

|                                                     |            |              |   |   |   |   |   |   |   |   |   |
|-----------------------------------------------------|------------|--------------|---|---|---|---|---|---|---|---|---|
| 1. Particle size reduction? (<1mm) Yes/No           | N          | N            |   |   |   |   |   |   |   |   |   |
| If yes, write NCM describing how.                   |            |              |   |   |   |   |   |   |   |   |   |
| 2. Balance ID                                       | 24950431   | 24950431     |   |   |   |   |   |   |   |   |   |
| 3. Sample weight, 5.0 +/- 0.1g                      | 5          | 5.03         |   |   |   |   |   |   |   |   |   |
| 4. Add 96.5 (+/- 2% or 94.57mL to 98.43mL)          |            |              |   |   |   |   |   |   |   |   |   |
| a. Pipette ID or Grad Cylinder ID                   | TCLP BT    | TCLP BT      |   |   |   |   |   |   |   |   |   |
| 5. Initial pH (after 5 min. mixing time)            |            |              |   |   |   |   |   |   |   |   |   |
| a. Start Time for Mixing                            | 2:20       | 2:28         |   |   |   |   |   |   |   |   |   |
| b. Stop Time for Mixing                             | 2:25       | 2:33         |   |   |   |   |   |   |   |   |   |
| c. pH reading after mixing                          | 10.91      | 10.01        |   |   |   |   |   |   |   |   |   |
| 6. If pH > 5.0, then add 3.5 mL 1N HCL & mark "X"   | X          | X            |   |   |   |   |   |   |   |   |   |
| a. HCL Lot# used                                    | 1N HCL 001 | 1N HCL 00037 |   |   |   |   |   |   |   |   |   |
| b. Pipette ID                                       | TCLP#2     | TCLP#2       |   |   |   |   |   |   |   |   |   |
| 7. Secondary pH (after 10min at 50C to 55C)         |            |              |   |   |   |   |   |   |   |   |   |
| a. Thermometer ID                                   |            |              |   |   |   |   |   |   |   |   |   |
| Termometer Correction Factor                        |            |              |   |   |   |   |   |   |   |   |   |
| b. Start Time                                       | 2:50       | 2:50         |   |   |   |   |   |   |   |   |   |
| c. Start Temperature (Observed)                     | 51         | 51           |   |   |   |   |   |   |   |   |   |
| Start Temperature (Actual)                          | 51         | 51           | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| d. Finish Time                                      | 3:01       | 3:01         |   |   |   |   |   |   |   |   |   |
| e. Finish Temperature (Observed)                    | 50         | 50           |   |   |   |   |   |   |   |   |   |
| Finish Temperature (Actual)                         | 50         | 50           | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| f. pH reading after heating (temperature corrected) | 1.52       | 1.73         |   |   |   |   |   |   |   |   |   |

**D. Selection of Leach Fluid**

|                                                                                    |         |         |  |  |  |  |  |  |  |  |  |
|------------------------------------------------------------------------------------|---------|---------|--|--|--|--|--|--|--|--|--|
| 1. If pH from C.5. or C.7.f. is <5.0 use Leach Fluid #1                            | Fluid 1 | Fluid 1 |  |  |  |  |  |  |  |  |  |
| 2. If pH from C.7.f is > 5.0, use Leach Fluid #2                                   |         |         |  |  |  |  |  |  |  |  |  |
| 3. SPLP Fluid 1: Soils- East of the Mississippi River; Wastewaters; or Wastewaters |         |         |  |  |  |  |  |  |  |  |  |
| 4. SPLP Fluid 2: Soils- West of Mississippi River                                  |         |         |  |  |  |  |  |  |  |  |  |
| 5. SPLP Fluid 3: If VOCs or Cyanide containing wastes.                             |         |         |  |  |  |  |  |  |  |  |  |
| 6. X if filtrate and fluid are miscible                                            |         |         |  |  |  |  |  |  |  |  |  |

Analyst: DB

DV-IP-0012

## TCLP/SPLP Worksheet No. 3

## Bottle Leach Procedure for Metals and Semi-Volatile Organic Components

|            |        |           |    |  |  |  |  |  |  |  |
|------------|--------|-----------|----|--|--|--|--|--|--|--|
| Login No.  | 109561 | 320-39023 | LB |  |  |  |  |  |  |  |
| Sample No. | 1      | 57        |    |  |  |  |  |  |  |  |

**E. Determination of Sample Size**

|                                              |          |          |  |  |  |  |  |  |  |  |
|----------------------------------------------|----------|----------|--|--|--|--|--|--|--|--|
| 1. Particle size reduction? Yes/no           | N        | N        |  |  |  |  |  |  |  |  |
| If yes, write NCM describing how.            |          |          |  |  |  |  |  |  |  |  |
| 2. Balance ID                                | 24950431 | 24950431 |  |  |  |  |  |  |  |  |
| 3. Weight of wet solids after filtration (g) | 100.05   | 100.09   |  |  |  |  |  |  |  |  |

**F. Determination of Amount of Leach Fluid**

| Fluid Type from Wksht 2                | TCLP 1   | TCLP 1   | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
|----------------------------------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. TCLP Fluid 1 Lot #                  | T1_00248 | T1_00248 |         |         |         |         |         |         |         |         |
| 2. TCLP Fluid 2 Lot #                  |          |          |         |         |         |         |         |         |         |         |
| 3. SPLP 1 (East) Lot #                 |          |          |         |         |         |         |         |         |         |         |
| 4. SPLP 2 (West) Lot #                 |          |          |         |         |         |         |         |         |         |         |
| 5. pH of leach fluid                   | 4.96     | 4.96     | 4.96    |         |         |         |         |         |         |         |
| 6. Vol of Fluid = wet solids x 20 (mL) | 2001     | 2002     |         |         |         |         |         |         |         |         |

**G. Record of Leach** - leach period is 16 to 20 hours

|                                                          |               |               |               |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------------|---------------|---------------|---------|---------|---------|---------|---------|---------|---------|
| 1. Rotator checked to be rotating between 28 and 32 RPM? | Y             | Y             | Y             |         |         |         |         |         |         |         |
| 2. Leach start date and time                             | 5/16/18 16:32 | 5/16/18 16:32 | 5/16/18 16:32 |         |         |         |         |         |         |         |
| 3. Leach stop date and time                              | 5/17/18 8:35  | 5/17/18 8:35  | 5/17/18 8:35  |         |         |         |         |         |         |         |
| 4. Room temperature                                      |               |               |               |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            | 0.0           | 0.0           | 0.0           |         |         |         |         |         |         |         |
| a.Temp Min (Observed) (°C)                               | 22.6          | 22.6          | 22.6          |         |         |         |         |         |         |         |
| b.Temp Max (Observed) (°C)                               | 23.9          | 23.9          | 23.9          |         |         |         |         |         |         |         |
| c.Temp Min (Actual) (°C)                                 | 22.6          | 22.6          | 22.6          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d.Temp Max (Actual) (°C)                                 | 23.9          | 23.9          | 23.9          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 5. pH of leachate                                        | 8.84          | 4.95          | 4.93          |         |         |         |         |         |         |         |
| Was the sample multiphasic?                              | #DIV/0!       | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Volume of leachate (mL)                               |               |               |               |         |         |         |         |         |         |         |
| a. Oil recovered from leachate (mL)                      |               |               |               |         |         |         |         |         |         |         |
| 7. Volume of initial filtrate for recombination (mL)     | #DIV/0!       | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Combined initial filtrate + leachate (mL)             | #DIV/0!       | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| COMMENTS:                                                |               |               |               |         |         |         |         |         |         |         |

(Volume of Fluid, F.4) = (Weight of wet solids, E.3) X 20

$$(\text{Vol. of Initial Filtrate for Recombination, G.7}) = \frac{(\text{Solids Leached, E.3})}{(\text{Tot. Wet Solids, B.4})} \times \frac{(\text{Leachate Recovered, G.6})}{(\text{Fluid Added, F.6})} \times (\text{Initial Filtrate, B.7})$$

(Vol. of Combined Filtrate and Leachate, G.8) = (Vol of Leachate, G.6) + (Vol of Filtrate, G.7)

Analyst: DB

**DV-IP-0012**  
**TCLP/SPLP Worksheet No. 4**  
**ZHE Leach**



|            |        |           |    |  |  |  |  |  |  |  |
|------------|--------|-----------|----|--|--|--|--|--|--|--|
| Login No.  | 109561 | 320-39023 | LB |  |  |  |  |  |  |  |
| Sample No. | 1      | 57        |    |  |  |  |  |  |  |  |

**H.Determination of Amount of Leach Fluid**

|                                          |         |          |          |         |         |         |         |         |         |         |
|------------------------------------------|---------|----------|----------|---------|---------|---------|---------|---------|---------|---------|
| 1. Balance ID                            |         | 24950431 |          |         |         |         |         |         |         |         |
| 2. ZHE vessel number                     |         | 2A       |          |         |         |         |         |         |         |         |
| 3. Weight of material added to ZHE (g)   |         | 25.10    |          |         |         |         |         |         |         |         |
| "X" if there was headspace in container. |         |          |          |         |         |         |         |         |         |         |
| 4. Weight of filtrate in syringe         |         |          |          |         |         |         |         |         |         |         |
| a. gross weight (g)                      |         |          |          |         |         |         |         |         |         |         |
| b. tare weight (g)                       |         |          |          |         |         |         |         |         |         |         |
| c. net weight (g)                        | 0.00    | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Volume of filtrate in syringe (mL)    |         |          |          |         |         |         |         |         |         |         |
| 6. Wet solids in ZHE (g)                 |         | 25       |          |         |         |         |         |         |         |         |
| 7. Weight of fluid to add (g)            | 0       | 502      | 0        | 0       | 0       | 0       | 0       | 0       | 0       | 0       |
| a. TCLP Fluid 1 Lot #                    |         | T1 00248 | T1 00248 |         |         |         |         |         |         |         |
| b. SPLP Fluid 3 Lot #                    |         |          |          |         |         |         |         |         |         |         |
| c. pH of Blank Fluid                     |         | 4.96     | 4.96     |         |         |         |         |         |         |         |
| 8. Percent Wet Solids (%)                | #DIV/0! | 100      | #DIV/0!  | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

**I. Record of ZHE Leach** - the Leach period is 16 to 20 hours.

|                                                          |         |               |               |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------|---------------|---------------|---------|---------|---------|---------|---------|---------|---------|
| 1. Leak Check                                            |         |               |               |         |         |         |         |         |         |         |
| a. Reading #1 (psi)                                      |         | 40            | 40            |         |         |         |         |         |         |         |
| b. Reading #2 (psi)                                      |         | 40            | 40            |         |         |         |         |         |         |         |
| 2. Rotator checked to be rotating between 28 and 32 RPM? |         | Y             | Y             |         |         |         |         |         |         |         |
| 3. Leach start date & time                               |         | 5/16/18 16:32 | 5/16/18 16:32 |         |         |         |         |         |         |         |
| 4. Leach stop date & time                                |         | 5/17/18 8:35  | 5/17/18 8:35  |         |         |         |         |         |         |         |
| 5. Room temperature                                      |         |               |               |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            |         | 0.0           | 0.0           |         |         |         |         |         |         |         |
| a. Temp Min (Observed) (°C)                              |         | 22.6          | 22.6          |         |         |         |         |         |         |         |
| b. Temp Max (Observed) (°C)                              |         | 23.9          | 23.9          |         |         |         |         |         |         |         |
| c. Temp Min (Actual) (°C)                                | 0.0     | 22.6          | 22.6          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d. Temp Max (Actual) (°C)                                | 0.0     | 23.9          | 23.9          | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 6. X if still under positive pressure after leaching     |         | X             |               |         |         |         |         |         |         |         |
| 7. Volume of leachate recovered (mL)                     |         |               |               |         |         |         |         |         |         |         |
| a. Volume of oil recovered after leaching                |         |               |               |         |         |         |         |         |         |         |
| 8. Vol. of initial aqueous filtrate for recombination    |         |               |               |         |         |         |         |         |         |         |
| a. Calculated from Worksheet 1 (mL)                      | #DIV/0! | #DIV/0!       | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| b. Calculated from Worksheet 4 (mL)                      | #DIV/0! | 0.0           | #DIV/0!       | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

(Net Weight of Filtrate, H.4.c) = (Gross weight, H.4.a.) - (Tare weight, H.4.b.)

(Percent Wet Solids, H.8.) = 100 X [ (Wet Solids in ZHE, H.6) / (Weight of material added to ZHE, H.3) ]

(Wet Solids in ZHE, H.6) = (Weight of material added to ZHE, H.3.) - (net weight of filtrate, H.4.c.)

(Vol of Filtrate for recombination, I.7.b) = (Vol of Leachate Recvd, I.6) X (Weight of Filtrate, H.4.c) / (Vol Fluid Added, H.7.)

(Weight of Fluid to add, H.7.) = (Wet Solids in ZHE, H.6) X 20

(Vol of Filtrate for recombination, I.7.a) = [ (Wet Solids in ZHE, H.6.) / (Tot Wet Solids, B.4) ] X [ (Vol Leachate Recvd, I.6.) / (Vol Fluid Add, H.7.) ] X (Vol Filtrate, B.7.)

COMMENTS:

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415275 Batch Start Date: 05/17/18 12:00 Batch Analyst: Bourgery, David FBatch Method: 1311 Batch End Date: 05/17/18 16:00

| Lab Sample ID  | Client Sample ID       | Method Chain       | Basis | ExtractFluid |  |  |  |  |  |
|----------------|------------------------|--------------------|-------|--------------|--|--|--|--|--|
| 320-39023-E-58 | IDW-KINGSLEY-WA-LDOS01 | 1311, 3510C, 8270D | P     | elga         |  |  |  |  |  |

| Batch Notes      |                |
|------------------|----------------|
| First End time   | 05/17/18 16:00 |
| First Start time | 05/17/18 12:00 |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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.

8270D

Page 1 of 1

Analyst: DB

DV-IP-0012

TCLP/SPLP Worksheet No. 1

Sample Description

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Date: 5.17.18

|            |        |        |        |        |        |           |     |  |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |  |

**A. Sample Description**

|                       |   |   |   |   |   |   |  |  |  |  |
|-----------------------|---|---|---|---|---|---|--|--|--|--|
| Number of phases      | 2 | 2 | 2 | 2 | 2 | 2 |  |  |  |  |
| 1. Solid              | X | X | X | X | X | X |  |  |  |  |
| 2. Liquid             | X | X | X | X | X | X |  |  |  |  |
| a. lighter than water |   |   |   |   |   |   |  |  |  |  |
| b. water              | X | X | X | X | X | X |  |  |  |  |
| c. heavier than water |   |   |   |   |   |   |  |  |  |  |

**B. Percent Solid Phase**

|                                          |          |          |          |          |          |          |         |         |         |         |
|------------------------------------------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|
| Balance ID                               | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 |         |         |         |         |
| 1. Weight of filter (g)                  | 1.24     | 1.23     | 1.21     | 1.23     | 1.23     | 1.24     |         |         |         |         |
| 2. Weight of subsample                   |          |          |          |          |          |          |         |         |         |         |
| a. gross weight (g)                      | 1564.13  | 1565.22  | 1581.73  | 1553.46  | 1525.34  | 1512.28  |         |         |         |         |
| b. tare weight (g)                       | 505.39   | 507.63   | 507.71   | 503.86   | 508.69   | 507.11   |         |         |         |         |
| c. net weight (g)                        | 1058.74  | 1057.59  | 1074.02  | 1049.60  | 1016.65  | 1005.17  | 0.00    | 0.00    | 0.00    | 0.00    |
| 3. Weight of filtrate                    |          |          |          |          |          |          |         |         |         |         |
| a. gross weight (g)                      | 1704.22  | 1708.29  | 1697.62  | 1681.38  | 1654.82  | 1631.79  |         |         |         |         |
| b. tare weight (g)                       | 657.90   | 665.05   | 665.44   | 667.83   | 662.47   | 665.02   |         |         |         |         |
| c. net weight (g)                        | 1046.32  | 1043.24  | 1032.18  | 1013.55  | 992.35   | 966.77   | 0.00    | 0.00    | 0.00    | 0.00    |
| d. density of filtrate (g/mL)            |          |          |          |          |          |          |         |         |         |         |
| 4. Total weight wet solids (g)           | 12.42    | 14.35    | 41.84    | 36.05    | 24.30    | 38.40    | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Weight percent solids (wet) (%)       | 1.17     | 1.36     | 3.90     | 3.43     | 2.39     | 3.82     | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Weight percent solids (dry)           |          |          |          |          |          |          |         |         |         |         |
| a. gross dry weight 1 (g)                | 6.04     | 7.42     | 9.39     | 8.52     | 6.59     | 8.64     |         |         |         |         |
| b. gross dry weight 2 (g)                | 1.27     | 1.53     | 1.39     | 1.25     | 1.36     | 1.93     |         |         |         |         |
| c. percent dry solids (%)                | 0.00     | 0.03     | 0.02     | 0.00     | 0.01     | 0.07     |         |         |         |         |
| d. Oven Temp (observed) (°C)             |          |          |          |          |          |          |         |         |         |         |
| Thermometer Correction Factor            | 0        |          |          |          |          |          |         |         |         |         |
| Oven Temp Actual (°C)                    | 0        | 0        | 0        | 0        | 0        | 0        | 0       | 0       | 0       | 0       |
| 7. Vol. of initial aqueous filtrate (mL) | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Vol. of initial organic filtrate (mL) |          |          |          |          |          |          |         |         |         |         |

**Comments:**

$$(\text{Weight percent dry solids, B.6.c}) = 100 \times \frac{(\text{Gross dry weight 2 or 1, B.6.b or B.6.a if B.6.a is blank}) - (\text{Weight of filter, B.1})}{(\text{Weight of subsample, B.2.c})}$$

(Net Weight of Subsample, B.2.c) = (gross weight, B.2.a) - (tare weight, B.2.b)

(Net Weight of Filtrate, B.3.c) = (gross weight, B.3.a) - (tare weight, B.3.b)

(Total weight wet solids, B.4) = (Weight subsample, B.2.c) - (Weight filtrate, B.3.c)

(Vol of initial filtrate, B.7) = (Weight of filtrate, B.3.c) / (Density of filtrate, B.3.d)

(Weight percent wet solids, B.5.) = 100 X (Total weight wet solids, B.4.) / (Weight of subsample, B.2.c.)

Analyst: DB

**DV-IP-0012**  
**TCLP Worksheet No. 2**  
**Selection of Leach Fluid**



|            |        |        |        |        |        |           |     |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |

**C. Leach Fluid Determination-** Does not apply to determination of volatile organic components or SPLP.

|                                                                                |   |   |   |   |   |   |   |   |   |   |
|--------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|---|
| 1. Particle size reduction? (<1mm) Yes/No<br>If yes, write NCM describing how. |   |   |   |   |   |   |   |   |   |   |
| 2. Balance ID                                                                  |   |   |   |   |   |   |   |   |   |   |
| 3. Sample weight, 5.0 +/- 0.1g                                                 |   |   |   |   |   |   |   |   |   |   |
| 4. Add 96.5 (+/- 2% or 94.57mL to 98.43mL)                                     |   |   |   |   |   |   |   |   |   |   |
| a. Pipette ID or Grad Cylinder ID                                              |   |   |   |   |   |   |   |   |   |   |
| 5. Initial pH (after 5 min. mixing time)                                       |   |   |   |   |   |   |   |   |   |   |
| a. Start Time for Mixing                                                       |   |   |   |   |   |   |   |   |   |   |
| b. Stop Time for Mixing                                                        |   |   |   |   |   |   |   |   |   |   |
| c. pH reading after mixing                                                     |   |   |   |   |   |   |   |   |   |   |
| 6. If pH > 5.0, then add 3.5 mL 1N HCL & mark "X"                              |   |   |   |   |   |   |   |   |   |   |
| a. HCL Lot# used                                                               |   |   |   |   |   |   |   |   |   |   |
| b. Pipette ID                                                                  |   |   |   |   |   |   |   |   |   |   |
| 7. Secondary pH (after 10min at 50C to 55C)                                    |   |   |   |   |   |   |   |   |   |   |
| a. Thermometer ID                                                              |   |   |   |   |   |   |   |   |   |   |
| Termometer Correction Factor                                                   |   |   |   |   |   |   |   |   |   |   |
| b. Start Time                                                                  |   |   |   |   |   |   |   |   |   |   |
| c. Start Temperature (Observed)                                                |   |   |   |   |   |   |   |   |   |   |
| Start Temperature (Actual)                                                     | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| d. Finish Time                                                                 |   |   |   |   |   |   |   |   |   |   |
| e. Finish Temperature (Observed)                                               |   |   |   |   |   |   |   |   |   |   |
| Finish Temperature (Actual)                                                    | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| f. pH reading after heating (temperature corrected)                            |   |   |   |   |   |   |   |   |   |   |

**D. Selection of Leach Fluid**

|                                                                                       |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| 1. If pH from C.5. or C.7.f. is <5.0 use Leach Fluid #1                               |  |  |  |  |  |  |  |  |  |  |
| 2. If pH from C.7.f is > 5.0, use Leach Fluid #2                                      |  |  |  |  |  |  |  |  |  |  |
| 3. SPLP Fluid 1: Soils- East of the Mississippi River;<br>Wastewaters; or Wastewaters |  |  |  |  |  |  |  |  |  |  |
| 4. SPLP Fluid 2: Soils- West of Mississippi River                                     |  |  |  |  |  |  |  |  |  |  |
| 5. SPLP Fluid 3: If VOCs or Cyanide containing wastes.                                |  |  |  |  |  |  |  |  |  |  |
| 6. X if filtrate and fluid are miscible                                               |  |  |  |  |  |  |  |  |  |  |



Analyst: DB

DV-IP-0012

## TCLP/SPLP Worksheet No. 3

## Bottle Leach Procedure for Metals and Semi-Volatile Organic Components

|            |        |        |        |        |        |           |     |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |

**E. Determination of Sample Size**

|                                              |  |  |  |  |  |  |  |  |  |  |
|----------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| 1. Particle size reduction? Yes/no           |  |  |  |  |  |  |  |  |  |  |
| If yes, write NCM describing how.            |  |  |  |  |  |  |  |  |  |  |
| 2. Balance ID                                |  |  |  |  |  |  |  |  |  |  |
| 3. Weight of wet solids after filtration (g) |  |  |  |  |  |  |  |  |  |  |

**F. Determination of Amount of Leach Fluid**

|                                        |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>Fluid Type from Wksht 2</b>         | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! | #VALUE! |
| 1. TCLP Fluid 1 Lot #                  |         |         |         |         |         |         |         |         |         |         |
| 2. TCLP Fluid 2 Lot #                  |         |         |         |         |         |         |         |         |         |         |
| 3. SPLP 1 (East) Lot #                 |         |         |         |         |         |         |         |         |         |         |
| 4. SPLP 2 (West) Lot #                 |         |         |         |         |         |         |         |         |         |         |
| 5. pH of leach fluid                   |         |         |         |         |         |         |         |         |         |         |
| 6. Vol of Fluid = wet solids x 20 (mL) |         |         |         |         |         |         |         |         |         |         |

**G. Record of Leach** - leach period is 16 to 20 hours

|                                                          |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Rotator checked to be rotating between 28 and 32 RPM? |         |         |         |         |         |         |         |         |         |         |
| 2. Leach start date and time                             |         |         |         |         |         |         |         |         |         |         |
| 3. Leach stop date and time                              |         |         |         |         |         |         |         |         |         |         |
| 4. Room temperature                                      |         |         |         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            |         |         |         |         |         |         |         |         |         |         |
| a.Temp Min (Observed) (°C)                               |         |         |         |         |         |         |         |         |         |         |
| b.Temp Max (Observed) (°C)                               |         |         |         |         |         |         |         |         |         |         |
| c.Temp Min (Actual) (°C)                                 | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d.Temp Max (Actual) (°C)                                 | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 5. pH of leachate                                        |         |         |         |         |         |         |         |         |         |         |
| Was the sample multiphasic?                              | FALSE   | FALSE   | FALSE   | FALSE   | FALSE   | FALSE   | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 6. Volume of leachate (mL)                               |         |         |         |         |         |         |         |         |         |         |
| a. Oil recovered from leachate (mL)                      |         |         |         |         |         |         |         |         |         |         |
| 7. Volume of initial filtrate for recombination (mL)     | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| 8. Combined initial filtrate + leachate (mL)             | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| COMMENTS:                                                |         |         |         |         |         |         |         |         |         |         |

(Volume of Fluid, F.4) = (Weight of wet solids, E.3) X 20

$$(\text{Vol. of Initial Filtrate for Recombination, G.7}) = \frac{(\text{Solids Leached, E.3})}{(\text{Tot. Wet Solids, B.4})} \times \frac{(\text{Leachate Recovered, G.6})}{(\text{Fluid Added, F.6})} \times (\text{Initial Filtrate, B.7})$$

(Vol. of Combined Filtrate and Leachate, G.8) = (Vol of Leachate, G.6) + (Vol of Filtrate, G.7)

Analyst: DB

**DV-IP-0012**  
**TCLP/SPLP Worksheet No. 4**  
**ZHE Leach**



|            |        |        |        |        |        |           |     |  |  |  |
|------------|--------|--------|--------|--------|--------|-----------|-----|--|--|--|
| Login No.  | 109621 | 109621 | 109637 | 109669 | 109669 | 320-39023 | LB3 |  |  |  |
| Sample No. | 2      | 3      | 1      | 1      | 2      | 58        |     |  |  |  |

**H.Determination of Amount of Leach Fluid**

|                                          |          |          |          |          |          |          |         |         |         |         |
|------------------------------------------|----------|----------|----------|----------|----------|----------|---------|---------|---------|---------|
| 1. Balance ID                            | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 | 24950431 |         |         |         |         |
| 2. ZHE vessel number                     | Franny   | Nicole   | 8        | Tim      | AAA      | Holly    | Franny  |         |         |         |
| 3. Weight of material added to ZHE (g)   |          |          |          |          |          |          |         |         |         |         |
| "X" if there was headspace in container. |          |          |          |          |          |          |         |         |         |         |
| 4. Weight of filtrate in syringe         |          |          |          |          |          |          |         |         |         |         |
| a. gross weight (g)                      |          |          |          |          |          |          |         |         |         |         |
| b. tare weight (g)                       |          |          |          |          |          |          |         |         |         |         |
| c. net weight (g)                        | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00     | 0.00    | 0.00    | 0.00    | 0.00    |
| 5. Volume of filtrate in syringe (mL)    |          |          |          |          |          |          |         |         |         |         |
| 6. Wet solids in ZHE (g)                 |          |          |          |          |          |          |         |         |         |         |
| 7. Weight of fluid to add (g)            | 0        | 0        | 0        | 0        | 0        | 0        | 0       | 0       | 0       | 0       |
| a. TCLP Fluid 1 Lot #                    |          |          |          |          |          |          |         |         |         |         |
| b. SPLP Fluid 3 Lot #                    |          |          |          |          |          |          |         |         |         |         |
| c. pH of Blank Fluid                     |          |          |          |          |          |          |         |         |         |         |
| 8. Percent Wet Solids (%)                | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0!  | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

**I. Record of ZHE Leach** - the Leach period is 16 to 20 hours.

|                                                          |         |         |         |         |         |         |         |         |         |         |
|----------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1. Leak Check                                            |         |         |         |         |         |         |         |         |         |         |
| a. Reading #1 (psi)                                      |         |         |         |         |         |         |         |         |         |         |
| b. Reading #2 (psi)                                      |         |         |         |         |         |         |         |         |         |         |
| 2. Rotator checked to be rotating between 28 and 32 RPM? |         |         |         |         |         |         |         |         |         |         |
| 3. Leach start date & time                               |         |         |         |         |         |         |         |         |         |         |
| 4. Leach stop date & time                                |         |         |         |         |         |         |         |         |         |         |
| 5. Room temperature                                      |         |         |         |         |         |         |         |         |         |         |
| Thermometer Correction Factor                            |         |         |         |         |         |         |         |         |         |         |
| a. Temp Min (Observed) (°C)                              |         |         |         |         |         |         |         |         |         |         |
| b. Temp Max (Observed) (°C)                              |         |         |         |         |         |         |         |         |         |         |
| c. Temp Min (Actual) (°C)                                | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| d. Temp Max (Actual) (°C)                                | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
| 6. X if still under positive pressure after leaching     |         |         |         |         |         |         |         |         |         |         |
| 7. Volume of leachate recovered (mL)                     |         |         |         |         |         |         |         |         |         |         |
| a. Volume of oil recovered after leaching                |         |         |         |         |         |         |         |         |         |         |
| 8. Vol. of initial aqueous filtrate for recombination    |         |         |         |         |         |         |         |         |         |         |
| a. Calculated from Worksheet 1 (mL)                      | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| b. Calculated from Worksheet 4 (mL)                      | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

(Net Weight of Filtrate, H.4.c) = (Gross weight, H.4.a.) - (Tare weight, H.4.b.)

(Percent Wet Solids, H.8.) = 100 X [ (Wet Solids in ZHE, H.6) / (Weight of material added to ZHE, H.3) ]

(Wet Solids in ZHE, H.6) = (Weight of material added to ZHE, H.3.) - (net weight of filtrate, H.4.c.)

(Vol of Filtrate for recombination, I.7.b) = (Vol of Leachate Recvd, I.6) X (Weight of Filtrate, H.4.c) / (Vol Fluid Added, H.7.)

(Weight of Fluid to add, H.7.) = (Wet Solids in ZHE, H.6) X 20

(Vol of Filtrate for recombination, I.7.a) = [ (Wet Solids in ZHE, H.6.) / (Tot Wet Solids, B.4) ] X [ (Vol Leachate Recvd, I.6.) / (Vol Fluid Add, H.7.) ] X (Vol Filtrate, B.7.)

COMMENTS:

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415600 Batch Start Date: 05/21/18 08:55 Batch Analyst: Earle, SteveBatch Method: 3510C Batch End Date: 05/22/18 22:22

| Lab Sample ID         | Client Sample ID       | Method Chain | Basis | InitialAmount | FinalAmount | ReceivedpH | FirstAdjustpH | SecondAdjustpH | 8270Surrogate<br>00118 |
|-----------------------|------------------------|--------------|-------|---------------|-------------|------------|---------------|----------------|------------------------|
| LB<br>280-415138/1-A  |                        | 3510C, 8270D |       | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |
| LCS<br>280-415138/2-A |                        | 3510C, 8270D |       | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |
| 320-39023-A-57-A      | IDW-KINGSLEY-SO-LDOS01 | 3510C, 8270D | P     | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |
| 320-39023-A-57-A MS   | IDW-KINGSLEY-SO-LDOS01 | 3510C, 8270D | P     | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |
| 320-39023-A-57-A MSD  | IDW-KINGSLEY-SO-LDOS01 | 3510C, 8270D | P     | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |

| Lab Sample ID         | Client Sample ID       | Method Chain | Basis | 8270TCLPSpike<br>00058 |  |  |  |  |  |
|-----------------------|------------------------|--------------|-------|------------------------|--|--|--|--|--|
| LB<br>280-415138/1-A  |                        | 3510C, 8270D |       |                        |  |  |  |  |  |
| LCS<br>280-415138/2-A |                        | 3510C, 8270D |       | 1 mL                   |  |  |  |  |  |
| 320-39023-A-57-A      | IDW-KINGSLEY-SO-LDOS01 | 3510C, 8270D | P     |                        |  |  |  |  |  |
| 320-39023-A-57-A MS   | IDW-KINGSLEY-SO-LDOS01 | 3510C, 8270D | P     | 1 mL                   |  |  |  |  |  |
| 320-39023-A-57-A MSD  | IDW-KINGSLEY-SO-LDOS01 | 3510C, 8270D | P     | 1 mL                   |  |  |  |  |  |

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.

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 415600 Batch Start Date: 05/21/18 08:55 Batch Analyst: Earle, SteveBatch Method: 3510C Batch End Date: 05/22/18 22:22

| Batch Notes                             |                           |
|-----------------------------------------|---------------------------|
| Acid Used for pH Adjustment ID          | N1:1 H2SO4_00071          |
| Balance ID                              | 24750399                  |
| Base Used to Adjust pH ID               | 10N_NaOH_00117            |
| Batch Comment                           | DV-OP-0006/0007           |
| Analyst ID - Concentration              | MM (trainee) AP (trainer) |
| Concentration 1 Corrected Temperature   | 84 Degrees C              |
| Equipment ID - Concentration 1          | Bath B                    |
| Analyst ID - Extraction                 | SE/AK/AE                  |
| Method/Fraction                         | 3510C/8270 TCLP           |
| Na2SO4 ID                               | 0000157547_00004          |
| NaCl ID                                 | 177039                    |
| Pipette/Syringe/Dispenser ID            | 1n2s                      |
| Prep Solvent ID                         | MeCl2_Cycl_00384/386      |
| Prep Solvent Volume Used                | 360 mL                    |
| Analyst ID - Spike Analyst              | SE                        |
| Analyst ID - Spike Witness Analyst      | Reviewer:                 |
| Sufficient Volume for Batch QC          | Yes                       |
| Concentration 1 Uncorrected Temperature | 85 Degrees C              |
| Reagent Water ID                        | S. Elga                   |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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.

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 416023 Batch Start Date: 05/21/18 08:46 Batch Analyst: Earle, SteveBatch Method: 3510C Batch End Date: 05/22/18 22:34

| Lab Sample ID       | Client Sample ID       | Method Chain | Basis | InitialAmount | FinalAmount | ReceivedpH | FirstAdjustpH | SecondAdjustpH | 8270Surrogate<br>00118 |
|---------------------|------------------------|--------------|-------|---------------|-------------|------------|---------------|----------------|------------------------|
| LB3<br>280-416023/1 |                        | 3510C, 8270D |       | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |
| LCS<br>280-416023/2 |                        | 3510C, 8270D |       | 200 mL        | 1 mL        | 5 SU       | 1-2 SU        | 14 SU          | 1 mL                   |
| 320-39023-E-58-A    | IDW-KINGSLEY-WA-LDOS01 | 3510C, 8270D | P     | 200 mL        | 1 mL        | 7 SU       | 1-2 SU        | 14 SU          | 1 mL                   |

| Lab Sample ID       | Client Sample ID       | Method Chain | Basis | 8270TCLPSpike<br>00058 |  |  |  |  |  |
|---------------------|------------------------|--------------|-------|------------------------|--|--|--|--|--|
| LB3<br>280-416023/1 |                        | 3510C, 8270D |       |                        |  |  |  |  |  |
| LCS<br>280-416023/2 |                        | 3510C, 8270D |       | 1 mL                   |  |  |  |  |  |
| 320-39023-E-58-A    | IDW-KINGSLEY-WA-LDOS01 | 3510C, 8270D | P     |                        |  |  |  |  |  |

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.

## GC/MS SEMI VOA BATCH WORKSHEET

Lab Name: TestAmerica Denver Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Batch Number: 416023 Batch Start Date: 05/21/18 08:46 Batch Analyst: Earle, SteveBatch Method: 3510C Batch End Date: 05/22/18 22:34

| Batch Notes                             |                           |
|-----------------------------------------|---------------------------|
| Acid Used for pH Adjustment ID          | N1:1 H2SO4_00071          |
| Balance ID                              | 24750399                  |
| Base Used to Adjust pH ID               | 10N_NaOH_00117            |
| Batch Comment                           | DV-OP-0006/0007           |
| Analyst ID - Concentration              | MM (trainee) AP (trainer) |
| Concentration 1 Corrected Temperature   | 84 Degrees C              |
| Equipment ID - Concentration 1          | Bath B                    |
| Analyst ID - Extraction                 | SE/AK/AE                  |
| Method/Fraction                         | 3510C/8270 TCLP           |
| Na2SO4 ID                               | 0000157547_00004          |
| NaCl ID                                 | 177039                    |
| Pipette/Syringe/Dispenser ID            | 1n2s                      |
| Prep Solvent ID                         | MeCl2_Cycl_00384/386      |
| Prep Solvent Volume Used                | 360 mL                    |
| Analyst ID - Spike Analyst              | SE                        |
| Analyst ID - Spike Witness Analyst      | Reviewer:                 |
| Sufficient Volume for Batch QC          | Yes                       |
| Concentration 1 Uncorrected Temperature | 85 Degrees C              |
| Reagent Water ID                        | S. Elga                   |

| Basis | Basis Description |
|-------|-------------------|
| P     | TCLP              |

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

# Method PFC DOD

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Fluorinated Hydrocarbons (LC/MS) by  
Method PFAS\_DOD

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Solid

Level: Low

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

| Client Sample ID   | Lab Sample ID        | PFBS # | PFHpA # | PFHxS # | PFOA # | PFNA # | PFOS # |
|--------------------|----------------------|--------|---------|---------|--------|--------|--------|
| KLA-01-SB1-01      | 320-39023-9          | 74     | 82      | 78      | 86     | 60     | 48 Q   |
| KLA-01-SB1-01 DL   | 320-39023-9 DL       | 79 M   | 89      | 82      | 90     | 90     | 74     |
| KLA-01-SB1-02      | 320-39023-10         | 69     | 83      | 75      | 82     | 67     | 54     |
| KLA-01-SB1-02 DL   | 320-39023-10 DL      | 71 M   | 78      | 70      | 89     | 79     | 63     |
| KLA-01-SB2-01      | 320-39023-11         | 68     | 84      | 71      | 88     | 92     | 72     |
| KLA-01-SB2-02      | 320-39023-12         | 71     | 83      | 76      | 84     | 87     | 74     |
| KLA-01-SB3-01      | 320-39023-13         | 67     | 82      | 73      | 84     | 84     | 68     |
| KLA-01-SB3-02      | 320-39023-14         | 67     | 80      | 70      | 80     | 82     | 64     |
| KLA03-SB1-01       | 320-39023-21         | 68     | 83      | 71      | 85     | 83     | 69     |
| KLA03-SB1-02       | 320-39023-22         | 70     | 83      | 74      | 87     | 91     | 71     |
| KLA03-SB2-01       | 320-39023-23         | 69     | 83      | 73      | 83     | 81     | 72     |
| KLA03-SB2-02       | 320-39023-24         | 68     | 83      | 75      | 82     | 78     | 70     |
| KLA03-SB3-01       | 320-39023-25         | 78     | 85      | 83      | 85     | 87     | 79     |
| KLA03-SB3-02       | 320-39023-26         | 77     | 85      | 79      | 84     | 83     | 76     |
| KLA06-SB1-01       | 320-39023-39         | 72     | 77      | 73      | 79     | 62     | 62     |
| KLA06-SB1-01 DL    | 320-39023-39 DL      | 67     | 76      | 71      | 82     | 79     | 68     |
| KLA06-SB1-02       | 320-39023-40         | 68     | 81      | 72      | 76     | 70     | 68     |
| KLA06-SB1-02 DL    | 320-39023-40 DL      | 69     | 76      | 69      | 81     | 78     | 68     |
| KLA06-SB2-01       | 320-39023-41         | 82     | 82      | 75      | 84     | 54     | 54     |
| KLA06-SB2-01 DL    | 320-39023-41 DL      | 67     | 80      | 74      | 85     | 77     | 64     |
| KLA06-SB2-01 DL2   | 320-39023-41 DL2     | 68 M   | 66      | 71      | 81     | 74     | 60     |
| KLA06-SB2-02       | 320-39023-42         | 81     | 83      | 75      | 83     | 44 Q   | 40 Q   |
| KLA06-SB2-02 DL    | 320-39023-42 DL      | 73     | 78      | 72      | 90     | 75     | 61     |
| KLA06-SB2-02 DL2   | 320-39023-42 DL2     | 61 M   | 72      | 64      | 78     | 78     | 59     |
| KLA07-SD1-01       | 320-39023-43         | 68     | 80      | 73      | 84     | 82     | 75     |
| KLA03-SB-2-01D     | 320-39023-51         | 79     | 90      | 84      | 89     | 93     | 82     |
| KLA06-SB-2-02D     | 320-39023-52         | 76     | 86      | 76      | 83     | 47 Q   | 44 Q   |
| KLA06-SB-2-02D DL  | 320-39023-52 DL      | 66     | 75      | 71      | 84     | 79     | 62     |
| KLA06-SB-2-02D DL2 | 320-39023-52 DL2     | 51 M   | 64      | 59      | 84     | 74     | 57     |
| KLA05-SB1-01D      | 320-39023-55         | 77     | 64      | 64      | 84     | 56     | 57     |
| KLA05-SB1-01D DL   | 320-39023-55 DL      | 82 M   | 69      | 61      | 81     | 84     | 62     |
| KLA07-SD1-01D      | 320-39023-59         | 73     | 81      | 79      | 88     | 94     | 78     |
|                    | MB<br>320-223091/1-A | 81     | 85      | 84      | 90     | 91     | 80     |
|                    | MB<br>320-224254/1-A | 77     | 85      | 85      | 91     | 93     | 84     |

QC LIMITS

PFBS = 13C3-PFBS  
PFHpA = 13C4-PFHpA  
PFHxS = 18O2 PFHxS  
PFOA = 13C4 PFOA  
PFOS = 13C4 PFOS  
PFNA = 13C5 PFNA

50-150  
50-150  
50-150  
50-150  
50-150  
50-150

# Column to be used to flag recovery values

FORM II EPA 537 (Mod)



FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Solid Level: Low

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

| Client Sample ID        | Lab Sample ID           | PFBS # | PFHpA # | PFHxS # | PFOA # | PFNA # | PFOS # |
|-------------------------|-------------------------|--------|---------|---------|--------|--------|--------|
|                         | LCS<br>320-223091/2-A   | 80     | 89      | 86      | 91     | 94     | 80     |
|                         | LCS<br>320-224254/2-A   | 81     | 88      | 85      | 91     | 91     | 83     |
| KLA06-SB2-01 MS         | 320-39023-41 MS         | 88     | 82      | 69      | 85     | 48 Q   | 46 Q   |
| KLA06-SB2-01 MS DL      | 320-39023-41 MS<br>DL   | 71     | 79      | 73      | 81     | 74     | 64     |
| KLA06-SB2-01 MS<br>DL2  | 320-39023-41 MS<br>DL2  | 44 M Q | 71      | 65      | 77     | 73     | 66     |
| KLA07-SD1-01D MS        | 320-39023-59 MS         | 71     | 79      | 76      | 88     | 95     | 77     |
| KLA06-SB2-01 MSD        | 320-39023-41 MSD        | 86     | 82      | 63      | 83     | 48 Q   | 45 Q   |
| KLA06-SB2-01 MSD<br>DL  | 320-39023-41 MSD<br>DL  | 62     | 80      | 72      | 82     | 73     | 61     |
| KLA06-SB2-01 MSD<br>DL2 | 320-39023-41 MSD<br>DL2 | 76 M   | 76      | 66      | 81     | 75     | 71     |
| KLA07-SD1-01D MSD       | 320-39023-59 MSD        | 72     | 81      | 77      | 91     | 94     | 78     |

QC LIMITS

|                    |        |
|--------------------|--------|
| PFBS = 13C3-PFBS   | 50-150 |
| PFHpA = 13C4-PFHpA | 50-150 |
| PFHxS = 18O2 PFHxS | 50-150 |
| PFOA = 13C4 PFOA   | 50-150 |
| PFOS = 13C4 PFOS   | 50-150 |
| PFNA = 13C5 PFNA   | 50-150 |

# Column to be used to flag recovery values

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Solid

Level: Low

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

| Client Sample ID | Lab Sample ID    | PFBS # | PFHpA # | PFHxS # | PFOA # | PFOS # | PFNA # |
|------------------|------------------|--------|---------|---------|--------|--------|--------|
| KLA02-SB1-01     | 320-39023-15     | 81     | 93      | 88      | 93     | 86     | 100    |
| KLA02-SB1-02     | 320-39023-16     | 71     | 81      | 77      | 84     | 76     | 85     |
| KLA02-SB2-01     | 320-39023-17     | 78     | 85      | 78      | 94     | 55     | 66     |
| KLA02-SB2-01 DL  | 320-39023-17 DL  | 94 M   | 72      | 66      | 87     | 68     | 84     |
| KLA02-SB2-02     | 320-39023-18     | 82     | 78      | 72      | 89     | 60     | 71     |
| KLA02-SB2-02 DL  | 320-39023-18 DL  | 71     | 78      | 82      | 91     | 71     | 86     |
| KLA02-SB3-01     | 320-39023-19     | 78     | 86      | 82      | 92     | 68     | 85     |
| KLA02-SB3-01 DL  | 320-39023-19 DL  | 77 M   | 84      | 75      | 91     | 74     | 100    |
| KLA02-SB3-02     | 320-39023-20     | 75     | 80      | 80      | 90     | 76     | 92     |
| KLA04-SB1-01     | 320-39023-27     | 87     | 98      | 87      | 88     | 30 Q   | 37 Q   |
| KLA04-SB1-01 DL  | 320-39023-27 DL  | 99 M   | 77      | 67      | 93     | 70     | 79     |
| KLA04-SB1-02     | 320-39023-28     | 95     | 85      | 78      | 84     | 26 Q   | 34 Q   |
| KLA04-SB1-02 DL  | 320-39023-28 DL  | 70 M   | 84      | 71      | 84     | 59     | 76     |
| KLA04-SB1-02 DL2 | 320-39023-28 DL2 | 96 M   | 80      | 76      | 95     | 63     | 73     |
| KLA04-SB2-01     | 320-39023-29     | 96     | 88      | 86      | 83     | 18 Q   | 25 Q   |
| KLA04-SB2-01 DL  | 320-39023-29 DL  | 111 M  | 74      | 64      | 80     | 58     | 68     |
| KLA04-SB2-02     | 320-39023-30     | 125    | 69      | 65      | 82     | 39 Q   | 55     |
| KLA04-SB2-02 DL  | 320-39023-30 DL  | 133 M  | 70      | 78      | 95     | 61     | 78     |
| KLA04-SB3-01     | 320-39023-31     | 86     | 88      | 77      | 84     | 20 Q   | 28 Q   |
| KLA04-SB3-01 DL  | 320-39023-31 DL  | 54     | 75      | 69      | 82     | 47 Q   | 59     |
| KLA04-SB3-01 DL2 | 320-39023-31 DL2 | 71 M   | 74      | 53      | 78     | 57     | 73     |
| KLA04-SB3-02     | 320-39023-32     | 109    | 77      | 65      | 87     | 39 Q   | 51     |
| KLA04-SB3-02 DL  | 320-39023-32 DL  | 88     | 84      | 76      | 87     | 63     | 78     |
| KLA04-SB3-02 DL2 | 320-39023-32 DL2 | 72 M   | 62      | 69      | 89     | 64     | 78     |
| KLA05-SB1-01     | 320-39023-33     | 72     | 81      | 68      | 90     | 68     | 74     |
| KLA05-SB1-01 DL  | 320-39023-33 DL  | 54     | 83      | 75      | 97     | 69     | 90     |
| KLA05-SB1-02     | 320-39023-34     | 68     | 81      | 70      | 88     | 72     | 88     |
| KLA05-SB2-01     | 320-39023-35     | 69     | 85      | 71      | 92     | 73     | 89     |
| KLA05-SB2-01 DL  | 320-39023-35 DL  | 59     | 82      | 70      | 86     | 69     | 89     |
| KLA05-SB2-02     | 320-39023-36     | 70     | 74      | 74      | 85     | 72     | 87     |
| KLA05-SB2-02 DL  | 320-39023-36 DL  | 72     | 77      | 72      | 92     | 70     | 85     |
| KLA05-SB3-01     | 320-39023-37     | 122    | 66      | 46 Q    | 87     | 13 Q   | 19 Q   |
| KLA05-SB3-01 DL  | 320-39023-37 DL  | 60 M   | 80      | 75      | 82     | 53     | 68     |
| KLA05-SB3-02     | 320-39023-38     | 73     | 81      | 73      | 87     | 40 Q   | 50     |
| KLA05-SB3-02 DL  | 320-39023-38 DL  | 78 M   | 81      | 79      | 99     | 70     | 98     |

QC LIMITS

PFBS = 13C3-PFBS  
 PFHpA = 13C4-PFHpA  
 PFHxS = 18O2 PFHxS  
 PFOA = 13C4 PFOA  
 PFOS = 13C4 PFOS  
 PFNA = 13C5 PFNA

50-150  
 50-150  
 50-150  
 50-150  
 50-150  
 50-150

# Column to be used to flag recovery values

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Solid Level: Low

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

| Client Sample ID | Lab Sample ID         | PFBS # | PFHpA # | PFHxS # | PFOA # | PFOS # | PFNA # |
|------------------|-----------------------|--------|---------|---------|--------|--------|--------|
| KLA02-SB2-02D    | 320-39023-53          | 78     | 78      | 73      | 84     | 60     | 71     |
| KLA02-SB2-02D DL | 320-39023-53 DL       | 74 M   | 72      | 70      | 86     | 67     | 81     |
| KLA02-SB1-02D    | 320-39023-54          | 73     | 83      | 81      | 91     | 80     | 96     |
|                  | MB<br>320-223092/1-A  | 68     | 71      | 71      | 78     | 70     | 75     |
|                  | LCS<br>320-223092/2-A | 71     | 73      | 73      | 79     | 71     | 81     |
| KLA02-SB1-01 MS  | 320-39023-15 MS       | 77     | 83      | 82      | 87     | 80     | 91     |
| KLA02-SB1-01 MSD | 320-39023-15 MSD      | 80     | 90      | 83      | 95     | 85     | 96     |

|                    |                  |
|--------------------|------------------|
|                    | <u>QC LIMITS</u> |
| PFBS = 13C3-PFBS   | 50-150           |
| PFHpA = 13C4-PFHpA | 50-150           |
| PFHxS = 1802 PFHxS | 50-150           |
| PFOA = 13C4 PFOA   | 50-150           |
| PFOS = 13C4 PFOS   | 50-150           |
| PFNA = 13C5 PFNA   | 50-150           |

# Column to be used to flag recovery values

FORM II EPA 537 (Mod)

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Water Level: Low

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

| Client Sample ID | Lab Sample ID          | PFBS # | PFHpA # | PFHxS # | PFOA # | PFNA # | PFOS # |
|------------------|------------------------|--------|---------|---------|--------|--------|--------|
| KLA08-SW1-01     | 320-39023-8            | 76     | 76      | 93      | 95     | 103    | 101    |
| ER-01            | 320-39023-44           | 88     | 88      | 88      | 90     | 92     | 82     |
| FB-01            | 320-39023-45           | 91     | 101     | 93      | 94     | 105    | 95     |
| ER-02            | 320-39023-46           | 75     | 71      | 75      | 80     | 84     | 77     |
| ER-03            | 320-39023-47           | 65     | 66      | 63      | 69     | 71     | 64     |
| ER-04            | 320-39023-48           | 70     | 70      | 69      | 73     | 78     | 69     |
|                  | MB<br>320-223346/1-A   | 84     | 94      | 87      | 96     | 96     | 86     |
|                  | MB<br>320-223615/1-A   | 80     | 84      | 85      | 93     | 94     | 81     |
|                  | MB<br>320-223901/1-A   | 85     | 86      | 83      | 88     | 92     | 82     |
|                  | MB<br>320-224509/1-A   | 75     | 77      | 77      | 82     | 83     | 76     |
|                  | LCS<br>320-223346/2-A  | 82     | 94      | 89      | 93     | 95     | 83     |
|                  | LCS<br>320-223615/2-A  | 78     | 85      | 80      | 90     | 90     | 86     |
|                  | LCS<br>320-223901/2-A  | 81     | 83      | 79      | 84     | 84     | 79     |
|                  | LCS<br>320-224509/2-A  | 80     | 85      | 82      | 88     | 91     | 83     |
|                  | LCSD<br>320-224509/3-A | 72     | 76      | 77      | 81     | 82     | 76     |

|                    |                  |
|--------------------|------------------|
|                    | <u>QC LIMITS</u> |
| PFBS = 13C3-PFBS   | 50-150           |
| PFHpA = 13C4-PFHpA | 50-150           |
| PFHxS = 1802 PFHxS | 50-150           |
| PFOA = 13C4 PFOA   | 50-150           |
| PFOS = 13C4 PFOS   | 50-150           |
| PFNA = 13C5 PFNA   | 50-150           |

# Column to be used to flag recovery values

FORM II EPA 537 (Mod)

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Matrix: Water

Level: Low

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

| Client Sample ID          | Lab Sample ID         | PFBS # | PFHpA # | PFHxS # | PFOA # | PFOS # | PFNA # |
|---------------------------|-----------------------|--------|---------|---------|--------|--------|--------|
| MW-KLA01-01-01            | 320-39023-1           | 75     | 79      | 80      | 87     | 74     | 81     |
| MW-KLA01-01-01 DL         | 320-39023-1 DL        | 72     | 77      | 72      | 83     | 67     | 77     |
| MW-KLA02-01-01            | 320-39023-2           | 321 Q  | 44 Q    | 77      | 65     | 28 Q   | 40 Q   |
| MW-KLA02-01-01 DL         | 320-39023-2 DL        | 176 Q  | 54      | 96      | 68     | 44 Q   | 53     |
| MW-KLA03-01-01            | 320-39023-3           | 75     | 69      | 66      | 85     | 54     | 62     |
| MW-KLA03-01-01 DL         | 320-39023-3 DL        | 68 M   | 72      | 72      | 83     | 75     | 77     |
| MW-KLA04-01-01            | 320-39023-4           | 71     | 74      | 69      | 80     | 69     | 79     |
| MW-KLA04-01-01 DL         | 320-39023-4 DL        | 63     | 65      | 62      | 75     | 62     | 67     |
| MW-573-03-PRL05-01        | 320-39023-5           | 136    | 46 Q    | 54      | 77     | 48 Q   | 58     |
| MW-573-03-PRL05-01 DL     | 320-39023-5 DL        | 99 M   | 64      | 73      | 73     | 66     | 69     |
| MW-572-02-PRL05-01        | 320-39023-6           | 85     | 83      | 81      | 89     | 74     | 82     |
| MW-572-02-PRL05-01 DL     | 320-39023-6 DL        | 69 M   | 79      | 77      | 92     | 75     | 84     |
| MW-KLA06-01-01            | 320-39023-7           | 233 Q  | 37 Q    | 54      | 52     | 36 Q   | 50     |
| MW-KLA06-01-01 DL2        | 320-39023-7 DL2       | 145 M  | 53      | 76      | 58     | 46 Q   | 51     |
| MW-572-02-PRL05-01 D      | 320-39023-49          | 59     | 60      | 58      | 65     | 55     | 61     |
| MW-572-02-PRL05-01 D DL   | 320-39023-49 DL       | 53     | 56      | 52      | 63     | 53     | 60     |
| ER-05                     | 320-39023-56          | 84     | 93      | 87      | 98     | 91     | 104    |
|                           | MB<br>320-224065/1-A  | 88     | 93      | 94      | 103    | 92     | 106    |
|                           | LCS<br>320-224065/2-A | 66     | 70      | 70      | 74     | 66     | 72     |
| MW-573-03-PRL05-01 MS     | 320-39023-5 MS        | 146    | 48 Q    | 55      | 80     | 48 Q   | 62     |
| MW-573-03-PRL05-01 MS DL  | 320-39023-5 MS DL     | 107 M  | 64      | 82      | 86     | 61     | 71     |
| MW-573-03-PRL05-01 MSD    | 320-39023-5 MSD       | 134    | 45 Q    | 54      | 76     | 45 Q   | 58     |
| MW-573-03-PRL05-01 MSD DL | 320-39023-5 MSD DL    | 107 M  | 65      | 76      | 76     | 64     | 72     |

QC LIMITS

PFBS = 13C3-PFBS  
PFHpA = 13C4-PFHpA  
PFHxS = 18O2 PFHxS  
PFOA = 13C4 PFOA  
PFOS = 13C4 PFOS  
PFNA = 13C5 PFNA

50-150  
50-150  
50-150  
50-150  
50-150  
50-150

# Column to be used to flag recovery values

FORM II EPA 537 (Mod)

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.28LLB\_007.d  
 Lab ID: LCS 320-223091/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | LCS<br>CONCENTRATION<br>(ug/Kg) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|---------------------------|---------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 2.00                      | 2.17                            | 108             | 76-124              |   |
| Perfluorooctanoic acid (PFOA)        | 2.00                      | 2.00                            | 100             | 76-121              |   |
| Perfluorononanoic acid (PFNA)        | 2.00                      | 2.10                            | 105             | 74-126              |   |
| 13C3-PFBS                            | 4.65                      | 3.74                            | 80              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 1.77                      | 1.90                            | 108             | 73-142              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 1.82                      | 1.78                            | 98              | 75-121              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 1.86                      | 1.95                            | 105             | 69-131              |   |
| 13C4-PFHpA                           | 5.00                      | 4.45                            | 89              | 50-150              |   |
| 13C4 PFOA                            | 5.00                      | 4.54                            | 91              | 50-150              |   |
| 13C5 PFNA                            | 5.00                      | 4.70                            | 94              | 50-150              |   |
| 18O2 PFHxS                           | 4.73                      | 4.08                            | 86              | 50-150              |   |
| 13C4 PFOS                            | 4.78                      | 3.82                            | 80              | 50-150              |   |

# Column to be used to flag recovery and RPD values  
 FORM III EPA 537 (Mod)

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.28LLB\_035.d  
 Lab ID: LCS 320-223092/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | LCS<br>CONCENTRATION<br>(ug/Kg) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|---------------------------|---------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 2.00                      | 2.34                            | 117             | 76-124              |   |
| Perfluorooctanoic acid (PFOA)        | 2.00                      | 2.27                            | 113             | 76-121              |   |
| Perfluorononanoic acid (PFNA)        | 2.00                      | 2.23                            | 111             | 74-126              |   |
| 13C3-PFBS                            | 4.65                      | 3.31                            | 71              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 1.77                      | 2.09                            | 118             | 73-142              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 1.82                      | 1.95                            | 107             | 75-121              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 1.86                      | 2.11                            | 114             | 69-131              |   |
| 13C4-PFHpA                           | 5.00                      | 3.64                            | 73              | 50-150              |   |
| 13C4 PFOA                            | 5.00                      | 3.94                            | 79              | 50-150              |   |
| 13C5 PFNA                            | 5.00                      | 4.05                            | 81              | 50-150              |   |
| 18O2 PFHxS                           | 4.73                      | 3.47                            | 73              | 50-150              |   |
| 13C4 PFOS                            | 4.78                      | 3.38                            | 71              | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.18LLC\_027.d  
 Lab ID: LCS 320-223346/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | LCS<br>CONCENTRATION<br>(ng/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 40.0                     | 39.3                           | 98              | 80-113              |   |
| Perfluorooctanoic acid (PFOA)        | 40.0                     | 38.0                           | 95              | 80-107              |   |
| Perfluorononanoic acid (PFNA)        | 40.0                     | 40.6                           | 102             | 83-113              |   |
| 13C3-PFBS                            | 93.0                     | 76.4                           | 82              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4                     | 36.7                           | 104             | 87-120              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4                     | 34.1                           | 94              | 81-106              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1                     | 37.0                           | 100             | 82-112              |   |
| 13C4-PFHpA                           | 100                      | 94.3                           | 94              | 50-150              |   |
| 13C4 PFOA                            | 100                      | 93.1                           | 93              | 50-150              |   |
| 13C5 PFNA                            | 100                      | 95.5                           | 95              | 50-150              |   |
| 18O2 PFHxS                           | 94.6                     | 84.1                           | 89              | 50-150              |   |
| 13C4 PFOS                            | 95.6                     | 79.6                           | 83              | 50-150              |   |

# Column to be used to flag recovery and RPD values



FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.27LLADX\_005.d  
 Lab ID: LCS 320-223615/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | LCS<br>CONCENTRATION<br>(ng/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 40.0                     | 39.6                           | 99              | 80-113              |   |
| Perfluorooctanoic acid (PFOA)        | 40.0                     | 35.7                           | 89              | 80-107              |   |
| Perfluorononanoic acid (PFNA)        | 40.0                     | 37.6                           | 94              | 83-113              |   |
| 13C3-PFBS                            | 93.0                     | 73.0                           | 78              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4                     | 36.3                           | 103             | 87-120              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4                     | 35.0                           | 96              | 81-106              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1                     | 33.5                           | 90              | 82-112              |   |
| 13C4-PFHpA                           | 100                      | 85.4                           | 85              | 50-150              |   |
| 13C4 PFOA                            | 100                      | 90.3                           | 90              | 50-150              |   |
| 13C5 PFNA                            | 100                      | 90.0                           | 90              | 50-150              |   |
| 18O2 PFHxS                           | 94.6                     | 75.6                           | 80              | 50-150              |   |
| 13C4 PFOS                            | 95.6                     | 81.8                           | 86              | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.25LLAAXX\_032.d  
 Lab ID: LCS 320-223901/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | LCS<br>CONCENTRATION<br>(ng/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 40.0                     | 40.1                           | 100             | 80-113              |   |
| Perfluorooctanoic acid (PFOA)        | 40.0                     | 38.5                           | 96              | 80-107              |   |
| Perfluorononanoic acid (PFNA)        | 40.0                     | 38.3                           | 96              | 83-113              |   |
| 13C3-PFBS                            | 93.0                     | 75.2                           | 81              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4                     | 34.9                           | 99              | 87-120              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4                     | 35.7                           | 98              | 81-106              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1                     | 37.6                           | 101             | 82-112              | M |
| 13C4-PFHpA                           | 100                      | 82.9                           | 83              | 50-150              |   |
| 13C4 PFOA                            | 100                      | 83.9                           | 84              | 50-150              |   |
| 13C5 PFNA                            | 100                      | 84.1                           | 84              | 50-150              |   |
| 18O2 PFHxS                           | 94.6                     | 74.9                           | 79              | 50-150              |   |
| 13C4 PFOS                            | 95.6                     | 76.0                           | 79              | 50-150              |   |

# Column to be used to flag recovery and RPD values  
 FORM III EPA 537 (Mod)

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.27LLADX\_033.d  
 Lab ID: LCS 320-224065/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | LCS<br>CONCENTRATION<br>(ng/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 40.0                     | 36.1                           | 90              | 80-113              |   |
| Perfluorooctanoic acid (PFOA)        | 40.0                     | 35.0                           | 88              | 80-107              |   |
| Perfluorononanoic acid (PFNA)        | 40.0                     | 36.9                           | 92              | 83-113              |   |
| 13C3-PFBS                            | 93.0                     | 61.0                           | 66              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4                     | 33.5                           | 95              | 87-120              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4                     | 31.2                           | 86              | 81-106              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1                     | 33.8                           | 91              | 82-112              |   |
| 13C4-PFHpA                           | 100                      | 70.0                           | 70              | 50-150              |   |
| 13C4 PFOA                            | 100                      | 74.0                           | 74              | 50-150              |   |
| 13C5 PFNA                            | 100                      | 72.4                           | 72              | 50-150              |   |
| 18O2 PFHxS                           | 94.6                     | 66.4                           | 70              | 50-150              |   |
| 13C4 PFOS                            | 95.6                     | 63.2                           | 66              | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.30LLC\_025.d  
 Lab ID: LCS 320-224254/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | LCS<br>CONCENTRATION<br>(ug/Kg) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|---------------------------|---------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 2.00                      | 1.94                            | 97              | 76-124              |   |
| Perfluorooctanoic acid (PFOA)        | 2.00                      | 1.91                            | 96              | 76-121              |   |
| Perfluorononanoic acid (PFNA)        | 2.00                      | 2.01                            | 100             | 74-126              |   |
| 13C3-PFBS                            | 4.65                      | 3.75                            | 81              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 1.77                      | 1.76                            | 100             | 73-142              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 1.82                      | 1.75                            | 96              | 75-121              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 1.86                      | 1.83                            | 99              | 69-131              |   |
| 13C4-PFHpA                           | 5.00                      | 4.42                            | 88              | 50-150              |   |
| 13C4 PFOA                            | 5.00                      | 4.53                            | 91              | 50-150              |   |
| 13C5 PFNA                            | 5.00                      | 4.53                            | 91              | 50-150              |   |
| 18O2 PFHxS                           | 4.73                      | 4.01                            | 85              | 50-150              |   |
| 13C4 PFOS                            | 4.78                      | 3.96                            | 83              | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.30LLC\_038.d  
 Lab ID: LCS 320-224509/2-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | LCS<br>CONCENTRATION<br>(ng/L) | LCS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|--------------------------|--------------------------------|-----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 40.0                     | 39.5                           | 99              | 80-113              |   |
| Perfluorooctanoic acid (PFOA)        | 40.0                     | 37.7                           | 94              | 80-107              |   |
| Perfluorononanoic acid (PFNA)        | 40.0                     | 38.6                           | 96              | 83-113              |   |
| 13C3-PFBS                            | 93.0                     | 74.7                           | 80              | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4                     | 34.3                           | 97              | 87-120              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4                     | 33.9                           | 93              | 81-106              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1                     | 34.2                           | 92              | 82-112              |   |
| 13C4-PFHpA                           | 100                      | 84.8                           | 85              | 50-150              |   |
| 13C4 PFOA                            | 100                      | 88.1                           | 88              | 50-150              |   |
| 13C5 PFNA                            | 100                      | 90.5                           | 91              | 50-150              |   |
| 18O2 PFHxS                           | 94.6                     | 77.8                           | 82              | 50-150              |   |
| 13C4 PFOS                            | 95.6                     | 79.7                           | 83              | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.30LLC\_039.d  
 Lab ID: LCSD 320-224509/3-A Client ID: \_\_\_\_\_

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | LCSD<br>CONCENTRATION<br>(ng/L) | LCSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | # |
|--------------------------------------|--------------------------|---------------------------------|------------------|----------|-----------|--------|---|
|                                      |                          |                                 |                  |          | RPD       | REC    |   |
| Perfluoroheptanoic acid (PFHpA)      | 40.0                     | 38.4                            | 96               | 3        | 30        | 80-113 |   |
| Perfluorooctanoic acid (PFOA)        | 40.0                     | 38.2                            | 96               | 1        | 30        | 80-107 |   |
| Perfluorononanoic acid (PFNA)        | 40.0                     | 40.2                            | 101              | 4        | 30        | 83-113 |   |
| 13C3-PFBS                            | 93.0                     | 67.1                            | 72               |          |           | 50-150 |   |
| Perfluorobutanesulfonic acid (PFBS)  | 35.4                     | 34.7                            | 98               | 1        | 30        | 87-120 |   |
| Perfluorohexanesulfonic acid (PFHxS) | 36.4                     | 32.1                            | 88               | 5        | 30        | 81-106 |   |
| Perfluorooctanesulfonic acid (PFOS)  | 37.1                     | 32.9                            | 89               | 4        | 30        | 82-112 |   |
| 13C4-PFHpA                           | 100                      | 76.5                            | 76               |          |           | 50-150 |   |
| 13C4 PFOA                            | 100                      | 81.0                            | 81               |          |           | 50-150 |   |
| 13C5 PFNA                            | 100                      | 81.7                            | 82               |          |           | 50-150 |   |
| 18O2 PFHxS                           | 94.6                     | 72.7                            | 77               |          |           | 50-150 |   |
| 13C4 PFOS                            | 95.6                     | 72.7                            | 76               |          |           | 50-150 |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.27LLADX\_039.d  
 Lab ID: 320-39023-5 MS Client ID: MW-573-03-PRL05-01 MS

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | SAMPLE<br>CONCENTRATION<br>(ng/L) | MS<br>CONCENTRATION<br>(ng/L) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | #     |
|--------------------------------------|--------------------------|-----------------------------------|-------------------------------|----------------|---------------------|-------|
| Perfluoroheptanoic acid (PFHpA)      | 37.2                     | 4400                              | 4240                          | -309           | 80-113              | E 4   |
| Perfluorooctanoic acid (PFOA)        | 37.2                     | 4700                              | 4660                          | -135           | 80-107              | E 4   |
| Perfluorononanoic acid (PFNA)        | 37.2                     | 200                               | 223                           | 66             | 83-113              | 4 M   |
| 13C3-PFBS                            | 86.5                     | 130                               | 127                           | 146            | 50-150              |       |
| Perfluorobutanesulfonic acid (PFBS)  | 32.9                     | 1900                              | 1670                          | -546           | 87-120              | E 4 M |
| Perfluorohexanesulfonic acid (PFHxS) | 33.8                     | 12000                             | 11800                         | -1361          | 81-106              | E 4   |
| Perfluorooctanesulfonic acid (PFOS)  | 34.5                     | 32000                             | 32300                         | 1855           | 82-112              | E 4   |
| 13C4-PFHpA                           | 93.0                     | 45                                | 44.3                          | 48             | 50-150              | Q     |
| 13C4 PFOA                            | 93.0                     | 76                                | 74.3                          | 80             | 50-150              |       |
| 13C5 PFNA                            | 93.0                     | 57                                | 57.2                          | 62             | 50-150              |       |
| 18O2 PFHxS                           | 88.0                     | 51                                | 48.6                          | 55             | 50-150              |       |
| 13C4 PFOS                            | 88.9                     | 45                                | 42.7                          | 48             | 50-150              | Q     |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.29LLB\_012.d  
 Lab ID: 320-39023-5 MS DL Client ID: MW-573-03-PRL05-01 MS DL

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | SAMPLE<br>CONCENTRATION<br>(ng/L) | MS<br>CONCENTRATION<br>(ng/L) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | #     |
|--------------------------------------|--------------------------|-----------------------------------|-------------------------------|----------------|---------------------|-------|
| Perfluoroheptanoic acid (PFHpA)      | 37.2                     | 5100                              | 5430                          | 920            | 80-113              | 4 D   |
| Perfluorooctanoic acid (PFOA)        | 37.2                     | 6700                              | 6130                          | -1548          | 80-107              | 4 D   |
| Perfluorononanoic acid (PFNA)        | 37.2                     | 190 J                             | 225                           | 89             | 83-113              | 4 D   |
| 13C3-PFBS                            | 86.5                     | 92                                | 92.7                          | 107            | 50-150              | M     |
| Perfluorobutanesulfonic acid (PFBS)  | 32.9                     | 3900                              | 3890                          | -129           | 87-120              | 4 D   |
| Perfluorohexanesulfonic acid (PFHxS) | 33.8                     | 39000                             | 35400                         | -9248          | 81-106              | E 4 D |
| Perfluorooctanesulfonic acid (PFOS)  | 34.5                     | 63000                             | 72300                         | 25660          | 82-112              | E 4 D |
| 13C4-PFHpA                           | 93.0                     | 63                                | 59.7                          | 64             | 50-150              |       |
| 13C4 PFOA                            | 93.0                     | 72                                | 79.6                          | 86             | 50-150              |       |
| 13C5 PFNA                            | 93.0                     | 68                                | 65.8                          | 71             | 50-150              |       |
| 18O2 PFHxS                           | 88.0                     | 68                                | 72.4                          | 82             | 50-150              |       |
| 13C4 PFOS                            | 88.9                     | 62                                | 54.1                          | 61             | 50-150              |       |

# Column to be used to flag recovery and RPD values



FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.28LLB\_037.d  
 Lab ID: 320-39023-15 MS Client ID: KLA02-SB1-01 MS

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | SAMPLE<br>CONCENTRATION<br>(ug/Kg) | MS<br>CONCENTRATION<br>(ug/Kg) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 2.60                      | 0.16 J                             | 3.00                           | 109            | 76-124              |   |
| Perfluorooctanoic acid (PFOA)        | 2.60                      | 0.46                               | 3.13                           | 102            | 76-121              |   |
| Perfluorononanoic acid (PFNA)        | 2.60                      | 0.26 U                             | 2.80                           | 108            | 74-126              |   |
| 13C3-PFBS                            | 6.05                      | 4.9                                | 4.63                           | 77             | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 2.30                      | 0.25 J                             | 2.61                           | 103            | 73-142              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 2.37                      | 2.6                                | 4.85                           | 95             | 75-121              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 2.42                      | 7.6                                | 10.2                           | 107            | 69-131              | M |
| 13C4-PFHpA                           | 6.51                      | 6.0                                | 5.42                           | 83             | 50-150              |   |
| 13C4 PFOA                            | 6.51                      | 6.1                                | 5.69                           | 87             | 50-150              |   |
| 13C5 PFNA                            | 6.51                      | 6.5                                | 5.90                           | 91             | 50-150              |   |
| 18O2 PFHxS                           | 6.16                      | 5.4                                | 5.03                           | 82             | 50-150              |   |
| 13C4 PFOS                            | 6.22                      | 5.3                                | 5.01                           | 80             | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.06.06LLC\_066.d  
 Lab ID: 320-39023-41 MS Client ID: KLA06-SB2-01 MS

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | SAMPLE<br>CONCENTRATION<br>(ug/Kg) | MS<br>CONCENTRATION<br>(ug/Kg) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | #   |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|----------------|---------------------|-----|
| Perfluoroheptanoic acid (PFHpA)      | 3.15                      | 1.2                                | 5.16                           | 125            | 76-124              | J1  |
| Perfluorooctanoic acid (PFOA)        | 3.15                      | 6.7                                | 11.5                           | 151            | 76-121              | J1  |
| Perfluorononanoic acid (PFNA)        | 3.15                      | 1.6                                | 5.14                           | 113            | 74-126              |     |
| 13C3-PFBS                            | 7.33                      | 6.0                                | 6.43                           | 88             | 50-150              |     |
| Perfluorobutanesulfonic acid (PFBS)  | 2.79                      | 0.99                               | 4.20                           | 115            | 73-142              |     |
| Perfluorohexanesulfonic acid (PFHxS) | 2.87                      | 42                                 | 56.3                           | 512            | 75-121              | E 4 |
| Perfluorooctanesulfonic acid (PFOS)  | 2.92                      | 580                                | 813                            | 7925           | 69-131              | E 4 |
| 13C4-PFHpA                           | 7.88                      | 6.5                                | 6.50                           | 82             | 50-150              |     |
| 13C4 PFOA                            | 7.88                      | 6.7                                | 6.69                           | 85             | 50-150              |     |
| 13C5 PFNA                            | 7.88                      | 4.3                                | 3.81                           | 48             | 50-150              | Q   |
| 18O2 PFHxS                           | 7.45                      | 5.7                                | 5.17                           | 69             | 50-150              |     |
| 13C4 PFOS                            | 7.53                      | 4.1                                | 3.48                           | 46             | 50-150              | Q   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.29LLA\_016.d  
 Lab ID: 320-39023-41 MS DL Client ID: KLA06-SB2-01 MS DL

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | SAMPLE<br>CONCENTRATION<br>(ug/Kg) | MS<br>CONCENTRATION<br>(ug/Kg) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | #       |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|----------------|---------------------|---------|
| Perfluoroheptanoic acid (PFHpA)      | 3.15                      | 1.2 J                              | 5.72                           | 181            | 76-124              | D J1    |
| Perfluorooctanoic acid (PFOA)        | 3.15                      | 6.7                                | 12.3                           | 177            | 76-121              | D J1    |
| Perfluorononanoic acid (PFNA)        | 3.15                      | 1.6 J                              | 5.30                           | 118            | 74-126              | D       |
| 13C3-PFBS                            | 7.33                      | 5.0                                | 5.23                           | 71             | 50-150              |         |
| Perfluorobutanesulfonic acid (PFBS)  | 2.79                      | 1.0 J                              | 4.25 J                         | 116            | 73-142              | D       |
| Perfluorohexanesulfonic acid (PFHxS) | 2.87                      | 44                                 | 61.0                           | 611            | 75-121              | D 4     |
| Perfluorooctanesulfonic acid (PFOS)  | 2.92                      | 860                                | 1140                           | 9468           | 69-131              | E D M 4 |
| 13C4-PFHpA                           | 7.88                      | 6.3                                | 6.20                           | 79             | 50-150              |         |
| 13C4 PFOA                            | 7.88                      | 6.7                                | 6.37                           | 81             | 50-150              |         |
| 13C5 PFNA                            | 7.88                      | 6.1                                | 5.81                           | 74             | 50-150              |         |
| 18O2 PFHxS                           | 7.45                      | 5.6                                | 5.41                           | 73             | 50-150              |         |
| 13C4 PFOS                            | 7.53                      | 4.9                                | 4.83                           | 64             | 50-150              |         |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.29LLA\_010.d  
 Lab ID: 320-39023-41 MS DL2 Client ID: KLA06-SB2-01 MS DL2

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | SAMPLE<br>CONCENTRATION<br>(ug/Kg) | MS<br>CONCENTRATION<br>(ug/Kg) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | #     |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|----------------|---------------------|-------|
| Perfluoroheptanoic acid (PFHpA)      | 3.15                      | 32 U                               | 32 U                           | NC             | 76-124              |       |
| Perfluorooctanoic acid (PFOA)        | 3.15                      | 32 U                               | 32 U                           | NC             | 76-121              | M     |
| Perfluorononanoic acid (PFNA)        | 3.15                      | 32 U                               | 32 U                           | NC             | 74-126              | M     |
| 13C3-PFBS                            | 7.33                      | 5.1                                | 3.24                           | 44             | 50-150              | M Q   |
| Perfluorobutanesulfonic acid (PFBS)  | 2.79                      | 29 U                               | 28 U                           | NC             | 73-142              |       |
| Perfluorohexanesulfonic acid (PFHxS) | 2.87                      | 39 J                               | 58.6                           | 682            | 75-121              | D 4   |
| Perfluorooctanesulfonic acid (PFOS)  | 2.92                      | 960                                | 1200                           | 8375           | 69-131              | D M 4 |
| 13C4-PFHpA                           | 7.88                      | 5.2                                | 5.56                           | 71             | 50-150              |       |
| 13C4 PFOA                            | 7.88                      | 6.4                                | 6.10                           | 77             | 50-150              |       |
| 13C5 PFNA                            | 7.88                      | 5.9                                | 5.74                           | 73             | 50-150              |       |
| 18O2 PFHxS                           | 7.45                      | 5.4                                | 4.88                           | 65             | 50-150              |       |
| 13C4 PFOS                            | 7.53                      | 4.6                                | 4.94                           | 66             | 50-150              |       |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.30LLC\_027.d  
 Lab ID: 320-39023-59 MS Client ID: KLA07-SD1-01D MS

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | SAMPLE<br>CONCENTRATION<br>(ug/Kg) | MS<br>CONCENTRATION<br>(ug/Kg) | MS<br>%<br>REC | QC<br>LIMITS<br>REC | # |
|--------------------------------------|---------------------------|------------------------------------|--------------------------------|----------------|---------------------|---|
| Perfluoroheptanoic acid (PFHpA)      | 2.65                      | 0.12 J                             | 2.83                           | 102            | 76-124              |   |
| Perfluorooctanoic acid (PFOA)        | 2.65                      | 0.48                               | 2.74                           | 85             | 76-121              |   |
| Perfluorononanoic acid (PFNA)        | 2.65                      | 0.27 U                             | 2.54                           | 96             | 74-126              |   |
| 13C3-PFBS                            | 6.16                      | 4.5                                | 4.38                           | 71             | 50-150              |   |
| Perfluorobutanesulfonic acid (PFBS)  | 2.34                      | 0.20 J                             | 2.66                           | 105            | 73-142              |   |
| Perfluorohexanesulfonic acid (PFHxS) | 2.41                      | 2.1                                | 4.31                           | 91             | 75-121              |   |
| Perfluorooctanesulfonic acid (PFOS)  | 2.46                      | 15                                 | 11.8                           | -148           | 69-131              | 4 |
| 13C4-PFHpA                           | 6.63                      | 5.4                                | 5.21                           | 79             | 50-150              |   |
| 13C4 PFOA                            | 6.63                      | 5.9                                | 5.85                           | 88             | 50-150              |   |
| 13C5 PFNA                            | 6.63                      | 6.3                                | 6.30                           | 95             | 50-150              |   |
| 18O2 PFHxS                           | 6.27                      | 5.0                                | 4.75                           | 76             | 50-150              |   |
| 13C4 PFOS                            | 6.34                      | 5.0                                | 4.90                           | 77             | 50-150              |   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.27LLADX\_040.d  
 Lab ID: 320-39023-5 MSD Client ID: MW-573-03-PRL05-01 MSD

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | MSD<br>CONCENTRATION<br>(ng/L) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | #     |
|--------------------------------------|--------------------------|--------------------------------|-----------------|----------|-----------|--------|-------|
|                                      |                          |                                |                 |          | RPD       | REC    |       |
| Perfluoroheptanoic acid (PFHpA)      | 38.7                     | 4340                           | -43             | 2        | 30        | 80-113 | E 4   |
| Perfluorooctanoic acid (PFOA)        | 38.7                     | 4690                           | -45             | 1        | 30        | 80-107 | E 4   |
| Perfluorononanoic acid (PFNA)        | 38.7                     | 229                            | 78              | 2        | 30        | 83-113 | 4 M   |
| 13C3-PFBS                            | 90.0                     | 121                            | 134             |          |           | 50-150 |       |
| Perfluorobutanesulfonic acid (PFBS)  | 34.2                     | 1790                           | -187            | 7        | 30        | 87-120 | E 4 M |
| Perfluorohexanesulfonic acid (PFHxS) | 35.2                     | 12000                          | -912            | 1        | 30        | 81-106 | E 4   |
| Perfluorooctanesulfonic acid (PFOS)  | 35.9                     | 33600                          | 5571            | 4        | 30        | 82-112 | E 4   |
| 13C4-PFHpA                           | 96.8                     | 43.3                           | 45              |          |           | 50-150 | Q     |
| 13C4 PFOA                            | 96.8                     | 73.5                           | 76              |          |           | 50-150 |       |
| 13C5 PFNA                            | 96.8                     | 55.8                           | 58              |          |           | 50-150 |       |
| 18O2 PFHxS                           | 91.6                     | 49.0                           | 54              |          |           | 50-150 |       |
| 13C4 PFOS                            | 92.6                     | 41.7                           | 45              |          |           | 50-150 | Q     |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.05.29LLB\_013.d  
 Lab ID: 320-39023-5 MSD DL Client ID: MW-573-03-PRL05-01 MSD DL

| COMPOUND                             | SPIKE<br>ADDED<br>(ng/L) | MSD<br>CONCENTRATION<br>(ng/L) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | #     |
|--------------------------------------|--------------------------|--------------------------------|-----------------|----------|-----------|--------|-------|
|                                      |                          |                                |                 |          | RPD       | REC    |       |
| Perfluoroheptanoic acid (PFHpA)      | 38.7                     | 4770                           | -833            | 13       | 30        | 80-113 | 4 D   |
| Perfluorooctanoic acid (PFOA)        | 38.7                     | 6400                           | -782            | 4        | 30        | 80-107 | 4 D   |
| Perfluorononanoic acid (PFNA)        | 38.7                     | 241                            | 128             | 7        | 30        | 83-113 | 4 D M |
| 13C3-PFBS                            | 90.0                     | 96.4                           | 107             |          |           | 50-150 | M     |
| Perfluorobutanesulfonic acid (PFBS)  | 34.2                     | 3640                           | -862            | 7        | 30        | 87-120 | 4 D   |
| Perfluorohexanesulfonic acid (PFHxS) | 35.2                     | 36500                          | -5657           | 3        | 30        | 81-106 | E 4 D |
| Perfluorooctanesulfonic acid (PFOS)  | 35.9                     | 68600                          | 14331           | 5        | 30        | 82-112 | E 4 D |
| 13C4-PFHpA                           | 96.8                     | 63.1                           | 65              |          |           | 50-150 |       |
| 13C4 PFOA                            | 96.8                     | 73.4                           | 76              |          |           | 50-150 |       |
| 13C5 PFNA                            | 96.8                     | 70.1                           | 72              |          |           | 50-150 |       |
| 18O2 PFHxS                           | 91.6                     | 70.1                           | 76              |          |           | 50-150 |       |
| 13C4 PFOS                            | 92.6                     | 58.9                           | 64              |          |           | 50-150 |       |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.28LLB\_038.d  
 Lab ID: 320-39023-15 MSD Client ID: KLA02-SB1-01 MSD

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | MSD<br>CONCENTRATION<br>(ug/Kg) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | #  |
|--------------------------------------|---------------------------|---------------------------------|-----------------|----------|-----------|--------|----|
|                                      |                           |                                 |                 |          | RPD       | REC    |    |
| Perfluoroheptanoic acid (PFHpA)      | 2.59                      | 2.91                            | 106             | 3        | 30        | 76-124 |    |
| Perfluorooctanoic acid (PFOA)        | 2.59                      | 2.99                            | 98              | 4        | 30        | 76-121 |    |
| Perfluorononanoic acid (PFNA)        | 2.59                      | 2.76                            | 106             | 2        | 30        | 74-126 |    |
| 13C3-PFBS                            | 6.03                      | 4.84                            | 80              |          |           | 50-150 |    |
| Perfluorobutanesulfonic acid (PFBS)  | 2.29                      | 2.75                            | 109             | 5        | 30        | 73-142 |    |
| Perfluorohexanesulfonic acid (PFHxS) | 2.36                      | 4.92                            | 98              | 1        | 30        | 75-121 |    |
| Perfluorooctanesulfonic acid (PFOS)  | 2.41                      | 8.73                            | 48              | 15       | 30        | 69-131 | J1 |
| 13C4-PFHpA                           | 6.48                      | 5.84                            | 90              |          |           | 50-150 |    |
| 13C4 PFOA                            | 6.48                      | 6.13                            | 95              |          |           | 50-150 |    |
| 13C5 PFNA                            | 6.48                      | 6.21                            | 96              |          |           | 50-150 |    |
| 18O2 PFHxS                           | 6.13                      | 5.08                            | 83              |          |           | 50-150 |    |
| 13C4 PFOS                            | 6.20                      | 5.26                            | 85              |          |           | 50-150 |    |

# Column to be used to flag recovery and RPD values



FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.06.06LLC\_067.d  
 Lab ID: 320-39023-41 MSD Client ID: KLA06-SB2-01 MSD

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | MSD<br>CONCENTRATION<br>(ug/Kg) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | #   |
|--------------------------------------|---------------------------|---------------------------------|-----------------|----------|-----------|--------|-----|
|                                      |                           |                                 |                 |          | RPD       | REC    |     |
| Perfluoroheptanoic acid (PFHpA)      | 3.16                      | 5.65                            | 141             | 9        | 30        | 76-124 | J1  |
| Perfluorooctanoic acid (PFOA)        | 3.16                      | 13.2                            | 205             | 14       | 30        | 76-121 | J1  |
| Perfluorononanoic acid (PFNA)        | 3.16                      | 5.14                            | 113             | 0        | 30        | 74-126 |     |
| 13C3-PFBS                            | 7.34                      | 6.29                            | 86              |          |           | 50-150 |     |
| Perfluorobutanesulfonic acid (PFBS)  | 2.79                      | 4.65                            | 131             | 10       | 30        | 73-142 |     |
| Perfluorohexanesulfonic acid (PFHxS) | 2.87                      | 61.2                            | 680             | 8        | 30        | 75-121 | E 4 |
| Perfluorooctanesulfonic acid (PFOS)  | 2.93                      | 827                             | 8409            | 2        | 30        | 69-131 | E 4 |
| 13C4-PFHpA                           | 7.89                      | 6.46                            | 82              |          |           | 50-150 |     |
| 13C4 PFOA                            | 7.89                      | 6.57                            | 83              |          |           | 50-150 |     |
| 13C5 PFNA                            | 7.89                      | 3.80                            | 48              |          |           | 50-150 | Q   |
| 18O2 PFHxS                           | 7.47                      | 4.69                            | 63              |          |           | 50-150 |     |
| 13C4 PFOS                            | 7.55                      | 3.40                            | 45              |          |           | 50-150 | Q   |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.29LLA\_017.d  
 Lab ID: 320-39023-41 MSD DL Client ID: KLA06-SB2-01 MSD DL

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | MSD<br>CONCENTRATION<br>(ug/Kg) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | #     |
|--------------------------------------|---------------------------|---------------------------------|-----------------|----------|-----------|--------|-------|
|                                      |                           |                                 |                 |          | RPD       | REC    |       |
| Perfluoroheptanoic acid (PFHpA)      | 3.16                      | 6.13                            | 194             | 7        | 30        | 76-124 | D J1  |
| Perfluorooctanoic acid (PFOA)        | 3.16                      | 13.8                            | 226             | 12       | 30        | 76-121 | D J1  |
| Perfluorononanoic acid (PFNA)        | 3.16                      | 5.39                            | 121             | 2        | 30        | 74-126 | D     |
| 13C3-PFBS                            | 7.34                      | 4.54                            | 62              |          |           | 50-150 |       |
| Perfluorobutanesulfonic acid (PFBS)  | 2.79                      | 5.28 J                          | 153             | 22       | 30        | 73-142 | D J1  |
| Perfluorohexanesulfonic acid (PFHxS) | 2.87                      | 64.1                            | 715             | 5        | 30        | 75-121 | D 4   |
| Perfluorooctanesulfonic acid (PFOS)  | 2.93                      | 1170                            | 10722           | 3        | 30        | 69-131 | E D 4 |
| 13C4-PFHpA                           | 7.89                      | 6.31                            | 80              |          |           | 50-150 |       |
| 13C4 PFOA                            | 7.89                      | 6.50                            | 82              |          |           | 50-150 |       |
| 13C5 PFNA                            | 7.89                      | 5.79                            | 73              |          |           | 50-150 |       |
| 18O2 PFHxS                           | 7.47                      | 5.35                            | 72              |          |           | 50-150 |       |
| 13C4 PFOS                            | 7.55                      | 4.62                            | 61              |          |           | 50-150 |       |

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.29LLA\_011.d  
 Lab ID: 320-39023-41 MSD DL2 Client ID: KLA06-SB2-01 MSD DL2

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | MSD<br>CONCENTRATION<br>(ug/Kg) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | #     |
|--------------------------------------|---------------------------|---------------------------------|-----------------|----------|-----------|--------|-------|
|                                      |                           |                                 |                 |          | RPD       | REC    |       |
| Perfluoroheptanoic acid (PFHpA)      | 3.16                      | 32 U                            | NC              | NC       | 30        | 76-124 |       |
| Perfluorooctanoic acid (PFOA)        | 3.16                      | 16.3 J                          | NC              | NC       | 30        | 76-121 | D     |
| Perfluorononanoic acid (PFNA)        | 3.16                      | 32 U                            | NC              | NC       | 30        | 74-126 |       |
| 13C3-PFBS                            | 7.34                      | 5.55                            | 76              |          |           | 50-150 | M     |
| Perfluorobutanesulfonic acid (PFBS)  | 2.79                      | 28 U                            | NC              | NC       | 30        | 73-142 |       |
| Perfluorohexanesulfonic acid (PFHxS) | 2.87                      | 60.5                            | 747             | 3        | 30        | 75-121 | D 4   |
| Perfluorooctanesulfonic acid (PFOS)  | 2.93                      | 1230                            | 9131            | 2        | 30        | 69-131 | D M 4 |
| 13C4-PFHpA                           | 7.89                      | 5.97                            | 76              |          |           | 50-150 |       |
| 13C4 PFOA                            | 7.89                      | 6.43                            | 81              |          |           | 50-150 |       |
| 13C5 PFNA                            | 7.89                      | 5.95                            | 75              |          |           | 50-150 |       |
| 18O2 PFHxS                           | 7.47                      | 4.92                            | 66              |          |           | 50-150 |       |
| 13C4 PFOS                            | 7.55                      | 5.33                            | 71              |          |           | 50-150 |       |

# Column to be used to flag recovery and RPD values  
 FORM III EPA 537 (Mod)

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Solid Level: Low Lab File ID: 2018.05.30LLC\_028.d  
 Lab ID: 320-39023-59 MSD Client ID: KLA07-SD1-01D MSD

| COMPOUND                             | SPIKE<br>ADDED<br>(ug/Kg) | MSD<br>CONCENTRATION<br>(ug/Kg) | MSD<br>%<br>REC | %<br>RPD | QC LIMITS |        | # |
|--------------------------------------|---------------------------|---------------------------------|-----------------|----------|-----------|--------|---|
|                                      |                           |                                 |                 |          | RPD       | REC    |   |
| Perfluoroheptanoic acid (PFHpA)      | 2.68                      | 2.74                            | 98              | 3        | 30        | 76-124 |   |
| Perfluorooctanoic acid (PFOA)        | 2.68                      | 2.72                            | 84              | 1        | 30        | 76-121 |   |
| Perfluorononanoic acid (PFNA)        | 2.68                      | 2.54                            | 95              | 0        | 30        | 74-126 |   |
| 13C3-PFBS                            | 6.23                      | 4.49                            | 72              |          |           | 50-150 |   |
| Perfluorobutanesulfonic acid (PFBS)  | 2.37                      | 2.49                            | 97              | 6        | 30        | 73-142 |   |
| Perfluorohexanesulfonic acid (PFHxS) | 2.44                      | 4.14                            | 84              | 4        | 30        | 75-121 |   |
| Perfluorooctanesulfonic acid (PFOS)  | 2.48                      | 10.1                            | -213            | 15       | 30        | 69-131 | 4 |
| 13C4-PFHpA                           | 6.69                      | 5.41                            | 81              |          |           | 50-150 |   |
| 13C4 PFOA                            | 6.69                      | 6.11                            | 91              |          |           | 50-150 |   |
| 13C5 PFNA                            | 6.69                      | 6.30                            | 94              |          |           | 50-150 |   |
| 18O2 PFHxS                           | 6.33                      | 4.87                            | 77              |          |           | 50-150 |   |
| 13C4 PFOS                            | 6.40                      | 4.98                            | 78              |          |           | 50-150 |   |

# Column to be used to flag recovery and RPD values

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.05.28LLB\_006.d Lab Sample ID: MB 320-223091/1-A  
Matrix: Solid Date Extracted: 05/14/2018 13:10  
Instrument ID: A8\_N Date Analyzed: 05/29/2018 03:17  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID     | LAB SAMPLE ID        | LAB<br>FILE ID          | DATE ANALYZED    |
|----------------------|----------------------|-------------------------|------------------|
|                      | LCS 320-223091/2-A   | 2018.05.28L<br>LB 007.d | 05/29/2018 03:24 |
| KLA-01-SB1-01        | 320-39023-9          | 2018.05.28L<br>LB 008.d | 05/29/2018 03:32 |
| KLA-01-SB1-02        | 320-39023-10         | 2018.05.28L<br>LB 009.d | 05/29/2018 03:40 |
| KLA-01-SB2-01        | 320-39023-11         | 2018.05.28L<br>LB 010.d | 05/29/2018 03:48 |
| KLA-01-SB2-02        | 320-39023-12         | 2018.05.28L<br>LB 011.d | 05/29/2018 03:56 |
| KLA-01-SB3-01        | 320-39023-13         | 2018.05.28L<br>LB 012.d | 05/29/2018 04:04 |
| KLA-01-SB3-02        | 320-39023-14         | 2018.05.28L<br>LB 013.d | 05/29/2018 04:12 |
| KLA03-SB1-01         | 320-39023-21         | 2018.05.28L<br>LB 014.d | 05/29/2018 04:19 |
| KLA03-SB1-02         | 320-39023-22         | 2018.05.28L<br>LB 015.d | 05/29/2018 04:27 |
| KLA-01-SB1-01 DL     | 320-39023-9 DL       | 2018.05.29L<br>LA 002.d | 05/29/2018 11:07 |
| KLA-01-SB1-02 DL     | 320-39023-10 DL      | 2018.05.29L<br>LA 003.d | 05/29/2018 11:15 |
| KLA06-SB1-01 DL      | 320-39023-39 DL      | 2018.05.29L<br>LA 005.d | 05/29/2018 11:30 |
| KLA06-SB1-02 DL      | 320-39023-40 DL      | 2018.05.29L<br>LA 006.d | 05/29/2018 11:38 |
| KLA06-SB2-01 DL2     | 320-39023-41 DL2     | 2018.05.29L<br>LA 009.d | 05/29/2018 12:02 |
| KLA06-SB2-01 MS DL2  | 320-39023-41 MS DL2  | 2018.05.29L<br>LA 010.d | 05/29/2018 12:10 |
| KLA06-SB2-01 MSD DL2 | 320-39023-41 MSD DL2 | 2018.05.29L<br>LA 011.d | 05/29/2018 12:17 |
| KLA06-SB2-02 DL2     | 320-39023-42 DL2     | 2018.05.29L<br>LA 012.d | 05/29/2018 12:25 |
| KLA06-SB-2-02D DL2   | 320-39023-52 DL2     | 2018.05.29L<br>LA 013.d | 05/29/2018 12:33 |
| KLA05-SB1-01D DL     | 320-39023-55 DL      | 2018.05.29L<br>LA 014.d | 05/29/2018 12:41 |
| KLA06-SB2-01 DL      | 320-39023-41 DL      | 2018.05.29L<br>LA 015.d | 05/29/2018 12:49 |
| KLA06-SB2-01 MS DL   | 320-39023-41 MS DL   | 2018.05.29L<br>LA 016.d | 05/29/2018 12:57 |
| KLA06-SB2-01 MSD DL  | 320-39023-41 MSD DL  | 2018.05.29L<br>LA 017.d | 05/29/2018 13:04 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.05.28LLB\_006.d Lab Sample ID: MB 320-223091/1-A  
 Matrix: Solid Date Extracted: 05/14/2018 13:10  
 Instrument ID: A8\_N Date Analyzed: 05/29/2018 03:17  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID  | LAB SAMPLE ID    | LAB<br>FILE ID          | DATE ANALYZED    |
|-------------------|------------------|-------------------------|------------------|
| KLA06-SB2-02 DL   | 320-39023-42 DL  | 2018.05.29L<br>LA 020.d | 05/29/2018 13:28 |
| KLA06-SB-2-02D DL | 320-39023-52 DL  | 2018.05.29L<br>LA 021.d | 05/29/2018 13:36 |
| KLA03-SB2-01      | 320-39023-23     | 2018.06.06L<br>LC 059.d | 06/06/2018 22:47 |
| KLA03-SB2-02      | 320-39023-24     | 2018.06.06L<br>LC 060.d | 06/06/2018 22:55 |
| KLA03-SB3-01      | 320-39023-25     | 2018.06.06L<br>LC 061.d | 06/06/2018 23:03 |
| KLA03-SB3-02      | 320-39023-26     | 2018.06.06L<br>LC 062.d | 06/06/2018 23:10 |
| KLA06-SB1-01      | 320-39023-39     | 2018.06.06L<br>LC 063.d | 06/06/2018 23:18 |
| KLA06-SB1-02      | 320-39023-40     | 2018.06.06L<br>LC 064.d | 06/06/2018 23:26 |
| KLA06-SB2-01      | 320-39023-41     | 2018.06.06L<br>LC 065.d | 06/06/2018 23:34 |
| KLA06-SB2-01 MS   | 320-39023-41 MS  | 2018.06.06L<br>LC 066.d | 06/06/2018 23:42 |
| KLA06-SB2-01 MSD  | 320-39023-41 MSD | 2018.06.06L<br>LC 067.d | 06/06/2018 23:50 |
| KLA06-SB2-02      | 320-39023-42     | 2018.06.06L<br>LC 070.d | 06/07/2018 00:13 |
| KLA06-SB-2-02D    | 320-39023-52     | 2018.06.06L<br>LC 071.d | 06/07/2018 00:21 |
| KLA05-SB1-01D     | 320-39023-55     | 2018.06.06L<br>LC 072.d | 06/07/2018 00:29 |
| KLA07-SD1-01      | 320-39023-43     | 2018.06.06L<br>LC 075.d | 06/07/2018 00:52 |
| KLA03-SB-2-01D    | 320-39023-51     | 2018.06.06L<br>LC 076.d | 06/07/2018 01:00 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.05.28LLB\_034.d Lab Sample ID: MB 320-223092/1-A  
 Matrix: Solid Date Extracted: 05/14/2018 14:03  
 Instrument ID: A8\_N Date Analyzed: 05/29/2018 07:27  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID      | LAB<br>FILE ID          | DATE ANALYZED    |
|------------------|--------------------|-------------------------|------------------|
|                  | LCS 320-223092/2-A | 2018.05.28L<br>LB 035.d | 05/29/2018 07:35 |
| KLA02-SB1-01     | 320-39023-15       | 2018.05.28L<br>LB 036.d | 05/29/2018 07:43 |
| KLA02-SB1-01 MS  | 320-39023-15 MS    | 2018.05.28L<br>LB 037.d | 05/29/2018 07:51 |
| KLA02-SB1-01 MSD | 320-39023-15 MSD   | 2018.05.28L<br>LB 038.d | 05/29/2018 07:59 |
| KLA02-SB1-02     | 320-39023-16       | 2018.05.28L<br>LB 039.d | 05/29/2018 08:07 |
| KLA02-SB2-01     | 320-39023-17       | 2018.05.28L<br>LB 040.d | 05/29/2018 08:14 |
| KLA02-SB2-02     | 320-39023-18       | 2018.05.28L<br>LB 041.d | 05/29/2018 08:22 |
| KLA02-SB3-01     | 320-39023-19       | 2018.05.28L<br>LB 042.d | 05/29/2018 08:30 |
| KLA02-SB3-02     | 320-39023-20       | 2018.05.28L<br>LB 043.d | 05/29/2018 08:38 |
| KLA04-SB1-01     | 320-39023-27       | 2018.05.28L<br>LB 045.d | 05/29/2018 08:54 |
| KLA04-SB1-02     | 320-39023-28       | 2018.05.28L<br>LB 046.d | 05/29/2018 09:02 |
| KLA04-SB2-01     | 320-39023-29       | 2018.05.28L<br>LB 047.d | 05/29/2018 09:09 |
| KLA04-SB2-02     | 320-39023-30       | 2018.05.28L<br>LB 048.d | 05/29/2018 09:17 |
| KLA04-SB3-01     | 320-39023-31       | 2018.05.28L<br>LB 049.d | 05/29/2018 09:25 |
| KLA04-SB3-02     | 320-39023-32       | 2018.05.28L<br>LB 050.d | 05/29/2018 09:33 |
| KLA05-SB1-01     | 320-39023-33       | 2018.05.28L<br>LB 051.d | 05/29/2018 09:41 |
| KLA05-SB2-01     | 320-39023-35       | 2018.05.28L<br>LB 053.d | 05/29/2018 09:56 |
| KLA05-SB2-02     | 320-39023-36       | 2018.05.28L<br>LB 054.d | 05/29/2018 10:04 |
| KLA05-SB3-01     | 320-39023-37       | 2018.05.28L<br>LB 056.d | 05/29/2018 10:20 |
| KLA05-SB3-02     | 320-39023-38       | 2018.05.28L<br>LB 057.d | 05/29/2018 10:28 |
| KLA02-SB2-02D    | 320-39023-53       | 2018.05.28L<br>LB 058.d | 05/29/2018 10:36 |
| KLA02-SB1-02D    | 320-39023-54       | 2018.05.28L<br>LB 059.d | 05/29/2018 10:43 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.05.28LLB\_034.d Lab Sample ID: MB 320-223092/1-A  
 Matrix: Solid Date Extracted: 05/14/2018 14:03  
 Instrument ID: A8\_N Date Analyzed: 05/29/2018 07:27  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID    | LAB<br>FILE ID          | DATE ANALYZED    |
|------------------|------------------|-------------------------|------------------|
| KLA05-SB1-02     | 320-39023-34     | 2018.05.29L<br>LA 026.d | 05/29/2018 14:15 |
| KLA02-SB3-01 DL  | 320-39023-19 DL  | 2018.05.29L<br>LA 028.d | 05/29/2018 14:30 |
| KLA05-SB1-01 DL  | 320-39023-33 DL  | 2018.05.29L<br>LA 029.d | 05/29/2018 14:38 |
| KLA05-SB2-01 DL  | 320-39023-35 DL  | 2018.05.29L<br>LA 030.d | 05/29/2018 14:46 |
| KLA05-SB2-02 DL  | 320-39023-36 DL  | 2018.05.29L<br>LA 031.d | 05/29/2018 14:54 |
| KLA02-SB2-01 DL  | 320-39023-17 DL  | 2018.05.29L<br>LA 032.d | 05/29/2018 15:02 |
| KLA04-SB1-01 DL  | 320-39023-27 DL  | 2018.05.29L<br>LA 036.d | 05/29/2018 15:33 |
| KLA04-SB1-02 DL2 | 320-39023-28 DL2 | 2018.05.29L<br>LA 037.d | 05/29/2018 15:41 |
| KLA04-SB2-01 DL  | 320-39023-29 DL  | 2018.05.29L<br>LA 038.d | 05/29/2018 15:49 |
| KLA04-SB2-02 DL  | 320-39023-30 DL  | 2018.05.29L<br>LA 039.d | 05/29/2018 15:57 |
| KLA04-SB3-01 DL2 | 320-39023-31 DL2 | 2018.05.29L<br>LA 041.d | 05/29/2018 16:12 |
| KLA04-SB3-02 DL2 | 320-39023-32 DL2 | 2018.05.29L<br>LA 042.d | 05/29/2018 16:20 |
| KLA05-SB3-01 DL  | 320-39023-37 DL  | 2018.05.29L<br>LA 043.d | 05/29/2018 16:28 |
| KLA05-SB3-02 DL  | 320-39023-38 DL  | 2018.05.29L<br>LA 045.d | 05/29/2018 16:44 |
| KLA02-SB2-02 DL  | 320-39023-18 DL  | 2018.05.29L<br>LA 048.d | 05/29/2018 17:07 |
| KLA04-SB1-02 DL  | 320-39023-28 DL  | 2018.05.29L<br>LA 049.d | 05/29/2018 17:15 |
| KLA04-SB3-01 DL  | 320-39023-31 DL  | 2018.05.29L<br>LA 050.d | 05/29/2018 17:23 |
| KLA04-SB3-02 DL  | 320-39023-32 DL  | 2018.05.29L<br>LA 051.d | 05/29/2018 17:31 |
| KLA02-SB2-02D DL | 320-39023-53 DL  | 2018.05.29L<br>LA 052.d | 05/29/2018 17:38 |



FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.05.18LLC\_026.d Lab Sample ID: MB 320-223346/1-A  
Matrix: Water Date Extracted: 05/15/2018 12:48  
Instrument ID: A8\_N Date Analyzed: 05/19/2018 04:33  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID      | LAB<br>FILE ID           | DATE ANALYZED    |
|------------------|--------------------|--------------------------|------------------|
|                  | LCS 320-223346/2-A | 2018.05.18L<br>LC 027.d  | 05/19/2018 04:41 |
| FB-01            | 320-39023-45       | 2018.05.18L<br>LC 043.d  | 05/19/2018 06:46 |
| ER-01            | 320-39023-44       | 2018.05.21L<br>LCX 005.d | 05/21/2018 14:03 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.05.27LLADX\_004.d Lab Sample ID: MB 320-223615/1-A  
Matrix: Water Date Extracted: 05/16/2018 14:51  
Instrument ID: A8\_N Date Analyzed: 05/28/2018 07:23  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID      | LAB<br>FILE ID            | DATE ANALYZED    |
|------------------|--------------------|---------------------------|------------------|
|                  | LCS 320-223615/2-A | 2018.05.27L<br>LADX 005.d | 05/28/2018 07:31 |
| ER-02            | 320-39023-46       | 2018.05.27L<br>LADX 020.d | 05/28/2018 09:29 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.05.25LLAAXX\_031.d Lab Sample ID: MB 320-223901/1-A  
Matrix: Water Date Extracted: 05/17/2018 14:42  
Instrument ID: A8\_N Date Analyzed: 05/25/2018 22:49  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID      | LAB<br>FILE ID             | DATE ANALYZED    |
|------------------|--------------------|----------------------------|------------------|
|                  | LCS 320-223901/2-A | 2018.05.25L<br>LAAXX 032.d | 05/25/2018 22:56 |
| ER-03            | 320-39023-47       | 2018.05.25L<br>LAAXX 040.d | 05/25/2018 23:59 |
| ER-04            | 320-39023-48       | 2018.05.25L<br>LAAXX 042.d | 05/26/2018 00:15 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.05.27LLADX\_032.d Lab Sample ID: MB 320-224065/1-A  
 Matrix: Water Date Extracted: 05/18/2018 10:26  
 Instrument ID: A8\_N Date Analyzed: 05/28/2018 11:03  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID          | LAB SAMPLE ID      | LAB<br>FILE ID            | DATE ANALYZED    |
|---------------------------|--------------------|---------------------------|------------------|
|                           | LCS 320-224065/2-A | 2018.05.27L<br>LADX 033.d | 05/28/2018 11:11 |
| MW-KLA01-01-01            | 320-39023-1        | 2018.05.27L<br>LADX 034.d | 05/28/2018 11:18 |
| MW-KLA02-01-01            | 320-39023-2        | 2018.05.27L<br>LADX 035.d | 05/28/2018 11:26 |
| MW-KLA03-01-01            | 320-39023-3        | 2018.05.27L<br>LADX 036.d | 05/28/2018 11:34 |
| MW-573-03-PRL05-01        | 320-39023-5        | 2018.05.27L<br>LADX 038.d | 05/28/2018 11:50 |
| MW-573-03-PRL05-01 MS     | 320-39023-5 MS     | 2018.05.27L<br>LADX 039.d | 05/28/2018 11:58 |
| MW-573-03-PRL05-01 MSD    | 320-39023-5 MSD    | 2018.05.27L<br>LADX 040.d | 05/28/2018 12:05 |
| MW-572-02-PRL05-01        | 320-39023-6        | 2018.05.27L<br>LADX 041.d | 05/28/2018 12:13 |
| MW-KLA06-01-01            | 320-39023-7        | 2018.05.27L<br>LADX 043.d | 05/28/2018 12:29 |
| MW-572-02-PRL05-01D       | 320-39023-49       | 2018.05.27L<br>LADX 044.d | 05/28/2018 12:37 |
| MW-KLA01-01-01 DL         | 320-39023-1 DL     | 2018.05.29L<br>LB 005.d   | 05/29/2018 18:41 |
| MW-KLA02-01-01 DL         | 320-39023-2 DL     | 2018.05.29L<br>LB 006.d   | 05/29/2018 18:49 |
| MW-KLA03-01-01 DL         | 320-39023-3 DL     | 2018.05.29L<br>LB 008.d   | 05/29/2018 19:04 |
| MW-KLA04-01-01 DL         | 320-39023-4 DL     | 2018.05.29L<br>LB 009.d   | 05/29/2018 19:12 |
| MW-KLA04-01-01            | 320-39023-4        | 2018.05.29L<br>LB 010.d   | 05/29/2018 19:20 |
| MW-573-03-PRL05-01 DL     | 320-39023-5 DL     | 2018.05.29L<br>LB 011.d   | 05/29/2018 19:28 |
| MW-573-03-PRL05-01 MS DL  | 320-39023-5 MS DL  | 2018.05.29L<br>LB 012.d   | 05/29/2018 19:36 |
| MW-573-03-PRL05-01 MSD DL | 320-39023-5 MSD DL | 2018.05.29L<br>LB 013.d   | 05/29/2018 19:44 |
| MW-572-02-PRL05-01 DL     | 320-39023-6 DL     | 2018.05.29L<br>LB 016.d   | 05/29/2018 20:07 |
| MW-KLA06-01-01 DL2        | 320-39023-7 DL2    | 2018.05.29L<br>LB 019.d   | 05/29/2018 20:31 |
| MW-572-02-PRL05-01D DL    | 320-39023-49 DL    | 2018.05.29L<br>LB 022.d   | 05/29/2018 20:54 |
| ER-05                     | 320-39023-56       | 2018.05.29L<br>LB 025.d   | 05/29/2018 21:18 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.05.30LLC\_024.d Lab Sample ID: MB 320-224254/1-A  
Matrix: Solid Date Extracted: 05/19/2018 09:21  
Instrument ID: A8\_N Date Analyzed: 05/31/2018 02:14  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID  | LAB SAMPLE ID      | LAB<br>FILE ID          | DATE ANALYZED    |
|-------------------|--------------------|-------------------------|------------------|
|                   | LCS 320-224254/2-A | 2018.05.30L<br>LC 025.d | 05/31/2018 02:22 |
| KLA07-SD1-01D     | 320-39023-59       | 2018.05.30L<br>LC 026.d | 05/31/2018 02:30 |
| KLA07-SD1-01D MS  | 320-39023-59 MS    | 2018.05.30L<br>LC 027.d | 05/31/2018 02:38 |
| KLA07-SD1-01D MSD | 320-39023-59 MSD   | 2018.05.30L<br>LC 028.d | 05/31/2018 02:46 |

FORM IV  
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
SDG No.: \_\_\_\_\_  
Lab File ID: 2018.05.30LLC\_037.d Lab Sample ID: MB 320-224509/1-A  
Matrix: Water Date Extracted: 05/21/2018 11:57  
Instrument ID: A8\_N Date Analyzed: 05/31/2018 03:56  
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

| CLIENT SAMPLE ID | LAB SAMPLE ID       | LAB<br>FILE ID          | DATE ANALYZED    |
|------------------|---------------------|-------------------------|------------------|
|                  | LCS 320-224509/2-A  | 2018.05.30L<br>LC 038.d | 05/31/2018 04:04 |
|                  | LCSD 320-224509/3-A | 2018.05.30L<br>LC 039.d | 05/31/2018 04:12 |
| KLA08-SW1-01     | 320-39023-8         | 2018.05.30L<br>LC 044.d | 05/31/2018 04:51 |

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: IC 320-223413/5 Date Analyzed: 05/15/2018 15:36  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2017.05.15LLB\_ICAL Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                               |                  | 13PFOA  |      |        |      |        |      |
|-------------------------------|------------------|---------|------|--------|------|--------|------|
|                               |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| INITIAL CALIBRATION MID-POINT |                  | 4762237 | 2.73 |        |      |        |      |
| UPPER LIMIT                   |                  | 7143356 | 2.93 |        |      |        |      |
| LOWER LIMIT                   |                  | 2381119 | 2.53 |        |      |        |      |
| LAB SAMPLE ID                 | CLIENT SAMPLE ID |         |      |        |      |        |      |
| ICB 320-223413/12             |                  | 4812155 | 2.73 |        |      |        |      |
| ICV 320-223413/13             |                  | 4485749 | 2.72 |        |      |        |      |
| CCV 320-224205/3<br>CCVIS     |                  | 4729175 | 2.69 |        |      |        |      |
| CCV 320-224461/3<br>CCVIS     |                  | 4543457 | 2.69 |        |      |        |      |
| CCV 320-225690/3<br>CCVIS     |                  | 5057959 | 2.68 |        |      |        |      |
| CCV 320-225818/3<br>CCVIS     |                  | 5150922 | 2.70 |        |      |        |      |
| CCV 320-225873/3<br>CCVIS     |                  | 4833381 | 2.70 |        |      |        |      |
| CCV 320-225899/3<br>CCVIS     |                  | 4832975 | 2.70 |        |      |        |      |
| CCV 320-226055/3<br>CCVIS     |                  | 4490167 | 2.71 |        |      |        |      |
| CCV 320-226338/3<br>CCVIS     |                  | 5005970 | 2.70 |        |      |        |      |

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-224205/3 Date Analyzed: 05/19/2018 04:25  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.18LLC\_025.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                    |                  | 13PFOA  |      |        |      |        |      |
|--------------------|------------------|---------|------|--------|------|--------|------|
|                    |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD     |                  | 4729175 | 2.69 |        |      |        |      |
| UPPER LIMIT        |                  | 7093763 | 2.89 |        |      |        |      |
| LOWER LIMIT        |                  | 2364588 | 2.49 |        |      |        |      |
| LAB SAMPLE ID      | CLIENT SAMPLE ID |         |      |        |      |        |      |
| CCB 320-224205/1   |                  | 4702773 | 2.70 |        |      |        |      |
| CCVL 320-224205/2  |                  | 4598834 | 2.70 |        |      |        |      |
| MB 320-223346/1-A  |                  | 4965536 | 2.71 |        |      |        |      |
| LCS 320-223346/2-A |                  | 4926789 | 2.70 |        |      |        |      |
| CCV 320-224205/14  |                  | 4399981 | 2.69 |        |      |        |      |
| 320-39023-45       | FB-01            | 4525434 | 2.70 |        |      |        |      |
| CCV 320-224205/25  |                  | 4827597 | 2.71 |        |      |        |      |

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-224461/3 Date Analyzed: 05/21/2018 10:10  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.21LLBB\_021. Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                   |                  | 13PFOA  |      |        |      |        |      |
|-------------------|------------------|---------|------|--------|------|--------|------|
|                   |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD    |                  | 4543457 | 2.69 |        |      |        |      |
| UPPER LIMIT       |                  | 6815186 | 2.89 |        |      |        |      |
| LOWER LIMIT       |                  | 2271729 | 2.49 |        |      |        |      |
| LAB SAMPLE ID     | CLIENT SAMPLE ID |         |      |        |      |        |      |
| CCB 320-224461/1  |                  | 4586638 | 2.70 |        |      |        |      |
| CCVL 320-224461/2 |                  | 4788739 | 2.69 |        |      |        |      |
| CCV 320-224542/5  |                  | 5014880 | 2.70 |        |      |        |      |
| 320-39023-44      | ER-01            | 4736459 | 2.71 |        |      |        |      |
| CCV 320-224542/8  |                  | 4790744 | 2.71 |        |      |        |      |

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-225690/3 Date Analyzed: 05/25/2018 22:41  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.25LLAAXX\_03 Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                    |                  | 13PFOA  |      |        |      |        |      |
|--------------------|------------------|---------|------|--------|------|--------|------|
|                    |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD     |                  | 5057959 | 2.68 |        |      |        |      |
| UPPER LIMIT        |                  | 7586939 | 2.88 |        |      |        |      |
| LOWER LIMIT        |                  | 2528980 | 2.48 |        |      |        |      |
| LAB SAMPLE ID      | CLIENT SAMPLE ID |         |      |        |      |        |      |
| CCB 320-225690/1   |                  | 4643598 | 2.68 |        |      |        |      |
| CCVL 320-225690/2  |                  | 4865170 | 2.68 |        |      |        |      |
| MB 320-223901/1-A  |                  | 4915941 | 2.68 |        |      |        |      |
| LCS 320-223901/2-A |                  | 5090280 | 2.69 |        |      |        |      |
| 320-39023-47       | ER-03            | 5456699 | 2.68 |        |      |        |      |
| CCV 320-225690/14  |                  | 5233525 | 2.69 |        |      |        |      |
| 320-39023-48       | ER-04            | 5597718 | 2.68 |        |      |        |      |
| CCV 320-225690/24  |                  | 4930872 | 2.68 |        |      |        |      |

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-225818/3 Date Analyzed: 05/28/2018 07:15  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.27LLADX\_003 Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                    |                           | 13PFOA   |      |        |      |        |      |
|--------------------|---------------------------|----------|------|--------|------|--------|------|
|                    |                           | AREA #   | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD     |                           | 5150922  | 2.70 |        |      |        |      |
| UPPER LIMIT        |                           | 7726383  | 2.90 |        |      |        |      |
| LOWER LIMIT        |                           | 2575461  | 2.50 |        |      |        |      |
| LAB SAMPLE ID      | CLIENT SAMPLE ID          |          |      |        |      |        |      |
| CCB 320-225818/1   |                           | 4948330  | 2.70 |        |      |        |      |
| CCVL 320-225818/2  |                           | 4974159  | 2.70 |        |      |        |      |
| MB 320-223615/1-A  |                           | 4525357  | 2.70 |        |      |        |      |
| LCS 320-223615/2-A |                           | 5050927  | 2.71 |        |      |        |      |
| CCV 320-225818/14  |                           | 5195418  | 2.70 |        |      |        |      |
| CCV 320-225818/25  |                           | 4983990  | 2.70 |        |      |        |      |
| CCV 320-225820/1   |                           | 5071434  | 2.70 |        |      |        |      |
| MB 320-224065/1-A  |                           | 4644358  | 2.71 |        |      |        |      |
| LCS 320-224065/2-A |                           | 5665654  | 2.71 |        |      |        |      |
| 320-39023-1        | MW-KLA01-01-01            | 5410474  | 2.70 |        |      |        |      |
| 320-39023-2        | MW-KLA02-01-01            | 1305306Q | 2.71 |        |      |        |      |
| 320-39023-3        | MW-KLA03-01-01            | 5330619  | 2.71 |        |      |        |      |
| 320-39023-5        | MW-573-03-PRL05-01        | 2314739Q | 2.71 |        |      |        |      |
| 320-39023-5 MS     | MW-573-03-PRL05-01 MS     | 2201473Q | 2.71 |        |      |        |      |
| 320-39023-5 MSD    | MW-573-03-PRL05-01<br>MSD | 2321634Q | 2.72 |        |      |        |      |
| 320-39023-6        | MW-572-02-PRL05-01        | 4879691  | 2.71 |        |      |        |      |
| CCV 320-225820/12  |                           | 4860082  | 2.71 |        |      |        |      |
| 320-39023-7        | MW-KLA06-01-01            | 1650740Q | 2.72 |        |      |        |      |
| 320-39023-49       | MW-572-02-PRL05-01D       | 6287034  | 2.71 |        |      |        |      |
| CCV 320-225820/16  |                           | 4898728  | 2.70 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

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

RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-225873/3 Date Analyzed: 05/28/2018 17:30  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.28LLA\_005.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                    |                  | 13PFOA  |      |        |      |        |      |
|--------------------|------------------|---------|------|--------|------|--------|------|
|                    |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD     |                  | 4833381 | 2.70 |        |      |        |      |
| UPPER LIMIT        |                  | 7250072 | 2.90 |        |      |        |      |
| LOWER LIMIT        |                  | 2416691 | 2.50 |        |      |        |      |
| LAB SAMPLE ID      | CLIENT SAMPLE ID |         |      |        |      |        |      |
| CCB 320-225873/1   |                  | 4725130 | 2.69 |        |      |        |      |
| CCVL 320-225873/2  |                  | 4921629 | 2.70 |        |      |        |      |
| CCV 320-225894/1   |                  | 4944362 | 2.71 |        |      |        |      |
| MB 320-223091/1-A  |                  | 4894702 | 2.71 |        |      |        |      |
| LCS 320-223091/2-A |                  | 4795904 | 2.71 |        |      |        |      |
| 320-39023-9        | KLA-01-SB1-01    | 5069221 | 2.71 |        |      |        |      |
| 320-39023-10       | KLA-01-SB1-02    | 4798330 | 2.70 |        |      |        |      |
| 320-39023-11       | KLA-01-SB2-01    | 5039852 | 2.71 |        |      |        |      |
| 320-39023-12       | KLA-01-SB2-02    | 5091342 | 2.71 |        |      |        |      |
| 320-39023-13       | KLA-01-SB3-01    | 5418000 | 2.71 |        |      |        |      |
| 320-39023-14       | KLA-01-SB3-02    | 4900860 | 2.70 |        |      |        |      |
| 320-39023-21       | KLA03-SB1-01     | 4967937 | 2.71 |        |      |        |      |
| 320-39023-22       | KLA03-SB1-02     | 5203294 | 2.70 |        |      |        |      |
| CCV 320-225894/12  |                  | 4808780 | 2.70 |        |      |        |      |

13PFOA = 13C2-PFOA  
 13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-225899/3 Date Analyzed: 05/29/2018 07:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.28LLB\_033.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                    |                  | 13PFOA  |      |        |      |        |      |
|--------------------|------------------|---------|------|--------|------|--------|------|
|                    |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD     |                  | 4832975 | 2.70 |        |      |        |      |
| UPPER LIMIT        |                  | 7249463 | 2.90 |        |      |        |      |
| LOWER LIMIT        |                  | 2416488 | 2.50 |        |      |        |      |
| LAB SAMPLE ID      | CLIENT SAMPLE ID |         |      |        |      |        |      |
| CCB 320-225899/1   |                  | 4866025 | 2.70 |        |      |        |      |
| CCVL 320-225899/2  |                  | 5148291 | 2.71 |        |      |        |      |
| MB 320-223092/1-A  |                  | 5637897 | 2.70 |        |      |        |      |
| LCS 320-223092/2-A |                  | 4961217 | 2.70 |        |      |        |      |
| 320-39023-15       | KLA02-SB1-01     | 4682405 | 2.70 |        |      |        |      |
| 320-39023-15 MS    | KLA02-SB1-01 MS  | 4744786 | 2.71 |        |      |        |      |
| 320-39023-15 MSD   | KLA02-SB1-01 MSD | 4680872 | 2.70 |        |      |        |      |
| 320-39023-16       | KLA02-SB1-02     | 4782045 | 2.70 |        |      |        |      |
| 320-39023-17       | KLA02-SB2-01     | 4577146 | 2.70 |        |      |        |      |
| 320-39023-18       | KLA02-SB2-02     | 4521863 | 2.70 |        |      |        |      |
| 320-39023-19       | KLA02-SB3-01     | 4956887 | 2.71 |        |      |        |      |
| CCV 320-225899/14  |                  | 5014576 | 2.71 |        |      |        |      |
| 320-39023-27       | KLA04-SB1-01     | 4098691 | 2.70 |        |      |        |      |
| 320-39023-28       | KLA04-SB1-02     | 3813248 | 2.71 |        |      |        |      |
| 320-39023-29       | KLA04-SB2-01     | 3428795 | 2.72 |        |      |        |      |
| 320-39023-30       | KLA04-SB2-02     | 2673010 | 2.71 |        |      |        |      |
| 320-39023-31       | KLA04-SB3-01     | 3990595 | 2.71 |        |      |        |      |
| 320-39023-32       | KLA04-SB3-02     | 3258189 | 2.71 |        |      |        |      |
| 320-39023-33       | KLA05-SB1-01     | 4880332 | 2.70 |        |      |        |      |
| 320-39023-35       | KLA05-SB2-01     | 4746976 | 2.70 |        |      |        |      |
| 320-39023-36       | KLA05-SB2-02     | 4971924 | 2.70 |        |      |        |      |
| CCV 320-225899/25  |                  | 5008966 | 2.71 |        |      |        |      |
| 320-39023-37       | KLA05-SB3-01     | 2864077 | 2.71 |        |      |        |      |
| 320-39023-38       | KLA05-SB3-02     | 4578018 | 2.70 |        |      |        |      |
| 320-39023-53       | KLA02-SB2-02D    | 4648067 | 2.70 |        |      |        |      |
| CCV 320-225899/30  |                  | 4859663 | 2.70 |        |      |        |      |
| CCV 320-226044/1   |                  | 5125253 | 2.70 |        |      |        |      |
| 320-39023-9 DL     | KLA-01-SB1-01 DL | 228222Q | 2.71 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm 0.2$  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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-225899/3 Date Analyzed: 05/29/2018 07:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.28LLB\_033.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                      |                      | 13PFOA  |      |        |      |        |      |
|----------------------|----------------------|---------|------|--------|------|--------|------|
|                      |                      | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD       |                      | 4832975 | 2.70 |        |      |        |      |
| UPPER LIMIT          |                      | 7249463 | 2.90 |        |      |        |      |
| LOWER LIMIT          |                      | 2416488 | 2.50 |        |      |        |      |
| LAB SAMPLE ID        | CLIENT SAMPLE ID     |         |      |        |      |        |      |
| 320-39023-10 DL      | KLA-01-SB1-02 DL     | 239883Q | 2.71 |        |      |        |      |
| 320-39023-39 DL      | KLA06-SB1-01 DL      | 255085Q | 2.71 |        |      |        |      |
| 320-39023-40 DL      | KLA06-SB1-02 DL      | 236462Q | 2.71 |        |      |        |      |
| CCV 320-226044/8     |                      | 4769042 | 2.71 |        |      |        |      |
| 320-39023-41 DL2     | KLA06-SB2-01 DL2     | 52350Q  | 2.71 |        |      |        |      |
| 320-39023-41 MS DL2  | KLA06-SB2-01 MS DL2  | 53260Q  | 2.72 |        |      |        |      |
| 320-39023-41 MSD DL2 | KLA06-SB2-01 MSD DL2 | 52931Q  | 2.71 |        |      |        |      |
| 320-39023-42 DL2     | KLA06-SB2-02 DL2     | 53215Q  | 2.71 |        |      |        |      |
| 320-39023-52 DL2     | KLA06-SB-2-02D DL2   | 56168Q  | 2.71 |        |      |        |      |
| 320-39023-55 DL      | KLA05-SB1-01D DL     | 55907Q  | 2.71 |        |      |        |      |
| 320-39023-41 DL      | KLA06-SB2-01 DL      | 500756Q | 2.71 |        |      |        |      |
| 320-39023-41 MS DL   | KLA06-SB2-01 MS DL   | 488067Q | 2.71 |        |      |        |      |
| 320-39023-41 MSD DL  | KLA06-SB2-01 MSD DL  | 522528Q | 2.71 |        |      |        |      |
| CCV 320-226044/19    |                      | 4840719 | 2.71 |        |      |        |      |
| 320-39023-42 DL      | KLA06-SB2-02 DL      | 481468Q | 2.72 |        |      |        |      |
| 320-39023-52 DL      | KLA06-SB-2-02D DL    | 455759Q | 2.71 |        |      |        |      |
| CCV 320-226044/23    |                      | 4662987 | 2.71 |        |      |        |      |
| CCV 320-226051/1     |                      | 4655044 | 2.71 |        |      |        |      |
| 320-39023-34         | KLA05-SB1-02         | 4607254 | 2.71 |        |      |        |      |
| 320-39023-19 DL      | KLA02-SB3-01 DL      | 243200Q | 2.71 |        |      |        |      |
| 320-39023-33 DL      | KLA05-SB1-01 DL      | 270174Q | 2.71 |        |      |        |      |
| 320-39023-35 DL      | KLA05-SB2-01 DL      | 520023Q | 2.72 |        |      |        |      |
| 320-39023-36 DL      | KLA05-SB2-02 DL      | 523724Q | 2.71 |        |      |        |      |
| 320-39023-17 DL      | KLA02-SB2-01 DL      | 54227Q  | 2.71 |        |      |        |      |
| CCV 320-226051/12    |                      | 4909517 | 2.71 |        |      |        |      |
| 320-39023-27 DL      | KLA04-SB1-01 DL      | 52579Q  | 2.71 |        |      |        |      |
| 320-39023-28 DL2     | KLA04-SB1-02 DL2     | 52259Q  | 2.71 |        |      |        |      |
| 320-39023-29 DL      | KLA04-SB2-01 DL      | 51909Q  | 2.72 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit = ± 0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-225899/3 Date Analyzed: 05/29/2018 07:19  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.28LLB\_033.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                   |                  | 13PFOA  |      |        |      |        |      |
|-------------------|------------------|---------|------|--------|------|--------|------|
|                   |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD    |                  | 4832975 | 2.70 |        |      |        |      |
| UPPER LIMIT       |                  | 7249463 | 2.90 |        |      |        |      |
| LOWER LIMIT       |                  | 2416488 | 2.50 |        |      |        |      |
| LAB SAMPLE ID     | CLIENT SAMPLE ID |         |      |        |      |        |      |
| 320-39023-30 DL   | KLA04-SB2-02 DL  | 52642Q  | 2.71 |        |      |        |      |
| 320-39023-31 DL2  | KLA04-SB3-01 DL2 | 57055Q  | 2.71 |        |      |        |      |
| 320-39023-32 DL2  | KLA04-SB3-02 DL2 | 56058Q  | 2.72 |        |      |        |      |
| 320-39023-37 DL   | KLA05-SB3-01 DL  | 50302Q  | 2.72 |        |      |        |      |
| 320-39023-38 DL   | KLA05-SB3-02 DL  | 50073Q  | 2.71 |        |      |        |      |
| CCV 320-226051/23 |                  | 4597435 | 2.71 |        |      |        |      |
| 320-39023-18 DL   | KLA02-SB2-02 DL  | 244352Q | 2.71 |        |      |        |      |
| 320-39023-28 DL   | KLA04-SB1-02 DL  | 237462Q | 2.70 |        |      |        |      |
| 320-39023-31 DL   | KLA04-SB3-01 DL  | 252970Q | 2.71 |        |      |        |      |
| 320-39023-32 DL   | KLA04-SB3-02 DL  | 242527Q | 2.71 |        |      |        |      |
| 320-39023-53 DL   | KLA02-SB2-02D DL | 281812Q | 2.70 |        |      |        |      |
| CCV 320-226051/32 |                  | 4791311 | 2.71 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

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

RT Limit = ± 0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-226055/3 Date Analyzed: 05/29/2018 18:33  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.29LLB\_004.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                    |                           | 13PFOA   |      |        |      |        |      |
|--------------------|---------------------------|----------|------|--------|------|--------|------|
|                    |                           | AREA #   | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD     |                           | 4490167  | 2.71 |        |      |        |      |
| UPPER LIMIT        |                           | 6735251  | 2.91 |        |      |        |      |
| LOWER LIMIT        |                           | 2245084  | 2.51 |        |      |        |      |
| LAB SAMPLE ID      | CLIENT SAMPLE ID          |          |      |        |      |        |      |
| CCB 320-226055/1   |                           | 4995766  | 2.71 |        |      |        |      |
| CCVL 320-226055/2  |                           | 4987736  | 2.71 |        |      |        |      |
| 320-39023-1 DL     | MW-KLA01-01-01 DL         | 1186556Q | 2.71 |        |      |        |      |
| 320-39023-2 DL     | MW-KLA02-01-01 DL         | 65701Q   | 2.72 |        |      |        |      |
| 320-39023-3 DL     | MW-KLA03-01-01 DL         | 120036Q  | 2.71 |        |      |        |      |
| 320-39023-4 DL     | MW-KLA04-01-01 DL         | 1297832Q | 2.71 |        |      |        |      |
| 320-39023-4        | MW-KLA04-01-01            | 5705596  | 2.72 |        |      |        |      |
| 320-39023-5 DL     | MW-573-03-PRL05-01 DL     | 55596Q   | 2.71 |        |      |        |      |
| 320-39023-5 MS DL  | MW-573-03-PRL05-01 MS DL  | 56729Q   | 2.71 |        |      |        |      |
| 320-39023-5 MSD DL | MW-573-03-PRL05-01 MSD DL | 59482Q   | 2.71 |        |      |        |      |
| CCV 320-226055/14  |                           | 4699321  | 2.72 |        |      |        |      |
| 320-39023-6 DL     | MW-572-02-PRL05-01 DL     | 680737Q  | 2.72 |        |      |        |      |
| 320-39023-7 DL2    | MW-KLA06-01-01 DL2        | 78115Q   | 2.71 |        |      |        |      |
| 320-39023-49 DL    | MW-572-02-PRL05-01D DL    | 689713Q  | 2.71 |        |      |        |      |
| 320-39023-56       | ER-05                     | 4587675  | 2.71 |        |      |        |      |
| CCV 320-226055/25  |                           | 4360000  | 2.71 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

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

RT Limit = ± 0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-226338/3 Date Analyzed: 05/30/2018 23:30  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.05.30LLC\_003.d Heated Purge: (Y/N) N  
 Calibration ID: 39198

|                     |                   | 13PFOA  |      |        |      |        |      |
|---------------------|-------------------|---------|------|--------|------|--------|------|
|                     |                   | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD      |                   | 5005970 | 2.70 |        |      |        |      |
| UPPER LIMIT         |                   | 7508955 | 2.90 |        |      |        |      |
| LOWER LIMIT         |                   | 2502985 | 2.50 |        |      |        |      |
| LAB SAMPLE ID       | CLIENT SAMPLE ID  |         |      |        |      |        |      |
| CCB 320-226338/1    |                   | 5087063 | 2.70 |        |      |        |      |
| CCVL 320-226338/2   |                   | 5361356 | 2.70 |        |      |        |      |
| CCV 320-226343/1    |                   | 4999467 | 2.70 |        |      |        |      |
| MB 320-224254/1-A   |                   | 4862376 | 2.70 |        |      |        |      |
| LCS 320-224254/2-A  |                   | 4925617 | 2.69 |        |      |        |      |
| 320-39023-59        | KLA07-SD1-01D     | 5016915 | 2.70 |        |      |        |      |
| 320-39023-59 MS     | KLA07-SD1-01D MS  | 5100511 | 2.70 |        |      |        |      |
| 320-39023-59 MSD    | KLA07-SD1-01D MSD | 5126323 | 2.69 |        |      |        |      |
| CCV 320-226343/7    |                   | 5150402 | 2.70 |        |      |        |      |
| CCV 320-226349/1    |                   | 4765465 | 2.70 |        |      |        |      |
| MB 320-224509/1-A   |                   | 5197972 | 2.70 |        |      |        |      |
| LCS 320-224509/2-A  |                   | 4779961 | 2.70 |        |      |        |      |
| LCSD 320-224509/3-A |                   | 4956922 | 2.70 |        |      |        |      |
| 320-39023-8         | KLA08-SW1-01      | 3905958 | 2.69 |        |      |        |      |
| CCV 320-226349/11   |                   | 5004544 | 2.70 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

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

RT Limit = ± 0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: IC 320-227354/5 Date Analyzed: 06/05/2018 14:52  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.06.05ICAL\_005. Heated Purge: (Y/N) N  
 Calibration ID: 39550

|                               |                  | 13PFOA  |      |        |      |        |      |
|-------------------------------|------------------|---------|------|--------|------|--------|------|
|                               |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| INITIAL CALIBRATION MID-POINT |                  | 4383202 | 2.71 |        |      |        |      |
| UPPER LIMIT                   |                  | 6574803 | 2.91 |        |      |        |      |
| LOWER LIMIT                   |                  | 2191601 | 2.51 |        |      |        |      |
| LAB SAMPLE ID                 | CLIENT SAMPLE ID |         |      |        |      |        |      |
| ICB 320-227354/9              |                  | 4122559 | 2.72 |        |      |        |      |
| ICV 320-227354/10             |                  | 4590350 | 2.71 |        |      |        |      |
| CCV 320-227634/3<br>CCVIS     |                  | 4224255 | 2.70 |        |      |        |      |

13PFOA = 13C2-PFOA

Area Limit = 50%-150% of internal standard area  
 RT Limit =  $\pm$  0.2 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.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-227634/3 Date Analyzed: 06/06/2018 15:35  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.06.06LLB\_005.d Heated Purge: (Y/N) N  
 Calibration ID: 39550

|                   |                  | 13PFOA  |      |        |      |        |      |
|-------------------|------------------|---------|------|--------|------|--------|------|
|                   |                  | AREA #  | RT # | AREA # | RT # | AREA # | RT # |
| 12/24 HOUR STD    |                  | 4224255 | 2.70 |        |      |        |      |
| UPPER LIMIT       |                  | 6336383 | 2.90 |        |      |        |      |
| LOWER LIMIT       |                  | 2112128 | 2.50 |        |      |        |      |
| LAB SAMPLE ID     | CLIENT SAMPLE ID |         |      |        |      |        |      |
| CCB 320-227634/1  |                  | 4163668 | 2.71 |        |      |        |      |
| CCVL 320-227634/2 |                  | 4292074 | 2.71 |        |      |        |      |
| CCV 320-227681/1  |                  | 4377037 | 2.70 |        |      |        |      |
| 320-39023-23      | KLA03-SB2-01     | 5190943 | 2.71 |        |      |        |      |
| 320-39023-24      | KLA03-SB2-02     | 5346204 | 2.70 |        |      |        |      |
| 320-39023-25      | KLA03-SB3-01     | 5041334 | 2.70 |        |      |        |      |
| 320-39023-26      | KLA03-SB3-02     | 5086769 | 2.70 |        |      |        |      |
| 320-39023-39      | KLA06-SB1-01     | 5269422 | 2.71 |        |      |        |      |
| 320-39023-40      | KLA06-SB1-02     | 5241313 | 2.71 |        |      |        |      |
| 320-39023-41      | KLA06-SB2-01     | 4530950 | 2.70 |        |      |        |      |
| 320-39023-41 MS   | KLA06-SB2-01 MS  | 4395038 | 2.70 |        |      |        |      |
| 320-39023-41 MSD  | KLA06-SB2-01 MSD | 4385421 | 2.70 |        |      |        |      |
| CCV 320-227681/12 |                  | 4351023 | 2.70 |        |      |        |      |
| 320-39023-42      | KLA06-SB2-02     | 4441292 | 2.70 |        |      |        |      |
| 320-39023-52      | KLA06-SB-2-02D   | 4750694 | 2.70 |        |      |        |      |
| 320-39023-55      | KLA05-SB1-01D    | 4568570 | 2.70 |        |      |        |      |
| 320-39023-43      | KLA07-SD1-01     | 5588518 | 2.70 |        |      |        |      |
| 320-39023-51      | KLA03-SB-2-01D   | 4924223 | 2.70 |        |      |        |      |
| CCV 320-227681/20 |                  | 4195071 | 2.70 |        |      |        |      |

13PFOA = 13C2-PFOA

13PFOA = 13C2-PFOA

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

RT Limit = ± 0.2 minutes of internal standard RT

# Column used to flag values outside QC limits

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                             |
|-----------------------------------------|---------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                 |
| SDG No.: _____                          |                                             |
| Client Sample ID: <u>MW-KLA01-01-01</u> | Lab Sample ID: <u>320-39023-1</u>           |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.27LLADX_034.d</u>   |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 14:50</u>     |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/18/2018 10:26</u>     |
| Sample wt/vol: <u>258.9(mL)</u>         | Date Analyzed: <u>05/28/2018 11:18</u>      |
| Con. Extract Vol.: <u>10.00(mL)</u>     | Dilution Factor: <u>1</u>                   |
| Injection Volume: <u>2(uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                 |
| Analysis Batch No.: <u>225820</u>       | Units: <u>ng/L</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 7.6    |     | 1.9 | 1.4  | 0.59 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 20     |     | 1.9 | 1.4  | 0.52 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.56   | J M | 1.9 | 1.4  | 0.50 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 39     | M   | 1.9 | 0.97 | 0.44 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 220    |     | 1.9 | 0.97 | 0.37 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 510    | E   | 3.9 | 2.9  | 1.1  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 75   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 79   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 81   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 80   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 74   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_034.d  
 Lims ID: 320-39023-A-1-A  
 Client ID: MW-KLA01-01-01  
 Sample Type: Client  
 Inject. Date: 28-May-2018 11:18:49 ALS Bottle#: 27 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-1-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:20:05 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:20:05

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                                |       |       |       |       |         |      |                 |      |      |   |
|--------------------------------|-------|-------|-------|-------|---------|------|-----------------|------|------|---|
| 301.90 > 83.00                 | 1.764 | 1.761 | 0.003 | 1.000 | 83457   | 1.74 |                 | 74.9 | 210  |   |
| 5 Perfluorobutanesulfonic acid |       |       |       |       |         |      |                 |      |      | M |
| 298.90 > 80.00                 | 1.773 | 1.764 | 0.009 | 1.005 | 2800806 | 1.00 |                 |      | 625  | M |
| 298.90 > 99.00                 | 1.773 | 1.764 | 0.009 | 1.005 | 1228287 |      | 2.28(1.25-3.74) |      | 2239 |   |

## D 9 13C4-PFHpA

|                                |       |       |       |       |          |        |                 |      |       |  |
|--------------------------------|-------|-------|-------|-------|----------|--------|-----------------|------|-------|--|
| 367.00 > 322.00                | 2.358 | 2.342 | 0.016 | 1.000 | 4274321  | 1.97   |                 | 78.9 | 55057 |  |
| 10 Perfluoroheptanoic acid     |       |       |       |       |          |        |                 |      |       |  |
| 363.00 > 319.00                | 2.358 | 2.345 | 0.013 | 1.000 | 353956   | 0.1960 |                 |      | 144   |  |
| 363.00 > 169.00                | 2.358 | 2.345 | 0.013 | 1.000 | 152542   |        | 2.32(1.13-3.40) |      | 699   |  |
| 8 Perfluorohexanesulfonic acid |       |       |       |       |          |        |                 |      |       |  |
| 399.00 > 80.00                 | 2.371 | 2.358 | 0.013 | 1.000 | 13975792 | 5.77   |                 |      | 6969  |  |
| 399.00 > 99.00                 | 2.371 | 2.358 | 0.013 | 1.000 | 4834492  |        | 2.89(1.50-4.49) |      | 7191  |  |

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.371 | 2.368 | 0.003 | 1.000 | 5082375 | 1.90 |  | 80.3 | 54238 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## D 14 13C4 PFOA

|                           |       |       |       |       |         |        |                 |      |       |  |
|---------------------------|-------|-------|-------|-------|---------|--------|-----------------|------|-------|--|
| 417.00 > 372.00           | 2.704 | 2.703 | 0.001 | 1.000 | 4444042 | 2.17   |                 | 86.7 | 69175 |  |
| 15 Perfluorooctanoic acid |       |       |       |       |         |        |                 |      |       |  |
| 413.00 > 369.00           | 2.712 | 2.704 | 0.008 | 1.003 | 1087916 | 0.5200 |                 |      | 337   |  |
| 413.00 > 169.00           | 2.712 | 2.704 | 0.008 | 1.003 | 644203  |        | 1.69(0.84-2.52) |      | 2110  |  |

## \* 62 13C2-PFOA

|                                  |       |       |        |       |          |        |                 |  |       |   |
|----------------------------------|-------|-------|--------|-------|----------|--------|-----------------|--|-------|---|
| 415.00 > 370.00                  | 2.704 | 2.704 | 0.0    |       | 5410474  | 2.50   |                 |  | 56928 |   |
| 20 Perfluorononanoic acid        |       |       |        |       |          |        |                 |  |       | M |
| 463.00 > 419.00                  | 3.069 | 3.071 | -0.002 | 0.998 | 20724    | 0.0144 |                 |  | 36.7  | M |
| 463.00 > 169.00                  | 3.076 | 3.071 | 0.005  | 1.000 | 4345     |        | 4.77(1.90-5.69) |  | 105   |   |
| 17 Perfluorooctane sulfonic acid |       |       |        |       |          |        |                 |  |       | E |
| 499.00 > 80.00                   | 3.076 | 3.071 | 0.005  | 1.002 | 21009007 | 13.2   |                 |  | 28166 | E |
| 499.00 > 99.00                   | 3.069 | 3.071 | -0.002 | 1.000 | 4598576  |        | 4.57(2.31-6.93) |  | 25270 |   |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.069 | 3.072     | -0.003    | 1.000     | 3242644  | 1.76            |               | 73.7 | 16681 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.076 | 3.072     | 0.004     | 1.000     | 3392534  | 2.02            |               | 81.0 | 57110 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_034.d

Injection Date: 28-May-2018 11:18:49

Instrument ID: A8\_N

Lims ID: 320-39023-A-1-A

Lab Sample ID: 320-39023-1

Client ID: MW-KLA01-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

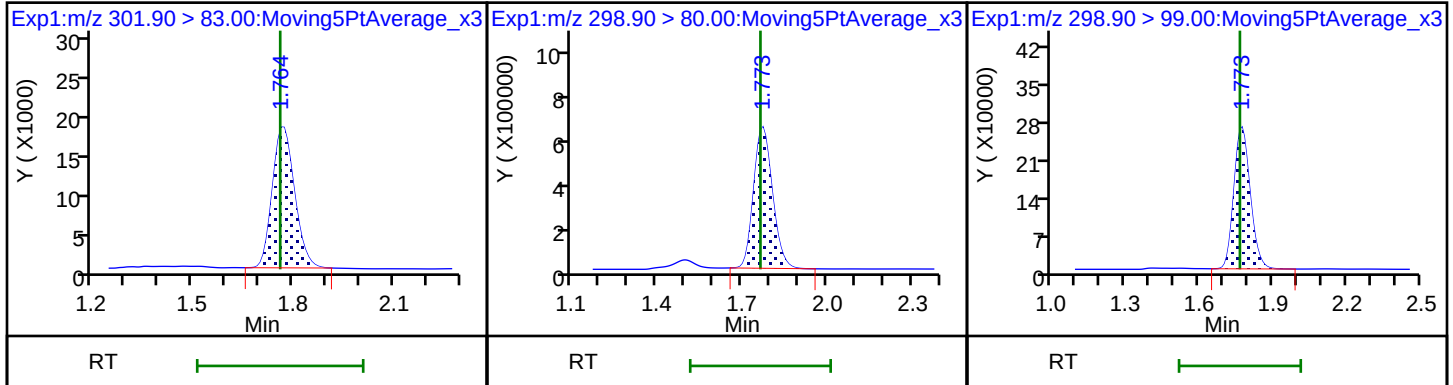
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (M)

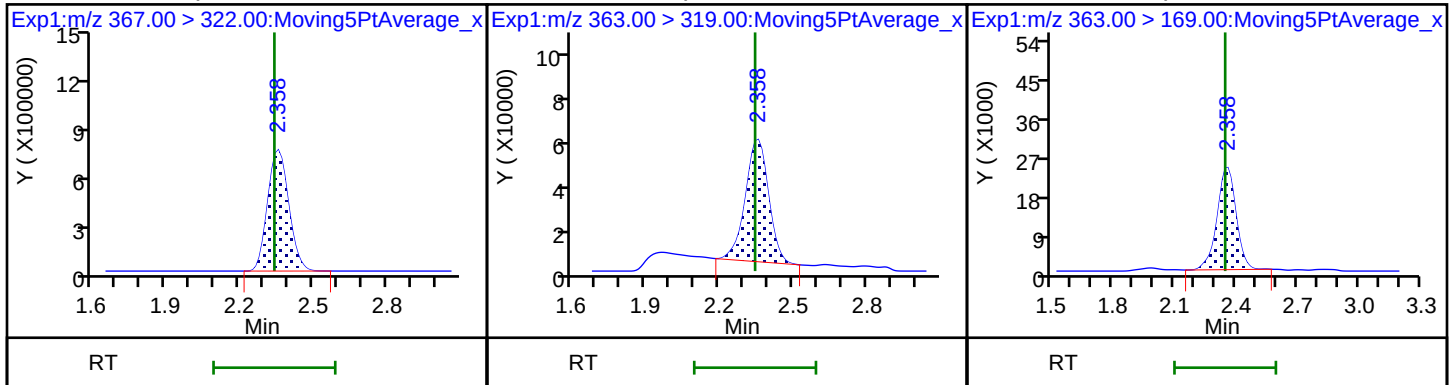
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

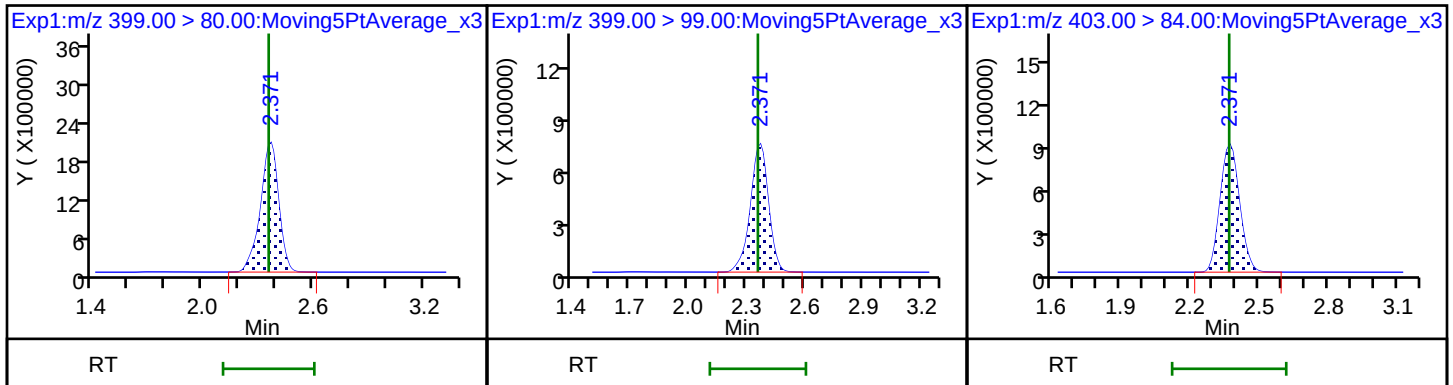
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

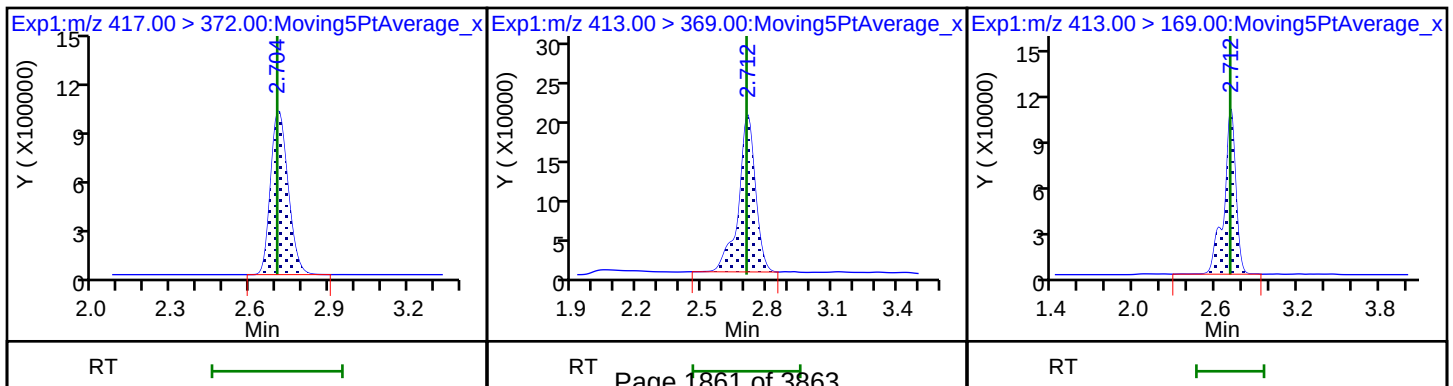
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

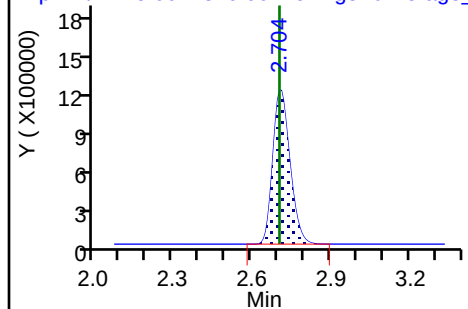


\* 62 13C2-PFOA

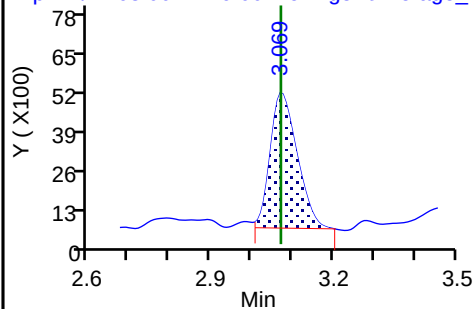
20 Perfluorononanoic acid (M)

20 Perfluorononanoic acid

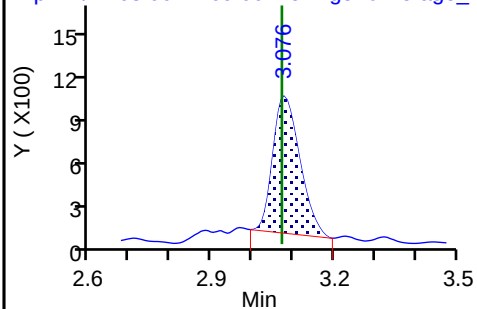
Exp1:m/z 415.00 &gt; 370.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

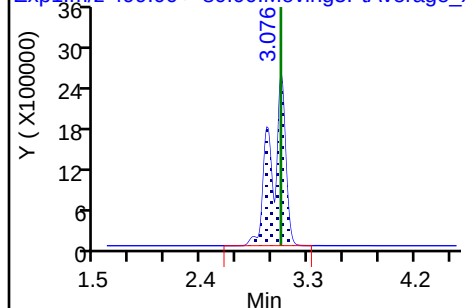


17 Perfluorooctane sulfonic acid

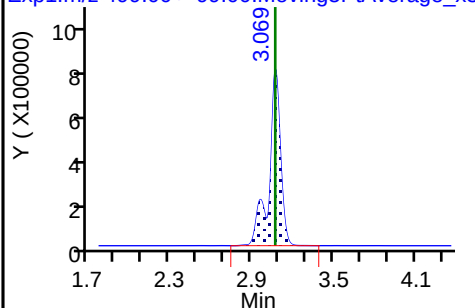
17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

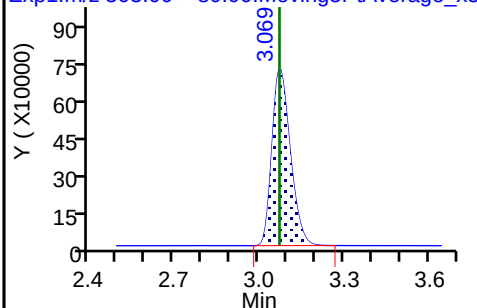
Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

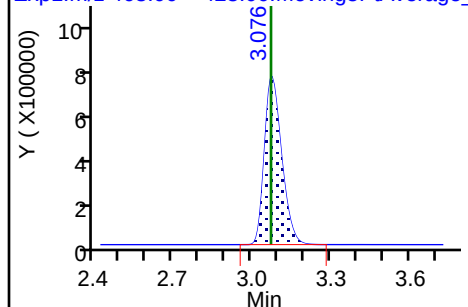


Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x





## TestAmerica Sacramento

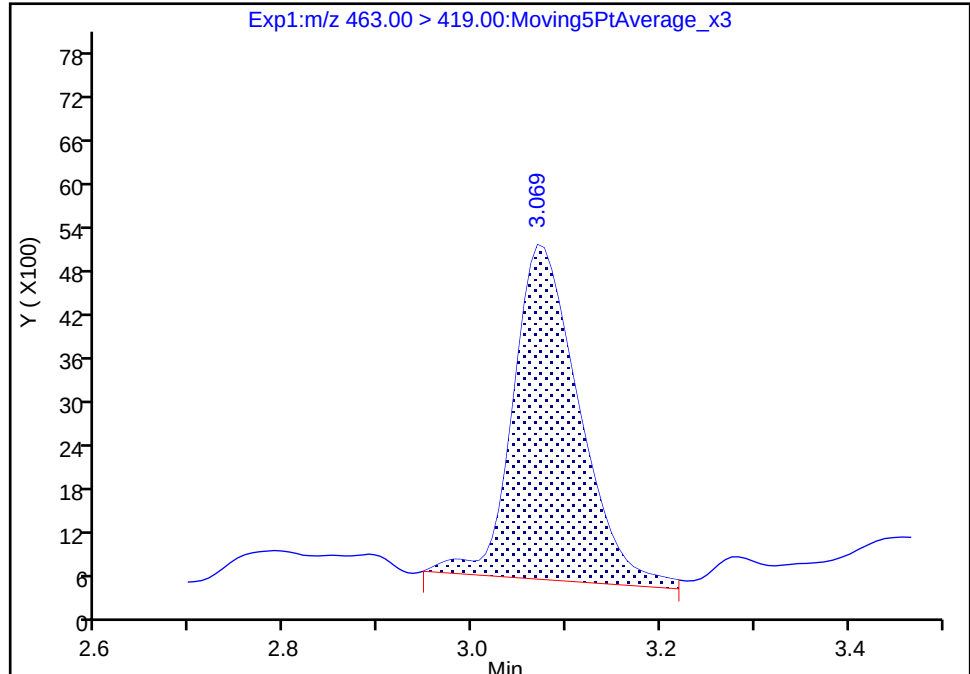
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_034.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:18:49                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-1-A                                                            | Lab Sample ID: | 320-39023-1        |                |   |
| Client ID:      | MW-KLA01-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 27                 | Worklist Smp#: | 4 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

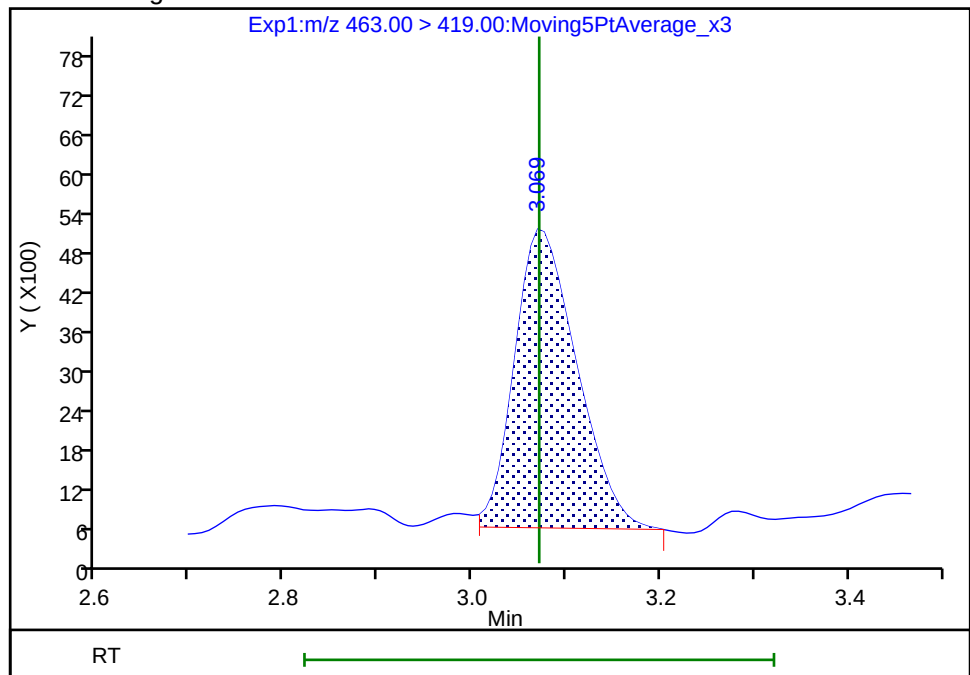
RT: 3.07  
Area: 22301  
Amount: 0.015516  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 20724  
Amount: 0.014418  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:19:55  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 1863 of 3863

## TestAmerica Sacramento

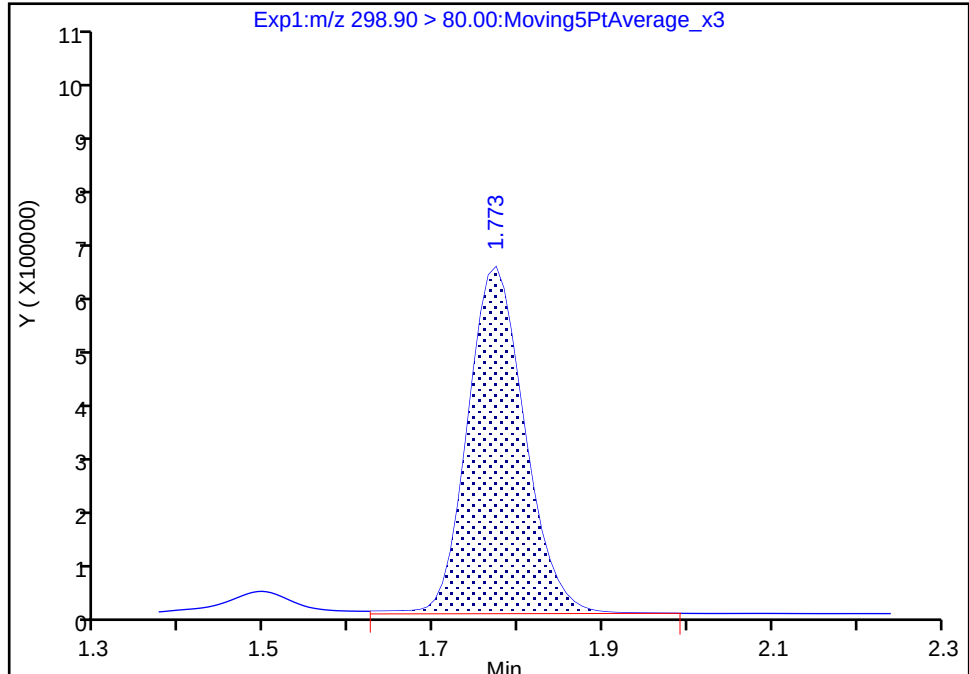
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_034.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:18:49                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-1-A                                                            | Lab Sample ID: | 320-39023-1        |                |   |
| Client ID:      | MW-KLA01-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 27                 | Worklist Smp#: | 4 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

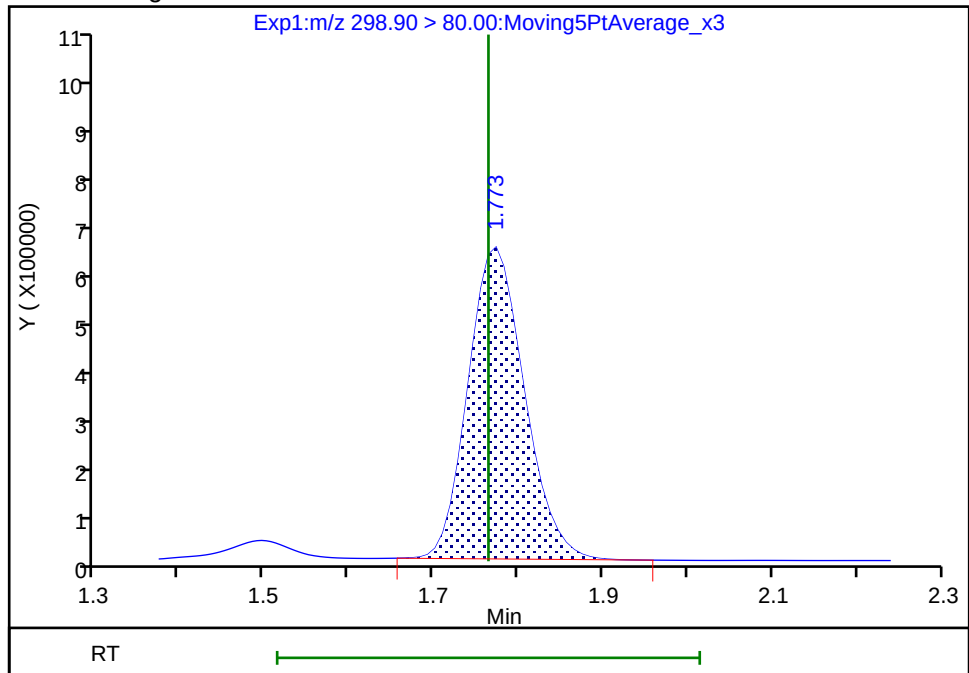
RT: 1.77  
Area: 2860729  
Amount: 1.020547  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.77  
Area: 2800806  
Amount: 0.999170  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:19:40  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 1864 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                            |                                              |
|--------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>    | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                             |                                              |
| Client Sample ID: <u>MW-KLA01-01-01 DL</u> | Lab Sample ID: <u>320-39023-1 DL</u>         |
| Matrix: <u>Water</u>                       | Lab File ID: <u>2018.05.29LLB_005.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>      | Date Collected: <u>05/06/2018 14:50</u>      |
| Extraction Method: <u>3535</u>             | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>258.9 (mL)</u>           | Date Analyzed: <u>05/29/2018 18:41</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>       | Dilution Factor: <u>5</u>                    |
| Injection Volume: <u>2 (uL)</u>            | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                          | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>          | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 7.5    | J D | 9.7 | 7.2 | 2.9 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 22     | D   | 9.7 | 7.2 | 2.6 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 7.2    | U M | 9.7 | 7.2 | 2.5 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 40     | D M | 9.7 | 4.8 | 2.2 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 230    | D   | 9.7 | 4.8 | 1.8 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 500    | D   | 19  | 14  | 5.3 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 72   |   | 50-150 |
| STL01892 | 13C4-PFHpa       | 77   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 83   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 77   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 72   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 67   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_005.d  
 Lims ID: 320-39023-A-1-A  
 Client ID: MW-KLA01-01-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 18:41:24 ALS Bottle#: 1 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 5.0000  
 Sample Info: 320-39023-a-1-a 5X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:08:48 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:08:48

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.766 | 1.764  | 0.002  | 1.000  | 17624    | 0.3354       |                 | 72.1 | 133   |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       | M     |
| 298.90 > 80.00                   | 1.766 | 1.775  | -0.009 | 1.000  | 620657   | 0.2097       |                 |      | 564   | M     |
| 298.90 > 99.00                   | 1.766 | 1.775  | -0.009 | 1.000  | 270564   |              | 2.29(1.25-3.74) |      | 1188  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.360 | 2.358  | 0.002  | 1.000  | 910759   | 0.3834       |                 | 76.7 | 18624 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.360 | 2.360  | 0.0    | 1.000  | 74514    | 0.0387       |                 |      | 66.5  |       |
| 363.00 > 169.00                  | 2.347 | 2.360  | -0.013 | 0.994  | 27753    |              | 2.68(1.13-3.40) |      | 139   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.373 | 2.371  | 0.002  | 1.000  | 1001374  | 0.3411       |                 | 72.1 | 23809 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.373 | 2.372  | 0.001  | 1.000  | 2852062  | 1.20         |                 |      | 4857  |       |
| 399.00 > 99.00                   | 2.373 | 2.372  | 0.001  | 1.000  | 942400   |              | 3.03(1.50-4.49) |      | 3079  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.713 | 2.711  | 0.002  | 1.000  | 937227   | 0.4171       |                 | 83.4 | 33641 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.713 | 2.712  | 0.001  |        | 1186556  | 0.5000       |                 |      | 23260 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.713 | 2.712  | 0.001  | 1.000  | 247134   | 0.1120       |                 |      | 79.5  |       |
| 413.00 > 169.00                  | 2.713 | 2.712  | 0.001  | 1.000  | 146040   |              | 1.69(0.84-2.52) |      | 399   |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.079 | 3.081  | -0.002 | 1.000  | 706312   | 0.3843       |                 | 76.9 | 18938 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.079 | 3.081  | -0.002 | 1.000  | 645709   | 0.3200       |                 | 66.9 | 7789  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.079 | 3.082  | -0.003 | 1.000  | 4145813  | 2.61         |                 |      | 11416 |       |
| 499.00 > 99.00                   | 3.079 | 3.082  | -0.003 | 1.000  | 912189   |              | 4.54(2.31-6.93) |      | 10886 |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_005.d

Injection Date: 29-May-2018 18:41:24

Instrument ID: A8\_N

Lims ID: 320-39023-A-1-A

Lab Sample ID: 320-39023-1

Client ID: MW-KLA01-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 5.0000

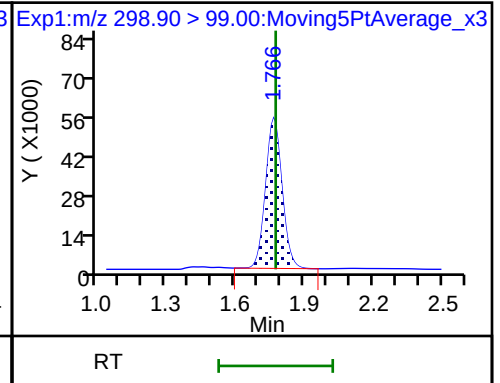
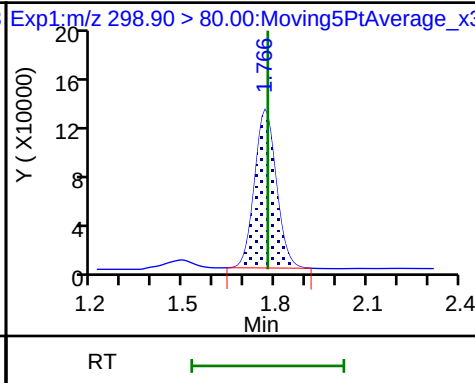
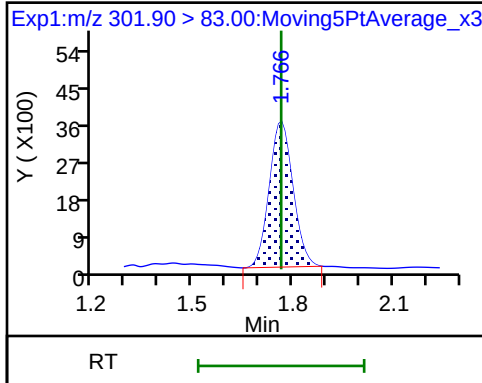
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (M)

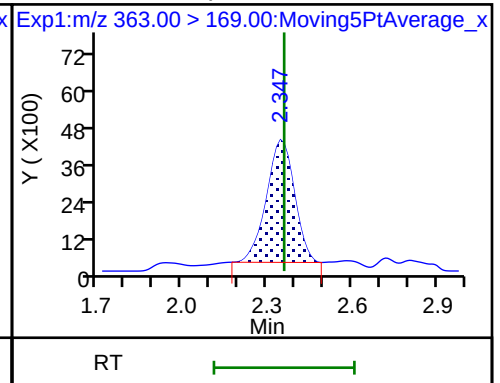
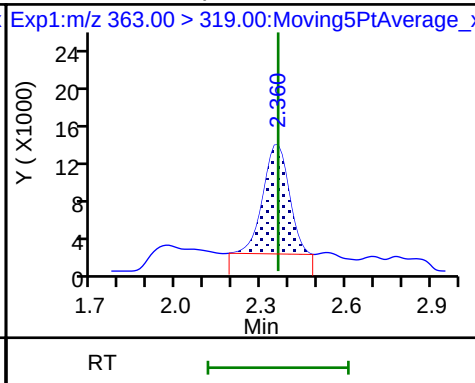
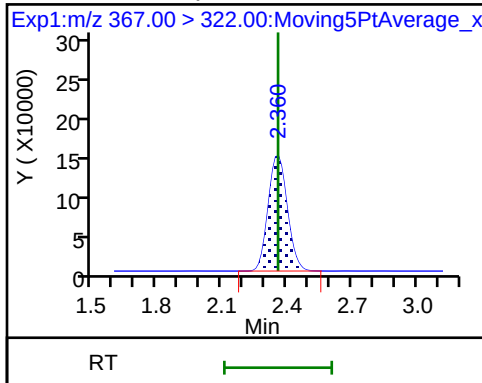
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

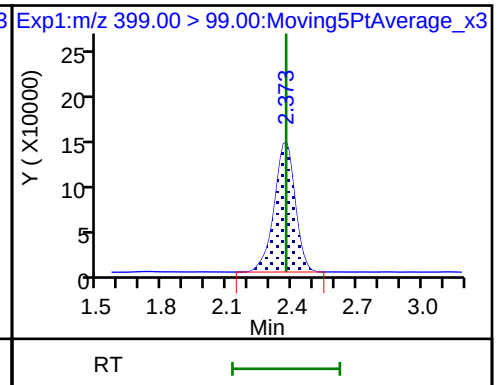
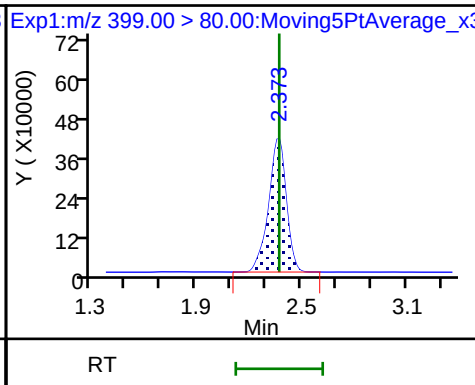
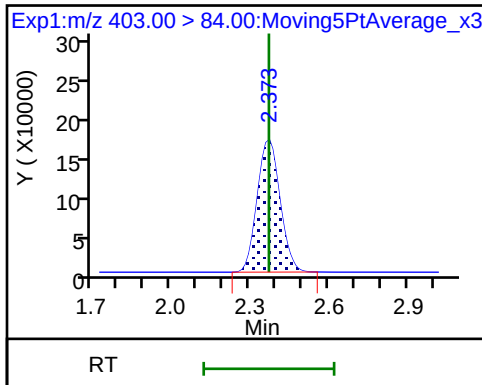
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

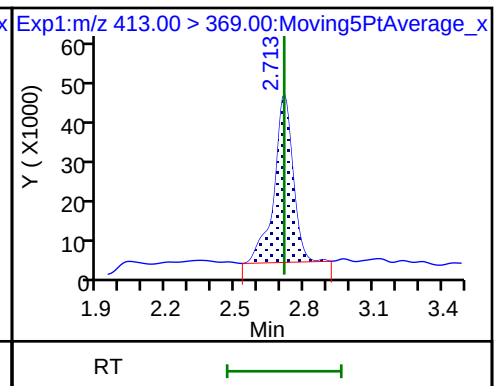
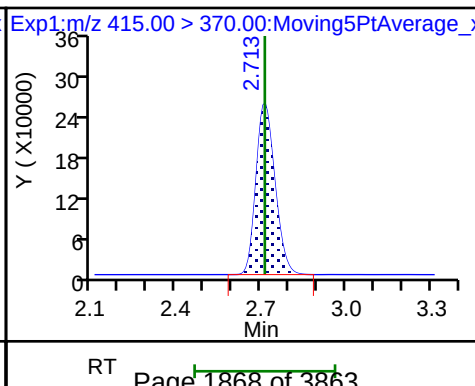
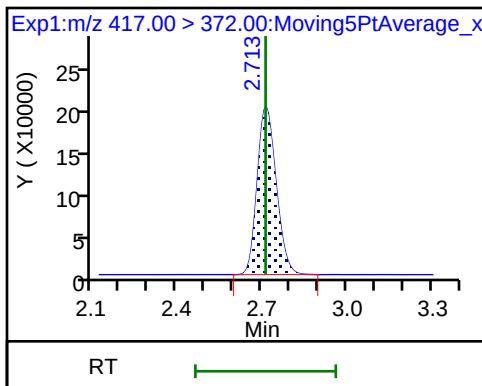
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

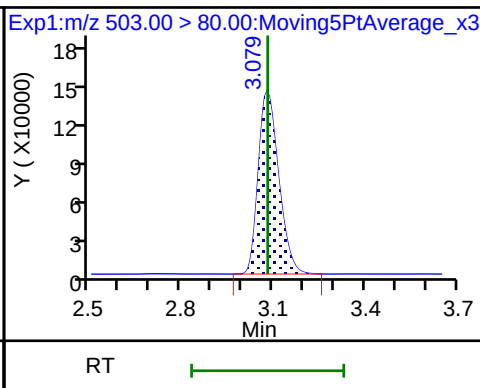
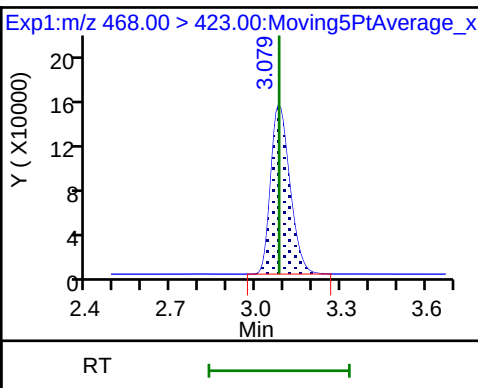
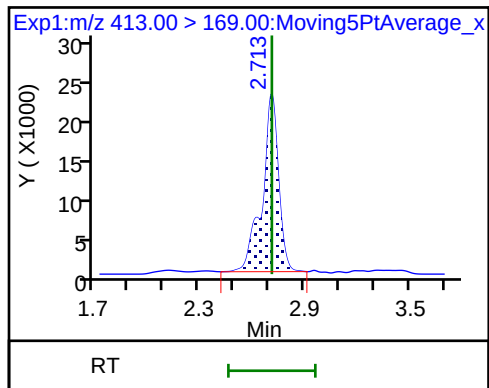
15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

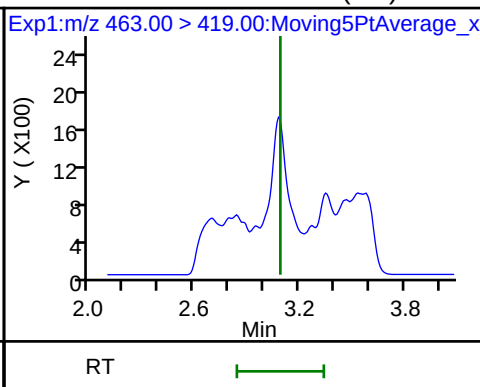
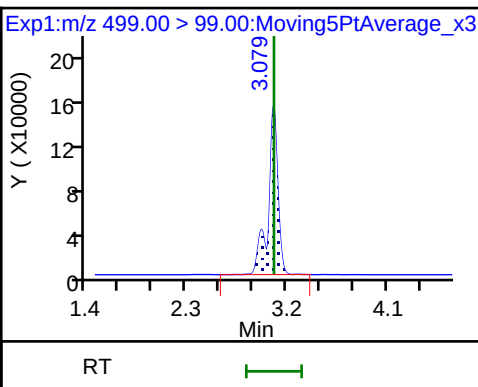
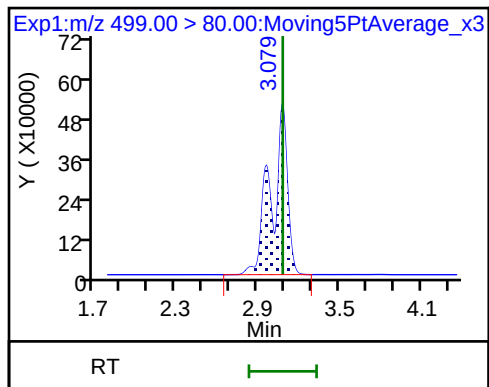
## D 18 13C4 PFOS



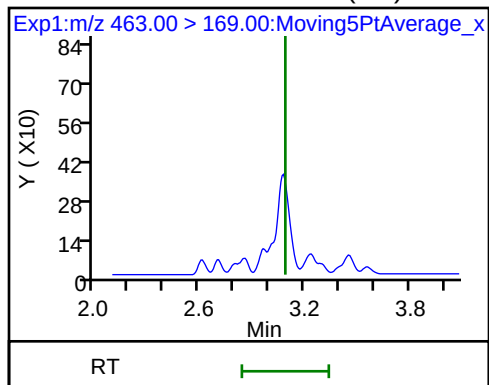
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (ND)



## 20 Perfluorononanoic acid (ND)



## TestAmerica Sacramento

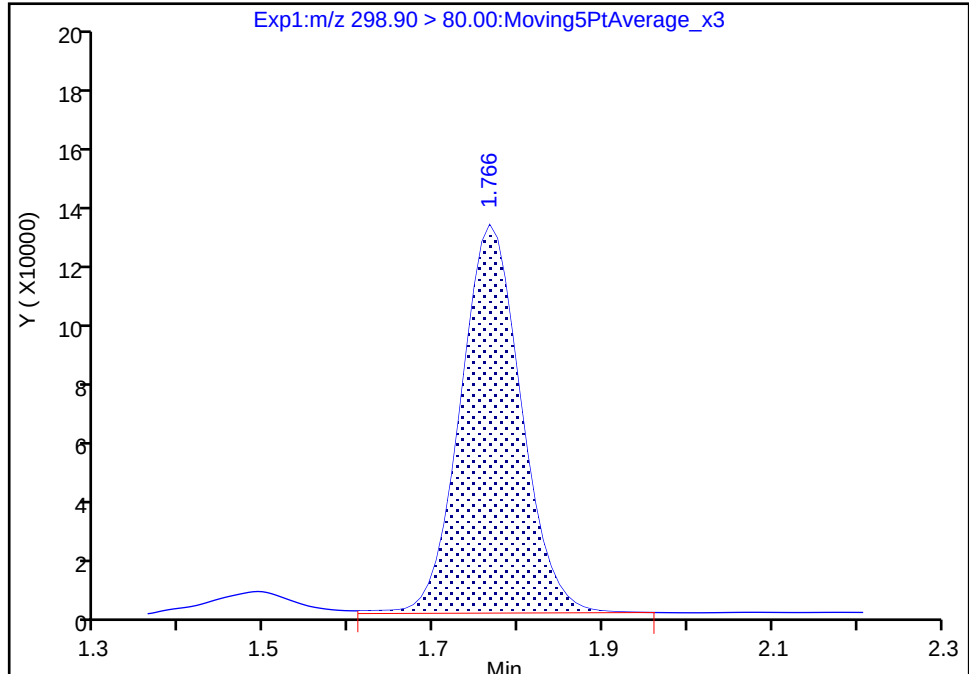
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_005.d |                |                    |
| Injection Date: | 29-May-2018 18:41:24                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-1-A                                                          | Lab Sample ID: | 320-39023-1        |
| Client ID:      | MW-KLA01-01-01                                                           |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 1                  |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 5.0000             |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 4                  |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

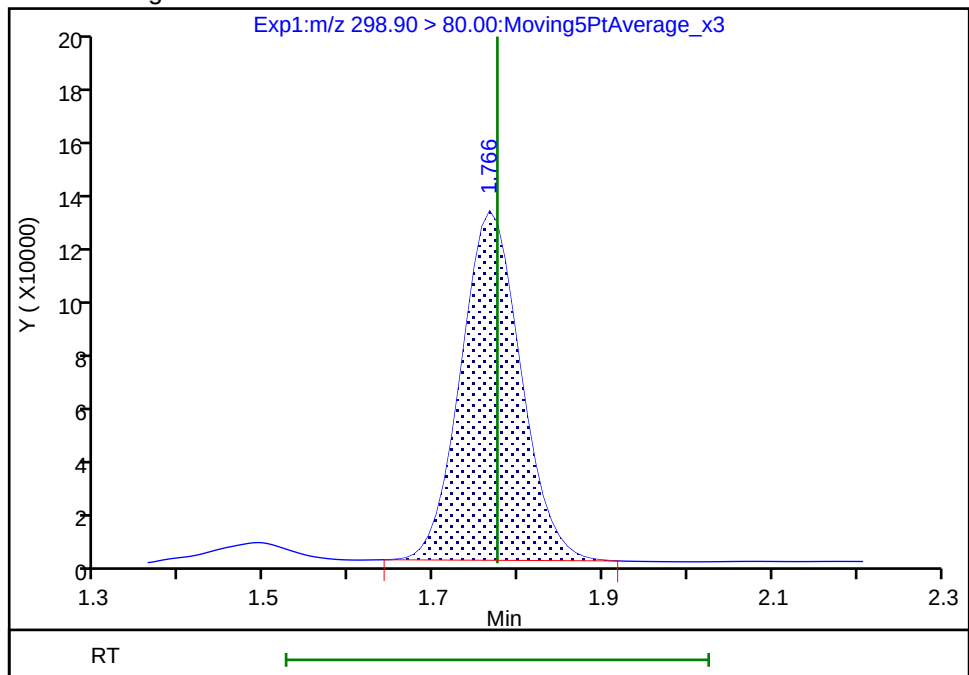
RT: 1.77  
Area: 633110  
Amount: 0.213906  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.77  
Area: 620657  
Amount: 0.209699  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:08:37

Audit Action: Manually Integrated

Audit Reason: Baseline



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>MW-KLA02-01-01</u> | Lab Sample ID: <u>320-39023-2</u>            |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.27LLADX_035.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 12:05</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>275.9 (mL)</u>        | Date Analyzed: <u>05/28/2018 11:26</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225820</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 7300   | E   | 1.8 | 1.4  | 0.55 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 13000  | E M | 1.8 | 1.4  | 0.49 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 340    | M   | 1.8 | 1.4  | 0.47 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1500   | E M | 1.8 | 0.91 | 0.42 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 14000  | E M | 1.8 | 0.91 | 0.34 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 88000  | E M | 3.6 | 2.7  | 1.0  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 321  | Q | 50-150 |
| STL01892 | 13C4-PFHpA       | 44   | Q | 50-150 |
| STL00990 | 13C4 PFOA        | 65   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 40   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 77   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 28   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_035.d  
 Lims ID: 320-39023-A-2-A  
 Client ID: MW-KLA02-01-01  
 Sample Type: Client  
 Inject. Date: 28-May-2018 11:26:38 ALS Bottle#: 28 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-2-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:21:43 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:21:43

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|--------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.765 | 1.761  | 0.003  | 1.000  | 86409     | 7.47         |                 | 321  | 61.1   |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |        | EM    |
| 298.90 > 80.00                   | 1.792 | 1.764  | 0.028  | 1.015  | 117409309 | 40.5         |                 |      | 2922   | EM    |
| 298.90 > 99.00                   | 1.764 | 1.764  | 0.0    | 0.000  | 0         |              | 0.00(1.25-3.74) |      |        |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.345 | 2.342  | 0.003  | 1.000  | 578101    | 1.11         |                 | 44.2 | 7962   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |        | E     |
| 363.00 > 319.00                  | 2.332 | 2.345  | -0.013 | 0.994  | 49286208  | 201.8        |                 |      | 21069  | E     |
| 363.00 > 169.00                  | 2.332 | 2.345  | -0.013 | 0.994  | 21875918  |              | 2.25(1.13-3.40) |      | 41438  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |        | REM   |
| 399.00 > 80.00                   | 2.280 | 2.358  | -0.078 | 0.967  | 211399819 | 377.2        |                 |      | 4314   | REM   |
| 399.00 > 99.00                   | 2.358 | 2.358  | 0.0    | 1.000  | 197734802 |              | 1.07(1.50-4.49) |      | 19117  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.358 | 2.368  | -0.010 | 1.000  | 1176199   | 1.82         |                 | 77.0 | 16522  |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.707 | 2.703  | 0.004  | 1.000  | 799759    | 1.62         |                 | 64.7 | 14039  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |        | EM    |
| 413.00 > 369.00                  | 2.707 | 2.704  | 0.003  | 1.000  | 139955994 | 371.7        |                 |      | 19674  | EM    |
| 413.00 > 169.00                  | 2.707 | 2.704  | 0.003  | 1.000  | 108173772 |              | 1.29(0.84-2.52) |      | 28708  | M     |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.707 | 2.704  | 0.003  |        | 1305306   | 2.50         |                 |      | 18653  | s     |
| 20 Perfluorononanoic acid        |       |        |        |        |           |              |                 |      |        | M     |
| 463.00 > 419.00                  | 3.058 | 3.071  | -0.013 | 1.000  | 1617063   | 9.44         |                 |      | 572    | M     |
| 463.00 > 169.00                  | 3.058 | 3.071  | -0.013 | 1.000  | 438523    |              | 3.69(1.90-5.69) |      | 252    | M     |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |        | EM    |
| 499.00 > 80.00                   | 2.852 | 3.071  | -0.219 | 0.933  | 347952921 | 2421.3       |                 |      | 1731   | EM    |
| 499.00 > 99.00                   | 3.058 | 3.071  | -0.013 | 1.000  | 253763910 |              | 1.37(2.31-6.93) |      | 369255 |       |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |      |       |
| 503.00 > 80.00  | 3.058 | 3.072     | -0.014    | 1.000     | 292102   | 0.6580          |               | 27.5 | 441  |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |      |       |
| 468.00 > 423.00 | 3.058 | 3.072     | -0.014    | 1.000     | 404475   | 1.00            |               | 40.0 | 6493 |       |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

s - Failed ISTD Recovery Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_035.d

Injection Date: 28-May-2018 11:26:38

Instrument ID: A8\_N

Lims ID: 320-39023-A-2-A

Lab Sample ID: 320-39023-2

Client ID: MW-KLA02-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

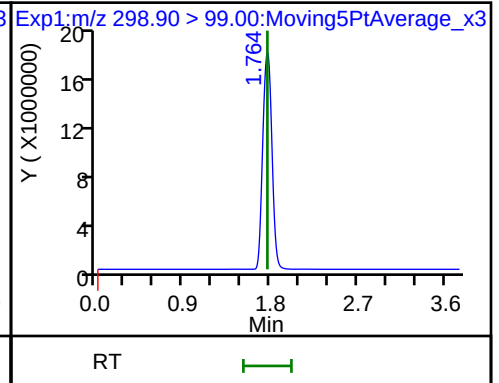
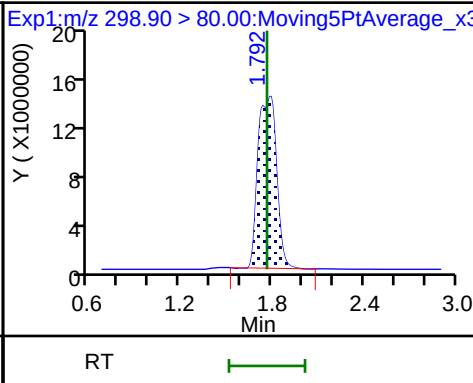
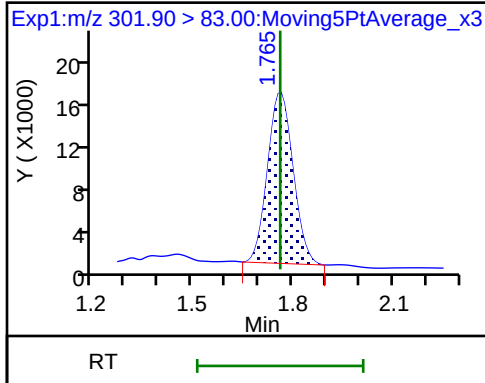
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (M)

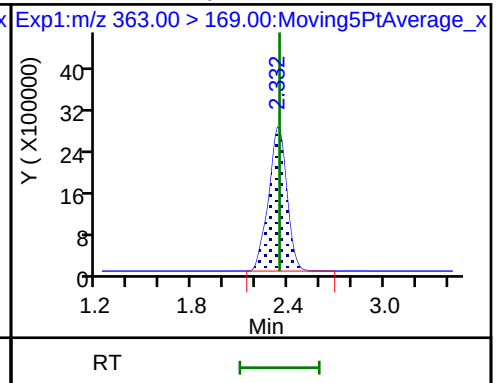
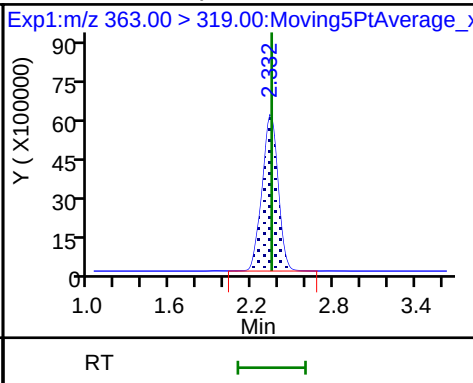
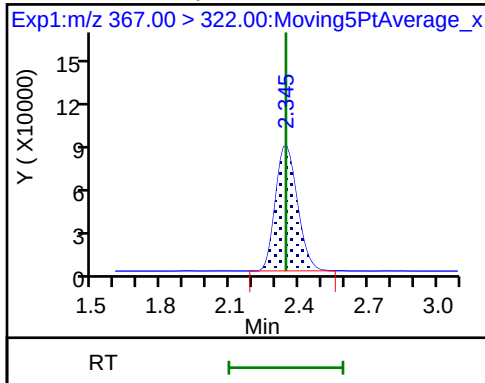
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

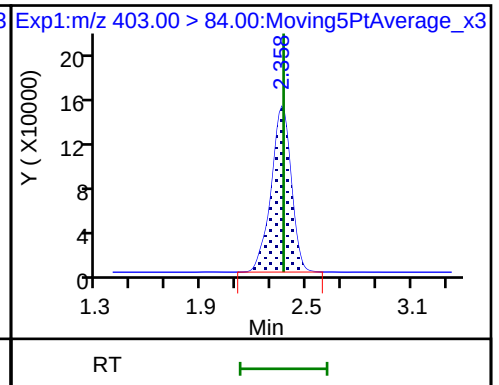
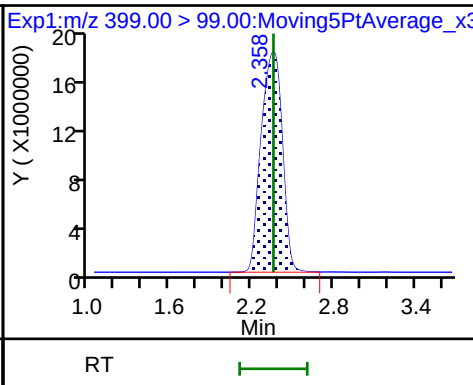
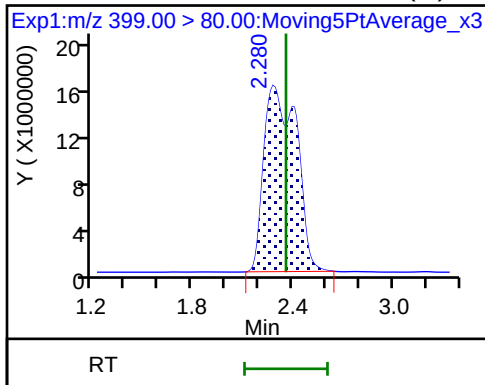
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid (M)

8 Perfluorohexanesulfonic acid

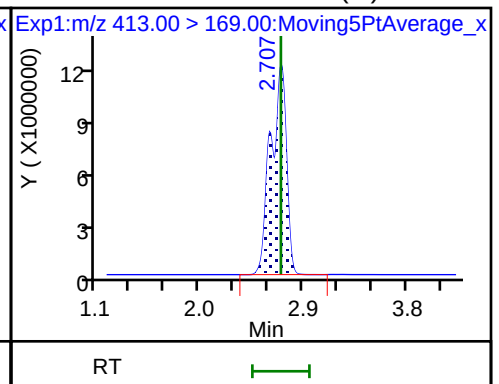
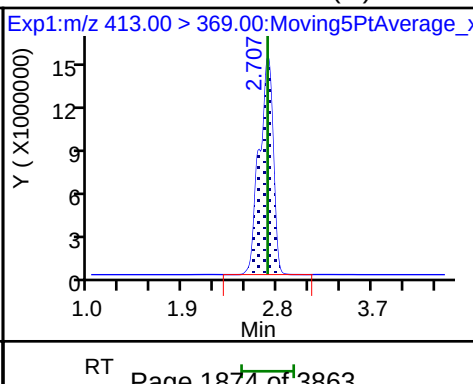
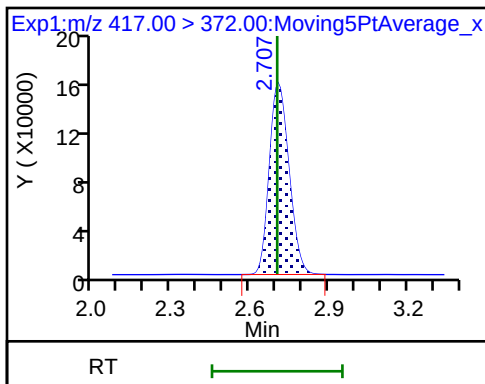
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid (M)

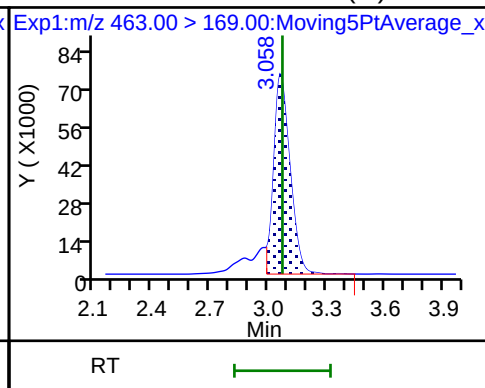
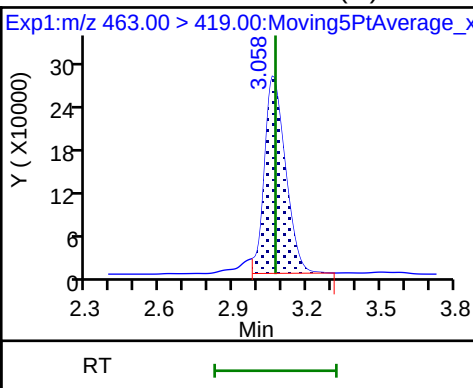
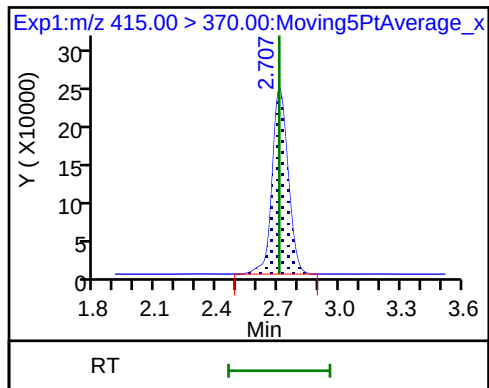
15 Perfluorooctanoic acid (M)



\* 62 13C2-PFOA

20 Perfluorononanoic acid (M)

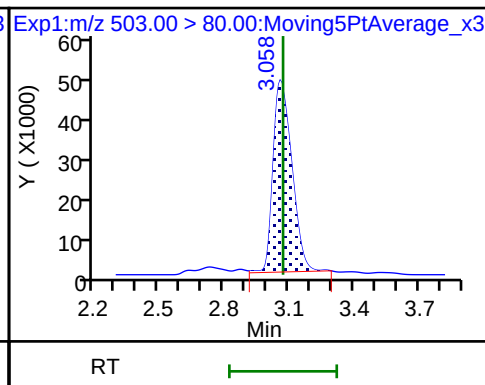
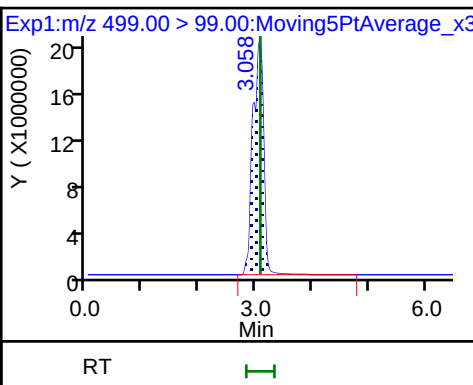
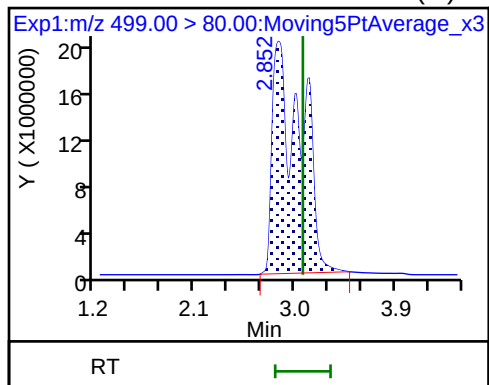
20 Perfluorononanoic acid (M)



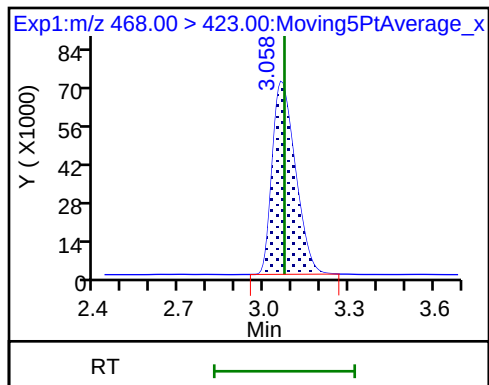
17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS



D 19 13C5 PFNA



## TestAmerica Sacramento

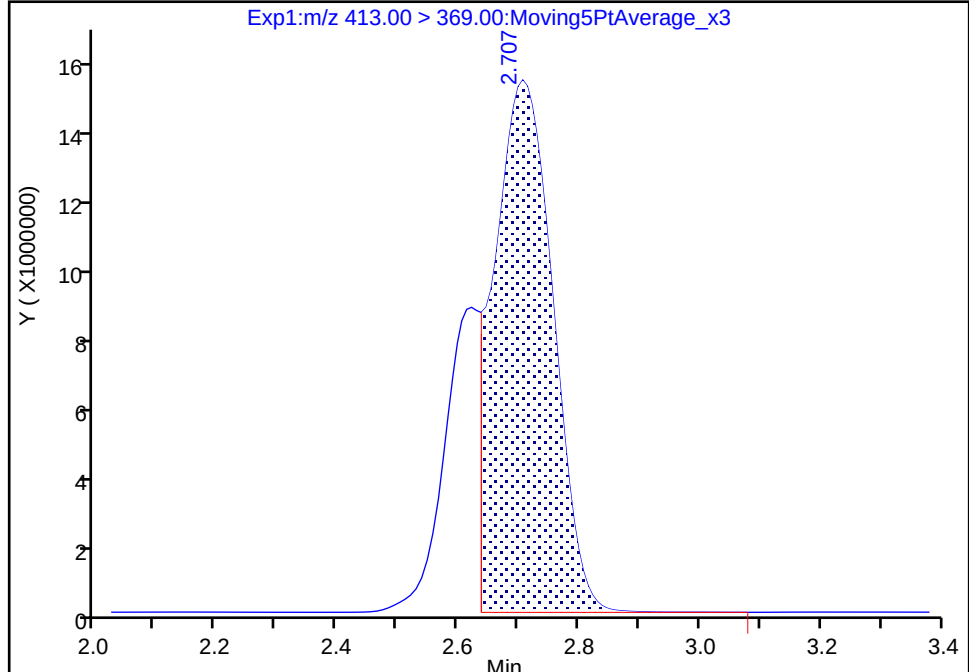
|                 |                                                                            |                |                    |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_035.d |                |                    |
| Injection Date: | 28-May-2018 11:26:38                                                       | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-2-A                                                            | Lab Sample ID: | 320-39023-2        |
| Client ID:      | MW-KLA02-01-01                                                             |                |                    |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 28                 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                            | Detector:      | EXP1               |
|                 |                                                                            | Worklist Smp#: | 5                  |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

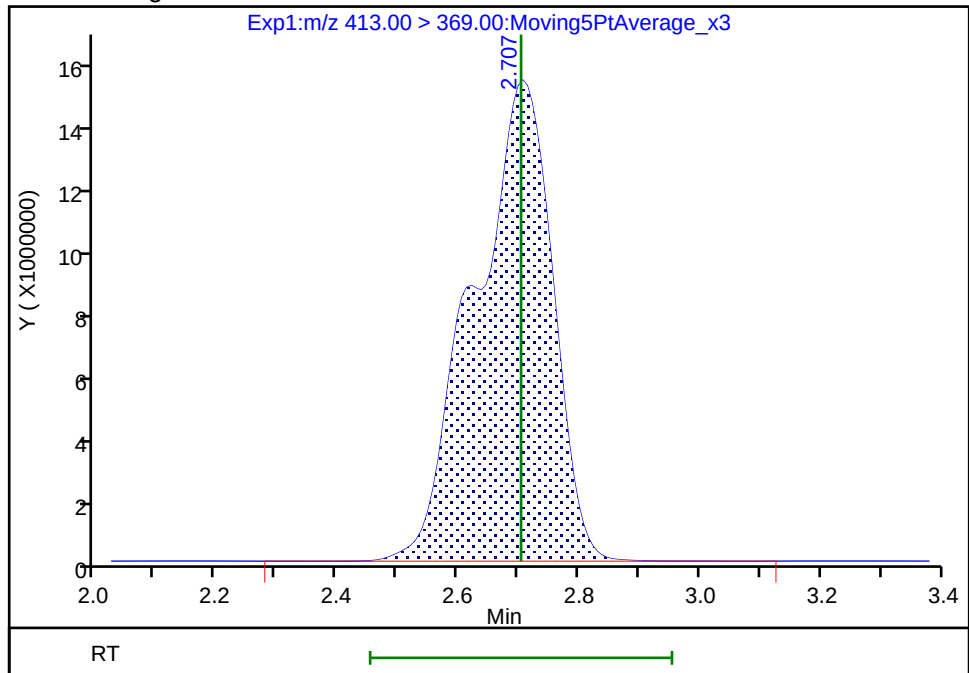
RT: 2.71  
Area: 104014850  
Amount: 276.2413  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 139955994  
Amount: 371.6933  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:20:40  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 1876 of 3863

## TestAmerica Sacramento

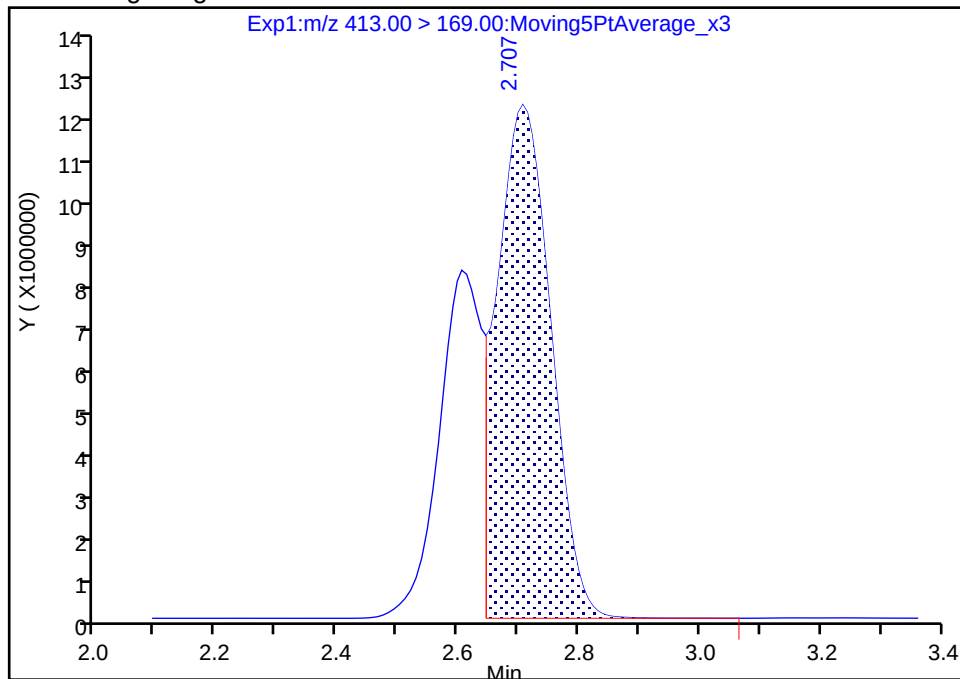
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_035.d  
Injection Date: 28-May-2018 11:26:38 Instrument ID: A8\_N  
Lims ID: 320-39023-A-2-A Lab Sample ID: 320-39023-2  
Client ID: MW-KLA02-01-01  
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

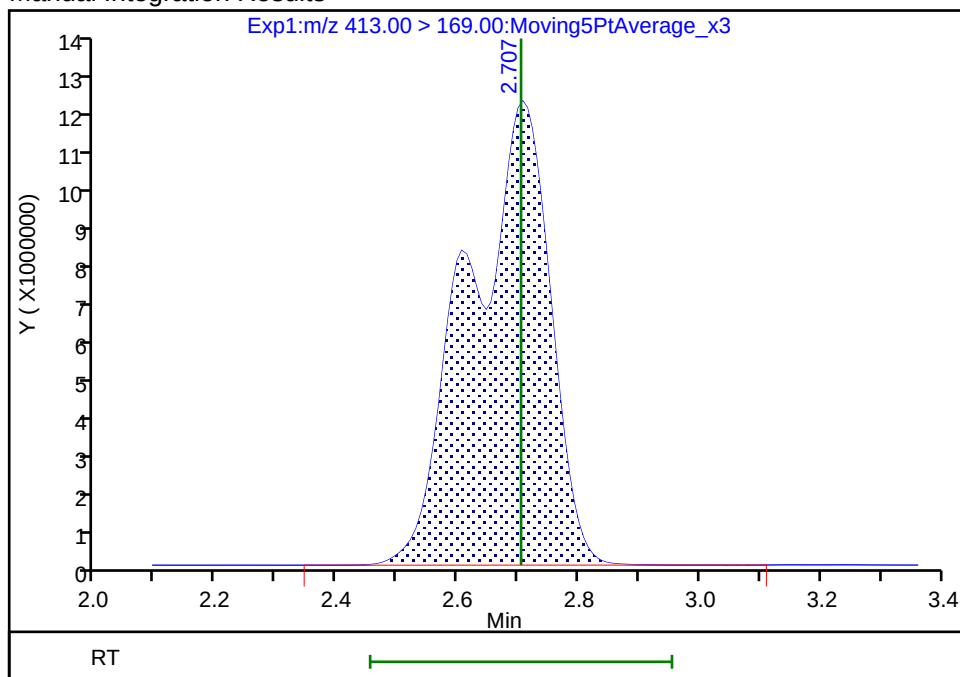
RT: 2.71  
Area: 70266529  
Amount: 276.2413  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 108173772  
Amount: 371.6933  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:20:42

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

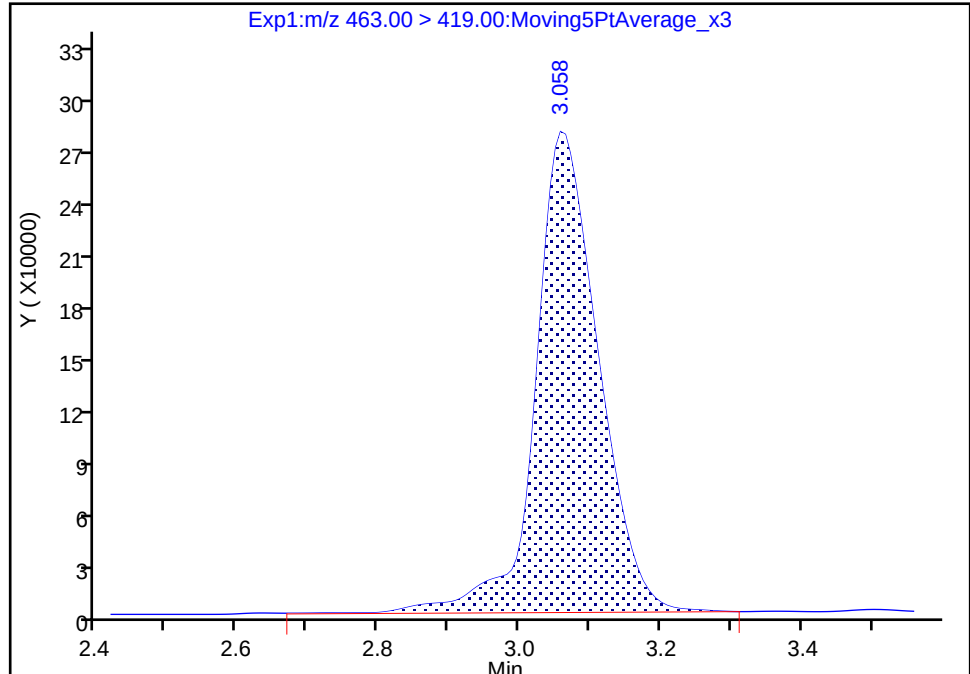
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_035.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:26:38                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-2-A                                                            | Lab Sample ID: | 320-39023-2        |                |   |
| Client ID:      | MW-KLA02-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 28                 | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

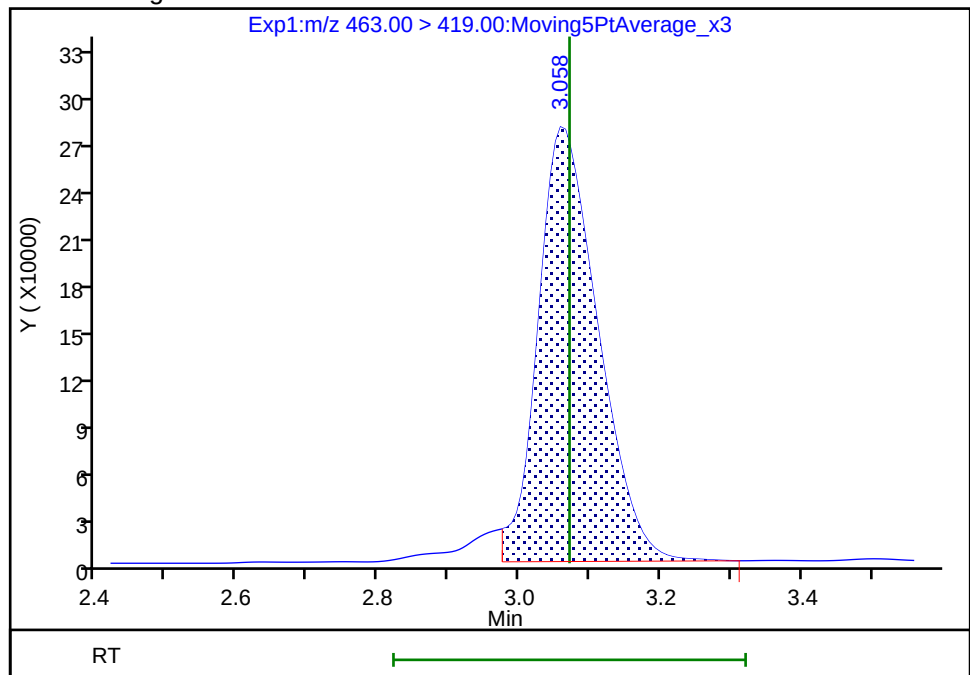
RT: 3.06  
Area: 1705695  
Amount: 9.953495  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 1617063  
Amount: 9.436287  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:21:16  
Audit Action: Manually Integrated

Audit Reason: Split Peak  
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## TestAmerica Sacramento

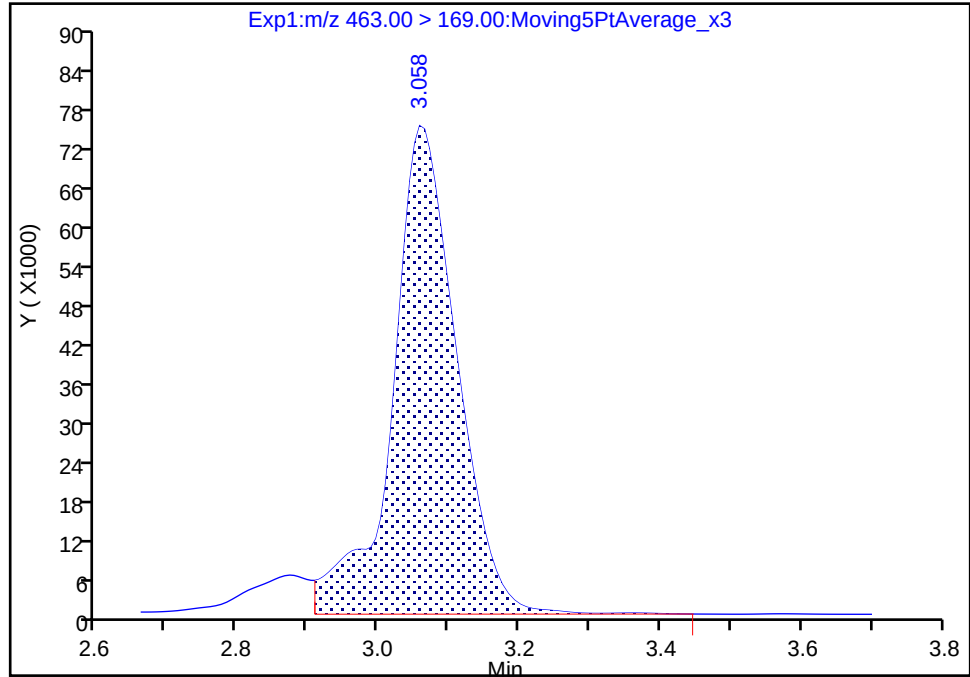
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_035.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:26:38                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-2-A                                                            | Lab Sample ID: | 320-39023-2        |                |   |
| Client ID:      | MW-KLA02-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 28                 | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

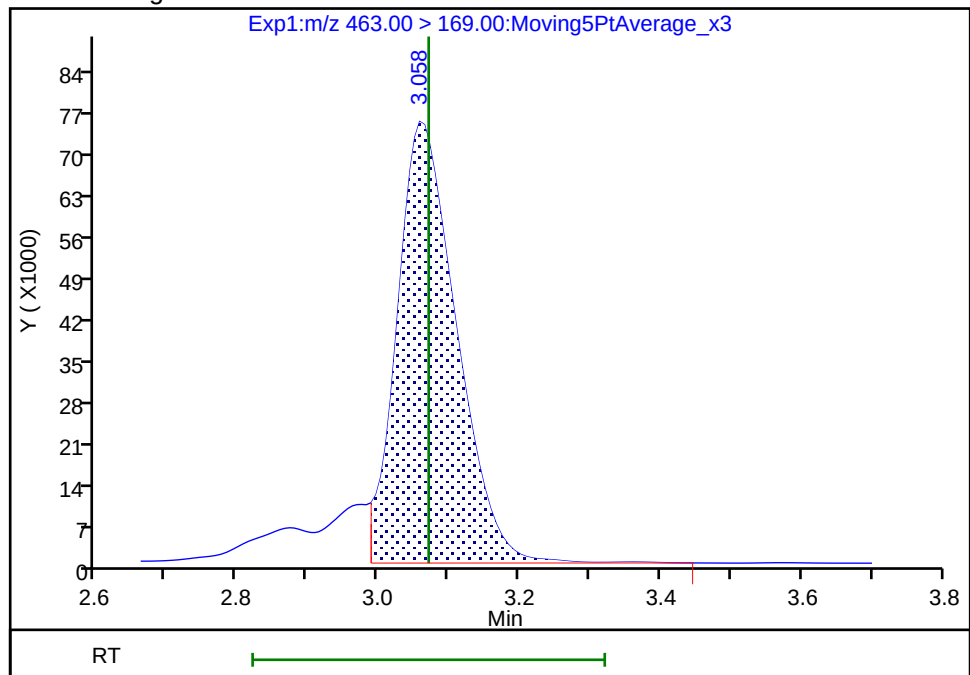
RT: 3.06  
Area: 477620  
Amount: 9.953495  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 438523  
Amount: 9.436287  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:21:22

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

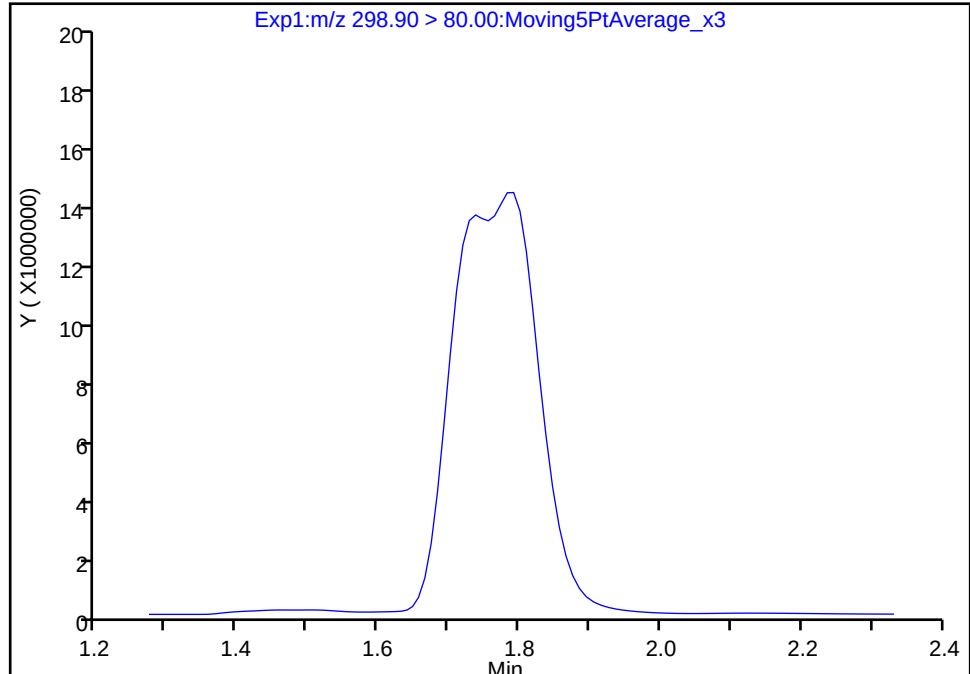
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_035.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:26:38                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-2-A                                                            | Lab Sample ID: | 320-39023-2        |                |   |
| Client ID:      | MW-KLA02-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 28                 | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

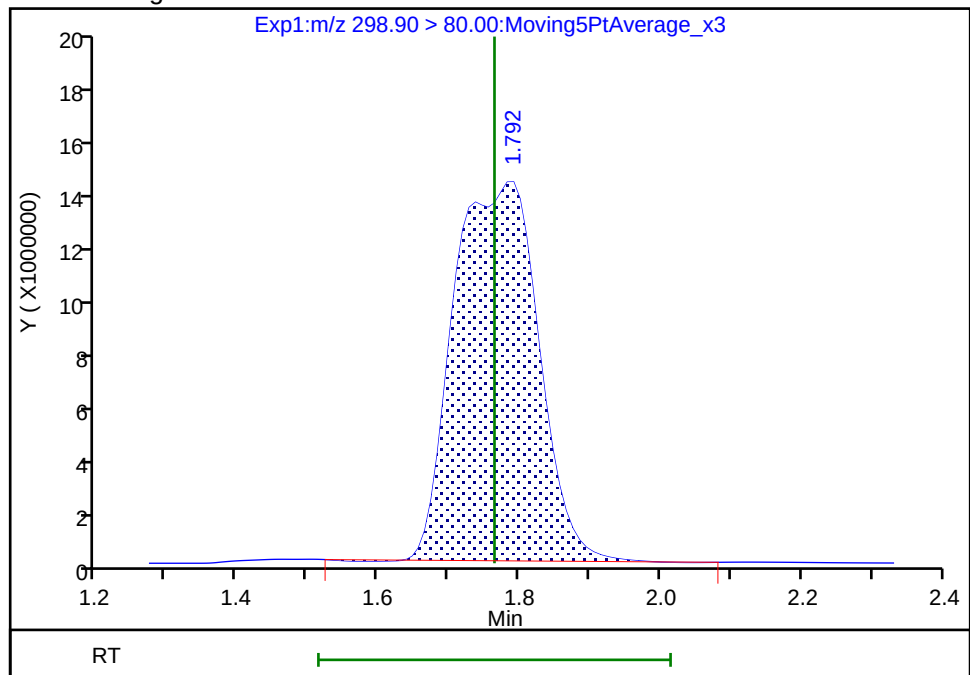
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results



## Manual Integration Results

RT: 1.79  
Area: 117409309  
Amount: 40.454118  
Amount Units: ng/mlReviewer: mongkols, 30-May-2018 14:20:28  
Audit Action: Manually IntegratedAudit Reason: Assign Peak  
Page 1880 of 3863

## TestAmerica Sacramento

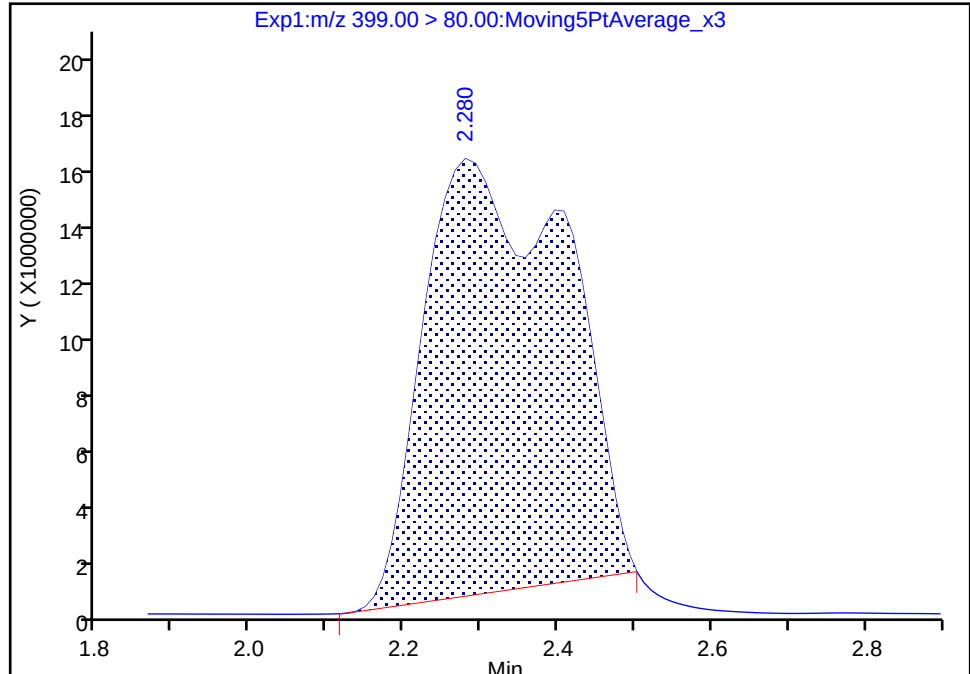
|                 |                                                                            |                |                    |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_035.d |                |                    |
| Injection Date: | 28-May-2018 11:26:38                                                       | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-2-A                                                            | Lab Sample ID: | 320-39023-2        |
| Client ID:      | MW-KLA02-01-01                                                             |                |                    |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 28                 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                            | Detector:      | EXP1               |
|                 |                                                                            | Worklist Smp#: | 5                  |

**8 Perfluorohexanesulfonic acid, CAS: 355-46-4**

Signal: 1

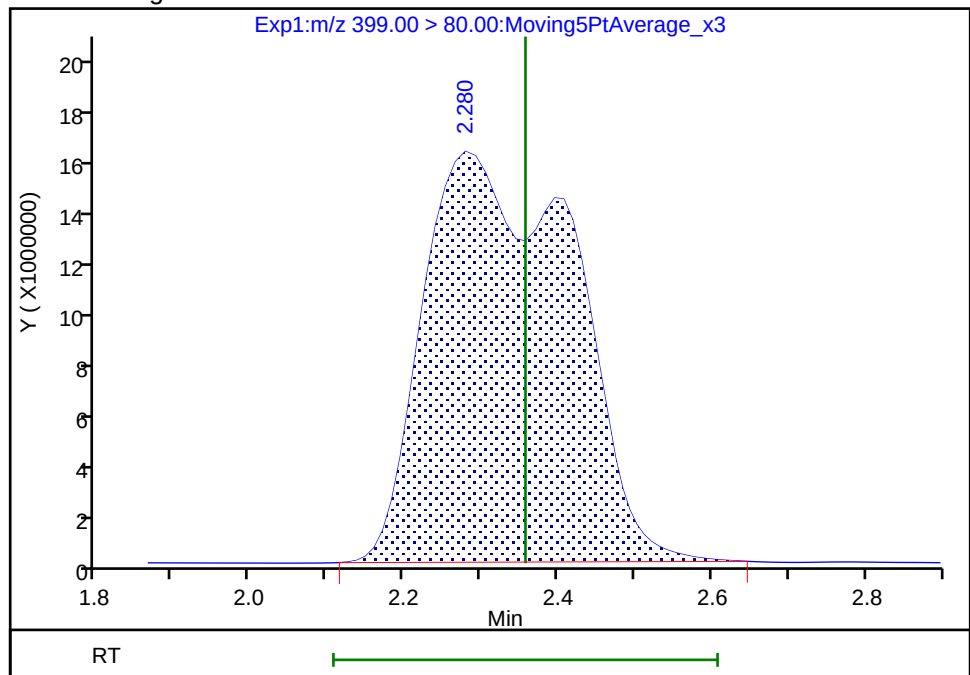
RT: 2.28  
Area: 192419178  
Amount: 343.3596  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.28  
Area: 211399819  
Amount: 377.2293  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:21:01  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

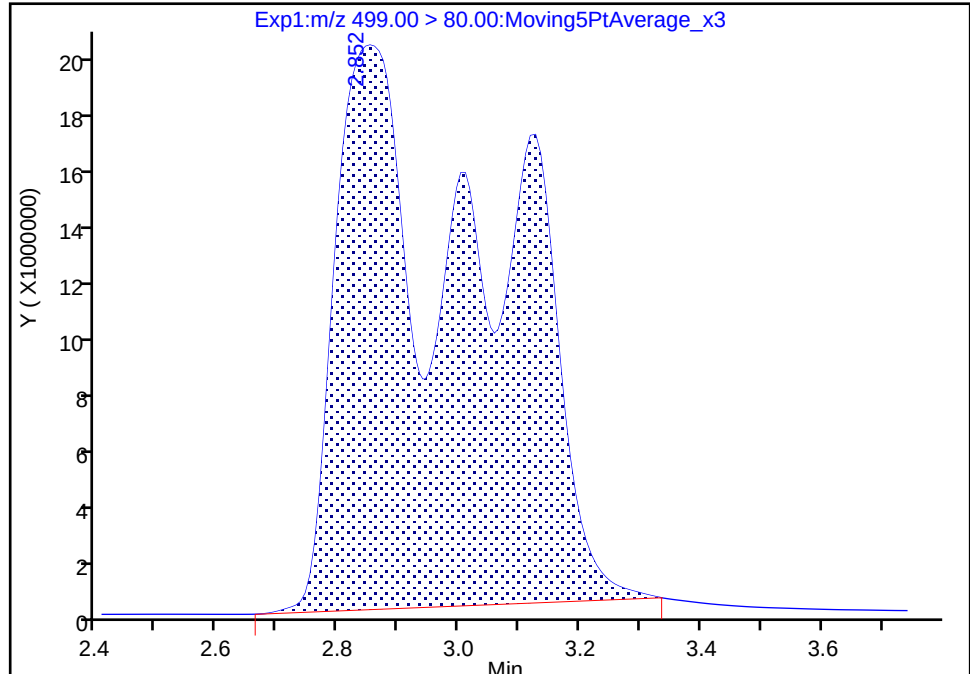
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_035.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:26:38                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-2-A                                                            | Lab Sample ID: | 320-39023-2        |                |   |
| Client ID:      | MW-KLA02-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 28                 | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

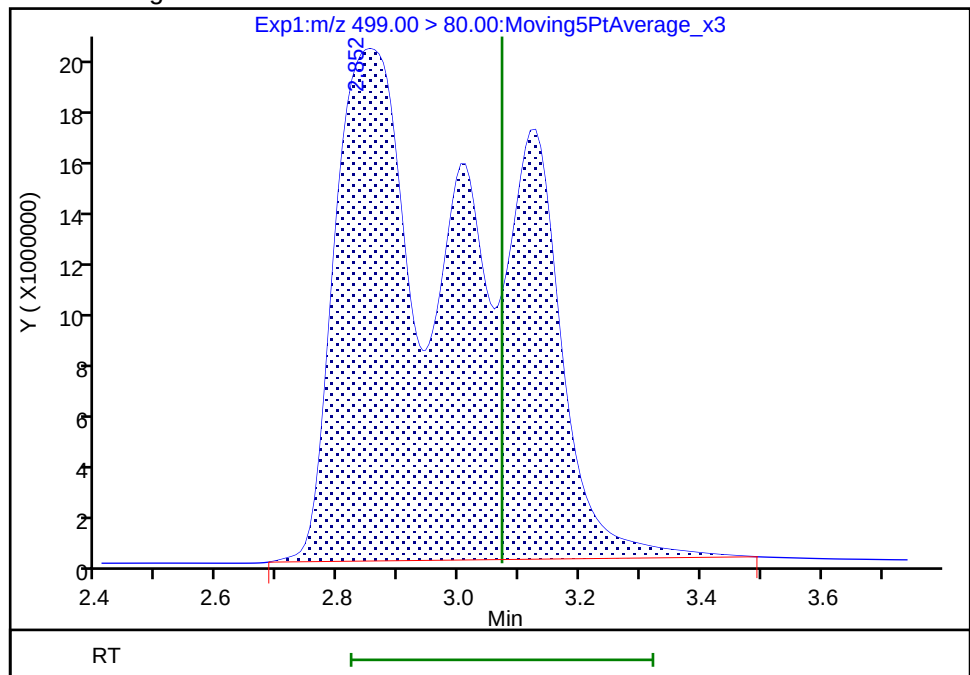
RT: 2.85  
Area: 339705493  
Amount: 2363.9294  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.85  
Area: 347952921  
Amount: 2421.3213  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:21:36  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                            |                                             |
|--------------------------------------------|---------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>    | Job No.: <u>320-39023-1</u>                 |
| SDG No.: _____                             |                                             |
| Client Sample ID: <u>MW-KLA02-01-01 DL</u> | Lab Sample ID: <u>320-39023-2 DL</u>        |
| Matrix: <u>Water</u>                       | Lab File ID: <u>2018.05.29LLB_006.d</u>     |
| Analysis Method: <u>EPA 537 (Mod)</u>      | Date Collected: <u>05/06/2018 12:05</u>     |
| Extraction Method: <u>3535</u>             | Date Extracted: <u>05/18/2018 10:26</u>     |
| Sample wt/vol: <u>275.9(mL)</u>            | Date Analyzed: <u>05/29/2018 18:49</u>      |
| Con. Extract Vol.: <u>10.00(mL)</u>        | Dilution Factor: <u>100</u>                 |
| Injection Volume: <u>2(uL)</u>             | GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u> |
| % Moisture: _____                          | GPC Cleanup: (Y/N) <u>N</u>                 |
| Analysis Batch No.: <u>226055</u>          | Units: <u>ng/L</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 7700   | D   | 180 | 140 | 55  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 21000  | D   | 180 | 140 | 49  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 340    | D M | 180 | 140 | 47  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 9700   | D   | 180 | 91  | 42  |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 66000  | E D | 180 | 91  | 34  |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 380000 | E D | 360 | 270 | 100 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 176  | Q | 50-150 |
| STL01892 | 13C4-PFHpA       | 54   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 68   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 53   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 96   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 44   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_006.d  
 Lims ID: 320-39023-A-2-A  
 Client ID: MW-KLA02-01-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 18:49:13 ALS Bottle#: 2 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-2-a 100X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 04-Jun-2018 13:28:22 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK042

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|--------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.761 | 1.764  | -0.003 | 1.000  | 2378      | 0.0409       |                 | 176  | 25.0   |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.770 | 1.765  | 0.005  | 1.005  | 21454381  | 2.69         |                 |      | 33116  |       |
| 298.90 > 99.00                   | 1.770 | 1.765  | 0.005  | 1.005  | 10003341  |              | 2.14(1.25-3.74) |      | 52633  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 35764     | 0.0136       |                 | 54.4 | 705    |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 3194269   | 2.11         |                 |      | 3963   |       |
| 363.00 > 169.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 1167889   |              | 2.74(1.13-3.40) |      | 5035   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.368 | 2.371  | -0.003 | 1.000  | 73796     | 0.0227       |                 | 96.0 | 2257   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.368 | 2.372  | -0.004 | 1.000  | 63765684  | 18.1         |                 |      | 45272  | E     |
| 399.00 > 99.00                   | 2.368 | 2.372  | -0.004 | 1.000  | 27337868  |              | 2.33(1.50-4.49) |      | 49626  | E     |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.718 | 2.711  | 0.007  | 1.000  | 42194     | 0.0170       |                 | 67.8 | 1078   |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.718 | 2.712  | 0.006  |        | 65701     | 0.0250       |                 |      | 1394   |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.718 | 2.712  | 0.006  | 1.000  | 11278930  | 5.68         |                 |      | 4521   |       |
| 413.00 > 169.00                  | 2.718 | 2.712  | 0.006  | 1.000  | 6260872   |              | 1.80(0.84-2.52) |      | 19125  |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |        |       |
| 468.00 > 423.00                  | 3.089 | 3.081  | 0.008  | 1.000  | 26966     | 0.0132       |                 | 53.0 | 811    |       |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |        |       |
| 503.00 > 80.00                   | 3.081 | 3.081  | 0.0    | 1.000  | 23581     | 0.0106       |                 | 44.2 | 181    |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |        |       |
| 499.00 > 80.00                   | 3.081 | 3.081  | 0.0    | 1.000  | 122000092 | 105.2        |                 |      | 30980  | E     |
| 499.00 > 99.00                   | 3.081 | 3.081  | 0.0    | 1.000  | 34149101  |              | 3.57(2.31-6.93) |      | 122300 | E     |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     | M     |
| 463.00 > 419.00           | 3.089 | 3.081     | 0.008     | 1.000     | 106903   | 0.0936          |                 |      | 234 | M     |
| 463.00 > 169.00           | 3.089 | 3.081     | 0.008     | 1.000     | 26308    |                 | 4.06(1.90-5.69) |      | 333 | M     |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_006.d

Injection Date: 29-May-2018 18:49:13

Instrument ID: A8\_N

Lims ID: 320-39023-A-2-A

Lab Sample ID: 320-39023-2

Client ID: MW-KLA02-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

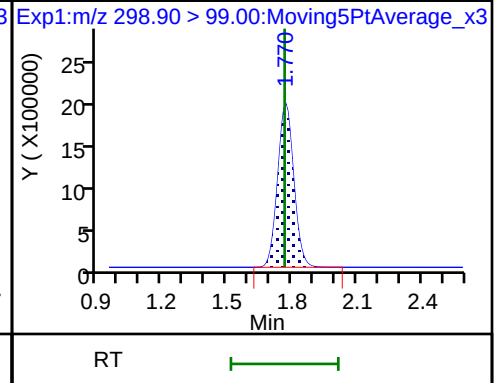
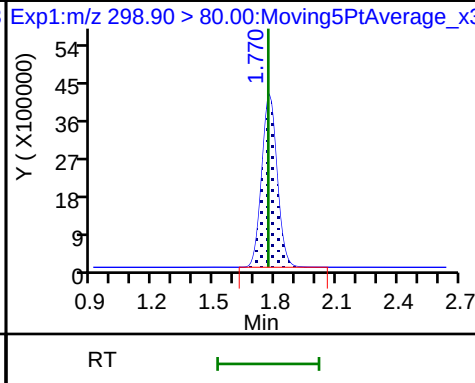
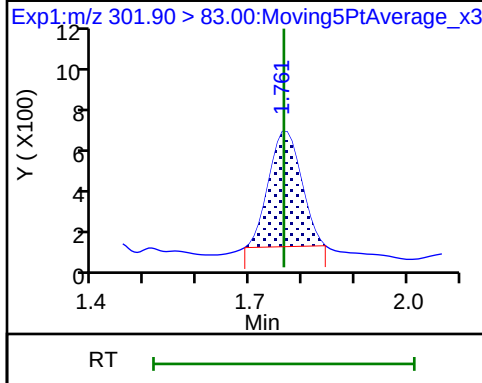
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

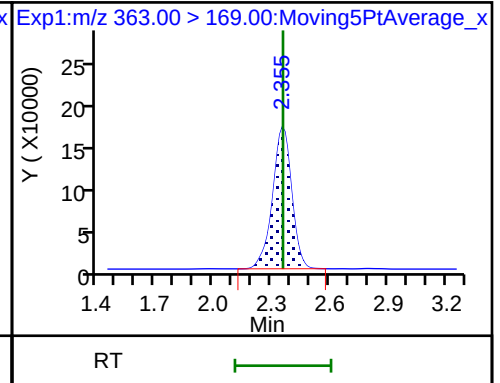
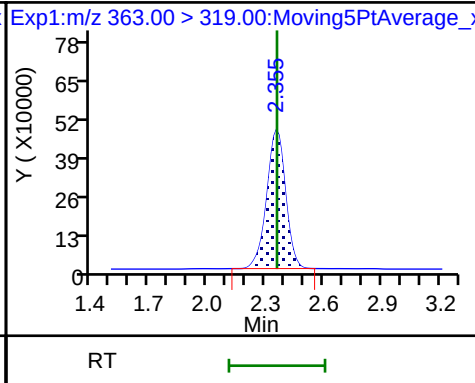
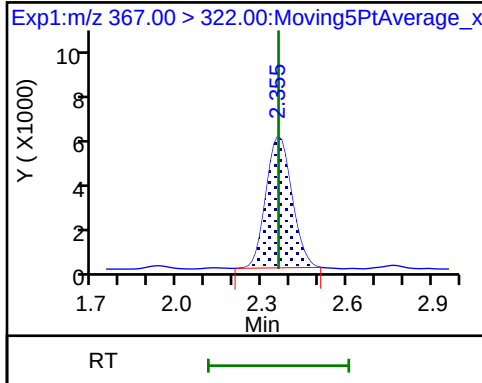
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

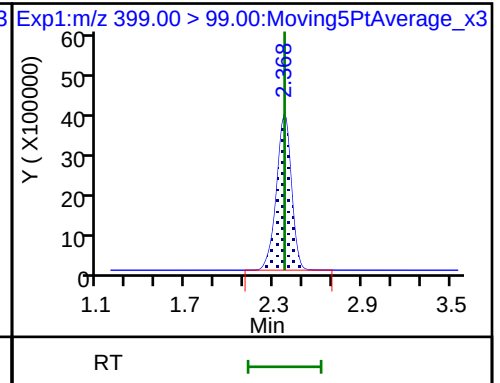
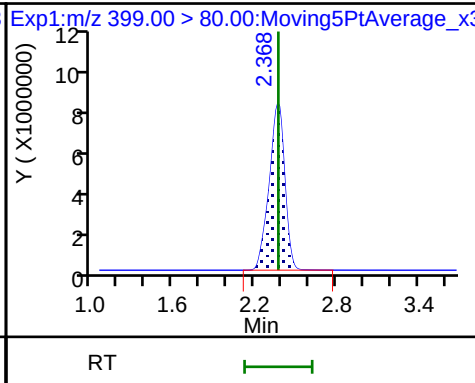
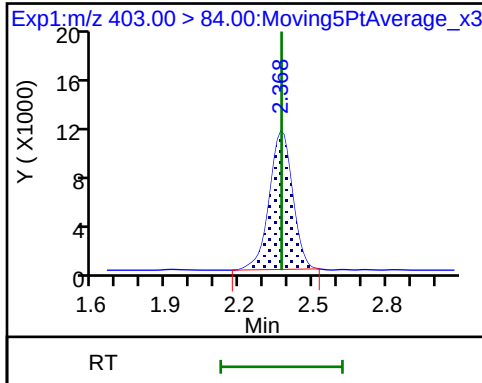
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

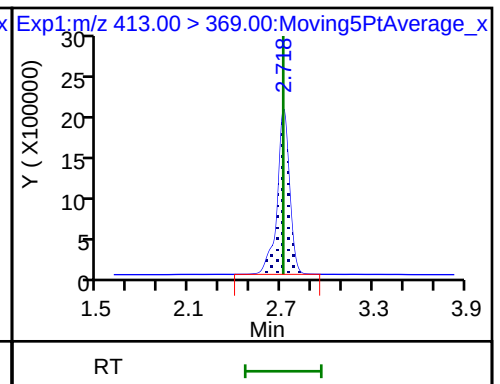
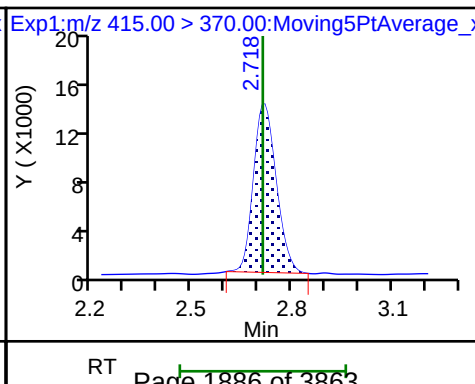
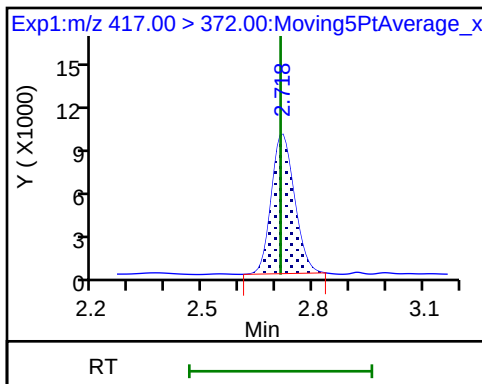
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

15 Perfluorooctanoic acid

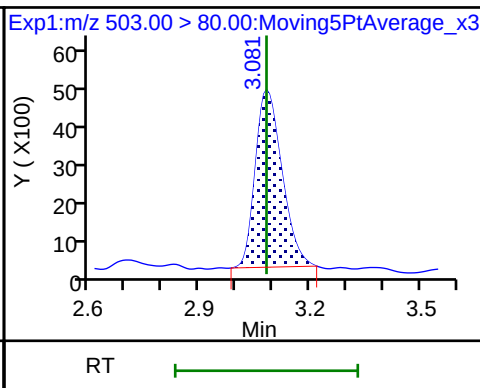
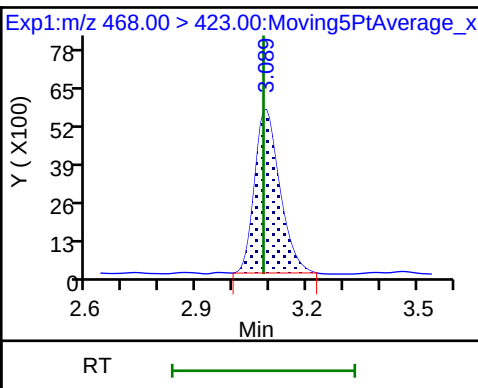
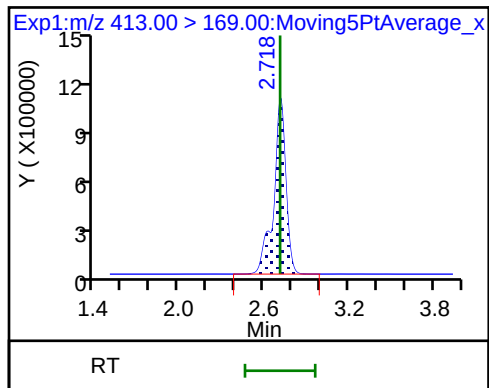




## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

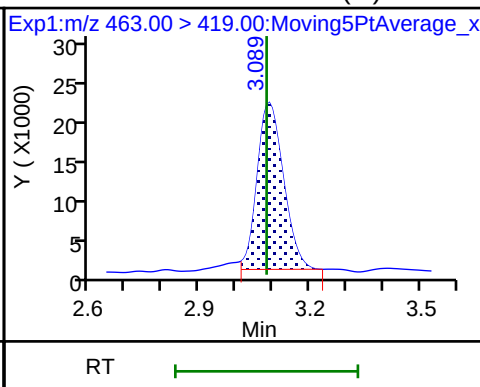
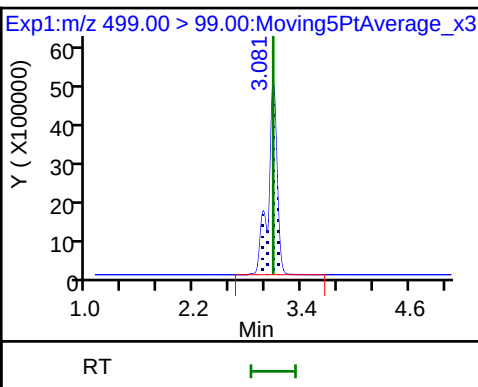
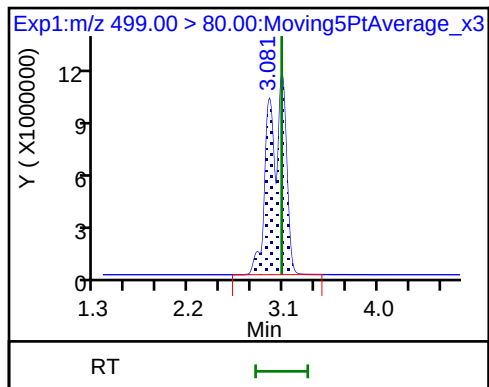
## D 18 13C4 PFOS



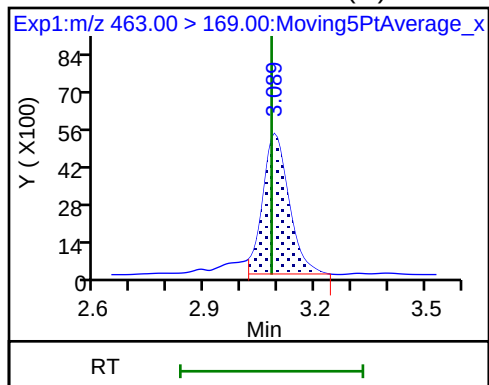
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (M)



## 20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

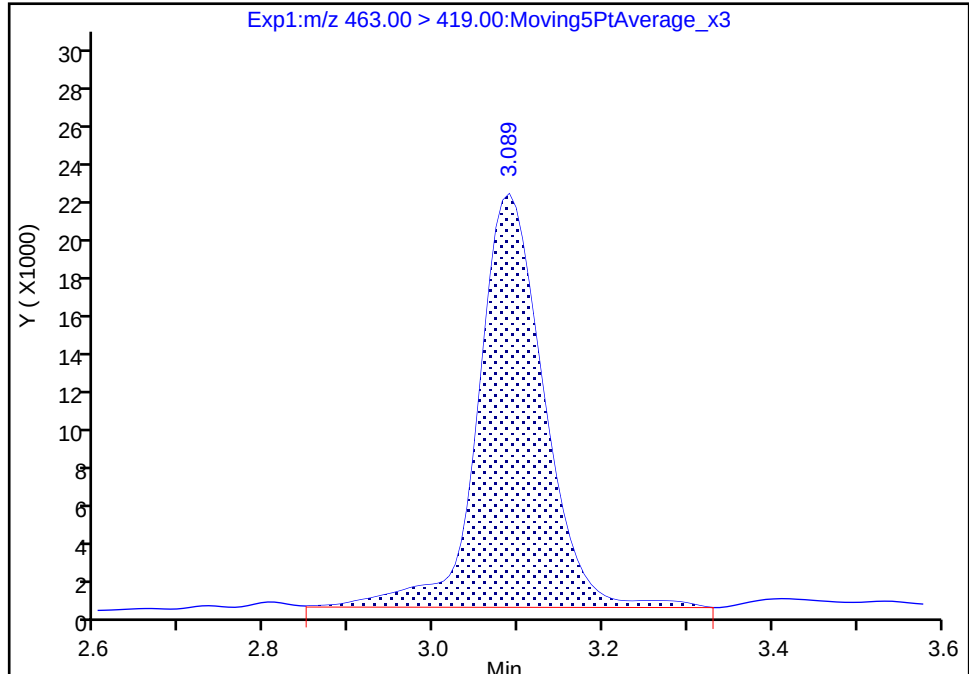
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_006.d |                |                    |
| Injection Date: | 29-May-2018 18:49:13                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-2-A                                                          | Lab Sample ID: | 320-39023-2        |
| Client ID:      | MW-KLA02-01-01                                                           |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 2                  |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 5                  |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

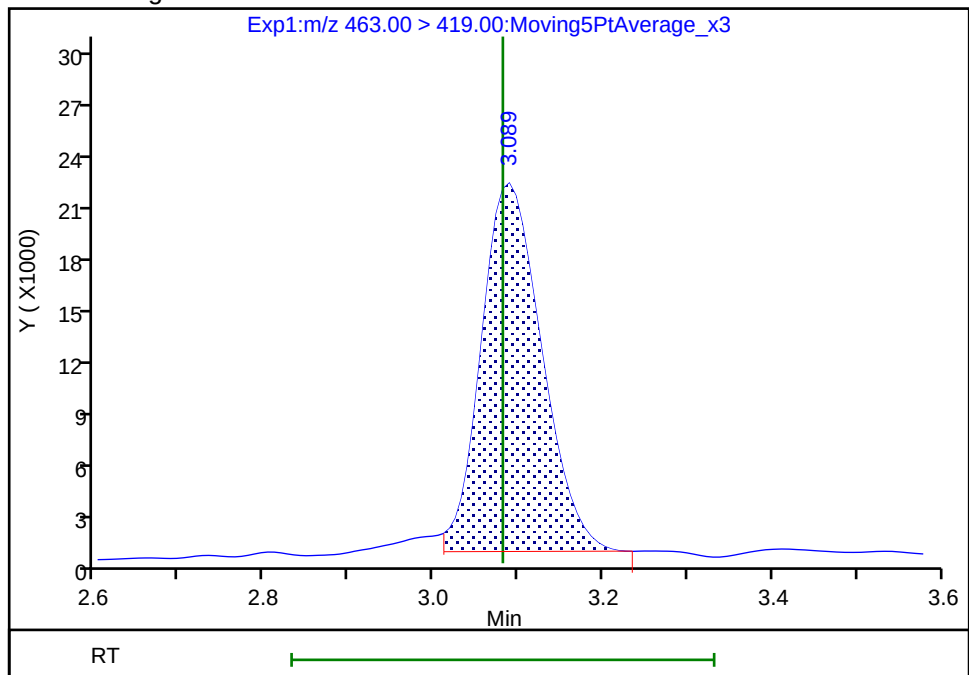
RT: 3.09  
Area: 118468  
Amount: 0.103693  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 106903  
Amount: 0.093571  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: hannigana, 04-Jun-2018 13:28:14  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 1888 of 3863

## TestAmerica Sacramento

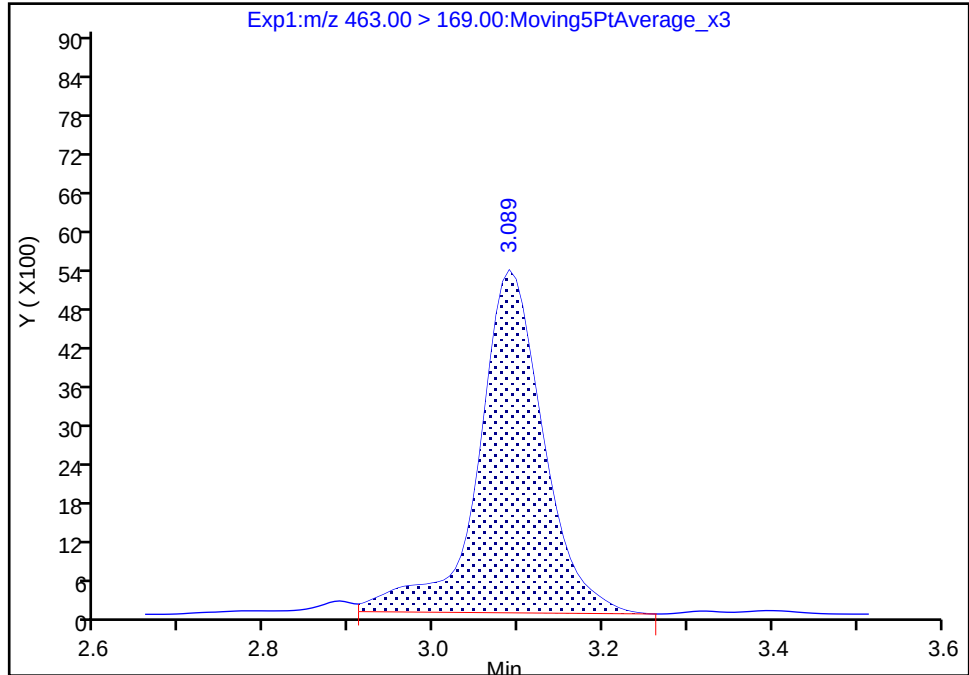
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_006.d |                |                    |
| Injection Date: | 29-May-2018 18:49:13                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-2-A                                                          | Lab Sample ID: | 320-39023-2        |
| Client ID:      | MW-KLA02-01-01                                                           |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 2                  |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector       | EXP1               |
|                 |                                                                          | Worklist Smp#: | 5                  |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

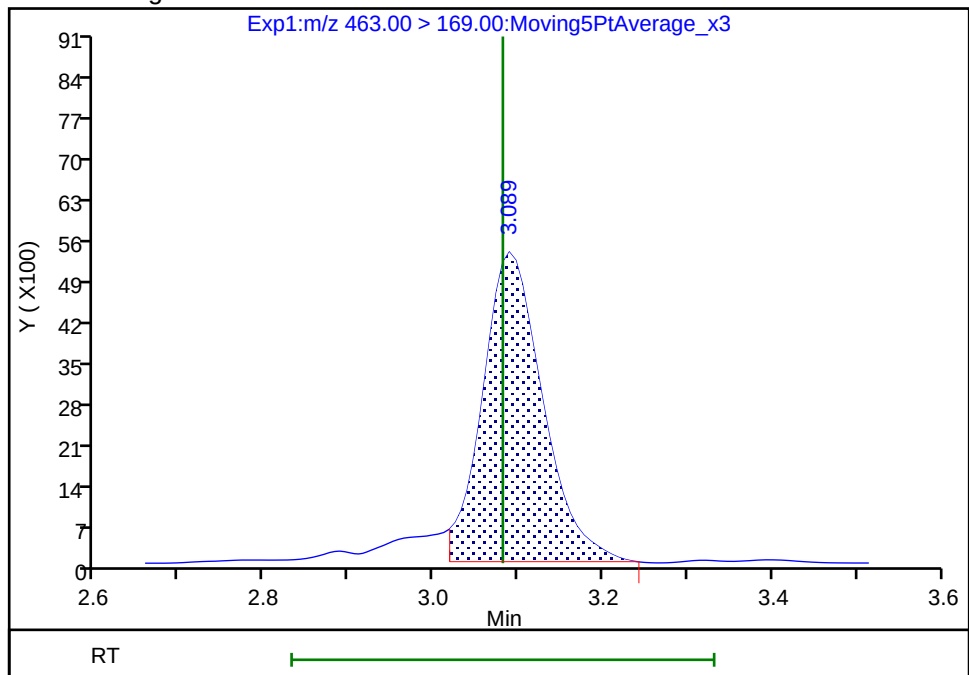
RT: 3.09  
Area: 28685  
Amount: 0.103693  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 26308  
Amount: 0.093571  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: hannigana, 04-Jun-2018 13:28:17

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>MW-KLA03-01-01</u> | Lab Sample ID: <u>320-39023-3</u>            |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.27LLADX_036.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 15:55</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>250.5 (mL)</u>        | Date Analyzed: <u>05/28/2018 11:34</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225820</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ | LOD | DL   |
|-----------|--------------------------------------|--------|---|-----|-----|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 200    |   | 2.0 | 1.5 | 0.61 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 290    |   | 2.0 | 1.5 | 0.54 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 16     | M | 2.0 | 1.5 | 0.52 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 180    |   | 2.0 | 1.0 | 0.46 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1800   | E | 2.0 | 1.0 | 0.38 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 5200   | E | 4.0 | 3.0 | 1.1  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 75   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 69   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 85   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 62   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 66   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 54   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_036.d  
 Lims ID: 320-39023-A-3-A  
 Client ID: MW-KLA03-01-01  
 Sample Type: Client  
 Inject. Date: 28-May-2018 11:34:27 ALS Bottle#: 29 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-3-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:22:13 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:22:13

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.765 | 1.761 | 0.004 | 1.000 | 82013 | 1.74 |  | 74.7 | 303 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |          |      |  |  |      |  |
|----------------|-------|-------|-------|-------|----------|------|--|--|------|--|
| 298.90 > 80.00 | 1.774 | 1.764 | 0.010 | 1.005 | 12351508 | 4.48 |  |  | 5106 |  |
|----------------|-------|-------|-------|-------|----------|------|--|--|------|--|

|                |       |       |       |       |         |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.774 | 1.764 | 0.010 | 1.005 | 5289667 |  | 2.34(1.25-3.74) |  | 8157 |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.358 | 2.342 | 0.016 | 1.000 | 3657444 | 1.71 |  | 68.5 | 46156 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |         |      |  |  |      |  |
|-----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 363.00 > 319.00 | 2.358 | 2.345 | 0.013 | 1.000 | 7789638 | 5.04 |  |  | 3774 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                 |       |       |       |       |         |  |                 |  |       |  |
|-----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|
| 363.00 > 169.00 | 2.358 | 2.345 | 0.013 | 1.000 | 2882892 |  | 2.70(1.13-3.40) |  | 13642 |  |
|-----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |          |      |  |  |       |   |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|---|
| 399.00 > 80.00 | 2.371 | 2.358 | 0.013 | 1.000 | 88147398 | 44.9 |  |  | 25113 | E |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|---|

|                |       |       |       |       |          |  |                 |  |       |   |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|-------|---|
| 399.00 > 99.00 | 2.371 | 2.358 | 0.013 | 1.000 | 35968615 |  | 2.45(1.50-4.49) |  | 32664 | E |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|-------|---|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.371 | 2.368 | 0.003 | 1.000 | 4120257 | 1.56 |  | 66.0 | 52495 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.714 | 2.703 | 0.011 | 1.000 | 4314382 | 2.14 |  | 85.5 | 71471 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |          |      |  |  |      |  |
|-----------------|-------|-------|-------|-------|----------|------|--|--|------|--|
| 413.00 > 369.00 | 2.714 | 2.704 | 0.010 | 1.000 | 14593692 | 7.18 |  |  | 5104 |  |
|-----------------|-------|-------|-------|-------|----------|------|--|--|------|--|

|                 |       |       |       |       |         |  |                 |  |       |  |
|-----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|
| 413.00 > 169.00 | 2.714 | 2.704 | 0.010 | 1.000 | 8155597 |  | 1.79(0.84-2.52) |  | 22091 |  |
|-----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |         |      |  |  |       |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.714 | 2.704 | 0.010 |  | 5330619 | 2.50 |  |  | 58422 |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |        |        |  |  |     |   |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|---|
| 463.00 > 419.00 | 3.087 | 3.071 | 0.016 | 1.000 | 428170 | 0.3934 |  |  | 533 | M |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|---|

|                 |       |       |       |       |        |  |                 |  |     |   |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|---|
| 463.00 > 169.00 | 3.087 | 3.071 | 0.016 | 1.000 | 109347 |  | 3.92(1.90-5.69) |  | 481 | M |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|---|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |           |       |  |  |       |   |
|----------------|-------|-------|-------|-------|-----------|-------|--|--|-------|---|
| 499.00 > 80.00 | 3.079 | 3.071 | 0.008 | 1.000 | 150127724 | 130.4 |  |  | 14797 | E |
|----------------|-------|-------|-------|-------|-----------|-------|--|--|-------|---|

|                |       |       |       |       |          |  |                 |  |        |   |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|--------|---|
| 499.00 > 99.00 | 3.079 | 3.071 | 0.008 | 1.000 | 44412239 |  | 3.38(2.31-6.93) |  | 194709 | E |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|--------|---|

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.079 | 3.072     | 0.007     | 1.000     | 2339836  | 1.29            |               | 54.0 | 11209 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.087 | 3.072     | 0.015     | 1.000     | 2568842  | 1.56            |               | 62.2 | 43426 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_036.d

Injection Date: 28-May-2018 11:34:27

Instrument ID: A8\_N

Lims ID: 320-39023-A-3-A

Lab Sample ID: 320-39023-3

Client ID: MW-KLA03-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

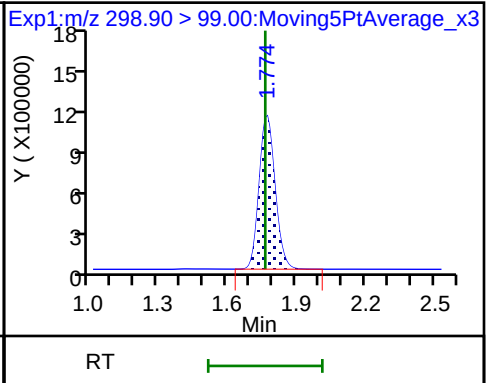
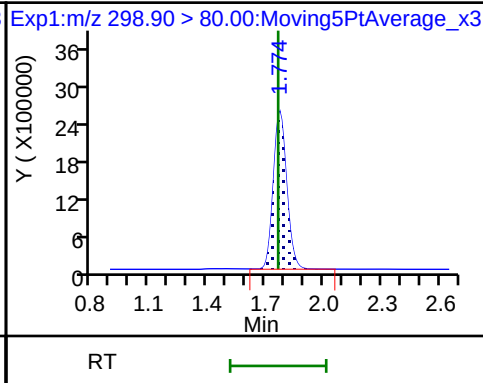
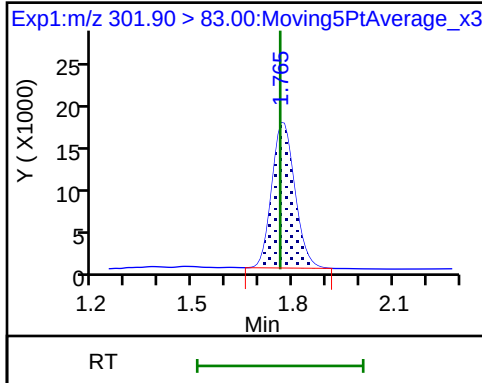
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

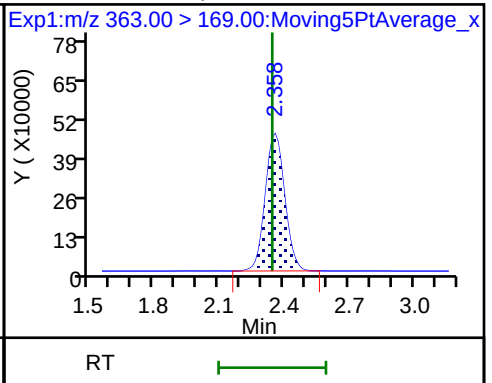
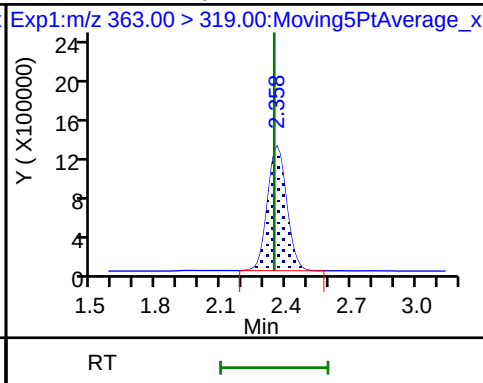
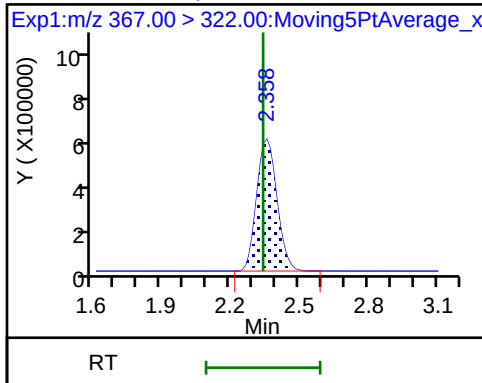
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

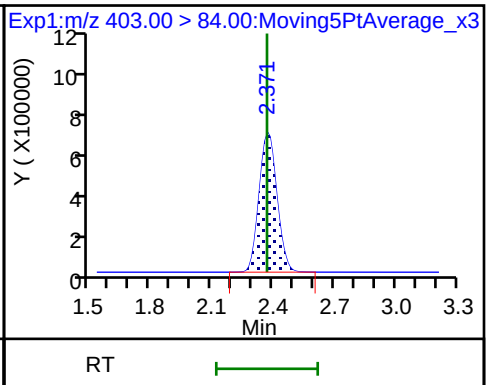
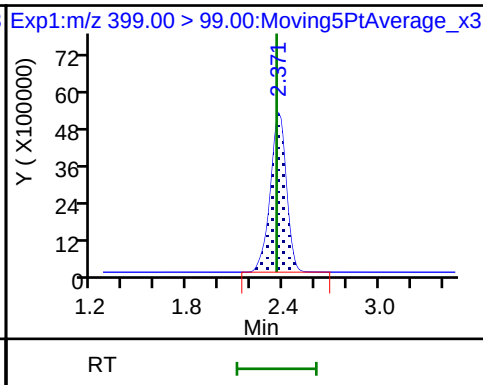
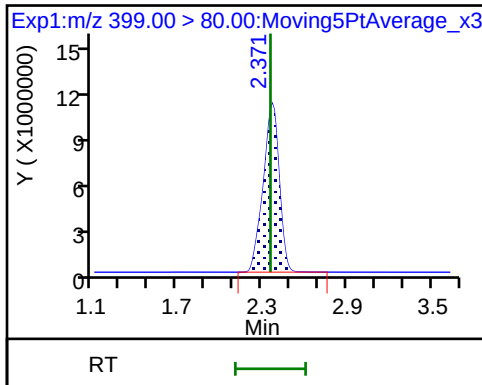
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

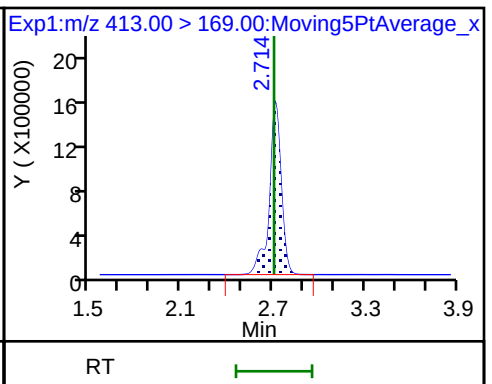
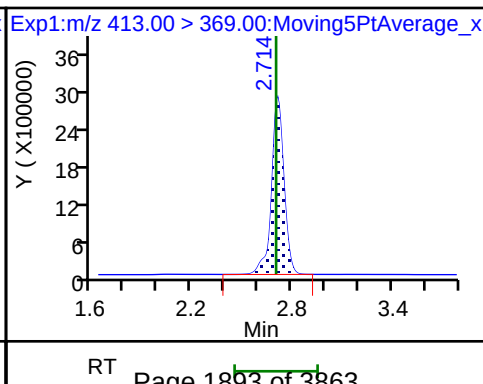
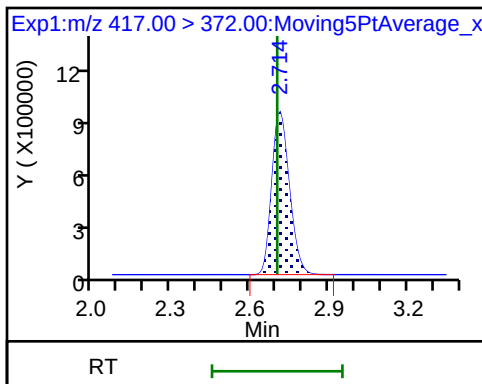
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

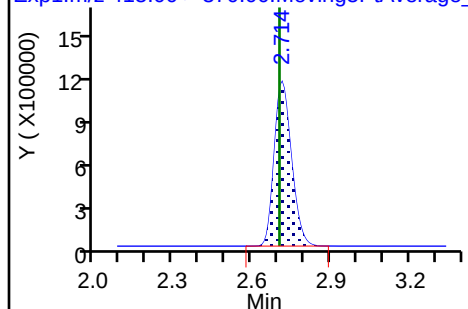


\* 62 13C2-PFOA

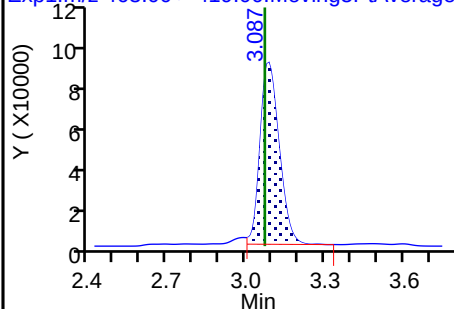
20 Perfluorononanoic acid (M)

20 Perfluorononanoic acid

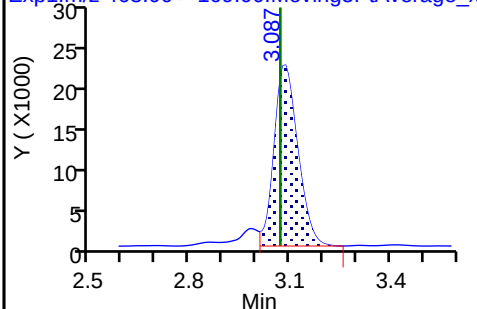
Exp1:m/z 415.00 &gt; 370.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

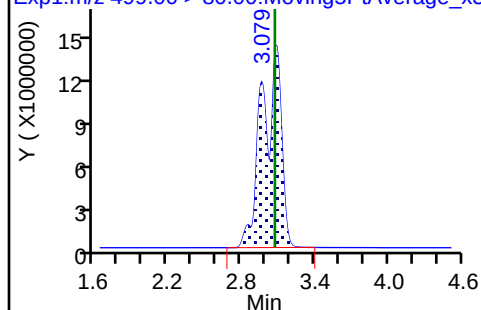


17 Perfluorooctane sulfonic acid

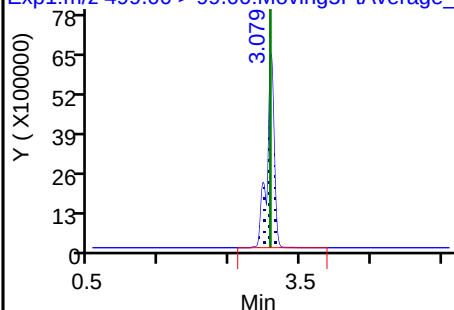
17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

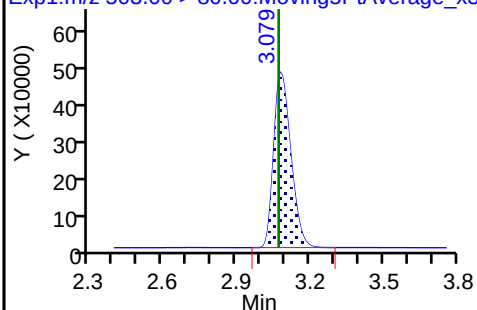
Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

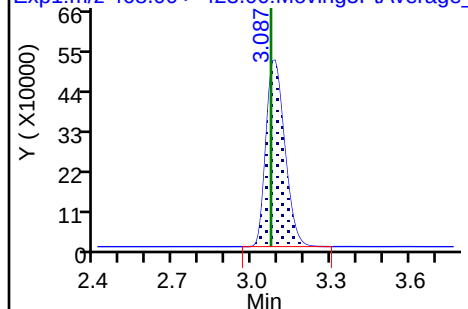


Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x





## TestAmerica Sacramento

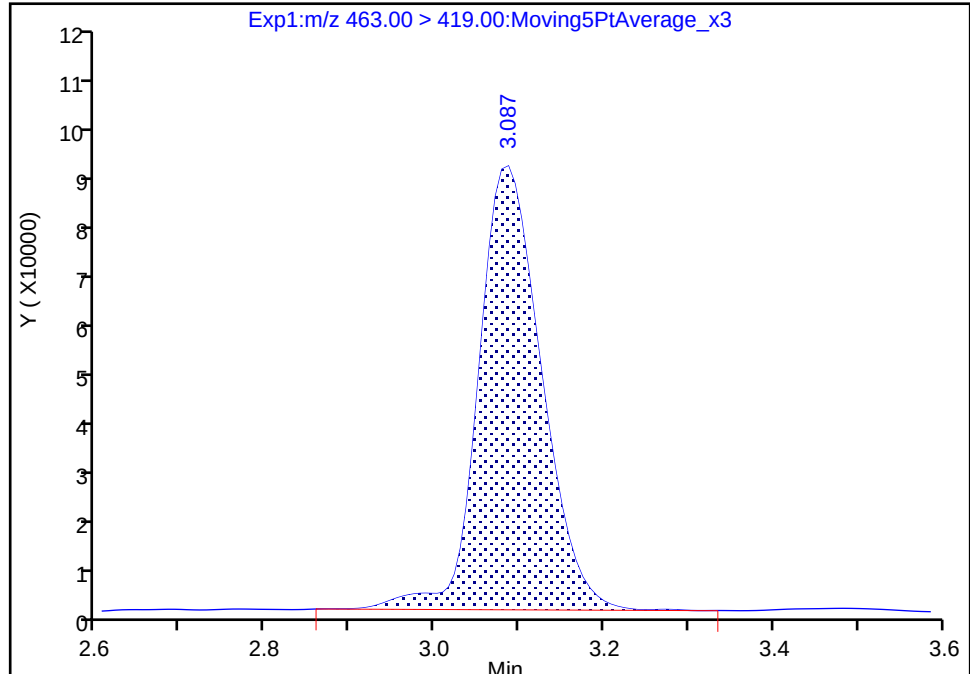
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_036.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:34:27                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-3-A                                                            | Lab Sample ID: | 320-39023-3        |                |   |
| Client ID:      | MW-KLA03-01-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 29                 | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

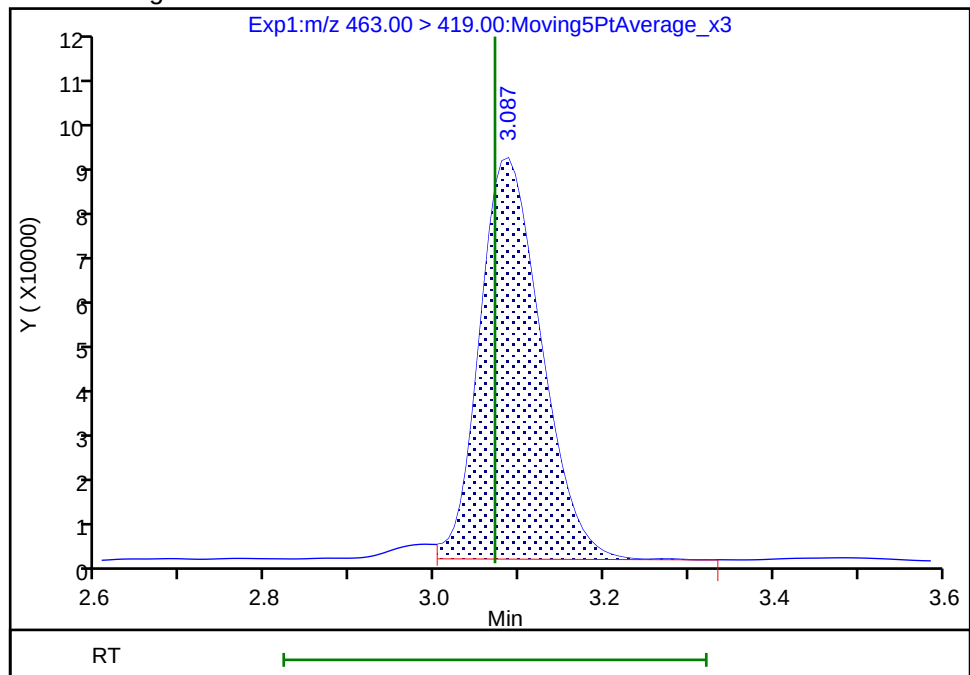
RT: 3.09  
Area: 439110  
Amount: 0.403461  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 428170  
Amount: 0.393409  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:22:04  
Audit Action: Manually Integrated

Audit Reason: Split Peak  
Page 1895 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                            |                                              |
|--------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>    | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                             |                                              |
| Client Sample ID: <u>MW-KLA03-01-01 DL</u> | Lab Sample ID: <u>320-39023-3 DL</u>         |
| Matrix: <u>Water</u>                       | Lab File ID: <u>2018.05.29LLB_008.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>      | Date Collected: <u>05/06/2018 15:55</u>      |
| Extraction Method: <u>3535</u>             | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>250.5 (mL)</u>           | Date Analyzed: <u>05/29/2018 19:04</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>       | Dilution Factor: <u>50</u>                   |
| Injection Volume: <u>2 (uL)</u>            | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                          | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>          | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL |
|-----------|--------------------------------------|--------|-----|-----|-----|----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 190    | D   | 100 | 75  | 30 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 300    | D   | 100 | 75  | 27 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 75     | U   | 100 | 75  | 26 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 170    | D   | 100 | 50  | 23 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2700   | D   | 100 | 50  | 19 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 6100   | D M | 200 | 150 | 55 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 72   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 83   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 77   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 72   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 75   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_008.d  
 Lims ID: 320-39023-A-3-A  
 Client ID: MW-KLA03-01-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 19:04:48 ALS Bottle#: 3 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 50.0000  
 Sample Info: 320-39023-a-3-a 50X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:11:22 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:11:22

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.766 | 1.764  | 0.002  | 1.000  | 1693     | 0.0318       |                 | 68.5 | 23.6  | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.766 | 1.775  | -0.009 | 1.000  | 247857   | 0.0872       |                 |      | 1150  |       |
| 298.90 > 99.00                   | 1.766 | 1.775  | -0.009 | 1.000  | 107889   |              | 2.30(1.25-3.74) |      | 877   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.359 | 2.358  | 0.001  | 1.000  | 87044    | 0.0362       |                 | 72.4 | 1989  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.359 | 2.360  | -0.001 | 1.000  | 171531   | 0.0933       |                 |      | 217   |       |
| 363.00 > 169.00                  | 2.359 | 2.360  | -0.001 | 1.000  | 64258    |              | 2.67(1.13-3.40) |      | 351   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.359 | 2.371  | -0.012 | 1.000  | 100827   | 0.0339       |                 | 71.8 | 3280  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.373 | 2.372  | 0.001  | 1.006  | 3210848  | 1.34         |                 |      | 9344  |       |
| 399.00 > 99.00                   | 2.373 | 2.372  | 0.001  | 1.006  | 973336   |              | 3.30(1.50-4.49) |      | 4357  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.713 | 2.711  | 0.002  | 1.000  | 94340    | 0.0415       |                 | 83.0 | 2265  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.713 | 2.712  | 0.001  |        | 120036   | 0.0500       |                 |      | 3268  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.713 | 2.712  | 0.001  | 1.000  | 334835   | 0.1508       |                 |      | 117   |       |
| 413.00 > 169.00                  | 2.713 | 2.712  | 0.001  | 1.000  | 193830   |              | 1.73(0.84-2.52) |      | 809   |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.079 | 3.081  | -0.002 | 1.000  | 71904    | 0.0387       |                 | 77.3 | 1930  |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.079 | 3.081  | -0.002 | 1.000  | 73259    | 0.0359       |                 | 75.1 | 758   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       | M     |
| 499.00 > 80.00                   | 3.079 | 3.082  | -0.003 | 1.000  | 5528062  | 3.07         |                 |      | 19629 | M     |
| 499.00 > 99.00                   | 3.079 | 3.082  | -0.003 | 1.000  | 1235310  |              | 4.48(2.31-6.93) |      | 12708 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      |       |
| 463.00 > 419.00           | 3.079 | 3.090     | -0.011    | 1.000     | 11344    | 0.007447        |                 |      | 31.6 |       |
| 463.00 > 169.00           | 3.086 | 3.090     | -0.004    | 1.003     | 2902     |                 | 3.91(1.90-5.69) |      | 87.4 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_008.d

Injection Date: 29-May-2018 19:04:48

Instrument ID: A8\_N

Lims ID: 320-39023-A-3-A

Lab Sample ID: 320-39023-3

Client ID: MW-KLA03-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 50.0000

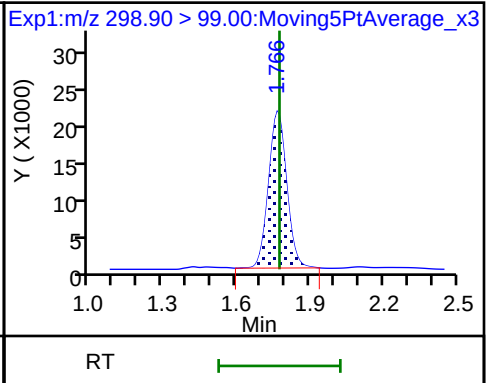
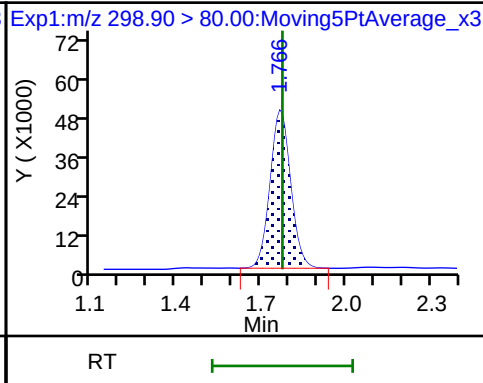
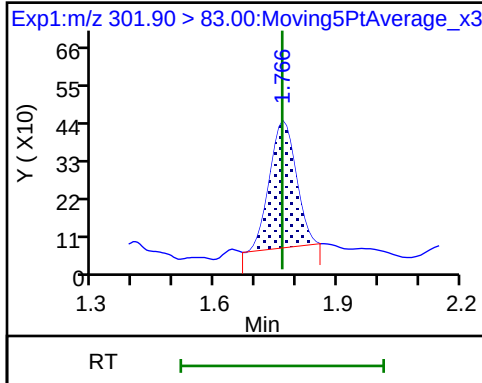
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

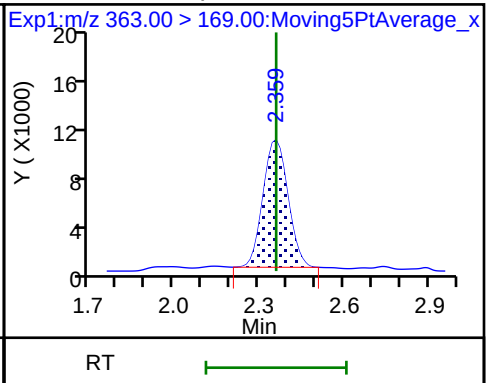
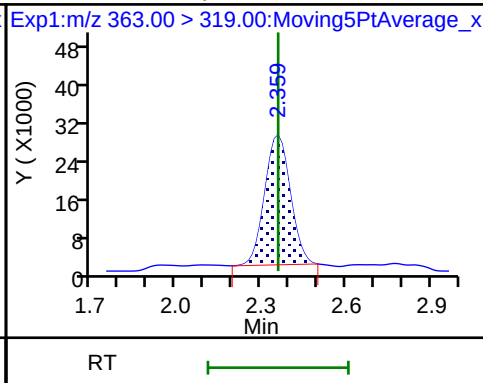
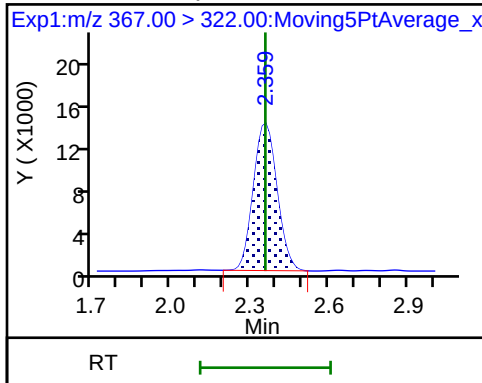
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

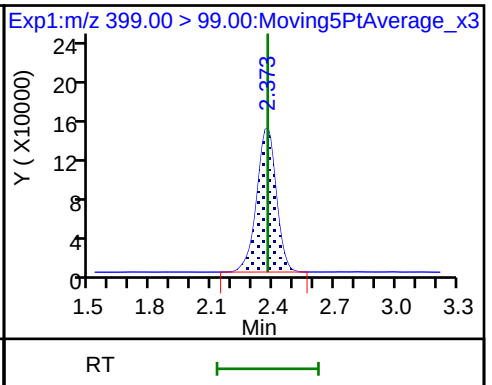
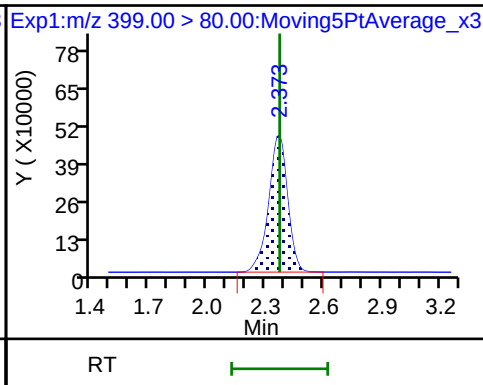
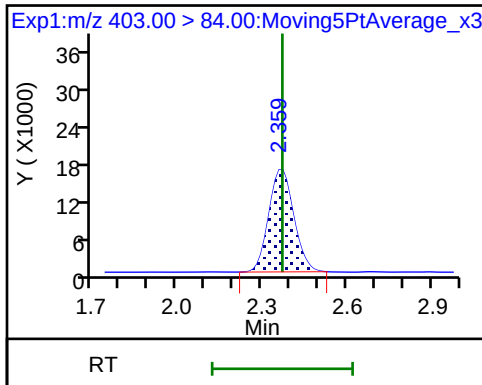
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

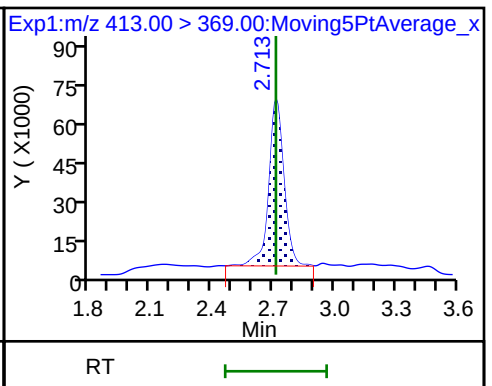
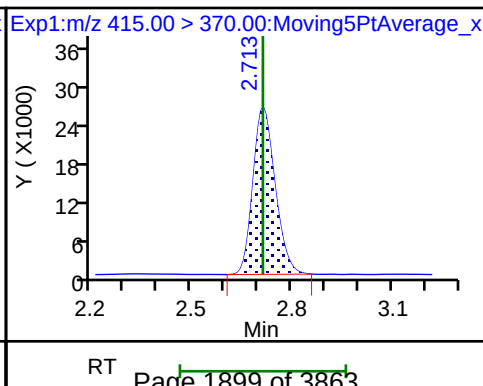
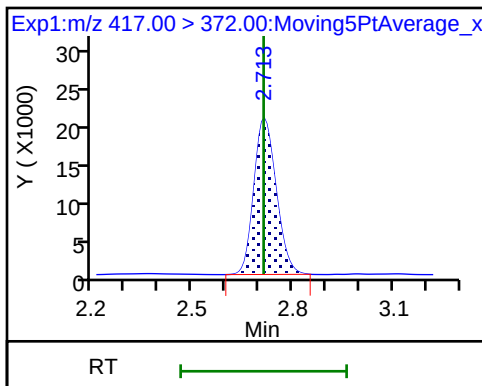
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

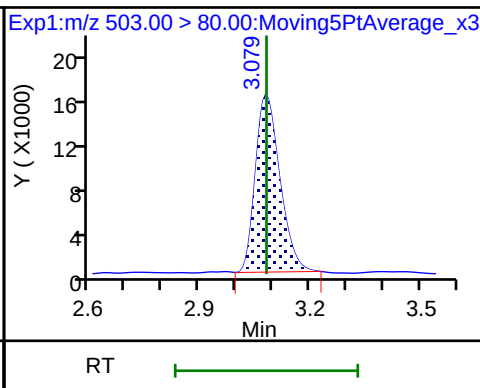
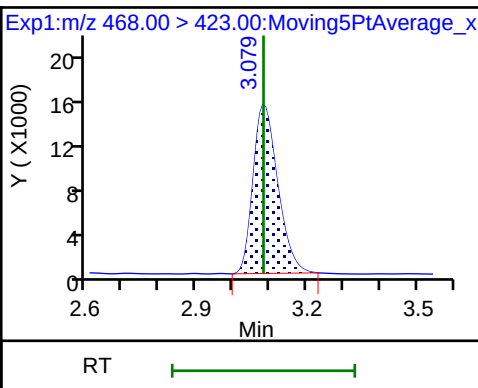
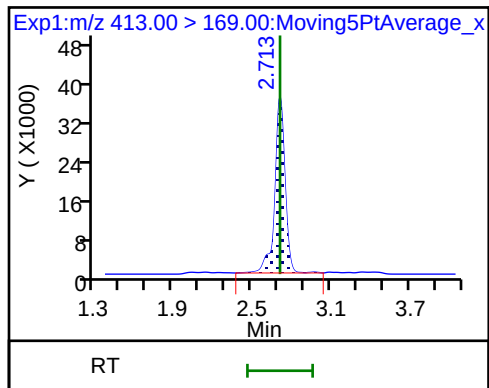
## 15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

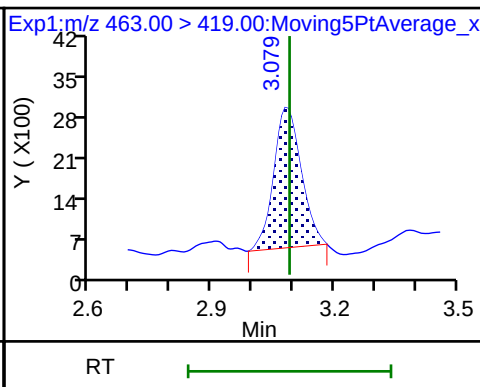
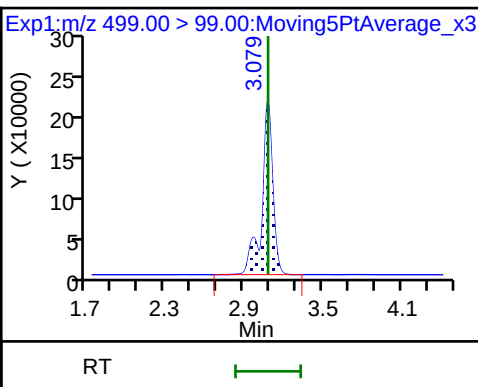
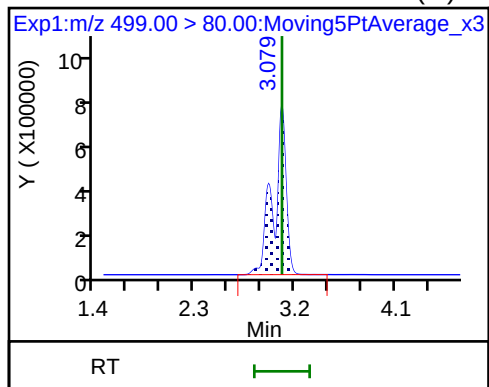
## D 18 13C4 PFOS



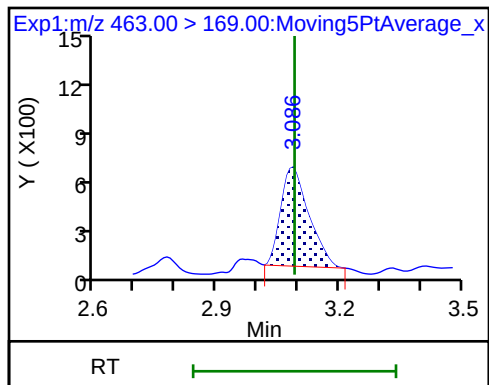
## 17 Perfluorooctane sulfonic acid (M)

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid



## TestAmerica Sacramento

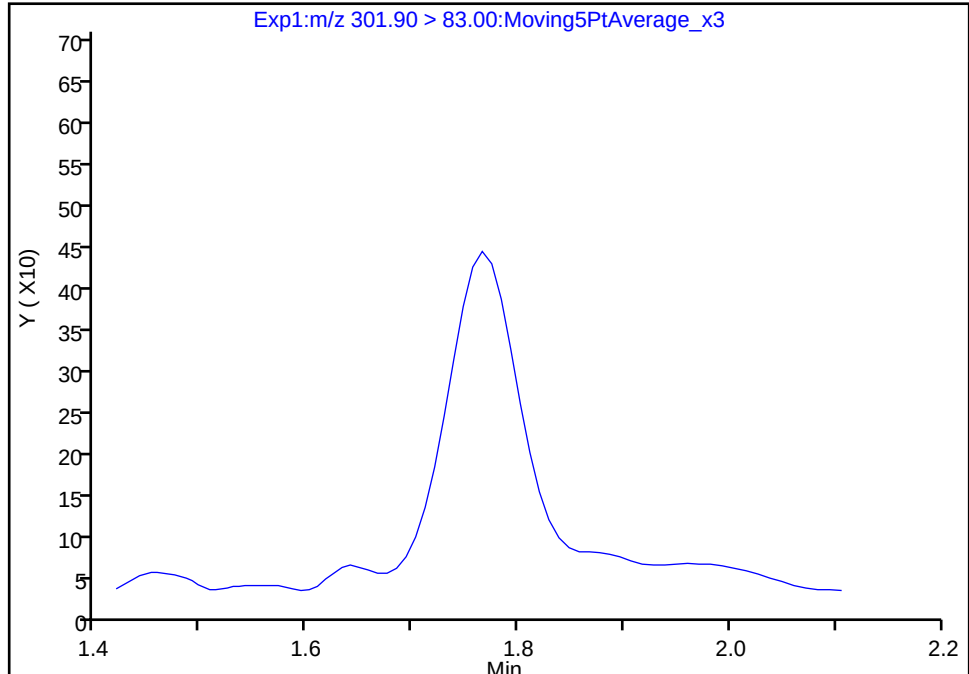
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_008.d |                |                    |
| Injection Date: | 29-May-2018 19:04:48                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-3-A                                                          | Lab Sample ID: | 320-39023-3        |
| Client ID:      | MW-KLA03-01-01                                                           |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 3                  |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 50.0000            |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 7                  |

**D 47 13C3-PFBS, CAS: STL02337**

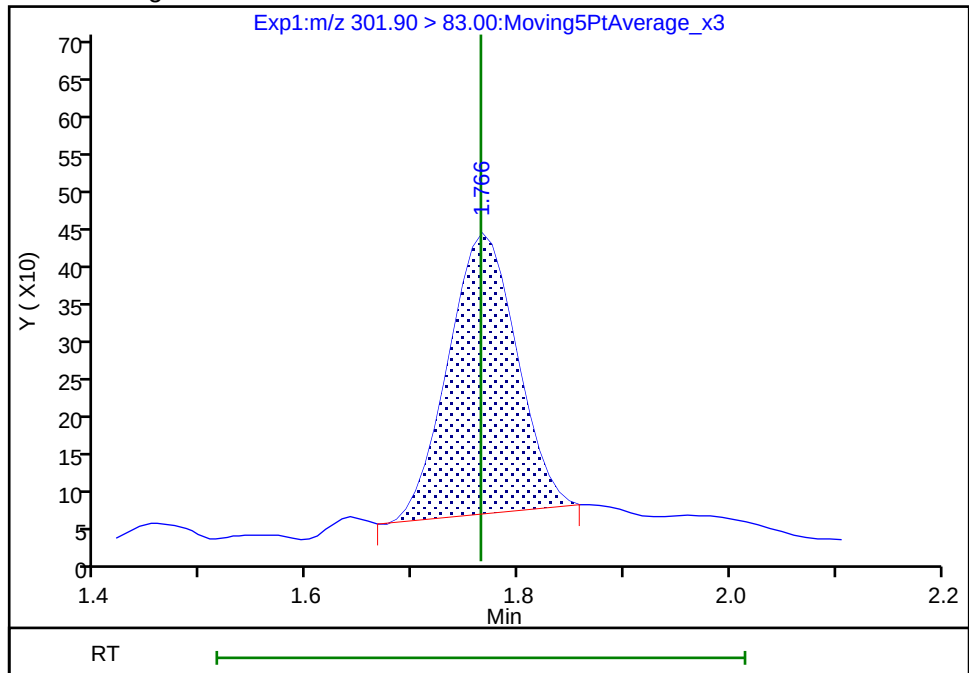
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 1693  
Amount: 0.031848  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:10:57

Audit Action: Manually Integrated

Audit Reason: Assign Peak

## TestAmerica Sacramento

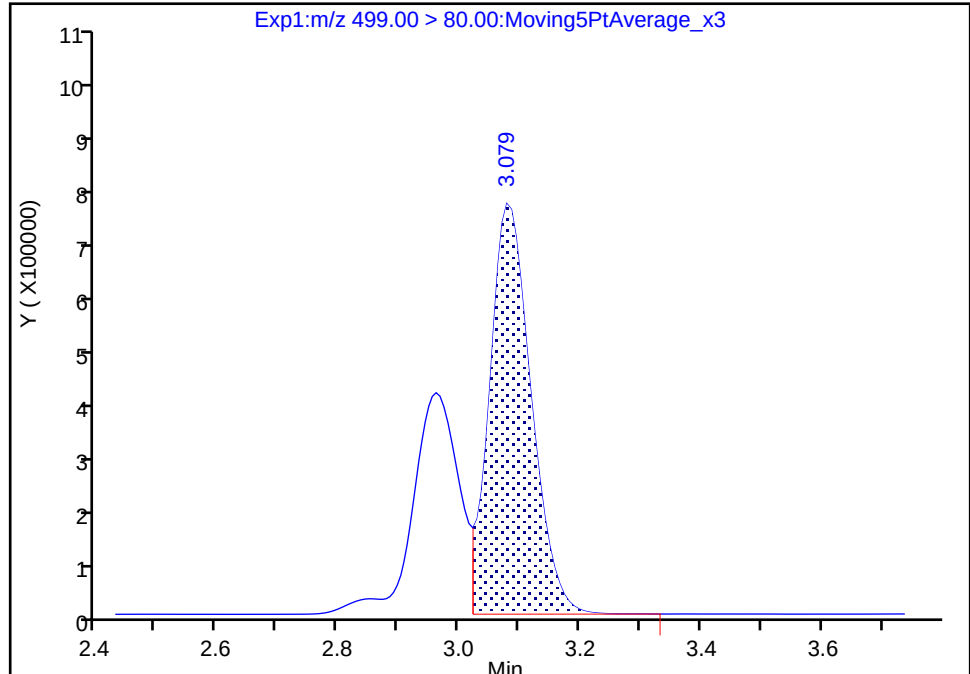
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_008.d |                |                    |                |   |
| Injection Date: | 29-May-2018 19:04:48                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-3-A                                                          | Lab Sample ID: | 320-39023-3        |                |   |
| Client ID:      | MW-KLA03-01-01                                                           |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 3                  | Worklist Smp#: | 7 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 50.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

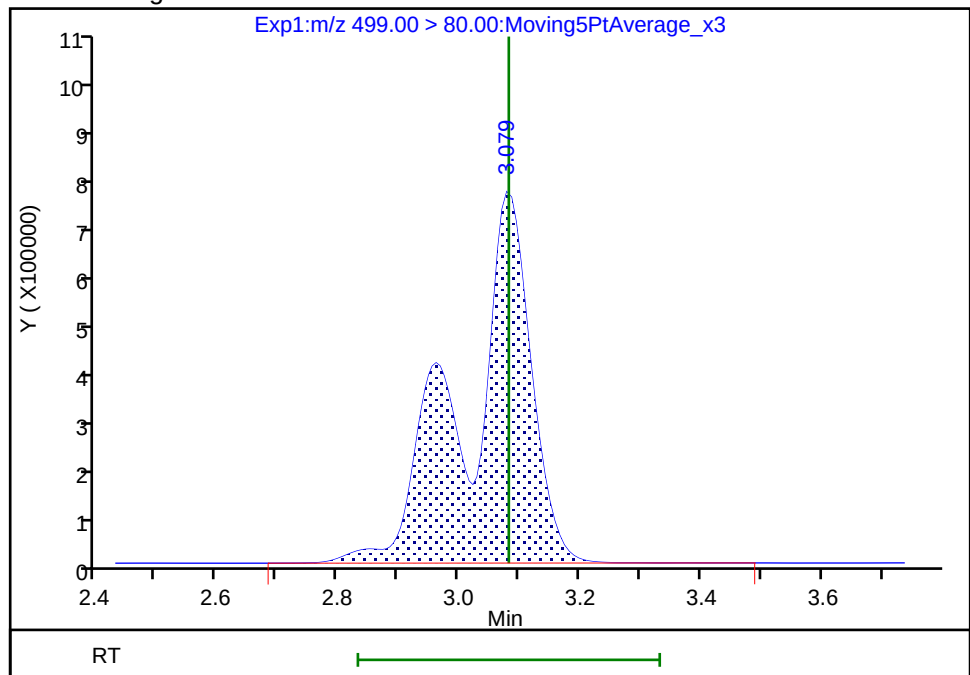
RT: 3.08  
Area: 3452629  
Amount: 1.915955  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 5528062  
Amount: 3.067668  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:11:16  
Audit Action: Manually Integrated

Audit Reason: Isomers  
Page 1902 of 3863



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>MW-KLA04-01-01</u> | Lab Sample ID: <u>320-39023-4</u>            |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.29LLB_010.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 14:15</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>253.1 (mL)</u>        | Date Analyzed: <u>05/29/2018 19:20</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 27     |     | 2.0 | 1.5  | 0.60 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 41     |     | 2.0 | 1.5  | 0.53 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.5    | U M | 2.0 | 1.5  | 0.51 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 96     |     | 2.0 | 0.99 | 0.45 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 610    | E   | 2.0 | 0.99 | 0.38 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 100    |     | 4.0 | 3.0  | 1.1  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 71   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 74   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 80   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 79   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 69   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 69   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_010.d  
 Lims ID: 320-39023-A-4-A  
 Client ID: MW-KLA04-01-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 19:20:35 ALS Bottle#: 5 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-4-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:11:58 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:11:58

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |       |       |
| 301.90 > 83.00                   | 1.770 | 1.764     | 0.006     | 1.000     | 83508    | 1.65            |                 | 71.1 | 282   |       |
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 298.90 > 80.00                   | 1.779 | 1.775     | 0.004     | 1.005     | 6830076  | 2.44            |                 |      | 5510  |       |
| 298.90 > 99.00                   | 1.779 | 1.775     | 0.004     | 1.005     | 2967936  |                 | 2.30(1.25-3.74) |      | 5469  |       |
| D 9 13C4-PFHpA                   |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.358     | -0.003    | 1.000     | 4215751  | 1.85            |                 | 73.8 | 78463 |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                  | 2.355 | 2.360     | -0.005    | 1.000     | 1199421  | 0.6734          |                 |      | 756   |       |
| 363.00 > 169.00                  | 2.355 | 2.360     | -0.005    | 1.000     | 484587   |                 | 2.48(1.13-3.40) |      | 2388  |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                   | 2.380 | 2.371     | 0.009     | 1.000     | 4628394  | 1.64            |                 | 69.3 | 60489 |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                   | 2.380 | 2.372     | 0.008     | 1.000     | 34193640 | 15.5            |                 |      | 27140 | E     |
| 399.00 > 99.00                   | 2.380 | 2.372     | 0.008     | 1.000     | 11930185 |                 | 2.87(1.50-4.49) |      | 23384 | E     |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                  | 2.718 | 2.711     | 0.007     | 1.000     | 4316819  | 2.00            |                 | 79.9 | 55525 |       |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                  | 2.718 | 2.712     | 0.006     |           | 5705596  | 2.50            |                 |      | 83277 |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                  | 2.718 | 2.712     | 0.006     | 1.000     | 2106143  | 1.04            |                 |      | 738   |       |
| 413.00 > 169.00                  | 2.718 | 2.712     | 0.006     | 1.000     | 1210613  |                 | 1.74(0.84-2.52) |      | 3116  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.081 | 3.081     | 0.0       | 1.000     | 3487257  | 1.97            |                 | 78.9 | 58036 |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.081 | 3.081     | 0.0       | 1.000     | 3207126  | 1.65            |                 | 69.2 | 21328 |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 2.964 | 3.082     | -0.118    | 0.962     | 4088560  | 2.59            |                 |      | 7812  |       |
| 499.00 > 99.00                   | 3.081 | 3.082     | -0.001    | 1.000     | 793704   |                 | 5.15(2.31-6.93) |      | 4947  |       |

[QC Flag Legend](#)

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_010.d

Injection Date: 29-May-2018 19:20:35

Instrument ID: A8\_N

Lims ID: 320-39023-A-4-A

Lab Sample ID: 320-39023-4

Client ID: MW-KLA04-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

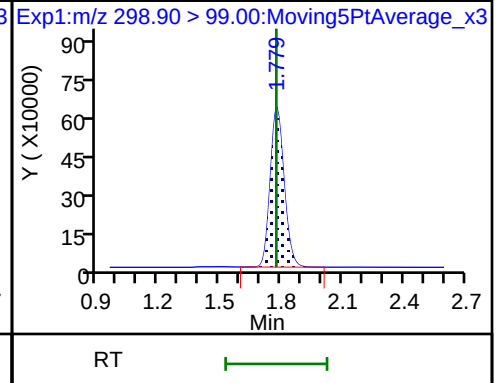
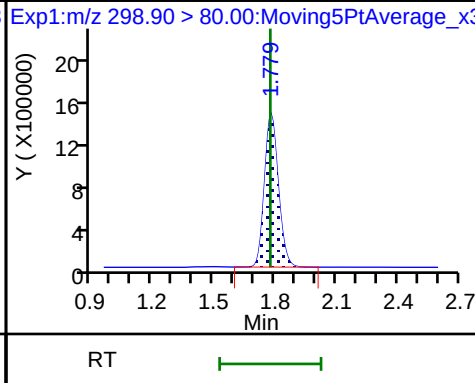
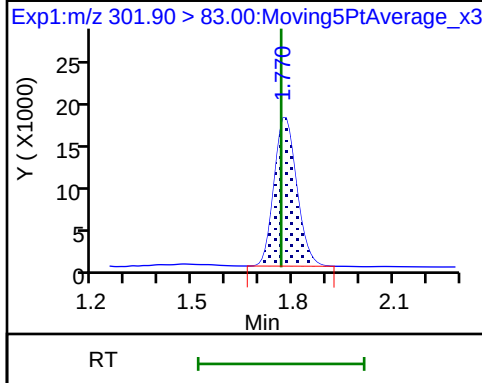
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

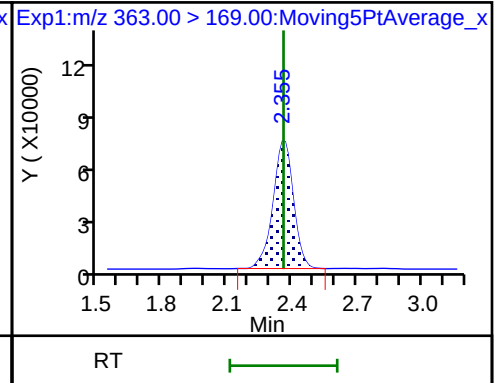
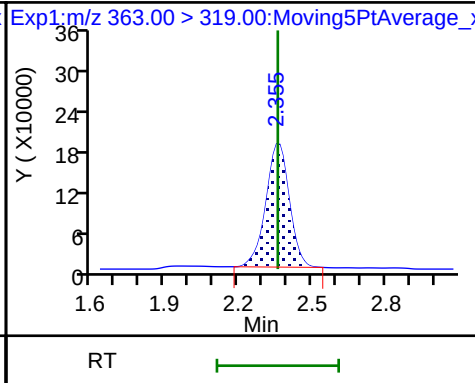
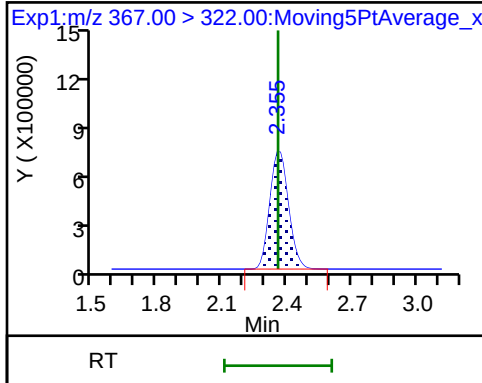
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

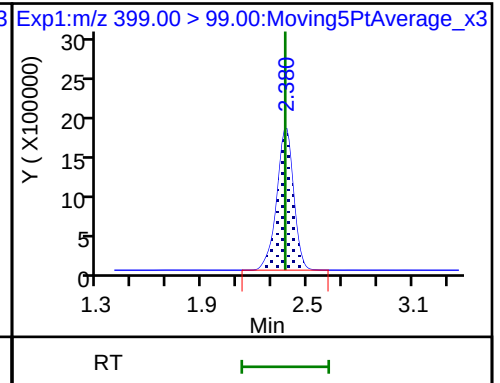
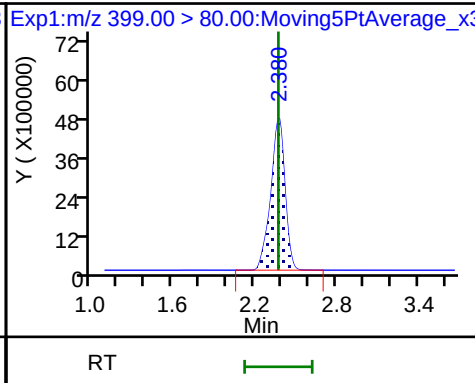
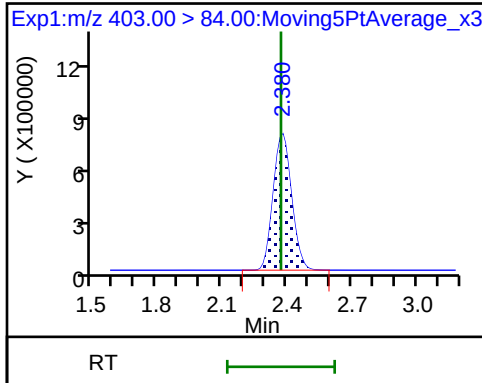
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

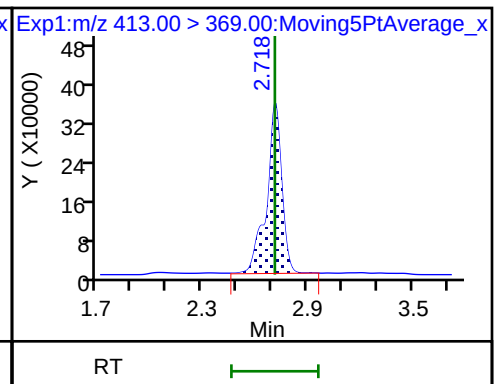
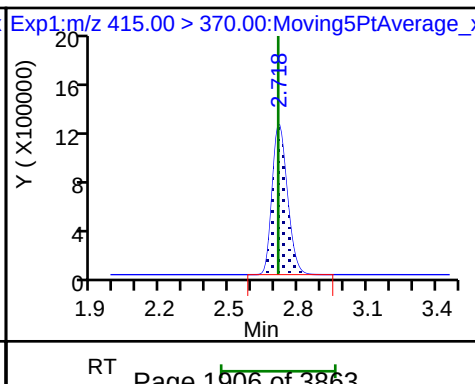
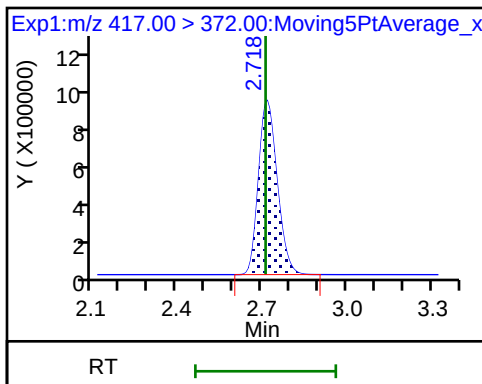
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

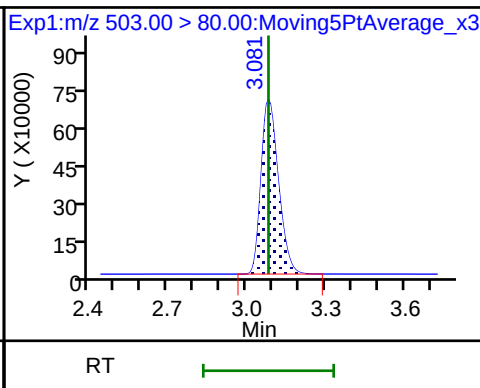
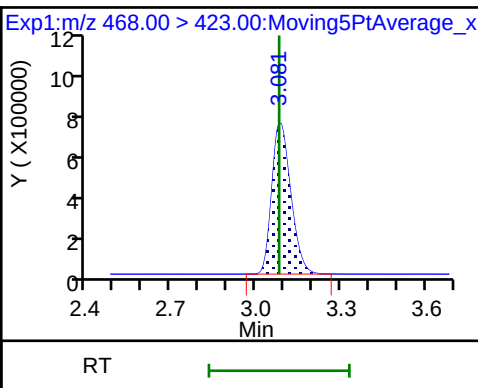
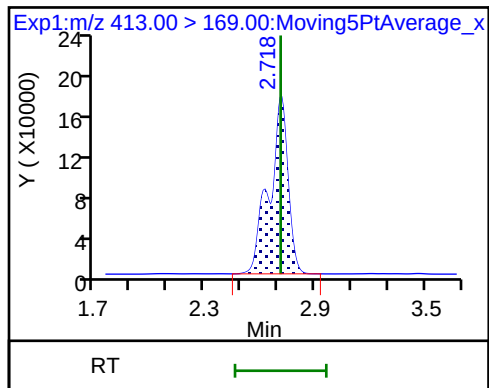
## 15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

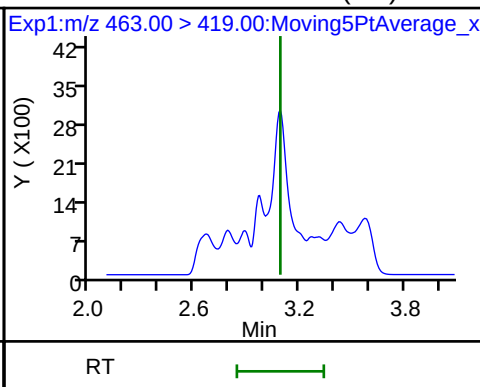
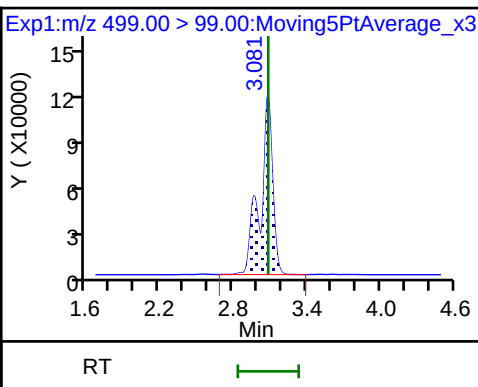
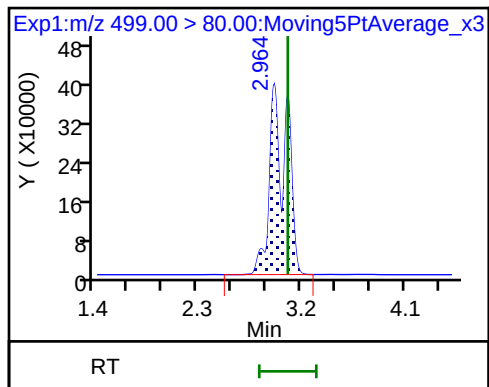
## D 18 13C4 PFOS



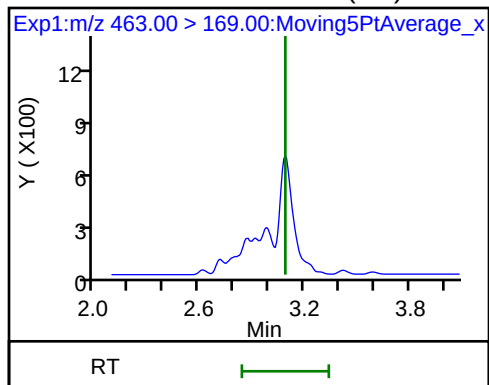
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (ND)



## 20 Perfluorononanoic acid (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                            |                                              |
|--------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>    | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                             |                                              |
| Client Sample ID: <u>MW-KLA04-01-01 DL</u> | Lab Sample ID: <u>320-39023-4 DL</u>         |
| Matrix: <u>Water</u>                       | Lab File ID: <u>2018.05.29LLB_009.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>      | Date Collected: <u>05/06/2018 14:15</u>      |
| Extraction Method: <u>3535</u>             | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>253.1 (mL)</u>           | Date Analyzed: <u>05/29/2018 19:12</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>       | Dilution Factor: <u>5</u>                    |
| Injection Volume: <u>2 (uL)</u>            | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                          | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>          | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 31     | D   | 9.9 | 7.4 | 3.0 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 43     | D   | 9.9 | 7.4 | 2.7 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 7.4    | U M | 9.9 | 7.4 | 2.6 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 95     | D   | 9.9 | 4.9 | 2.3 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 690    | D   | 9.9 | 4.9 | 1.9 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 100    | D   | 20  | 15  | 5.4 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 63   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 65   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 75   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 67   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 62   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 62   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_009.d  
 Lims ID: 320-39023-A-4-A  
 Client ID: MW-KLA04-01-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 19:12:37 ALS Bottle#: 4 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 5.0000  
 Sample Info: 320-39023-a-4-a 5X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:11:41 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:11:41

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |       |       |
| 301.90 > 83.00                   | 1.765 | 1.764     | 0.001     | 1.000     | 16948    | 0.2949          |                 | 63.4 | 150   |       |
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 298.90 > 80.00                   | 1.765 | 1.775     | -0.010    | 1.000     | 1370850  | 0.4816          |                 |      | 3745  |       |
| 298.90 > 99.00                   | 1.765 | 1.775     | -0.010    | 1.000     | 614188   |                 | 2.23(1.25-3.74) |      | 2706  |       |
| D 9 13C4-PFHpa                   |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                  | 2.358 | 2.358     | 0.0       | 1.000     | 844526   | 0.3250          |                 | 65.0 | 22983 |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                  | 2.345 | 2.360     | -0.015    | 0.994     | 279638   | 0.1567          |                 |      | 273   |       |
| 363.00 > 169.00                  | 2.358 | 2.360     | -0.002    | 1.000     | 98599    |                 | 2.84(1.13-3.40) |      | 576   |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                   | 2.372 | 2.371     | 0.001     | 1.000     | 940423   | 0.2929          |                 | 61.9 | 31097 |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                   | 2.372 | 2.372     | 0.0       | 1.000     | 7773236  | 3.47            |                 |      | 16174 |       |
| 399.00 > 99.00                   | 2.372 | 2.372     | 0.0       | 1.000     | 2330486  |                 | 3.34(1.50-4.49) |      | 8441  |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                  | 2.712 | 2.711     | 0.001     | 1.000     | 920923   | 0.3747          |                 | 74.9 | 19712 |       |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                  | 2.712 | 2.712     | 0.0       |           | 1297832  | 0.5000          |                 |      | 25224 |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                  | 2.712 | 2.712     | 0.0       | 1.000     | 468522   | 0.2161          |                 |      | 149   |       |
| 413.00 > 169.00                  | 2.712 | 2.712     | 0.0       | 1.000     | 277505   |                 | 1.69(0.84-2.52) |      | 867   |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.084 | 3.081     | 0.003     | 1.000     | 677365   | 0.3370          |                 | 67.4 | 18436 |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.076 | 3.081     | -0.005    | 1.000     | 654940   | 0.2968          |                 | 62.1 | 8021  |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 2.960 | 3.082     | -0.122    | 0.962     | 832617   | 0.5168          |                 |      | 2753  |       |
| 499.00 > 99.00                   | 3.076 | 3.082     | -0.006    | 1.000     | 162295   |                 | 5.13(2.31-6.93) |      | 1699  |       |

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_009.d

Injection Date: 29-May-2018 19:12:37

Instrument ID: A8\_N

Lims ID: 320-39023-A-4-A

Lab Sample ID: 320-39023-4

Client ID: MW-KLA04-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 5.0000

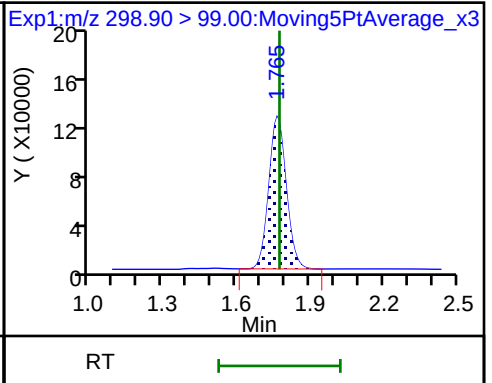
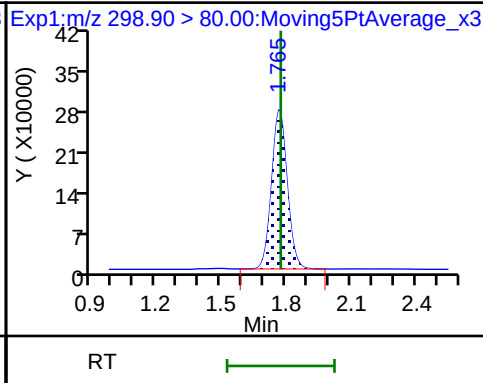
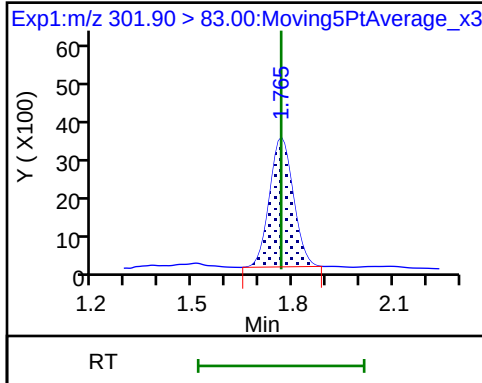
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

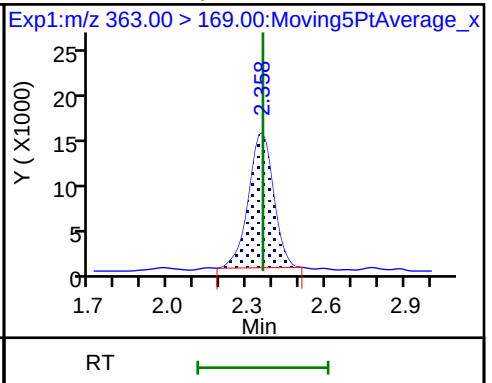
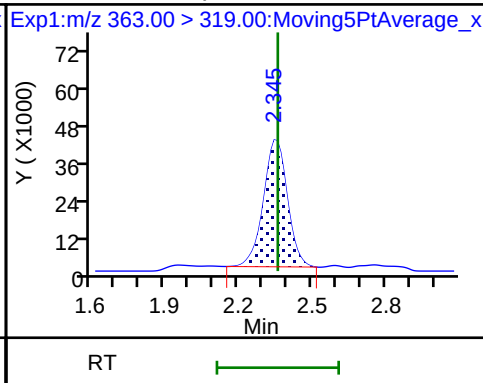
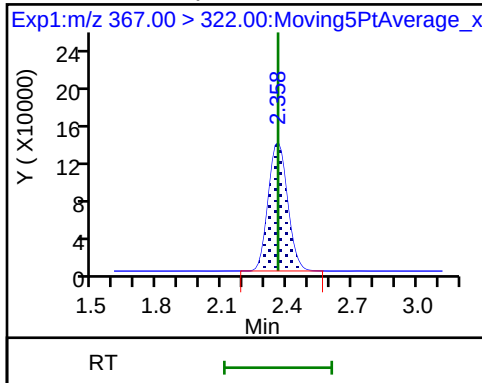
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

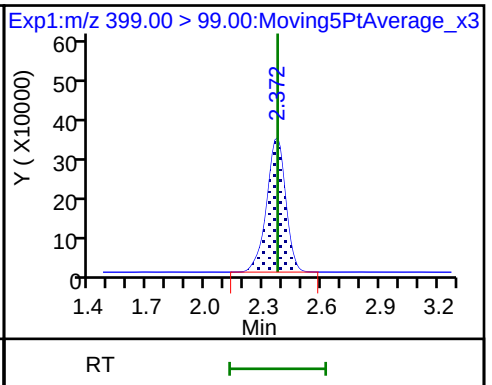
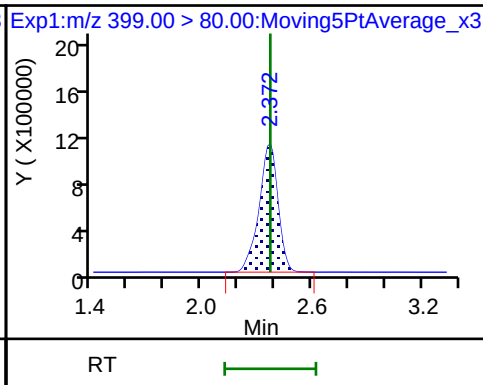
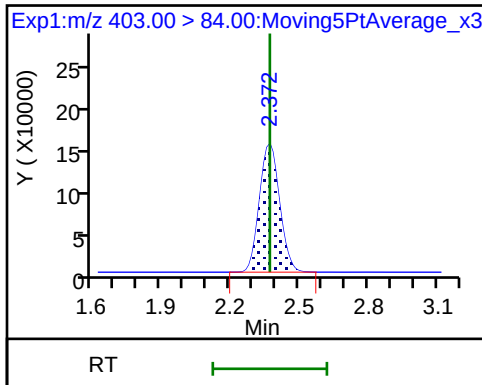
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

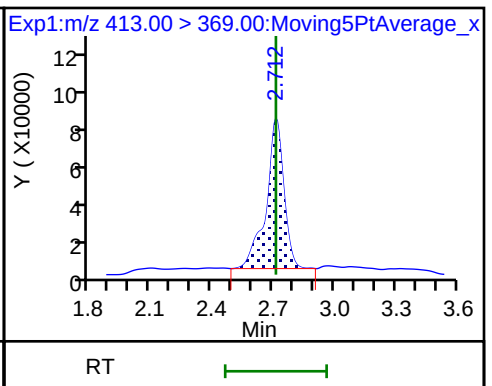
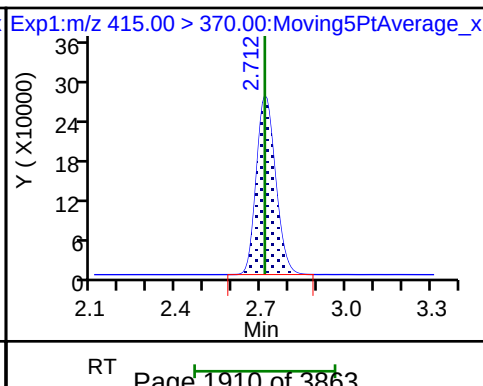
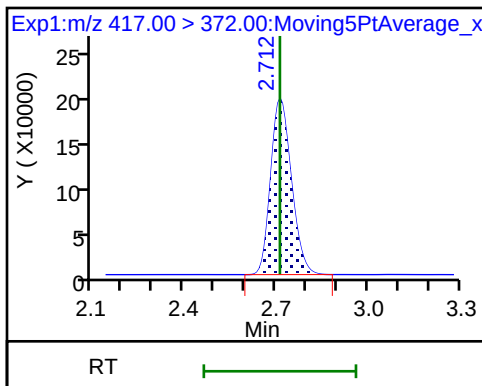
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

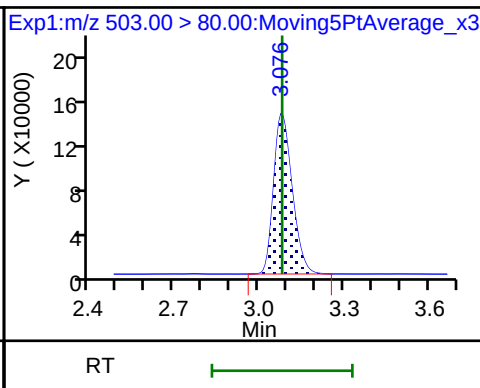
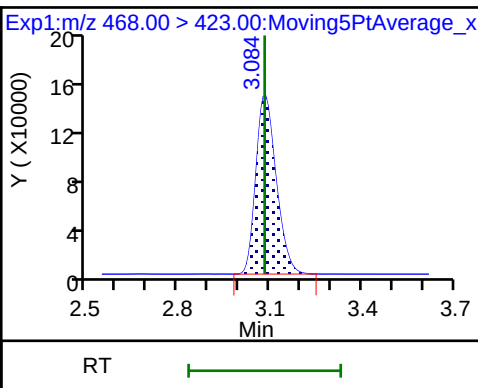
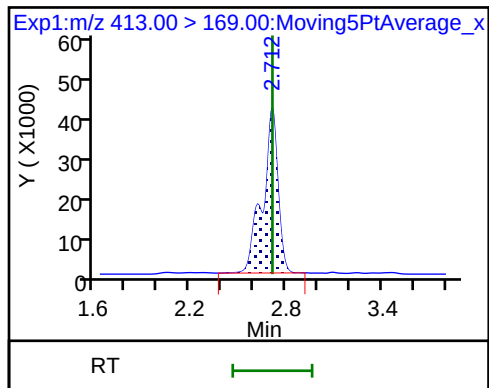




## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

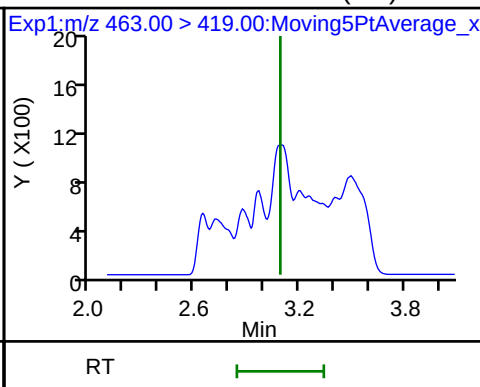
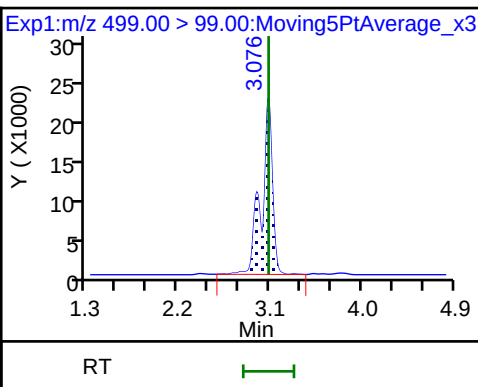
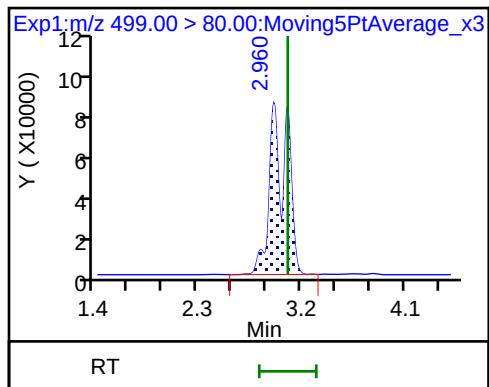
## D 18 13C4 PFOS



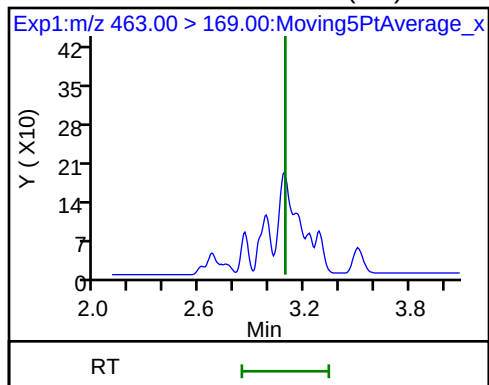
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (ND)



## 20 Perfluorononanoic acid (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>     | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                              |                                              |
| Client Sample ID: <u>MW-573-03-PRL05-01</u> | Lab Sample ID: <u>320-39023-5</u>            |
| Matrix: <u>Water</u>                        | Lab File ID: <u>2018.05.27LLADX_038.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>       | Date Collected: <u>05/06/2018 09:15</u>      |
| Extraction Method: <u>3535</u>              | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>252.2 (mL)</u>            | Date Analyzed: <u>05/28/2018 11:50</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>        | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>             | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                           | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225820</u>           | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q         | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----------|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 4400   | E J1      | 2.0 | 1.5  | 0.60 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 4700   | E J1      | 2.0 | 1.5  | 0.54 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 200    | J1        | 2.0 | 1.5  | 0.52 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1900   | E J1<br>M | 2.0 | 0.99 | 0.46 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 12000  | E J1      | 2.0 | 0.99 | 0.38 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 32000  | J1 E<br>M | 4.0 | 3.0  | 1.1  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 136  |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 46   | Q | 50-150 |
| STL00990 | 13C4 PFOA        | 77   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 58   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 54   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 48   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_038.d  
 Lims ID: 320-39023-A-5-A  
 Client ID: MW-573-03-PRL05-01  
 Sample Type: Client  
 Inject. Date: 28-May-2018 11:50:13 ALS Bottle#: 31 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-5-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:25:39 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:25:39

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|-----------|--------------|------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |           |              |                  |      |       | EM    |
| 212.90 > 169.00                       | 1.457 | 1.452  | 0.005  | 1.000  | 43060318  | 59.5         |                  |      | 4469  | EM    |
| D 1 13C4 PFBA                         |       |        |        |        |           |              |                  |      |       |       |
| 217.00 > 172.00                       | 1.457 | 1.456  | 0.001  | 1.000  | 1947071   | 1.38         |                  | 55.0 | 11251 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |           |              |                  |      |       | EM    |
| 262.90 > 219.00                       | 1.729 | 1.719  | 0.010  | 1.000  | 84199298  | 108.5        |                  |      | 3252  | EM    |
| D 3 13C5-PFPeA                        |       |        |        |        |           |              |                  |      |       |       |
| 267.90 > 223.00                       | 1.729 | 1.725  | 0.004  | 0.562  | 1643806   | 1.81         |                  | 72.5 | 3311  |       |
| D 47 13C3-PFBS                        |       |        |        |        |           |              |                  |      |       |       |
| 301.90 > 83.00                        | 1.765 | 1.761  | 0.004  | 1.000  | 64823     | 3.16         |                  | 136  | 73.8  |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |           |              |                  |      |       | EM    |
| 298.90 > 80.00                        | 1.765 | 1.764  | 0.001  | 1.000  | 101672639 | 46.7         |                  |      | 2491  | EM    |
| 298.90 > 99.00                        | 1.765 | 1.764  | 0.001  | 1.000  | 66353380  |              | 1.53(1.25-3.74)  |      | 41836 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |           |              |                  |      |       |       |
| 329.00 > 81.00                        | 1.810 | 1.977  | -0.167 | 1.000  | 21495     | NC           |                  |      | 3.0   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |           |              |                  |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.980  | -0.010 | 1.000  | 578696    | 1.25         |                  |      | 3243  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |           |              |                  |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.011  | 0.003  | 1.000  | 1710483   | 1.77         |                  | 70.7 | 17198 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |           |              |                  |      |       | EM    |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 102401289 | 145.6        |                  |      | 5036  | EM    |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 16157855  |              | 6.34(5.03-15.10) |      | 48927 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |           |              |                  |      |       | EM    |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 111790897 | 57.7         |                  |      | 17492 | EM    |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 60304310  |              | 1.85(1.36-4.07)  |      | 68870 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |           |              |                  |      |       |       |
| 332.10 > 287.00                       | 2.116 | 2.112  | 0.004  | 1.000  | 150579    | NC           |                  |      | 753   |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |           |              |                  |      |       |       |
| 329.10 > 285.00                       | 2.104 | 2.115  | -0.011 | 0.995  | 91011     | NC           |                  |      | 9.1   |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response  | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|-----------|-----------------|-----------------|------|-------|-------|
| D 9 13C4-PFHpA                        |       |           |           |           |           |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.342     | 0.003     | 1.000     | 1056281   | 1.14            |                 | 45.6 | 14894 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |           |                 |                 |      |       | E     |
| 363.00 > 319.00                       | 2.345 | 2.345     | 0.0       | 1.000     | 49067916  | 109.9           |                 |      | 12663 | E     |
| 363.00 > 169.00                       | 2.345 | 2.345     | 0.0       | 1.000     | 22416643  |                 | 2.19(1.13-3.40) |      | 66400 |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |           |                 |                 |      |       | E     |
| 399.00 > 80.00                        | 2.319 | 2.358     | -0.039    | 0.978     | 216235488 | 309.9           |                 |      | 8140  | E     |
| 399.00 > 99.00                        | 2.358 | 2.358     | 0.0       | 0.994     | 139559982 |                 | 1.55(1.50-4.49) |      | 28237 |       |
| D 11 18O2 PFHxS                       |       |           |           |           |           |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.372 | 2.368     | 0.004     | 1.000     | 1464673   | 1.28            |                 | 54.1 | 25890 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |           |                 |                 |      |       | E     |
| 427.00 > 407.00                       | 2.674 | 2.674     | 0.0       | 1.000     | 37651903  | 97.2            |                 |      | 70404 | E     |
| D 12 M2-6:2FTS                        |       |           |           |           |           |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.674 | 2.680     | -0.006    | 1.000     | 523884    | 2.56            |                 | 108  | 735   |       |
| D 14 13C4 PFOA                        |       |           |           |           |           |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.712 | 2.703     | 0.009     | 1.000     | 1681560   | 1.92            |                 | 76.7 | 29798 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |           |                 |                 |      |       | E     |
| 413.00 > 369.00                       | 2.712 | 2.704     | 0.008     | 1.000     | 94070253  | 118.8           |                 |      | 13387 | E     |
| 413.00 > 169.00                       | 2.712 | 2.704     | 0.008     | 1.000     | 67681766  |                 | 1.39(0.84-2.52) |      | 66770 |       |
| * 62 13C2-PFOA                        |       |           |           |           |           |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.712 | 2.704     | 0.008     |           | 2314739   | 2.50            |                 |      | 32809 | S     |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |           |                 |                 |      |       | E     |
| 449.00 > 80.00                        | 2.719 | 2.712     | 0.007     | 1.000     | 43884697  | 87.2            |                 |      | 108   | E     |
| 449.00 > 99.00                        | 2.712 | 2.712     | 0.0       | 0.997     | 17060948  |                 | 2.57(1.94-5.82) |      | 314   |       |
| 20 Perfluorononanoic acid             |       |           |           |           |           |                 |                 |      |       |       |
| 463.00 > 419.00                       | 3.077 | 3.071     | 0.006     | 1.000     | 2194038   | 5.01            |                 |      | 670   |       |
| 463.00 > 169.00                       | 3.077 | 3.071     | 0.006     | 1.000     | 550703    |                 | 3.98(1.90-5.69) |      | 382   |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |           |                 |                 |      |       | EM    |
| 499.00 > 80.00                        | 3.085 | 3.071     | 0.014     | 1.003     | 354427169 | 797.6           |                 |      | 3587  | EM    |
| 499.00 > 99.00                        | 3.070 | 3.071     | -0.001    | 0.998     | 143359685 |                 | 2.47(2.31-6.93) |      | 21697 |       |
| D 18 13C4 PFOS                        |       |           |           |           |           |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.077 | 3.072     | 0.005     | 1.000     | 903263    | 1.15            |                 | 48.0 | 1178  |       |
| D 19 13C5 PFNA                        |       |           |           |           |           |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.077 | 3.072     | 0.005     | 1.000     | 1033774   | 1.44            |                 | 57.7 | 13740 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |           |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.411 | 3.405     | 0.006     | 1.000     | 1520677   | 1.01            |                 |      | 68.7  |       |
| D 21 13C8 FOSA                        |       |           |           |           |           |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.411 | 3.406     | 0.005     | 1.000     | 3872897   | 3.76            |                 | 150  | 10774 |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |           |                 |                 |      |       | M     |
| 549.00 > 80.00                        | 3.411 | 3.424     | -0.013    | 1.000     | 155586    | 0.5435          |                 |      | 5.3   | M     |
| 549.00 > 99.00                        | 3.420 | 3.424     | -0.004    | 1.003     | 83107     |                 | 1.87(1.33-3.97) |      | 19.2  | M     |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |           |                 |                 |      |       |       |
| 527.00 > 507.00                       | 3.430 | 3.424     | 0.006     | 1.003     | 1627705   | 1.99            |                 |      | 26228 |       |
| D 26 M2-8:2FTS                        |       |           |           |           |           |                 |                 |      |       |       |
| 529.00 > 81.00                        | 3.420 | 3.424     | -0.004    | 1.000     | 1448541   | 6.22            |                 | 260  | 7096  |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |           |                 |                 |      |       |       |
| 513.00 > 469.00                       | 3.439 | 3.433     | 0.006     | 1.000     | 883729    | 0.8009          |                 |      | 1147  |       |
| 513.00 > 169.00                       | 3.439 | 3.433     | 0.006     | 1.000     | 153645    |                 | 5.75(2.36-7.09) |      | 493   |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                 |      |       |       |
| 515.00 > 470.00                       | 3.439 | 3.434     | 0.005     | 1.000     | 2837470  | 4.65            |                 | 186  | 60847 |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 573.00 > 419.00                       | 3.593 | 3.584     | 0.009     | 1.000     | 1553820  | 4.62            |                 | 185  | 32066 |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 599.00 > 80.00                        | 3.748 | 3.749     | -0.001    | 1.000     | 119936   | 0.4726          |                 |      | 21.7  |       |
| 599.00 > 99.00                        | 3.748 | 3.749     | -0.001    | 1.000     | 50773    |                 | 2.36(1.39-4.16) |      | 87.9  |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 563.00 > 519.00                       | 3.758 | 3.759     | -0.001    | 0.997     | 49639    | 0.0684          |                 |      | 154   |       |
| 563.00 > 169.00                       | 3.768 | 3.759     | 0.009     | 1.000     | 12751    |                 | 3.89(2.12-6.36) |      | 230   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |      |       |       |
| 584.00 > 419.00                       | 3.758 | 3.759     | -0.001    | 1.000     | 2780     | 0.004829        |                 |      | 110   |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |      |       |       |
| 565.00 > 520.00                       | 3.768 | 3.760     | 0.008     | 1.000     | 2172552  | 4.50            |                 | 180  | 44312 |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 589.00 > 419.00                       | 3.758 | 3.760     | -0.002    | 1.000     | 1530879  | 4.43            |                 | 177  | 25436 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 613.00 > 569.00                       | 4.050 | 4.060     | -0.010    | 0.997     | 19832    | 0.0221          |                 |      | 26.0  |       |
| 613.00 > 169.00                       | 4.050 | 4.060     | -0.010    | 0.997     | 4425     |                 | 4.48(2.13-6.40) |      | 65.6  |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                 |      |       |       |
| 615.00 > 570.00                       | 4.061 | 4.061     | 0.0       | 1.000     | 2148019  | 4.13            |                 | 165  | 22361 |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 715.00 > 670.00                       | 4.562 | 4.559     | 0.003     | 1.000     | 2135774  | 3.35            |                 | 134  | 13438 |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 815.00 > 770.00                       | 4.974 | 4.971     | 0.003     | 1.000     | 2155643  | 1.99            |                 | 79.6 | 8206  |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                 |      |       |       |
| 813.00 > 769.00                       | 4.974 | 4.975     | -0.001    | 1.000     | 27809    | NC              |                 |      | 15.0  |       |
| 813.00 > 169.00                       | 4.974 | 4.975     | -0.001    | 1.000     | 5634     |                 | 4.94(2.86-8.58) |      | 53.3  |       |

**QC Flag Legend**

## Processing Flags

NC - Not Calibrated

E - Exceeded Maximum Amount

s - Failed ISTD Recovery Test

## Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_038.d

Injection Date: 28-May-2018 11:50:13

Instrument ID: A8\_N

Lims ID: 320-39023-A-5-A

Lab Sample ID: 320-39023-5

Client ID: MW-573-03-PRL05-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

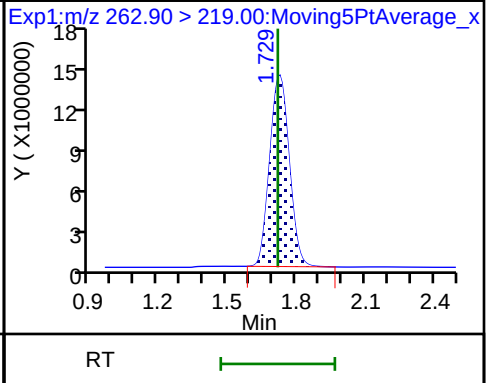
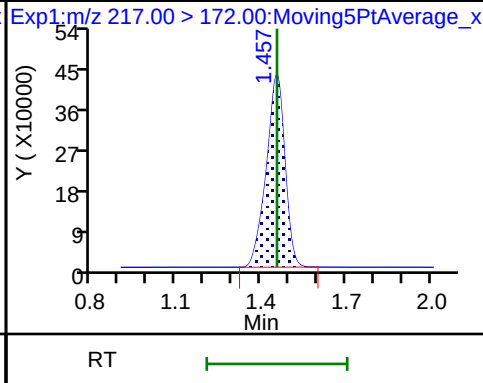
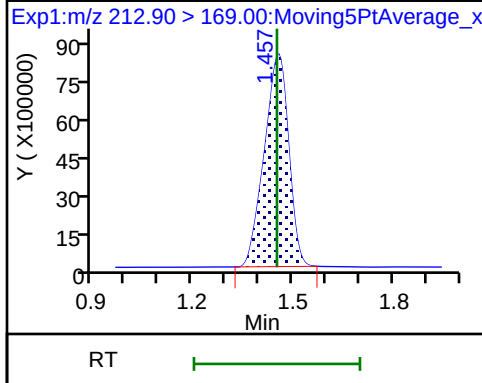
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid (M)

## D 1 13C4 PFBA

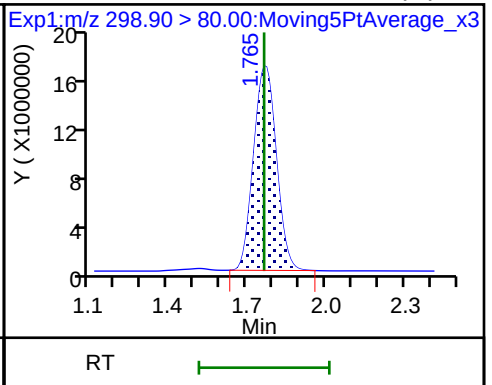
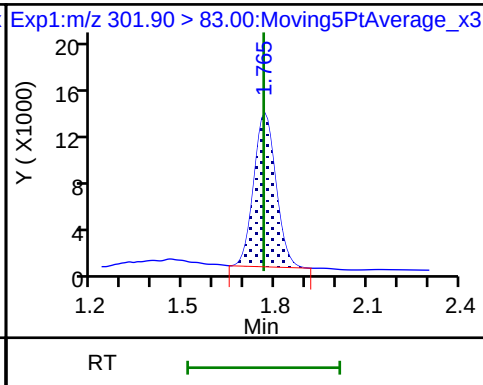
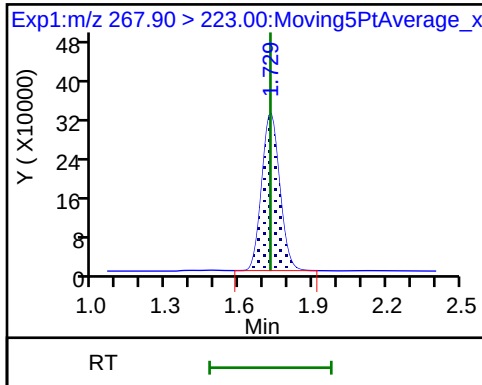
## 4 Perfluoropentanoic acid (M)



## D 3 13C5-PFPeA

## D 47 13C3-PFBS

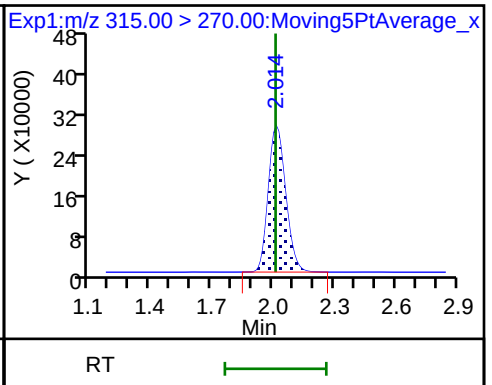
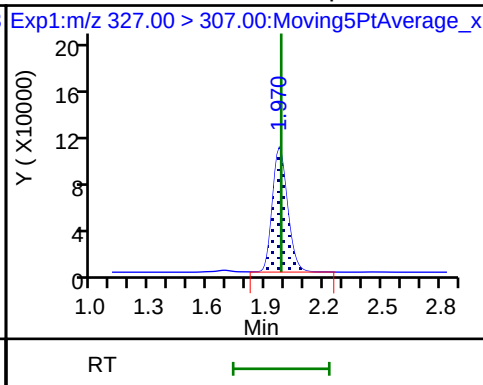
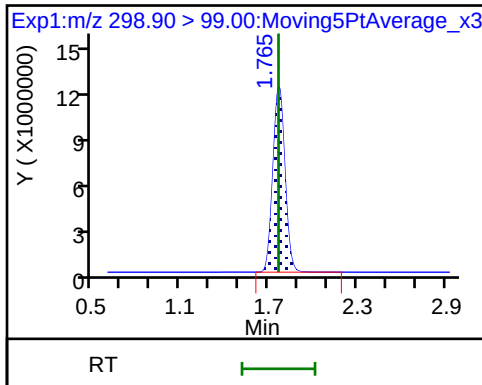
## 5 Perfluorobutanesulfonic acid (M)



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

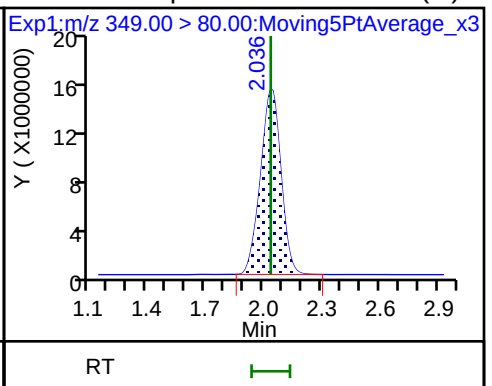
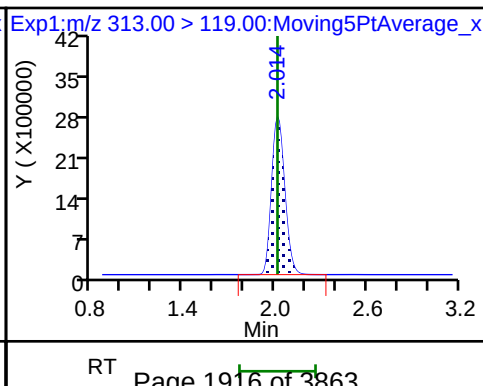
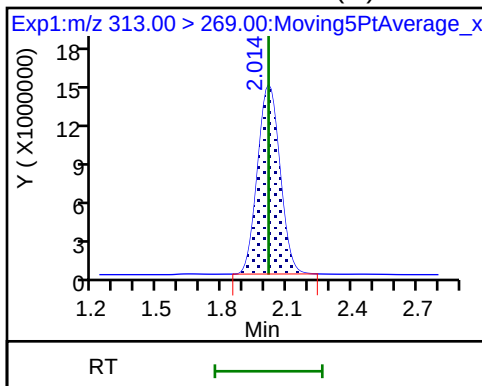
## De 7 13C2 PFHxA



## 6 Perfluorohexanoic acid (M)

## 6 Perfluorohexanoic acid

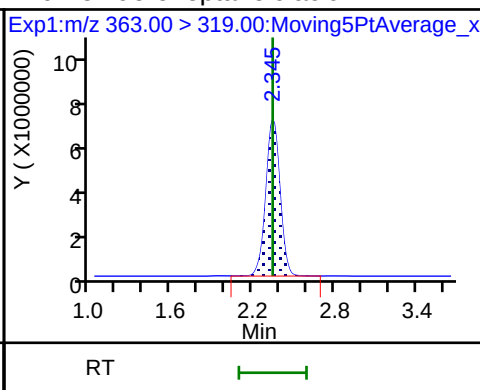
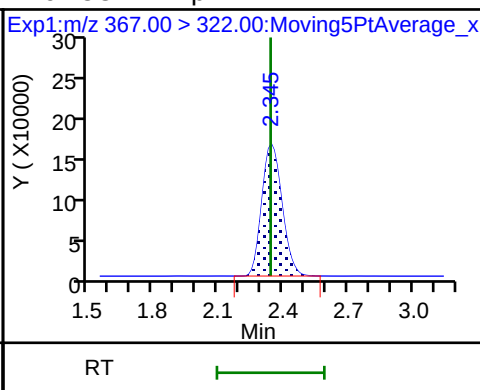
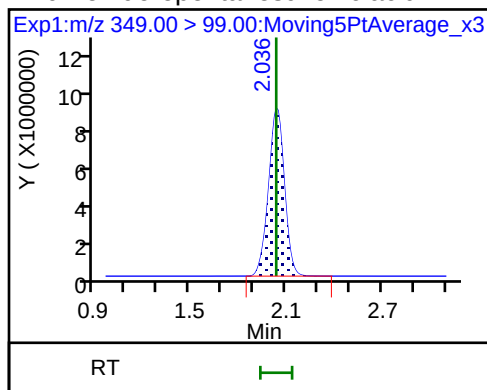
## 70 Perfluoropentanesulfonic acid (M)



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

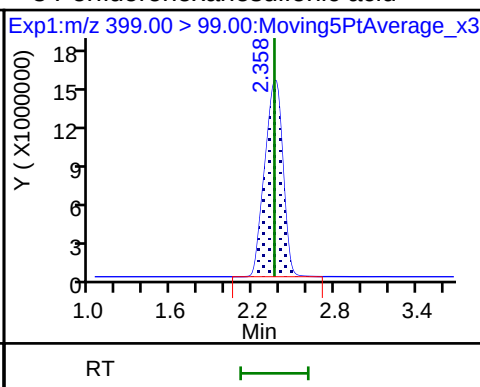
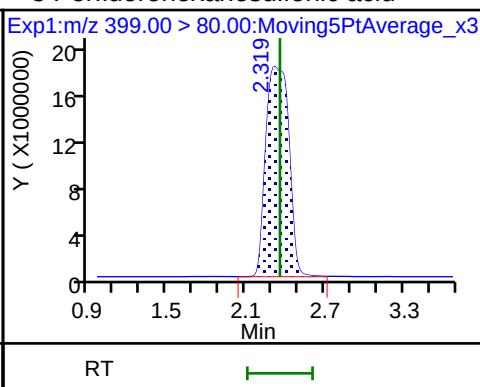
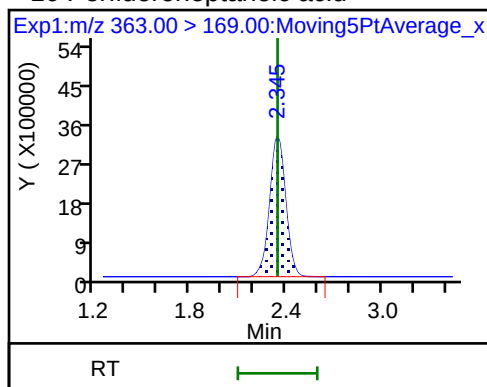
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

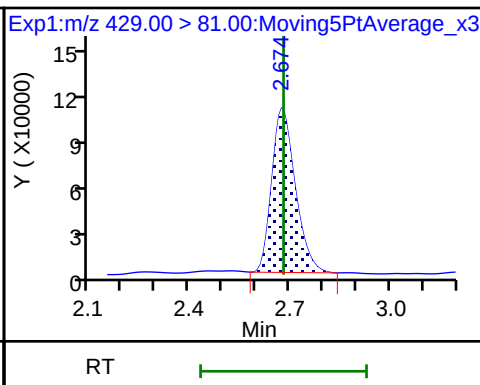
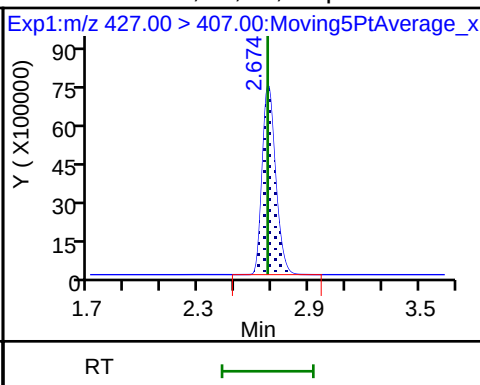
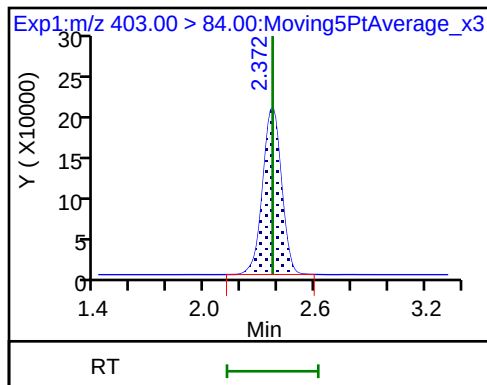
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## 13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

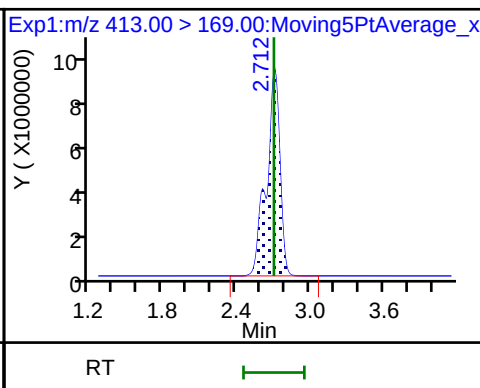
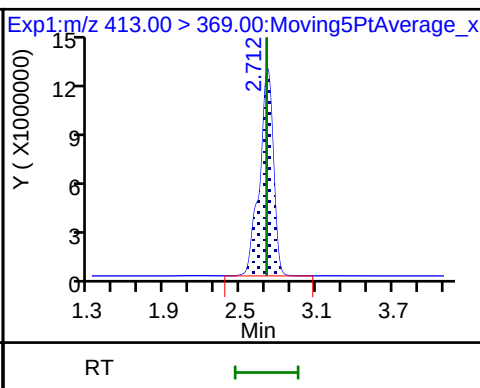
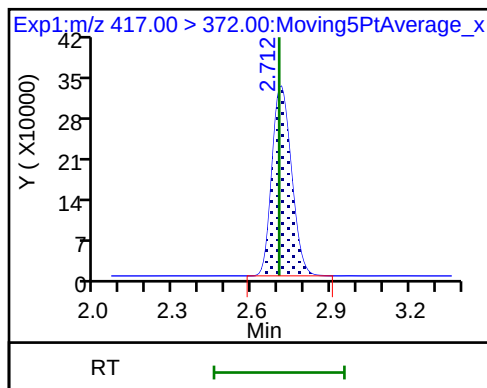
## D 12 M2-6:2FTS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

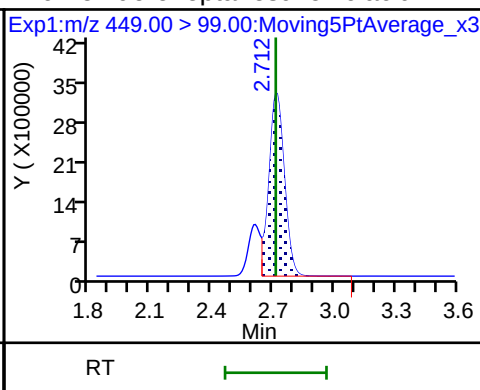
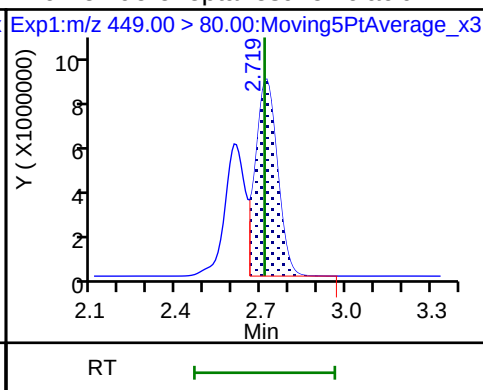
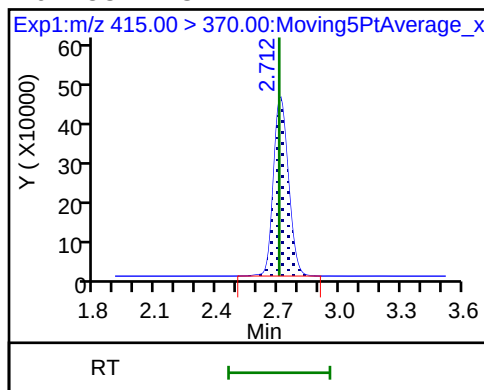
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

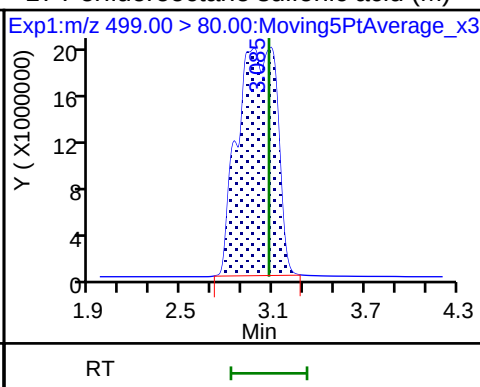
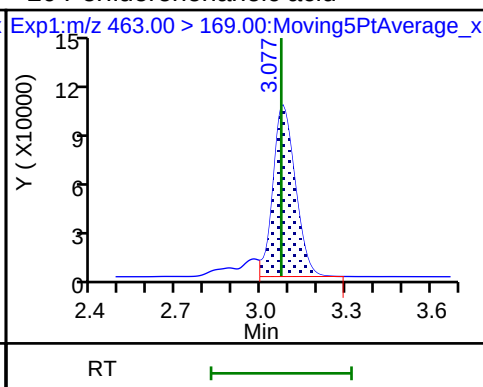
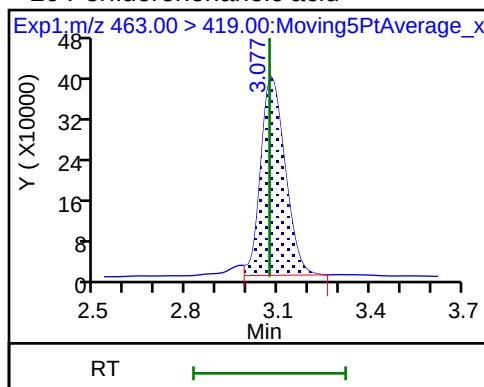
16 Perfluoroheptanesulfonic acid



20 Perfluorononanoic acid

20 Perfluorononanoic acid

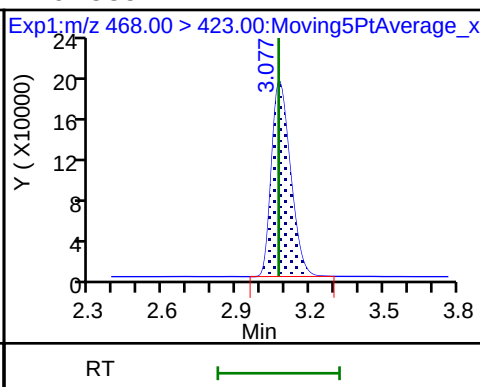
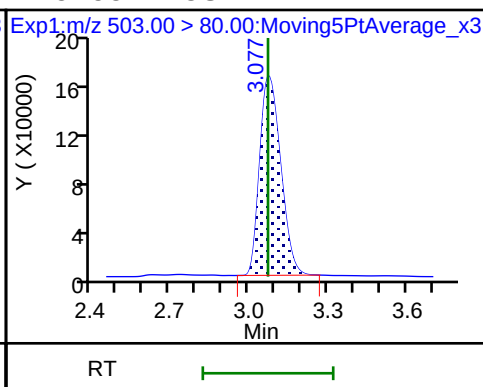
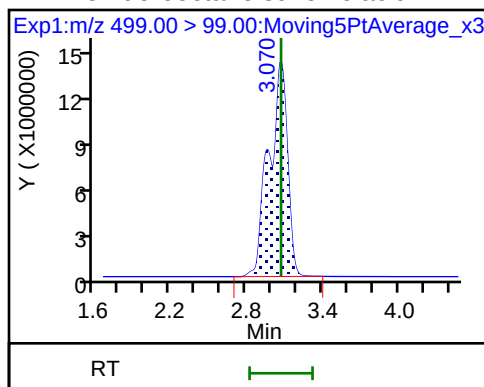
17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS

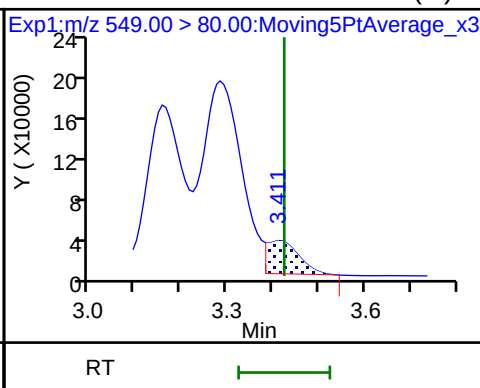
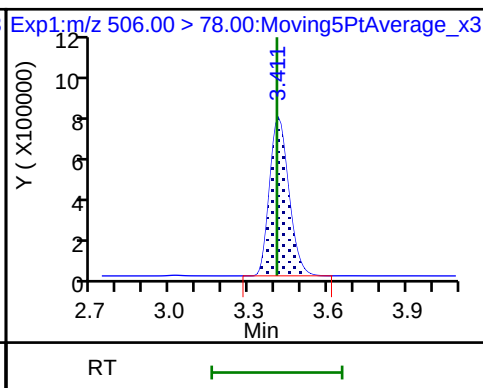
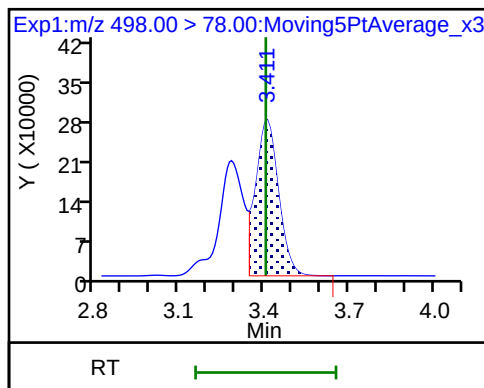
D 19 13C5 PFNA



22 Perfluorooctane Sulfonamide

D 21 13C8 FOSA

68 Perfluorononanesulfonic acid (M)

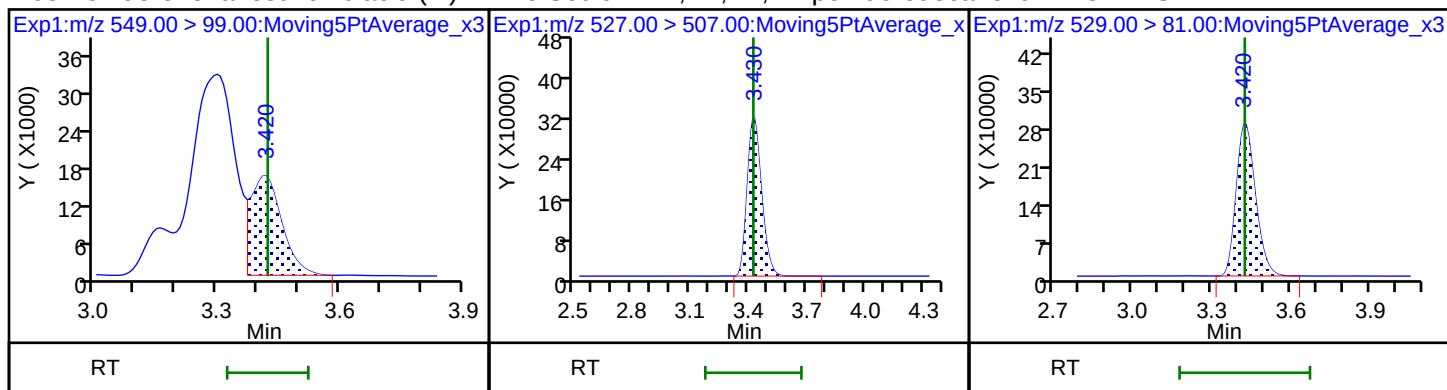




68 Perfluorononanesulfonic acid (M)

25 Sodium 1H,1H,2H,2H-perfluorodecanoate

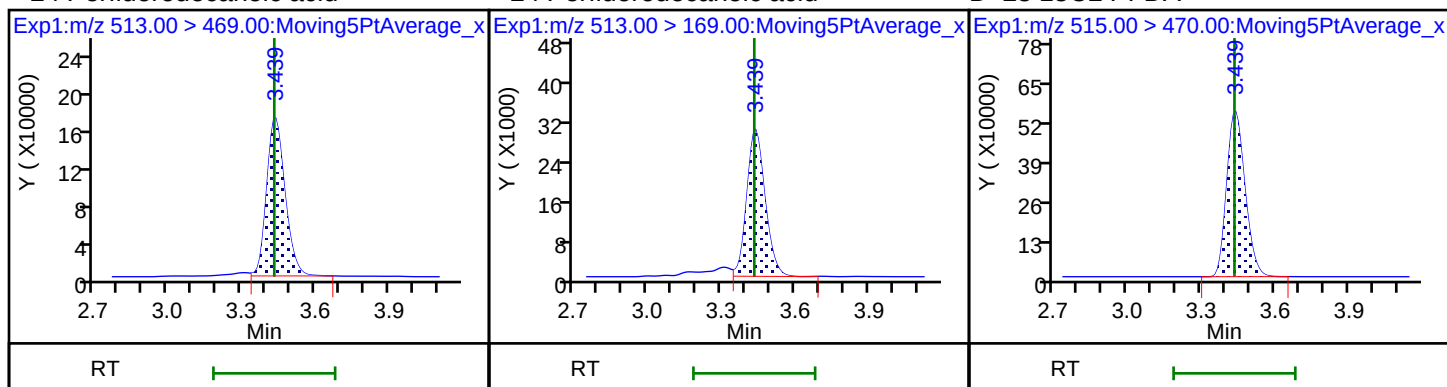
De26 M2-8:2FTS



24 Perfluorodecanoic acid

24 Perfluorodecanoic acid

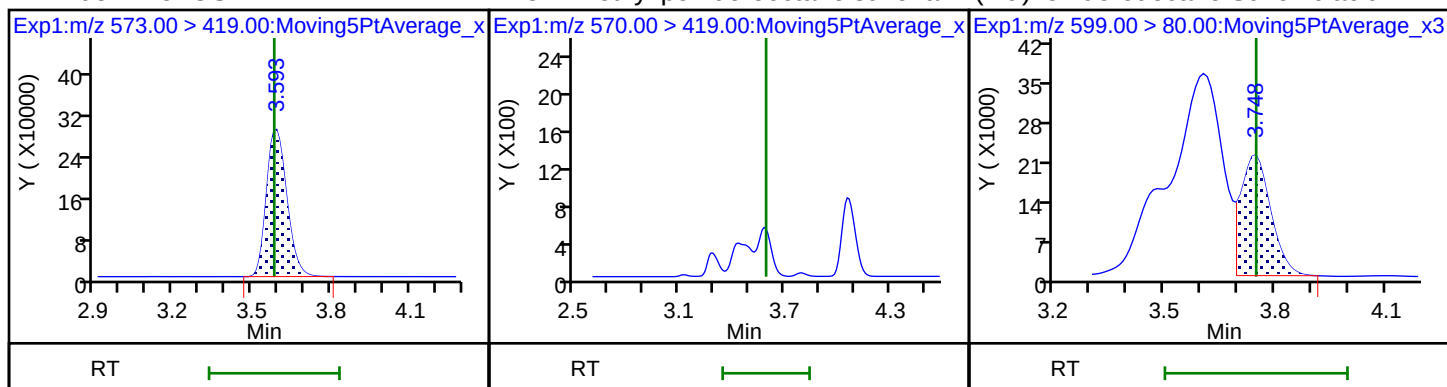
D 23 13C2 PFDA



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonami (M)

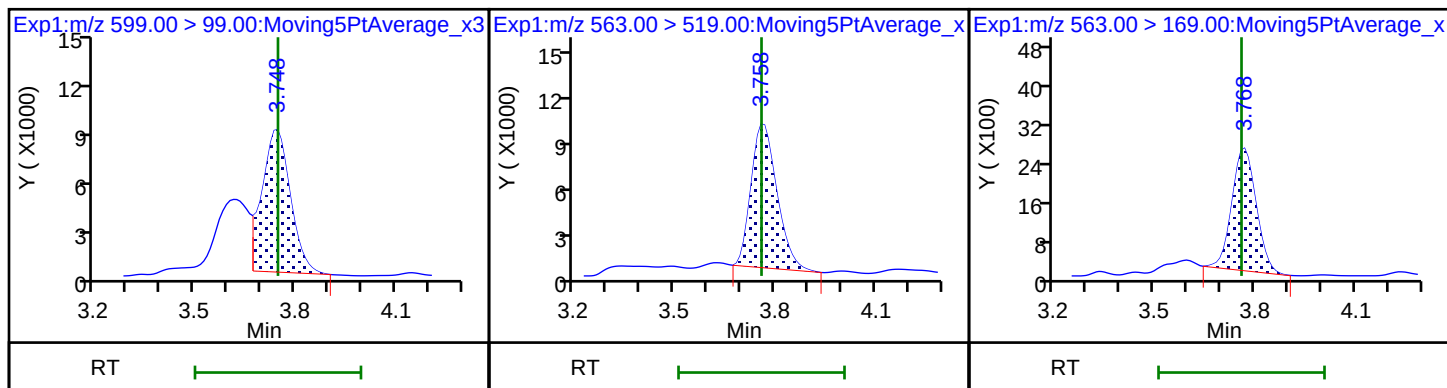
29 Perfluorodecane Sulfonic acid



29 Perfluorodecane Sulfonic acid

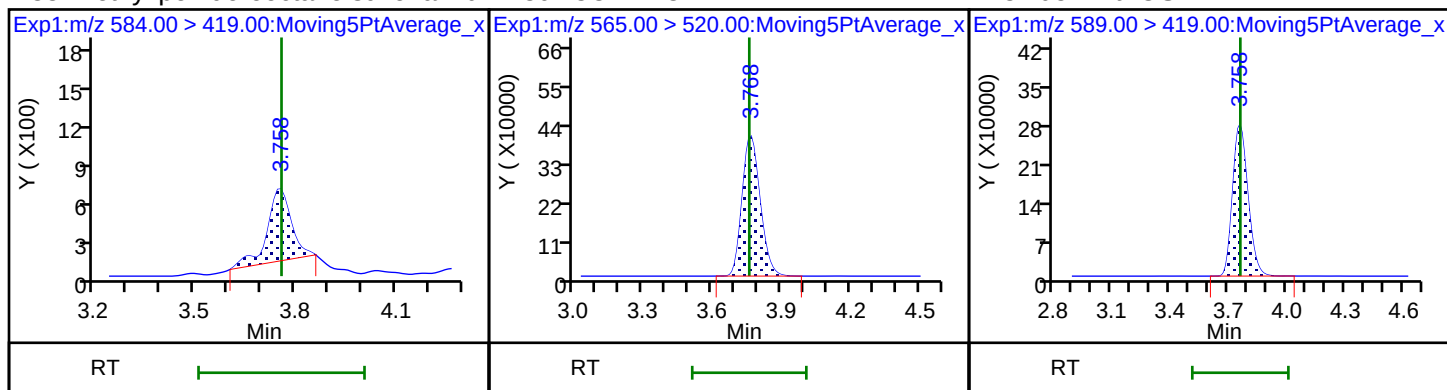
31 Perfluoroundecanoic acid

31 Perfluoroundecanoic acid



33 N-ethyl perfluorooctane sulfonamid D 30 13C2 PFUnA

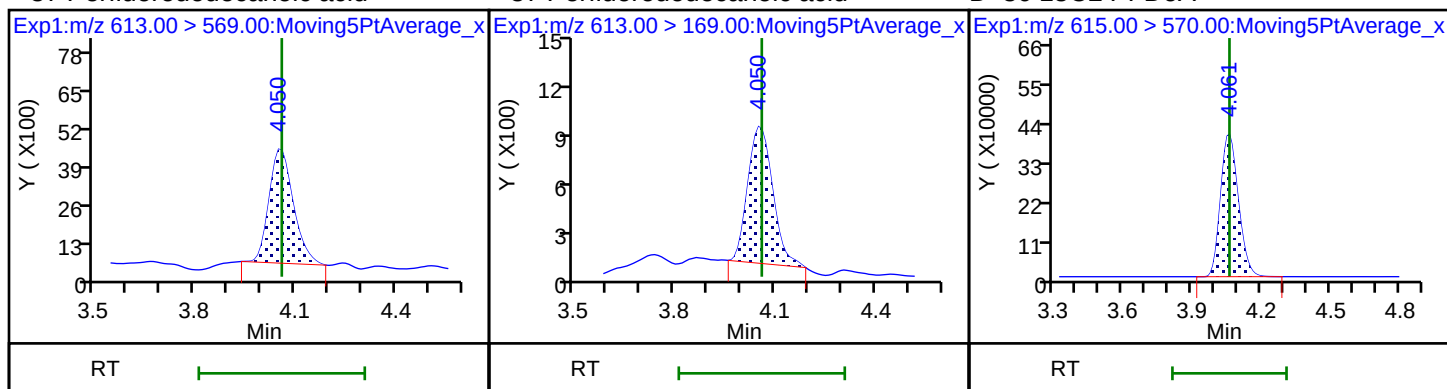
D 32 d5-NEtFOSAA



37 Perfluorododecanoic acid

37 Perfluorododecanoic acid

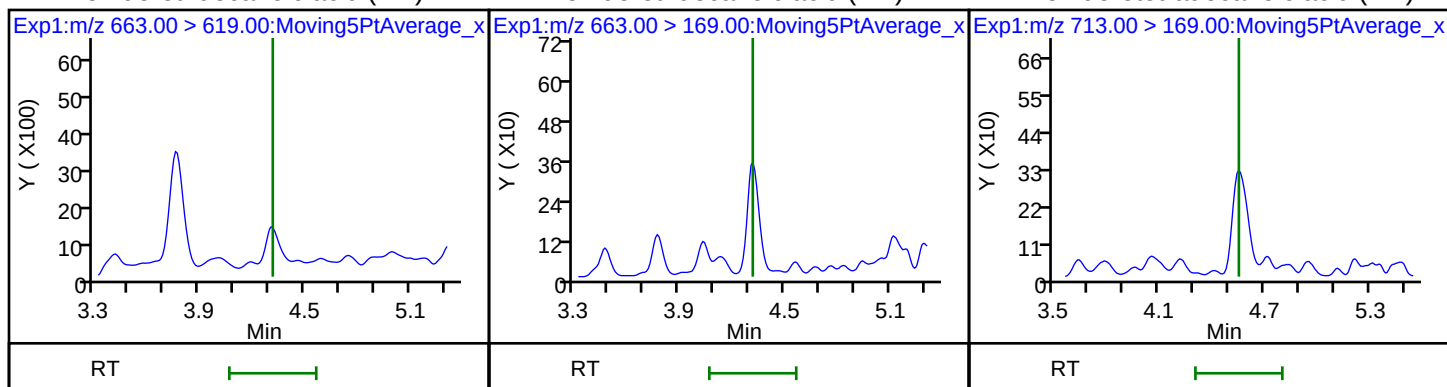
D 36 13C2 PFDaA



41 Perfluorotridecanoic acid (ND)

41 Perfluorotridecanoic acid (ND)

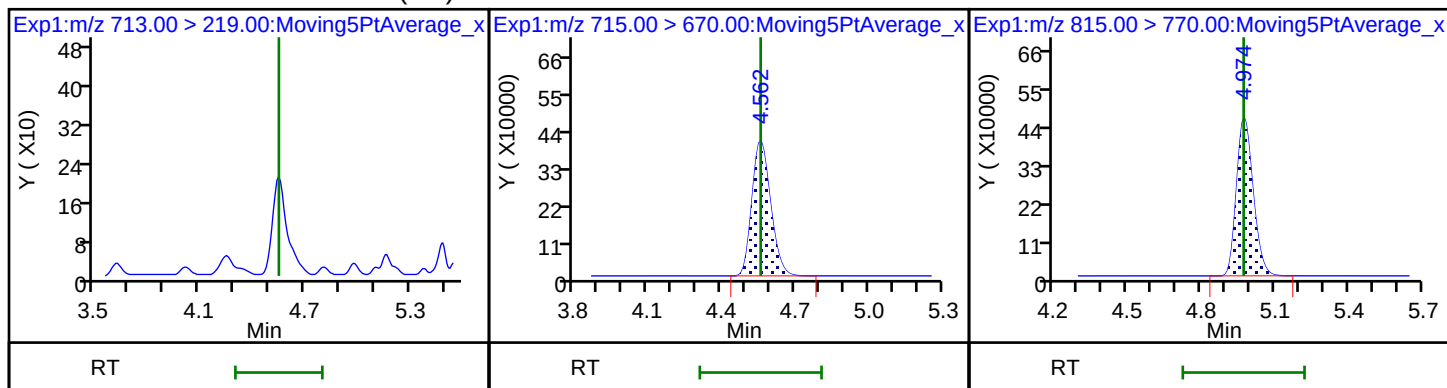
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)

D 43 13C2-PFTeDA

D 44 13C2-PFHxDA





## TestAmerica Sacramento

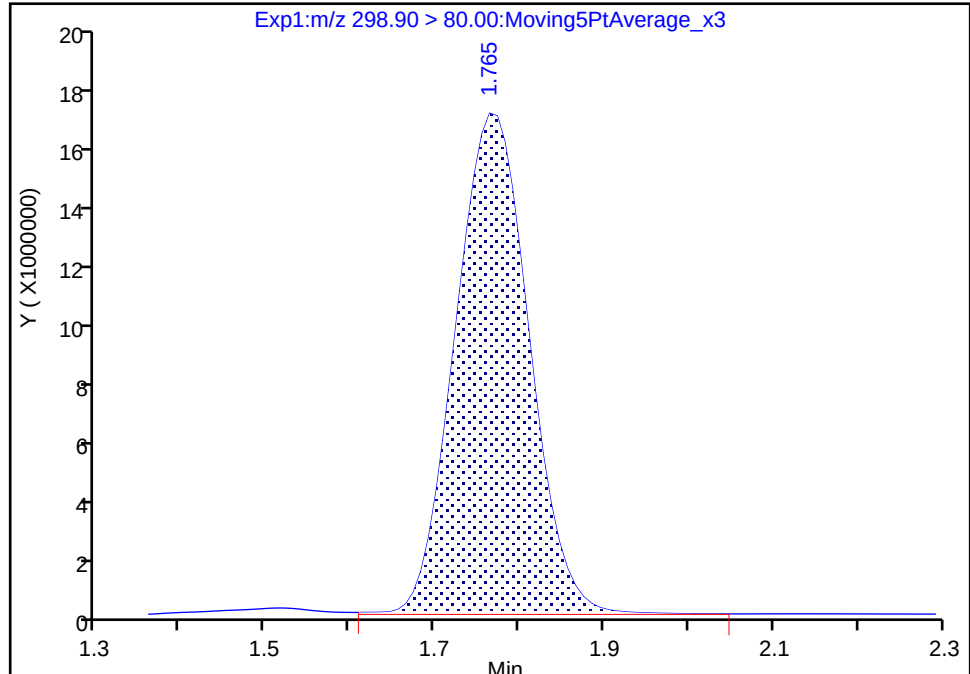
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_038.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:50:13                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-5-A                                                            | Lab Sample ID: | 320-39023-5        |                |   |
| Client ID:      | MW-573-03-PRL05-01                                                         |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 31                 | Worklist Smp#: | 8 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

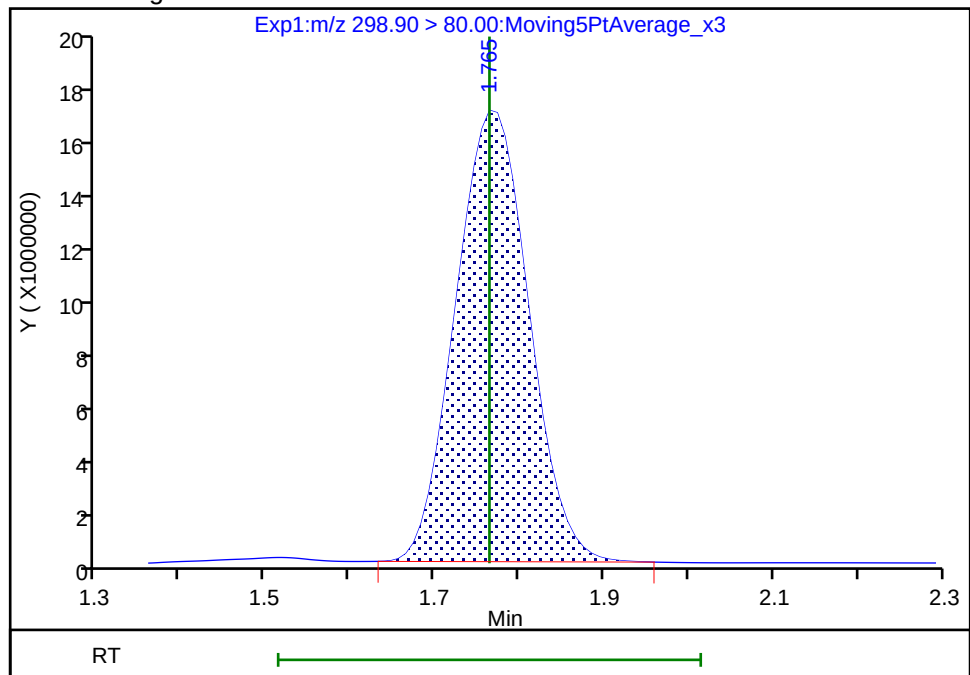
RT: 1.76  
Area: 102999368  
Amount: 47.306913  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 101672639  
Amount: 46.697556  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:23:52

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

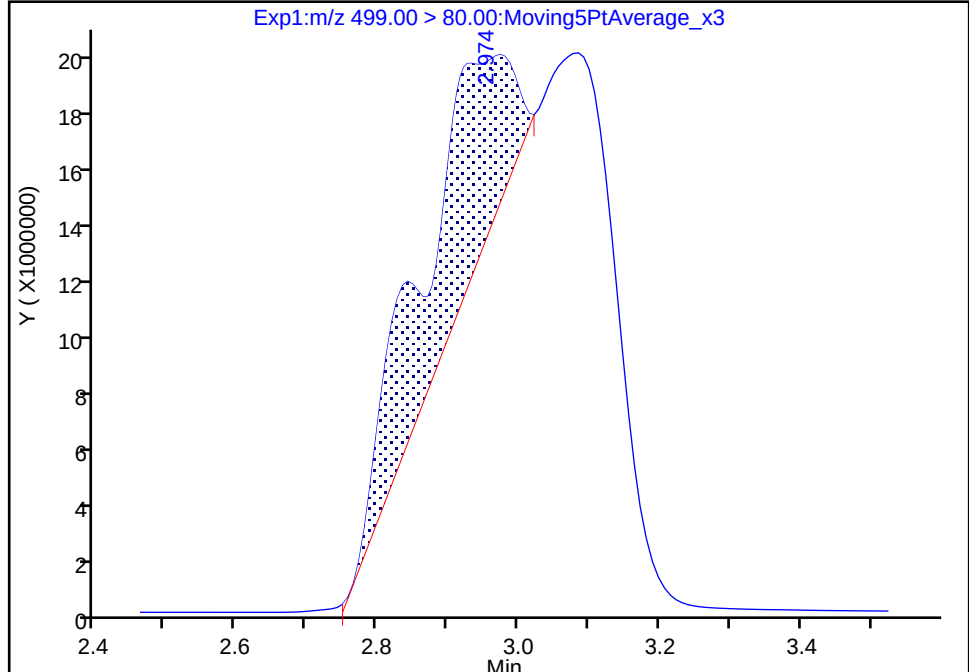
|                 |                                                                            |                |                    |                |   |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_038.d |                |                    |                |   |
| Injection Date: | 28-May-2018 11:50:13                                                       | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-5-A                                                            | Lab Sample ID: | 320-39023-5        |                |   |
| Client ID:      | MW-573-03-PRL05-01                                                         |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 31                 | Worklist Smp#: | 8 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                            | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

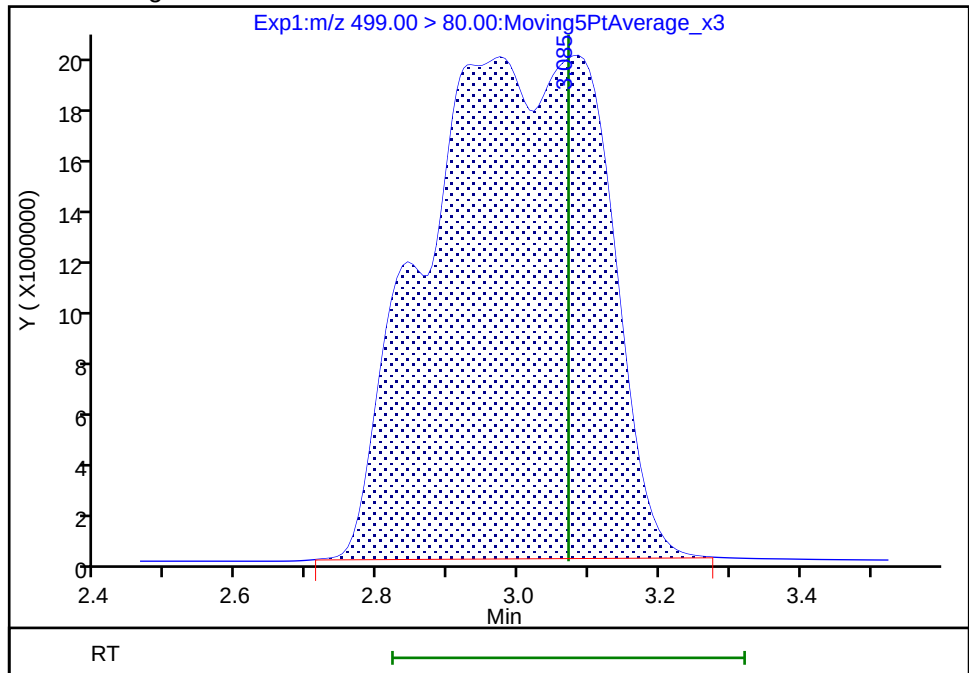
RT: 2.97  
Area: 69358666  
Amount: 156.0821  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 354427169  
Amount: 797.5892  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: roycea, 29-May-2018 08:30:16  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration  
Page 1923 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                                |                                              |
|------------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>        | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                                 |                                              |
| Client Sample ID: <u>MW-573-03-PRL05-01 DL</u> | Lab Sample ID: <u>320-39023-5 DL</u>         |
| Matrix: <u>Water</u>                           | Lab File ID: <u>2018.05.29LLB_011.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>          | Date Collected: <u>05/06/2018 09:15</u>      |
| Extraction Method: <u>3535</u>                 | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>252.2 (mL)</u>               | Date Analyzed: <u>05/29/2018 19:28</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>           | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>                | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                              | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>              | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q           | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5100   | J1 D        | 200 | 150 | 60  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 6700   | J1 D        | 200 | 150 | 54  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 190    | J J1<br>D M | 200 | 150 | 52  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 3900   | J1 D        | 200 | 99  | 46  |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 39000  | E J1<br>D   | 200 | 99  | 38  |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 63000  | J1 E<br>D   | 400 | 300 | 110 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 99   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 64   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 73   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 69   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 66   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_011.d  
 Lims ID: 320-39023-A-5-A  
 Client ID: MW-573-03-PRL05-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 19:28:27 ALS Bottle#: 6 Worklist Smp#: 10  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-5-a 100X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:24:36 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK040

First Level Reviewer: mongkols

Date: 30-May-2018 15:13:14

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.457 | 1.463  | -0.006 | 1.000  | 48882    | 0.0144       |                   | 57.5 | 349   |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.457 | 1.463  | -0.006 | 1.000  | 1372837  | 0.7551       |                   |      | 757   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.728 | 1.728  | 0.0    | 0.562  | 36316    | 0.0167       |                   | 66.7 | 493   |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.728 | 1.729  | -0.001 | 1.000  | 3553473  | 2.07         |                   |      | 1814  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       | M     |
| 301.90 > 83.00                        | 1.764 | 1.764  | 0.0    | 1.000  | 1137     | 0.0231       |                   | 99.3 | 15.2  | M     |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.764 | 1.765  | -0.001 | 1.000  | 3788382  | 0.99         |                   |      | 7997  |       |
| 298.90 > 99.00                        | 1.764 | 1.765  | -0.001 | 1.000  | 1604010  |              | 2.36(1.25-3.74)   |      | 11323 |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.980 | 1.981  | -0.001 | 1.000  | 7116     | 0.008780     |                   |      | 320   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.025 | 2.025  | 0.0    | 1.000  | 44362    | 0.0191       |                   | 76.4 | 779   |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.013 | 2.025  | -0.012 | 0.994  | 4563248  | 2.50         |                   |      | 5035  |       |
| 313.00 > 119.00                       | 2.025 | 2.025  | 0.0    | 1.000  | 387569   |              | 11.77(5.03-15.10) |      | 5195  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.047 | 2.048  | -0.001 | 1.000  | 3763831  | 1.11         |                   |      | 26883 |       |
| 349.00 > 99.00                        | 2.047 | 2.048  | -0.001 | 1.000  | 1449152  |              | 2.60(1.36-4.07)   |      | 15747 |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                   |      |       |       |
| 367.00 > 322.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 35643    | 0.0160       |                   | 64.0 | 807   |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                   |      |       |       |
| 363.00 > 319.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 1933181  | 1.28         |                   |      | 2314  |       |
| 363.00 > 169.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 716419   |              | 2.70(1.13-3.40)   |      | 3532  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.371 | 2.371  | 0.0    | 1.000  | 47311    | 0.0172       |                 | 72.7 | 1907  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.371 | 2.372  | -0.001 | 1.000  | 21892993 | 9.71         |                 |      | 28382 | E     |
| 399.00 > 99.00                        | 2.371 | 2.372  | -0.001 | 1.000  | 7548896  |              | 2.90(1.50-4.49) |      | 19659 | E     |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.696 | 2.689  | 0.007  | 1.000  | 23102    | 0.0470       |                 | 198  | 333   |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.704 | 2.689  | 0.015  | 1.003  | 1789261  | 1.04         |                 |      | 26089 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.704 | 2.711  | -0.007 | 1.000  | 38363    | 0.0182       |                 | 72.9 | 812   |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.711 | 2.712  | -0.001 |        | 55596    | 0.0250       |                 |      | 1343  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.711 | 2.712  | -0.001 | 1.003  | 3054259  | 1.69         |                 |      | 1196  |       |
| 413.00 > 169.00                       | 2.711 | 2.712  | -0.001 | 1.003  | 1734754  |              | 1.76(0.84-2.52) |      | 7783  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.711 | 2.719  | -0.008 | 1.000  | 934200   | 0.5636       |                 |      | 228   |       |
| 449.00 > 99.00                        | 2.711 | 2.719  | -0.008 | 1.000  | 271801   |              | 3.44(1.94-5.82) |      | 458   |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.076 | 3.081  | -0.005 | 1.000  | 29730    | 0.0173       |                 | 69.0 | 1105  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.076 | 3.081  | -0.005 | 1.000  | 29743    | 0.0157       |                 | 65.8 | 229   |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.076 | 3.081  | -0.005 | 1.000  | 23407438 | 16.0         |                 |      | 31484 | E     |
| 499.00 > 99.00                        | 3.076 | 3.081  | -0.005 | 1.000  | 5015941  |              | 4.67(2.31-6.93) |      | 27780 | E     |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.076 | 3.081  | -0.005 | 1.000  | 60900    | 0.0483       |                 |      | 154   | M     |
| 463.00 > 169.00                       | 3.076 | 3.081  | -0.005 | 1.000  | 18501    |              | 3.29(1.90-5.69) |      | 388   | M     |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.411 | 3.416  | -0.005 | 1.000  | 38449    | 0.0155       |                 | 62.1 | 721   |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.411 | 3.416  | -0.005 | 1.000  | 12883    | 0.008604     |                 |      | 45.1  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.430 | 3.435  | -0.005 | 1.000  | 9852     | 0.0176       |                 | 73.6 | 168   |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.430 | 3.435  | -0.005 | 1.000  | 7933     | 0.0143       |                 |      | 194   |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.439 | 3.444  | -0.005 | 1.000  | 20492    | 0.0140       |                 | 56.0 | 501   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.589 | 3.596  | -0.007 | 1.000  | 11460    | 0.0142       |                 | 56.7 | 219   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.753 | 3.761  | -0.008 | 1.000  | 16852    | 0.0203       |                 | 81.3 | 287   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.763 | 3.771  | -0.008 | 1.000  | 24867    | 0.0214       |                 | 85.7 | 891   |       |
| D 36 13C2 PFDoA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.061 | 4.070  | -0.009 | 1.000  | 20005    | 0.0160       |                 | 64.1 | 193   |       |



| Signal           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|------------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
| D 43 13C2-PFTeDA |       |           |           |           |          |                 |               |      |     |       |
| 715.00 > 670.00  | 4.562 | 4.563     | -0.001    | 1.000     | 22362    | 0.0146          |               | 58.4 | 206 |       |
| D 44 13C2-PFHxDA |       |           |           |           |          |                 |               |      |     |       |
| 815.00 > 770.00  | 4.974 | 4.983     | -0.009    | 1.000     | 20140    | 0.007744        |               | 31.0 | 135 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_011.d

Injection Date: 29-May-2018 19:28:27

Instrument ID: A8\_N

Lims ID: 320-39023-A-5-A

Lab Sample ID: 320-39023-5

Client ID: MW-573-03-PRL05-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

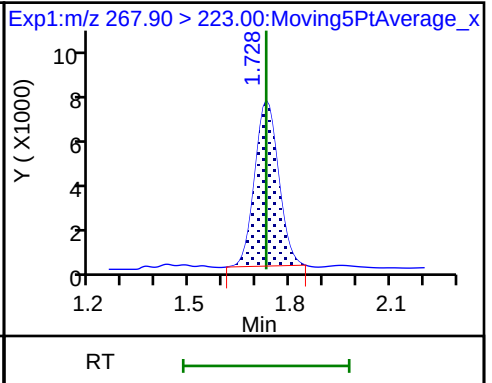
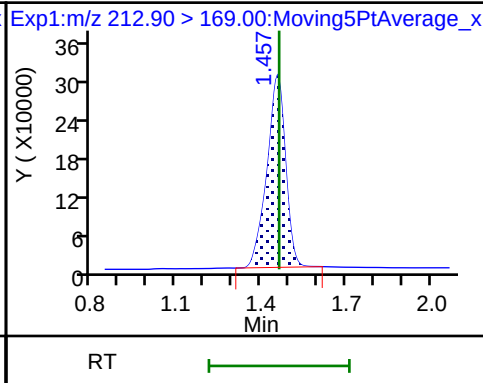
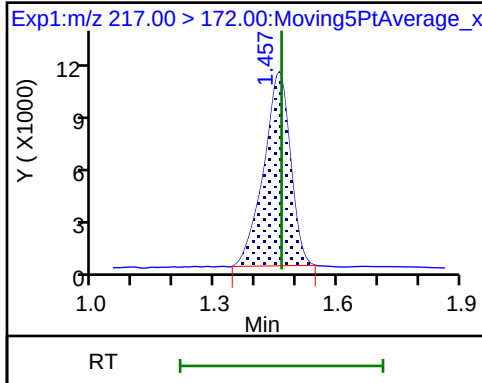
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

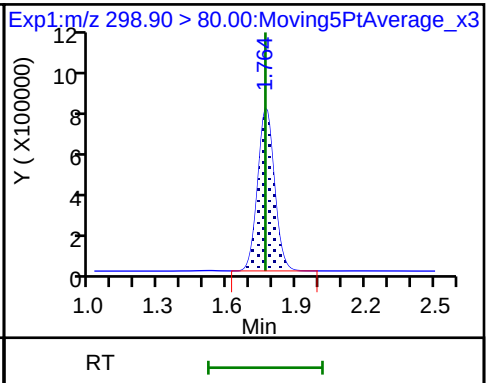
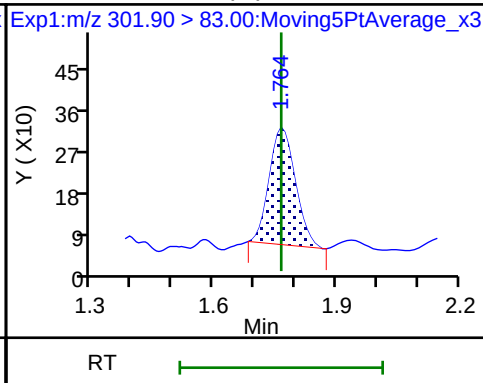
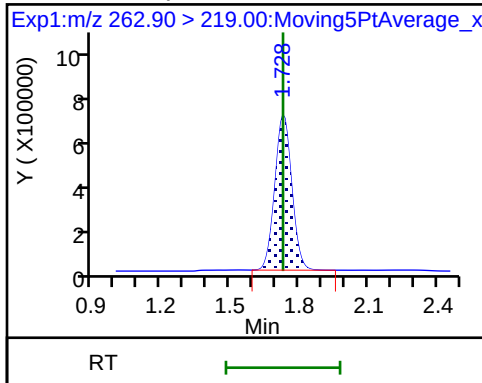
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS (M)

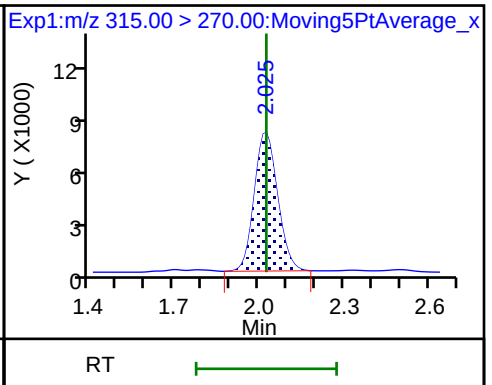
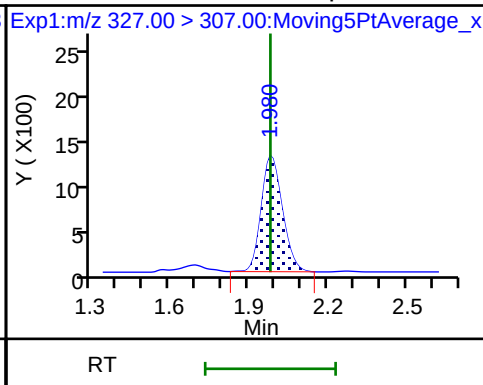
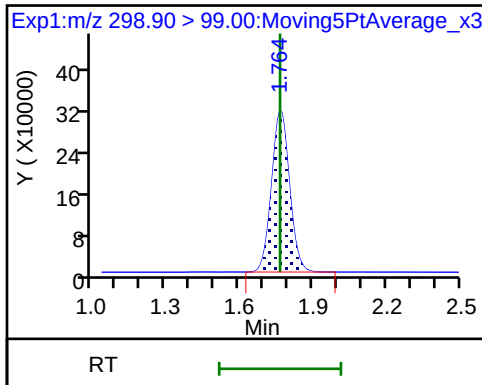
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoate

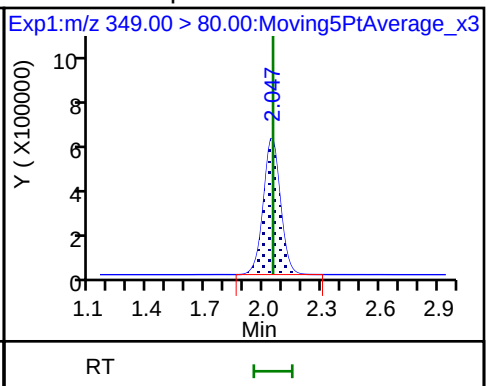
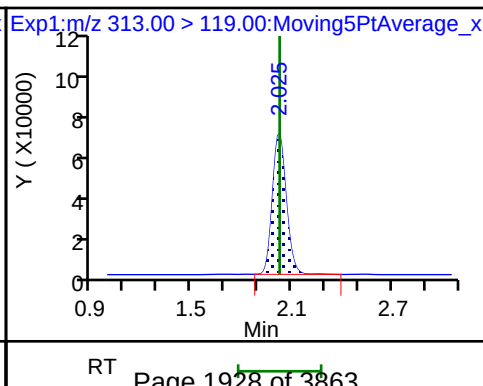
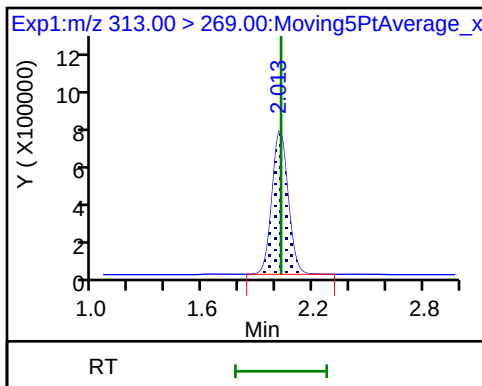
De 7 13C2 PFHxA



6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

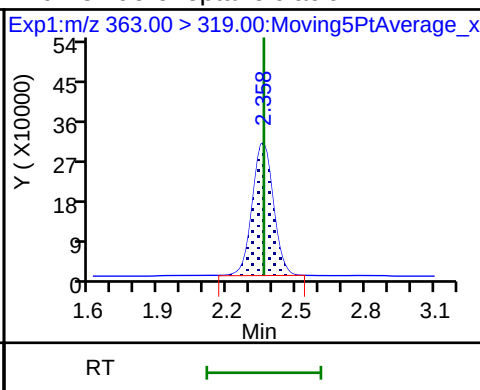
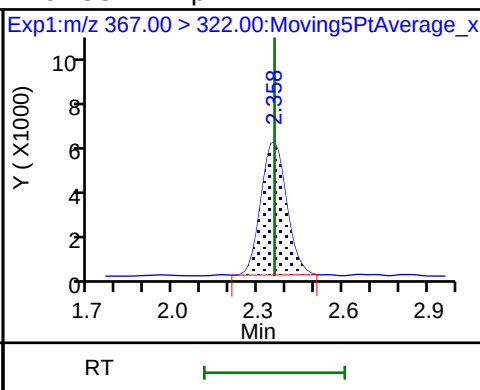
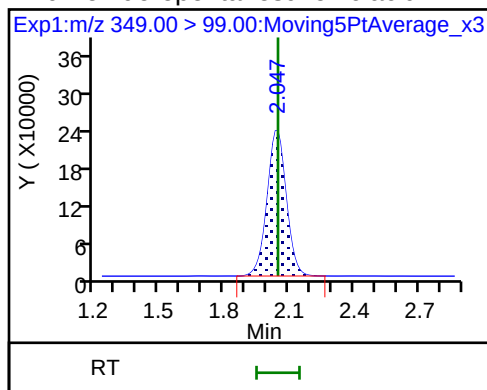
70 Perfluoropentanesulfonic acid



70 Perfluoropentanesulfonic acid

D 9 13C4-PFHpa

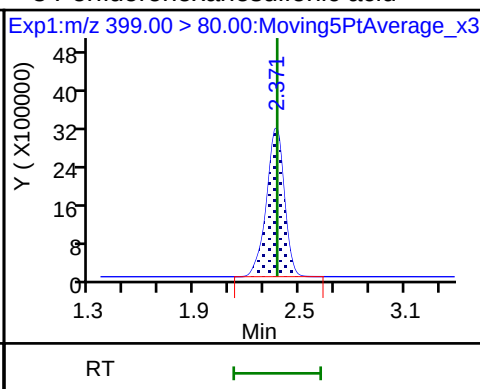
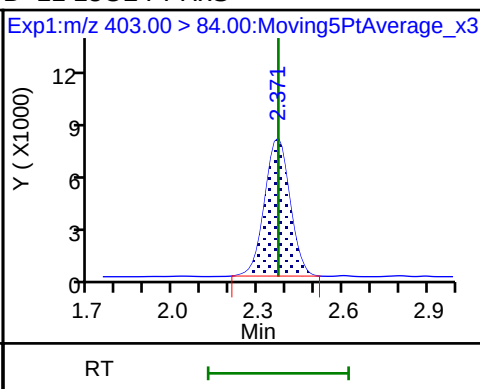
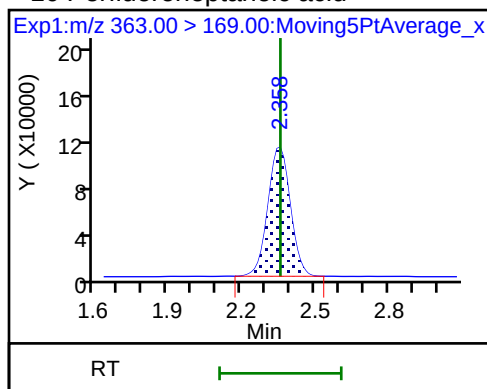
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

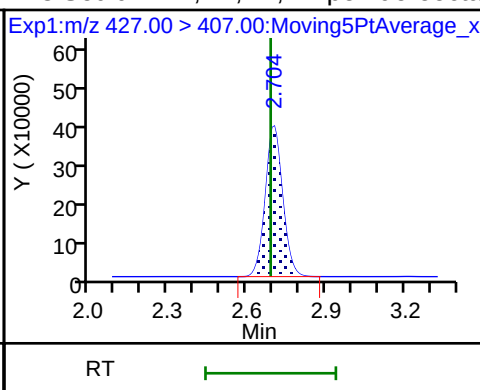
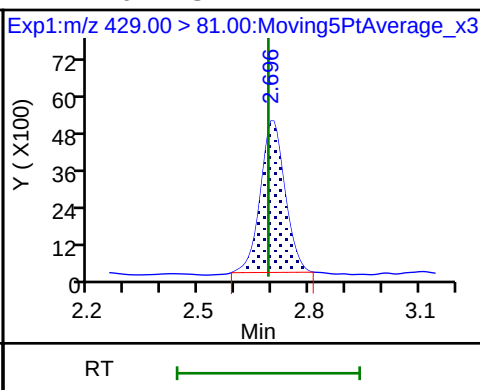
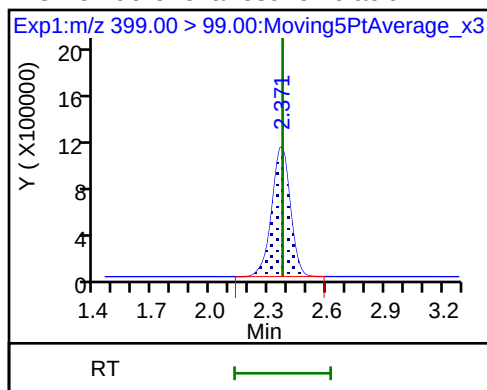
8 Perfluorohexanesulfonic acid



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

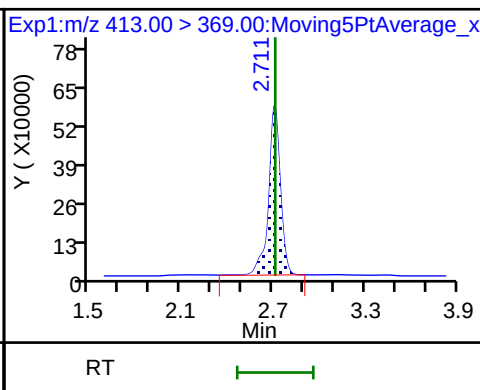
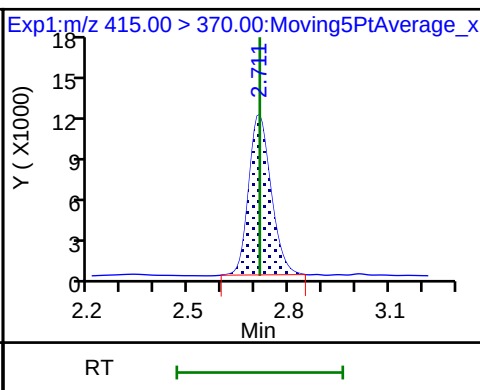
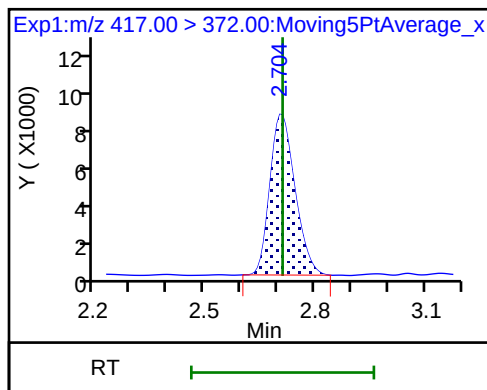
13 Sodium 1H,1H,2H,2H-perfluorooctane

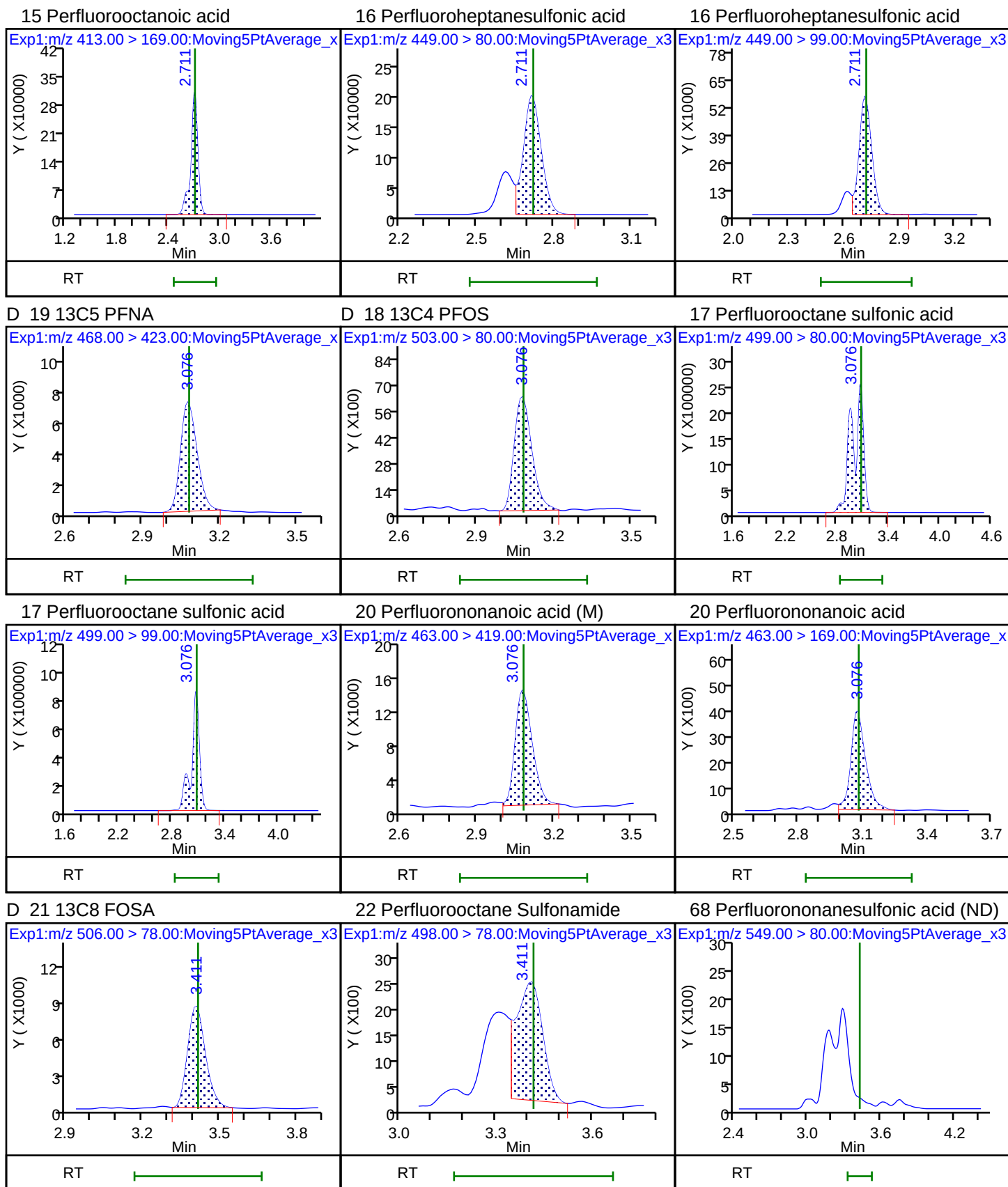


D 14 13C4 PFOA

\* 62 13C2-PFOA

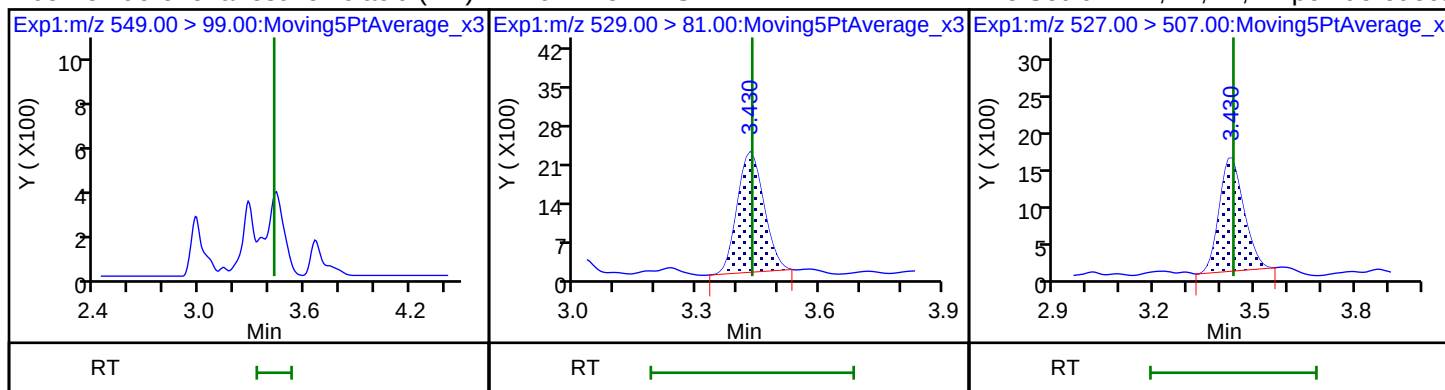
15 Perfluorooctanoic acid





68 Perfluorononanesulfonic acid (ND) D 26 M2-8:2FTS

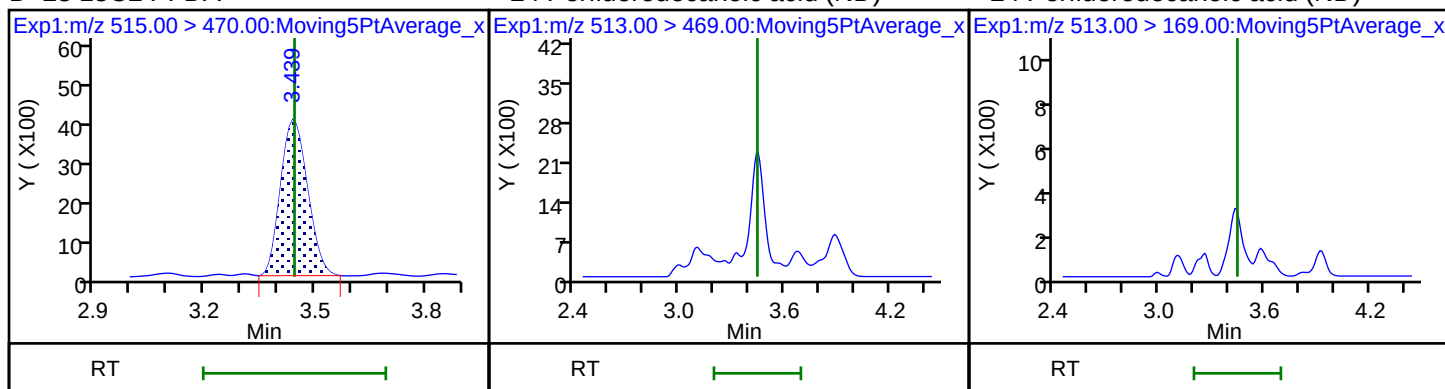
25 Sodium 1H,1H,2H,2H-perfluorodecane



D 23 13C2 PFDA

24 Perfluorodecanoic acid (ND)

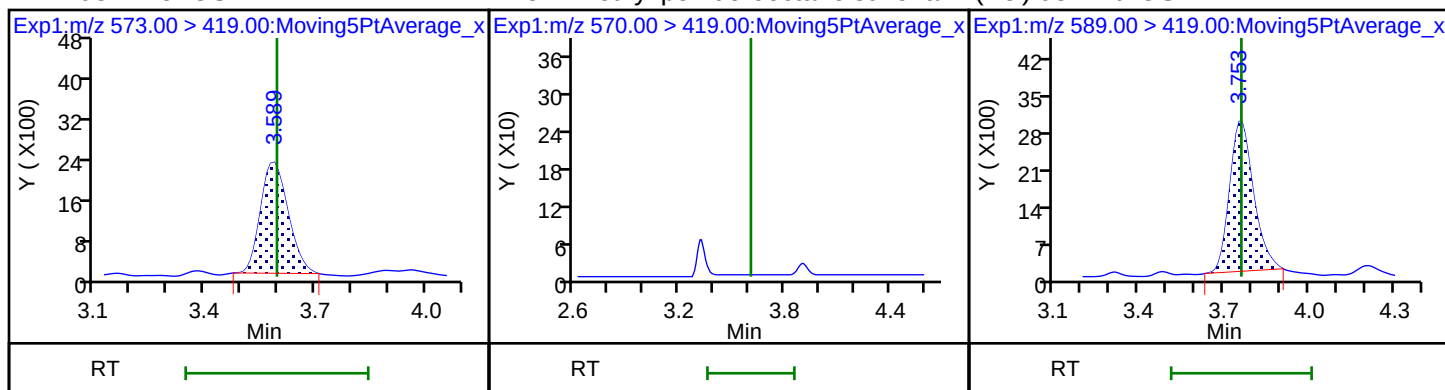
24 Perfluorodecanoic acid (ND)



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonamide (ND)

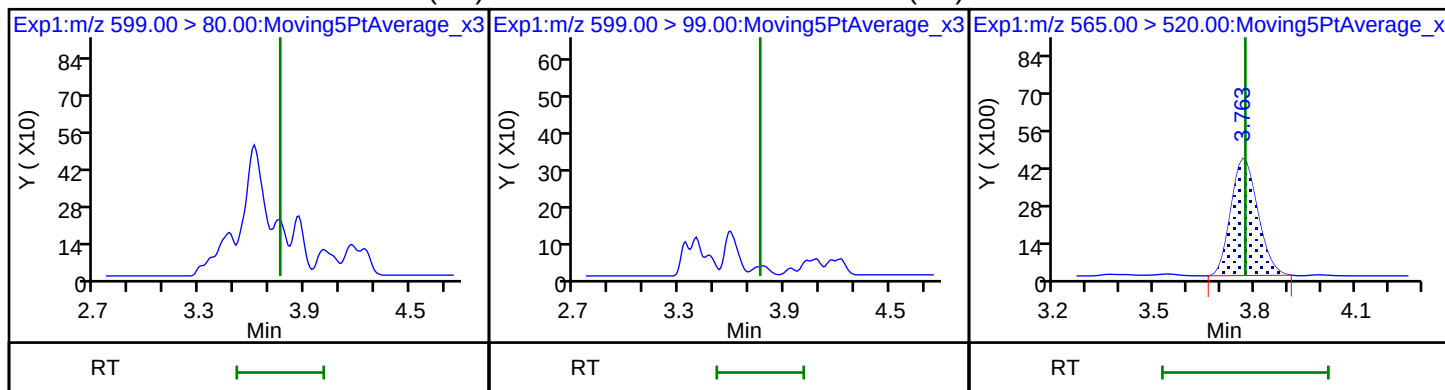
D 29 d5-NEtFOSAA



29 Perfluorodecane Sulfonic acid (ND)

29 Perfluorodecane Sulfonic acid (ND)

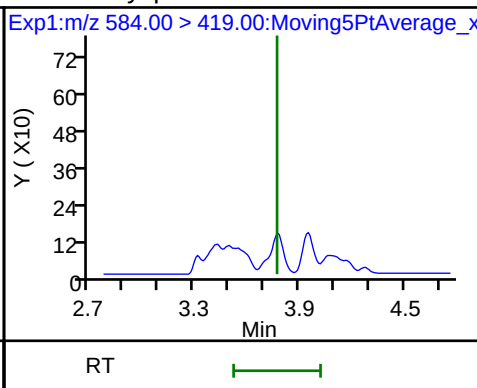
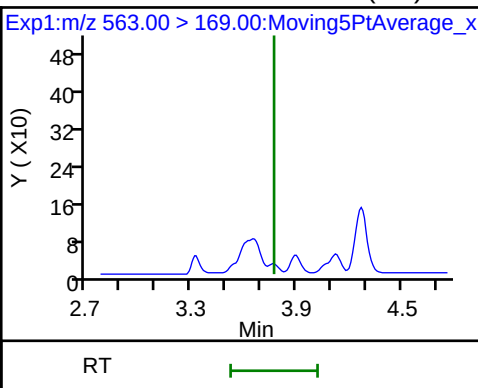
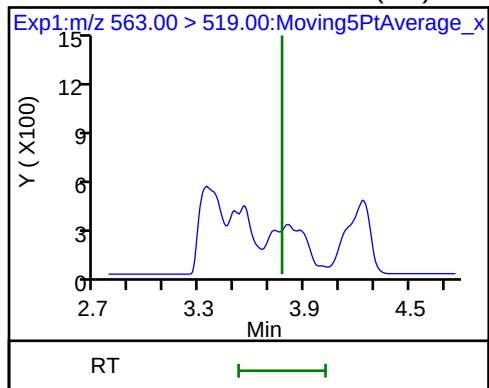
D 30 13C2 PFUnA



## 31 Perfluoroundecanoic acid (ND)

## 31 Perfluoroundecanoic acid (ND)

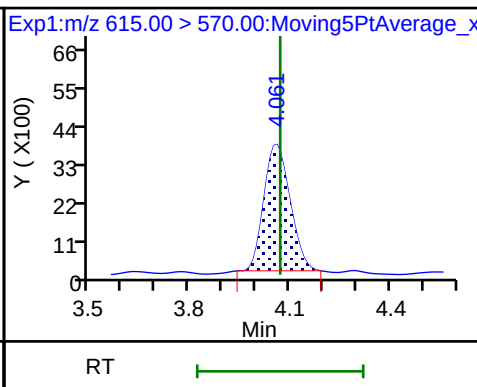
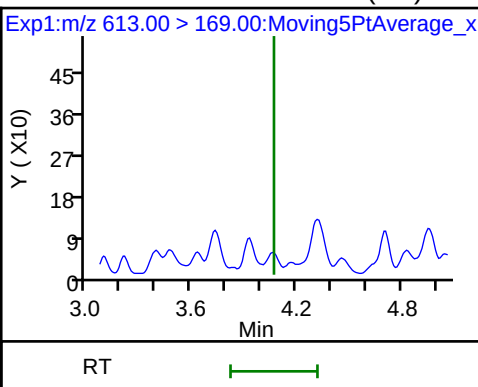
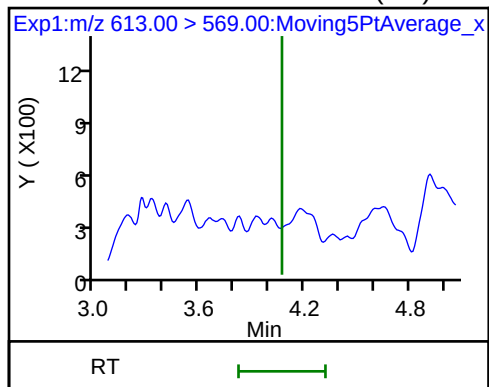
## 33 N-ethyl perfluorooctane sulfonamid (ND)



## 37 Perfluorododecanoic acid (ND)

## 37 Perfluorododecanoic acid (ND)

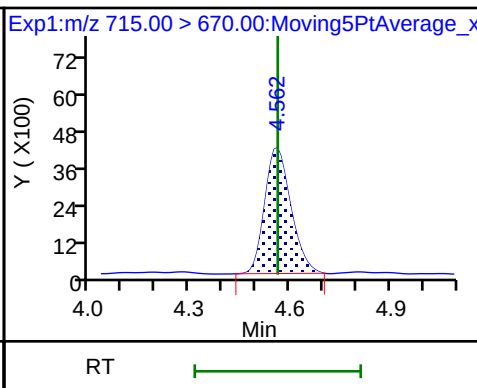
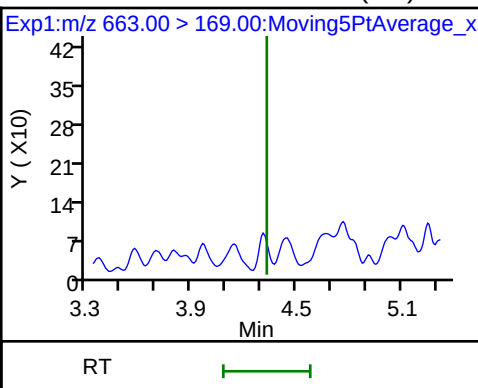
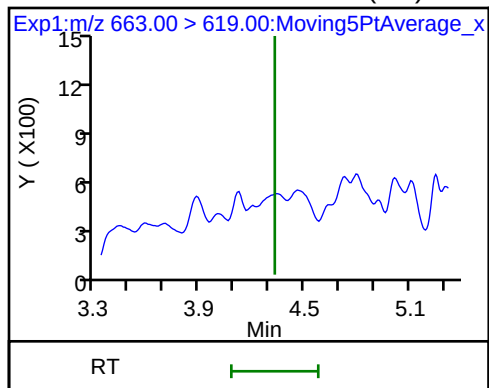
## D 36 13C2 PFDaA



## 41 Perfluorotridecanoic acid (ND)

## 41 Perfluorotridecanoic acid (ND)

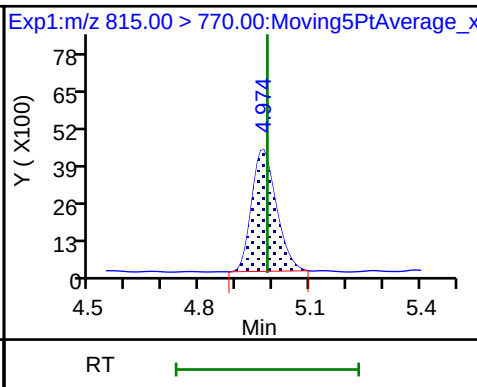
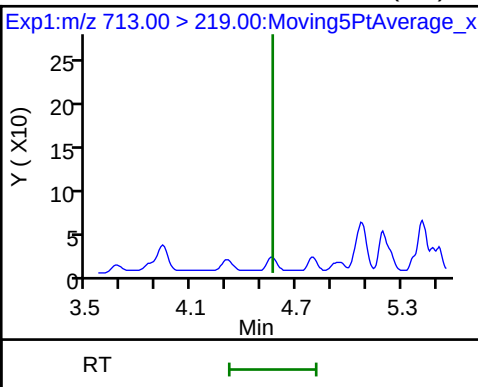
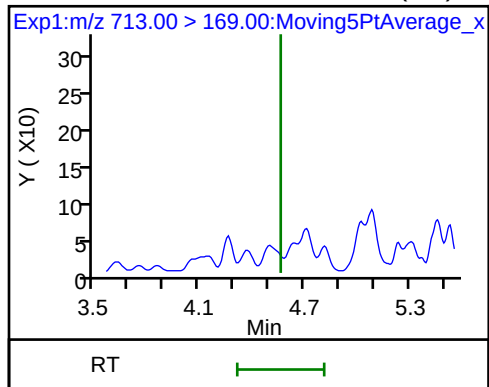
## D 43 13C2-PFTeDA



## 42 Perfluorotetradecanoic acid (ND)

## 42 Perfluorotetradecanoic acid (ND)

## D 44 13C2-PFHxDA





## TestAmerica Sacramento

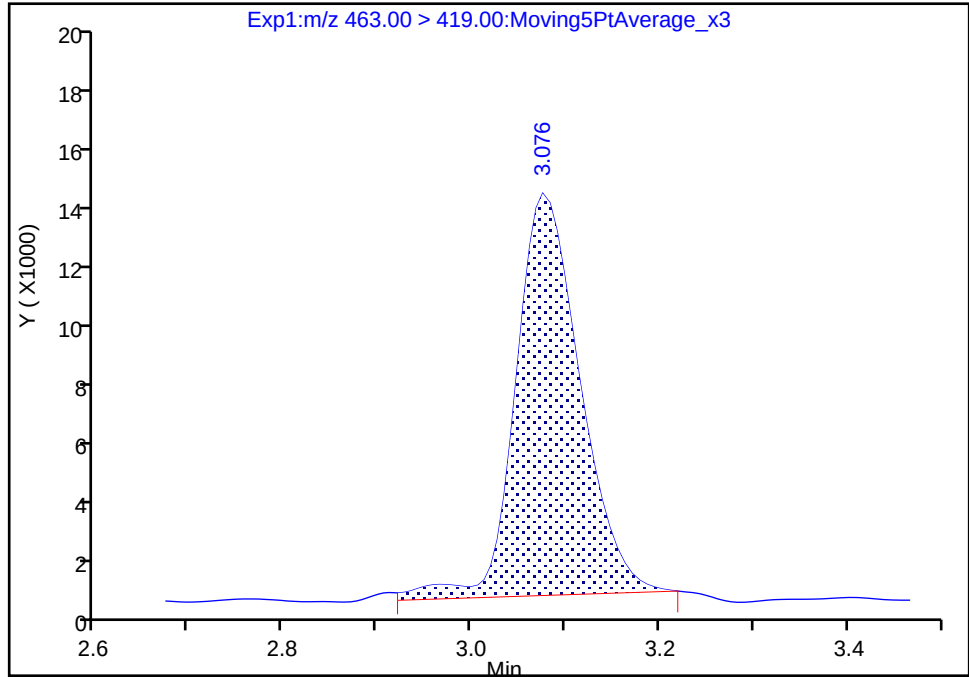
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_011.d |                |                    |                |    |
| Injection Date: | 29-May-2018 19:28:27                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-5-A                                                          | Lab Sample ID: | 320-39023-5        |                |    |
| Client ID:      | MW-573-03-PRL05-01                                                       |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 6                  | Worklist Smp#: | 10 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

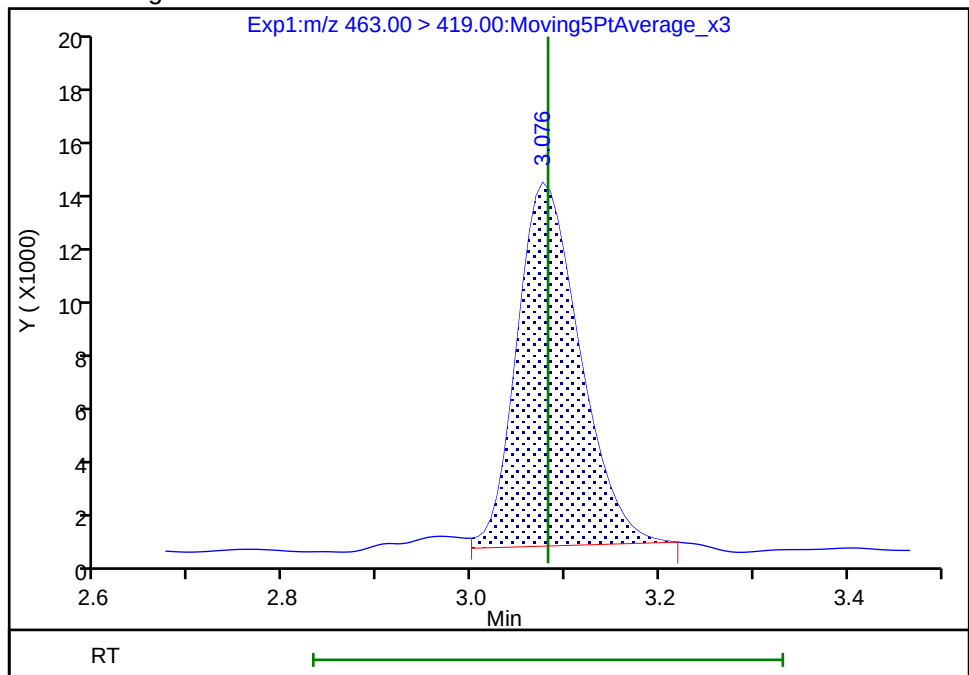
RT: 3.08  
Area: 62733  
Amount: 0.049804  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 60900  
Amount: 0.048349  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:12:59

Audit Action: Manually Integrated

Audit Reason: Baseline



## TestAmerica Sacramento

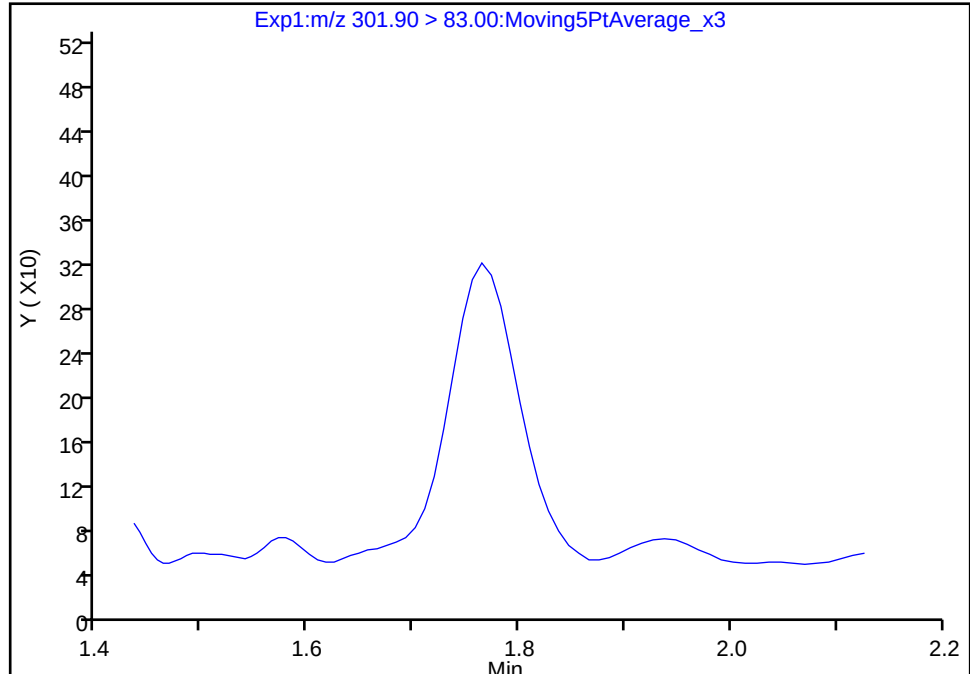
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_011.d |                |                    |                |    |
| Injection Date: | 29-May-2018 19:28:27                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-5-A                                                          | Lab Sample ID: | 320-39023-5        |                |    |
| Client ID:      | MW-573-03-PRL05-01                                                       |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 6                  | Worklist Smp#: | 10 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

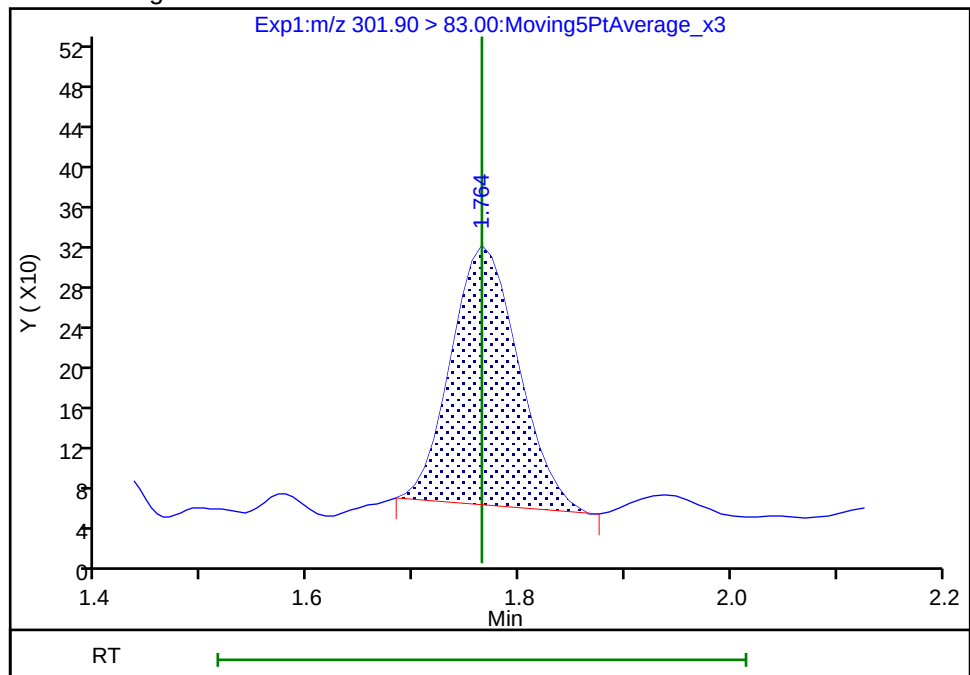
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results



## Manual Integration Results

RT: 1.76  
Area: 1137  
Amount: 0.023090  
Amount Units: ng/ml

Reviewer: mongkols, 30-May-2018 15:12:18

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>     | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                              |                                              |
| Client Sample ID: <u>MW-572-02-PRL05-01</u> | Lab Sample ID: <u>320-39023-6</u>            |
| Matrix: <u>Water</u>                        | Lab File ID: <u>2018.05.27LLADX_041.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>       | Date Collected: <u>05/06/2018 10:30</u>      |
| Extraction Method: <u>3535</u>              | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>266.4 (mL)</u>            | Date Analyzed: <u>05/28/2018 12:13</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>        | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>             | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                           | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225820</u>           | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 25     |     | 1.9 | 1.4  | 0.57 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 56     |     | 1.9 | 1.4  | 0.51 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 3.8    |     | 1.9 | 1.4  | 0.49 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 27     |     | 1.9 | 0.94 | 0.43 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 360    | E   | 1.9 | 0.94 | 0.36 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1100   | E M | 3.8 | 2.8  | 1.0  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 85   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 89   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 82   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 81   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 74   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_041.d  
 Lims ID: 320-39023-A-6-A  
 Client ID: MW-572-02-PRL05-01  
 Sample Type: Client  
 Inject. Date: 28-May-2018 12:13:41 ALS Bottle#: 34 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-6-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:32:45 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:33:17

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

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.764 | 1.761 | 0.003 | 1.000 | 85111 | 1.97 |  | 84.7 | 539 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |         |        |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|--------|--|--|------|--|
| 298.90 > 80.00 | 1.773 | 1.764 | 0.009 | 1.005 | 2046170 | 0.7158 |  |  | 1908 |  |
|----------------|-------|-------|-------|-------|---------|--------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.773 | 1.764 | 0.009 | 1.005 | 815690 |  | 2.51(1.25-3.74) |  | 2348 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.358 | 2.342 | 0.016 | 1.000 | 4036649 | 2.07 |  | 82.6 | 60777 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |         |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|---------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.358 | 2.345 | 0.013 | 1.000 | 1147535 | 0.6728 |  |  | 751 |  |
|-----------------|-------|-------|-------|-------|---------|--------|--|--|-----|--|

|                 |       |       |       |       |        |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.358 | 2.345 | 0.013 | 1.000 | 437205 |  | 2.62(1.13-3.40) |  | 2063 |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |          |      |  |  |       |   |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|---|
| 399.00 > 80.00 | 2.371 | 2.358 | 0.013 | 1.000 | 21094955 | 9.56 |  |  | 14133 | E |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|---|

|                |       |       |       |       |         |  |                 |  |       |   |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|---|
| 399.00 > 99.00 | 2.371 | 2.358 | 0.013 | 1.000 | 6730806 |  | 3.13(1.50-4.49) |  | 13995 | E |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|---|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.371 | 2.368 | 0.003 | 1.000 | 4630917 | 1.92 |  | 81.1 | 60118 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.712 | 2.703 | 0.009 | 1.000 | 4089189 | 2.21 |  | 88.5 | 68709 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |         |      |  |  |      |  |
|-----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 413.00 > 369.00 | 2.712 | 2.704 | 0.008 | 1.000 | 2851013 | 1.48 |  |  | 1057 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                 |       |       |       |       |         |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|---------|--|-----------------|--|------|--|
| 413.00 > 169.00 | 2.712 | 2.704 | 0.008 | 1.000 | 1545852 |  | 1.84(0.84-2.52) |  | 4300 |  |
|-----------------|-------|-------|-------|-------|---------|--|-----------------|--|------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |         |      |  |  |       |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.712 | 2.704 | 0.008 |  | 4879691 | 2.50 |  |  | 50205 |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |        |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 463.00 > 419.00 | 3.084 | 3.071 | 0.013 | 1.000 | 132017 | 0.1001 |  |  | 209 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 463.00 > 169.00 | 3.084 | 3.071 | 0.013 | 1.000 | 31535 |  | 4.19(1.90-5.69) |  | 276 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |          |      |  |  |       |    |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|----|
| 499.00 > 80.00 | 3.084 | 3.071 | 0.013 | 1.000 | 43193323 | 30.0 |  |  | 12754 | EM |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|----|

|                |       |       |       |       |          |  |                 |  |       |    |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|-------|----|
| 499.00 > 99.00 | 3.076 | 3.071 | 0.005 | 0.997 | 10303245 |  | 4.19(2.31-6.93) |  | 46880 | EM |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|-------|----|

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.084 | 3.072     | 0.012     | 1.000     | 2925178  | 1.76            |               | 73.7 | 18669 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.084 | 3.072     | 0.012     | 1.000     | 3111982  | 2.06            |               | 82.3 | 60477 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_041.d

Injection Date: 28-May-2018 12:13:41

Instrument ID: A8\_N

Lims ID: 320-39023-A-6-A

Lab Sample ID: 320-39023-6

Client ID: MW-572-02-PRL05-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

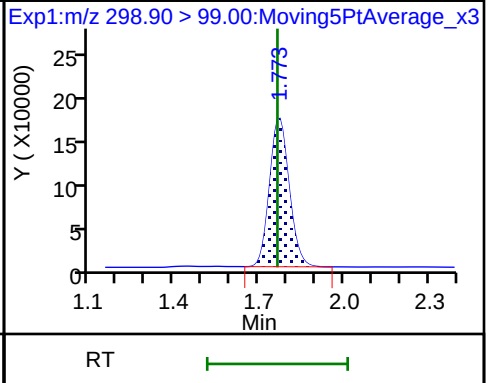
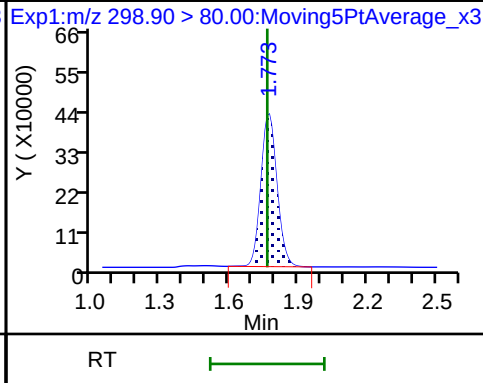
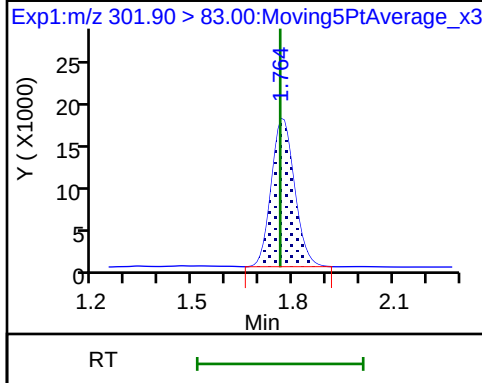
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

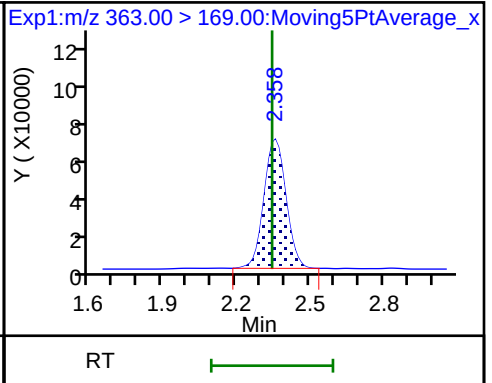
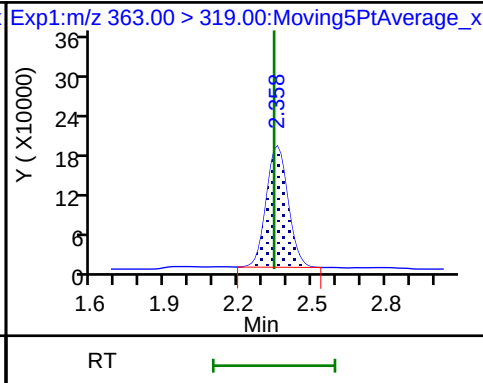
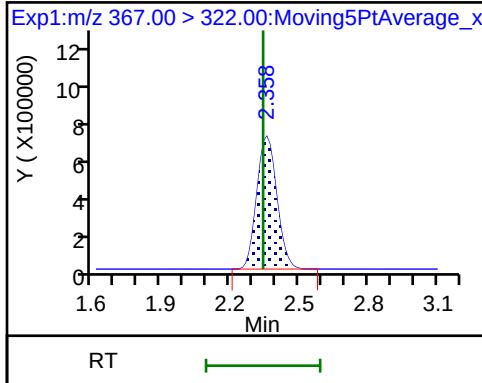
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

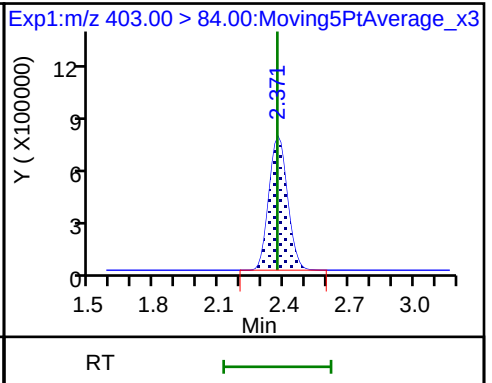
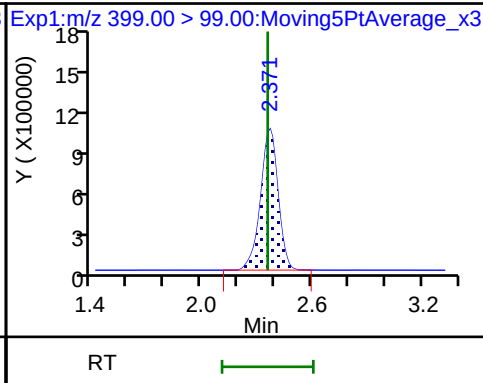
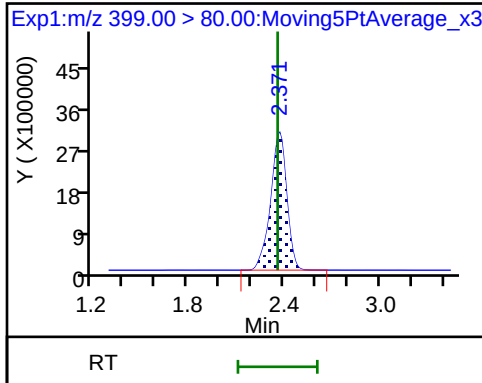
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

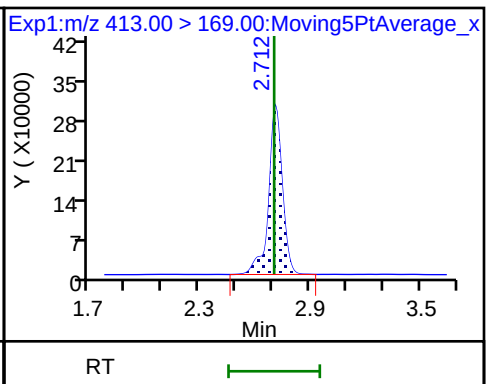
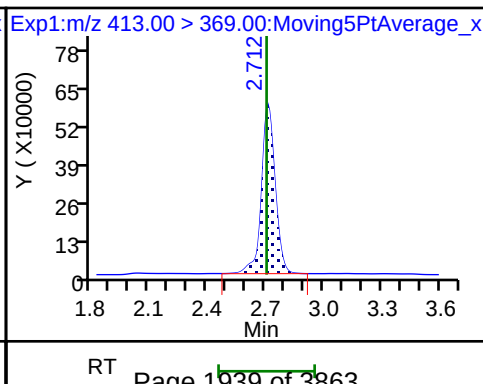
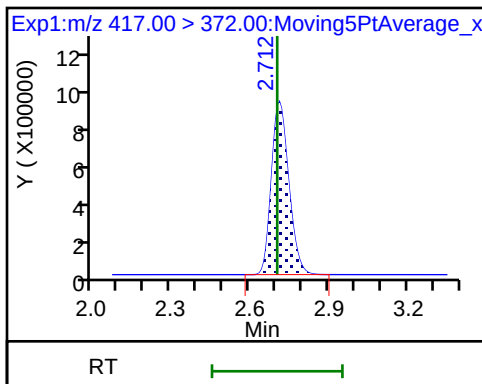
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

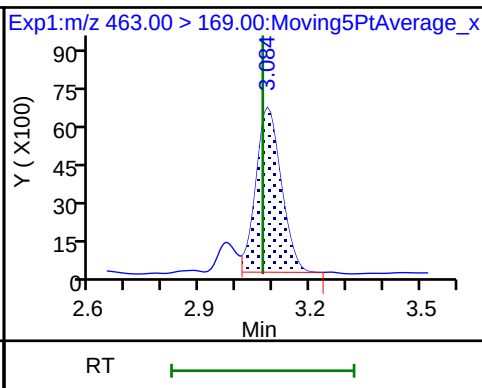
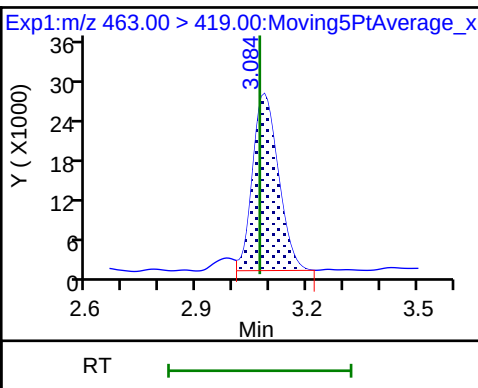
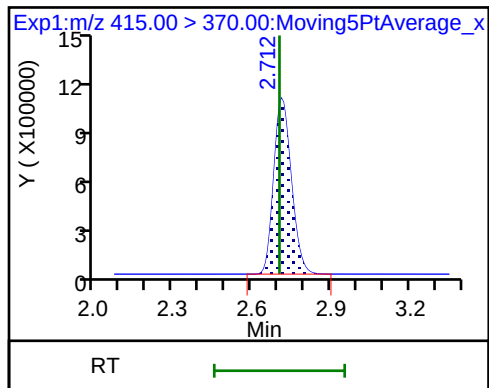
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

20 Perfluorononanoic acid

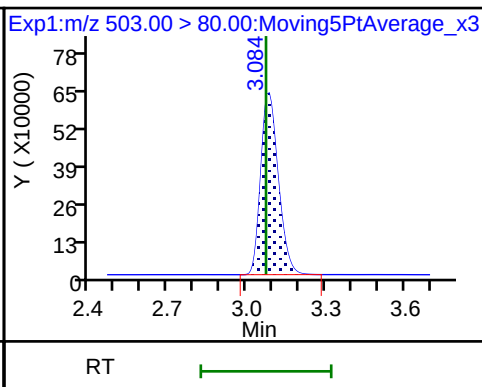
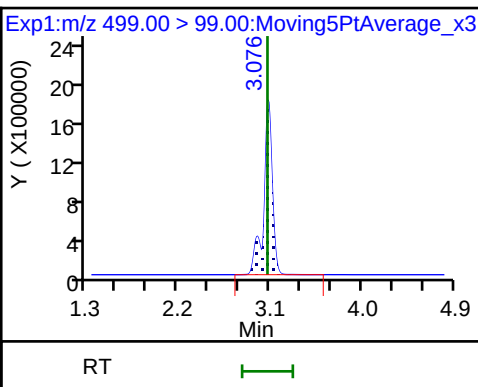
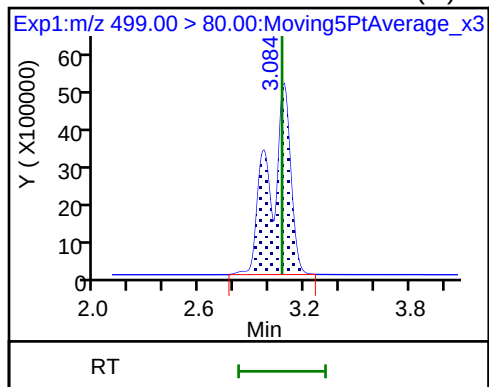
20 Perfluorononanoic acid



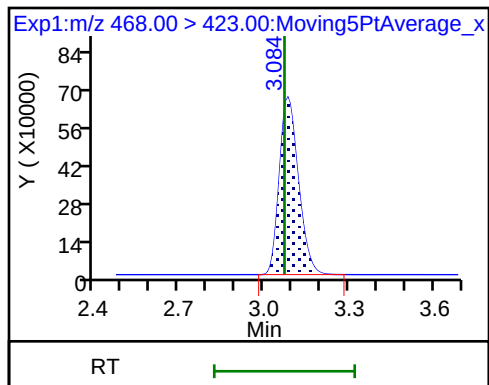
17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

D 18 13C4 PFOS



D 19 13C5 PFNA



## TestAmerica Sacramento

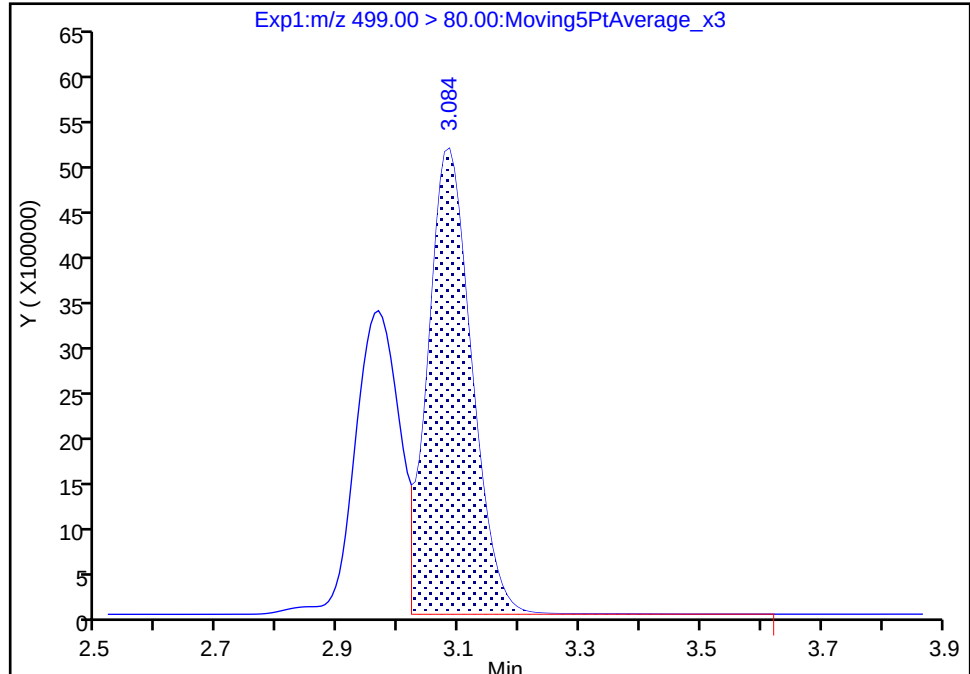
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_041.d  
Injection Date: 28-May-2018 12:13:41 Instrument ID: A8\_N  
Lims ID: 320-39023-A-6-A Lab Sample ID: 320-39023-6  
Client ID: MW-572-02-PRL05-01  
Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 11  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

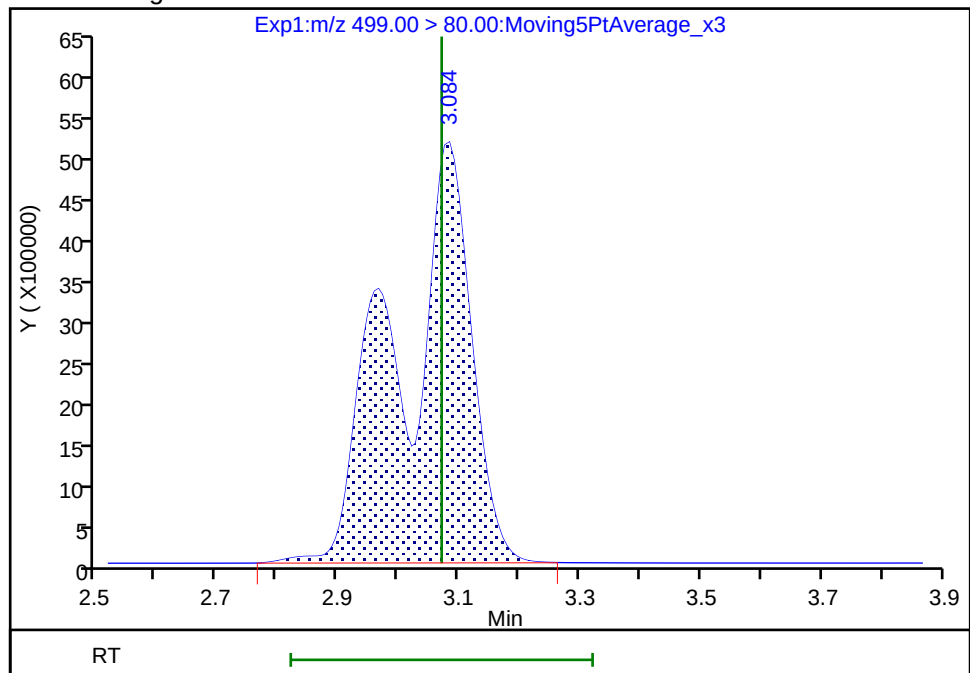
RT: 3.08  
Area: 26071864  
Amount: 18.116998  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 43193323  
Amount: 30.014477  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: roycea, 29-May-2018 08:31:38  
Audit Action: Manually Integrated

Audit Reason: Isomers  
Page 1941 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                                |                                              |
|------------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>        | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                                 |                                              |
| Client Sample ID: <u>MW-572-02-PRL05-01 DL</u> | Lab Sample ID: <u>320-39023-6 DL</u>         |
| Matrix: <u>Water</u>                           | Lab File ID: <u>2018.05.29LLB_016.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>          | Date Collected: <u>05/06/2018 10:30</u>      |
| Extraction Method: <u>3535</u>                 | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>266.4 (mL)</u>               | Date Analyzed: <u>05/29/2018 20:07</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>           | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>                | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                              | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>              | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 23     | D   | 19  | 14  | 5.7 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 55     | D   | 19  | 14  | 5.1 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 14     | U M | 19  | 14  | 4.9 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 27     | D   | 19  | 9.4 | 4.3 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 360    | D   | 19  | 9.4 | 3.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1100   | D   | 38  | 28  | 10  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 69   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 79   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 92   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 84   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 77   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 75   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_016.d  
 Lims ID: 320-39023-A-6-A  
 Client ID: MW-572-02-PRL05-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 20:07:36 ALS Bottle#: 9 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-a-6-a 10X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:18:17 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:18:17

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.770 | 1.764  | 0.006  | 1.000  | 9620     | 0.1596       |                 | 68.6 | 112   | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.770 | 1.779  | -0.009 | 1.000  | 236184   | 0.0731       |                 |      | 787   |       |
| 298.90 > 99.00                   | 1.770 | 1.779  | -0.009 | 1.000  | 101018   |              | 2.34(1.25-3.74) |      | 794   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.354 | 2.358  | -0.004 | 1.000  | 538879   | 0.1977       |                 | 79.1 | 12586 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.354 | 2.368  | -0.014 | 1.000  | 139677   | 0.0613       |                 |      | 157   |       |
| 363.00 > 169.00                  | 2.354 | 2.368  | -0.014 | 1.000  | 56304    |              | 2.48(1.13-3.40) |      | 268   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.371  | -0.003 | 1.000  | 610805   | 0.1813       |                 | 76.7 | 20234 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.368 | 2.381  | -0.013 | 1.000  | 2760264  | 0.9485       |                 |      | 8029  |       |
| 399.00 > 99.00                   | 2.368 | 2.381  | -0.013 | 1.000  | 871600   |              | 3.17(1.50-4.49) |      | 3909  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.718 | 2.711  | 0.007  | 1.000  | 592458   | 0.2298       |                 | 91.9 | 14372 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       | S     |
| 415.00 > 370.00                  | 2.718 | 2.718  | 0.0    |        | 680737   | 0.2500       |                 |      | 13293 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.718 | 2.718  | 0.0    | 1.000  | 405785   | 0.1455       |                 |      | 152   |       |
| 413.00 > 169.00                  | 2.718 | 2.718  | 0.0    | 1.000  | 220681   |              | 1.84(0.84-2.52) |      | 699   |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.083 | 3.081  | 0.002  | 1.000  | 440303   | 0.2088       |                 | 83.5 | 13758 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.083 | 3.081  | 0.002  | 1.000  | 414712   | 0.1791       |                 | 74.9 | 3962  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.083 | 3.089  | -0.006 | 1.000  | 5965403  | 2.92         |                 |      | 21493 |       |
| 499.00 > 99.00                   | 3.083 | 3.089  | -0.006 | 1.000  | 1346543  |              | 4.43(2.31-6.93) |      | 14267 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | RM    |
| 463.00 > 419.00           | 3.091 | 3.089     | 0.002     | 1.003     | 18042    | 0.009672        |                 |      | 43.5 | RM    |
| 463.00 > 169.00           | 3.083 | 3.089     | -0.006    | 1.000     | 2995     |                 | 6.02(1.90-5.69) |      | 62.8 |       |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

s - Failed ISTD Recovery Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_016.d

Injection Date: 29-May-2018 20:07:36

Instrument ID: A8\_N

Lims ID: 320-39023-A-6-A

Lab Sample ID: 320-39023-6

Client ID: MW-572-02-PRL05-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

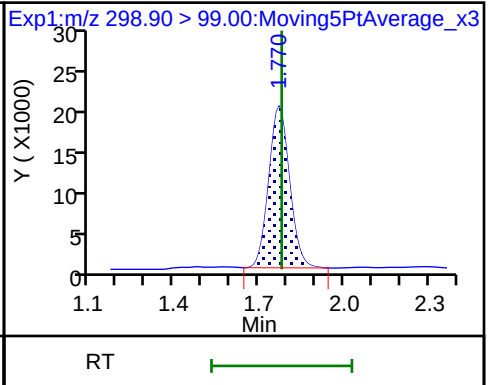
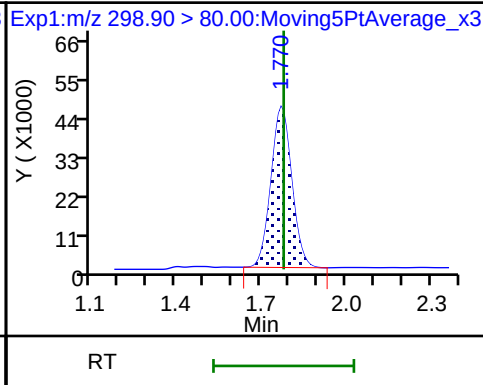
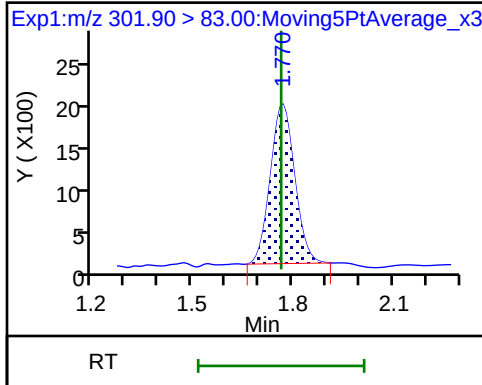
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

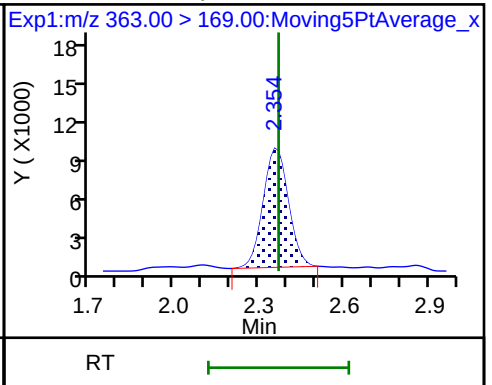
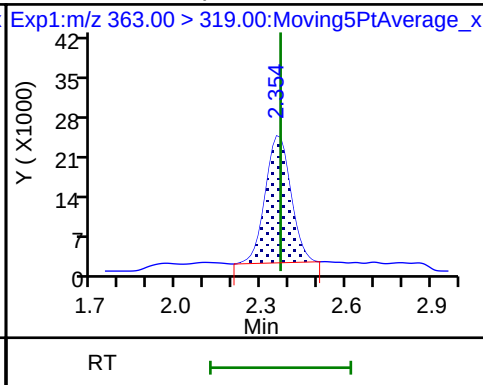
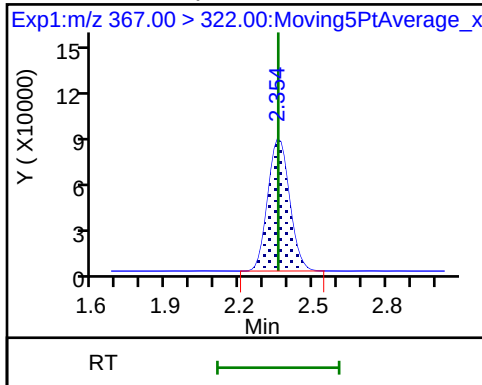
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

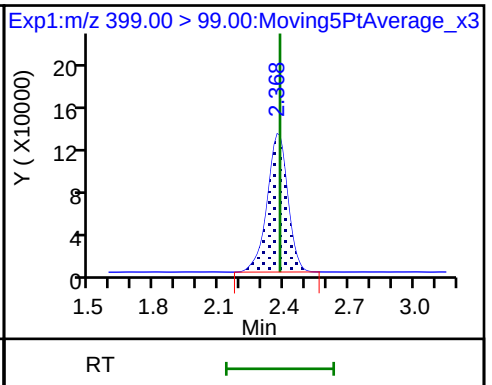
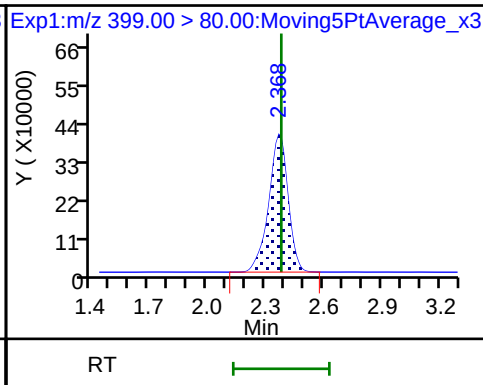
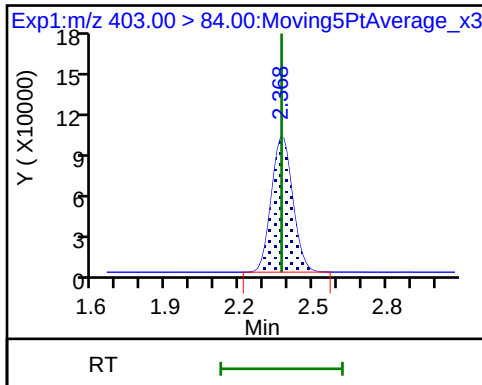
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

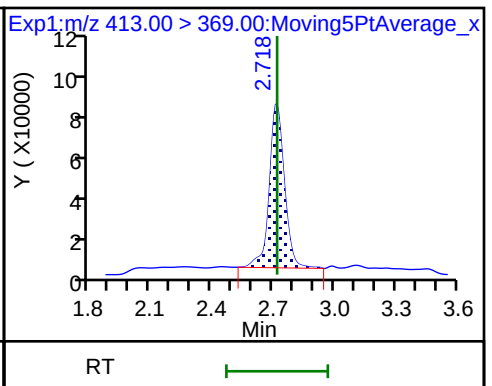
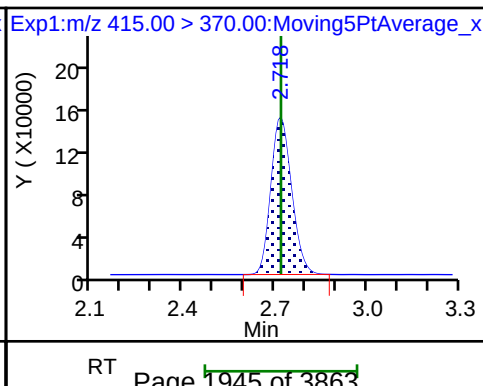
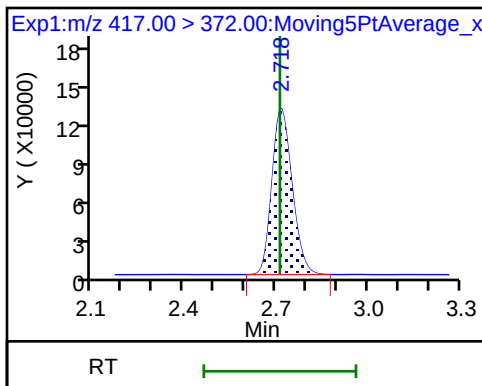
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

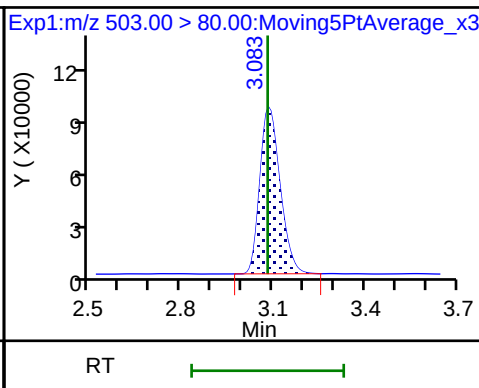
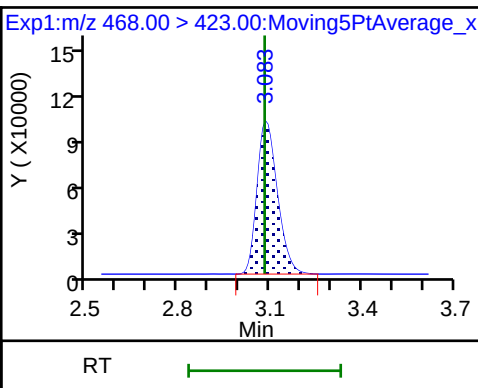
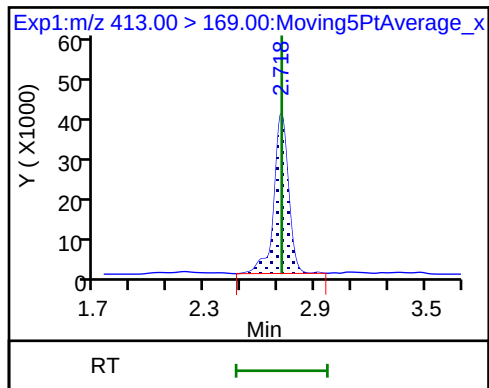
## 15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

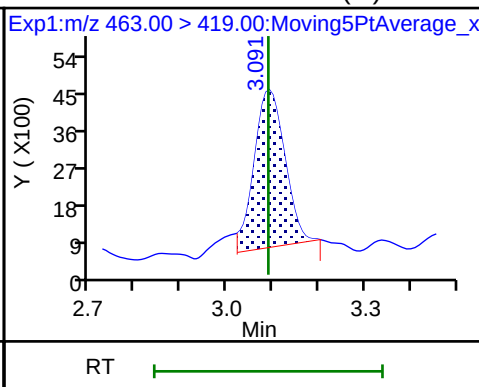
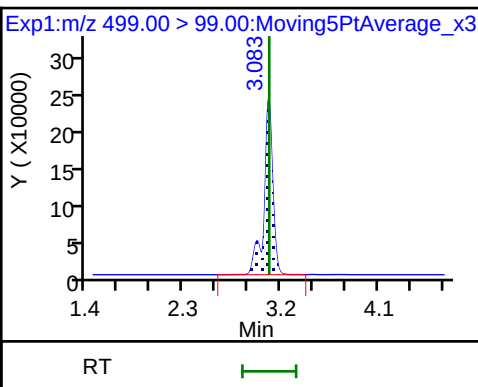
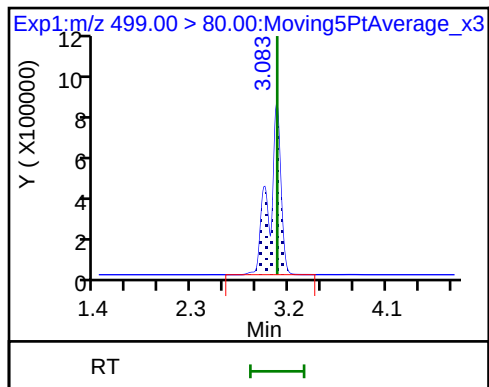
## D 18 13C4 PFOS



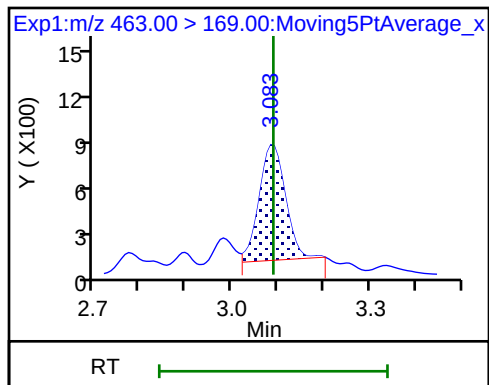
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (M)



## 20 Perfluorononanoic acid



## TestAmerica Sacramento

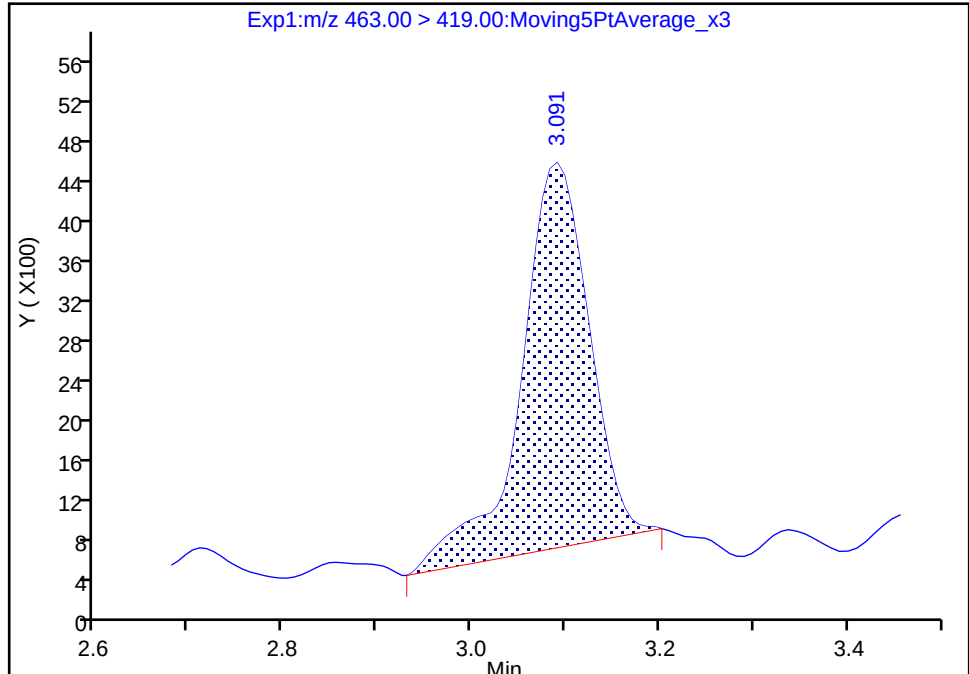
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_016.d |                |                    |                |    |
| Injection Date: | 29-May-2018 20:07:36                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-6-A                                                          | Lab Sample ID: | 320-39023-6        |                |    |
| Client ID:      | MW-572-02-PRL05-01                                                       |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 9                  | Worklist Smp#: | 15 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 10.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

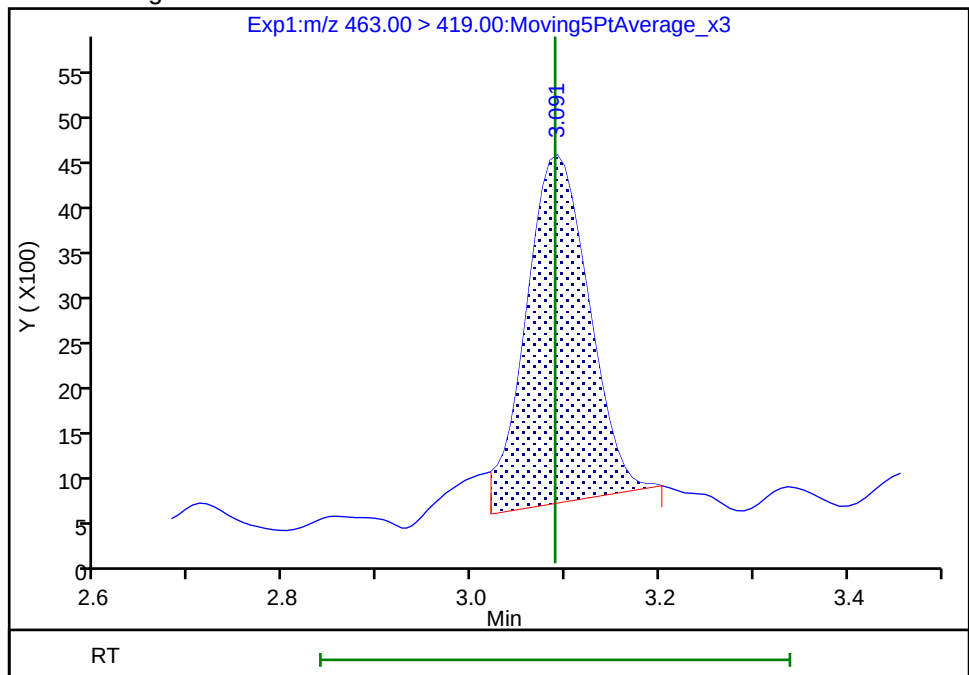
RT: 3.09  
Area: 19618  
Amount: 0.010516  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 18042  
Amount: 0.009672  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:18:10

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

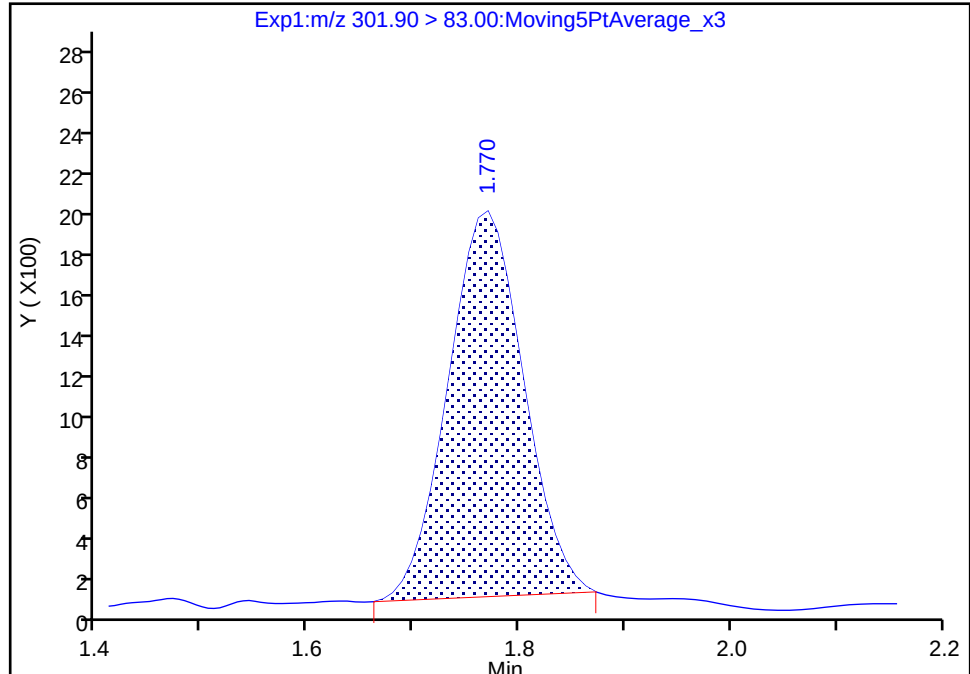
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_016.d |                |                    |                |    |
| Injection Date: | 29-May-2018 20:07:36                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-6-A                                                          | Lab Sample ID: | 320-39023-6        |                |    |
| Client ID:      | MW-572-02-PRL05-01                                                       |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 9                  | Worklist Smp#: | 15 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 10.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

Signal: 1

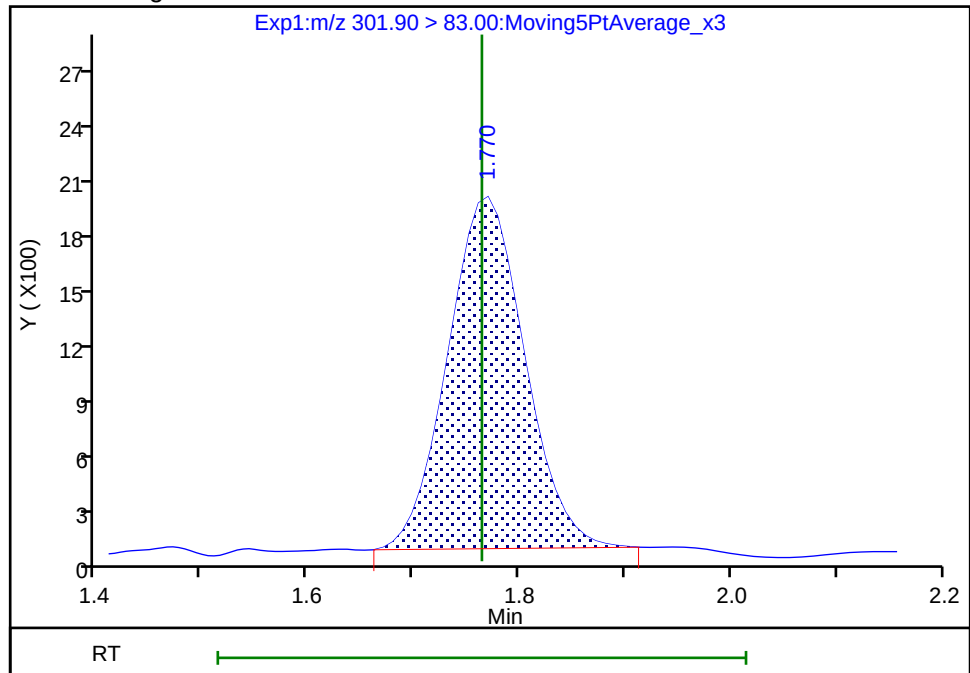
RT: 1.77  
Area: 9359  
Amount: 0.155222  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.77  
Area: 9620  
Amount: 0.159551  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:17:48

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>MW-KLA06-01-01</u> | Lab Sample ID: <u>320-39023-7</u>            |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.27LLADX_043.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 13:15</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>257.9 (mL)</u>        | Date Analyzed: <u>05/28/2018 12:29</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225820</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 6100   | E   | 1.9 | 1.5  | 0.59 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 11000  | E M | 1.9 | 1.5  | 0.52 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 500    | E M | 1.9 | 1.5  | 0.50 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1600   | E   | 1.9 | 0.97 | 0.45 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 17000  | E M | 1.9 | 0.97 | 0.37 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 57000  | E   | 3.9 | 2.9  | 1.1  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 233  | Q | 50-150 |
| STL01892 | 13C4-PFHpA       | 37   | Q | 50-150 |
| STL00990 | 13C4 PFOA        | 52   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 50   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 54   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 36   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_043.d  
 Lims ID: 320-39023-A-7-A  
 Client ID: MW-KLA06-01-01  
 Sample Type: Client  
 Inject. Date: 28-May-2018 12:29:17 ALS Bottle#: 35 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-7-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:39:59 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:34:47

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec    | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|---------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |         |       |       |
| 301.90 > 83.00                   | 1.771 | 1.761  | 0.010  | 1.000  | 79300     | 5.42         |                 | 233     | 122   |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |         |       | RE    |
| 298.90 > 80.00                   | 1.789 | 1.774  | 0.015  | 1.010  | 111991182 | 42.0         |                 | 5499    |       | RE    |
| 298.90 > 99.00                   | 1.780 | 1.774  | 0.006  | 1.005  | 104095951 |              | 1.08(1.25-3.74) | 45573   |       |       |
| D 9 13C4-PFHpa                   |       |        |        |        |           |              |                 |         |       |       |
| 367.00 > 322.00                  | 2.355 | 2.342  | 0.013  | 1.000  | 614776    | 0.9302       |                 | 37.2    | 9682  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |         |       | E     |
| 363.00 > 319.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 41138142  | 158.4        |                 | 29731   |       | E     |
| 363.00 > 169.00                  | 2.342 | 2.358  | -0.016 | 0.994  | 18085160  |              | 2.27(1.13-3.40) | 51793   |       |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |         |       |       |
| 403.00 > 84.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 1045188   | 1.28         |                 | 54.1    | 15040 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |         |       | REM   |
| 399.00 > 80.00                   | 2.303 | 2.372  | -0.069 | 0.972  | 216642291 | 435.0        |                 | 7046    |       | REM   |
| 399.00 > 99.00                   | 2.368 | 2.372  | -0.004 | 1.000  | 180517922 |              | 1.20(1.50-4.49) | 15843   |       |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |         |       |       |
| 417.00 > 372.00                  | 2.720 | 2.703  | 0.017  | 1.000  | 813413    | 1.30         |                 | 52.0    | 14164 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |         |       | EM    |
| 413.00 > 369.00                  | 2.720 | 2.712  | 0.008  | 1.000  | 111010339 | 289.9        |                 | 17746   |       | EM    |
| 413.00 > 169.00                  | 2.720 | 2.712  | 0.008  | 1.000  | 80617126  |              | 1.38(0.84-2.52) | 19467   |       |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |         |       |       |
| 415.00 > 370.00                  | 2.720 | 2.712  | 0.008  |        | 1650740   | 2.50         |                 | 30499   |       | s     |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |         |       |       |
| 468.00 > 423.00                  | 3.077 | 3.072  | 0.005  | 1.000  | 644112    | 1.26         |                 | 50.4    | 9650  |       |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |         |       |       |
| 503.00 > 80.00                   | 3.077 | 3.072  | 0.005  | 1.000  | 485833    | 0.8654       |                 | 36.2    | 1240  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |         |       | E     |
| 499.00 > 80.00                   | 3.008 | 3.081  | -0.073 | 0.978  | 353569997 | 1479.3       |                 | 4304    |       | E     |
| 499.00 > 99.00                   | 3.071 | 3.081  | -0.011 | 0.998  | 177791732 |              | 1.99(2.31-6.93) | 5584369 |       |       |



| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | EM    |
| 463.00 > 419.00           | 3.077 | 3.081     | -0.004    | 1.000     | 3531570  | 12.9            |                 |      | 1125 | EM    |
| 463.00 > 169.00           | 3.077 | 3.081     | -0.004    | 1.000     | 895486   |                 | 3.94(1.90-5.69) |      | 393  | M     |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

s - Failed ISTD Recovery Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_043.d

Injection Date: 28-May-2018 12:29:17

Instrument ID: A8\_N

Lims ID: 320-39023-A-7-A

Lab Sample ID: 320-39023-7

Client ID: MW-KLA06-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

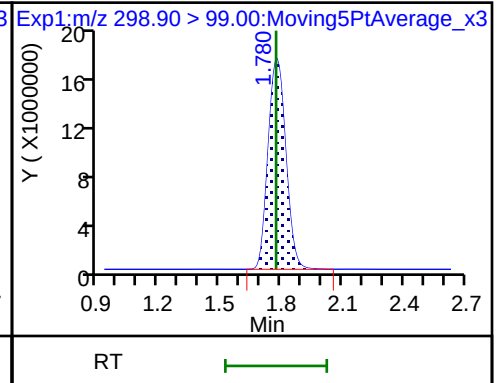
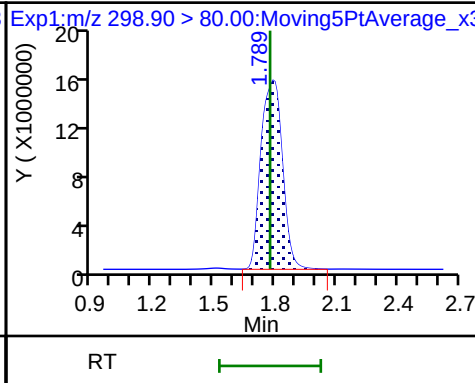
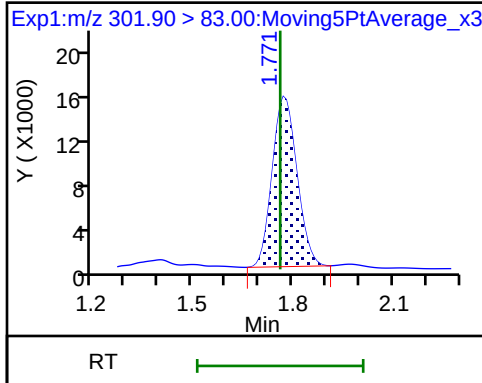
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

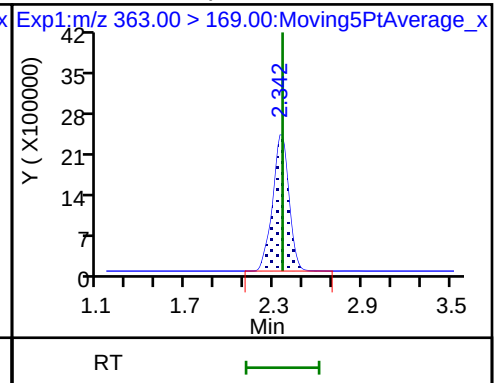
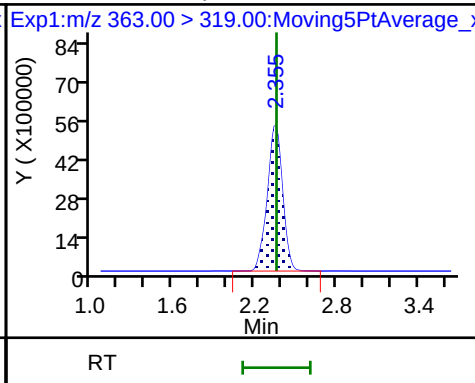
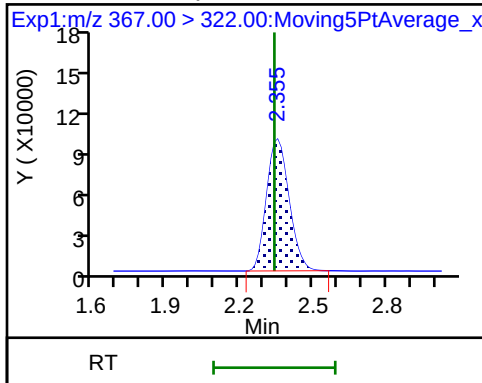
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

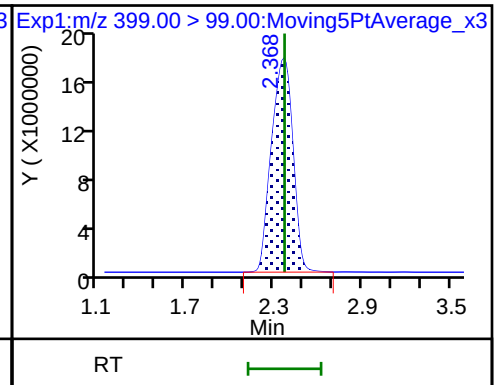
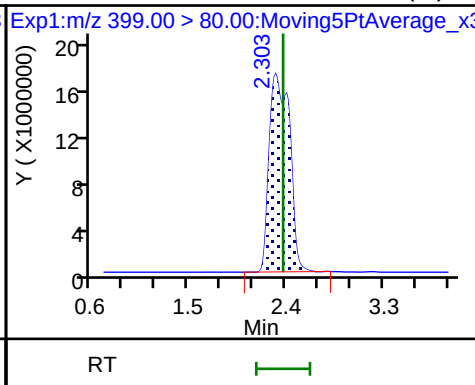
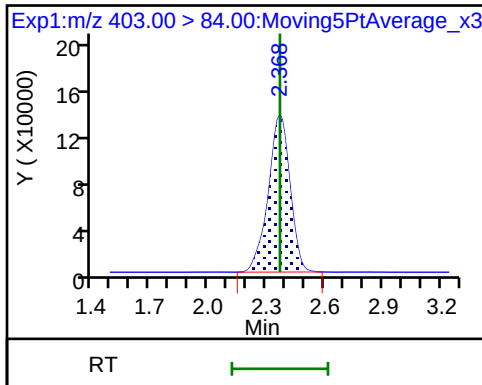
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid (M)

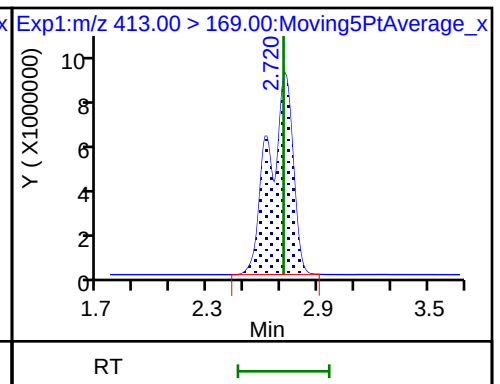
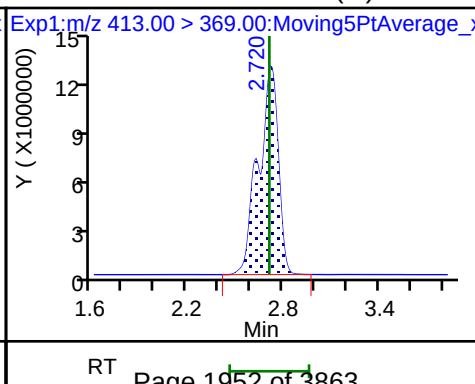
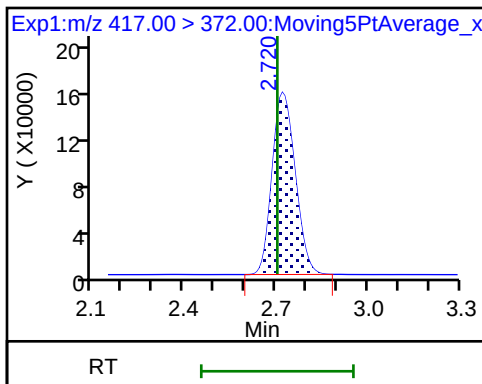
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid (M)

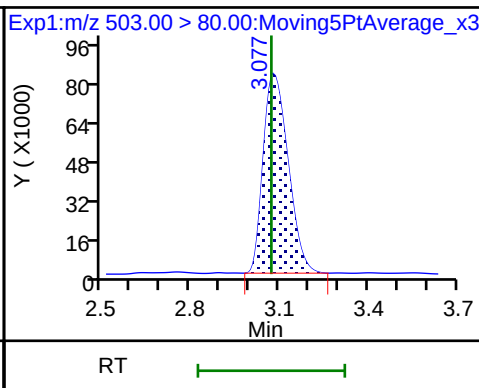
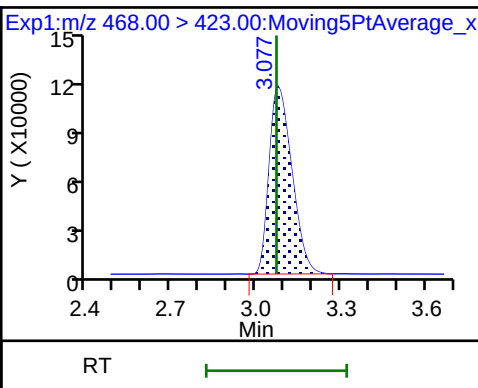
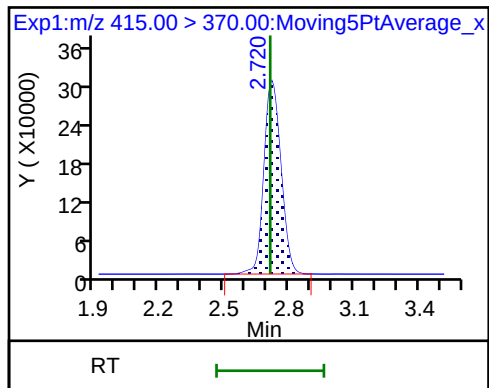
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

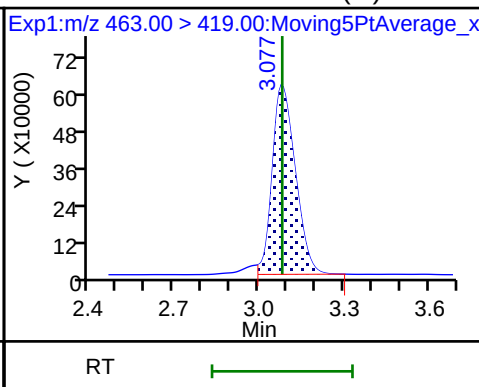
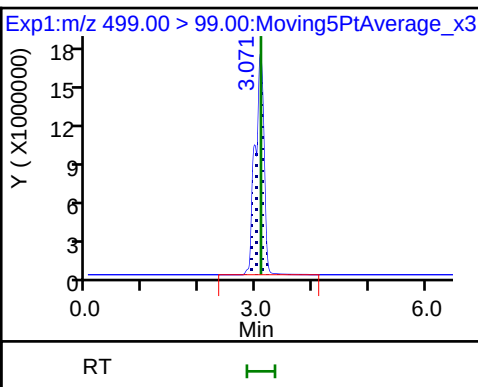
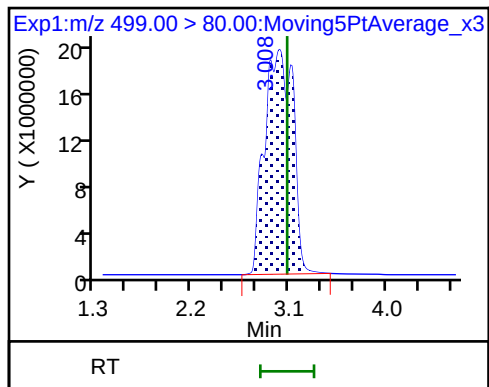
D 18 13C4 PFOS



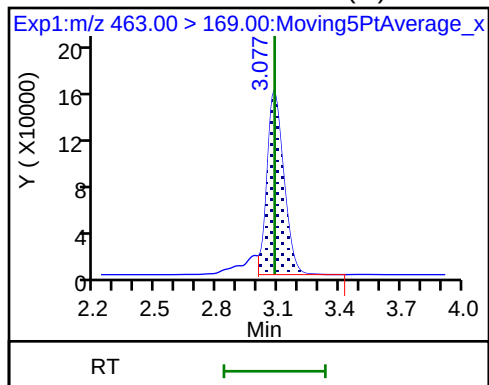
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

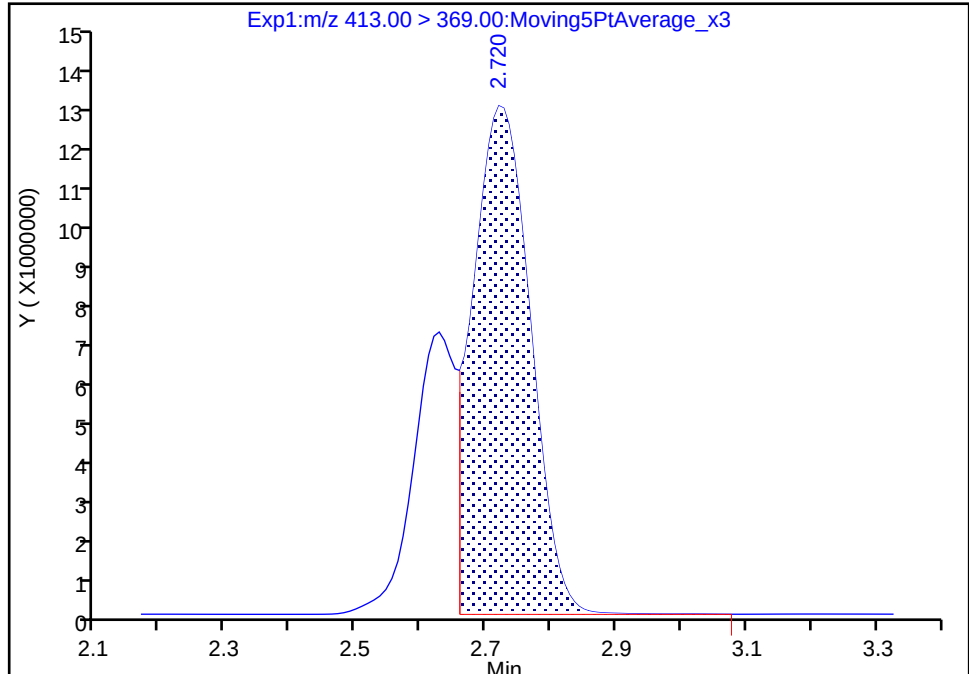
|                 |                                                                            |                |                    |                |    |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_043.d |                |                    |                |    |
| Injection Date: | 28-May-2018 12:29:17                                                       | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-7-A                                                            | Lab Sample ID: | 320-39023-7        |                |    |
| Client ID:      | MW-KLA06-01-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 35                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                            | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

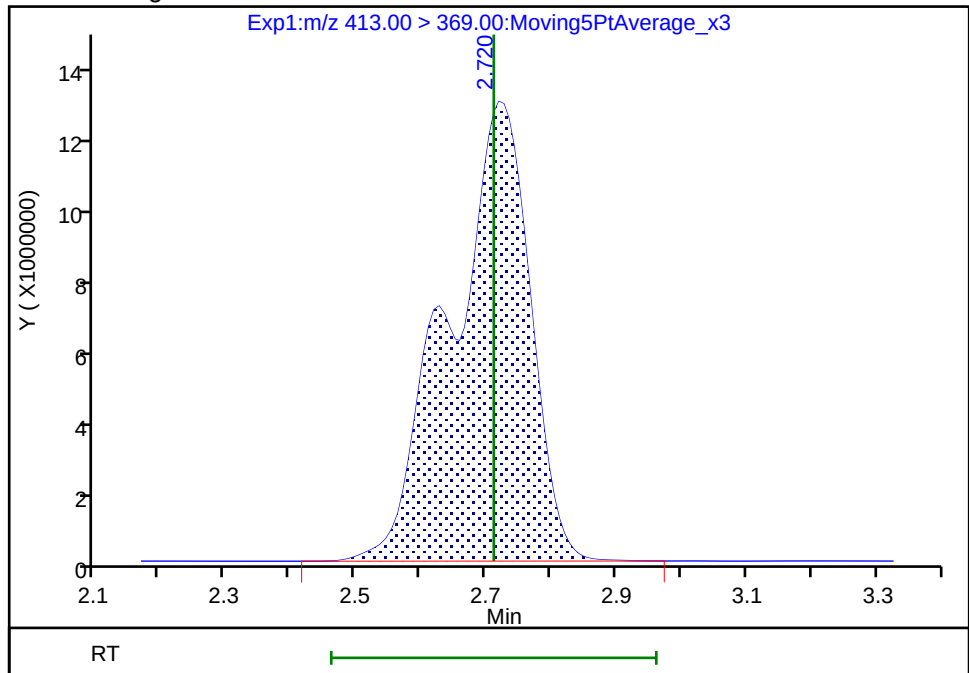
RT: 2.72  
Area: 78714237  
Amount: 205.5391  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.72  
Area: 111010339  
Amount: 289.8709  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:34:26  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

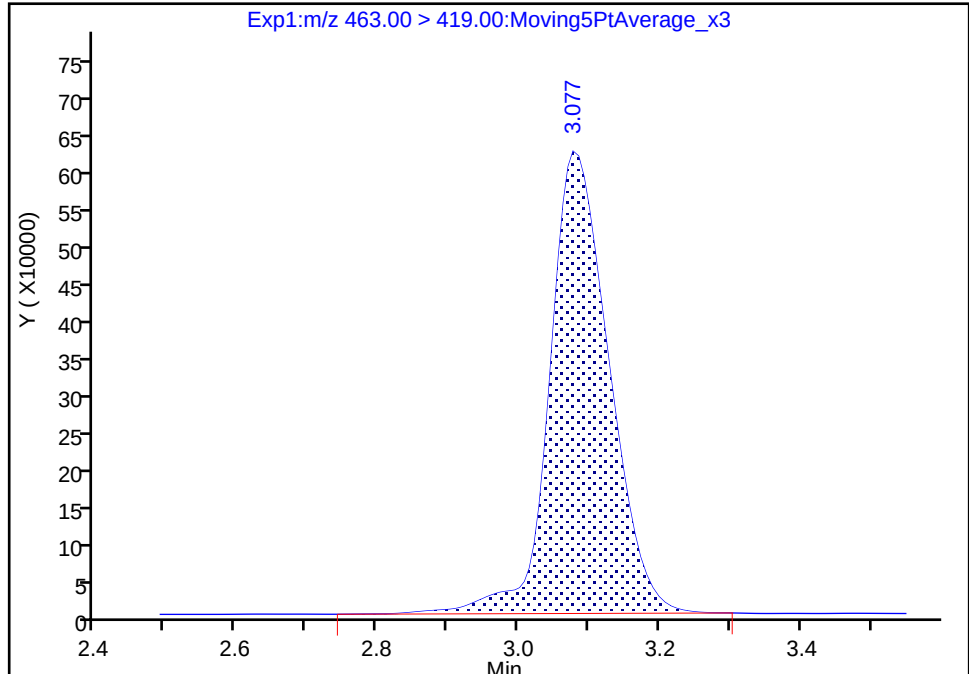
|                 |                                                                            |                |                    |                |    |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58836.b\2018.05.27LLADX_043.d |                |                    |                |    |
| Injection Date: | 28-May-2018 12:29:17                                                       | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-7-A                                                            | Lab Sample ID: | 320-39023-7        |                |    |
| Client ID:      | MW-KLA06-01-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 35                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                            | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

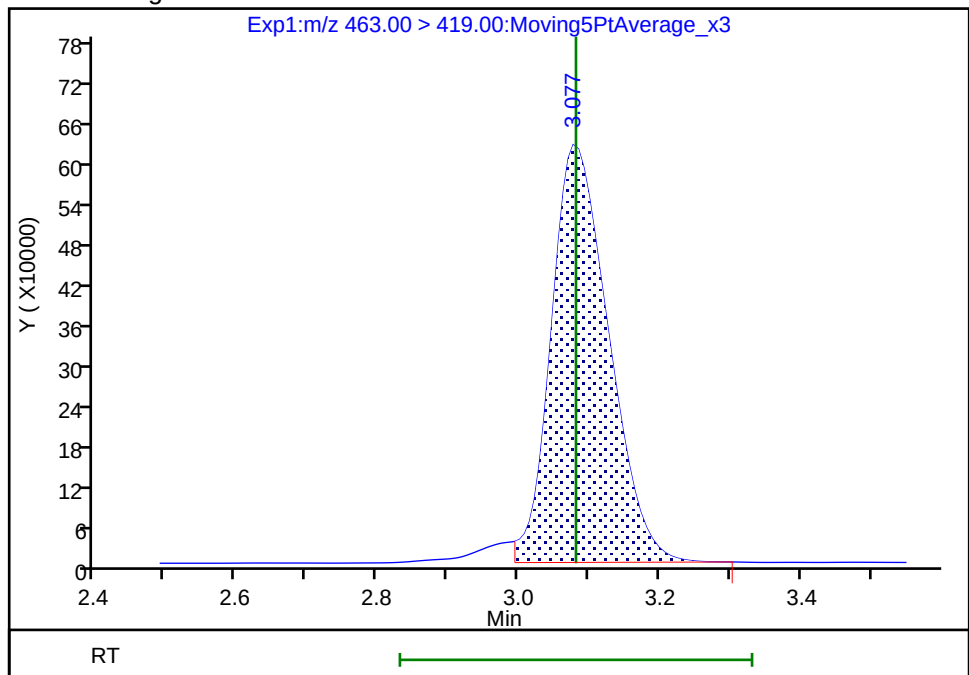
RT: 3.08  
Area: 3656243  
Amount: 13.397987  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 3531570  
Amount: 12.941134  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:34:39  
Audit Action: Manually Integrated

Audit Reason: Split Peak  
Page 1955 of 3863

## TestAmerica Sacramento

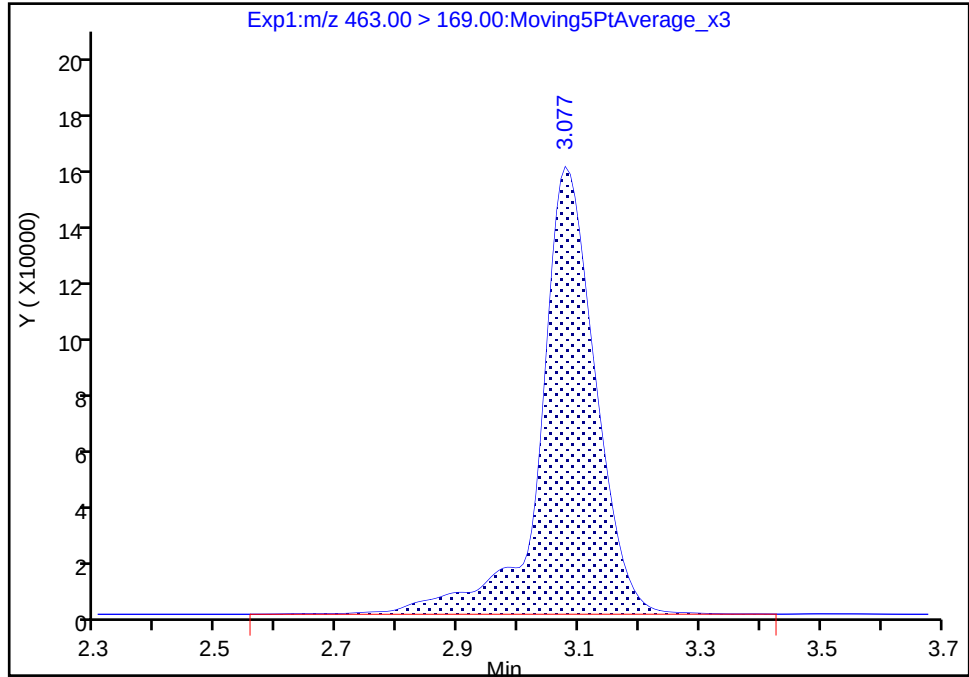
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_043.d  
Injection Date: 28-May-2018 12:29:17 Instrument ID: A8\_N  
Lims ID: 320-39023-A-7-A Lab Sample ID: 320-39023-7  
Client ID: MW-KLA06-01-01  
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

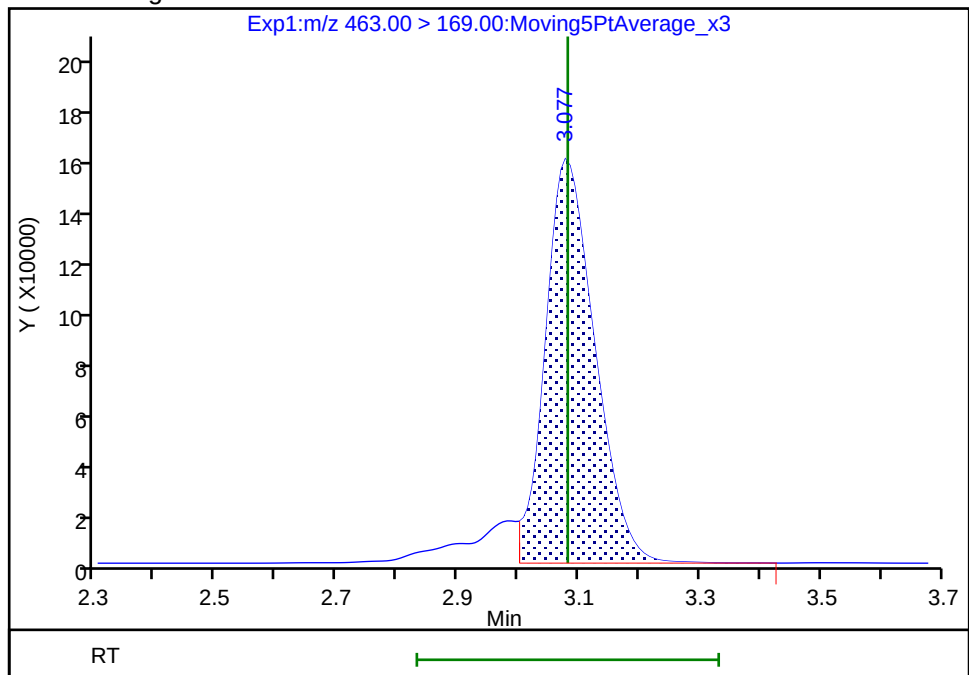
RT: 3.08  
Area: 1003515  
Amount: 13.397987  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 895486  
Amount: 12.941134  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:34:42

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

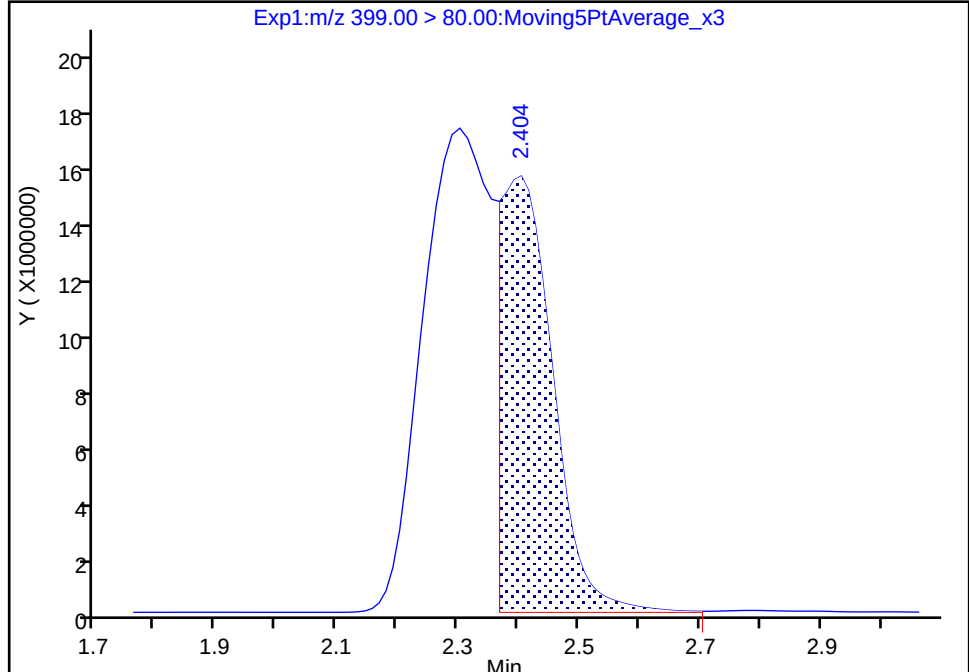
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_043.d  
Injection Date: 28-May-2018 12:29:17 Instrument ID: A8\_N  
Lims ID: 320-39023-A-7-A Lab Sample ID: 320-39023-7  
Client ID: MW-KLA06-01-01  
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**8 Perfluorohexanesulfonic acid, CAS: 355-46-4**

Signal: 1

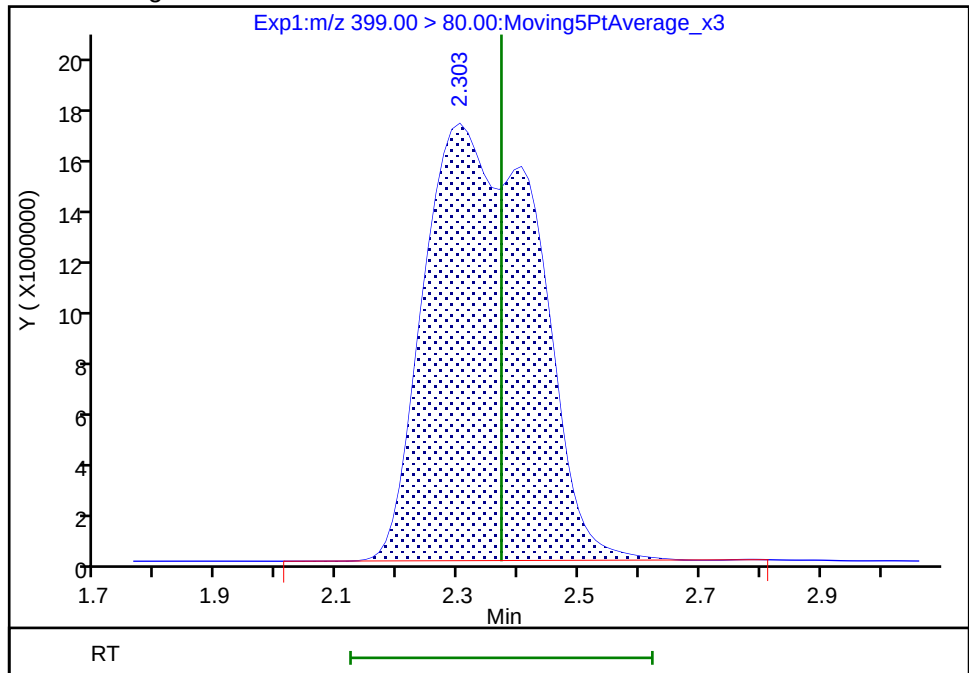
RT: 2.40  
Area: 87164898  
Amount: 175.0366  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.30  
Area: 216642291  
Amount: 435.0413  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 14:34:20  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                             |                                             |
|---------------------------------------------|---------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>     | Job No.: <u>320-39023-1</u>                 |
| SDG No.: _____                              |                                             |
| Client Sample ID: <u>MW-KLA06-01-01 DL2</u> | Lab Sample ID: <u>320-39023-7 DL2</u>       |
| Matrix: <u>Water</u>                        | Lab File ID: <u>2018.05.29LLB_019.d</u>     |
| Analysis Method: <u>EPA 537 (Mod)</u>       | Date Collected: <u>05/06/2018 13:15</u>     |
| Extraction Method: <u>3535</u>              | Date Extracted: <u>05/18/2018 10:26</u>     |
| Sample wt/vol: <u>257.9(mL)</u>             | Date Analyzed: <u>05/29/2018 20:31</u>      |
| Con. Extract Vol.: <u>10.00(mL)</u>         | Dilution Factor: <u>100</u>                 |
| Injection Volume: <u>2(uL)</u>              | GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u> |
| % Moisture: _____                           | GPC Cleanup: (Y/N) <u>N</u>                 |
| Analysis Batch No.: <u>226055</u>           | Units: <u>ng/L</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5400   | D   | 190 | 150 | 59  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 14000  | D   | 190 | 150 | 52  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 490    | D   | 190 | 150 | 50  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 7900   | D   | 190 | 97  | 45  |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 68000  | E D | 190 | 97  | 37  |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 130000 | E D | 390 | 290 | 110 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 145  | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 53   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 58   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 51   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 76   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 46   | Q | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_019.d  
 Lims ID: 320-39023-A-7-A  
 Client ID: MW-KLA06-01-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 20:31:06 ALS Bottle#: 11 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-7-a 100X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:19:44 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:19:44

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.761 | 1.764  | -0.003 | 1.000  | 2339     | 0.0338       |                 | 145  | 24.9  | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.761 | 1.779  | -0.018 | 1.000  | 16079772 | 2.05         |                 |      | 50140 |       |
| 298.90 > 99.00                   | 1.761 | 1.779  | -0.018 | 1.000  | 7358242  |              | 2.19(1.25-3.74) |      | 49790 |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.354 | 2.358  | -0.004 | 1.000  | 41095    | 0.0131       |                 | 52.6 | 820   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.354 | 2.368  | -0.014 | 1.000  | 2402784  | 1.38         |                 |      | 3409  |       |
| 363.00 > 169.00                  | 2.354 | 2.368  | -0.014 | 1.000  | 954117   |              | 2.52(1.13-3.40) |      | 5247  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.371  | -0.003 | 1.000  | 69340    | 0.0179       |                 | 75.8 | 2102  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       | E     |
| 399.00 > 80.00                   | 2.368 | 2.381  | -0.013 | 1.000  | 57903770 | 17.5         |                 |      | 69404 | E     |
| 399.00 > 99.00                   | 2.368 | 2.381  | -0.013 | 1.000  | 23193545 |              | 2.50(1.50-4.49) |      | 50073 |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.710 | 2.711  | -0.001 | 1.000  | 43223    | 0.0146       |                 | 58.4 | 1326  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       | s     |
| 415.00 > 370.00                  | 2.710 | 2.718  | -0.008 |        | 78115    | 0.0250       |                 |      | 1550  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.710 | 2.718  | -0.008 | 1.000  | 7276148  | 3.58         |                 |      | 2586  |       |
| 413.00 > 169.00                  | 2.710 | 2.718  | -0.008 | 1.000  | 4223638  |              | 1.72(0.84-2.52) |      | 12714 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.076 | 3.081  | -0.005 | 1.000  | 30682    | 0.0127       |                 | 50.7 | 956   |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.076 | 3.081  | -0.005 | 1.000  | 29325    | 0.0110       |                 | 46.2 | 259   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       | E     |
| 499.00 > 80.00                   | 3.076 | 3.089  | -0.013 | 1.000  | 49800472 | 34.5         |                 |      | 39022 | E     |
| 499.00 > 99.00                   | 3.076 | 3.089  | -0.013 | 1.000  | 12067639 |              | 4.13(2.31-6.93) |      | 66596 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     |       |
| 463.00 > 419.00           | 3.083 | 3.089     | -0.006    | 1.003     | 164048   | 0.1262          |                 |      | 450 |       |
| 463.00 > 169.00           | 3.083 | 3.089     | -0.006    | 1.003     | 41629    |                 | 3.94(1.90-5.69) |      | 522 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

s - Failed ISTD Recovery Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_019.d

Injection Date: 29-May-2018 20:31:06

Instrument ID: A8\_N

Lims ID: 320-39023-A-7-A

Lab Sample ID: 320-39023-7

Client ID: MW-KLA06-01-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

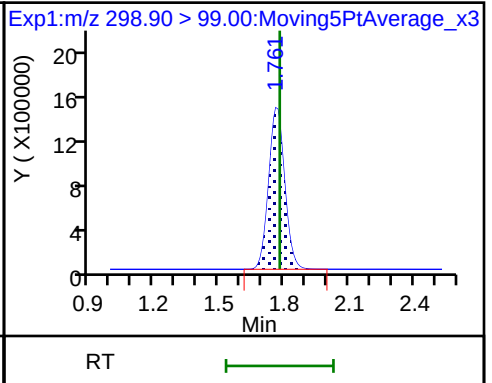
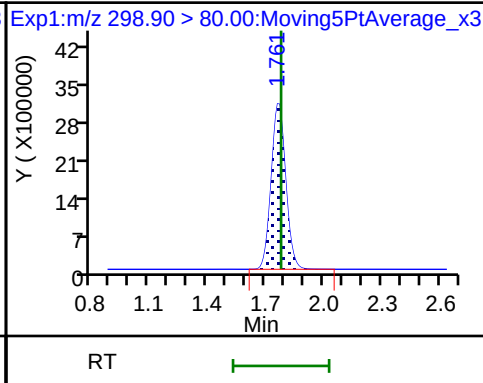
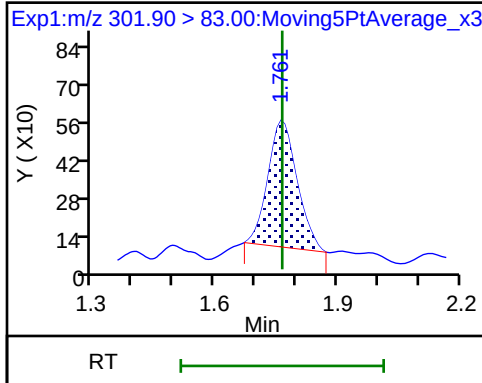
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

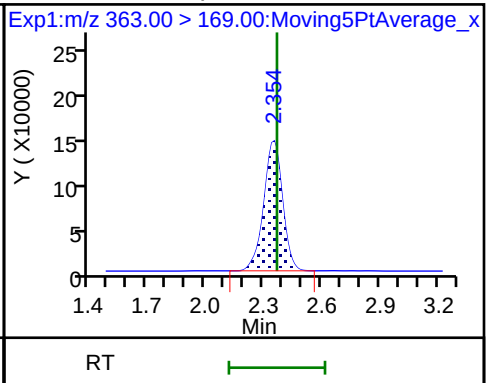
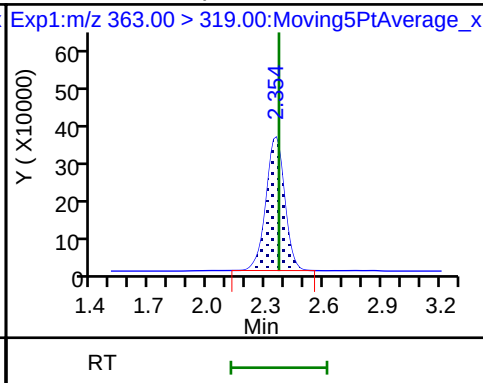
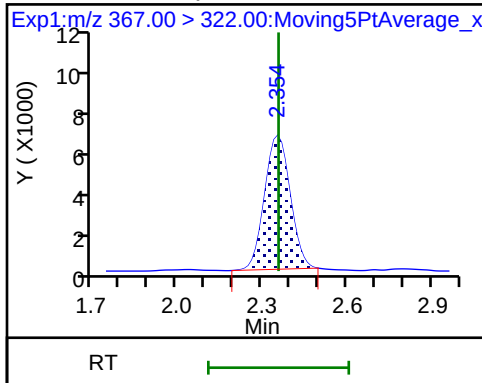
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

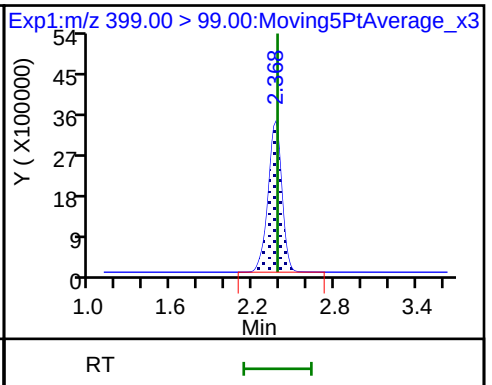
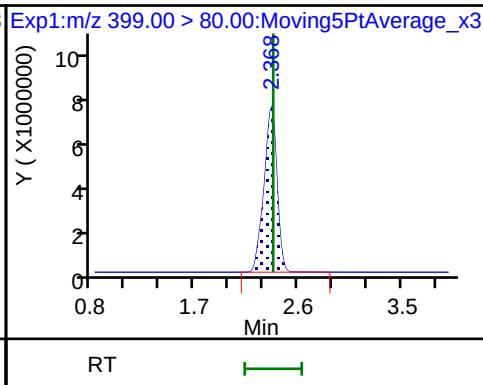
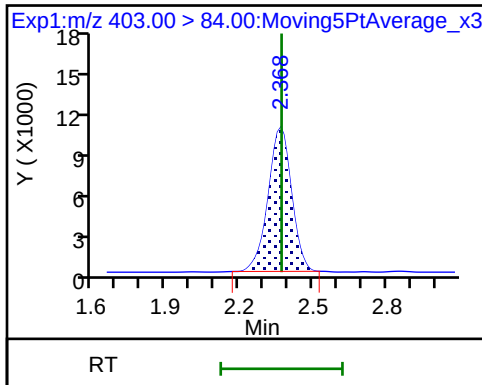
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

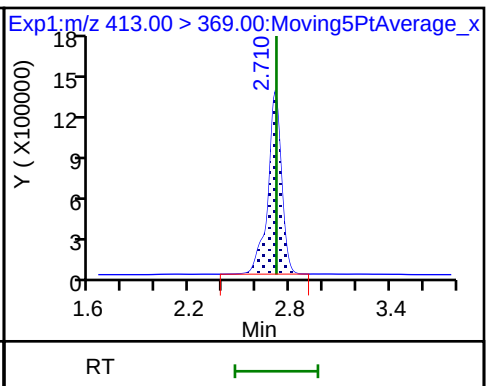
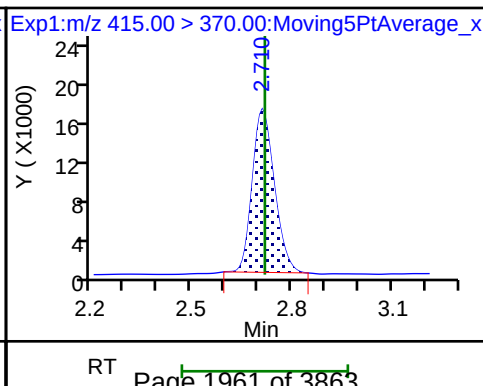
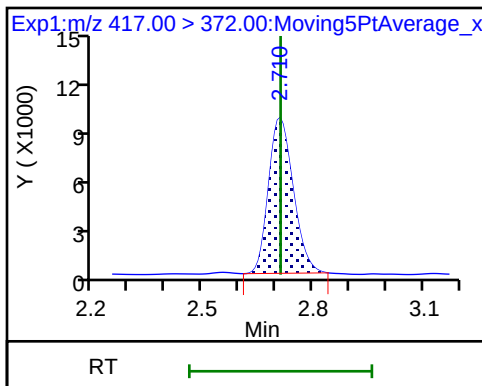
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

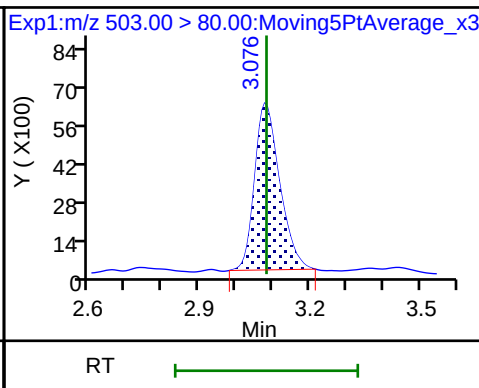
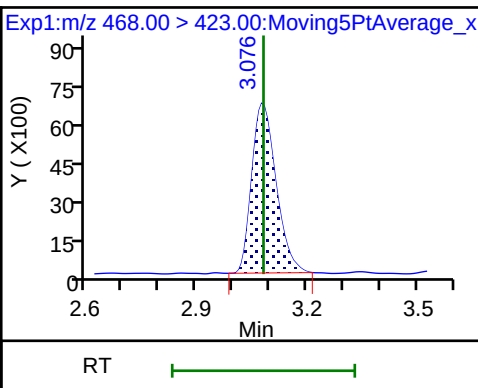
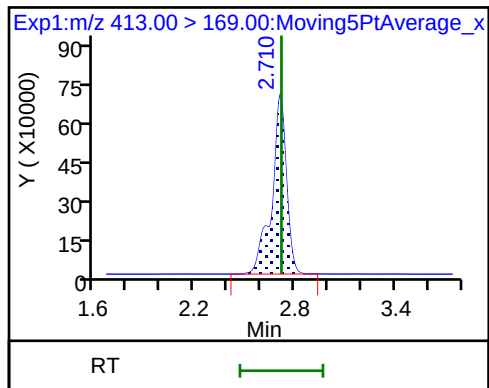
## 15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

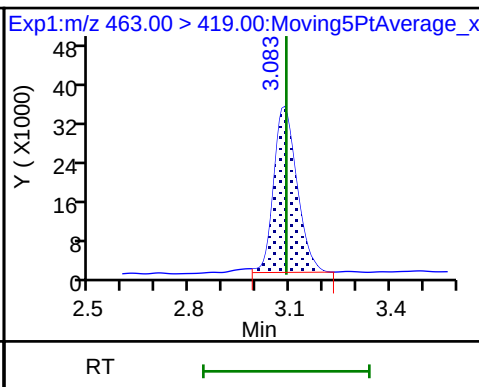
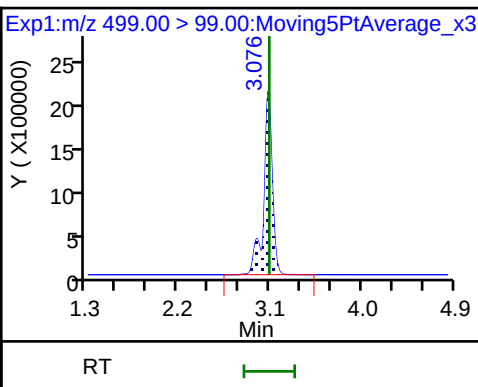
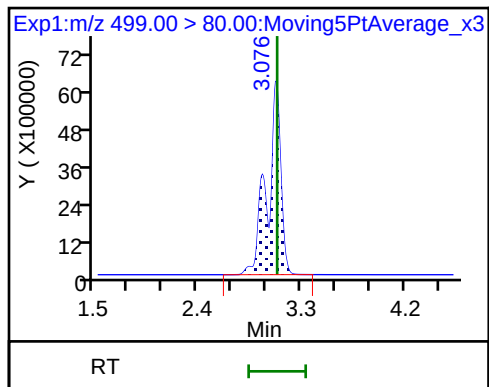
## D 18 13C4 PFOS



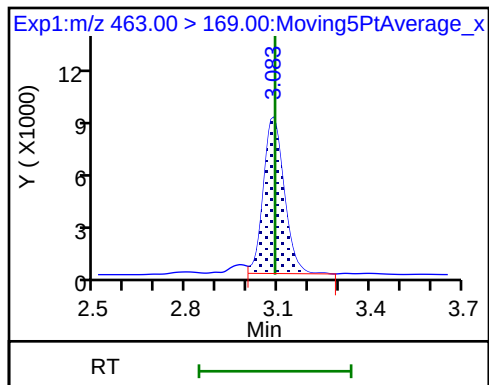
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid



## TestAmerica Sacramento

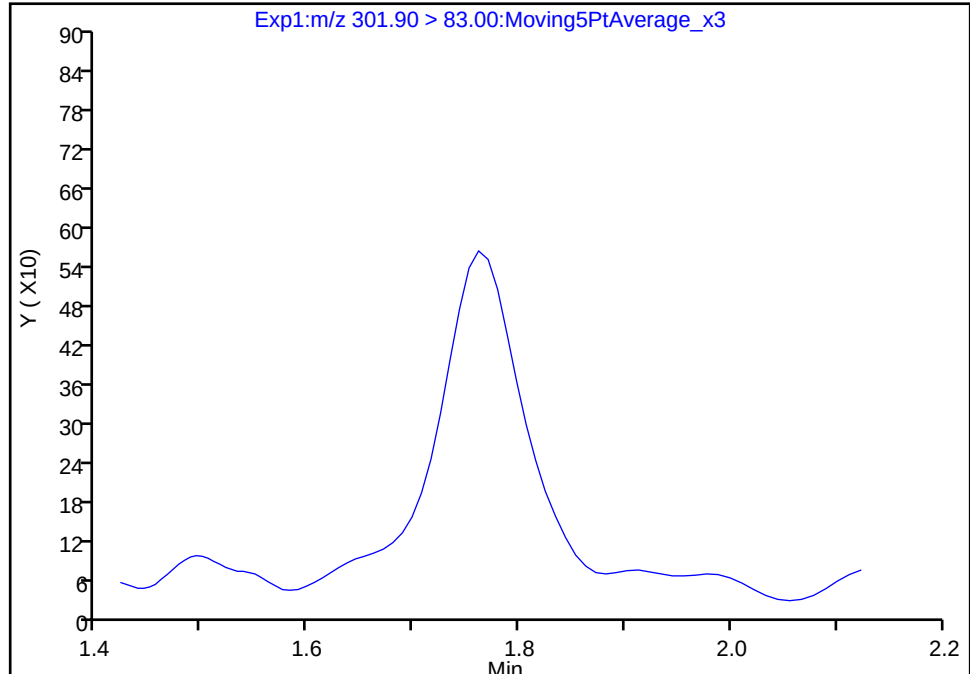
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_019.d |                |                    |                |    |
| Injection Date: | 29-May-2018 20:31:06                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-7-A                                                          | Lab Sample ID: | 320-39023-7        |                |    |
| Client ID:      | MW-KLA06-01-01                                                           |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 11                 | Worklist Smp#: | 18 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

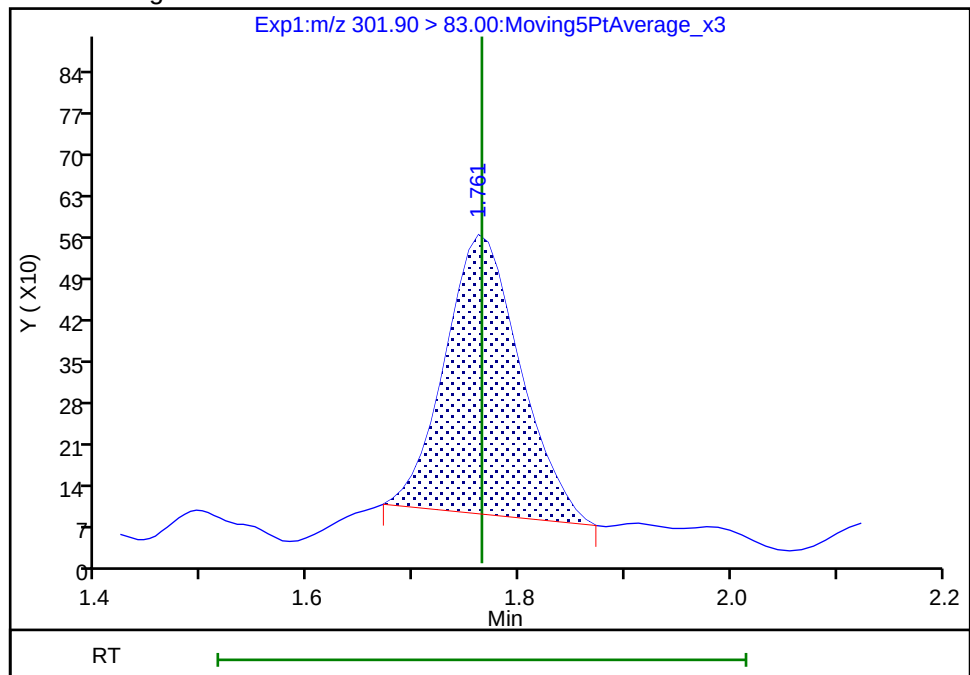
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.76  
Area: 2339  
Amount: 0.033806  
Amount Units: ng/ml

## Manual Integration Results

Reviewer: mongkols, 30-May-2018 15:19:28  
Audit Action: Manually IntegratedAudit Reason: Baseline  
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FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA08-SW1-01</u>   | Lab Sample ID: <u>320-39023-8</u>            |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.30LLC_044.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/07/2018 08:30</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/21/2018 12:01</u>      |
| Sample wt/vol: <u>261.3 (mL)</u>        | Date Analyzed: <u>05/31/2018 04:51</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226349</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.5    | J M | 1.9 | 1.4  | 0.58 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.8    | J M | 1.9 | 1.4  | 0.52 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.95   | J M | 1.9 | 1.4  | 0.50 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.96   | U M | 1.9 | 0.96 | 0.44 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 3.7    | M   | 1.9 | 0.96 | 0.36 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 28     | M   | 3.8 | 2.9  | 1.1  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 76   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 76   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 95   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 103  |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 93   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 101  |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58976.b\2018.05.30LLC\_044.d  
 Lims ID: 320-39023-B-8-A  
 Client ID: KLA08-SW1-01  
 Sample Type: Client  
 Inject. Date: 31-May-2018 04:51:09 ALS Bottle#: 32 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-b-8-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58976.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 16:34:55 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 31-May-2018 16:26:10

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

## D 47 13C3-PFBS

|                                |       |       |        |       |       |          |                 |      |      |   |
|--------------------------------|-------|-------|--------|-------|-------|----------|-----------------|------|------|---|
| 301.90 > 83.00                 | 1.756 | 1.756 | 0.0    | 1.000 | 61420 | 1.78     |                 | 76.4 | 25.3 |   |
| 5 Perfluorobutanesulfonic acid |       |       |        |       |       |          |                 |      |      | M |
| 298.90 > 80.00                 | 1.756 | 1.762 | -0.006 | 1.000 | 5532  | 0.002682 |                 |      | 0.0  | M |
| 298.90 > 99.00                 | 1.701 | 1.762 | -0.061 | 0.969 | 3858  |          | 1.43(1.25-3.74) |      | 0.1  | M |
| 10 Perfluoroheptanoic acid     |       |       |        |       |       |          |                 |      |      | M |
| 363.00 > 319.00                | 2.332 | 2.342 | -0.010 | 0.994 | 47991 | 0.0382   |                 |      | 2.7  | M |
| 363.00 > 169.00                | 2.345 | 2.342 | 0.003  | 1.000 | 18748 |          | 2.56(1.13-3.40) |      | 36.8 |   |

## D 9 13C4-PFHpa

|                                |       |       |       |       |         |        |                 |      |       |   |
|--------------------------------|-------|-------|-------|-------|---------|--------|-----------------|------|-------|---|
| 367.00 > 322.00                | 2.345 | 2.345 | 0.0   | 1.000 | 2974177 | 1.90   |                 | 76.1 | 18718 |   |
| 8 Perfluorohexanesulfonic acid |       |       |       |       |         |        |                 |      |       | M |
| 399.00 > 80.00                 | 2.358 | 2.355 | 0.003 | 1.000 | 196885  | 0.0972 |                 |      | 5.0   | M |
| 399.00 > 99.00                 | 2.358 | 2.355 | 0.003 | 1.000 | 66291   |        | 2.97(1.50-4.49) |      | 15.2  |   |

## D 11 18O2 PFHxS

|                |       |       |     |       |         |      |  |      |       |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.358 | 2.358 | 0.0 | 1.000 | 4249241 | 2.20 |  | 93.0 | 30634 |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## D 14 13C4 PFOA

|                           |       |       |        |       |         |        |                 |      |       |   |
|---------------------------|-------|-------|--------|-------|---------|--------|-----------------|------|-------|---|
| 417.00 > 372.00           | 2.692 | 2.697 | -0.005 | 1.000 | 3505893 | 2.37   |                 | 94.8 | 36157 |   |
| 15 Perfluorooctanoic acid |       |       |        |       |         |        |                 |      |       | M |
| 413.00 > 369.00           | 2.700 | 2.703 | -0.003 | 1.003 | 77005   | 0.0467 |                 |      | 3.9   |   |
| 413.00 > 169.00           | 2.700 | 2.703 | -0.003 | 1.003 | 39209   |        | 1.96(0.84-2.52) |      | 43.5  | M |

## \* 62 13C2-PFOA

|                 |       |       |        |  |         |      |  |  |       |  |
|-----------------|-------|-------|--------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.692 | 2.703 | -0.011 |  | 3905958 | 2.50 |  |  | 35275 |  |
|-----------------|-------|-------|--------|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |       |       |         |      |  |     |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|-----|-------|--|
| 468.00 > 423.00 | 3.065 | 3.064 | 0.001 | 1.000 | 3111808 | 2.57 |  | 103 | 27083 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|-----|-------|--|

## D 18 13C4 PFOS

|                                  |       |       |        |       |         |        |                 |     |      |   |
|----------------------------------|-------|-------|--------|-------|---------|--------|-----------------|-----|------|---|
| 503.00 > 80.00                   | 3.065 | 3.064 | 0.001  | 1.000 | 3211609 | 2.42   |                 | 101 | 335  |   |
| 17 Perfluorooctane sulfonic acid |       |       |        |       |         |        |                 |     |      | M |
| 499.00 > 80.00                   | 3.065 | 3.070 | -0.005 | 1.000 | 1169249 | 0.7400 |                 |     | 88.8 | M |
| 499.00 > 99.00                   | 3.065 | 3.070 | -0.005 | 1.000 | 268209  |        | 4.36(2.31-6.93) |     | 211  | M |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | M     |
| 463.00 > 419.00           | 3.065 | 3.070     | -0.005    | 1.000     | 32619    | 0.0247          |                 |      | 4.2  | M     |
| 463.00 > 169.00           | 3.080 | 3.070     | 0.010     | 1.005     | 6646     |                 | 4.91(1.90-5.69) |      | 31.4 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58976.b\2018.05.30LLC\_044.d

Injection Date: 31-May-2018 04:51:09

Instrument ID: A8\_N

Lims ID: 320-39023-B-8-A

Lab Sample ID: 320-39023-8

Client ID: KLA08-SW1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

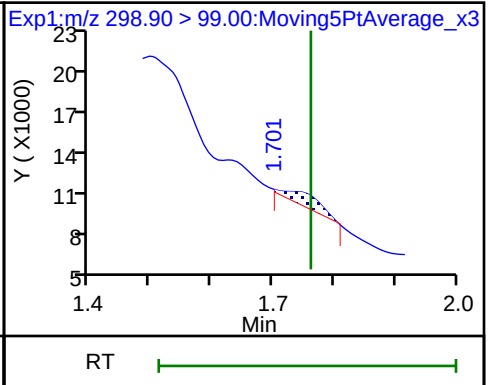
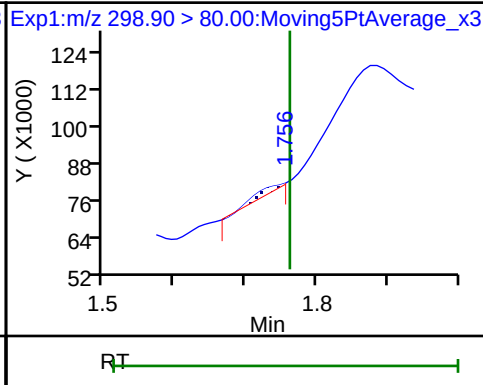
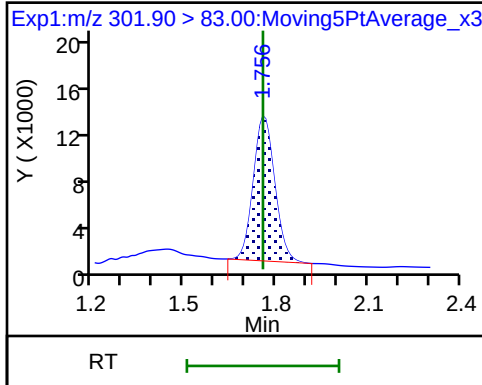
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (M)

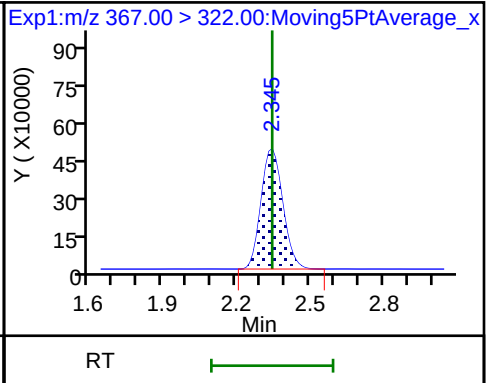
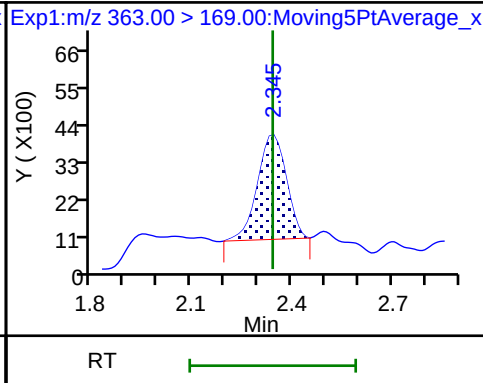
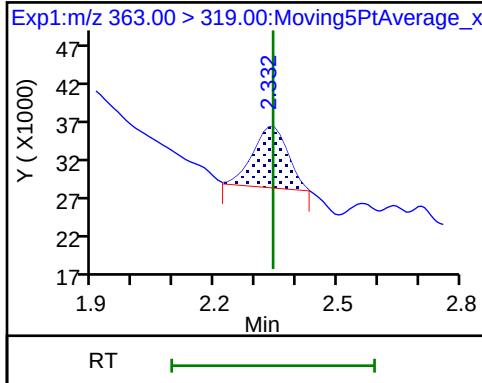
5 Perfluorobutanesulfonic acid (M)



10 Perfluoroheptanoic acid (M)

10 Perfluoroheptanoic acid

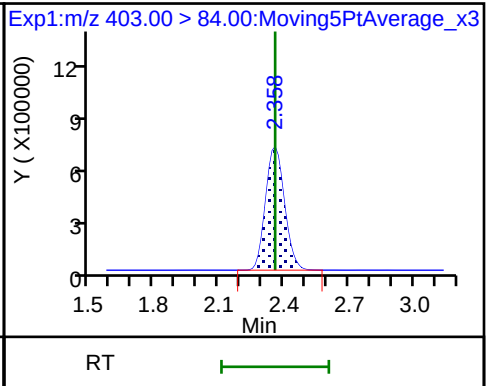
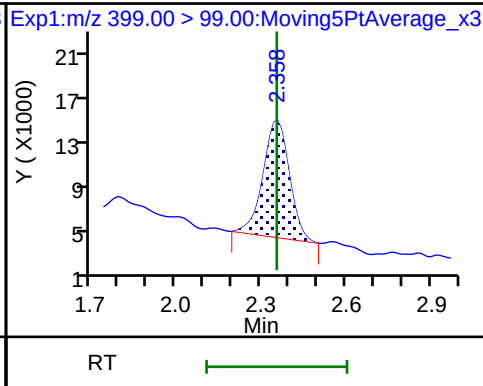
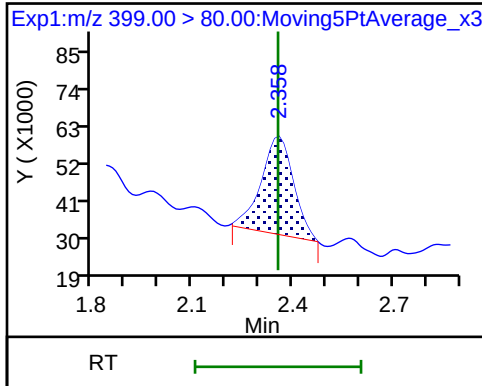
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid (M)

8 Perfluorohexanesulfonic acid

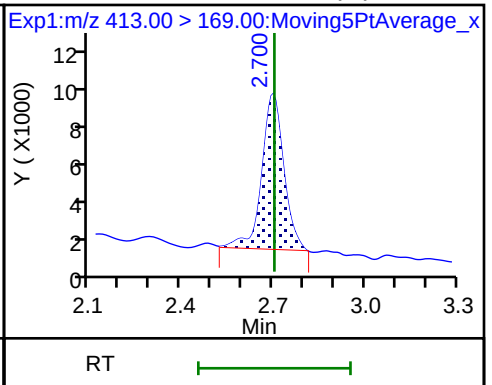
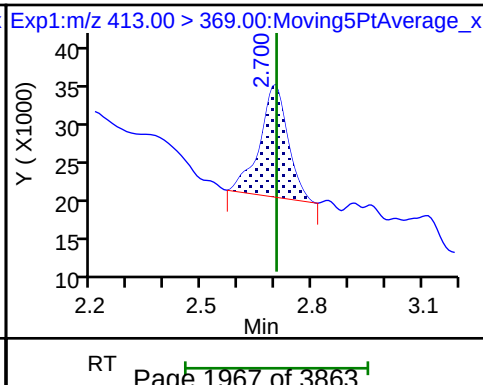
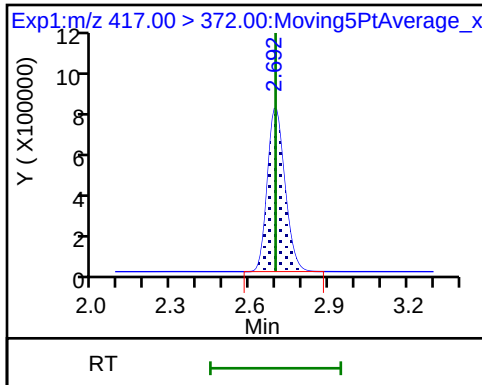
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

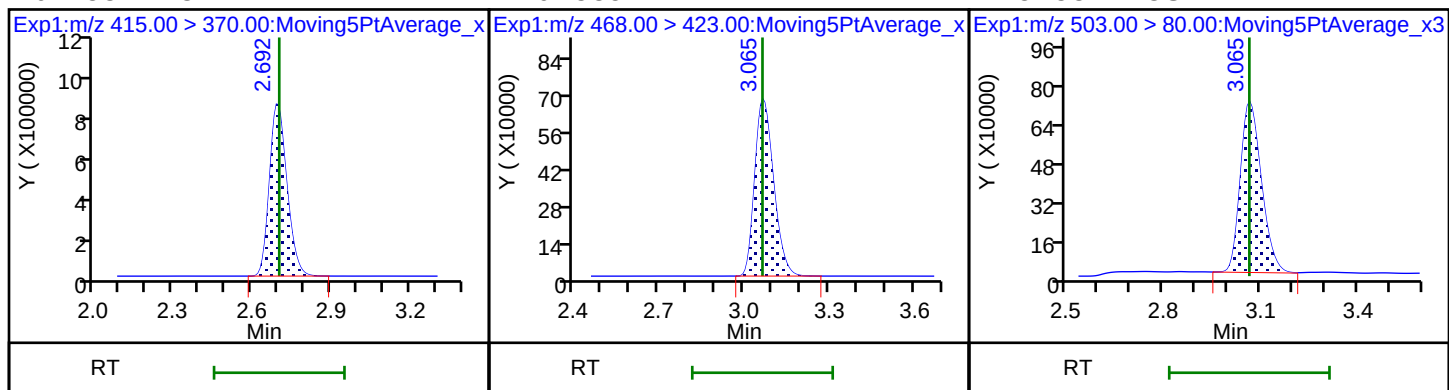
15 Perfluorooctanoic acid (M)



\* 62 13C2-PFOA

D 19 13C5 PFNA

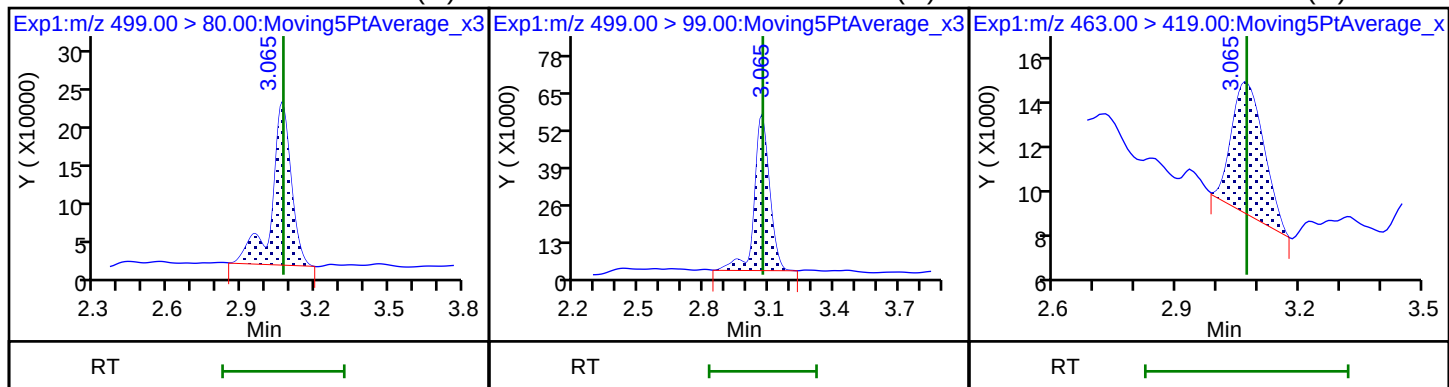
D 18 13C4 PFOS



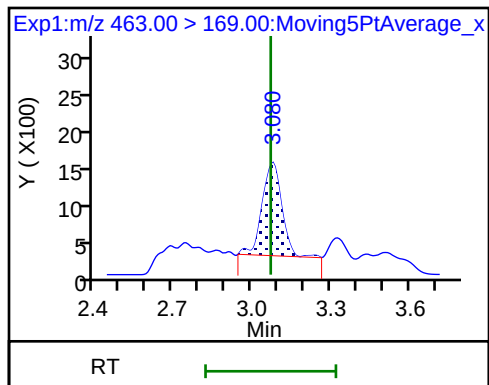
17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid (M)

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid



## TestAmerica Sacramento

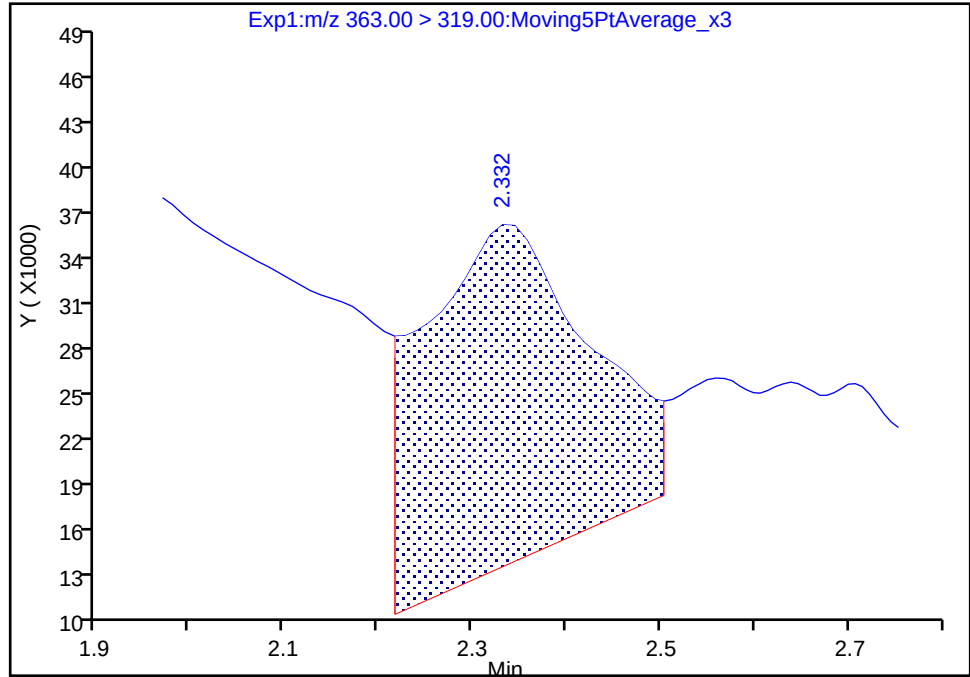
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 9                  |

**10 Perfluoroheptanoic acid, CAS: 375-85-9**

Signal: 1

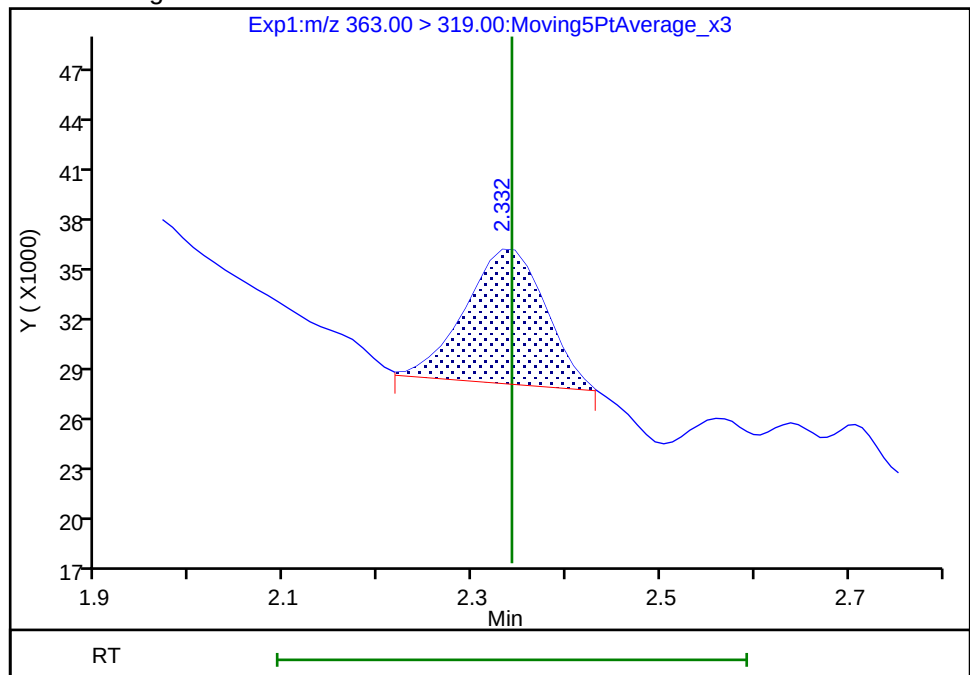
RT: 2.33  
Area: 275969  
Amount: 0.219603  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.33  
Area: 47991  
Amount: 0.038189  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:24:31  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

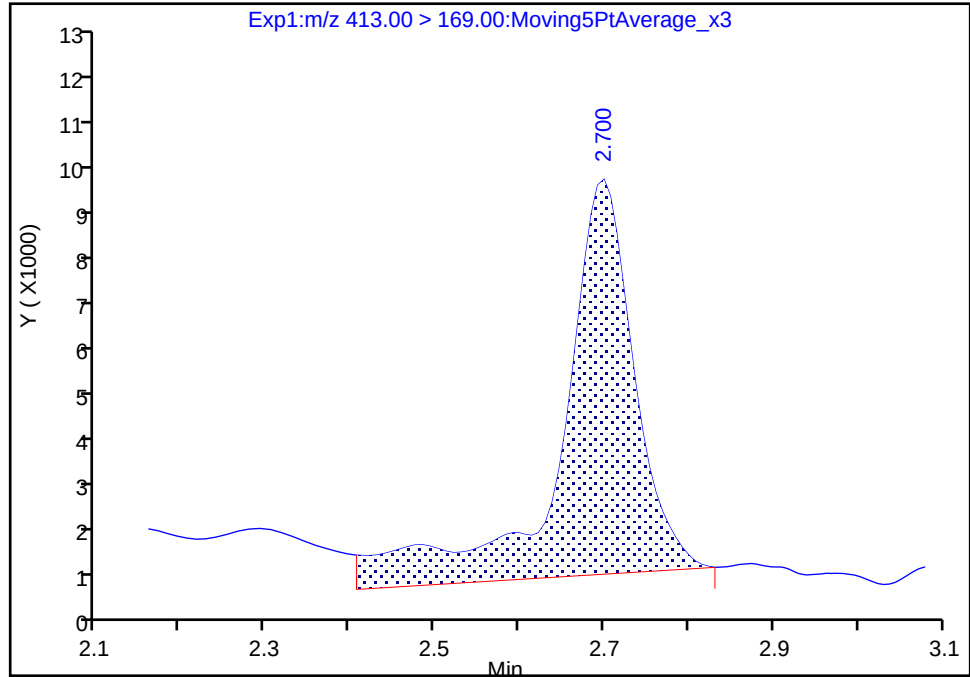
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |                |   |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |                |   |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

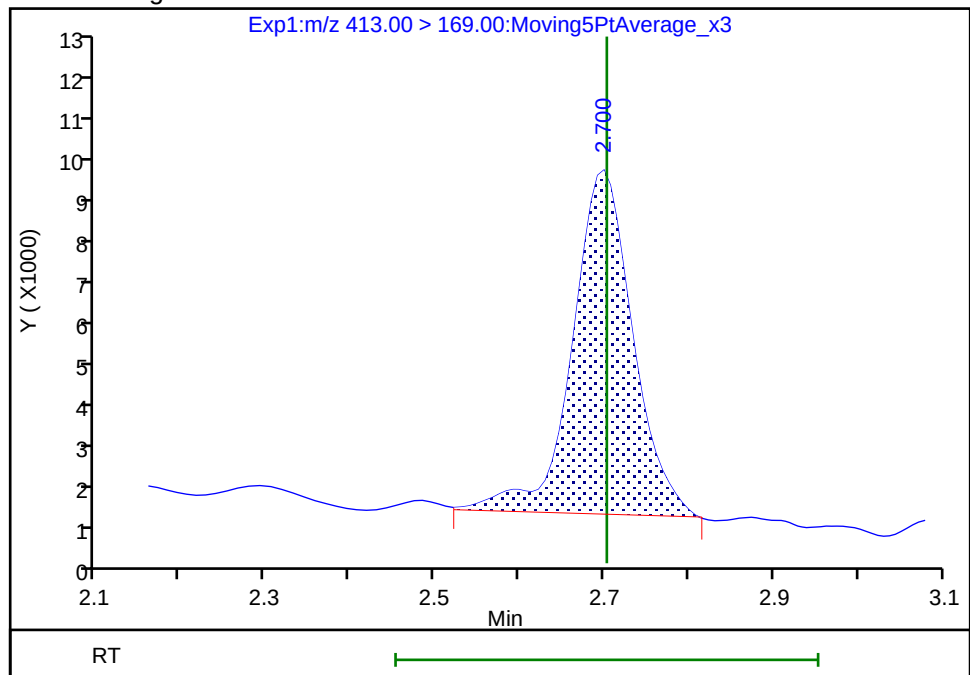
RT: 2.70  
Area: 50417  
Amount: 0.046652  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 39209  
Amount: 0.046652  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:24:56  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

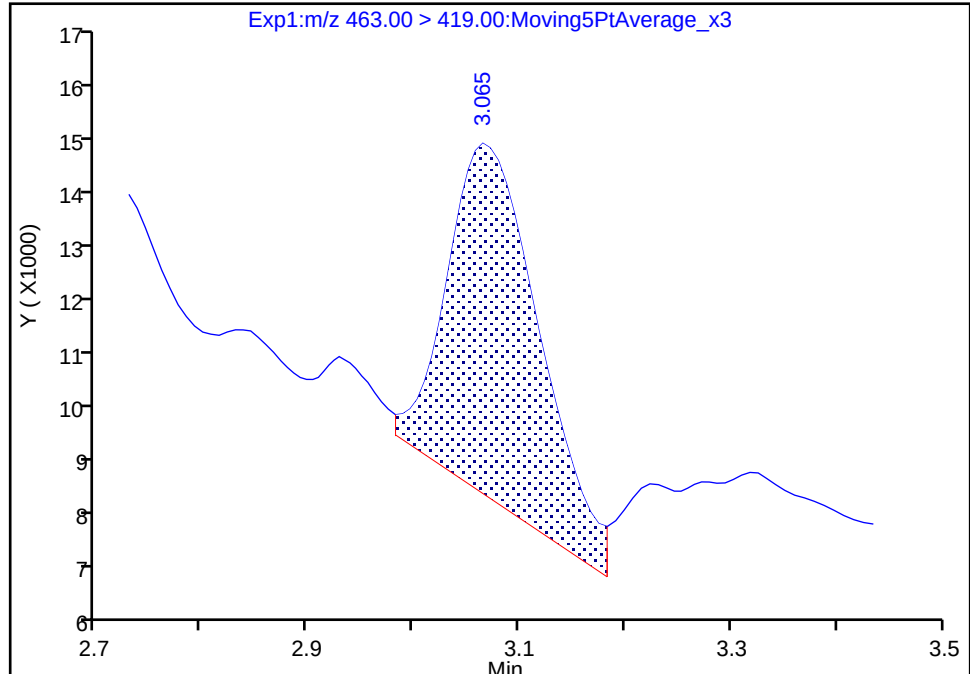
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |                |   |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |                |   |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

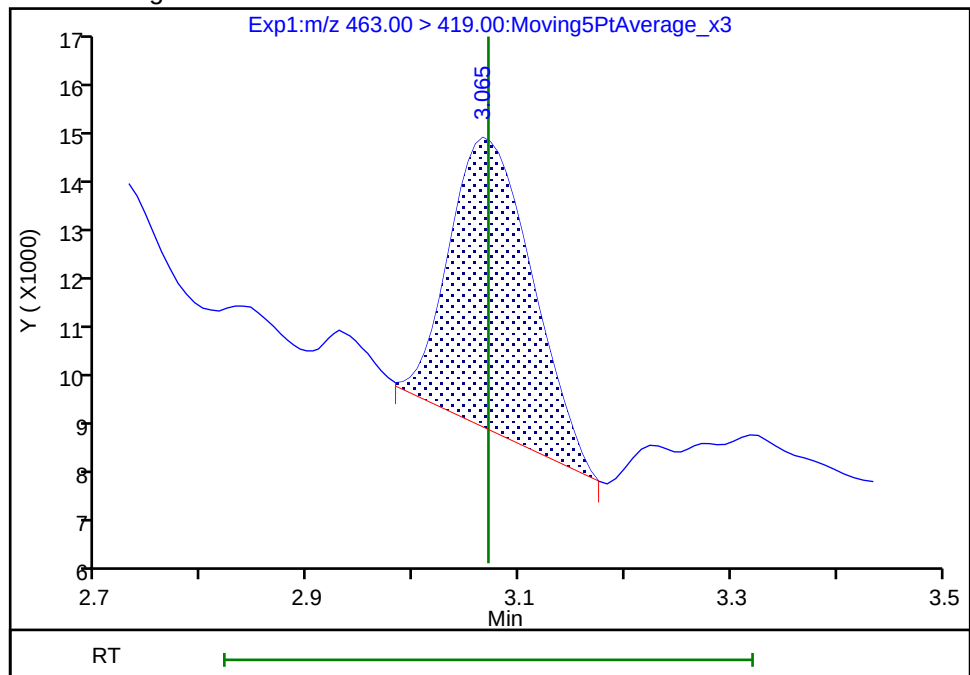
RT: 3.07  
Area: 39942  
Amount: 0.030296  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 32619  
Amount: 0.024741  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:26:00  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

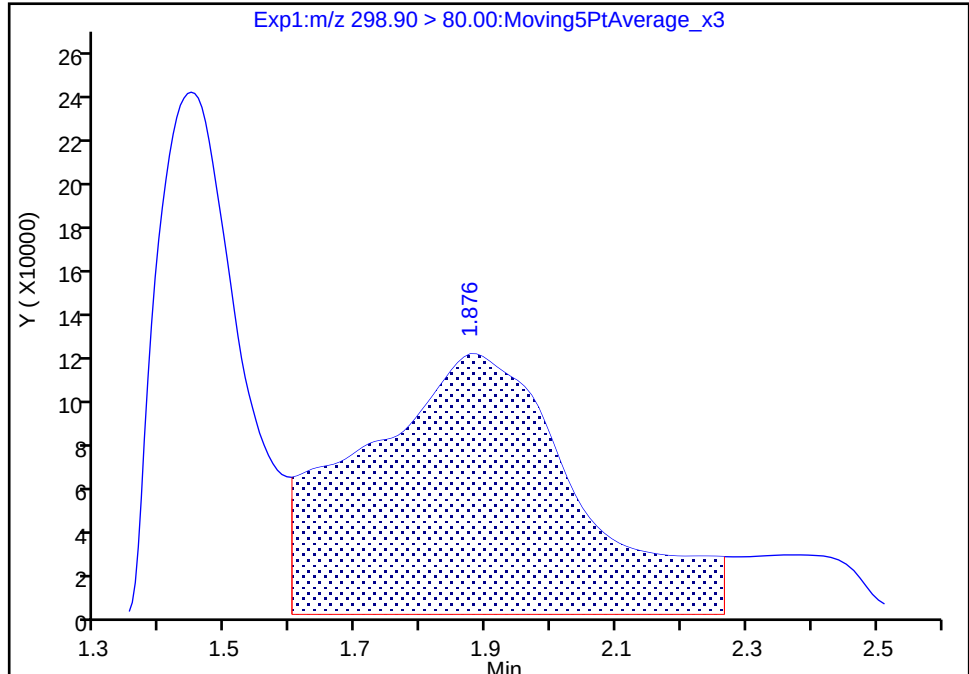
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |                |   |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |                |   |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

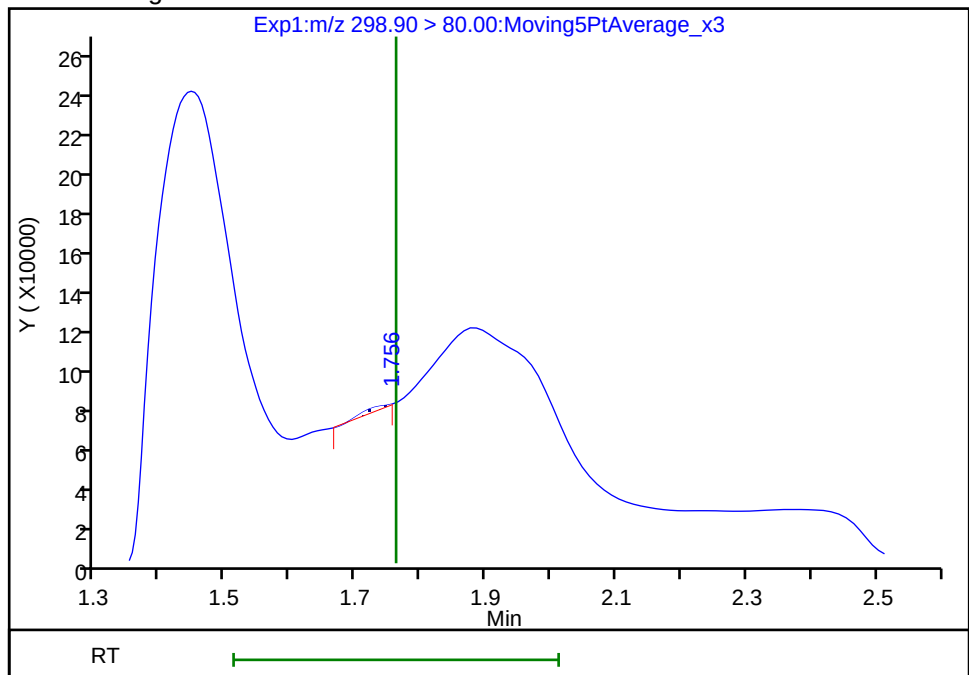
RT: 1.88  
Area: 2763809  
Amount: 1.339730  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 5532  
Amount: 0.002682  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:23:40

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

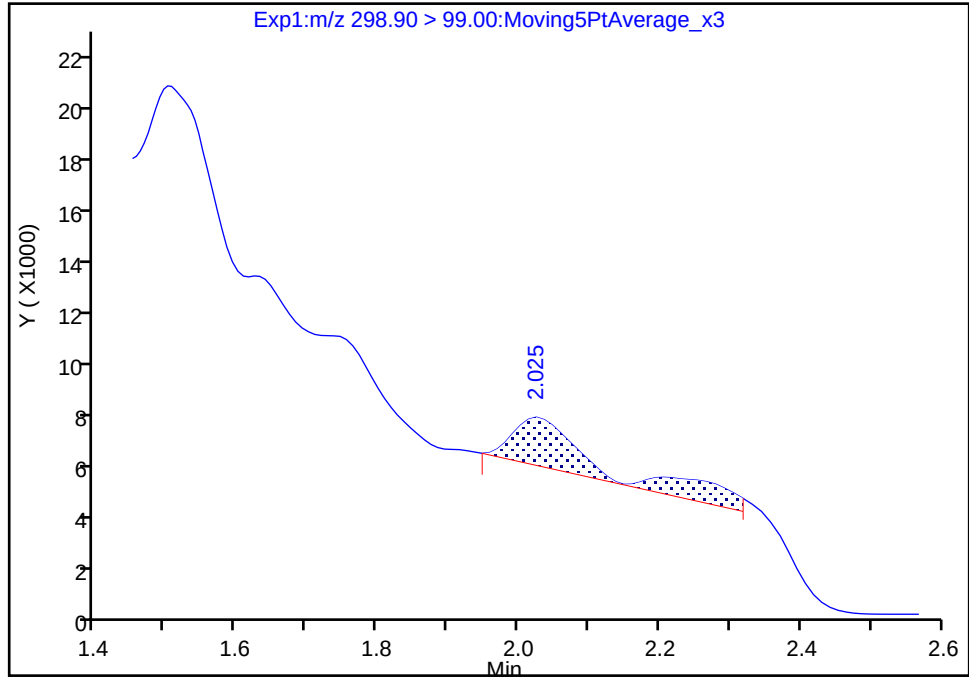
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |                |   |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |                |   |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 2

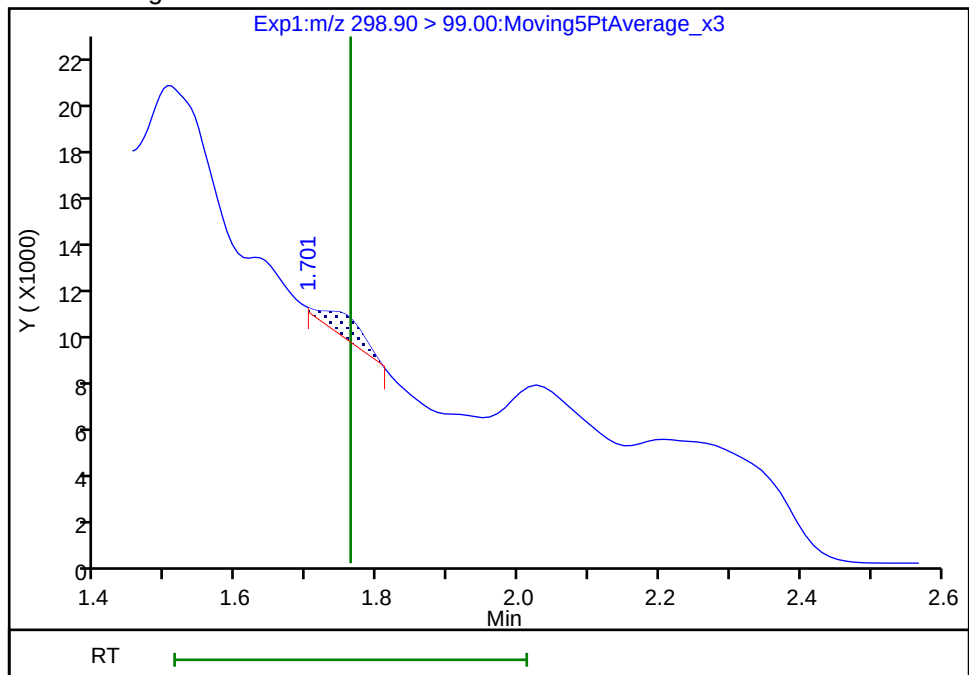
RT: 2.03  
Area: 17157  
Amount: 1.339730  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.70  
Area: 3858  
Amount: 0.002682  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:23:52

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

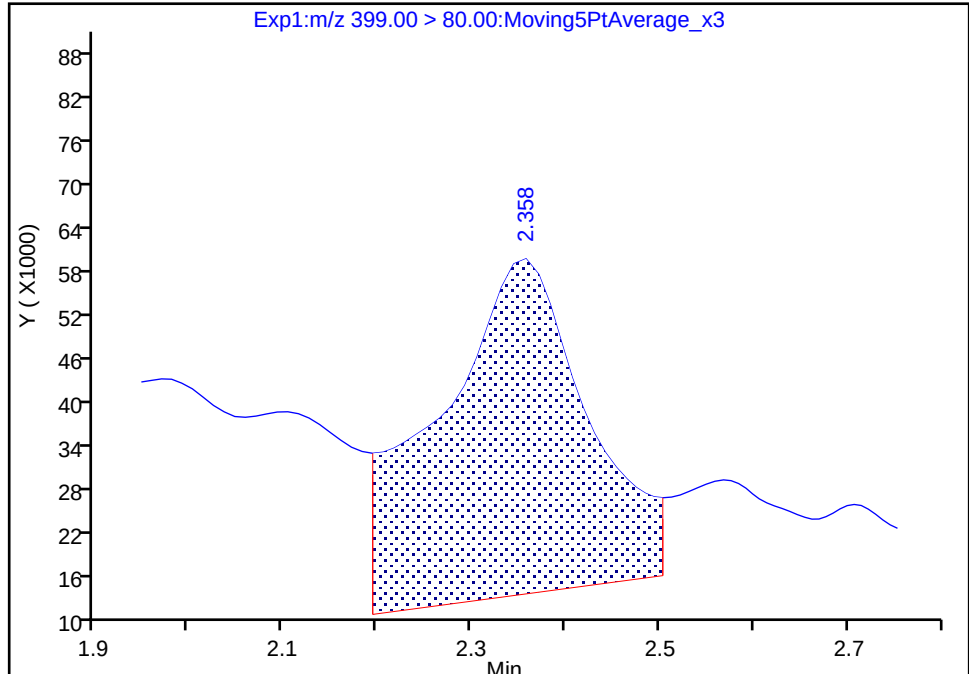
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |                |   |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |                |   |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**8 Perfluorohexanesulfonic acid, CAS: 355-46-4**

Signal: 1

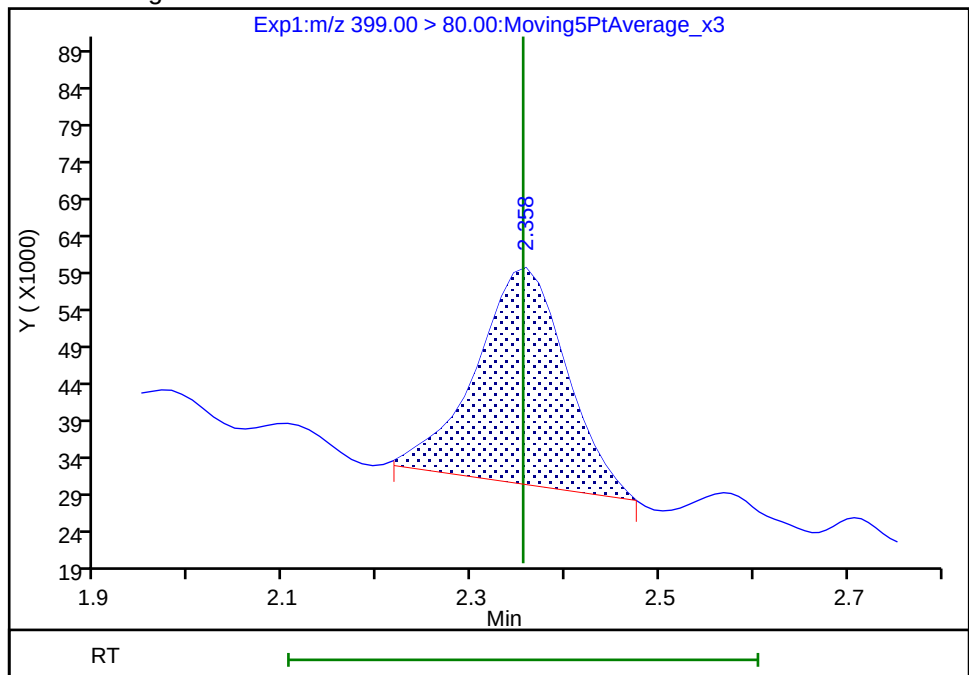
RT: 2.36  
Area: 513790  
Amount: 0.253779  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.36  
Area: 196885  
Amount: 0.097248  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:24:11  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

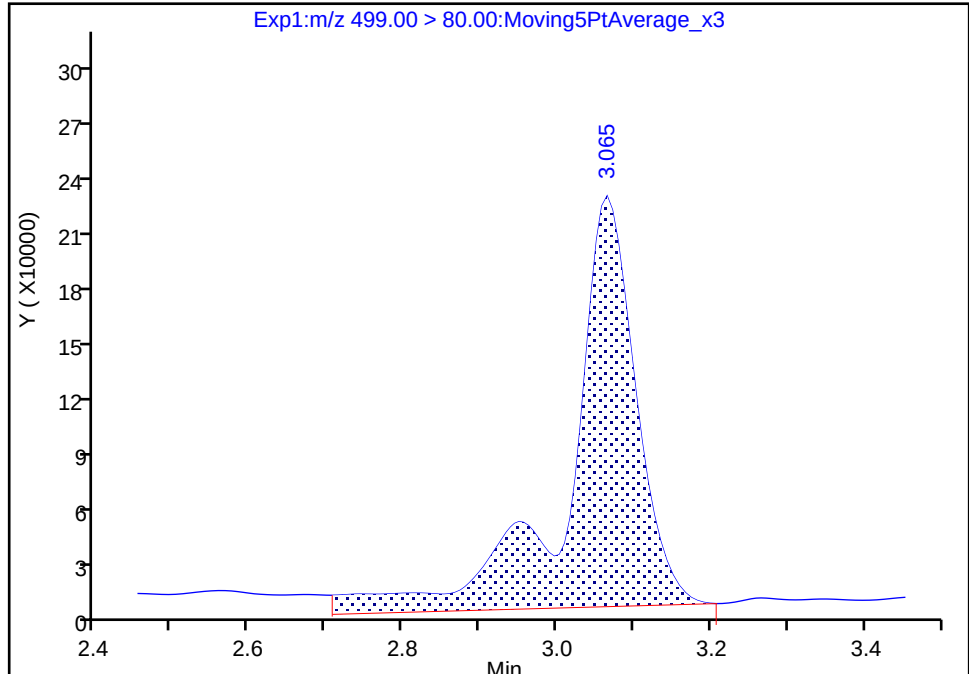
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180531-58976.b\2018.05.30LLC_044.d |                |                    |                |   |
| Injection Date: | 31-May-2018 04:51:09                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-B-8-A                                                          | Lab Sample ID: | 320-39023-8        |                |   |
| Client ID:      | KLA08-SW1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

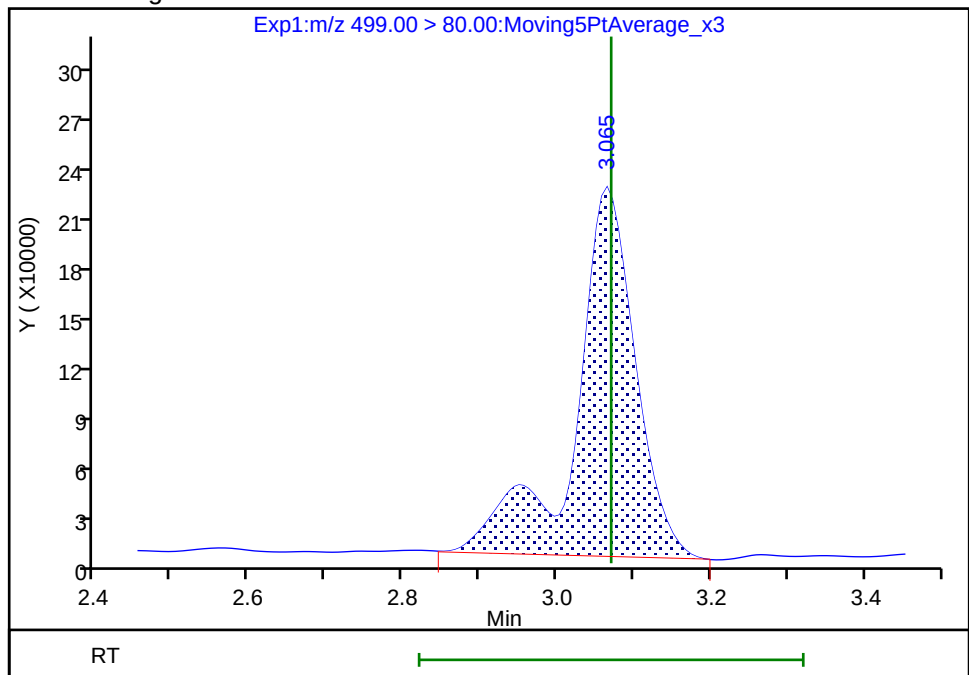
RT: 3.07  
Area: 1350750  
Amount: 0.854907  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 1169249  
Amount: 0.740033  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:25:12

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

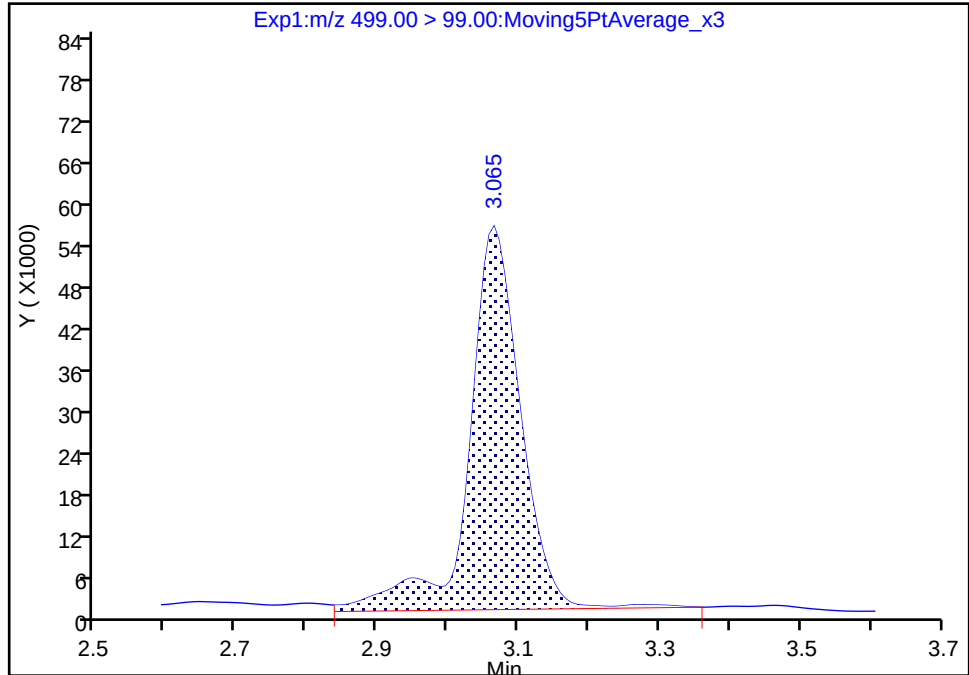
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58976.b\2018.05.30LLC\_044.d  
Injection Date: 31-May-2018 04:51:09 Instrument ID: A8\_N  
Lims ID: 320-39023-B-8-A Lab Sample ID: 320-39023-8  
Client ID: KLA08-SW1-01  
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 9  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 2

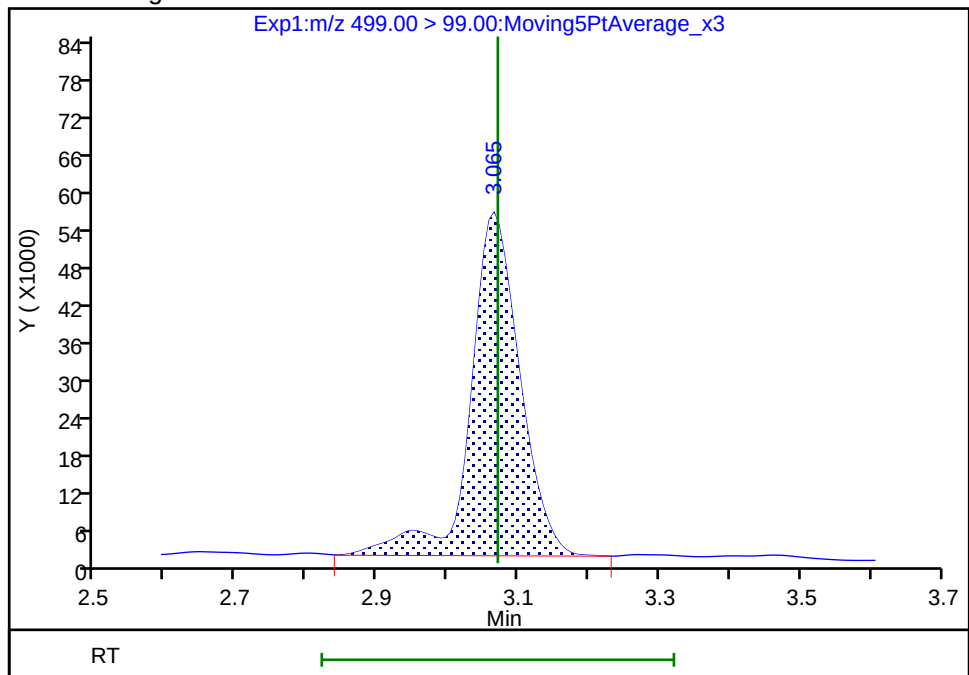
RT: 3.07  
Area: 283632  
Amount: 0.854907  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 268209  
Amount: 0.740033  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 16:25:34

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA-01-SB1-01</u>  | Lab Sample ID: <u>320-39023-9</u>            |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_008.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 14:00</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.04(g)</u>           | Date Analyzed: <u>05/29/2018 03:32</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.0</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.38   |     | 0.38 | 0.25 | 0.098 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 3.9    |     | 0.38 | 0.25 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.25   | U M | 0.38 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.31   | J   | 0.50 | 0.23 | 0.074 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 18     |     | 0.38 | 0.25 | 0.078 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 240    | E   | 1.3  | 0.63 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 74   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 82   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 86   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 60   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 78   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 48   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_008.d  
 Lims ID: 320-39023-A-9-A  
 Client ID: KLA-01-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 03:32:46 ALS Bottle#: 3 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-9-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:21:49 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols Date: 30-May-2018 16:21:49

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.766 | 1.762  | 0.004  | 1.000  | 320819   | 0.1235       |                 |      | 1740   |       |
| 298.90 > 99.00                   | 1.766 | 1.762  | 0.004  | 1.000  | 140831   |              | 2.28(1.25-3.74) |      | 554    |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 77346    | 1.72         |                 | 74.1 | 551    |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.360 | 2.345  | 0.015  | 1.000  | 4140055  | 2.04         |                 | 81.6 | 74102  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.347 | 2.355  | -0.008 | 0.994  | 263751   | 0.1508       |                 |      | 324    |       |
| 363.00 > 169.00                  | 2.347 | 2.355  | -0.008 | 0.994  | 83681    |              | 3.15(1.13-3.40) |      | 421    |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.360 | 2.368  | -0.008 | 0.995  | 15574145 | 7.06         |                 |      | 39860  |       |
| 399.00 > 99.00                   | 2.360 | 2.368  | -0.008 | 0.995  | 5000088  |              | 3.11(1.50-4.49) |      | 13296  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.372 | 2.372  | 0.0    | 1.000  | 4628308  | 1.85         |                 | 78.0 | 94628  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.705 | 2.704  | 0.001  | 1.000  | 4122417  | 2.15         |                 | 85.9 | 65920  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.705 | 2.711  | -0.006 | 1.000  | 3010070  | 1.55         |                 |      | 1195   |       |
| 413.00 > 169.00                  | 2.705 | 2.711  | -0.006 | 1.000  | 1671171  |              | 1.80(0.84-2.52) |      | 2560   |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.705 | 2.711  | -0.006 |        | 5069221  | 2.50         |                 |      | 59236  |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                   | 3.077 | 3.074  | 0.003  | 1.000  | 1994972  | 1.16         |                 | 48.4 | 17043  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                   | 3.077 | 3.076  | 0.001  | 1.000  | 93656323 | 95.4         |                 |      | 644941 | E     |
| 499.00 > 99.00                   | 3.077 | 3.076  | 0.001  | 1.000  | 33860483 |              | 2.77(2.31-6.93) |      | 217164 | E     |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                  | 3.077 | 3.081  | -0.004 | 1.000  | 2356598  | 1.50         |                 | 60.0 | 38694  |       |

**QC Flag Legend**

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_008.d

Injection Date: 29-May-2018 03:32:46

Instrument ID: A8\_N

Lims ID: 320-39023-A-9-A

Lab Sample ID: 320-39023-9

Client ID: KLA-01-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

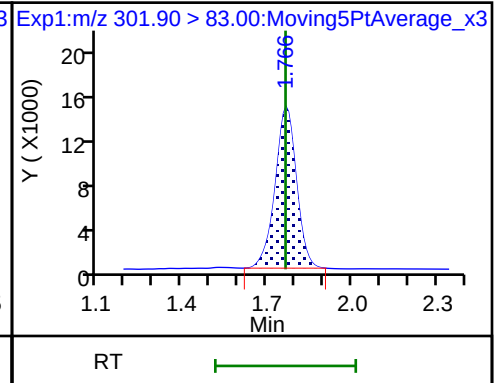
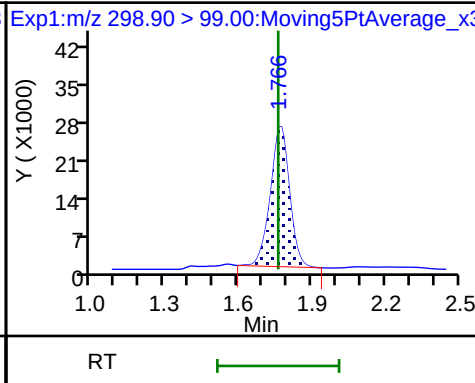
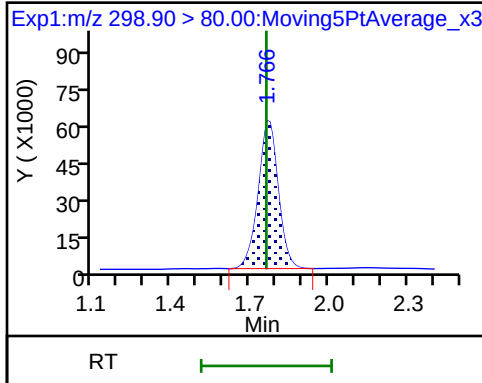
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

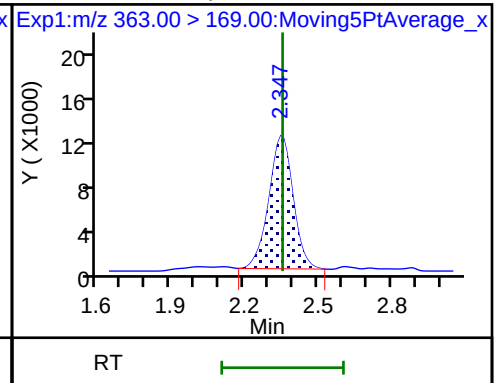
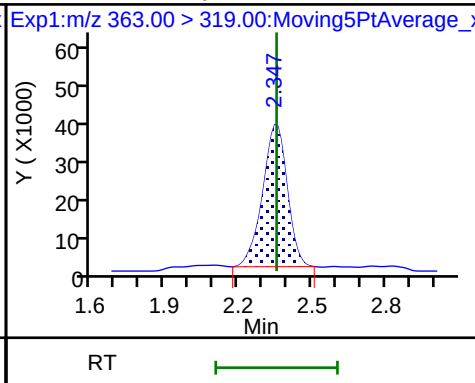
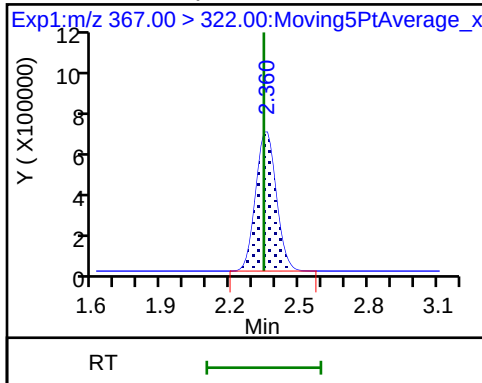
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

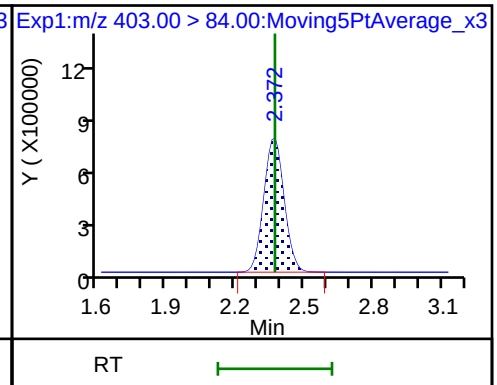
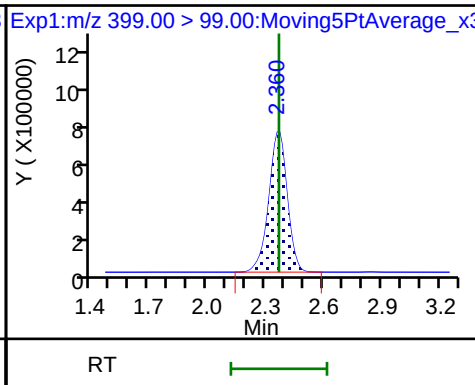
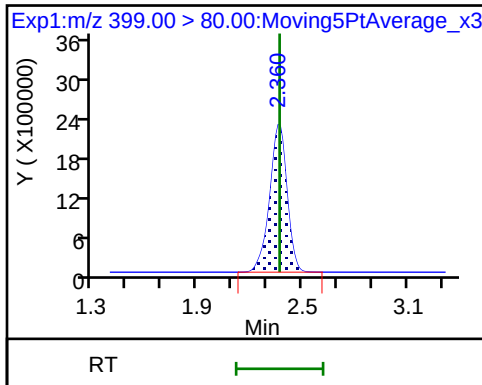
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

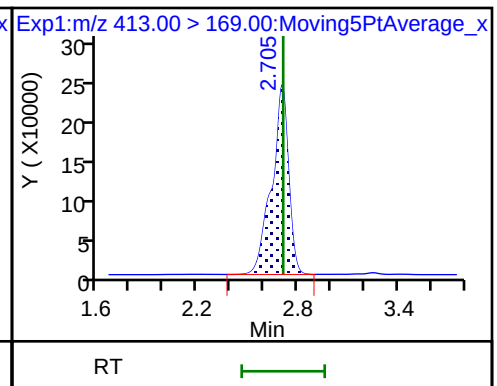
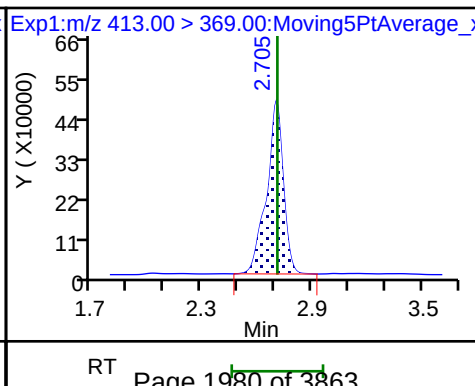
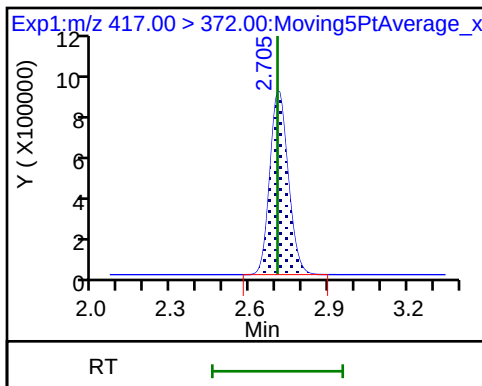
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

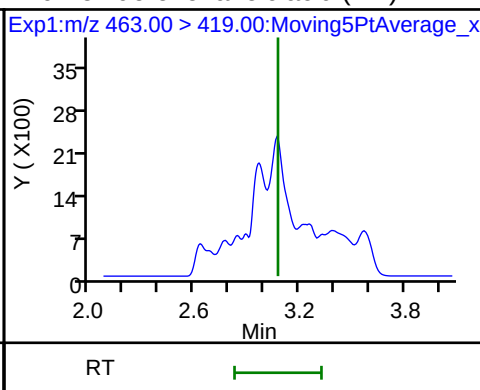
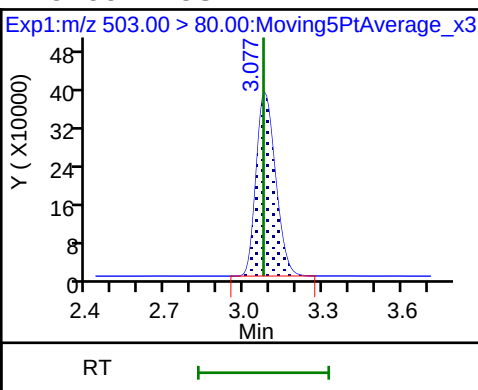
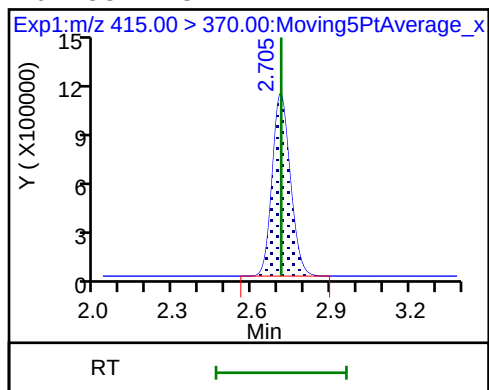
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 18 13C4 PFOS

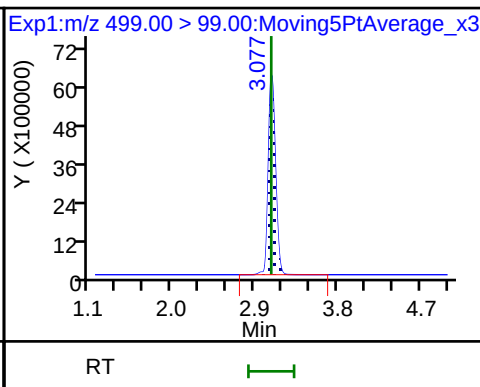
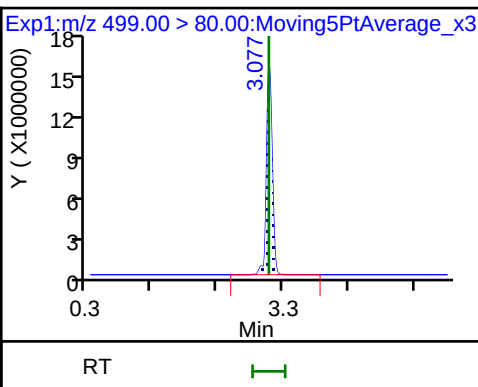
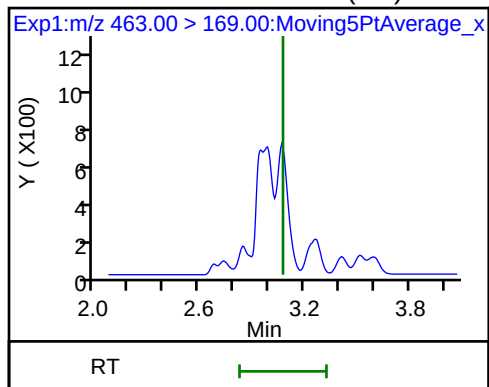
20 Perfluorononanoic acid (ND)



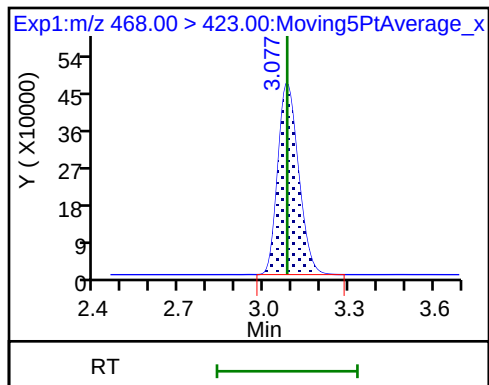
20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 19 13C5 PFNA



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA-01-SB1-01 DL</u> | Lab Sample ID: <u>320-39023-9 DL</u>         |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_002.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/02/2018 14:00</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.04(g)</u>             | Date Analyzed: <u>05/29/2018 11:07</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.0</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q     | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.0    | U     | 7.5 | 5.0 | 2.0 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 3.9    | J D M | 7.5 | 5.0 | 2.5 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 5.0    | U     | 7.5 | 5.0 | 2.0 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 4.5    | U     | 10  | 4.5 | 1.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 17     | D     | 7.5 | 5.0 | 1.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 430    | D     | 25  | 13  | 6.0 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 79   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 89   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 90   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 90   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 82   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 74   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_002.d  
 Lims ID: 320-39023-A-9-A  
 Client ID: KLA-01-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 11:07:27 ALS Bottle#: 1 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-9-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:03:47 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:03:47

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |       | M     |
| 301.90 > 83.00                   | 1.774 | 1.764     | 0.010     | 1.000     | 3713     | 0.0918          |                 | 79.0 | 47.9  | M     |
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 298.90 > 80.00                   | 1.774 | 1.764     | 0.010     | 1.000     | 15724    | 0.006304        |                 |      | 79.8  |       |
| 298.90 > 99.00                   | 1.774 | 1.764     | 0.010     | 1.000     | 7233     |                 | 2.17(1.25-3.74) |      | 49.6  |       |
| D 9 13C4-PFHpA                   |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                  | 2.358 | 2.345     | 0.013     | 1.000     | 202299   | 0.1107          |                 | 88.6 | 3301  |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                   | 2.371 | 2.358     | 0.013     | 1.000     | 219677   | 0.0973          |                 | 82.2 | 7326  |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                  | 2.358 | 2.358     | 0.0       | 1.000     | 5789     | 0.003386        |                 |      | 7.7   |       |
| 363.00 > 169.00                  | 2.358 | 2.358     | 0.0       | 1.000     | 4092     |                 | 1.41(1.13-3.40) |      | 19.1  |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                   | 2.371 | 2.358     | 0.013     | 1.000     | 698693   | 0.3338          |                 |      | 2513  |       |
| 399.00 > 99.00                   | 2.371 | 2.358     | 0.013     | 1.000     | 235109   |                 | 2.97(1.50-4.49) |      | 1204  |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                  | 2.713 | 2.704     | 0.009     | 1.000     | 195118   | 0.1129          |                 | 90.3 | 4636  |       |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                  | 2.713 | 2.704     | 0.009     |           | 228222   | 0.1250          |                 |      | 3430  |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |       | M     |
| 413.00 > 369.00                  | 2.713 | 2.712     | 0.001     | 1.000     | 141658   | 0.0771          |                 |      | 38.7  | M     |
| 413.00 > 169.00                  | 2.713 | 2.712     | 0.001     | 1.000     | 80959    |                 | 1.75(0.84-2.52) |      | 201   |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.086 | 3.072     | 0.014     | 1.000     | 158723   | 0.1123          |                 | 89.8 | 4113  |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.086 | 3.072     | 0.014     | 1.000     | 136881   | 0.0882          |                 | 73.8 | 1234  |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.086 | 3.076     | 0.010     | 1.000     | 11433904 | 8.49            |                 |      | 35423 |       |
| 499.00 > 99.00                   | 3.086 | 3.076     | 0.010     | 1.000     | 2722184  |                 | 4.20(2.31-6.93) |      | 23914 |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_002.d

Injection Date: 29-May-2018 11:07:27

Instrument ID: A8\_N

Lims ID: 320-39023-A-9-A

Lab Sample ID: 320-39023-9

Client ID: KLA-01-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

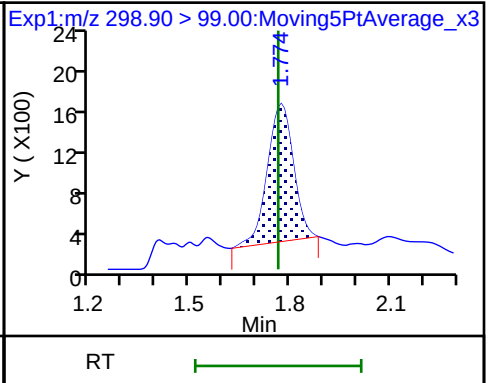
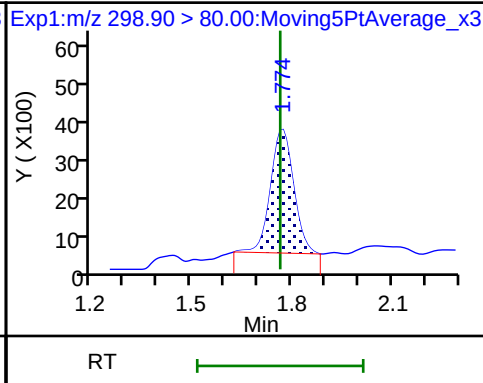
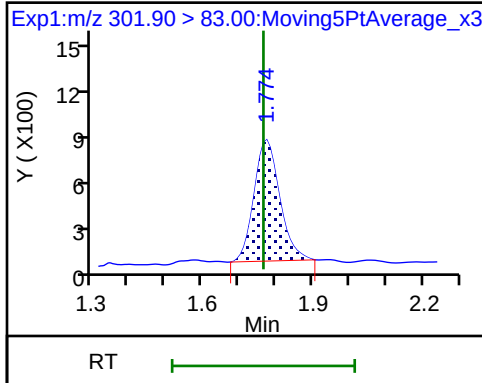
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

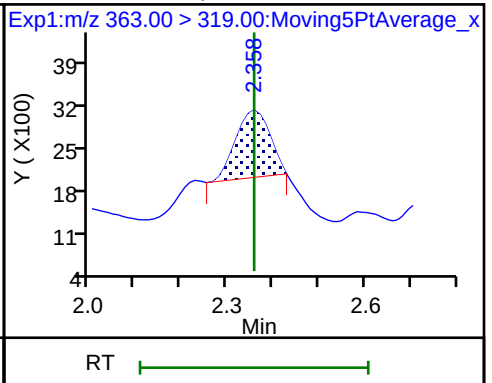
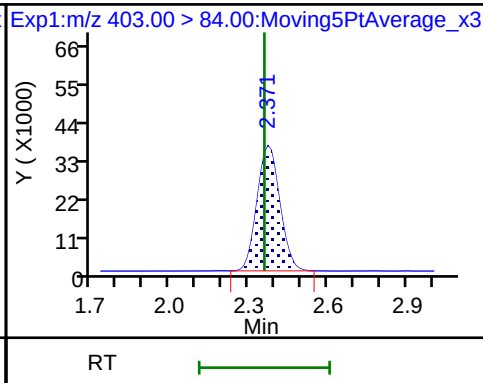
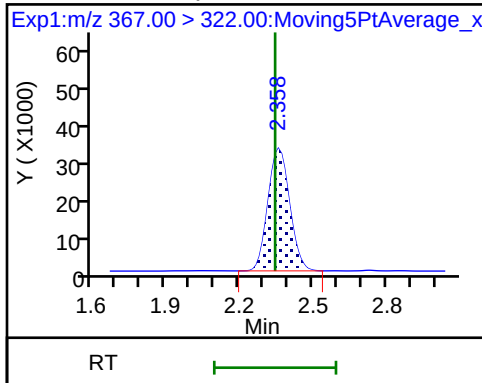
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

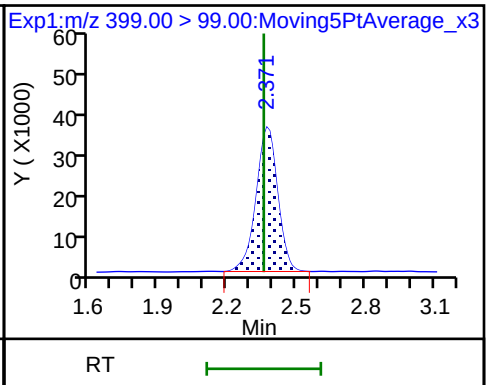
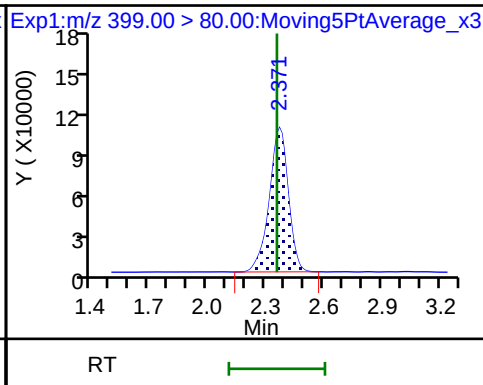
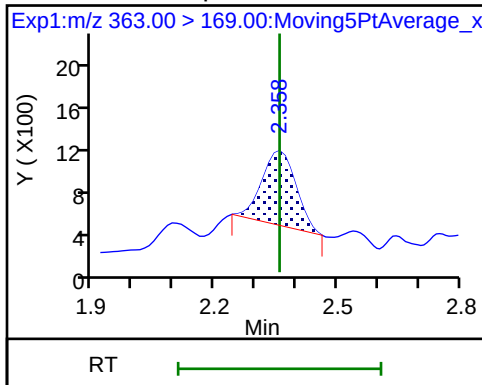
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

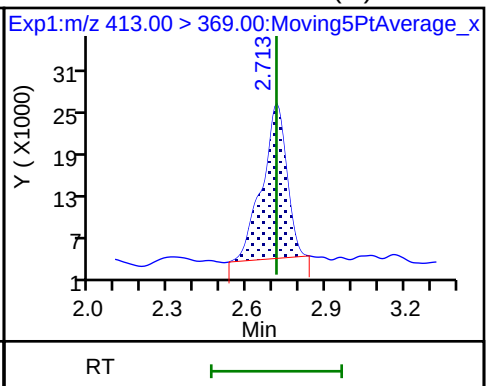
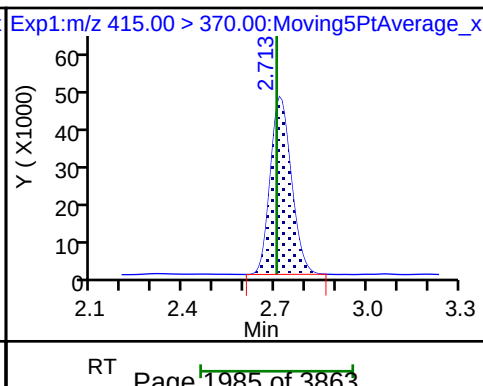
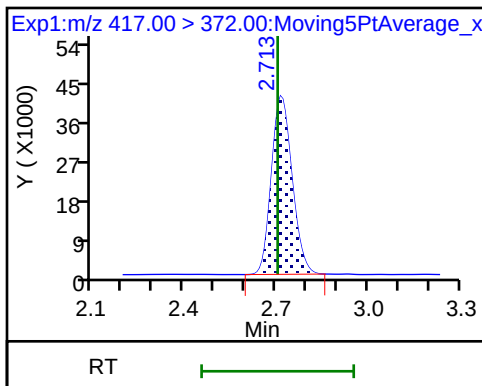
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

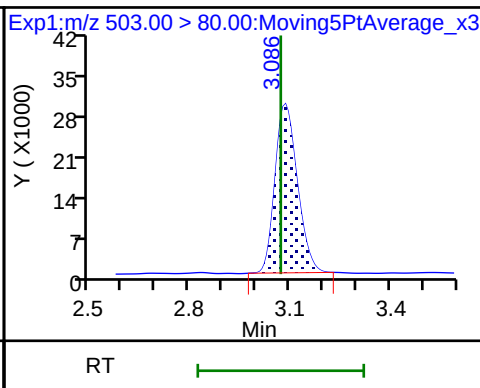
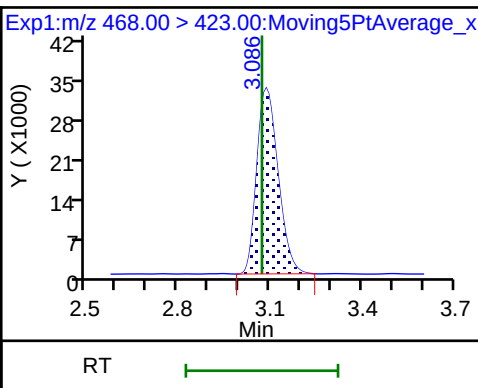
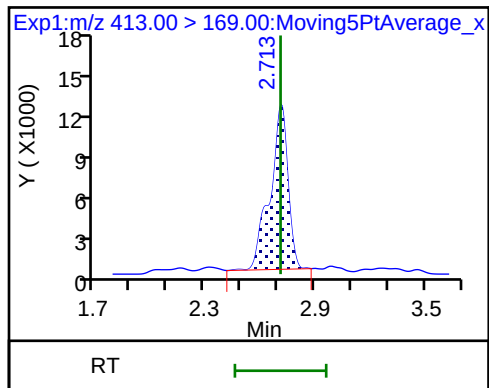
15 Perfluorooctanoic acid (M)



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

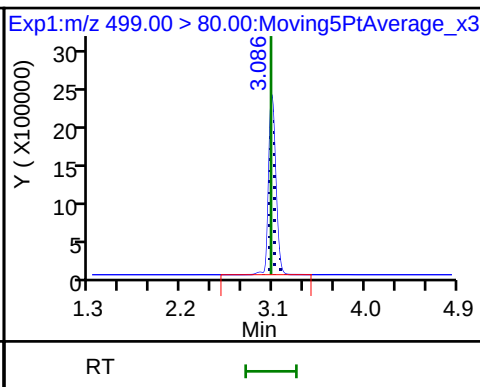
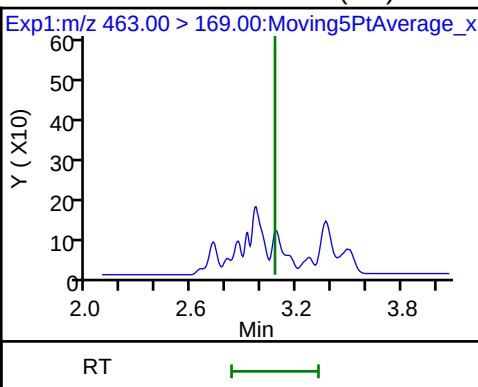
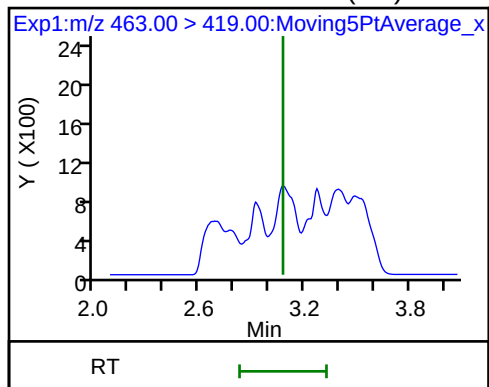
## D 18 13C4 PFOS



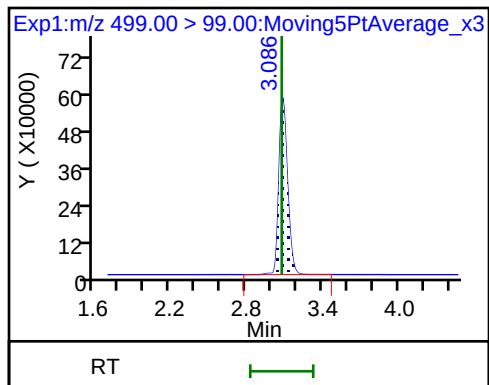
## 20 Perfluorononanoic acid (ND)

## 20 Perfluorononanoic acid (ND)

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

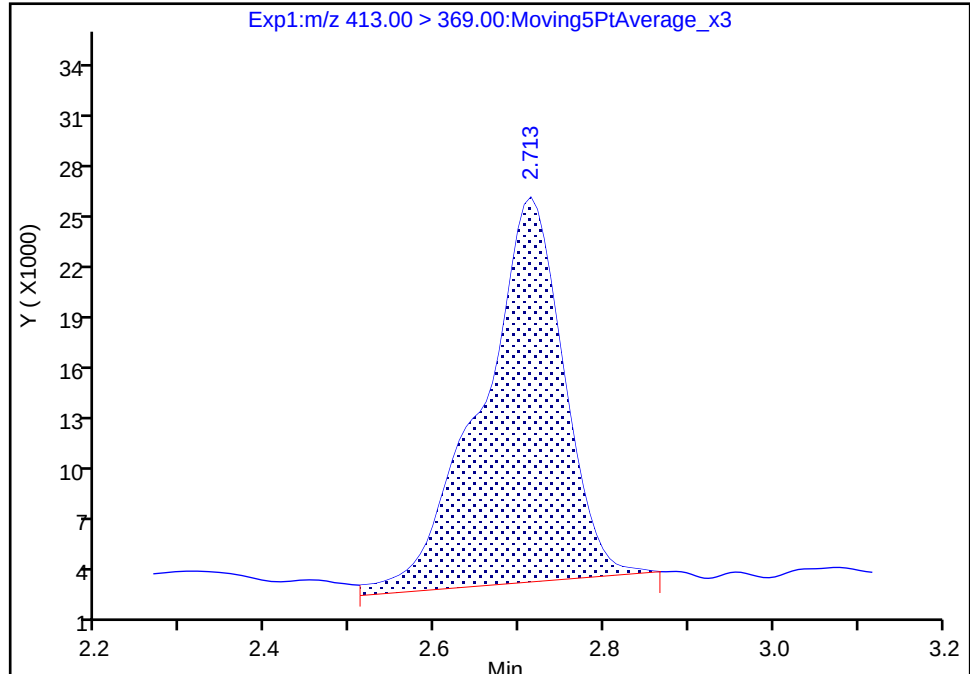
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_002.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:07:27                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-9-A                                                          | Lab Sample ID: | 320-39023-9        |                |   |
| Client ID:      | KLA-01-SB1-01                                                            |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 1                  | Worklist Smp#: | 2 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

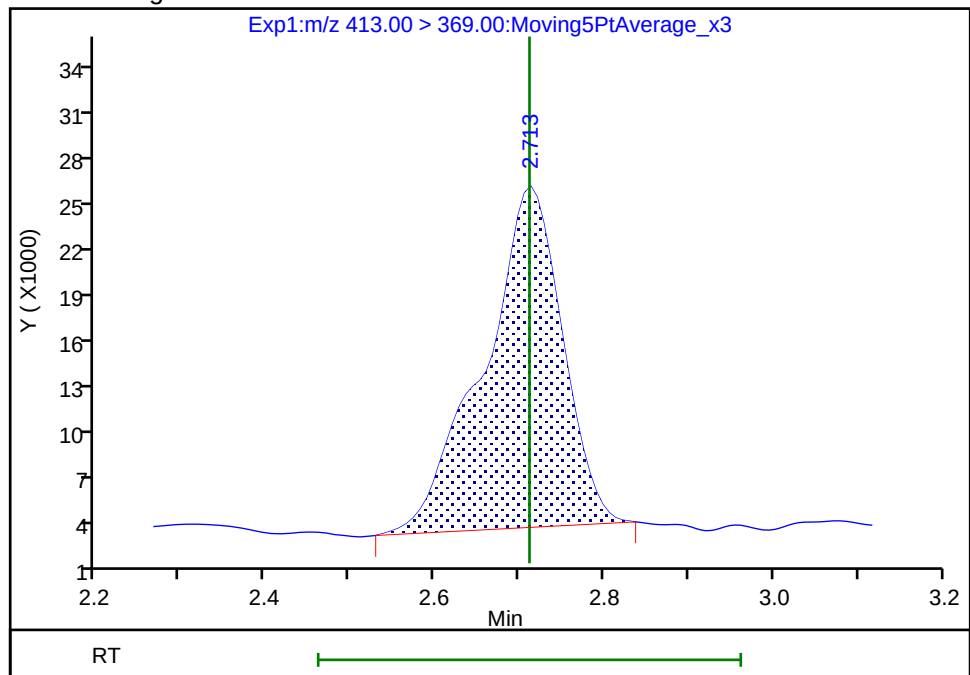
RT: 2.71  
Area: 150978  
Amount: 0.082175  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 141658  
Amount: 0.077102  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:03:40  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 1987 of 3863

## TestAmerica Sacramento

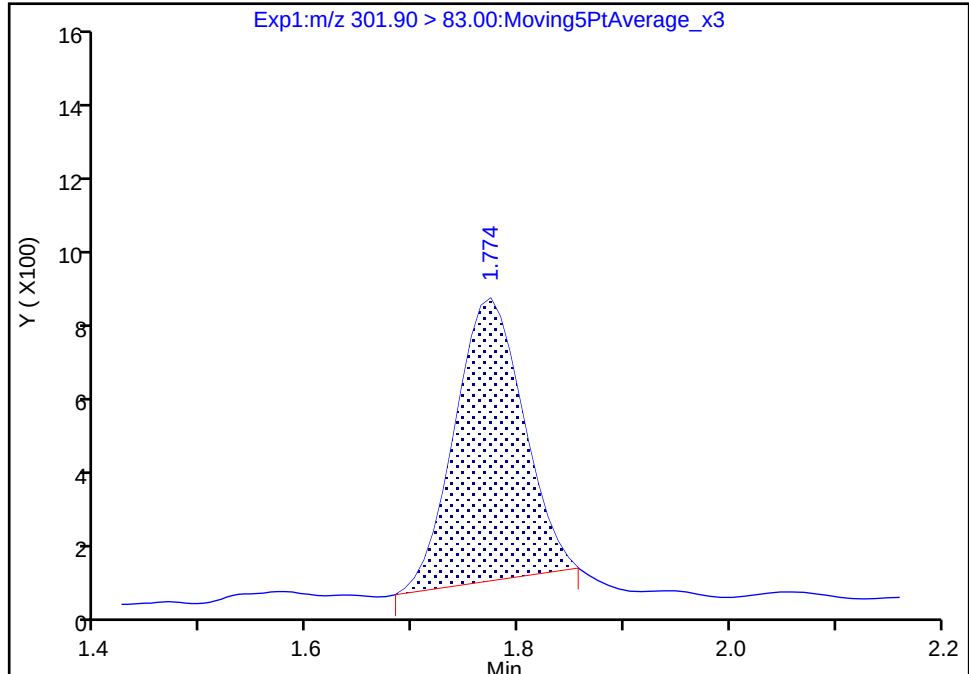
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_002.d |                |                    |
| Injection Date: | 29-May-2018 11:07:27                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-9-A                                                          | Lab Sample ID: | 320-39023-9        |
| Client ID:      | KLA-01-SB1-01                                                            |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 1                  |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 2                  |

**D 47 13C3-PFBS, CAS: STL02337**

Signal: 1

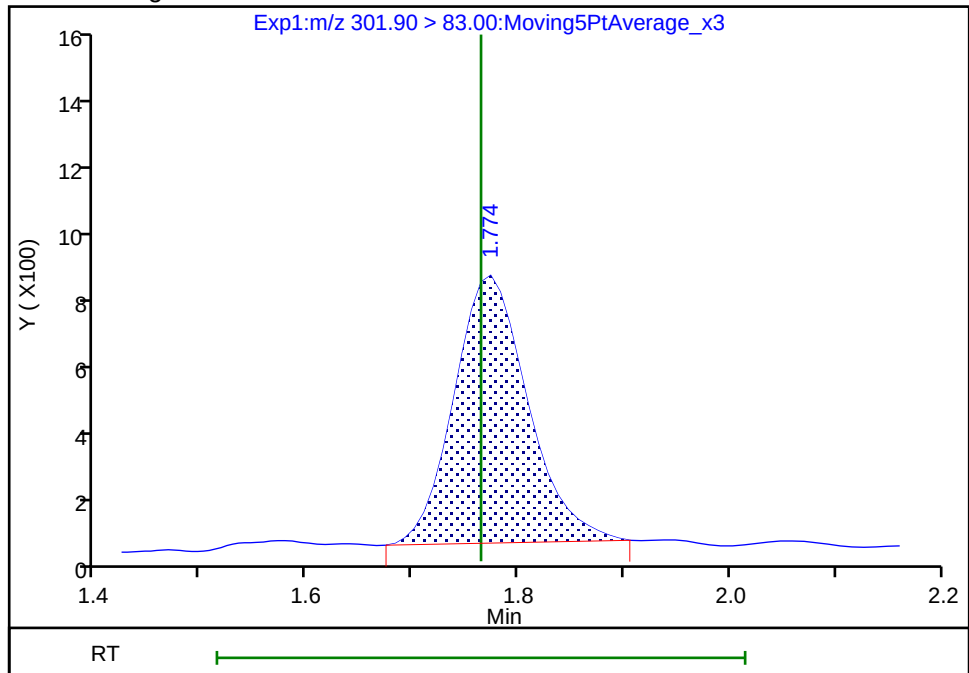
RT: 1.77  
Area: 3288  
Amount: 0.081330  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.77  
Area: 3713  
Amount: 0.091842  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:03:22

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA-01-SB1-02</u>  | Lab Sample ID: <u>320-39023-10</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_009.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 14:10</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.05(g)</u>           | Date Analyzed: <u>05/29/2018 03:40</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.32   | J   | 0.38 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.0    |     | 0.38 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U M | 0.38 | 0.26 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.31   | J   | 0.51 | 0.23 | 0.075 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 9.1    |     | 0.38 | 0.26 | 0.079 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 150    | E   | 1.3  | 0.64 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 69   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 82   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 67   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 54   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_009.d  
 Lims ID: 320-39023-A-10-A  
 Client ID: KLA-01-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 03:40:34 ALS Bottle#: 4 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-10-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:22:10 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:22:10

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.770 | 1.762  | 0.008  | 1.000  | 277225   | 0.1217       |                 |      | 1404   |       |
| 298.90 > 99.00                   | 1.770 | 1.762  | 0.008  | 1.000  | 116642   |              | 2.38(1.25-3.74) |      | 704    |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.770 | 1.765  | 0.005  | 1.000  | 67842    | 1.60         |                 | 68.7 | 663    |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.355 | 2.345  | 0.010  | 1.000  | 4007300  | 2.09         |                 | 83.4 | 63968  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.342 | 2.355  | -0.013 | 0.994  | 210935   | 0.1246       |                 |      | 249    |       |
| 363.00 > 169.00                  | 2.355 | 2.355  | 0.0    | 1.000  | 79389    |              | 2.66(1.13-3.40) |      | 375    |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 7090699  | 3.54         |                 |      | 21642  |       |
| 399.00 > 99.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 2215799  |              | 3.20(1.50-4.49) |      | 10034  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.368 | 2.372  | -0.004 | 1.000  | 4203735  | 1.77         |                 | 74.9 | 75177  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.703 | 2.704  | -0.001 | 1.000  | 3744543  | 2.06         |                 | 82.4 | 65530  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.703 | 2.711  | -0.008 | 1.000  | 715852   | 0.4060       |                 |      | 224    |       |
| 413.00 > 169.00                  | 2.703 | 2.711  | -0.008 | 1.000  | 412696   |              | 1.73(0.84-2.52) |      | 817    |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.703 | 2.711  | -0.008 |        | 4798330  | 2.50         |                 |      | 66592  |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                   | 3.073 | 3.074  | -0.001 | 1.000  | 2099025  | 1.29         |                 | 53.8 | 19595  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                   | 3.073 | 3.076  | -0.003 | 1.000  | 58852692 | 57.0         |                 |      | 42940  | E     |
| 499.00 > 99.00                   | 3.073 | 3.076  | -0.003 | 1.000  | 17764437 |              | 3.31(2.31-6.93) |      | 120271 | E     |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                  | 3.073 | 3.081  | -0.008 | 1.000  | 2489393  | 1.67         |                 | 67.0 | 56418  |       |



[QC Flag Legend](#)

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_009.d

Injection Date: 29-May-2018 03:40:34

Instrument ID: A8\_N

Lims ID: 320-39023-A-10-A

Lab Sample ID: 320-39023-10

Client ID: KLA-01-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

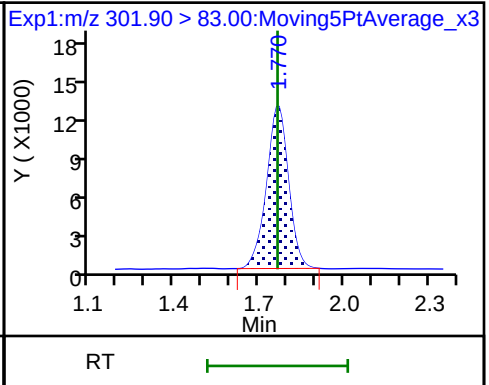
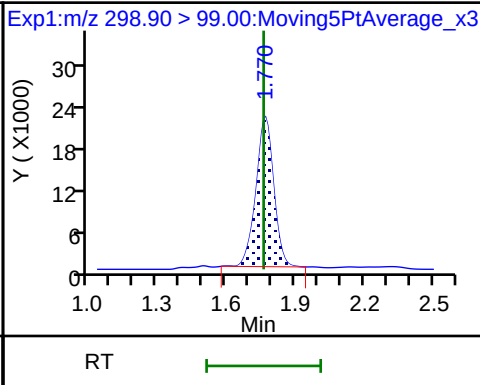
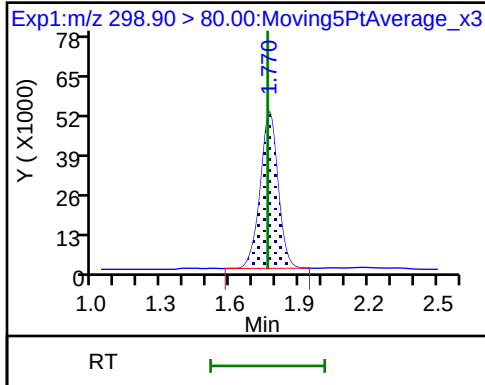
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

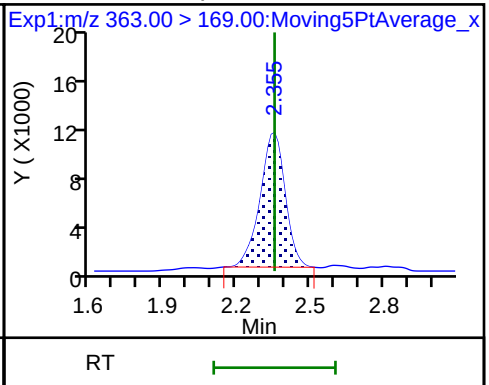
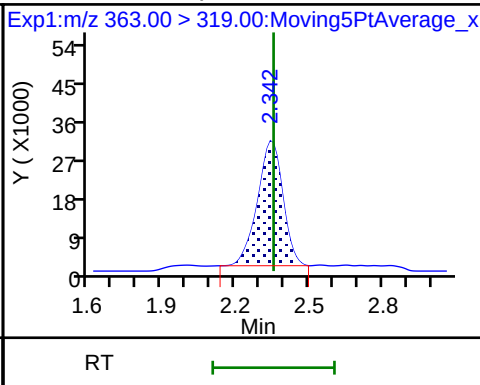
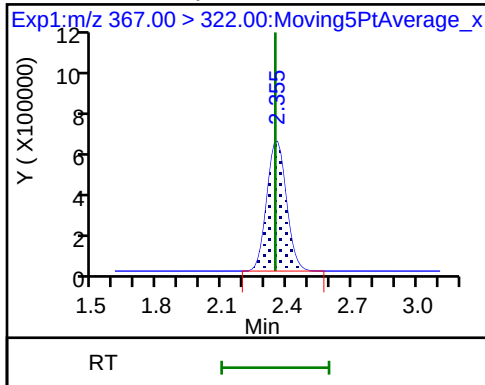
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

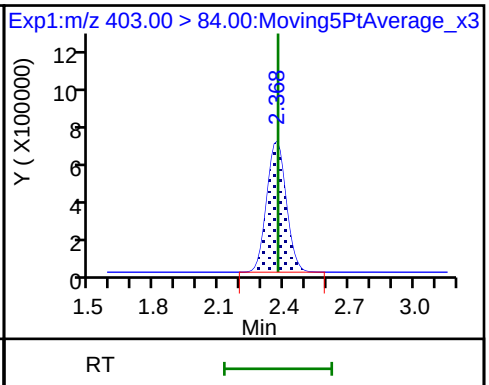
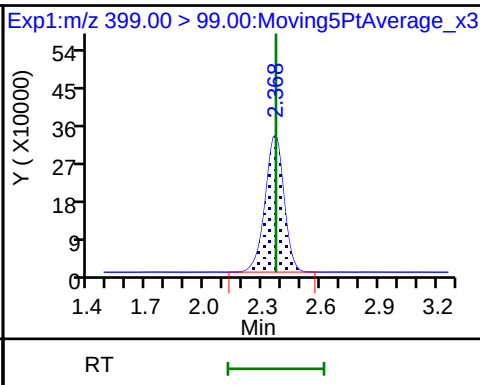
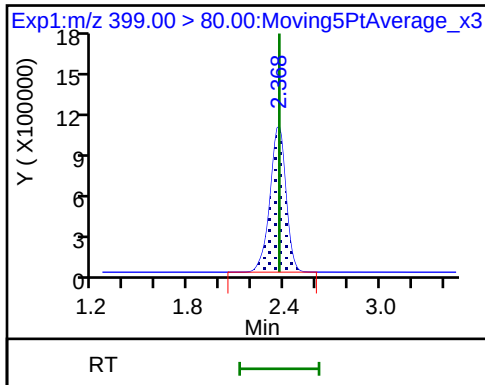
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

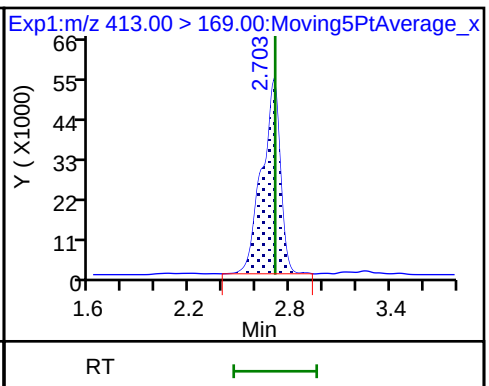
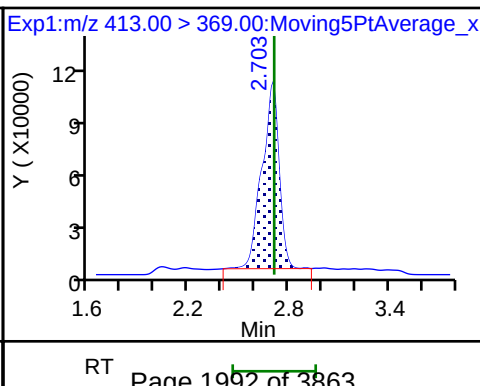
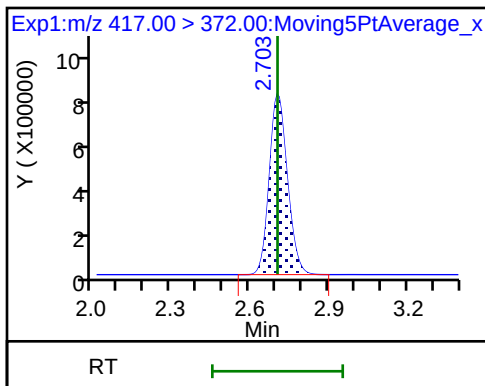
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

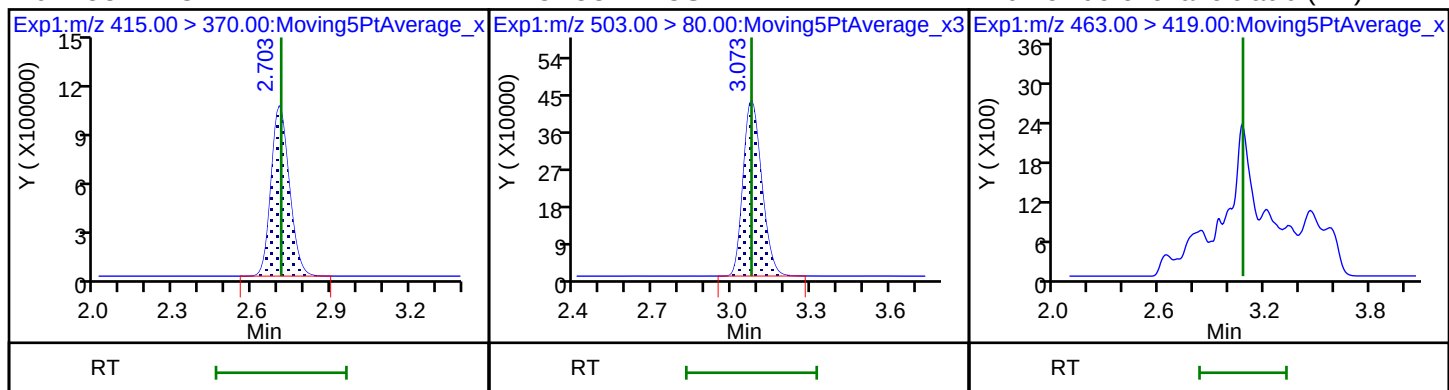
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 18 13C4 PFOS

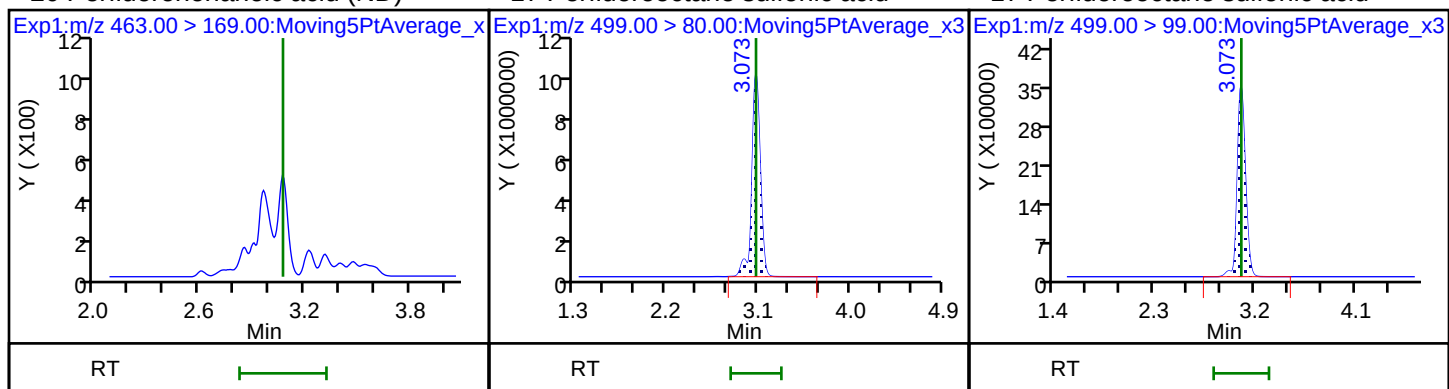
20 Perfluorononanoic acid (ND)



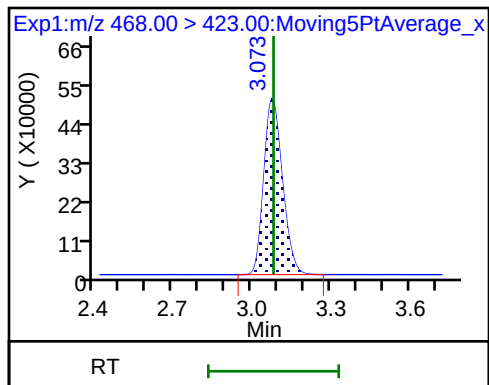
20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 19 13C5 PFNA



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA-01-SB1-02 DL</u> | Lab Sample ID: <u>320-39023-10 DL</u>        |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_003.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/02/2018 14:10</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.05(g)</u>             | Date Analyzed: <u>05/29/2018 11:15</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.6</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.1    | U   | 7.7 | 5.1 | 2.0 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 5.1    | U M | 7.7 | 5.1 | 2.6 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 5.1    | U   | 7.7 | 5.1 | 2.1 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 4.6    | U M | 10  | 4.6 | 1.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 9.1    | D   | 7.7 | 5.1 | 1.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 210    | D   | 26  | 13  | 6.1 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 71   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 78   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 89   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 79   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 70   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 63   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_003.d  
 Lims ID: 320-39023-A-10-A  
 Client ID: KLA-01-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 11:15:16 ALS Bottle#: 2 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-10-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:05:02 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:05:02

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.761 | 1.764  | -0.003 | 1.000  | 3483     | 0.0820       |                 | 70.5 | 31.4  | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       | M     |
| 298.90 > 80.00                   | 1.770 | 1.764  | 0.006  | 1.005  | 13042    | 0.005574     |                 |      | 52.6  | M     |
| 298.90 > 99.00                   | 1.761 | 1.764  | -0.003 | 1.000  | 4843     |              | 2.69(1.25-3.74) |      | 36.3  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.345  | 0.010  | 1.000  | 186400   | 0.0970       |                 | 77.6 | 3779  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.358  | 0.010  | 1.000  | 197795   | 0.0833       |                 | 70.5 | 8170  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.342 | 2.358  | -0.016 | 0.994  | 9475     | 0.006015     |                 |      | 10.8  |       |
| 363.00 > 169.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 5076     |              | 1.87(1.13-3.40) |      | 26.9  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.368 | 2.358  | 0.010  | 1.000  | 333623   | 0.1770       |                 |      | 1317  |       |
| 399.00 > 99.00                   | 2.368 | 2.358  | 0.010  | 1.000  | 110306   |              | 3.02(1.50-4.49) |      | 558   |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.711 | 2.704  | 0.007  | 1.000  | 202941   | 0.1117       |                 | 89.3 | 4352  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.711 | 2.704  | 0.007  |        | 239883   | 0.1250       |                 |      | 5037  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       | M     |
| 413.00 > 369.00                  | 2.545 | 2.712  | -0.167 | 0.939  | 5000     | 0.002617     |                 |      | 2.1   |       |
| 413.00 > 169.00                  | 2.696 | 2.712  | -0.016 | 0.994  | 20223    |              | 0.25(0.84-2.52) |      | 38.8  | M     |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.081 | 3.072  | 0.009  | 1.000  | 147164   | 0.0990       |                 | 79.2 | 5259  |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.081 | 3.072  | 0.009  | 1.000  | 122207   | 0.0749       |                 | 62.7 | 1131  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.081 | 3.076  | 0.005  | 1.000  | 4835486  | 4.02         |                 |      | 17113 |       |
| 499.00 > 99.00                   | 3.081 | 3.076  | 0.005  | 1.000  | 1101313  |              | 4.39(2.31-6.93) |      | 10498 |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_003.d

Injection Date: 29-May-2018 11:15:16

Instrument ID: A8\_N

Lims ID: 320-39023-A-10-A

Lab Sample ID: 320-39023-10

Client ID: KLA-01-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

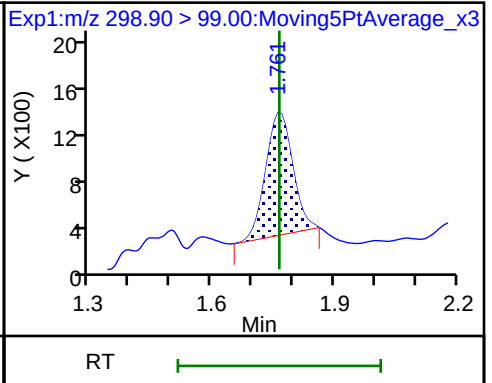
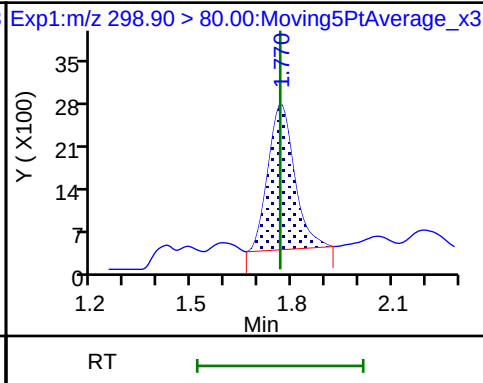
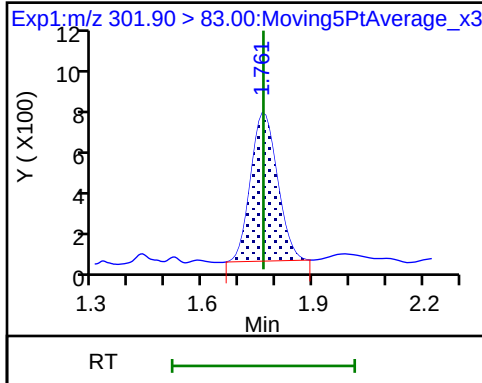
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid (M)

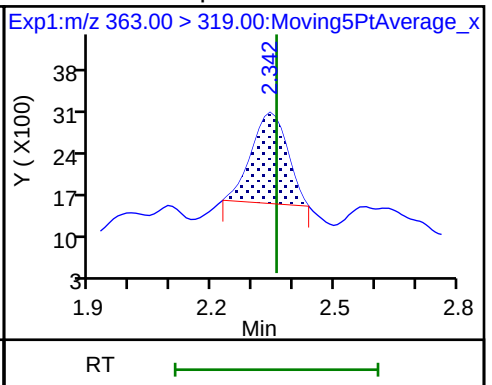
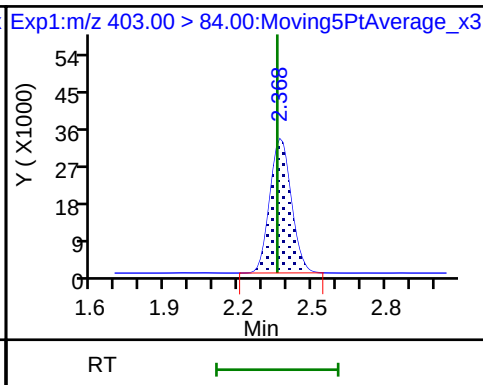
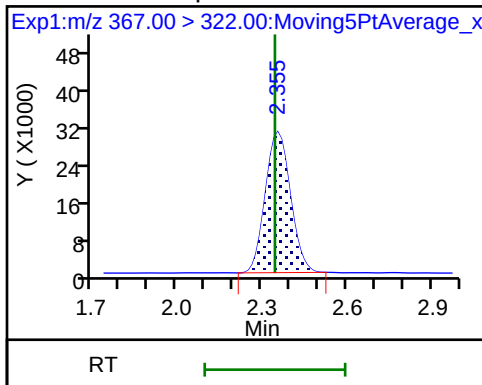
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

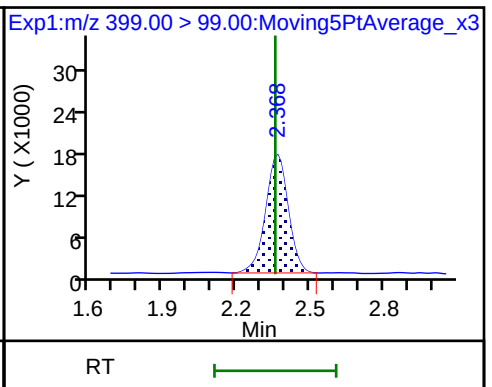
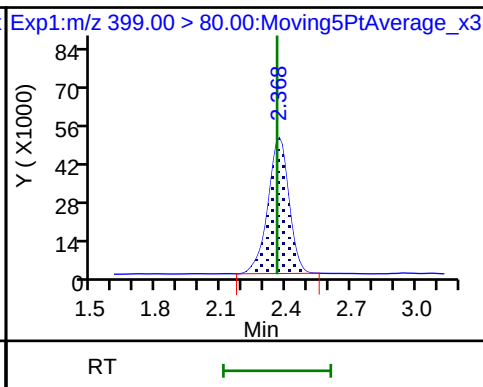
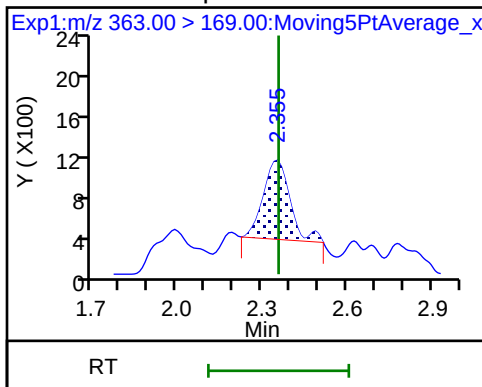
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

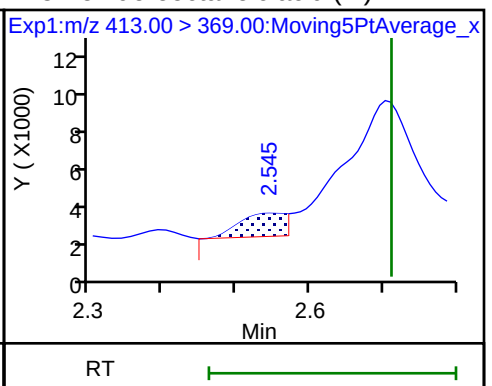
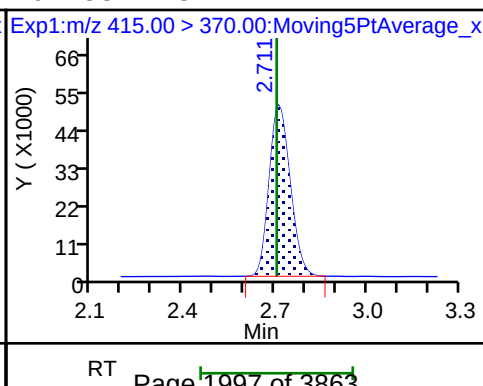
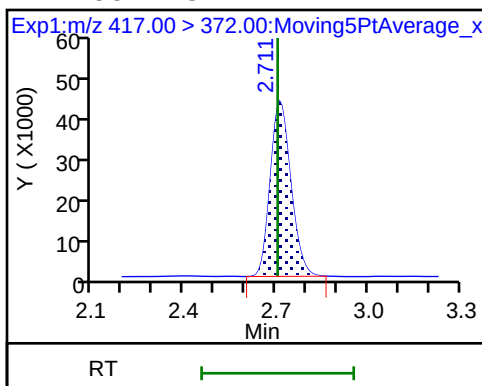
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

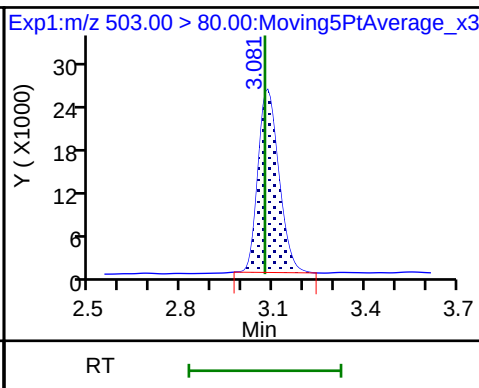
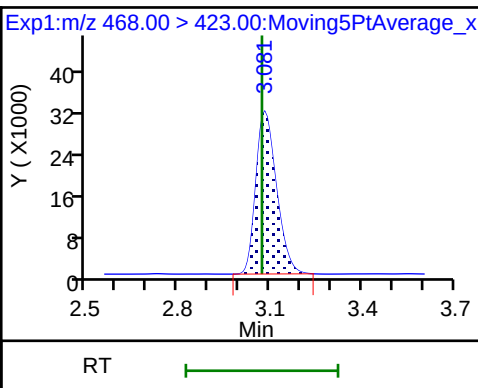
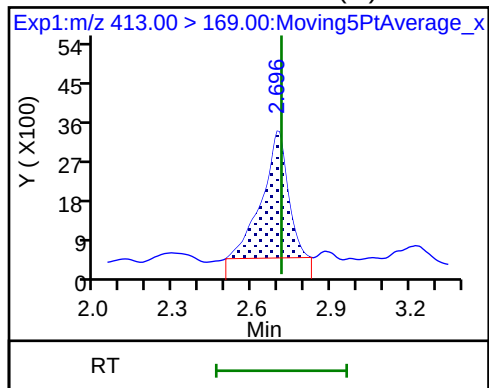
15 Perfluorooctanoic acid (M)



## 15 Perfluorooctanoic acid (M)

## D 19 13C5 PFNA

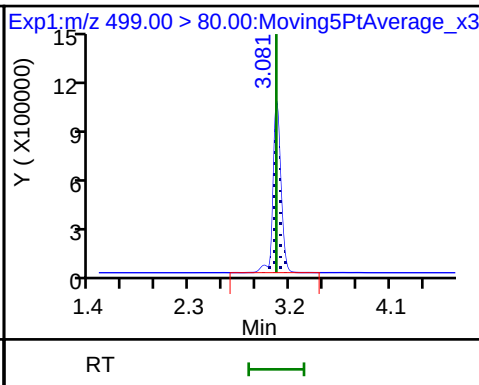
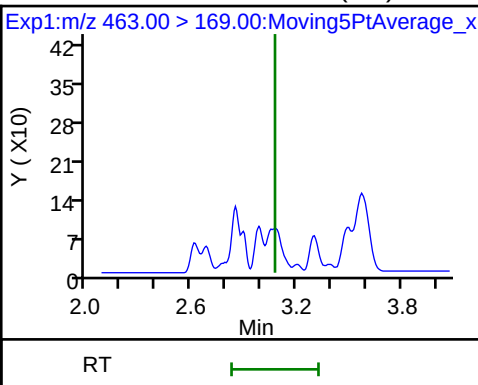
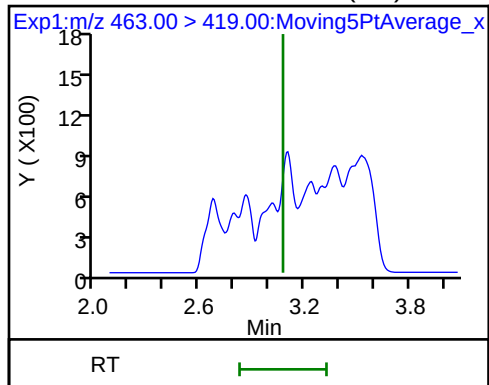
## D 18 13C4 PFOS



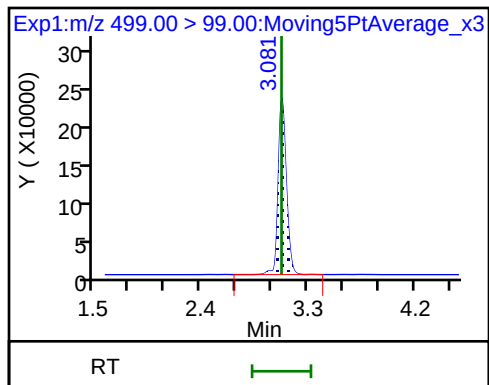
## 20 Perfluorononanoic acid (ND)

## 20 Perfluorononanoic acid (ND)

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid





## TestAmerica Sacramento

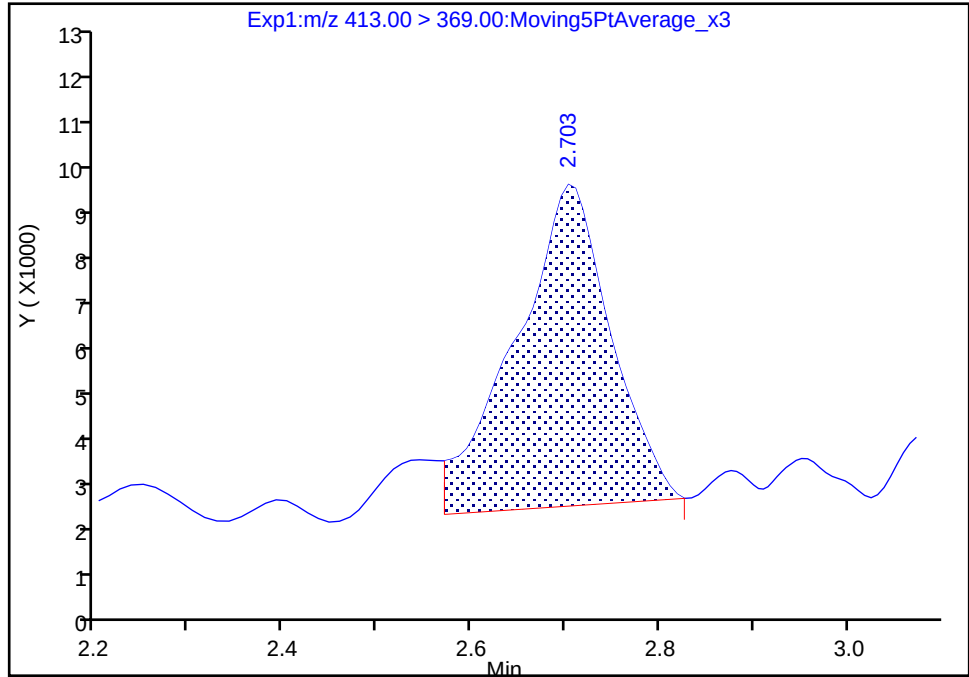
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_003.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:15:16                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-10-A                                                         | Lab Sample ID: | 320-39023-10       |                |   |
| Client ID:      | KLA-01-SB1-02                                                            |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 2                  | Worklist Smp#: | 3 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

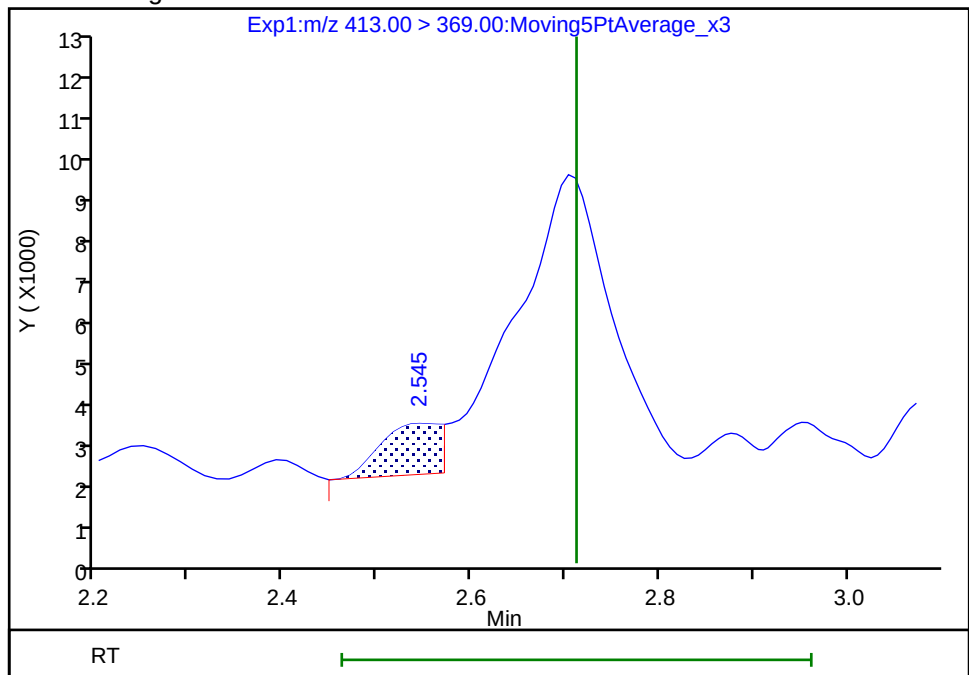
RT: 2.70  
Area: 45563  
Amount: 0.023843  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.54  
Area: 5000  
Amount: 0.002617  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:04:53

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

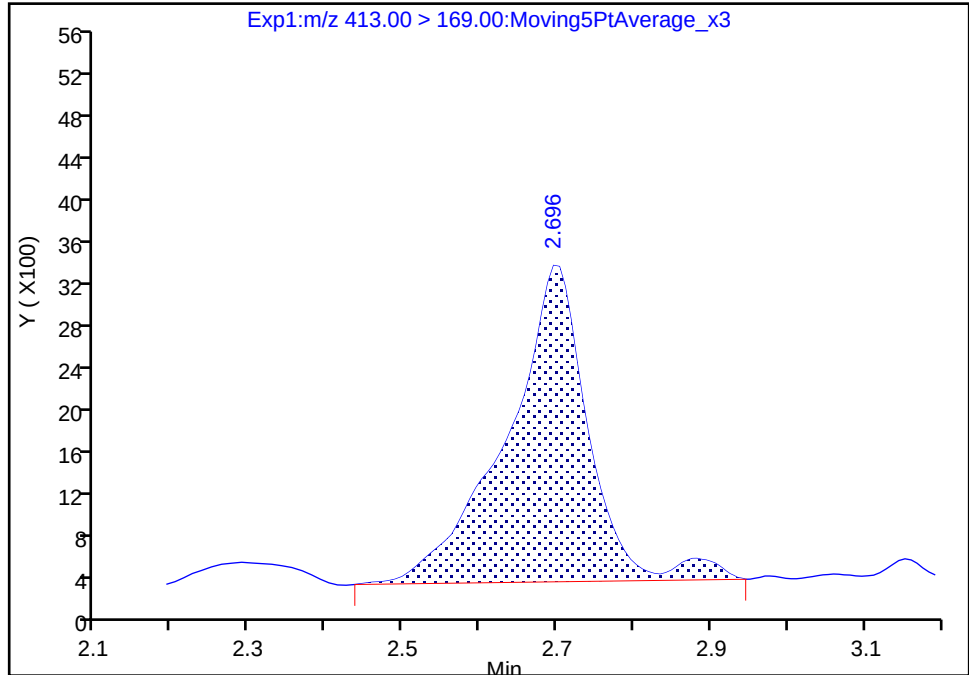
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_003.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:15:16                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-10-A                                                         | Lab Sample ID: | 320-39023-10       |                |   |
| Client ID:      | KLA-01-SB1-02                                                            |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 2                  | Worklist Smp#: | 3 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

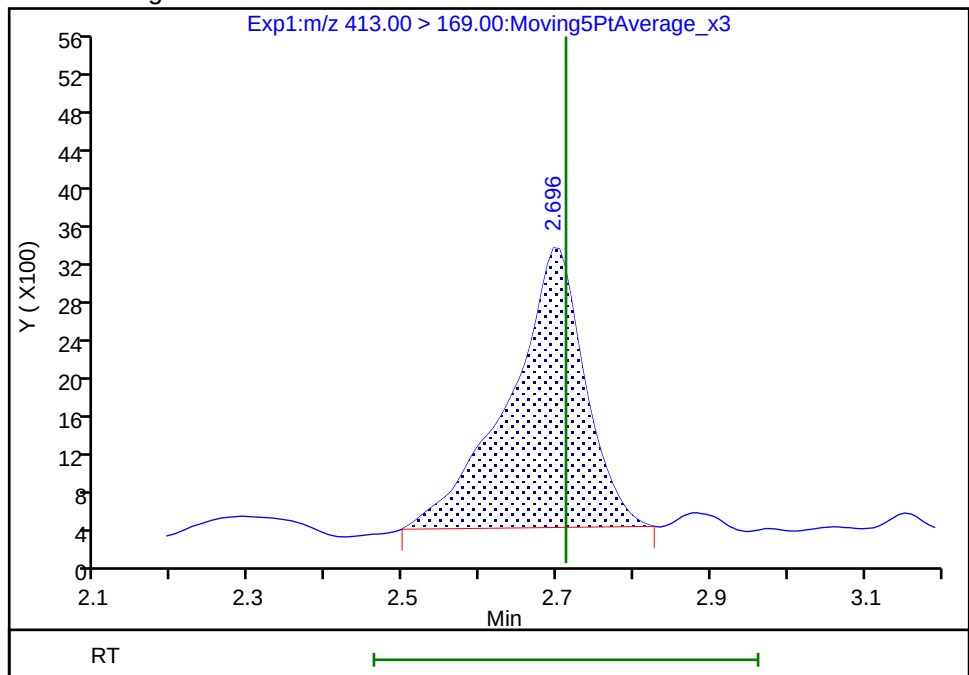
RT: 2.70  
Area: 22466  
Amount: 0.023843  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 20223  
Amount: 0.002617  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:04:57

Audit Action: Manually Integrated

Audit Reason: Baseline

Page 2000 of 3863

## TestAmerica Sacramento

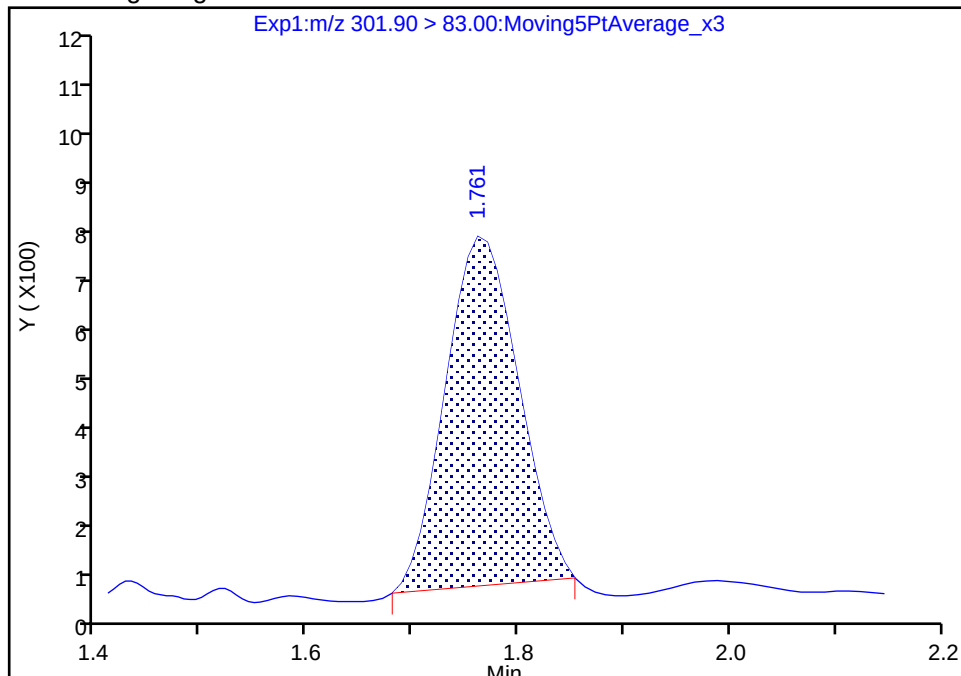
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_003.d  
Injection Date: 29-May-2018 11:15:16 Instrument ID: A8\_N  
Lims ID: 320-39023-A-10-A Lab Sample ID: 320-39023-10  
Client ID: KLA-01-SB1-02  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 3  
Injection Vol: 2.0 ul Dil. Factor: 20.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**D 47 13C3-PFBS, CAS: STL02337**

Signal: 1

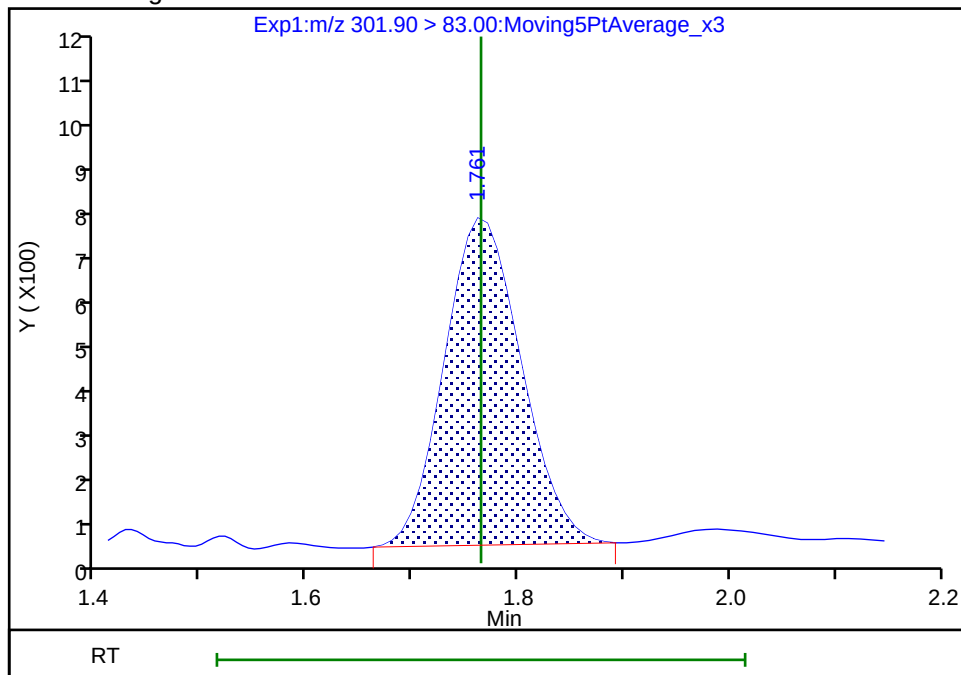
RT: 1.76  
Area: 3198  
Amount: 0.075258  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 3483  
Amount: 0.081965  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:04:09

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

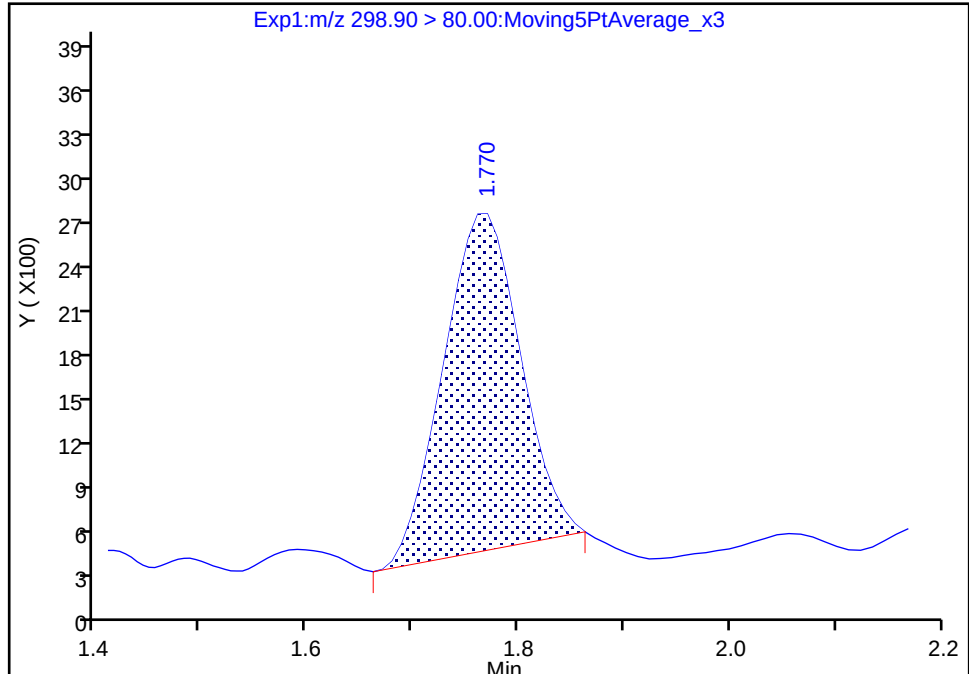
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_003.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:15:16                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-10-A                                                         | Lab Sample ID: | 320-39023-10       |                |   |
| Client ID:      | KLA-01-SB1-02                                                            |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 2                  | Worklist Smp#: | 3 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector:      | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

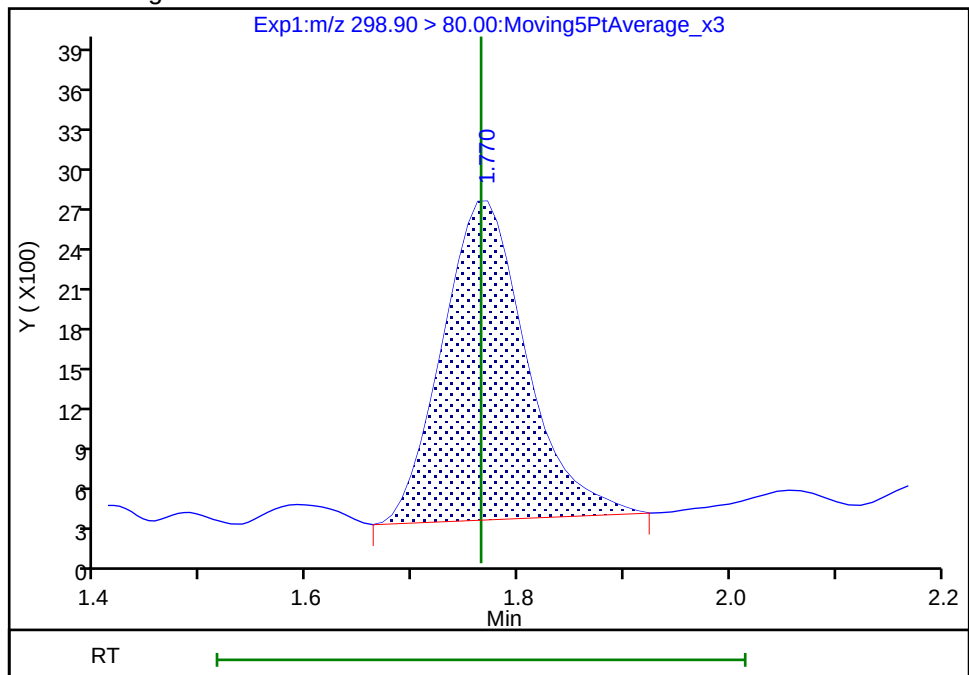
RT: 1.77  
Area: 11515  
Amount: 0.004922  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.77  
Area: 13042  
Amount: 0.005574  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:04:32

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA-01-SB2-01</u>  | Lab Sample ID: <u>320-39023-11</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_010.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 13:15</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.07(g)</u>           | Date Analyzed: <u>05/29/2018 03:48</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>12.1</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.22   | U | 0.34 | 0.22 | 0.088 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.30   | J | 0.34 | 0.22 | 0.11  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.22   | U | 0.34 | 0.22 | 0.091 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.072  | J | 0.45 | 0.20 | 0.066 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.5    |   | 0.34 | 0.22 | 0.070 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1.7    |   | 1.1  | 0.56 | 0.27  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 84   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 88   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 92   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 72   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_010.d  
 Lims ID: 320-39023-A-11-A  
 Client ID: KLA-01-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 03:48:23 ALS Bottle#: 5 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-11-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:22:10 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:22:27

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |        |       |
| 298.90 > 80.00                 | 1.765 | 1.762  | 0.003  | 1.005  | 76393    | 0.0323       |                 |      | 396    |       |
| 298.90 > 99.00                 | 1.765 | 1.762  | 0.003  | 1.005  | 32446    |              | 2.35(1.25-3.74) |      | 130    |       |
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |        |       |
| 301.90 > 83.00                 | 1.756 | 1.765  | -0.009 | 1.000  | 70473    | 1.58         |                 | 67.9 | 616    |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                | 2.346 | 2.345  | 0.001  | 1.000  | 4219488  | 2.09         |                 | 83.6 | 83994  |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                | 2.346 | 2.355  | -0.009 | 1.000  | 41588    | 0.0233       |                 |      | 53.3   |       |
| 363.00 > 169.00                | 2.346 | 2.355  | -0.009 | 1.000  | 13351    |              | 3.11(1.13-3.40) |      | 71.6   |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                 | 2.359 | 2.368  | -0.009 | 1.000  | 1295374  | 0.6470       |                 |      | 5571   |       |
| 399.00 > 99.00                 | 2.359 | 2.368  | -0.009 | 1.000  | 398496   |              | 3.25(1.50-4.49) |      | 1415   |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                 | 2.359 | 2.372  | -0.013 | 1.000  | 4202069  | 1.68         |                 | 71.2 | 84678  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                | 2.705 | 2.704  | 0.001  | 1.000  | 4221885  | 2.21         |                 | 88.5 | 73707  |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                | 2.698 | 2.711  | -0.013 | 0.997  | 267765   | 0.1347       |                 |      | 107    |       |
| 413.00 > 169.00                | 2.698 | 2.711  | -0.013 | 0.997  | 135668   |              | 1.97(0.84-2.52) |      | 427    |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                | 2.705 | 2.711  | -0.006 |        | 5039852  | 2.50         |                 |      | 117815 |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                 | 3.077 | 3.074  | 0.003  | 1.000  | 2932224  | 1.71         |                 | 71.6 | 26550  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                | 3.077 | 3.076  | 0.001  | 1.000  | 48755    | 0.0319       |                 |      | 131    |       |
| 463.00 > 169.00                | 3.077 | 3.076  | 0.001  | 1.000  | 12516    |              | 3.90(1.90-5.69) |      | 345    |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.077 | 3.076     | 0.001     | 1.000     | 1070794  | 0.7423          |                 |      | 3566  |       |
| 499.00 > 99.00                   | 3.070 | 3.076     | -0.006    | 0.998     | 220998   |                 | 4.85(2.31-6.93) |      | 1470  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.077 | 3.081     | -0.004    | 1.000     | 3602795  | 2.31            |                 | 92.3 | 63525 |       |

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_010.d

Injection Date: 29-May-2018 03:48:23

Instrument ID: A8\_N

Lims ID: 320-39023-A-11-A

Lab Sample ID: 320-39023-11

Client ID: KLA-01-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

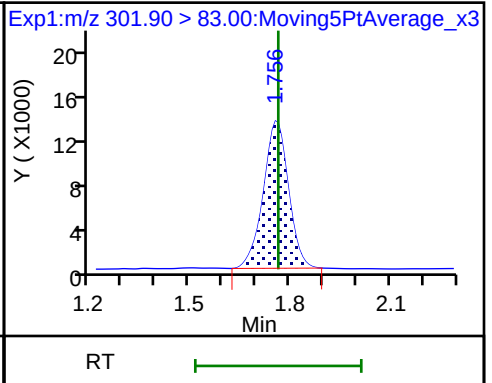
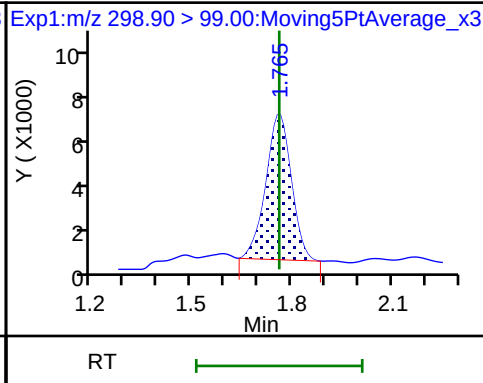
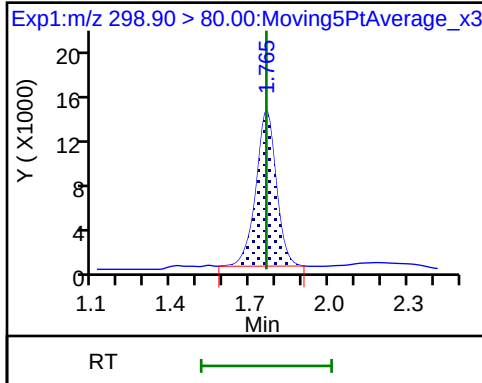
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

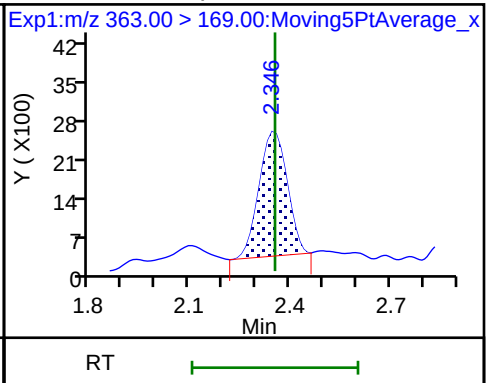
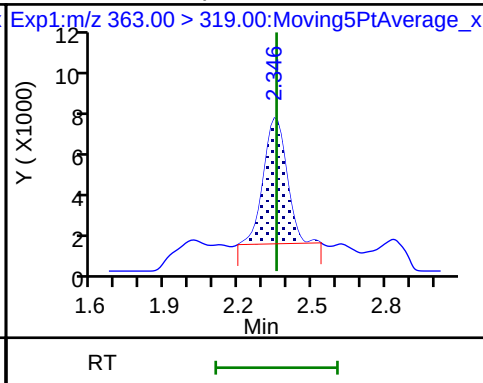
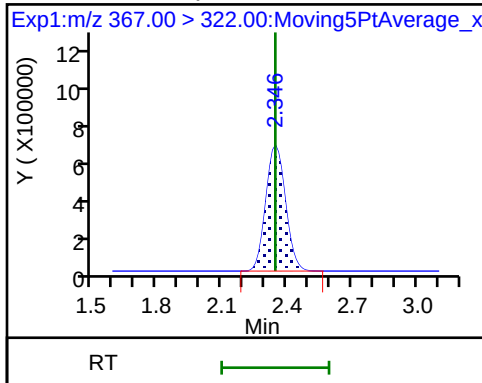
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

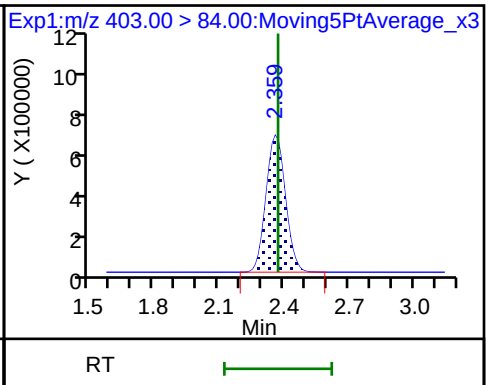
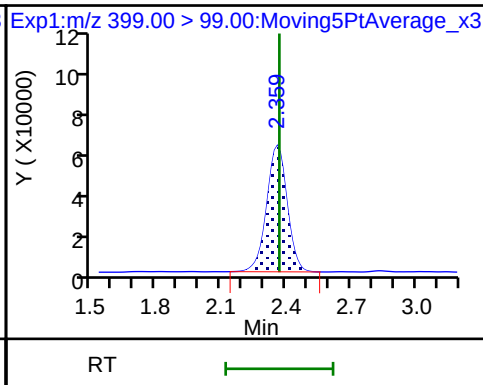
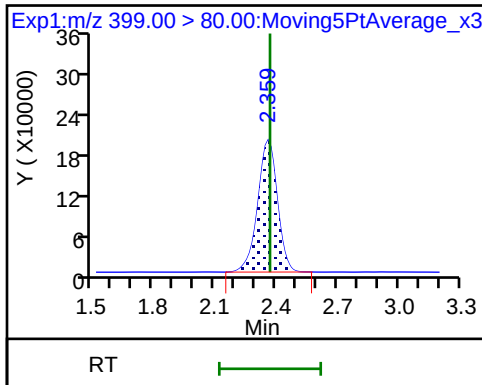
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

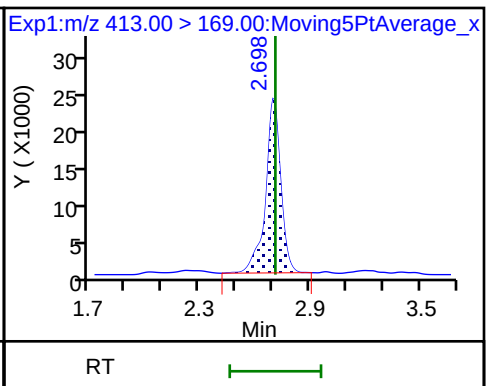
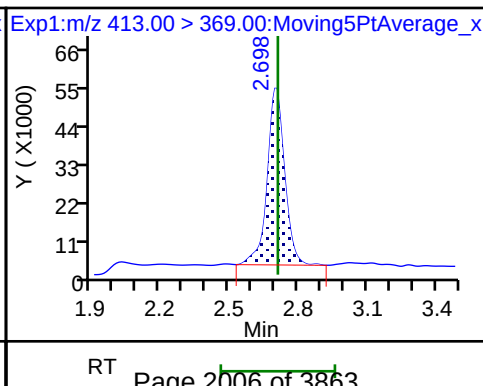
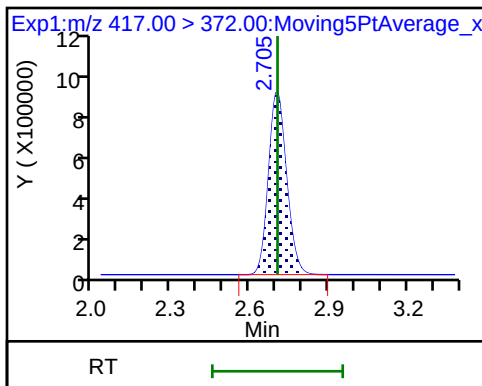
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid



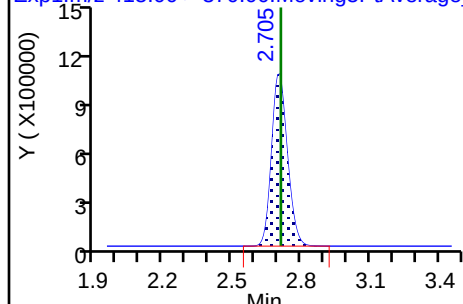


\* 62 13C2-PFOA

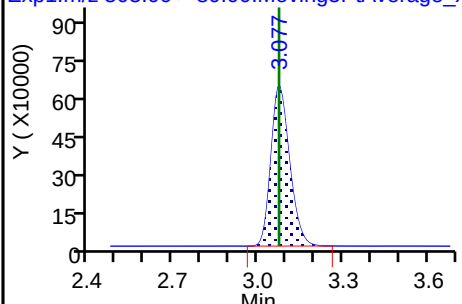
D 18 13C4 PFOS

20 Perfluorononanoic acid

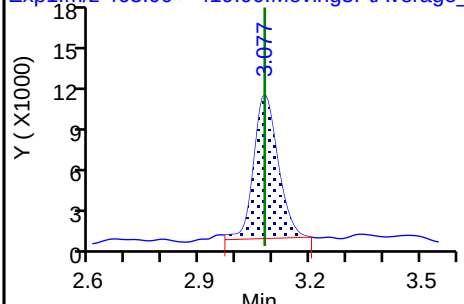
Exp1:m/z 415.00 &gt; 370.00:Moving5PtAverage\_x



Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x

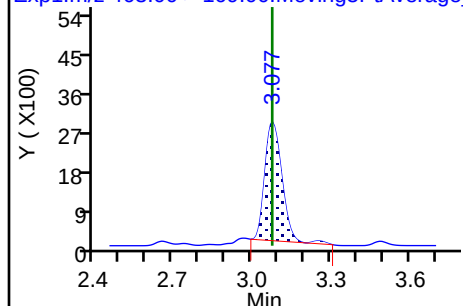


20 Perfluorononanoic acid

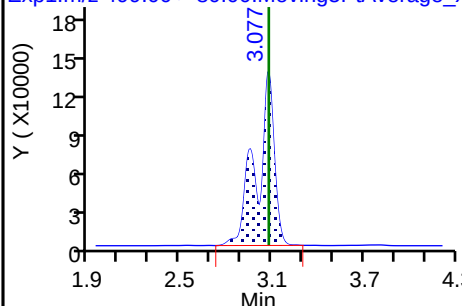
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

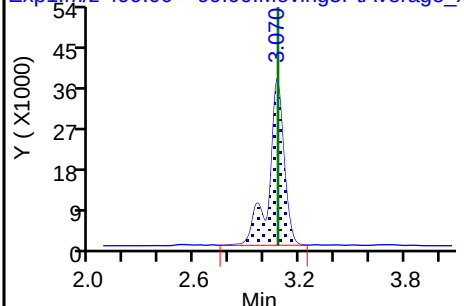
Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3

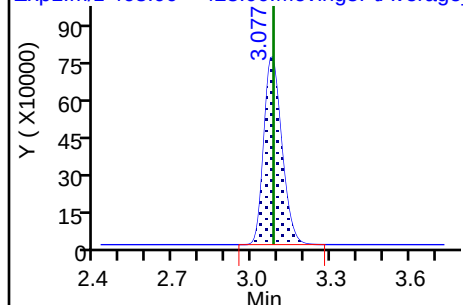


Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3



D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA-01-SB2-02</u>  | Lab Sample ID: <u>320-39023-12</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_011.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 13:20</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>05/29/2018 03:56</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>24.3</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.14   | J   | 0.39 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.39   |     | 0.39 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U M | 0.39 | 0.26 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.15   | J   | 0.52 | 0.23 | 0.077 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2.4    |     | 0.39 | 0.26 | 0.081 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3.2    | M   | 1.3  | 0.65 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 71   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 87   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 76   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 74   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_011.d  
 Lims ID: 320-39023-A-12-A  
 Client ID: KLA-01-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 03:56:15 ALS Bottle#: 6 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-12-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:22:59 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:22:59

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |        |       |
| 298.90 > 80.00                 | 1.770 | 1.762  | 0.008  | 1.000  | 140702   | 0.0560       |                 |      | 567    |       |
| 298.90 > 99.00                 | 1.770 | 1.762  | 0.008  | 1.000  | 61027    |              | 2.31(1.25-3.74) |      | 165    |       |
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |        |       |
| 301.90 > 83.00                 | 1.770 | 1.765  | 0.005  | 1.000  | 74854    | 1.66         |                 | 71.4 | 521    |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                | 2.355 | 2.345  | 0.010  | 1.000  | 4215156  | 2.07         |                 | 82.7 | 67703  |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                | 2.355 | 2.355  | 0.0    | 1.000  | 97846    | 0.0549       |                 |      | 103    |       |
| 363.00 > 169.00                | 2.355 | 2.355  | 0.0    | 1.000  | 31381    |              | 3.12(1.13-3.40) |      | 179    |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                 | 2.368 | 2.368  | 0.0    | 1.000  | 1999333  | 0.9243       |                 |      | 3075   |       |
| 399.00 > 99.00                 | 2.368 | 2.368  | 0.0    | 1.000  | 641724   |              | 3.12(1.50-4.49) |      | 1912   |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                 | 2.368 | 2.372  | -0.004 | 1.000  | 4539797  | 1.80         |                 | 76.2 | 105858 |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                | 2.711 | 2.704  | 0.007  | 1.000  | 4060645  | 2.11         |                 | 84.2 | 56615  |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                | 2.711 | 2.711  | 0.0    | 1.000  | 288226   | 0.1508       |                 |      | 125    |       |
| 413.00 > 169.00                | 2.711 | 2.711  | 0.0    | 1.000  | 155937   |              | 1.85(0.84-2.52) |      | 408    |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                | 2.711 | 2.711  | 0.0    |        | 5091342  | 2.50         |                 |      | 75839  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                 | 3.081 | 3.074  | 0.007  | 1.000  | 3046830  | 1.76         |                 | 73.6 | 18261  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                | 3.081 | 3.076  | 0.005  | 1.000  | 19696    | 0.0136       |                 |      | 43.7   | M     |
| 463.00 > 169.00                | 3.081 | 3.076  | 0.005  | 1.000  | 3940     |              | 5.00(1.90-5.69) |      | 71.8   | M     |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | M     |
| 499.00 > 80.00                   | 3.081 | 3.076     | 0.005     | 1.000     | 1842947  | 1.23            |                 |      | 7641  | M     |
| 499.00 > 99.00                   | 3.081 | 3.076     | 0.005     | 1.000     | 422451   |                 | 4.36(2.31-6.93) |      | 3687  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.081 | 3.081     | 0.0       | 1.000     | 3416272  | 2.17            |                 | 86.6 | 72223 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_011.d

Injection Date: 29-May-2018 03:56:15

Instrument ID: A8\_N

Lims ID: 320-39023-A-12-A

Lab Sample ID: 320-39023-12

Client ID: KLA-01-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

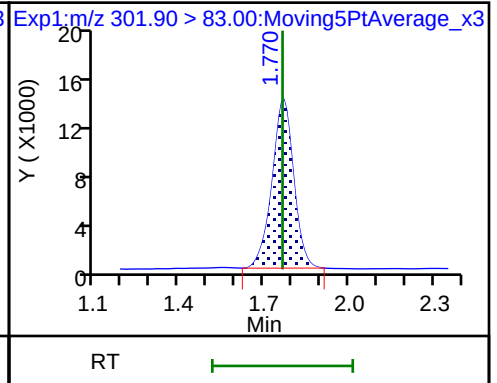
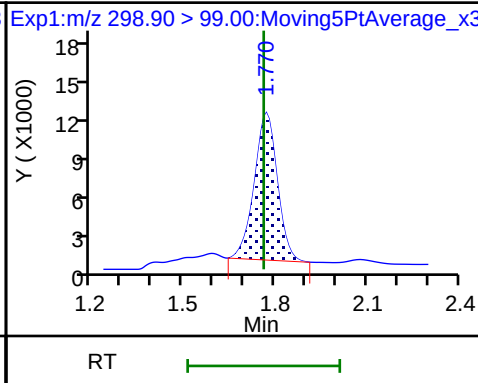
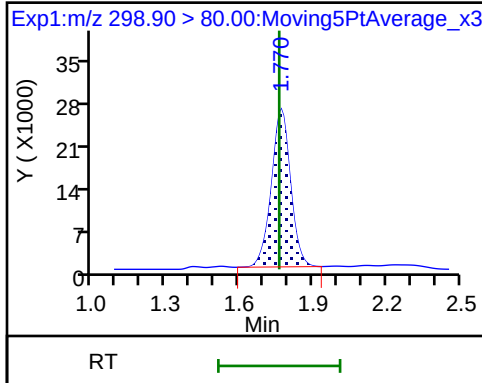
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

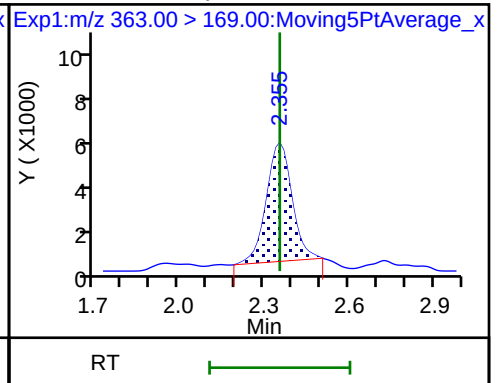
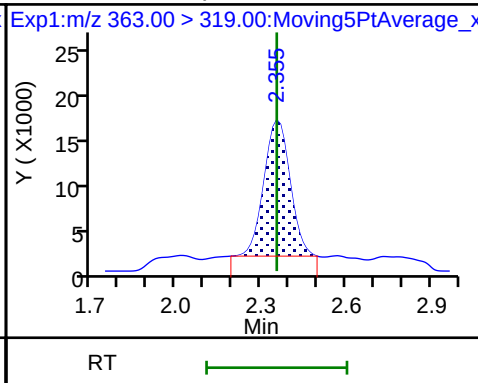
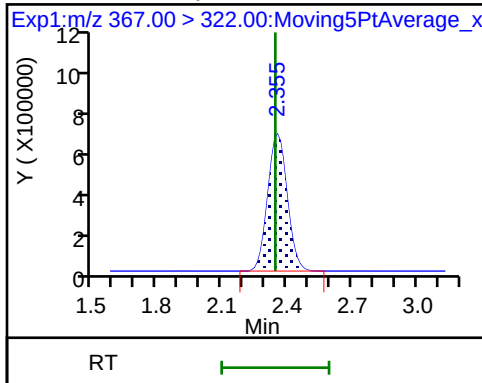
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

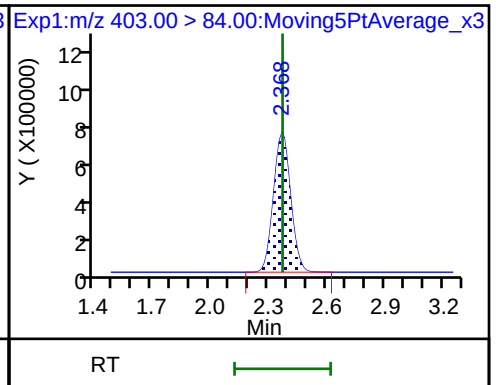
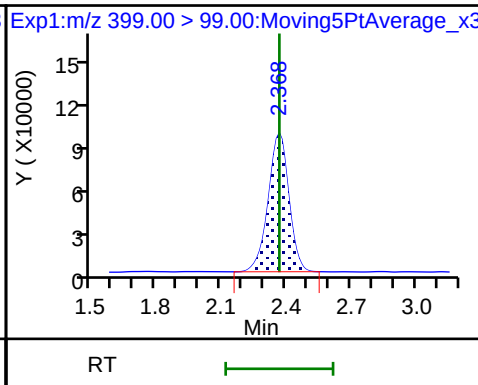
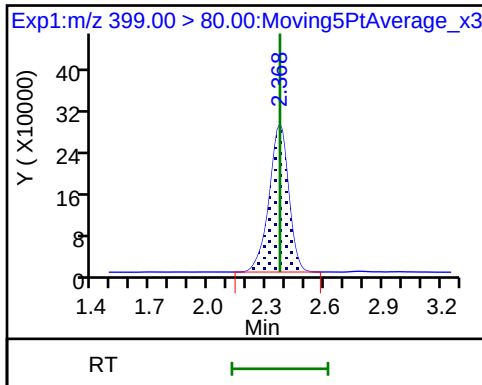
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

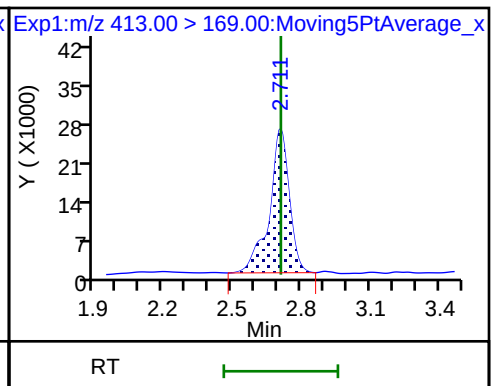
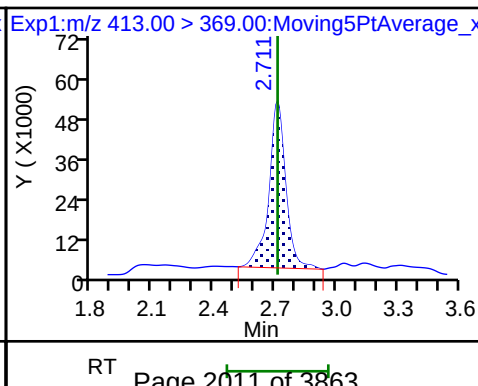
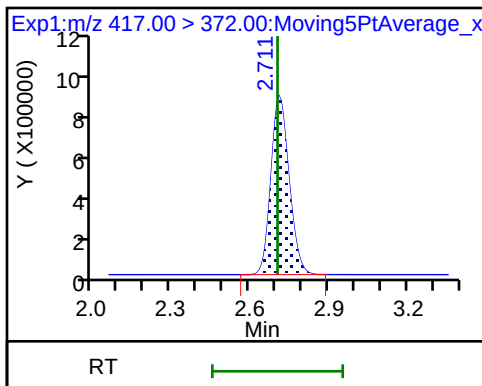
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

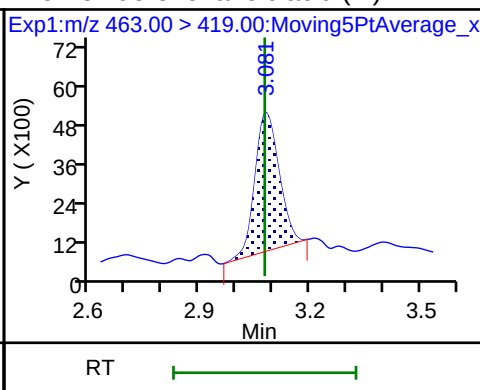
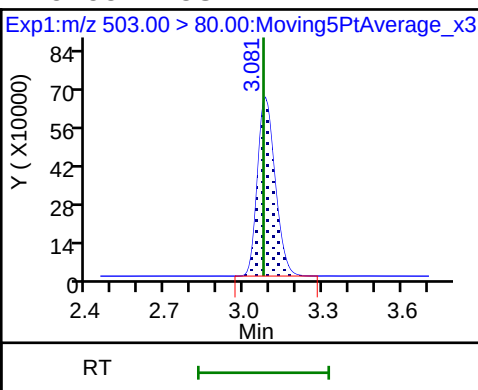
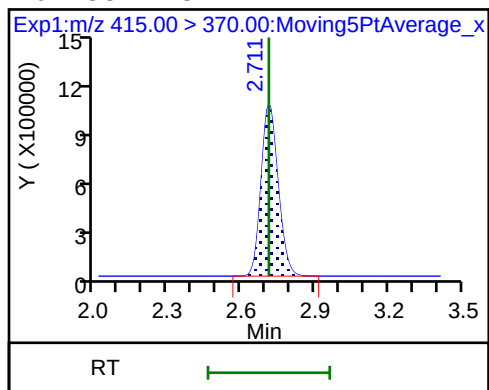
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 18 13C4 PFOS

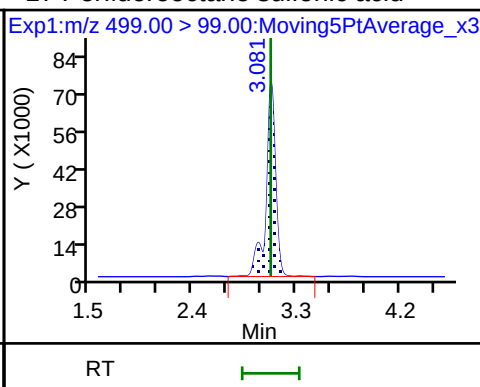
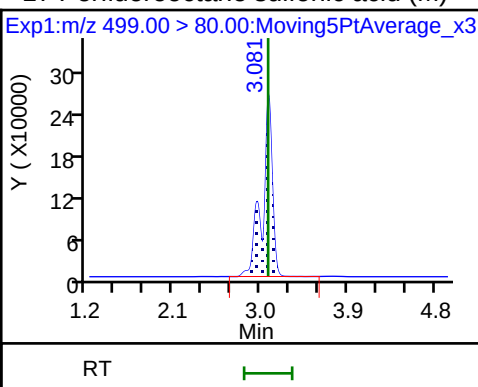
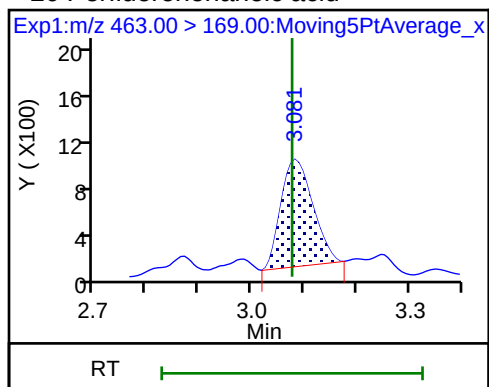
20 Perfluorononanoic acid (M)



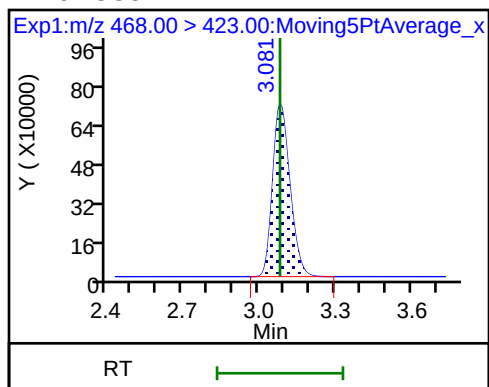
20 Perfluorononanoic acid

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid



D 19 13C5 PFNA



## TestAmerica Sacramento

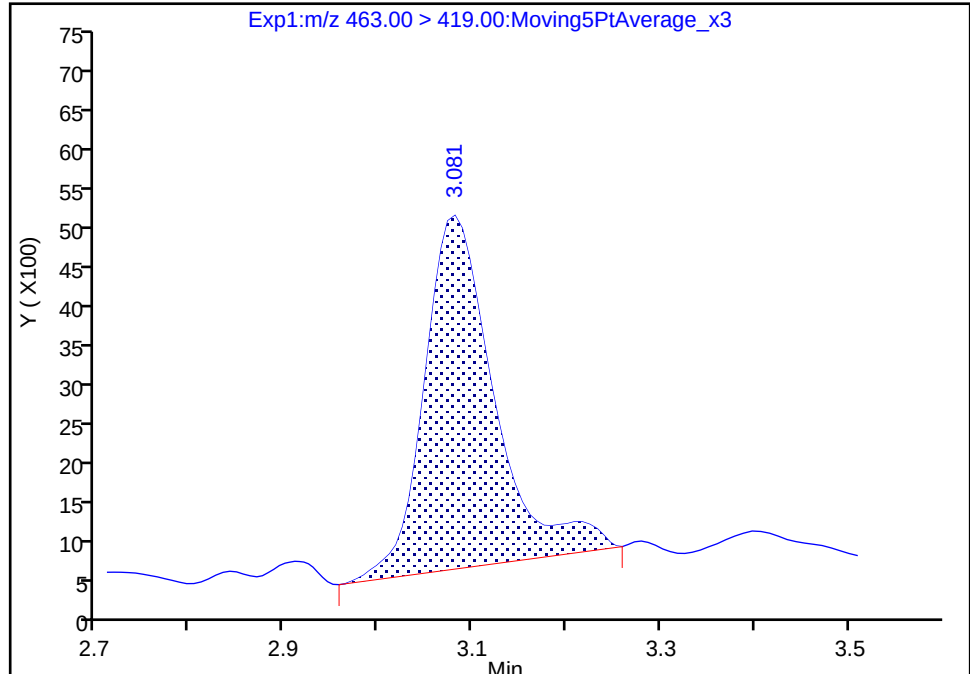
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58852.b\2018.05.28LLB_011.d |                |                    |                |   |
| Injection Date: | 29-May-2018 03:56:15                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-12-A                                                         | Lab Sample ID: | 320-39023-12       |                |   |
| Client ID:      | KLA-01-SB2-02                                                            |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 6                  | Worklist Smp#: | 7 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

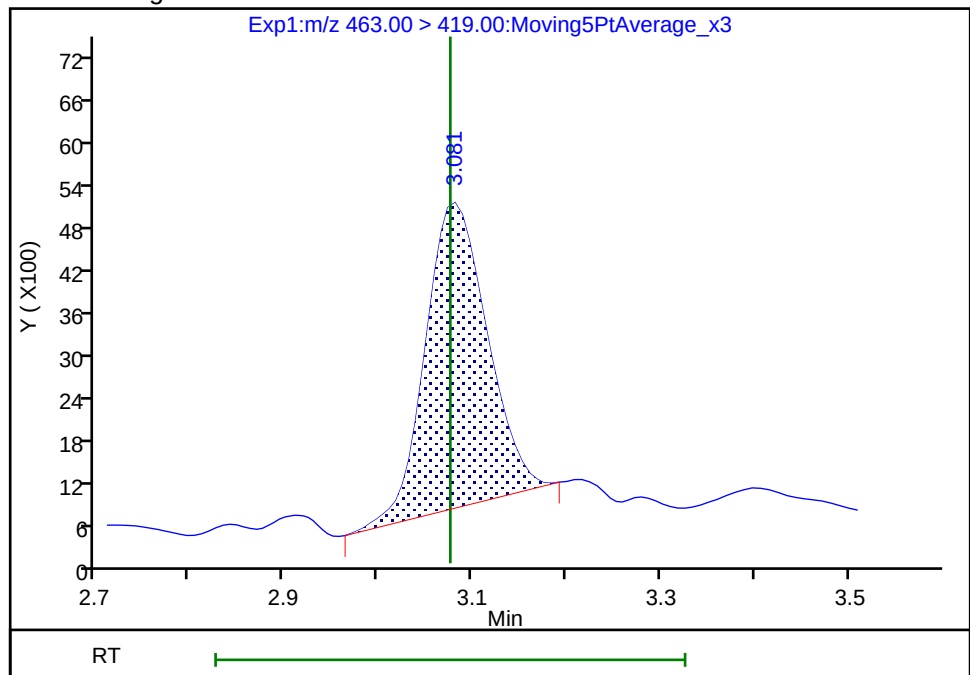
RT: 3.08  
Area: 23414  
Amount: 0.016177  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 19696  
Amount: 0.013608  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 16:22:47  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2013 of 3863

## TestAmerica Sacramento

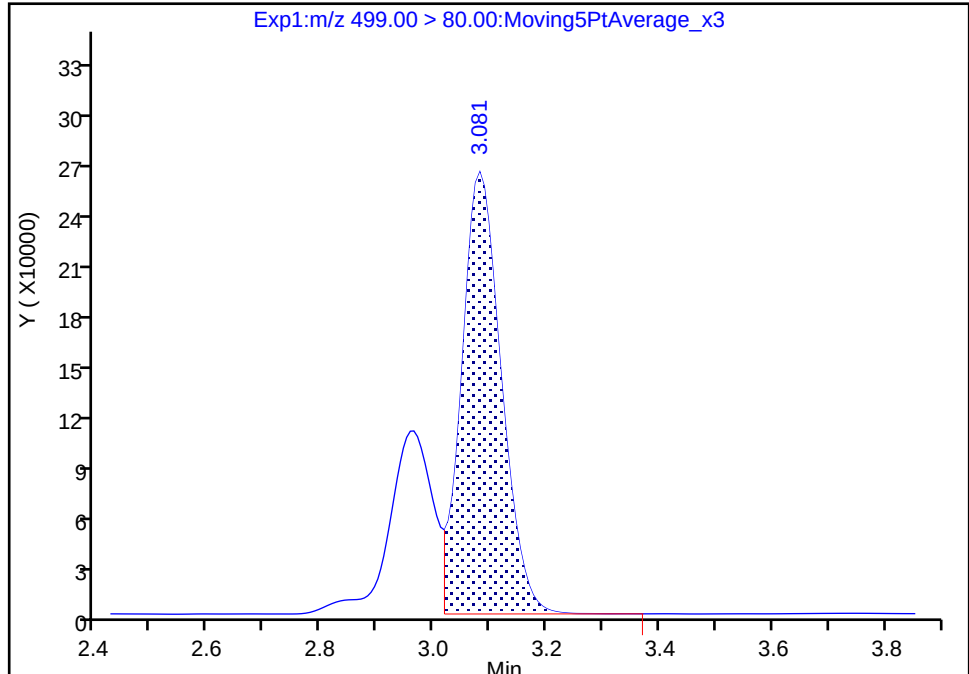
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58852.b\2018.05.28LLB_011.d |                |                    |                |   |
| Injection Date: | 29-May-2018 03:56:15                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-12-A                                                         | Lab Sample ID: | 320-39023-12       |                |   |
| Client ID:      | KLA-01-SB2-02                                                            |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 6                  | Worklist Smp#: | 7 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

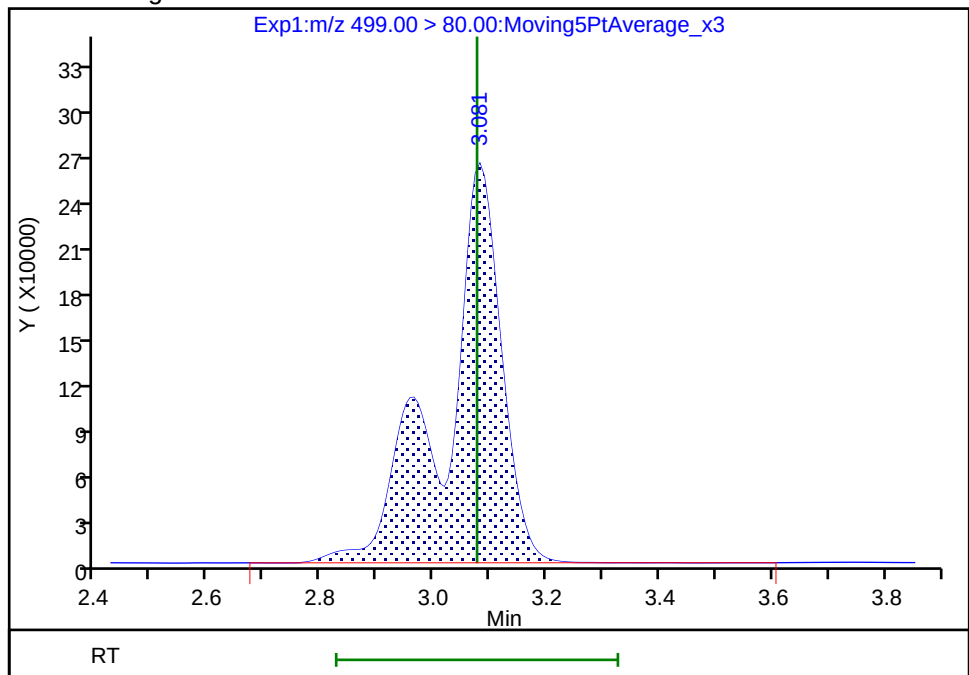
RT: 3.08  
Area: 1263980  
Amount: 0.843254  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 1842947  
Amount: 1.229507  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 16:22:55

Audit Action: Manually Integrated

Audit Reason: Isomers



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA-01-SB3-01</u>  | Lab Sample ID: <u>320-39023-13</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_012.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 14:25</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.10(g)</u>           | Date Analyzed: <u>05/29/2018 04:04</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.25   | U   | 0.38 | 0.25 | 0.099 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.22   | J   | 0.38 | 0.25 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.25   | U M | 0.38 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.13   | J   | 0.51 | 0.23 | 0.075 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.3    |     | 0.38 | 0.25 | 0.079 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 10     |     | 1.3  | 0.63 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 67   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 82   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 84   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_012.d  
 Lims ID: 320-39023-A-13-A  
 Client ID: KLA-01-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 04:04:10 ALS Bottle#: 7 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-13-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:23:17 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:23:17

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.766 | 1.762  | 0.004  | 1.000  | 127503   | 0.0509       |                 |      | 580   |       |
| 298.90 > 99.00                   | 1.766 | 1.762  | 0.004  | 1.000  | 54998    |              | 2.32(1.25-3.74) |      | 167   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 74545    | 1.55         |                 | 66.8 | 442   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.360 | 2.345  | 0.015  | 1.000  | 4443107  | 2.05         |                 | 81.9 | 65410 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.360 | 2.355  | 0.005  | 1.000  | 45811    | 0.0244       |                 |      | 50.8  |       |
| 363.00 > 169.00                  | 2.347 | 2.355  | -0.008 | 0.994  | 14082    |              | 3.25(1.13-3.40) |      | 65.6  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.372 | 2.368  | 0.004  | 1.000  | 1169211  | 0.5279       |                 |      | 3185  |       |
| 399.00 > 99.00                   | 2.372 | 2.368  | 0.004  | 1.000  | 389735   |              | 3.00(1.50-4.49) |      | 1631  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.372 | 2.372  | 0.0    | 1.000  | 4648701  | 1.73         |                 | 73.3 | 76403 |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.712 | 2.704  | 0.008  | 1.000  | 4330510  | 2.11         |                 | 84.4 | 75225 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.712 | 2.711  | 0.001  | 1.000  | 173839   | 0.0853       |                 |      | 69.8  |       |
| 413.00 > 169.00                  | 2.712 | 2.711  | 0.001  | 1.000  | 91707    |              | 1.90(0.84-2.52) |      | 290   |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.712 | 2.711  | 0.001  |        | 5418000  | 2.50         |                 |      | 62764 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.077 | 3.074  | 0.003  | 1.000  | 3013144  | 1.64         |                 | 68.4 | 22040 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.085 | 3.076  | 0.009  | 1.003  | 5934596  | 4.00         |                 |      | 16494 |       |
| 499.00 > 99.00                   | 3.077 | 3.076  | 0.001  | 1.000  | 1374501  |              | 4.32(2.31-6.93) |      | 15775 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.085 | 3.081  | 0.004  | 1.000  | 3529812  | 2.10         |                 | 84.1 | 92209 |       |

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_012.d

Injection Date: 29-May-2018 04:04:10

Instrument ID: A8\_N

Lims ID: 320-39023-A-13-A

Lab Sample ID: 320-39023-13

Client ID: KLA-01-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

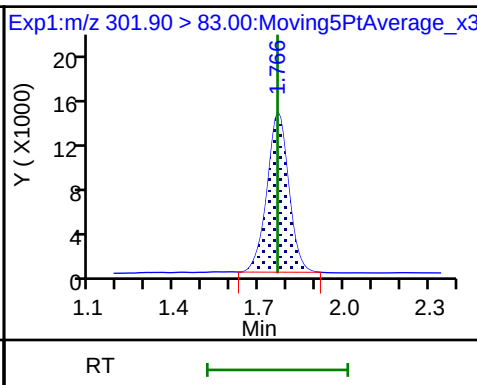
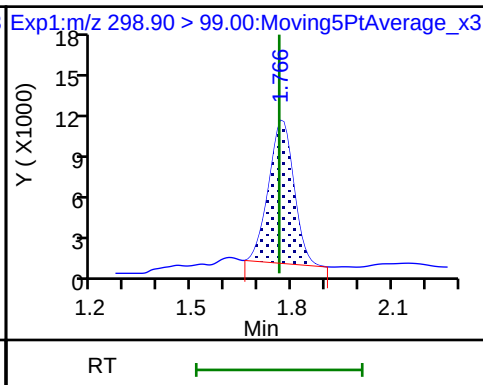
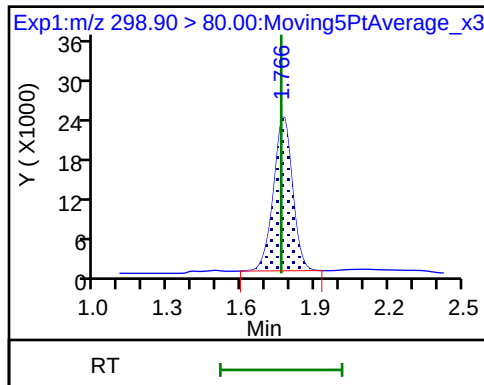
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

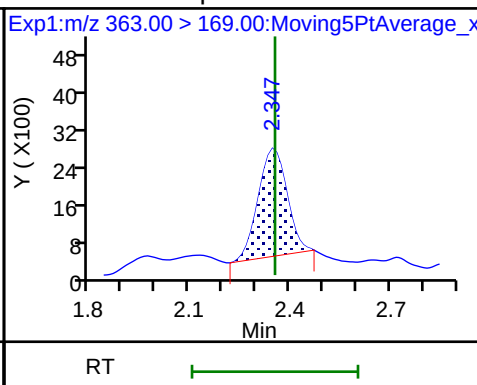
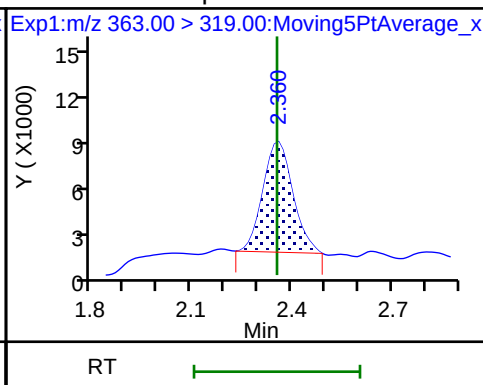
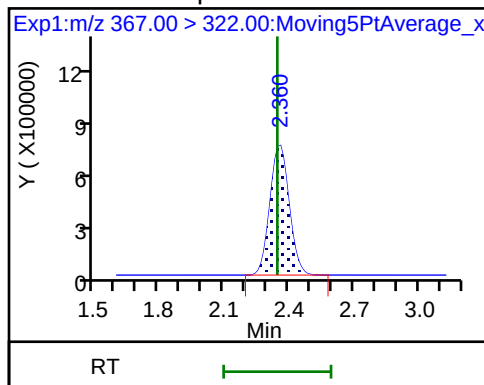
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

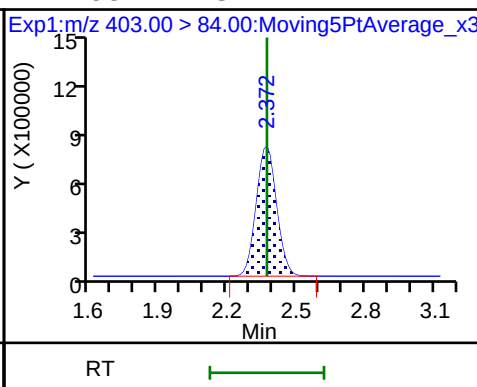
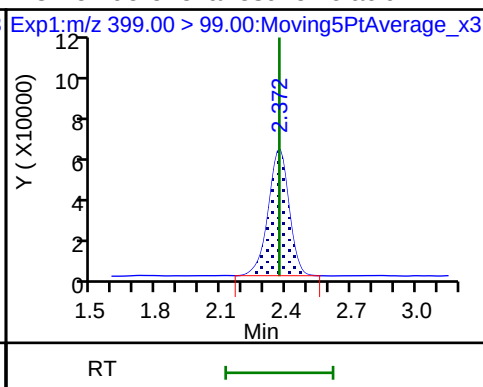
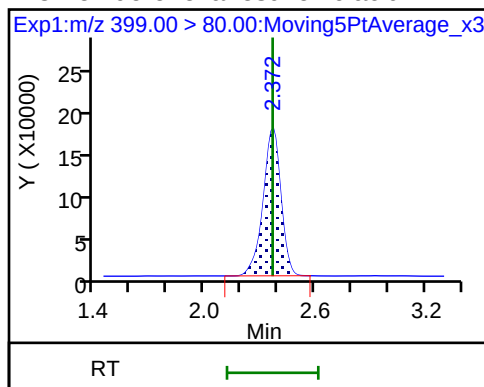
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

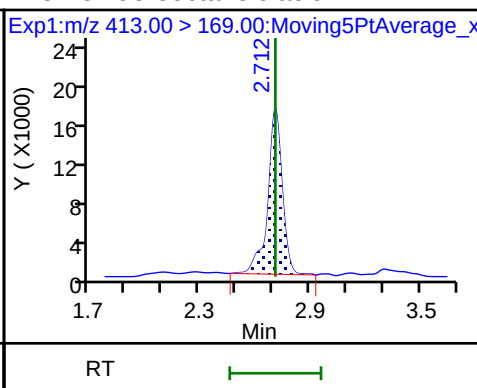
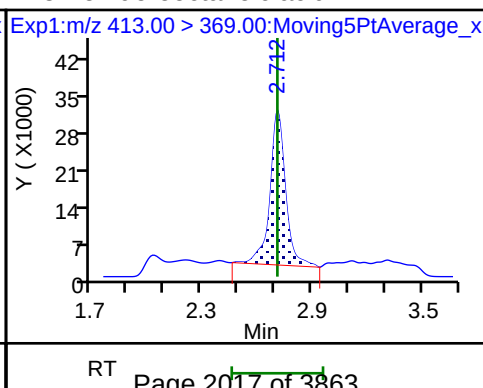
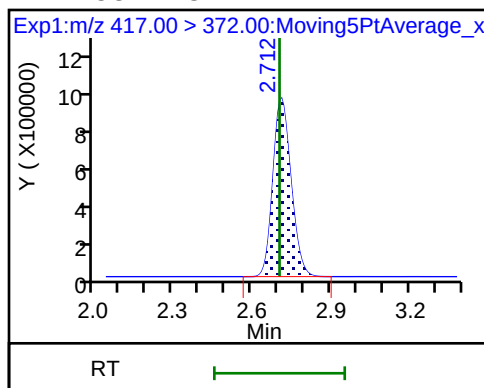
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

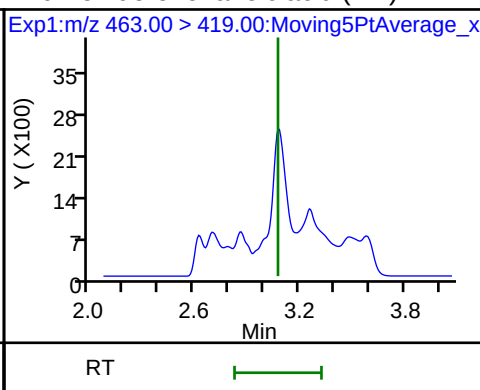
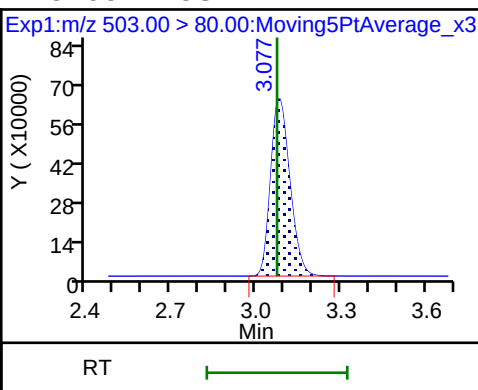
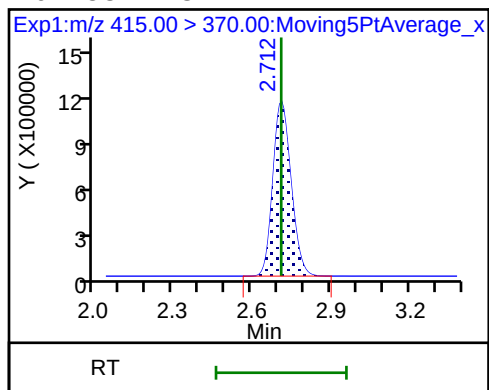
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 18 13C4 PFOS

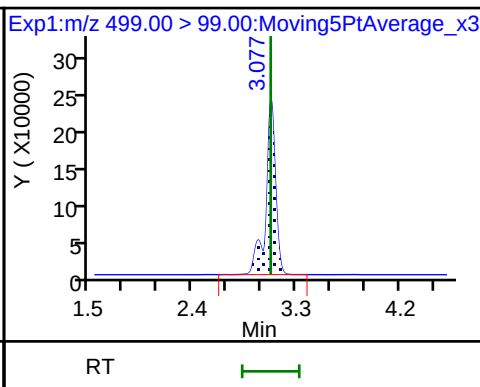
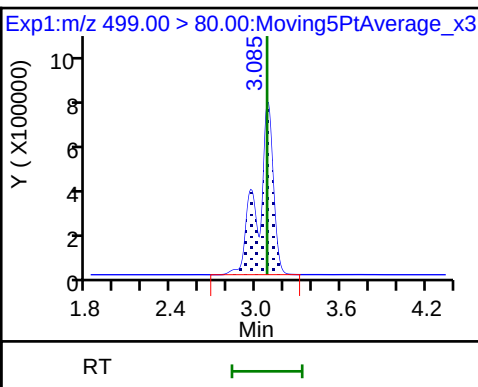
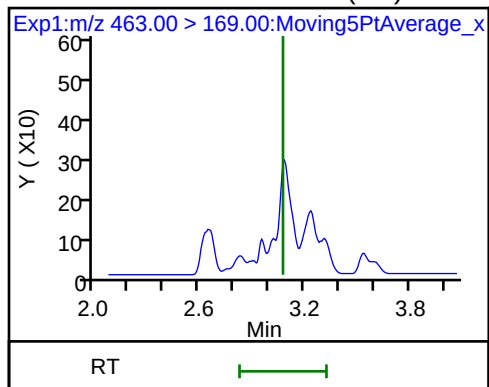
20 Perfluorononanoic acid (ND)



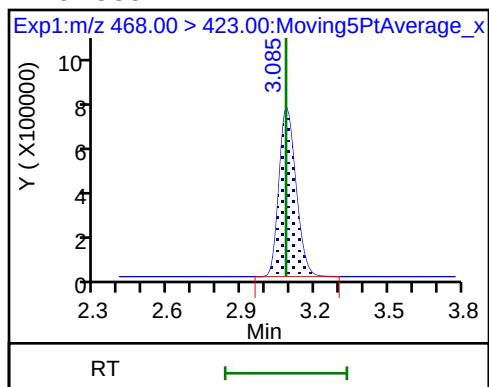
20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 19 13C5 PFNA



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA-01-SB3-02</u>  | Lab Sample ID: <u>320-39023-14</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_013.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 14:30</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>05/29/2018 04:12</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.9</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.25   | U | 0.38 | 0.25 | 0.099 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.25   | U | 0.38 | 0.25 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.25   | U | 0.38 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.23   | U | 0.51 | 0.23 | 0.075 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.32   | J | 0.38 | 0.25 | 0.078 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1.1    | J | 1.3  | 0.63 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 67   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 80   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 80   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 82   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 70   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 64   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_013.d  
 Lims ID: 320-39023-A-14-A  
 Client ID: KLA-01-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 04:12:01 ALS Bottle#: 8 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-14-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:23:17 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:23:34

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.761 | 1.762  | -0.001 | 1.000  | 52332    | 0.0232       |                 |      | 240   |       |
| 298.90 > 99.00                   | 1.761 | 1.762  | -0.001 | 1.000  | 17542    |              | 2.98(1.25-3.74) |      | 119   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.761 | 1.765  | -0.004 | 1.000  | 67284    | 1.55         |                 | 66.7 | 582   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.342 | 2.345  | -0.003 | 1.000  | 3922909  | 2.00         |                 | 80.0 | 62155 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.342 | 2.355  | -0.013 | 1.000  | 7051     | 0.004254     |                 |      | 9.5   |       |
| 363.00 > 169.00                  | 2.342 | 2.355  | -0.013 | 1.000  | 4145     |              | 1.70(1.13-3.40) |      | 23.9  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 242450   | 0.1260       |                 |      | 1020  |       |
| 399.00 > 99.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 84105    |              | 2.88(1.50-4.49) |      | 408   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.372  | -0.004 | 1.000  | 4039137  | 1.67         |                 | 70.4 | 64747 |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.703 | 2.704  | -0.001 | 1.000  | 3714175  | 2.00         |                 | 80.0 | 56212 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.703 | 2.711  | -0.008 | 1.000  | 33453    | 0.0191       |                 |      | 10.5  |       |
| 413.00 > 169.00                  | 2.703 | 2.711  | -0.008 | 1.000  | 21358    |              | 1.57(0.84-2.52) |      | 65.7  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.703 | 2.711  | -0.008 |        | 4900860  | 2.50         |                 |      | 74102 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.073 | 3.074  | -0.001 | 1.000  | 2569446  | 1.54         |                 | 64.5 | 20465 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.073 | 3.076  | -0.003 | 1.000  | 561466   | 0.4442       |                 |      | 2382  |       |
| 499.00 > 99.00                   | 3.073 | 3.076  | -0.003 | 1.000  | 125963   |              | 4.46(2.31-6.93) |      | 1724  |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.073 | 3.081  | -0.008 | 1.000  | 3105089  | 2.05         |                 | 81.8 | 56046 |       |

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_013.d

Injection Date: 29-May-2018 04:12:01

Instrument ID: A8\_N

Lims ID: 320-39023-A-14-A

Lab Sample ID: 320-39023-14

Client ID: KLA-01-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 8

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

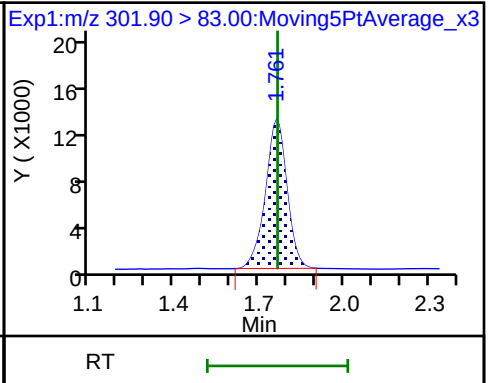
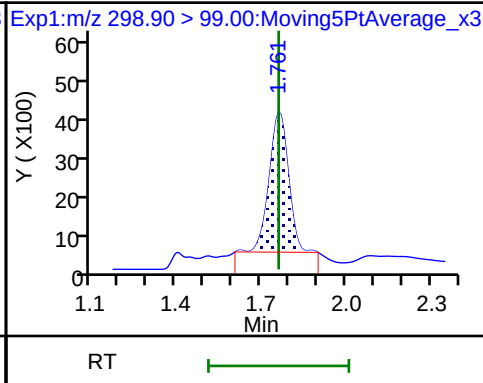
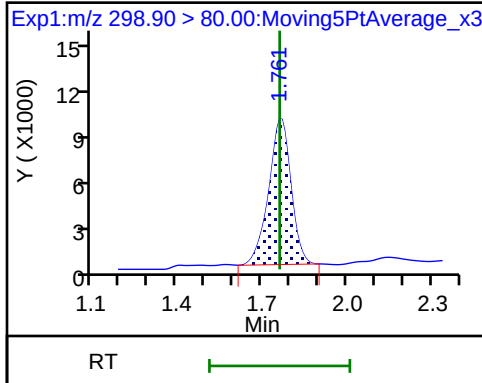
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

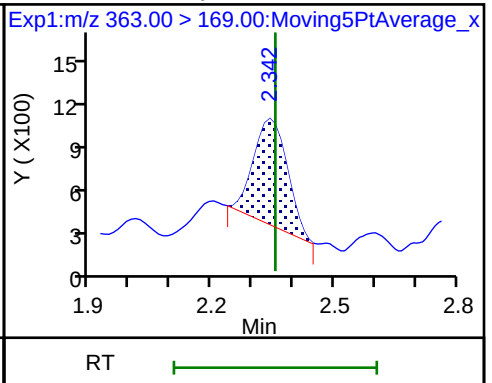
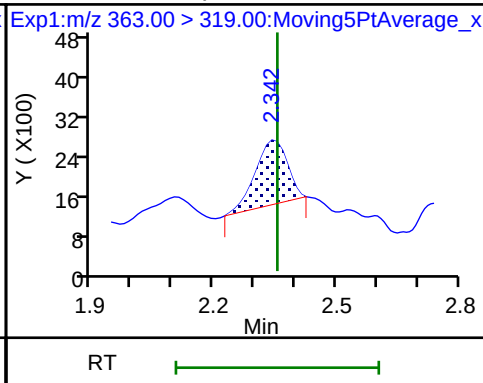
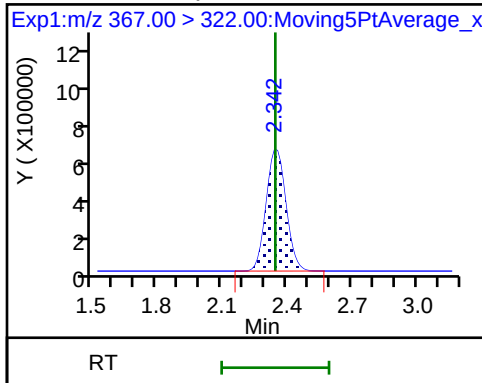
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

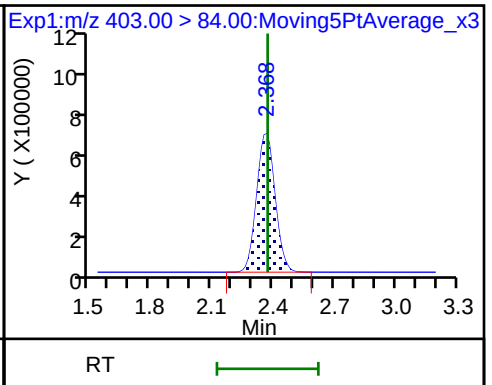
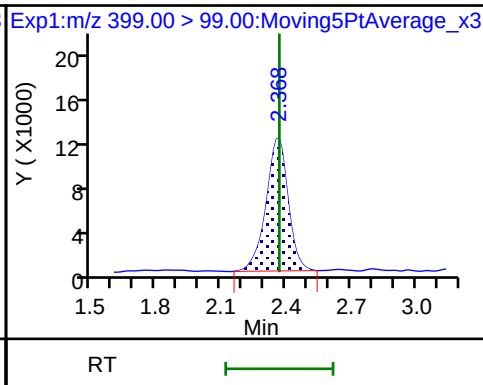
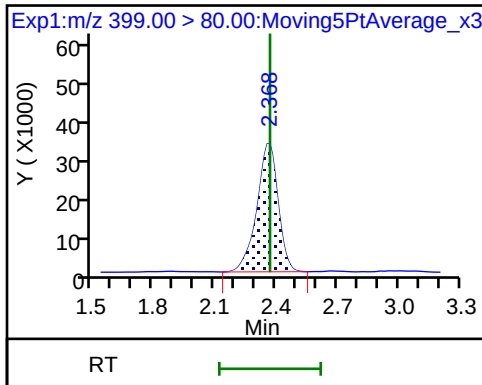
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

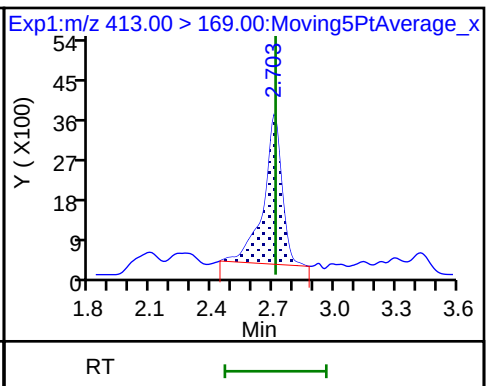
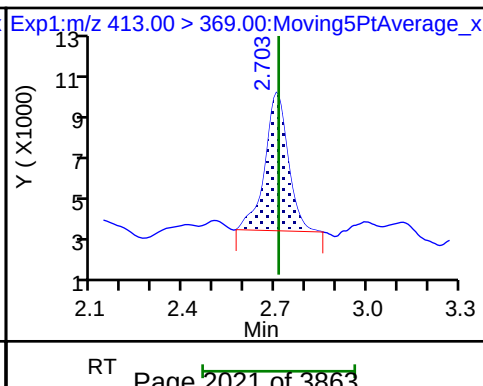
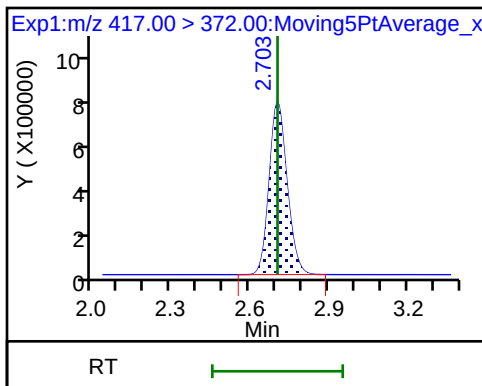
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

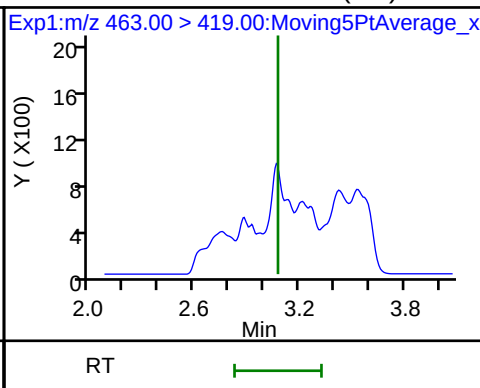
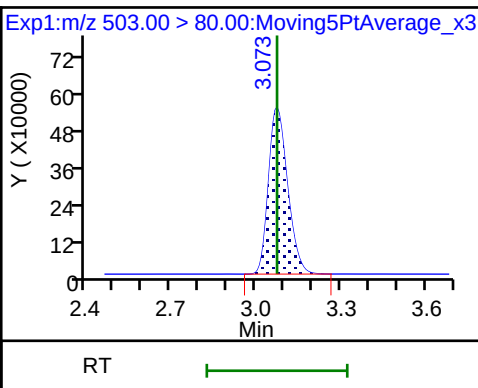
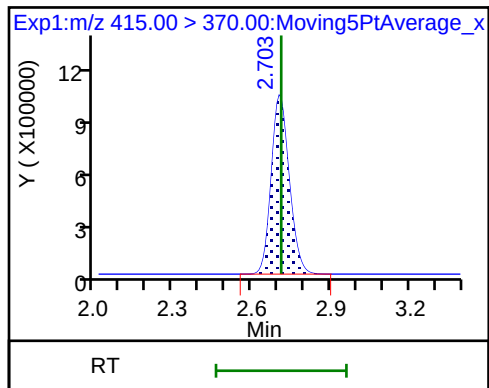
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 18 13C4 PFOS

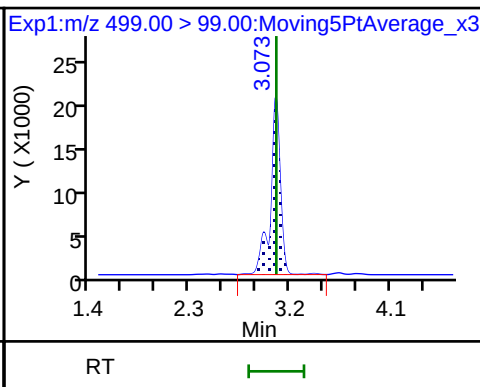
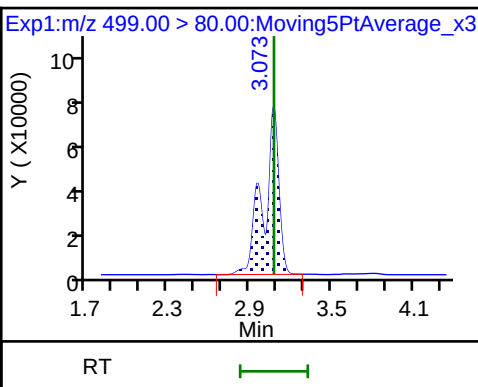
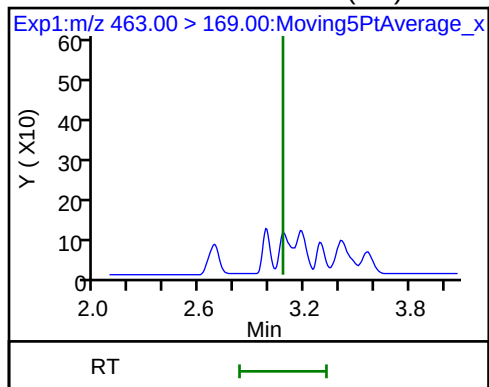
20 Perfluorononanoic acid (ND)



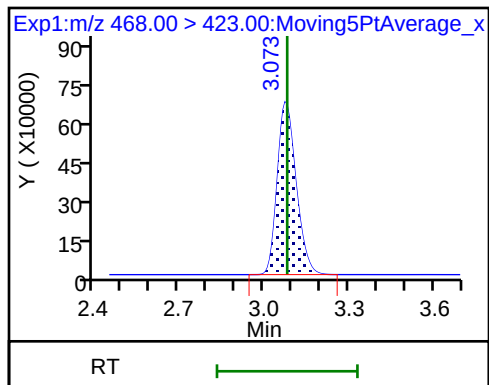
20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 19 13C5 PFNA





FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB1-01</u>   | Lab Sample ID: <u>320-39023-15</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_036.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:40</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>           | Date Analyzed: <u>05/29/2018 07:43</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q  | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.16   | J  | 0.39 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.46   | M  | 0.39 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U  | 0.39 | 0.26 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.25   | J  | 0.52 | 0.23 | 0.077 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2.6    |    | 0.39 | 0.26 | 0.081 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 7.6    | J1 | 1.3  | 0.65 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 81   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 93   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 93   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 100  |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 88   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 86   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_036.d  
 Lims ID: 320-39023-A-15-A  
 Client ID: KLA02-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 07:43:28 ALS Bottle#: 27 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-15-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:43:09 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:43:09

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid          |       |        |        |        |          |              |                   |      |       | M     |
| 212.90 > 169.00                  | 1.467 | 1.458  | 0.009  | 1.004  | 158964   | 0.0704       |                   |      | 55.3  | M     |
| D 1 13C4 PFBA                    |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                  | 1.461 | 1.458  | 0.003  | 1.000  | 6069427  | 2.12         |                   | 84.8 | 32771 |       |
| 4 Perfluoropentanoic acid        |       |        |        |        |          |              |                   |      |       | M     |
| 262.90 > 219.00                  | 1.735 | 1.729  | 0.006  | 1.000  | 218481   | 0.1105       |                   |      | 144   | M     |
| D 3 13C5-PFPeA                   |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                  | 1.735 | 1.730  | 0.005  | 0.564  | 4186256  | 2.28         |                   | 91.2 | 53048 |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                   | 1.771 | 1.765  | 0.006  | 1.000  | 248004   | 0.0942       |                   |      | 1242  |       |
| 298.90 > 99.00                   | 1.771 | 1.765  | 0.006  | 1.000  | 115886   |              | 2.14(1.25-3.74)   |      | 537   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                   | 1.771 | 1.766  | 0.005  | 1.000  | 78398    | 1.89         |                   | 81.3 | 548   |       |
| 6 Perfluorohexanoic acid         |       |        |        |        |          |              |                   |      |       | M     |
| 313.00 > 269.00                  | 2.022 | 2.014  | 0.008  | 1.000  | 420873   | 0.2307       |                   |      | 503   | M     |
| 313.00 > 119.00                  | 2.022 | 2.014  | 0.008  | 1.000  | 32767    |              | 12.84(5.03-15.10) |      | 327   |       |
| D 7 13C2 PFHxA                   |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                  | 2.022 | 2.016  | 0.006  | 1.000  | 4435191  | 2.27         |                   | 90.7 | 75401 |       |
| 70 Perfluoropentanesulfonic acid |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                   | 2.045 | 2.037  | 0.008  | 1.000  | 297751   | 0.1270       |                   |      | 2612  |       |
| 349.00 > 99.00                   | 2.045 | 2.037  | 0.008  | 1.000  | 126810   |              | 2.35(1.36-4.07)   |      | 1335  |       |
| D 64 13C3 HFPO-DA                |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                  | 2.124 | 2.117  | 0.007  | 1.000  | 224232   | NC           |                   |      | 5568  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                   |      |       |       |
| 363.00 > 319.00                  | 2.355 | 2.345  | 0.010  | 1.000  | 111481   | 0.0608       |                   |      | 150   |       |
| 363.00 > 169.00                  | 2.355 | 2.345  | 0.010  | 1.000  | 44947    |              | 2.48(1.13-3.40)   |      | 238   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                   |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.347  | 0.008  | 1.000  | 4337182  | 2.31         |                   | 92.5 | 58276 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.368 | 2.358  | 0.010  | 1.000  | 2304899  | 1.00         |                 |      | 8938  |       |
| 399.00 > 99.00                        | 2.368 | 2.358  | 0.010  | 1.000  | 755426   |              | 3.05(1.50-4.49) |      | 3287  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.368 | 2.360  | 0.008  | 1.000  | 4838783  | 2.09         |                 | 88.3 | 79195 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.681 | 2.682  | -0.001 | 1.000  | 132609   | 0.1824       |                 |      | 2537  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.681 | 2.684  | -0.003 | 1.000  | 931352   | 2.25         |                 | 94.8 | 11329 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.703 | 2.704  | -0.001 |        | 4682405  | 2.50         |                 |      | 69327 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.703 | 2.704  | -0.001 | 1.000  | 343345   | 0.1765       |                 |      | 151   | M     |
| 413.00 > 169.00                       | 2.703 | 2.704  | -0.001 | 1.000  | 180548   |              | 1.90(0.84-2.52) |      | 561   | M     |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.703 | 2.706  | -0.003 | 1.000  | 4132185  | 2.33         |                 | 93.2 | 66493 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.711 | 2.712  | -0.001 | 1.000  | 136317   | 0.0748       |                 |      | 264   |       |
| 449.00 > 99.00                        | 2.711 | 2.712  | -0.001 | 1.000  | 41821    |              | 3.26(1.94-5.82) |      | 360   |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.074 | 3.071  | 0.003  | 1.000  | 4675822  | 2.91         |                 |      | 15925 |       |
| 499.00 > 99.00                        | 3.074 | 3.071  | 0.003  | 1.000  | 1018693  |              | 4.59(2.31-6.93) |      | 11533 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.074 | 3.076  | -0.002 | 1.000  | 3270100  | 2.05         |                 | 85.9 | 29605 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.074 | 3.076  | -0.002 | 1.000  | 3627235  | 2.50         |                 | 100  | 71001 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.074 | 3.079  | -0.005 | 1.000  | 44931    | 0.0292       |                 |      | 133   |       |
| 463.00 > 169.00                       | 3.074 | 3.079  | -0.005 | 1.000  | 10686    |              | 4.20(1.90-5.69) |      | 234   |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.417 | 3.406  | 0.011  | 1.003  | 15485    | 0.009244     |                 |      | 56.0  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.407 | 3.411  | -0.004 | 1.000  | 4301570  | 2.06         |                 | 82.6 | 42391 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.426 | 3.424  | 0.002  | 1.000  | 10645    | 0.0183       |                 |      | 260   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.426 | 3.430  | -0.004 | 1.000  | 1031498  | 2.19         |                 | 91.4 | 12360 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.435 | 3.439  | -0.004 | 1.000  | 3128144  | 2.54         |                 | 101  | 51012 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.586 | 3.589  | -0.003 | 1.000  | 2163647  | 3.18         |                 | 127  | 27262 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.750 | 3.753  | -0.003 | 1.000  | 1774521  | 2.54         |                 | 102  | 21219 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.761 | 3.763  | -0.002 | 1.000  | 2446964  | 2.50         |                 | 100  | 64511 |       |
| D 36 13C2 PFDoA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.050 | 4.051  | -0.001 | 1.000  | 2518714  | 2.40         |                 | 95.8 | 22303 |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 43 13C2-PFTeDA              |       |           |           |           |          |                 |                 |      |       |       |
| 715.00 > 670.00               | 4.551 | 4.553     | -0.002    | 1.000     | 3313735  | 2.57            |                 | 103  | 21690 |       |
| D 44 13C2-PFHxDA              |       |           |           |           |          |                 |                 |      |       |       |
| 815.00 > 770.00               | 4.973 | 4.967     | 0.006     | 1.000     | 5321880  | 2.43            |                 | 97.2 | 13671 |       |
| 45 Perfluorohexadecanoic acid |       |           |           |           |          |                 |                 |      |       |       |
| 813.00 > 769.00               | 4.973 | 4.975     | -0.002    | 1.000     | 51795    | NC              |                 |      | 18.9  |       |
| 813.00 > 169.00               | 4.973 | 4.975     | -0.002    | 1.000     | 7671     |                 | 6.75(2.86-8.58) |      | 78.4  |       |

### QC Flag Legend

#### Processing Flags

NC - Not Calibrated

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_036.d

Injection Date: 29-May-2018 07:43:28

Instrument ID: A8\_N

Lims ID: 320-39023-A-15-A

Lab Sample ID: 320-39023-15

Client ID: KLA02-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

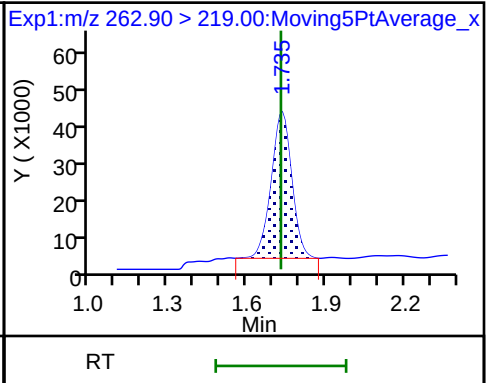
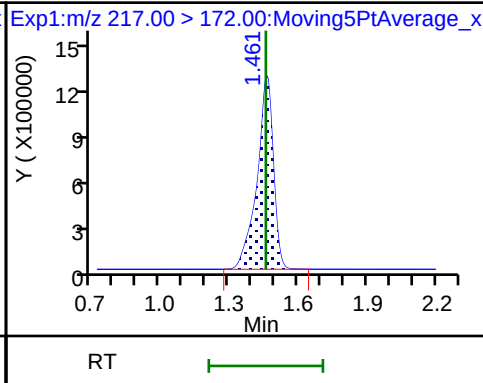
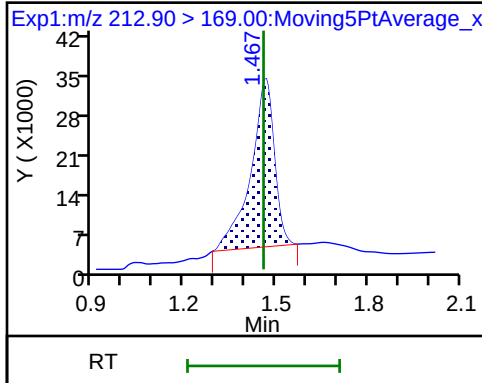
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid (M)

## D 1 13C4 PFBA

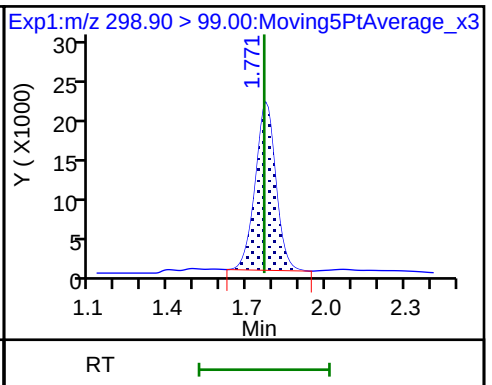
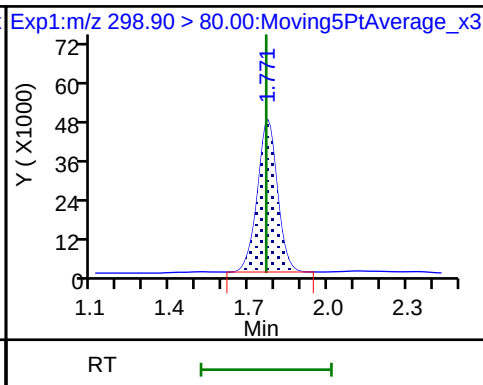
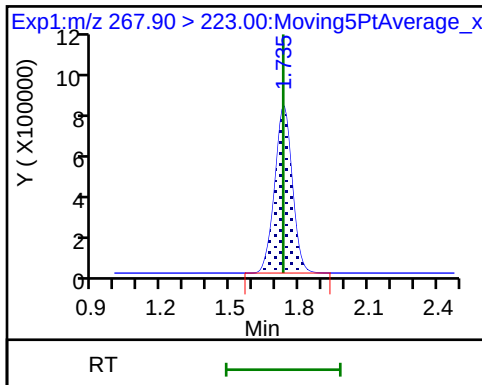
## 4 Perfluoropentanoic acid (M)



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

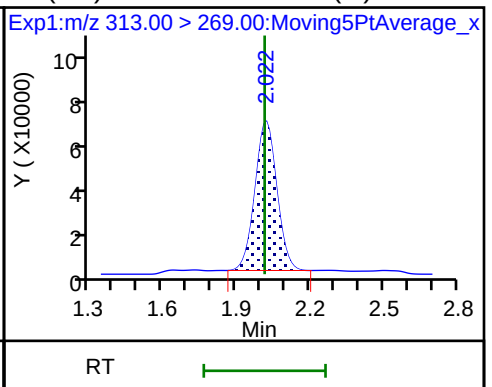
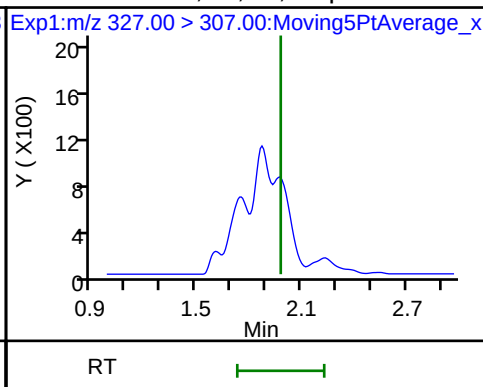
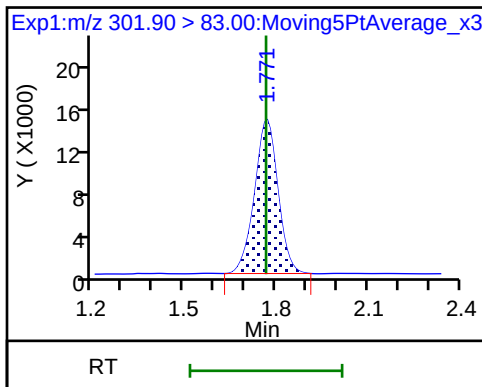
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoate (M)

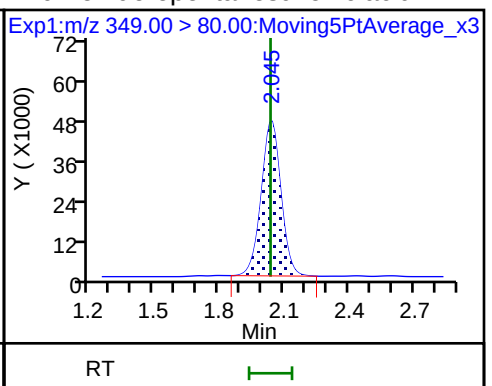
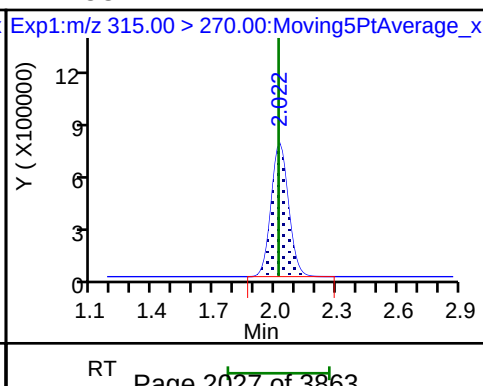
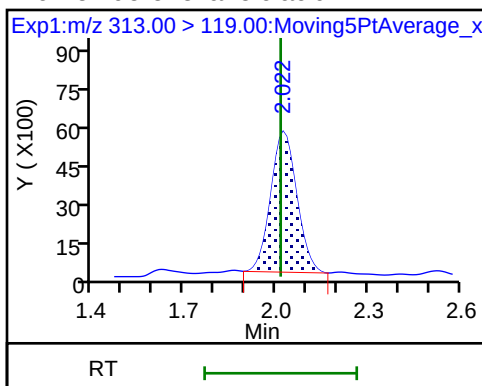
## 6 Perfluorohexanoic acid (M)

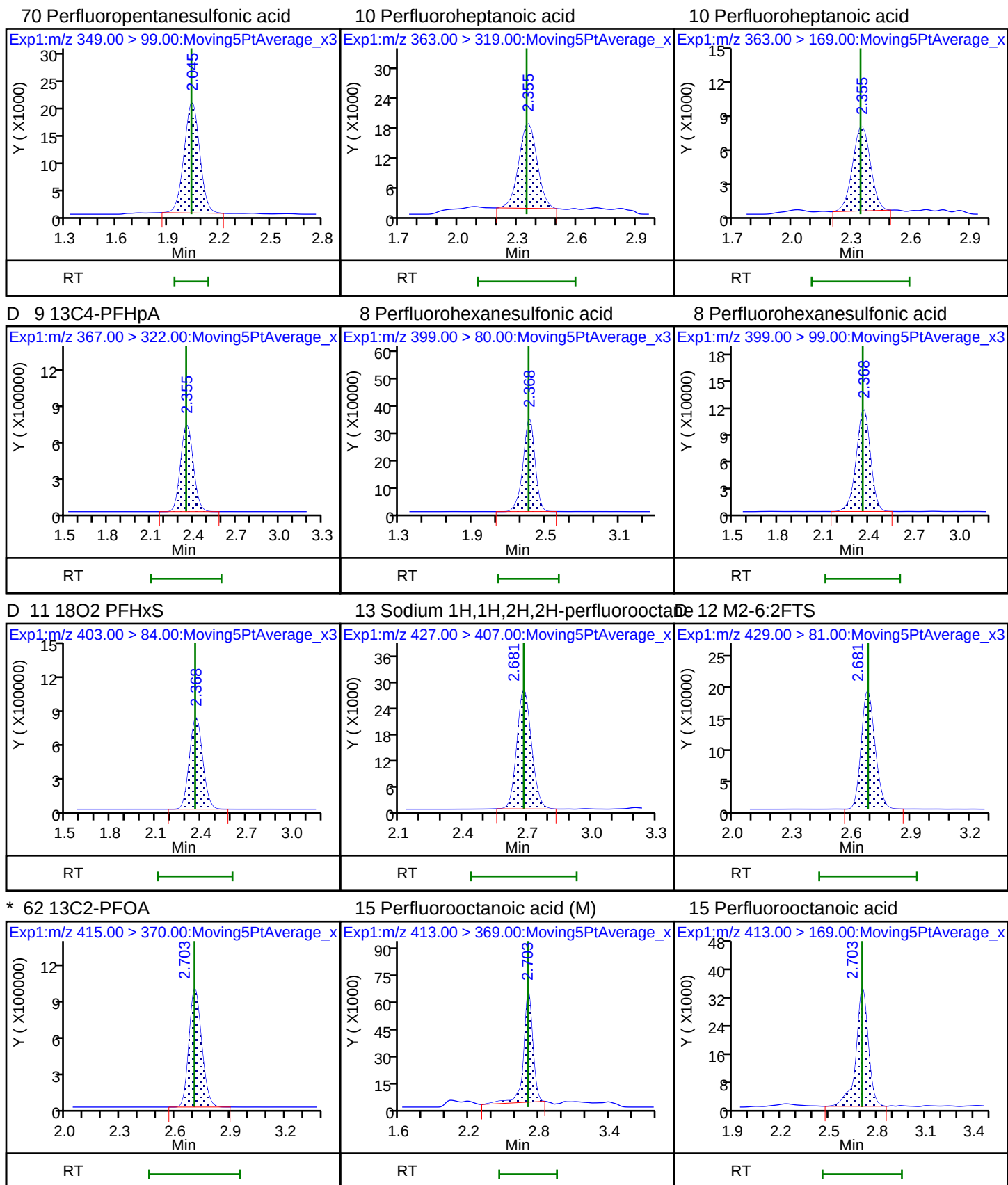


## 6 Perfluorohexanoic acid

## D 7 13C2 PFHxA

## 70 Perfluoropentanesulfonic acid

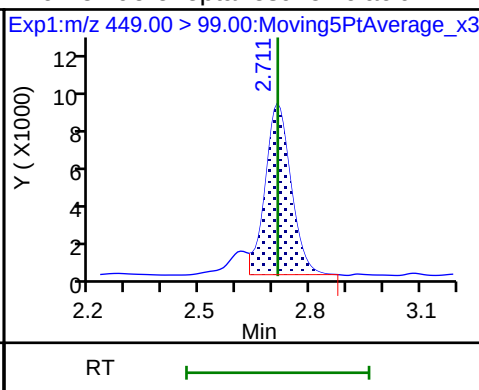
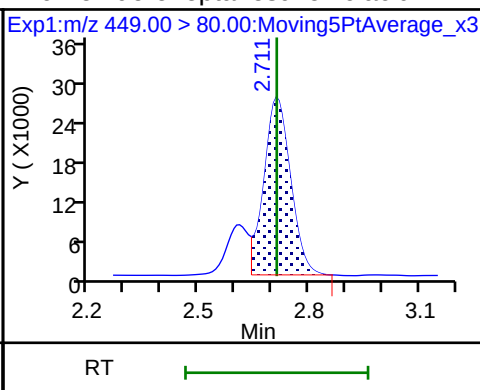
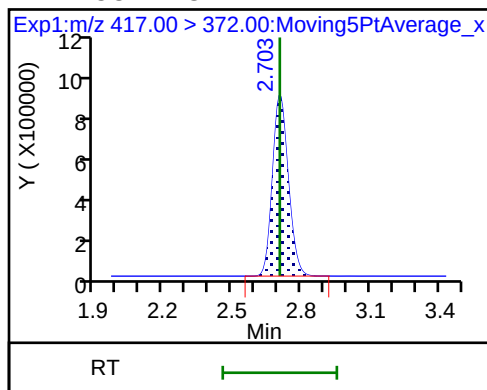




## D 14 13C4 PFOA

## 16 Perfluoroheptanesulfonic acid

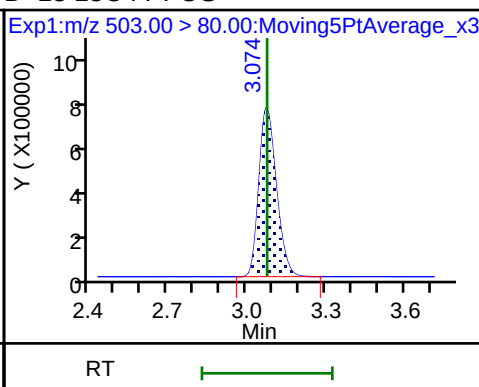
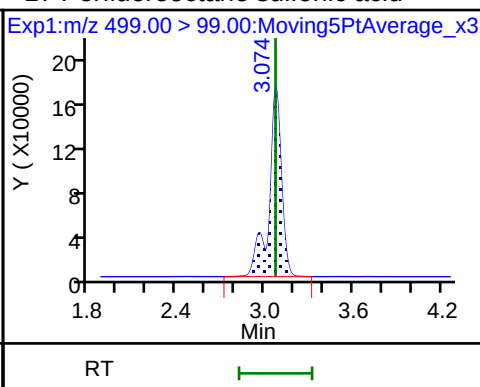
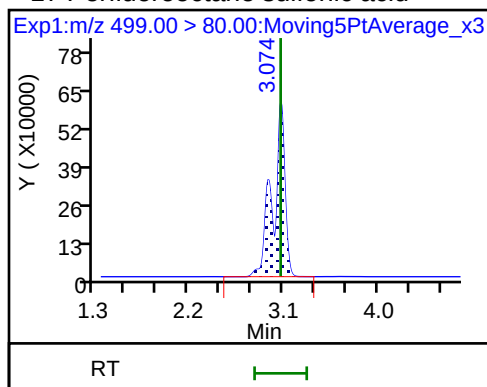
## 16 Perfluoroheptanesulfonic acid



## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

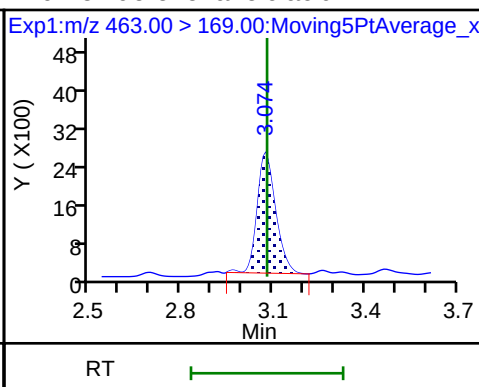
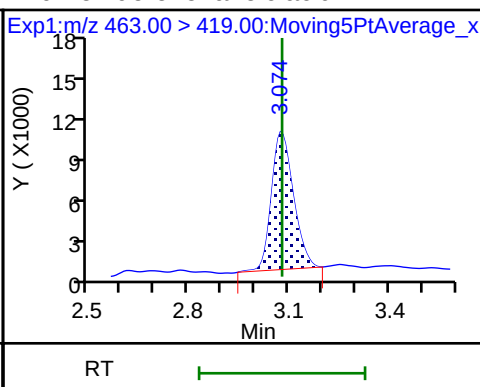
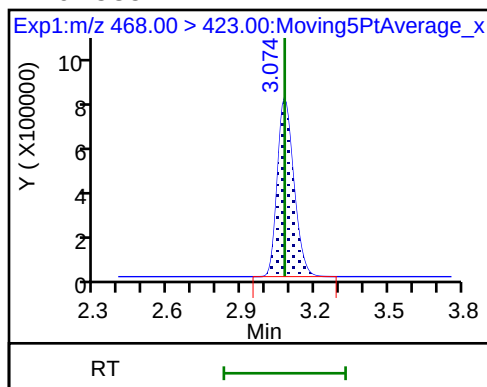
## D 18 13C4 PFOS



## D 19 13C5 PFNA

## 20 Perfluorononanoic acid

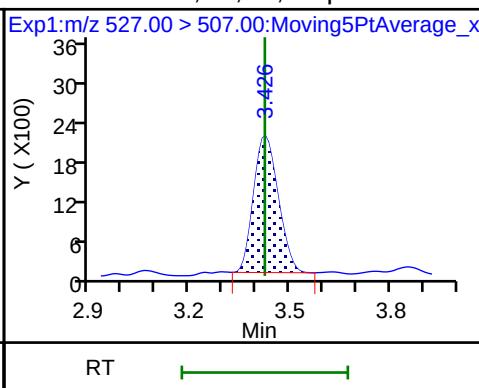
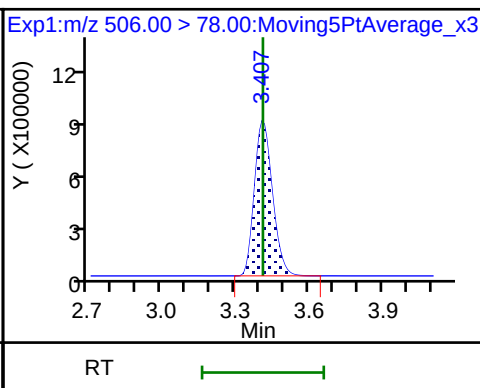
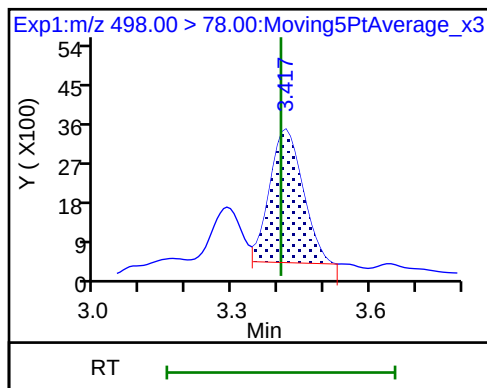
## 20 Perfluorononanoic acid



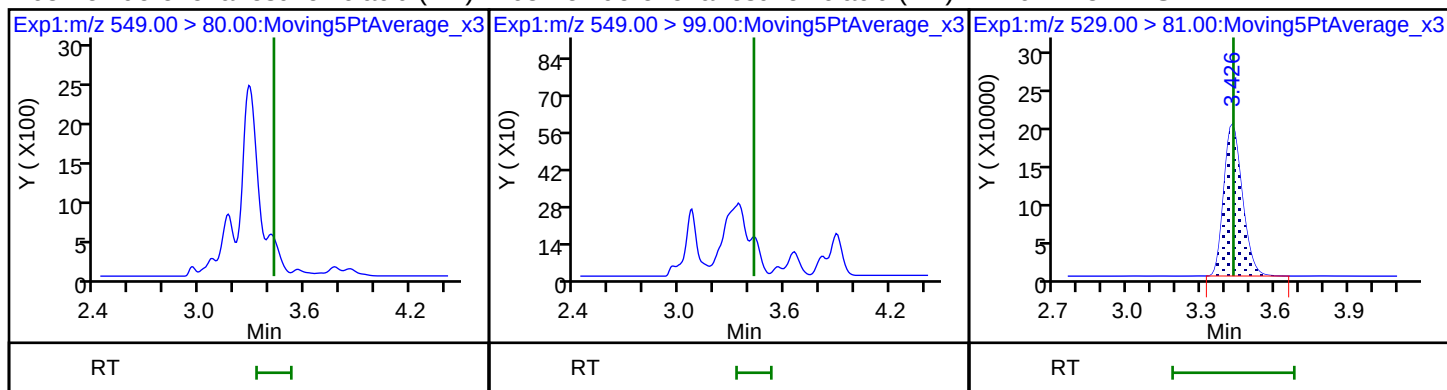
## 22 Perfluorooctane Sulfonamide

## D 21 13C8 FOSA

## 25 Sodium 1H,1H,2H,2H-perfluorodecane



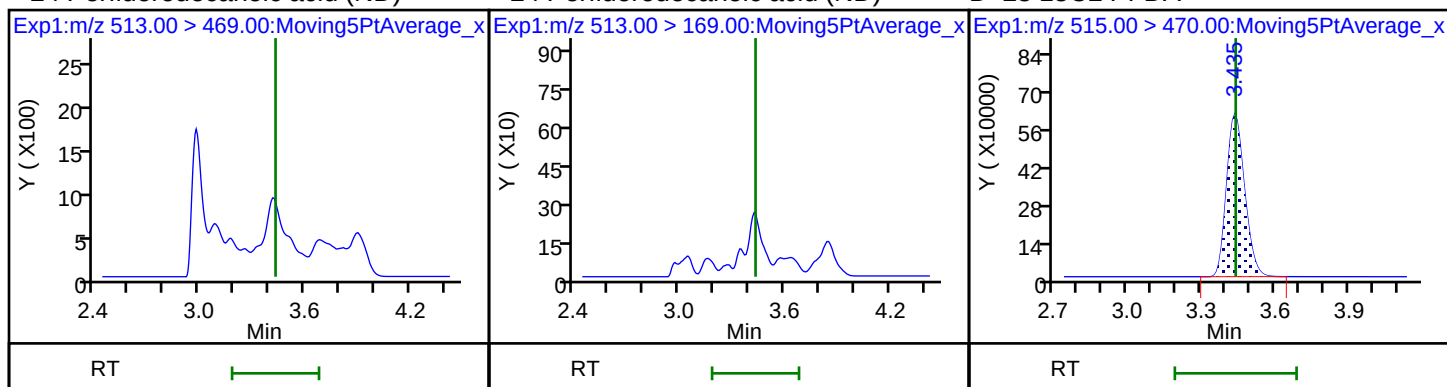
68 Perfluorononanesulfonic acid (ND) 68 Perfluorononanesulfonic acid (ND) D 26 M2-8:2FTS



24 Perfluorodecanoic acid (ND)

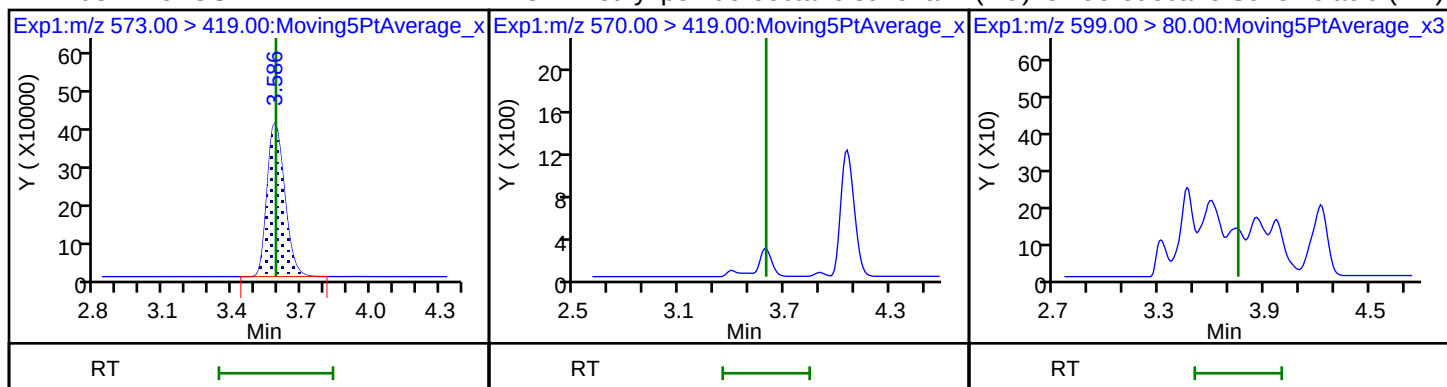
24 Perfluorodecanoic acid (ND)

D 23 13C2 PFDA



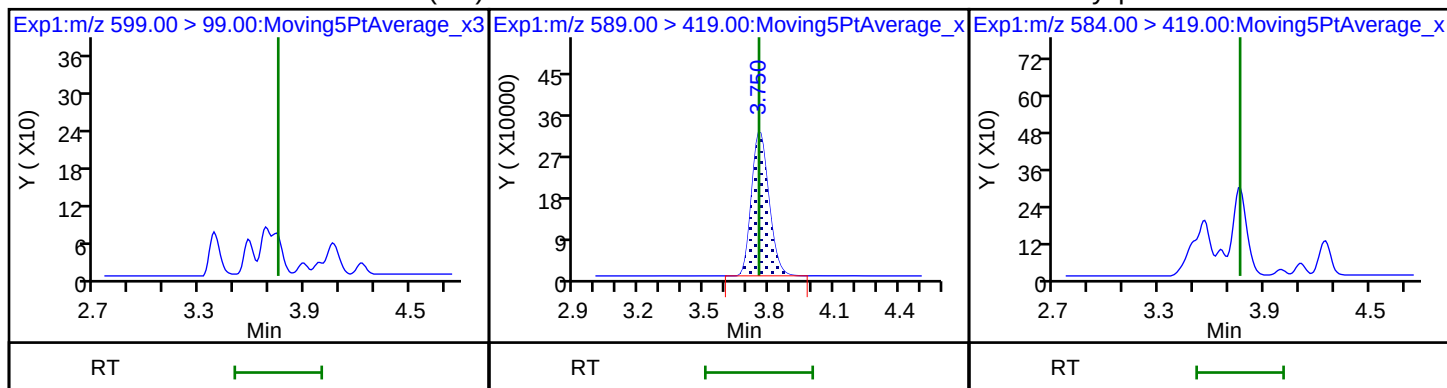
D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonami (ND) 29 Perfluorodecane Sulfonic acid (ND)

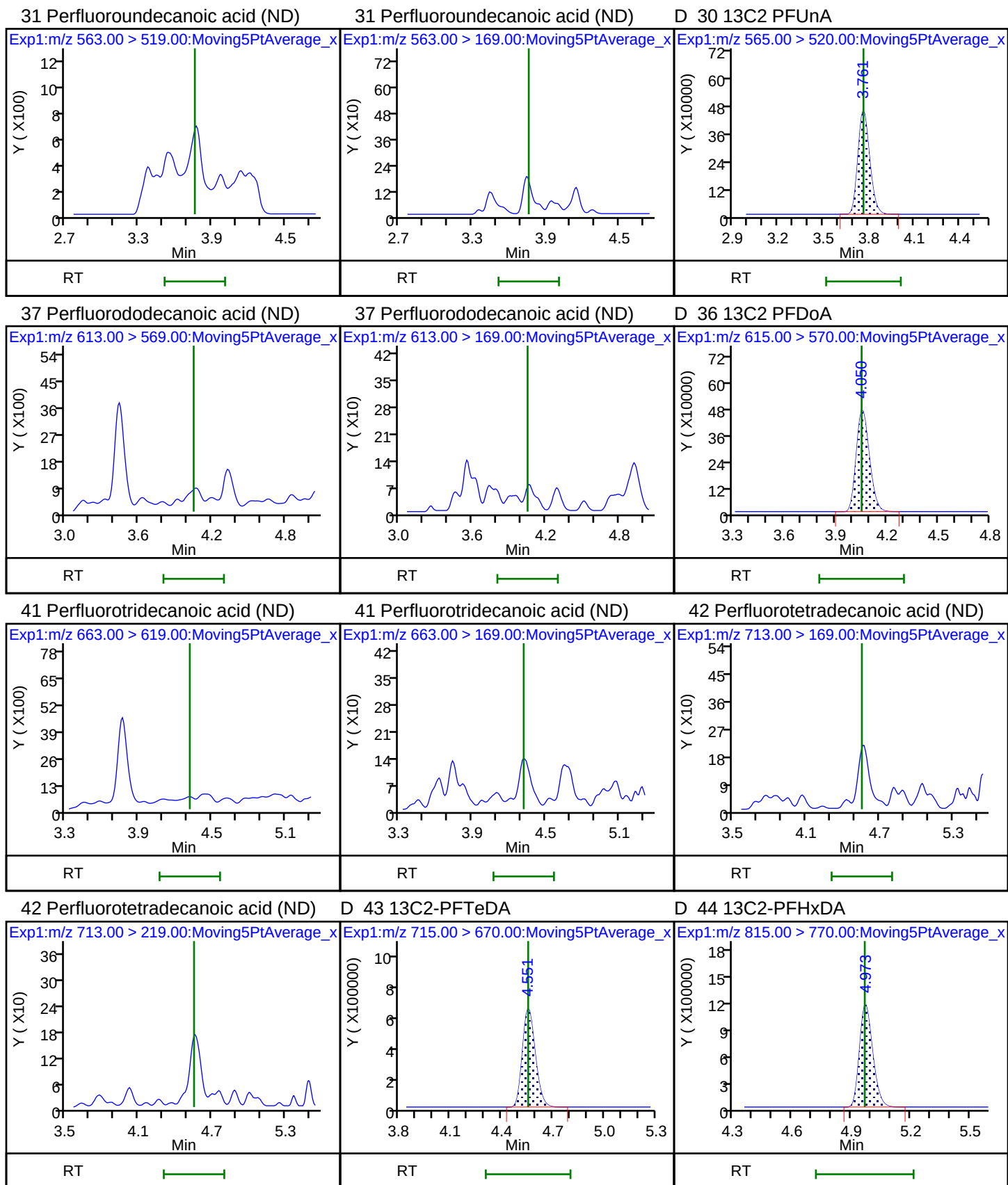


29 Perfluorodecane Sulfonic acid (ND) D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid (ND)









## TestAmerica Sacramento

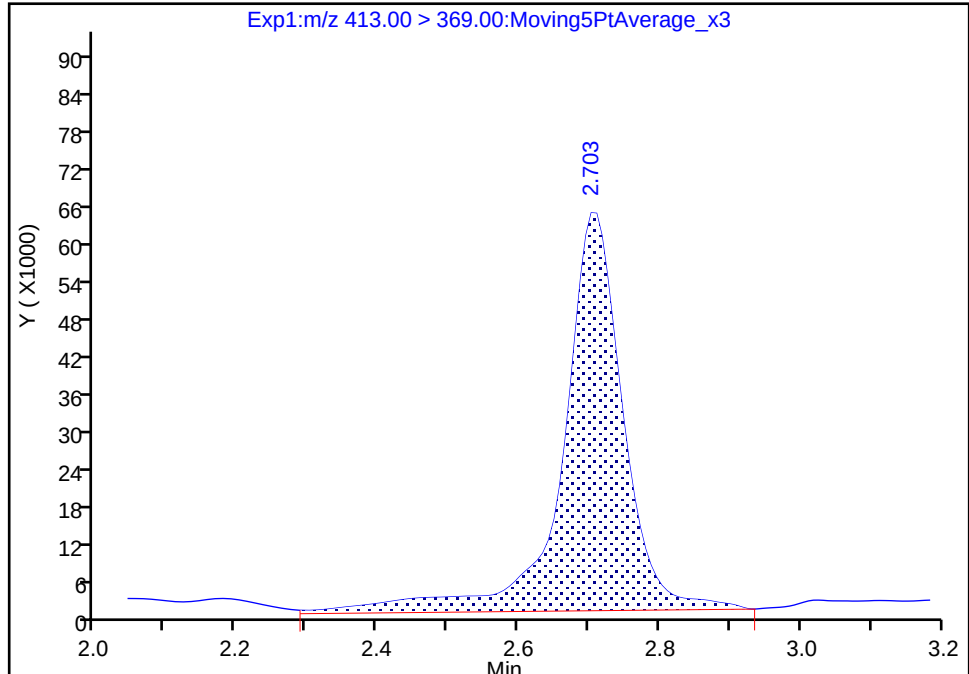
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_036.d |                |                    |                |   |
| Injection Date: | 29-May-2018 07:43:28                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-15-A                                                         | Lab Sample ID: | 320-39023-15       |                |   |
| Client ID:      | KLA02-SB1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 27                 | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

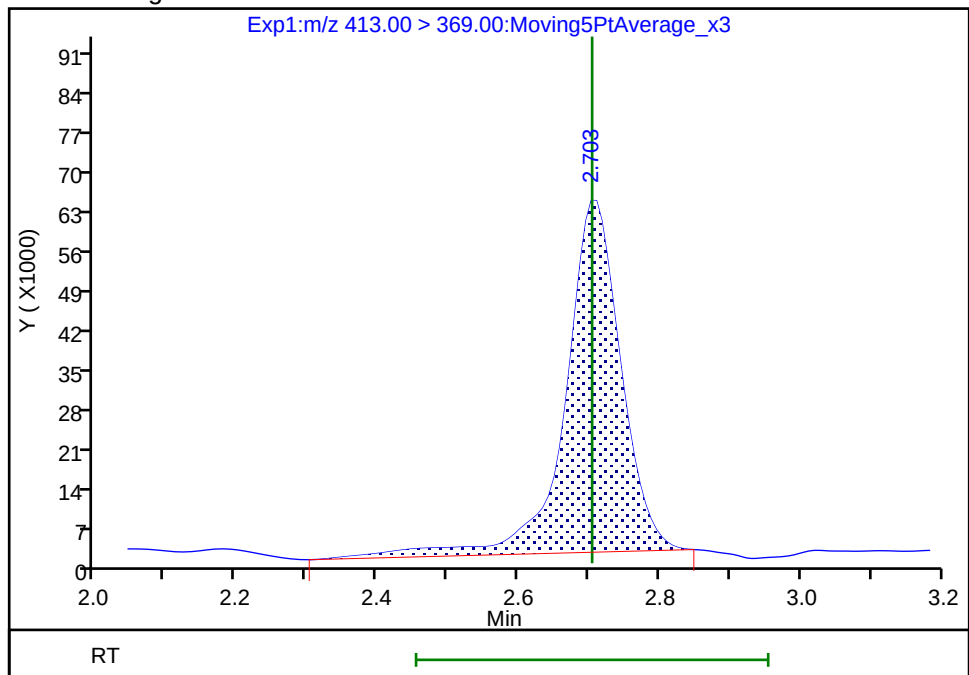
RT: 2.70  
Area: 384092  
Amount: 0.197428  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 343345  
Amount: 0.176483  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:42:30

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB1-02</u>   | Lab Sample ID: <u>320-39023-16</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_039.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:45</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.09(g)</u>           | Date Analyzed: <u>05/29/2018 08:07</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>19.2</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.18   | J   | 0.36 | 0.24 | 0.095 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.28   | J M | 0.36 | 0.24 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.24   | U M | 0.36 | 0.24 | 0.098 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.22   | J   | 0.49 | 0.22 | 0.072 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.6    |     | 0.36 | 0.24 | 0.075 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 6.1    |     | 1.2  | 0.61 | 0.29  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 71   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 85   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 77   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 76   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_039.d  
 Lims ID: 320-39023-A-16-A  
 Client ID: KLA02-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 08:07:02 ALS Bottle#: 30 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-16-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:47:03 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:45:41

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.764 | 1.765  | -0.001 | 1.005  | 216229   | 0.0915       |                 |      | 639   |       |
| 298.90 > 99.00                   | 1.764 | 1.765  | -0.001 | 1.005  | 90963    |              | 2.38(1.25-3.74) |      | 406   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.755 | 1.766  | -0.011 | 1.000  | 70372    | 1.66         |                 | 71.5 | 620   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.345 | 2.345  | 0.0    | 1.000  | 122803   | 0.0754       |                 |      | 159   |       |
| 363.00 > 169.00                  | 2.345 | 2.345  | 0.0    | 1.000  | 45850    |              | 2.68(1.13-3.40) |      | 241   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 3857017  | 2.01         |                 | 80.6 | 68080 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.358 | 2.358  | 0.0    | 1.000  | 1326543  | 0.6475       |                 |      | 5028  |       |
| 399.00 > 99.00                   | 2.358 | 2.358  | 0.0    | 1.000  | 401609   |              | 3.30(1.50-4.49) |      | 1708  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 4300243  | 1.82         |                 | 76.8 | 76606 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.704 | 2.704  | 0.0    |        | 4782045  | 2.50         |                 |      | 66268 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.704 | 2.704  | 0.0    | 1.000  | 204347   | 0.1145       |                 |      | 82.1  | M     |
| 413.00 > 169.00                  | 2.704 | 2.704  | 0.0    | 1.000  | 126284   |              | 1.62(0.84-2.52) |      | 434   | M     |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.704 | 2.706  | -0.002 | 1.000  | 3790030  | 2.09         |                 | 83.7 | 69990 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.074 | 3.071  | 0.003  | 1.000  | 3643562  | 2.51         |                 |      | 19808 |       |
| 499.00 > 99.00                   | 3.068 | 3.071  | -0.003 | 0.998  | 819691   |              | 4.45(2.31-6.93) |      | 11018 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.074 | 3.076  | -0.002 | 1.000  | 2954417  | 1.82         |                 | 76.0 | 26461 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.074 | 3.076  | -0.002 | 1.000  | 3138006  | 2.12         |                 | 84.7 | 83110 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | M     |
| 463.00 > 419.00           | 3.074 | 3.079     | -0.005    | 1.000     | 16942    | 0.0127          |                 |      | 47.8 |       |
| 463.00 > 169.00           | 3.074 | 3.079     | -0.005    | 1.000     | 3220     |                 | 5.26(1.90-5.69) |      | 110  | M     |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_039.d

Injection Date: 29-May-2018 08:07:02

Instrument ID: A8\_N

Lims ID: 320-39023-A-16-A

Lab Sample ID: 320-39023-16

Client ID: KLA02-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

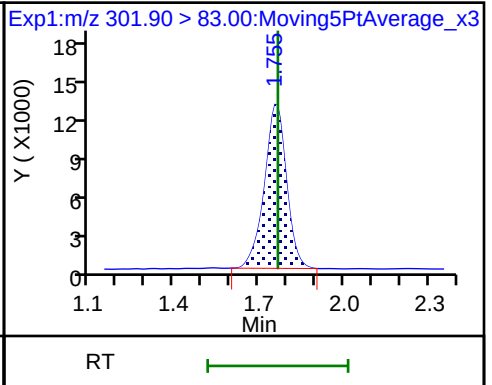
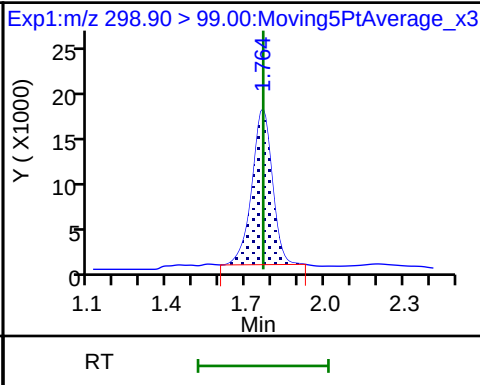
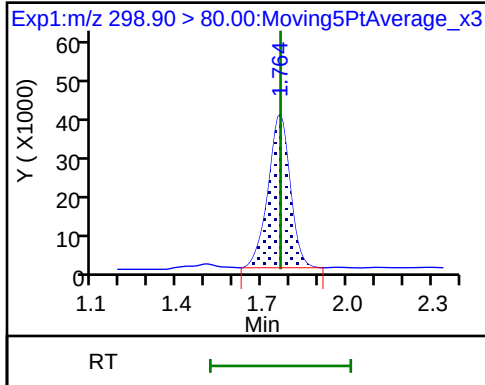
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

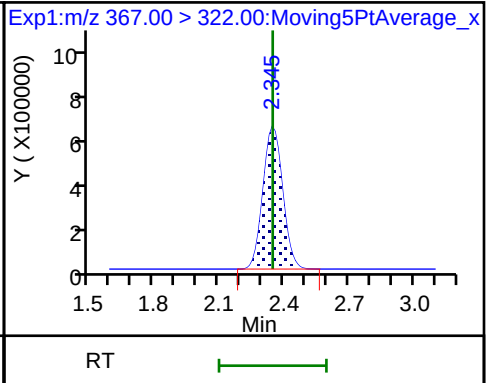
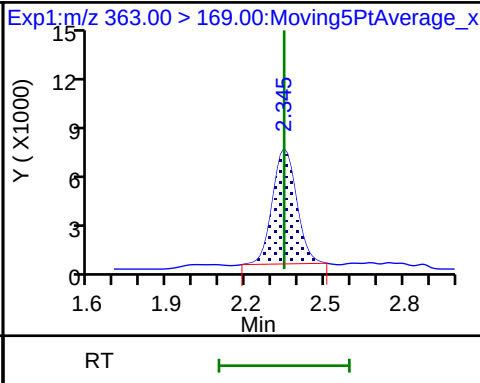
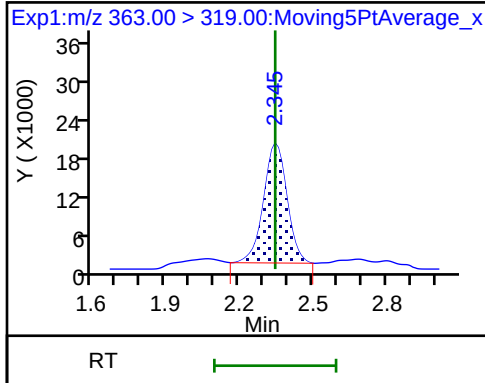
## D 47 13C3-PFBS



## 10 Perfluoroheptanoic acid

## 10 Perfluoroheptanoic acid

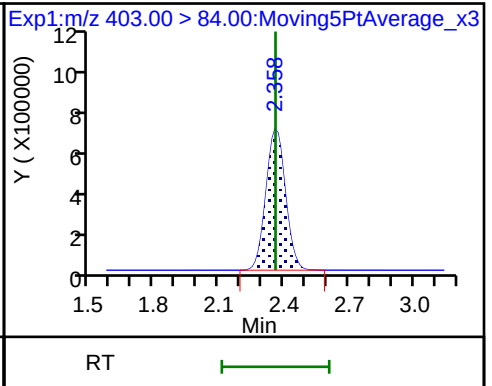
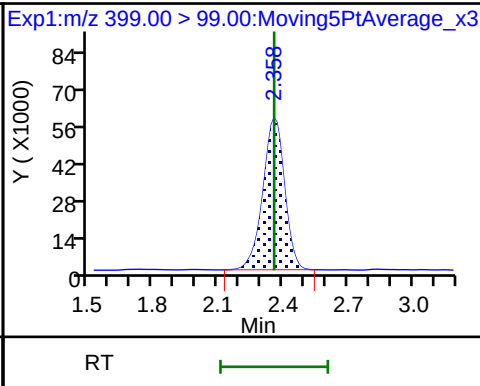
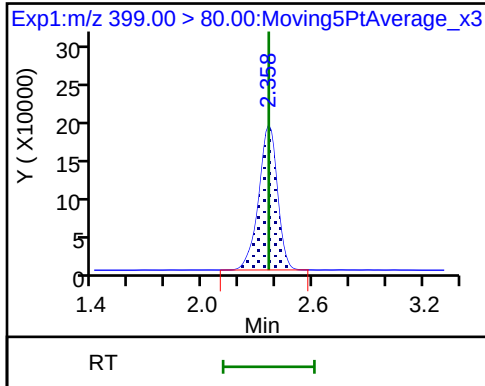
## D 9 13C4-PFHpA



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

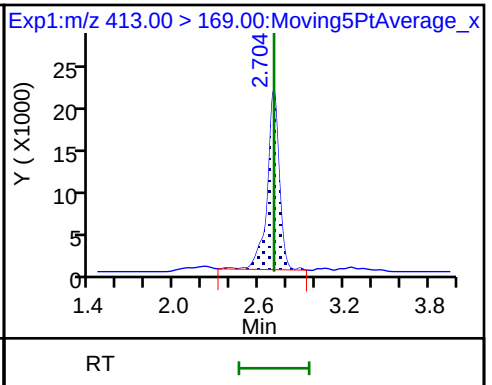
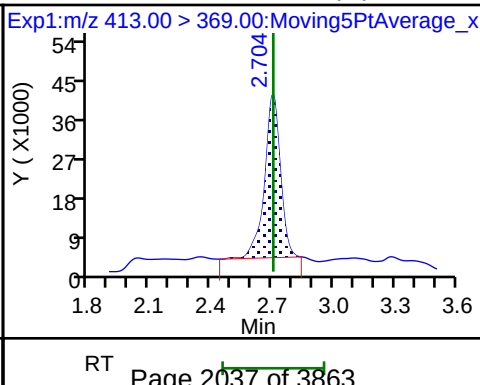
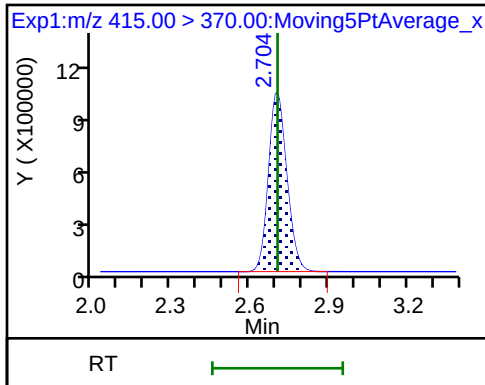
## D 11 18O2 PFHxS



## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid (M)

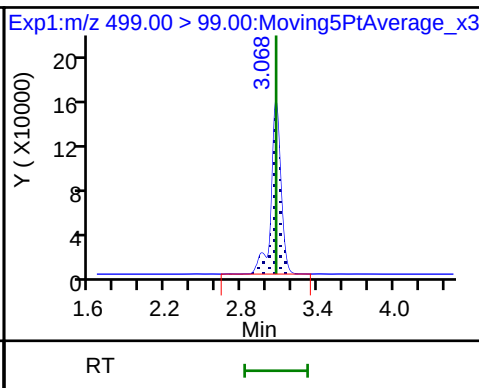
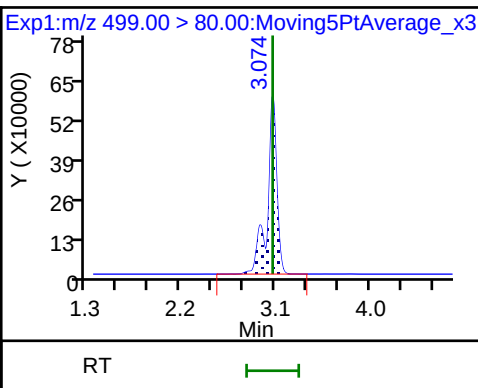
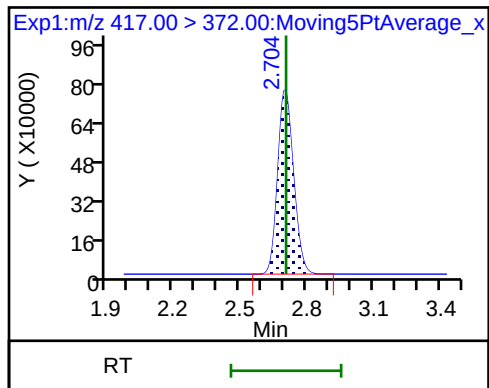
## 15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

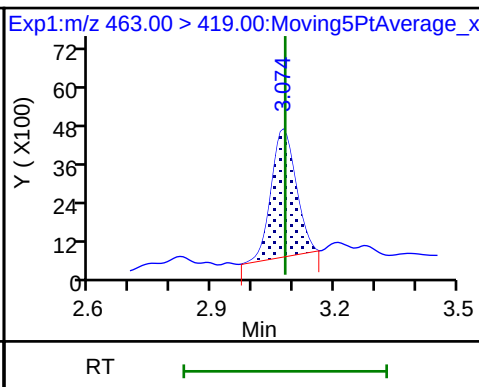
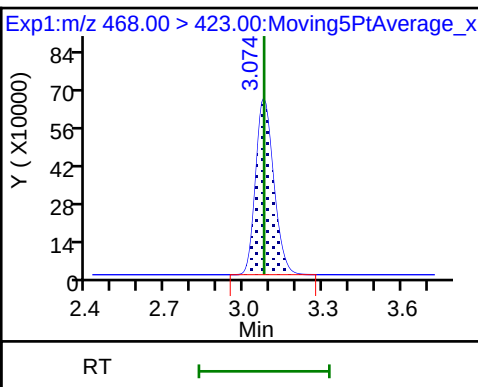
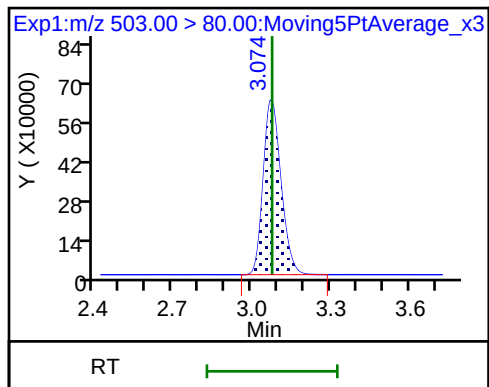
## 17 Perfluorooctane sulfonic acid



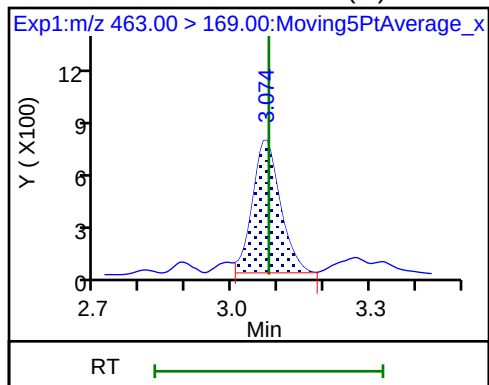
## D 18 13C4 PFOS

## D 19 13C5 PFNA

## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid (M)





## TestAmerica Sacramento

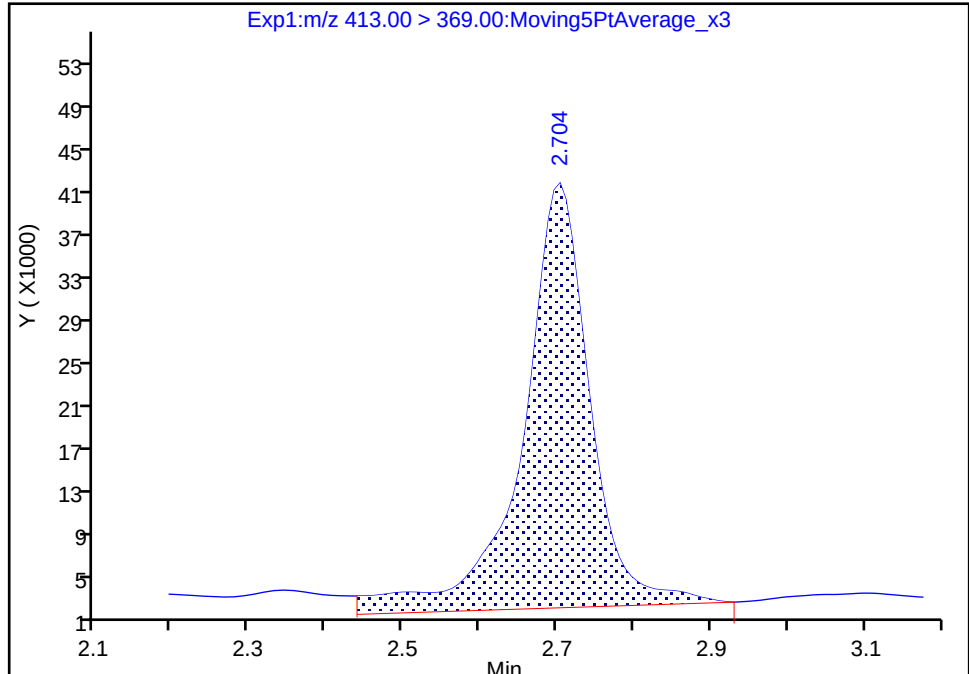
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_039.d |                |                    |                |   |
| Injection Date: | 29-May-2018 08:07:02                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-16-A                                                         | Lab Sample ID: | 320-39023-16       |                |   |
| Client ID:      | KLA02-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 30                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector:      | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

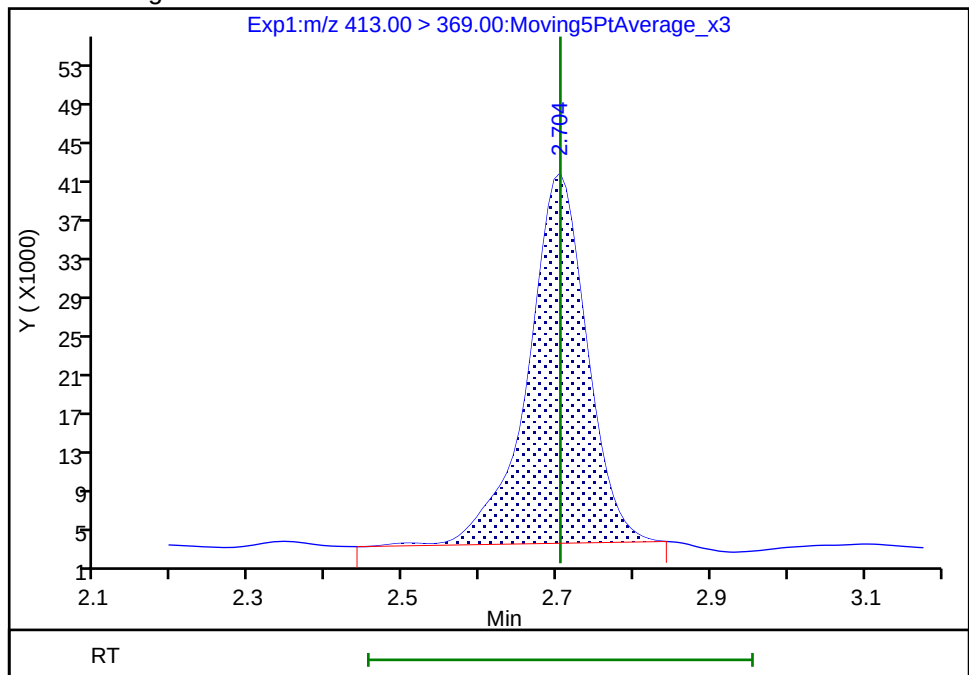
RT: 2.70  
Area: 244325  
Amount: 0.136923  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 204347  
Amount: 0.114519  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 09:45:09

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

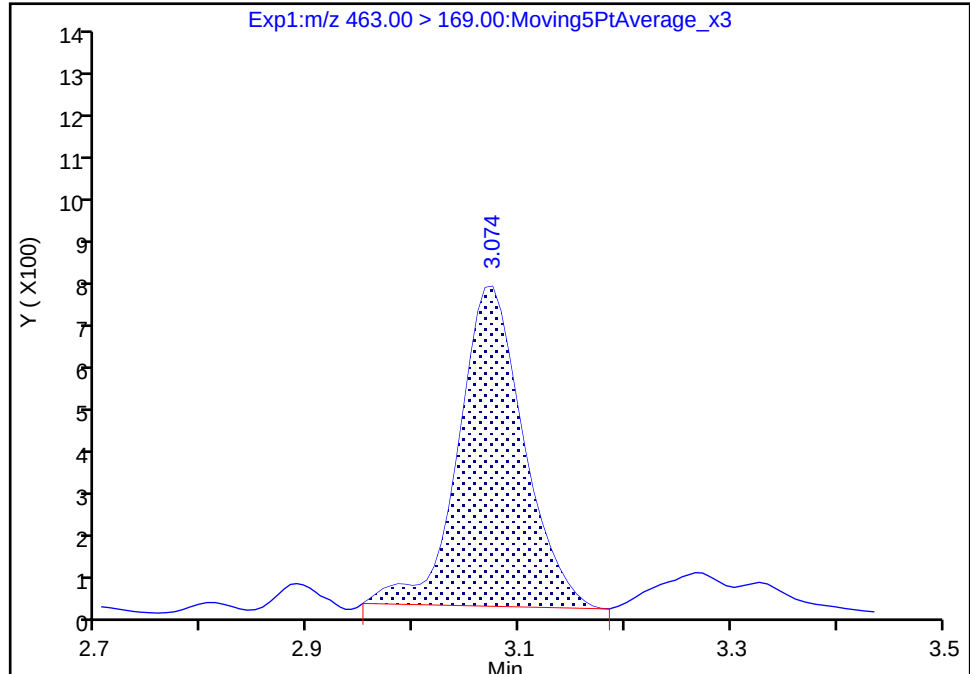
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_039.d |                |                    |                |   |
| Injection Date: | 29-May-2018 08:07:02                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-16-A                                                         | Lab Sample ID: | 320-39023-16       |                |   |
| Client ID:      | KLA02-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 30                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

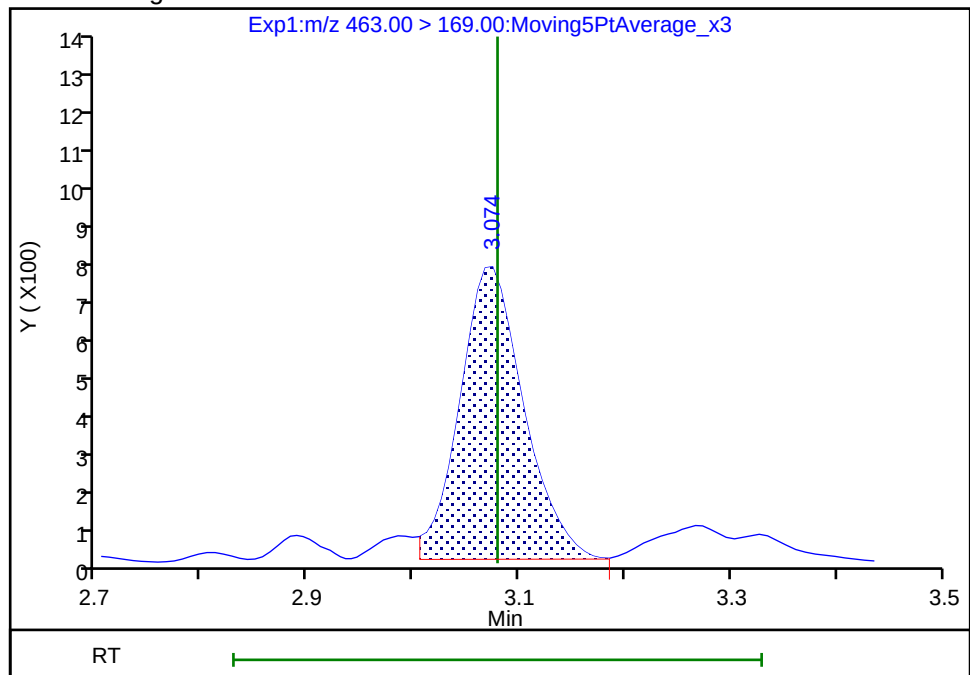
RT: 3.07  
Area: 3252  
Amount: 0.012743  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 3220  
Amount: 0.012743  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:46:55

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB2-01</u>   | Lab Sample ID: <u>320-39023-17</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_040.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:20</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.07(g)</u>           | Date Analyzed: <u>05/29/2018 08:14</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.0</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.1    |   | 0.37 | 0.25 | 0.097 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 2.2    |   | 0.37 | 0.25 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.38   |   | 0.37 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 5.1    |   | 0.50 | 0.22 | 0.074 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 21     |   | 0.37 | 0.25 | 0.077 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 270    | E | 1.2  | 0.62 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION        | %REC | Q | LIMITS |
|----------|-------------------------|------|---|--------|
| STL02337 | 13C3-PFBS               | 78   |   | 50-150 |
| STL01892 | 13C4-PFH <sub>p</sub> A | 85   |   | 50-150 |
| STL00990 | 13C4 PFOA               | 94   |   | 50-150 |
| STL00995 | 13C5 PFNA               | 66   |   | 50-150 |
| STL00994 | 18O2 PFH <sub>x</sub> S | 78   |   | 50-150 |
| STL00991 | 13C4 PFOS               | 55   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_040.d  
 Lims ID: 320-39023-A-17-A  
 Client ID: KLA02-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 08:14:51 ALS Bottle#: 31 Worklist Smp#: 10  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-17-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:45:41 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:46:09

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.762 | 1.765  | -0.003 | 1.000  | 5084797   | 2.05         |                 |      | 22452  |       |
| 298.90 > 99.00                   | 1.762 | 1.765  | -0.003 | 1.000  | 2131309   |              | 2.39(1.25-3.74) |      | 14103  |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.762 | 1.766  | -0.004 | 1.000  | 73717     | 1.82         |                 | 78.2 | 810    |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.342 | 2.345  | -0.003 | 1.000  | 735848    | 0.4453       |                 |      | 1001   |       |
| 363.00 > 169.00                  | 2.342 | 2.345  | -0.003 | 1.000  | 284863    |              | 2.58(1.13-3.40) |      | 1561   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 3910898   | 2.13         |                 | 85.4 | 68391  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.369 | 2.358  | 0.011  | 1.000  | 16601877  | 8.29         |                 |      | 40601  |       |
| 399.00 > 99.00                   | 2.369 | 2.358  | 0.011  | 1.000  | 5358136   |              | 3.10(1.50-4.49) |      | 20651  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.369 | 2.360  | 0.009  | 1.000  | 4201415   | 1.85         |                 | 78.4 | 74540  |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.704 | 2.704  | 0.0    |        | 4577146   | 2.50         |                 |      | 72832  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.704 | 2.704  | 0.0    | 1.000  | 1675776   | 0.8714       |                 |      | 576    |       |
| 413.00 > 169.00                  | 2.704 | 2.704  | 0.0    | 1.000  | 928400    |              | 1.81(0.84-2.52) |      | 1953   |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.704 | 2.706  | -0.002 | 1.000  | 4084660   | 2.36         |                 | 94.3 | 70432  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |        |       |
| 499.00 > 80.00                   | 3.075 | 3.071  | 0.004  | 1.000  | 107859336 | 107.9        |                 |      | 43147  | E     |
| 499.00 > 99.00                   | 3.075 | 3.071  | 0.004  | 1.000  | 33388192  |              | 3.23(2.31-6.93) |      | 527023 | E     |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |        |       |
| 503.00 > 80.00                   | 3.075 | 3.076  | -0.001 | 1.000  | 2031884   | 1.31         |                 | 54.6 | 15402  |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |        |       |
| 468.00 > 423.00                  | 3.075 | 3.076  | -0.001 | 1.000  | 2345274   | 1.65         |                 | 66.2 | 45719  |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      |       |
| 463.00 > 419.00           | 3.083 | 3.079     | 0.004     | 1.003     | 150426   | 0.1514          |                 |      | 517  |       |
| 463.00 > 169.00           | 3.083 | 3.079     | 0.004     | 1.003     | 38320    |                 | 3.93(1.90-5.69) |      | 1039 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_040.d

Injection Date: 29-May-2018 08:14:51

Instrument ID: A8\_N

Lims ID: 320-39023-A-17-A

Lab Sample ID: 320-39023-17

Client ID: KLA02-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

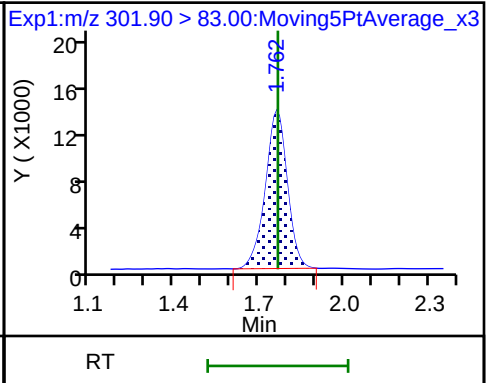
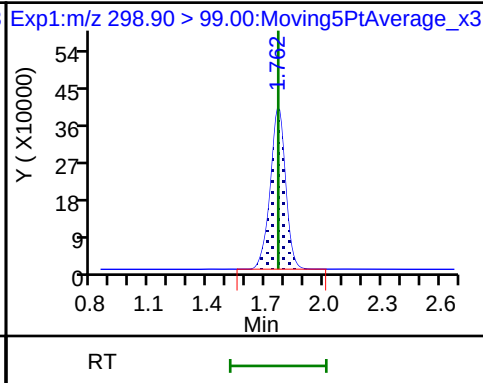
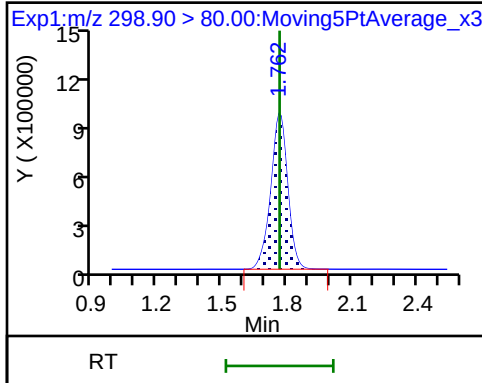
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

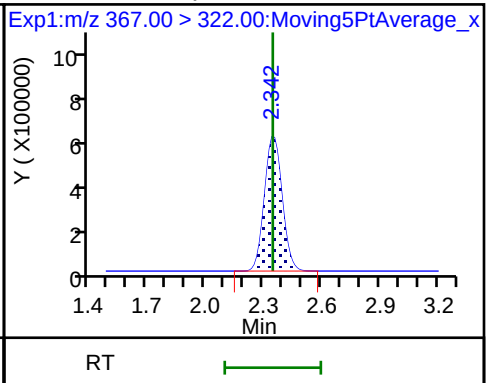
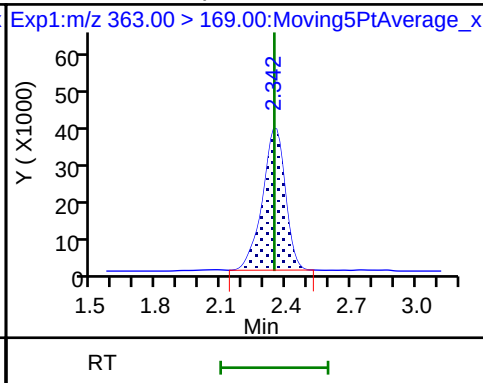
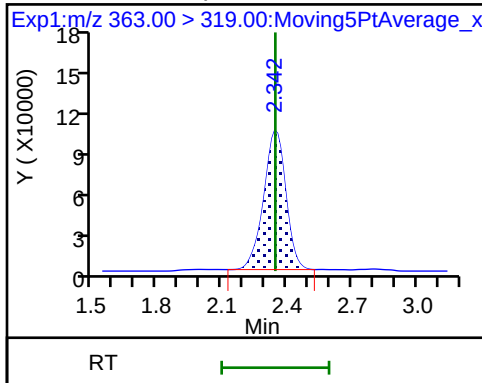
## D 47 13C3-PFBS



## 10 Perfluoroheptanoic acid

## 10 Perfluoroheptanoic acid

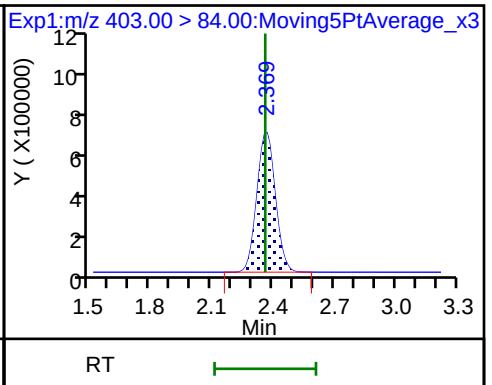
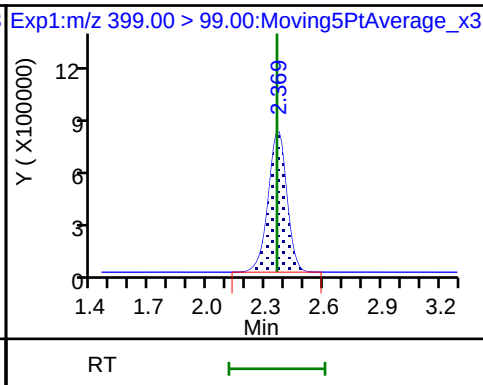
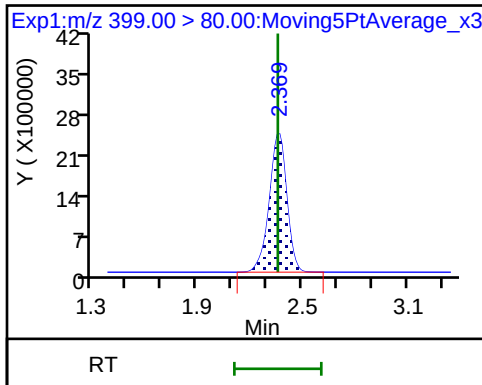
## D 9 13C4-PFHpA



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

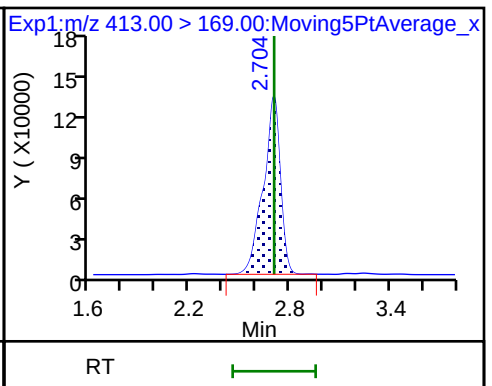
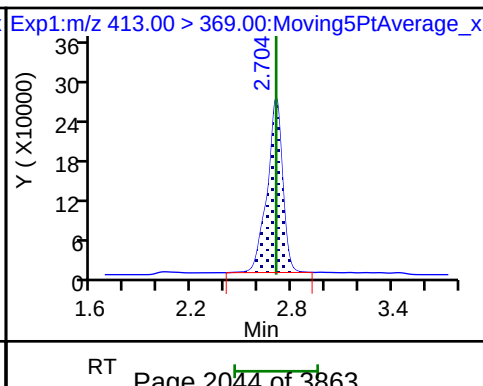
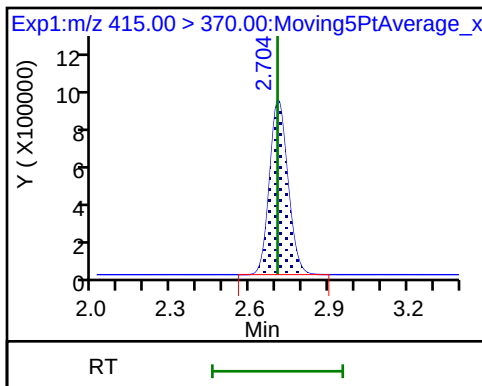
## D 11 18O2 PFHxS



## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

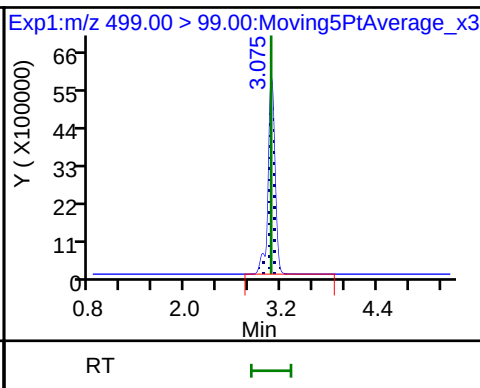
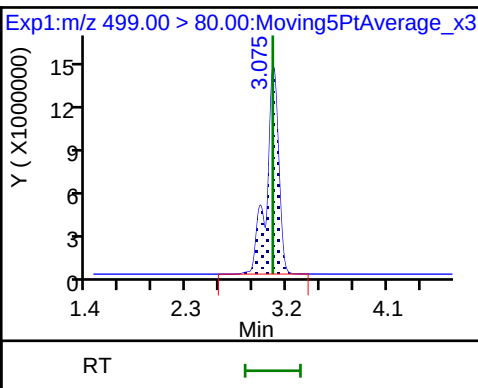
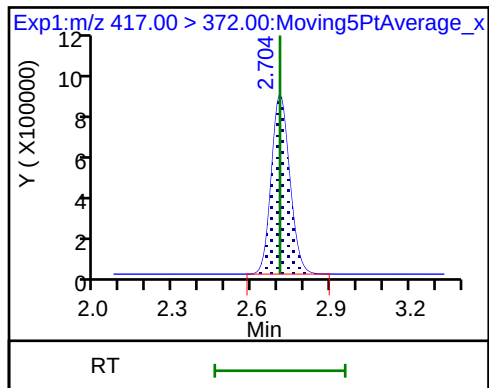
## 15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

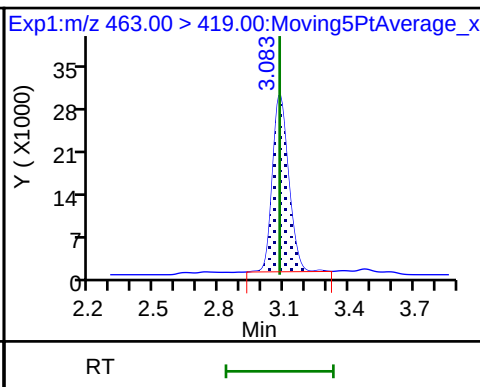
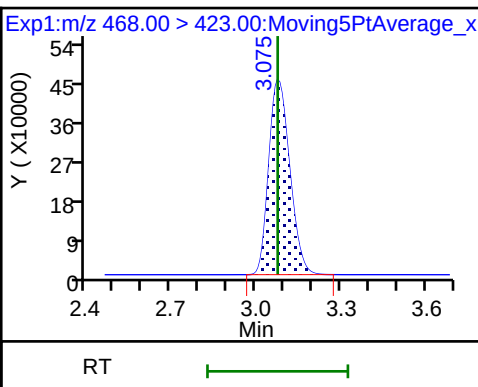
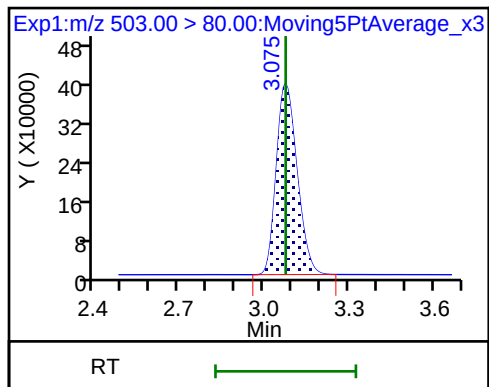
## 17 Perfluorooctane sulfonic acid



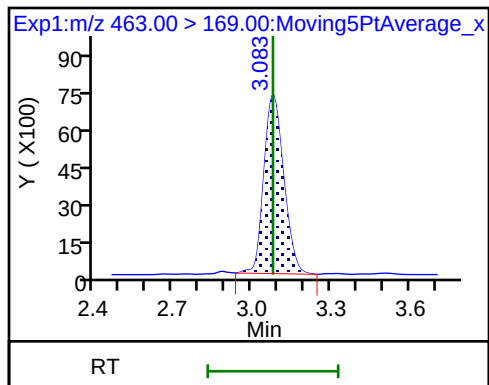
## D 18 13C4 PFOS

## D 19 13C5 PFNA

## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA02-SB2-01 DL</u> | Lab Sample ID: <u>320-39023-17 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_032.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 13:20</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.07(g)</u>            | Date Analyzed: <u>05/29/2018 15:02</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.0</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 25     | U   | 37  | 25  | 9.7 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 25     | U   | 37  | 25  | 12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 25     | U   | 37  | 25  | 10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 22     | U   | 50  | 22  | 7.4 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 21     | J D | 37  | 25  | 7.7 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 390    | D   | 120 | 62  | 30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 94   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 72   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 84   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 66   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_032.d  
 Lims ID: 320-39023-A-17-A  
 Client ID: KLA02-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 15:02:16 ALS Bottle#: 25 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-17-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:18:08 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:18:08

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.752 | 1.762  | -0.010 | 1.000  | 1055     | 0.0220       |                 | 94.5 | 7.7   | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.770 | 1.770  | 0.0    | 1.010  | 48344    | 0.0136       |                 |      | 228   |       |
| 298.90 > 99.00                   | 1.770 | 1.770  | 0.0    | 1.010  | 21817    |              | 2.22(1.25-3.74) |      | 173   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.355  | 0.0    | 1.000  | 38948    | 0.0179       |                 | 71.8 | 729   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.368 | 2.366  | 0.002  | 1.000  | 164375   | 0.0824       |                 |      | 583   |       |
| 399.00 > 99.00                   | 2.368 | 2.366  | 0.002  | 1.000  | 54604    |              | 3.01(1.50-4.49) |      | 288   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 41861    | 0.0156       |                 | 66.0 | 1404  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.711 | 2.709  | 0.002  |        | 54227    | 0.0250       |                 |      | 1337  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.711 | 2.709  | 0.002  | 1.000  | 26523    | 0.0126       |                 |      | 7.8   |       |
| 413.00 > 169.00                  | 2.718 | 2.709  | 0.009  | 1.003  | 11579    |              | 2.29(0.84-2.52) |      | 28.8  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.711 | 2.711  | 0.0    | 1.000  | 44653    | 0.0217       |                 | 87.0 | 1071  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.081 | 3.077  | 0.004  | 1.000  | 2280428  | 1.56         |                 |      | 12013 |       |
| 499.00 > 99.00                   | 3.081 | 3.077  | 0.004  | 1.000  | 530436   |              | 4.30(2.31-6.93) |      | 7724  |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.081 | 3.079  | 0.002  | 1.000  | 29789    | 0.0162       |                 | 67.6 | 261   |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.081 | 3.079  | 0.002  | 1.000  | 35428    | 0.0211       |                 | 84.4 | 1103  |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_032.d

Injection Date: 29-May-2018 15:02:16

Instrument ID: A8\_N

Lims ID: 320-39023-A-17-A

Lab Sample ID: 320-39023-17

Client ID: KLA02-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

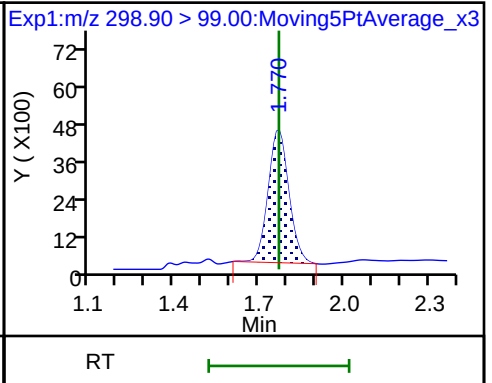
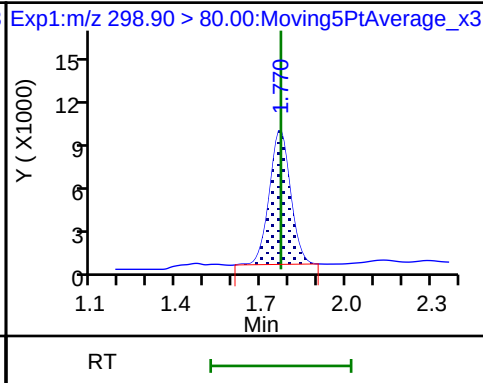
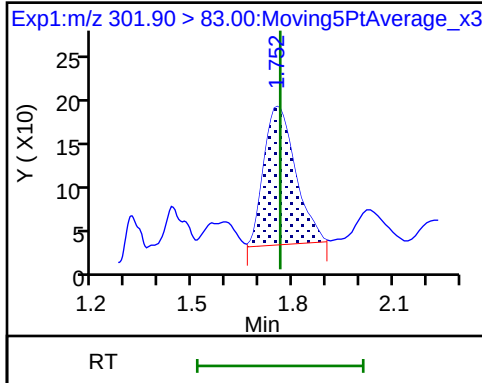
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

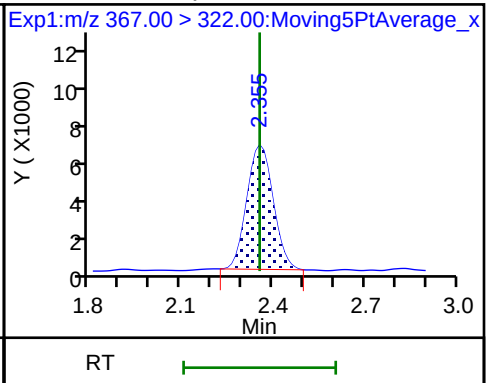
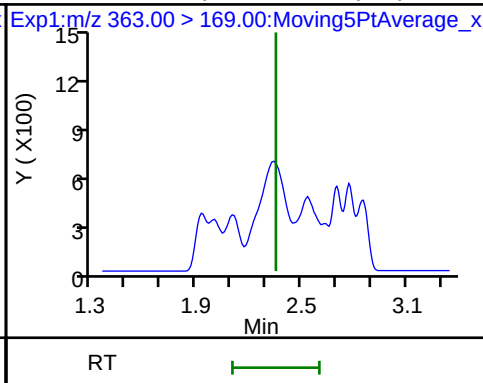
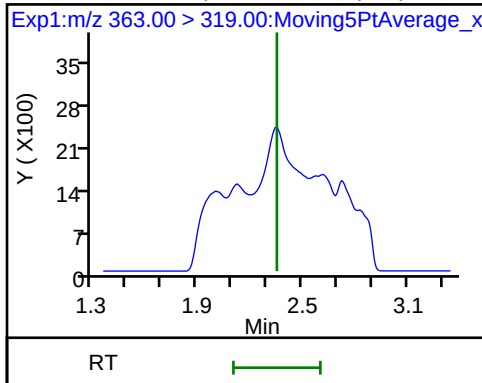
5 Perfluorobutanesulfonic acid



10 Perfluoroheptanoic acid (ND)

10 Perfluoroheptanoic acid (ND)

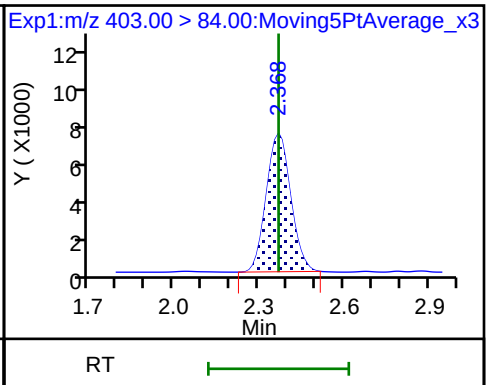
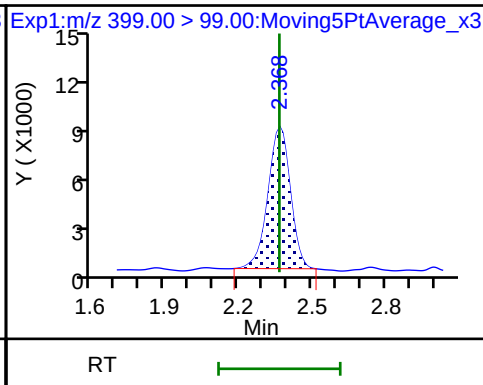
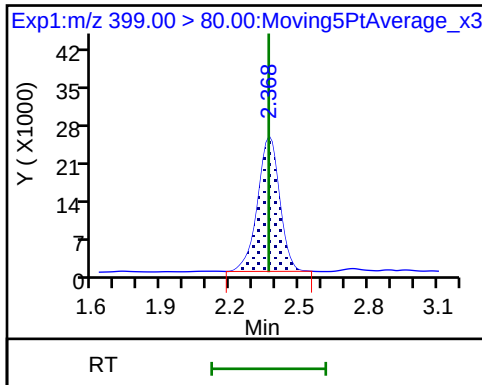
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

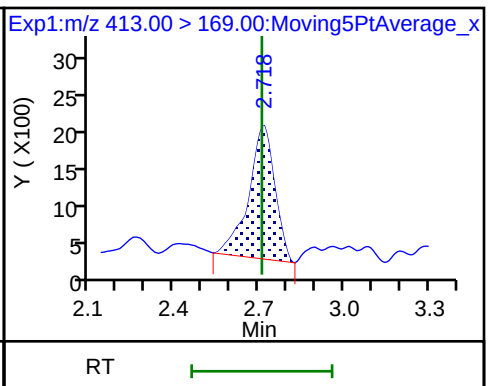
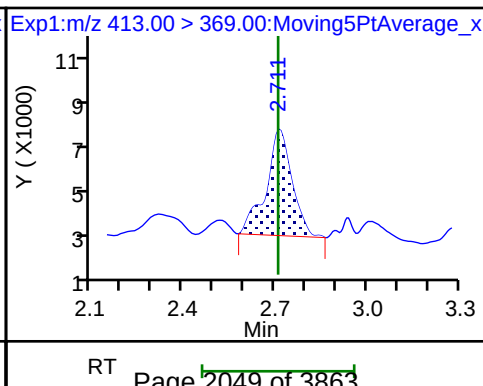
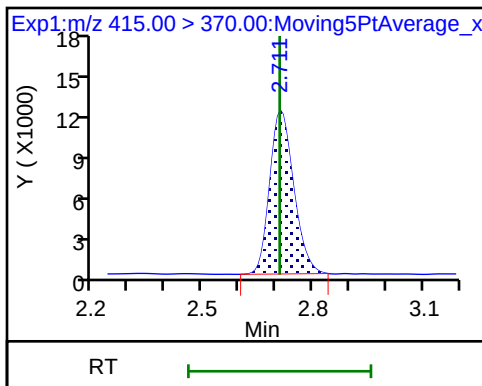
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

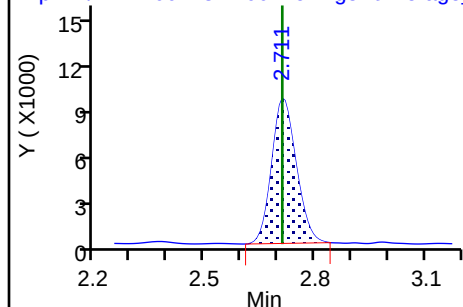


## D 14 13C4 PFOA

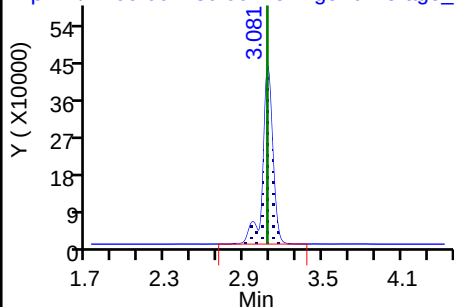
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

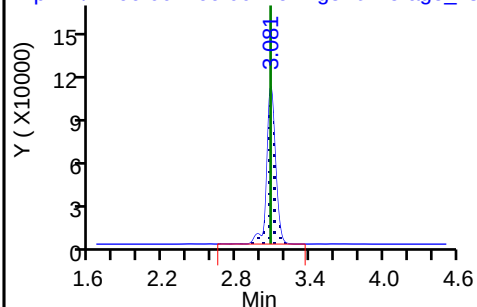
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Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

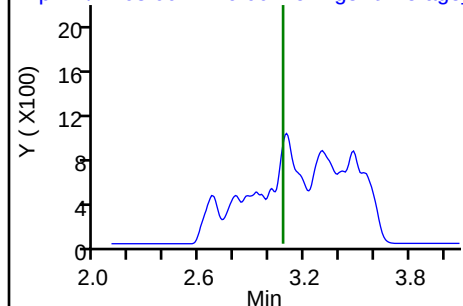


## 20 Perfluorononanoic acid (ND)

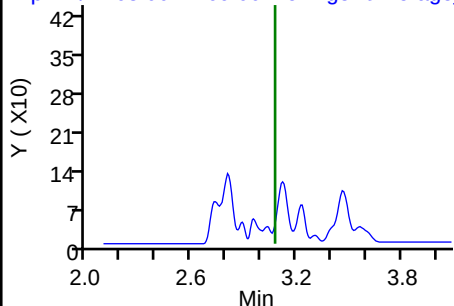
## 20 Perfluorononanoic acid (ND)

## D 18 13C4 PFOS

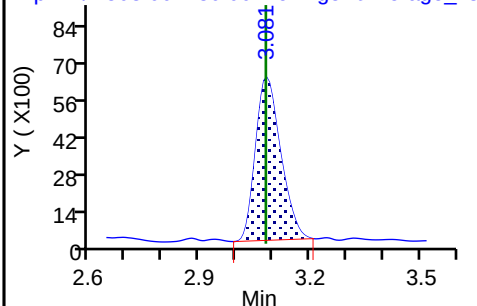
Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

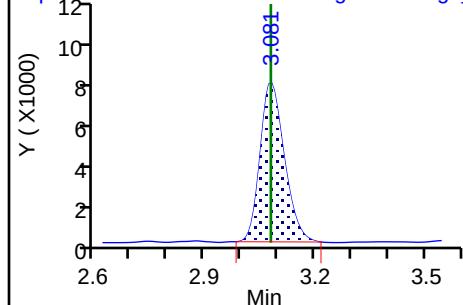


Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



## D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x



## TestAmerica Sacramento

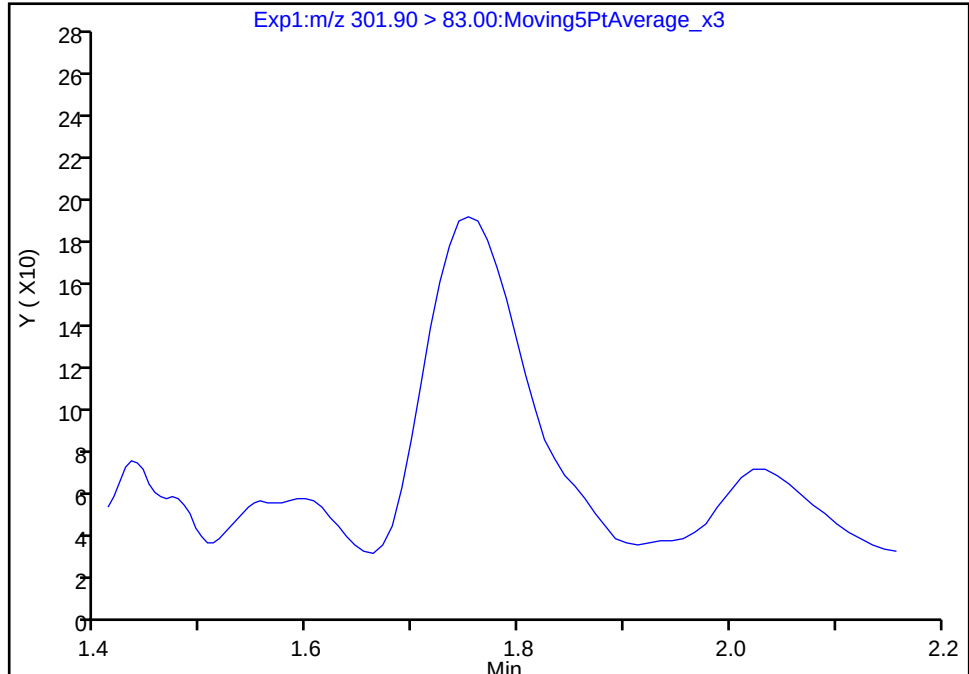
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_032.d |                |                    |                |   |
| Injection Date: | 29-May-2018 15:02:16                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-17-A                                                         | Lab Sample ID: | 320-39023-17       |                |   |
| Client ID:      | KLA02-SB2-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 25                 | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**D 47 13C3-PFBS, CAS: STL02337**

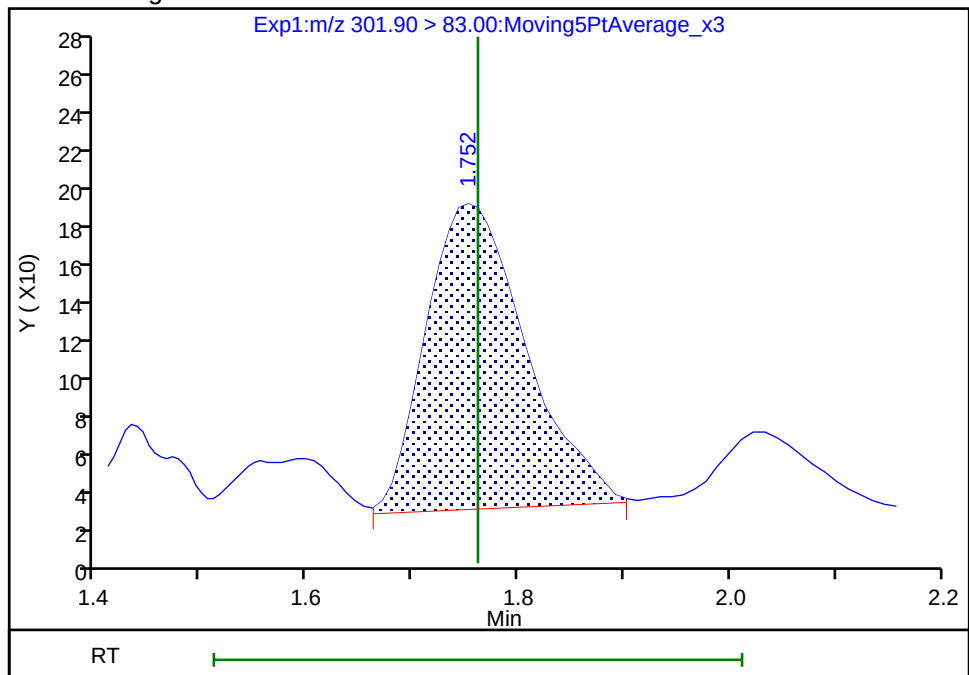
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results



## Manual Integration Results

RT: 1.75  
Area: 1055  
Amount: 0.021965  
Amount Units: ng/ml

Reviewer: ruangyotsakuld, 31-May-2018 10:17:50

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                             |
|-----------------------------------------|---------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                 |
| SDG No.: _____                          |                                             |
| Client Sample ID: <u>KLA02-SB2-02</u>   | Lab Sample ID: <u>320-39023-18</u>          |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_041.d</u>     |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:25</u>     |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>     |
| Sample wt/vol: <u>5.00(g)</u>           | Date Analyzed: <u>05/29/2018 08:22</u>      |
| Con. Extract Vol.: <u>10.00(mL)</u>     | Dilution Factor: <u>1</u>                   |
| Injection Volume: <u>2(uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u> |
| % Moisture: <u>40.8</u>                 | GPC Cleanup: (Y/N) <u>N</u>                 |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                         |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL   |
|-----------|--------------------------------------|--------|---|------|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 6.0    |   | 0.51 | 0.34 | 0.13 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 18     |   | 0.51 | 0.34 | 0.17 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.30   | J | 0.51 | 0.34 | 0.14 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 26     |   | 0.68 | 0.30 | 0.10 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 110    | E | 0.51 | 0.34 | 0.10 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 410    | E | 1.7  | 0.84 | 0.41 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 82   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 78   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 89   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 71   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 72   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 60   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_041.d  
 Lims ID: 320-39023-A-18-A  
 Client ID: KLA02-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 08:22:41 ALS Bottle#: 32 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-18-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:47:03 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:46:39

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.761 | 1.765  | -0.004 | 1.000  | 19865446  | 7.72         |                 |      | 99315 |       |
| 298.90 > 99.00                   | 1.761 | 1.765  | -0.004 | 1.000  | 8685593   |              | 2.29(1.25-3.74) |      | 46881 |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.761 | 1.766  | -0.005 | 1.000  | 76645     | 1.91         |                 | 82.3 | 652   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.342 | 2.345  | -0.003 | 1.000  | 2679323   | 1.79         |                 |      | 3357  |       |
| 363.00 > 169.00                  | 2.342 | 2.345  | -0.003 | 1.000  | 1046444   |              | 2.56(1.13-3.40) |      | 5644  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 3551641   | 1.96         |                 | 78.5 | 56016 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.355 | 2.358  | -0.003 | 0.994  | 61316266  | 33.8         |                 |      | 71340 | E     |
| 399.00 > 99.00                   | 2.368 | 2.358  | 0.010  | 1.000  | 25749421  |              | 2.38(1.50-4.49) |      | 57238 | E     |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.360  | 0.008  | 1.000  | 3805523   | 1.70         |                 | 71.9 | 85630 |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.703 | 2.704  | -0.001 |        | 4521863   | 2.50         |                 |      | 78229 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.703 | 2.704  | -0.001 | 1.000  | 9358272   | 5.23         |                 |      | 3240  |       |
| 413.00 > 169.00                  | 2.703 | 2.704  | -0.001 | 1.000  | 5246370   |              | 1.78(0.84-2.52) |      | 13622 |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.703 | 2.706  | -0.003 | 1.000  | 3800294   | 2.22         |                 | 88.8 | 65667 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.074 | 3.071  | 0.003  | 1.000  | 131436269 | 121.7        |                 |      | 36583 | E     |
| 499.00 > 99.00                   | 3.074 | 3.071  | 0.003  | 1.000  | 38065723  |              | 3.45(2.31-6.93) |      | 64834 | E     |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.074 | 3.076  | -0.002 | 1.000  | 2194916   | 1.43         |                 | 59.7 | 14249 |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.074 | 3.076  | -0.002 | 1.000  | 2484475   | 1.77         |                 | 70.9 | 56041 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     |       |
| 463.00 > 419.00           | 3.074 | 3.079     | -0.005    | 1.000     | 92820    | 0.0882          |                 |      | 202 |       |
| 463.00 > 169.00           | 3.074 | 3.079     | -0.005    | 1.000     | 21965    |                 | 4.23(1.90-5.69) |      | 222 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_041.d

Injection Date: 29-May-2018 08:22:41

Instrument ID: A8\_N

Lims ID: 320-39023-A-18-A

Lab Sample ID: 320-39023-18

Client ID: KLA02-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

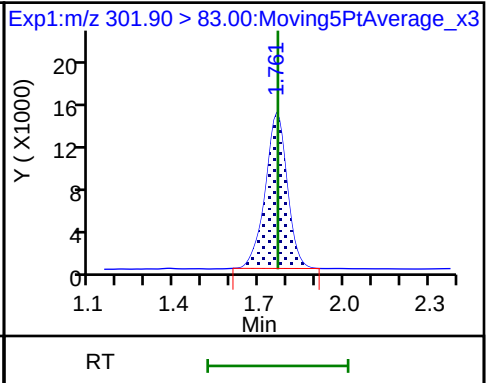
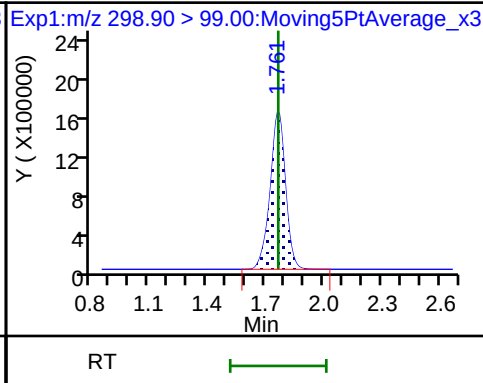
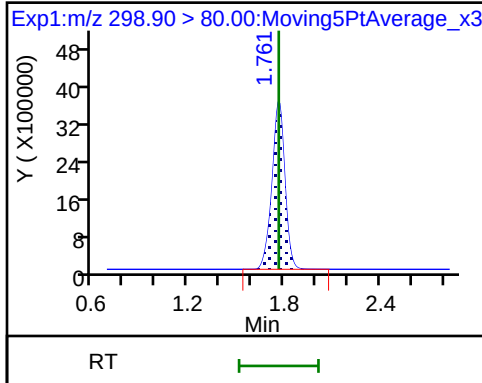
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

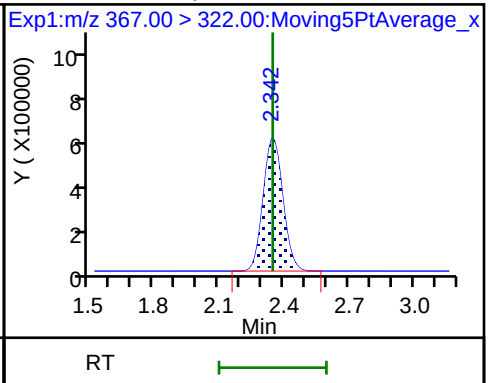
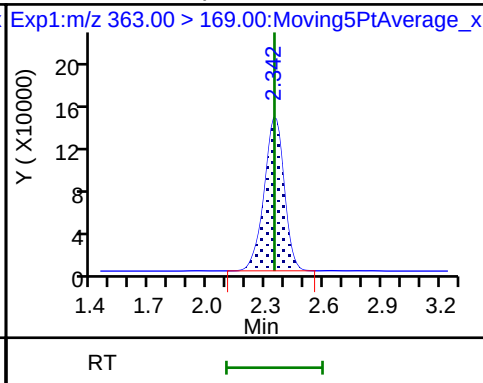
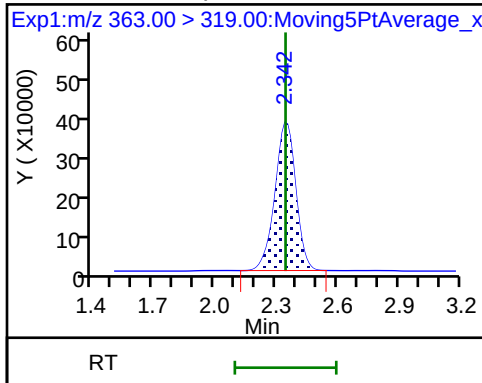
## D 47 13C3-PFBS



## 10 Perfluoroheptanoic acid

## 10 Perfluoroheptanoic acid

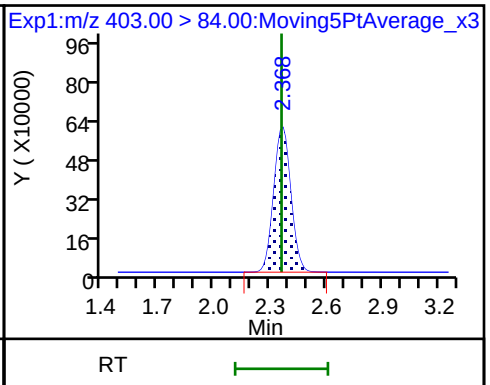
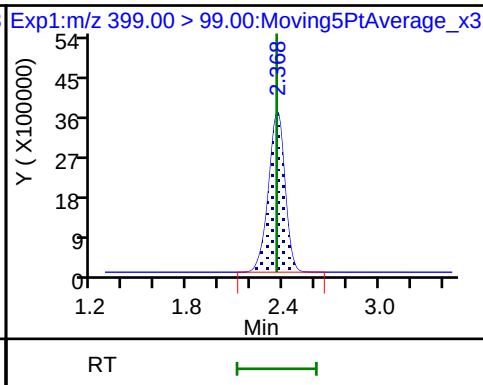
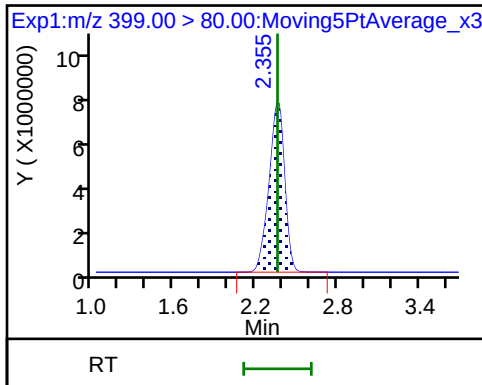
## D 9 13C4-PFHpA



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

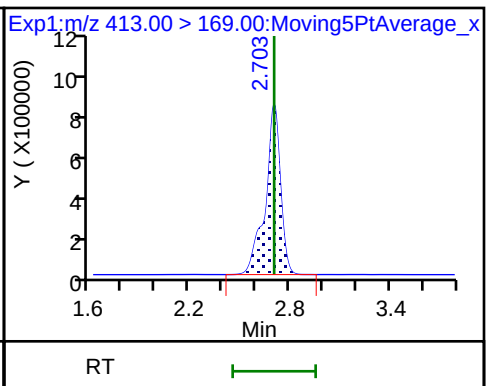
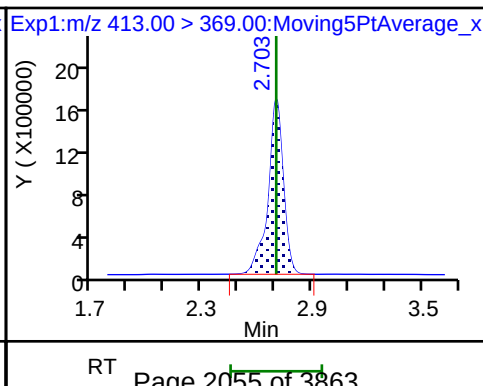
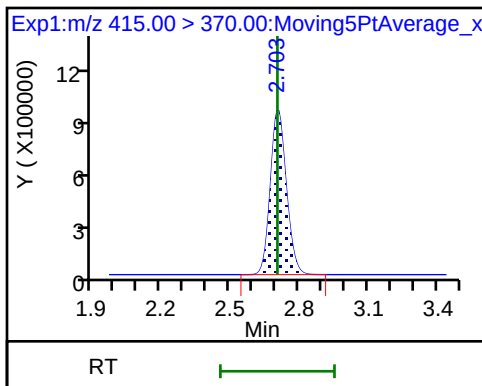
## D 11 18O2 PFHxS



## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

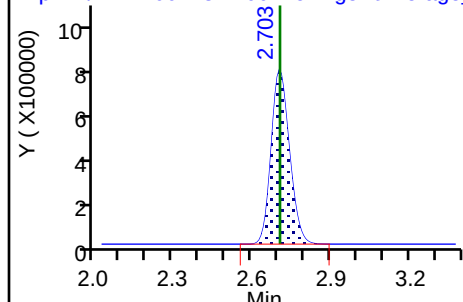


## D 14 13C4 PFOA

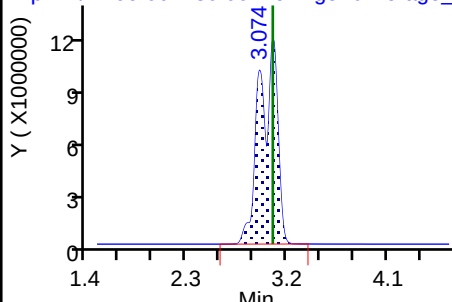
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

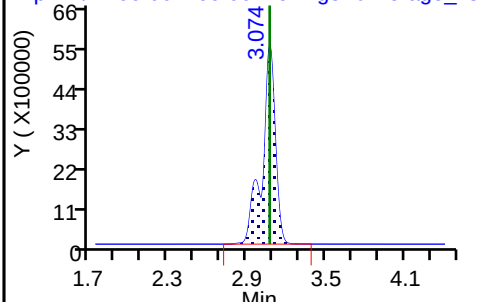
Exp1:m/z 417.00 &gt; 372.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

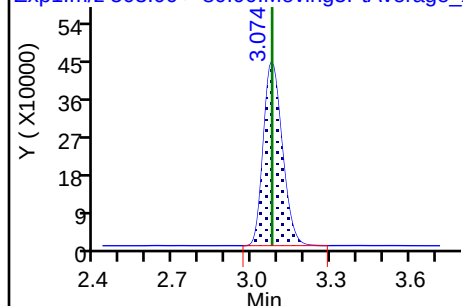


## D 18 13C4 PFOS

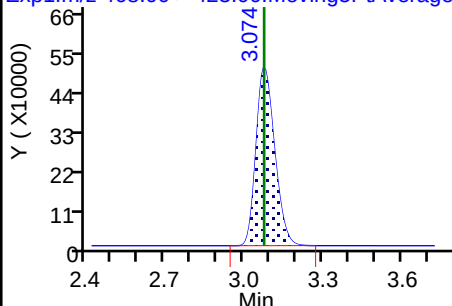
## D 19 13C5 PFNA

## 20 Perfluorononanoic acid

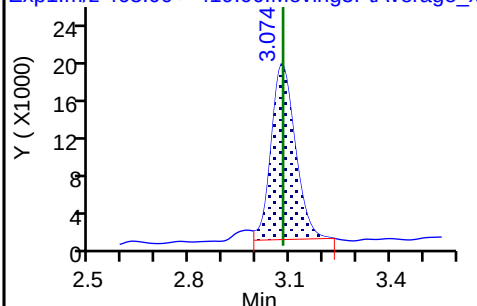
Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x

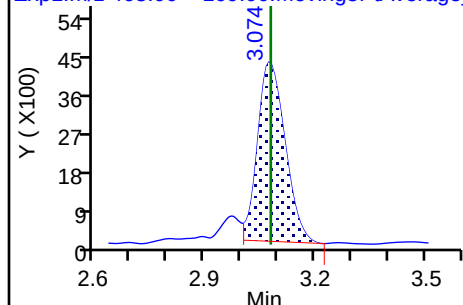


Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



## 20 Perfluorononanoic acid

Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA02-SB2-02 DL</u> | Lab Sample ID: <u>320-39023-18 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_048.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 13:25</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.00(g)</u>            | Date Analyzed: <u>05/29/2018 17:07</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>40.8</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 6.4    | J D | 10  | 6.8 | 2.6 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 17     | D   | 10  | 6.8 | 3.4 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 6.8    | U   | 10  | 6.8 | 2.7 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 30     | D   | 14  | 6.1 | 2.0 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 130    | D   | 10  | 6.8 | 2.1 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 570    | D M | 34  | 17  | 8.1 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 71   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 78   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 91   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 86   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 82   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 71   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_048.d  
 Lims ID: 320-39023-A-18-A  
 Client ID: KLA02-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 17:07:35 ALS Bottle#: 36 Worklist Smp#: 25  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-18-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 11:01:48 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 11:01:47

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.765 | 1.762  | 0.003  | 1.000  | 3595     | 0.0831       |                 | 71.4 | 50.3  |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.774 | 1.765  | 0.010  | 1.005  | 1054548  | 0.4367       |                 |      | 5593  |       |
| 298.90 > 99.00                   | 1.774 | 1.765  | 0.010  | 1.005  | 447933   |              | 2.35(1.25-3.74) |      | 3490  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.362 | 2.355  | 0.007  | 1.000  | 190170   | 0.0972       |                 | 77.8 | 4344  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.362 | 2.358  | 0.004  | 1.000  | 152857   | 0.0951       |                 |      | 162   |       |
| 363.00 > 169.00                  | 2.349 | 2.358  | -0.009 | 0.994  | 58106    |              | 2.63(1.13-3.40) |      | 252   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.375 | 2.358  | 0.017  | 1.000  | 4326263  | 1.93         |                 |      | 13215 |       |
| 399.00 > 99.00                   | 2.375 | 2.358  | 0.017  | 1.000  | 1501677  |              | 2.88(1.50-4.49) |      | 6081  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.375 | 2.368  | 0.007  | 1.000  | 234693   | 0.0970       |                 | 82.1 | 9720  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.714 | 2.711  | 0.003  | 1.000  | 209656   | 0.1133       |                 | 90.6 | 5520  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.714 | 2.712  | 0.002  | 1.000  | 508859   | 0.2578       |                 |      | 169   |       |
| 413.00 > 169.00                  | 2.714 | 2.712  | 0.002  | 1.000  | 291842   |              | 1.74(0.84-2.52) |      | 825   |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.714 | 2.712  | 0.002  |        | 244352   | 0.1250       |                 |      | 5237  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.086 | 3.079  | 0.007  | 1.000  | 11685709 | 8.48         |                 |      | 17935 | M     |
| 499.00 > 99.00                   | 3.079 | 3.079  | 0.0    | 0.997  | 2588868  |              | 4.51(2.31-6.93) |      | 26766 | M     |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.094 | 3.079  | 0.015  | 1.003  | 5184     | 0.003747     |                 |      | 15.5  |       |
| 463.00 > 169.00                  | 3.117 | 3.079  | 0.038  | 1.010  | 993      |              | 5.22(1.90-5.69) |      | 24.4  |       |

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

D 18 13C4 PFOS

503.00 &gt; 80.00 3.086 3.079 0.007 1.000 140038 0.0843 70.5 1304

D 19 13C5 PFNA

468.00 &gt; 423.00 3.086 3.079 0.007 1.000 163291 0.1079 86.3 4911

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_048.d

Injection Date: 29-May-2018 17:07:35

Instrument ID: A8\_N

Lims ID: 320-39023-A-18-A

Lab Sample ID: 320-39023-18

Client ID: KLA02-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

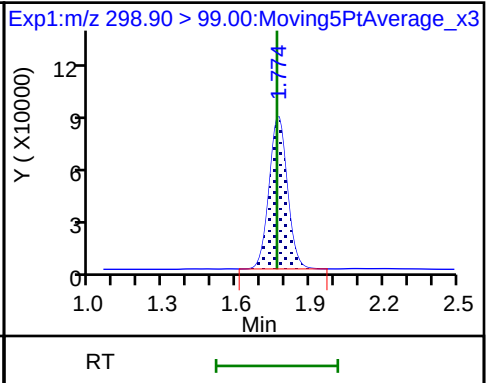
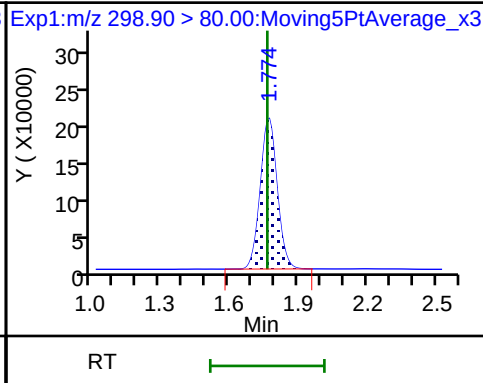
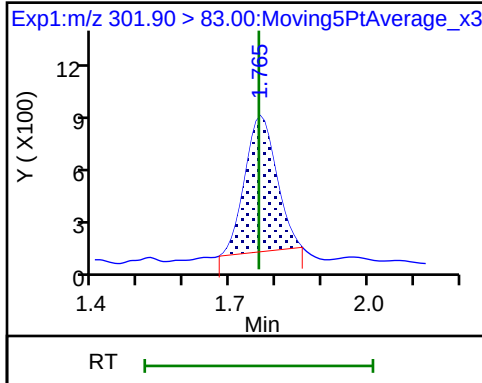
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

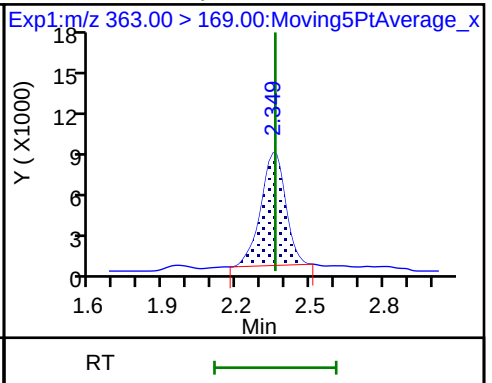
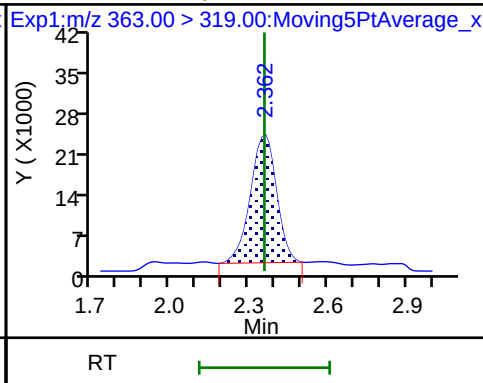
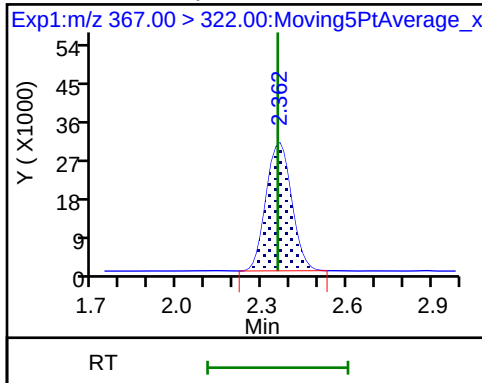
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

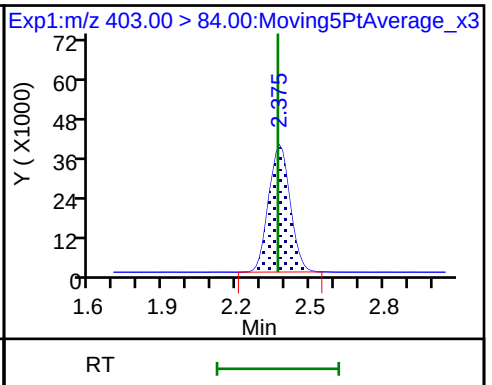
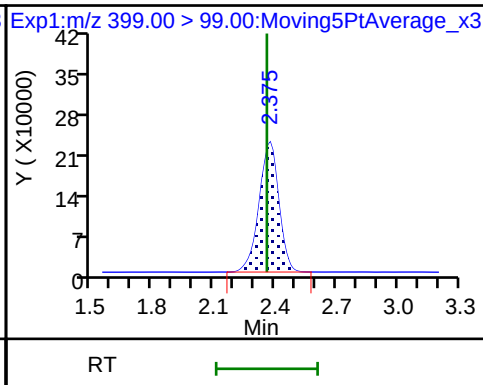
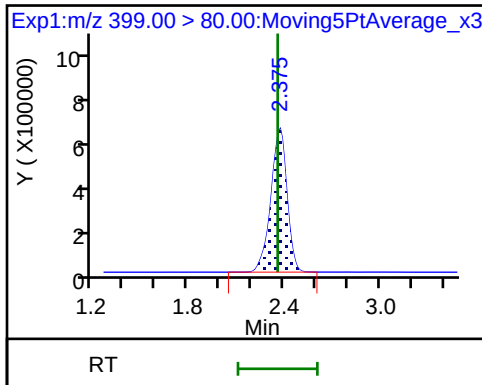
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

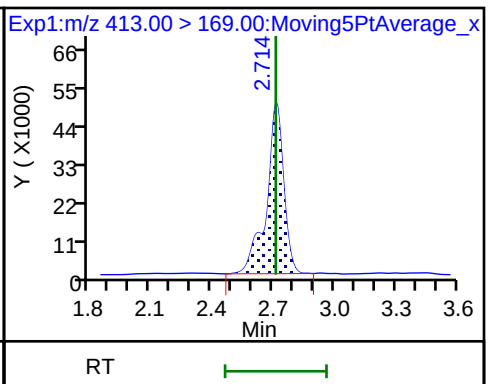
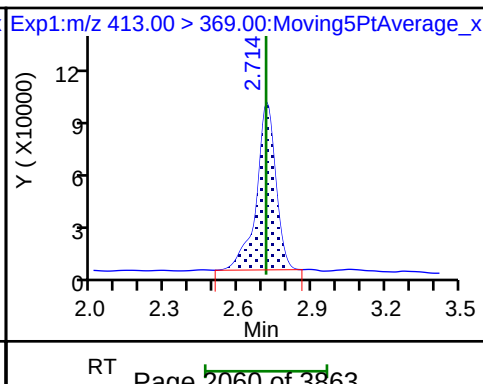
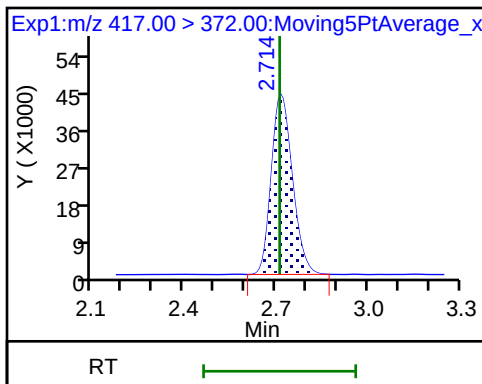
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

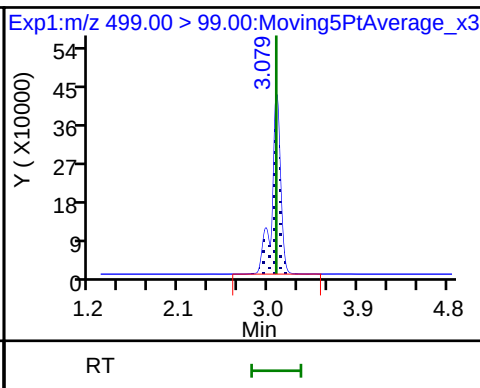
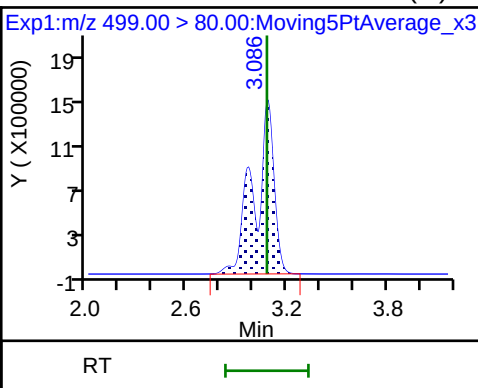
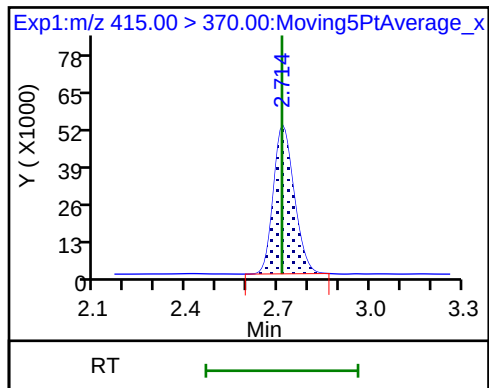
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (M)

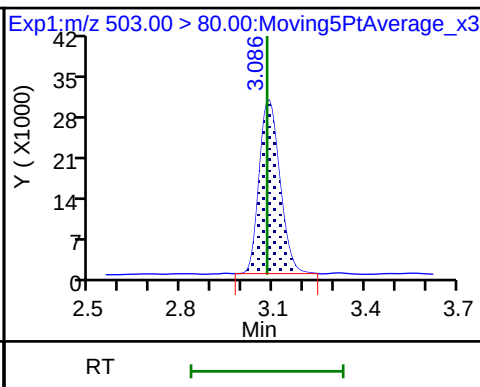
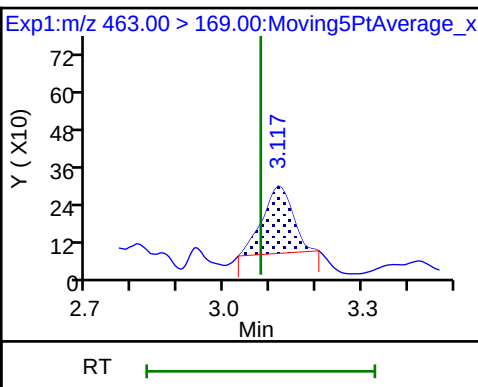
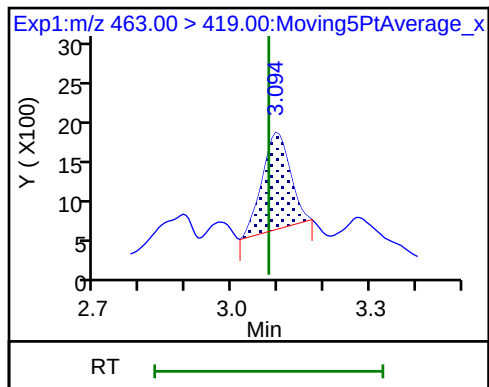
17 Perfluorooctane sulfonic acid



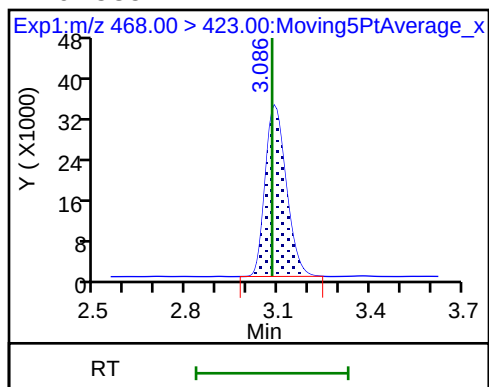
20 Perfluorononanoic acid

20 Perfluorononanoic acid

D 18 13C4 PFOS



D 19 13C5 PFNA



## TestAmerica Sacramento

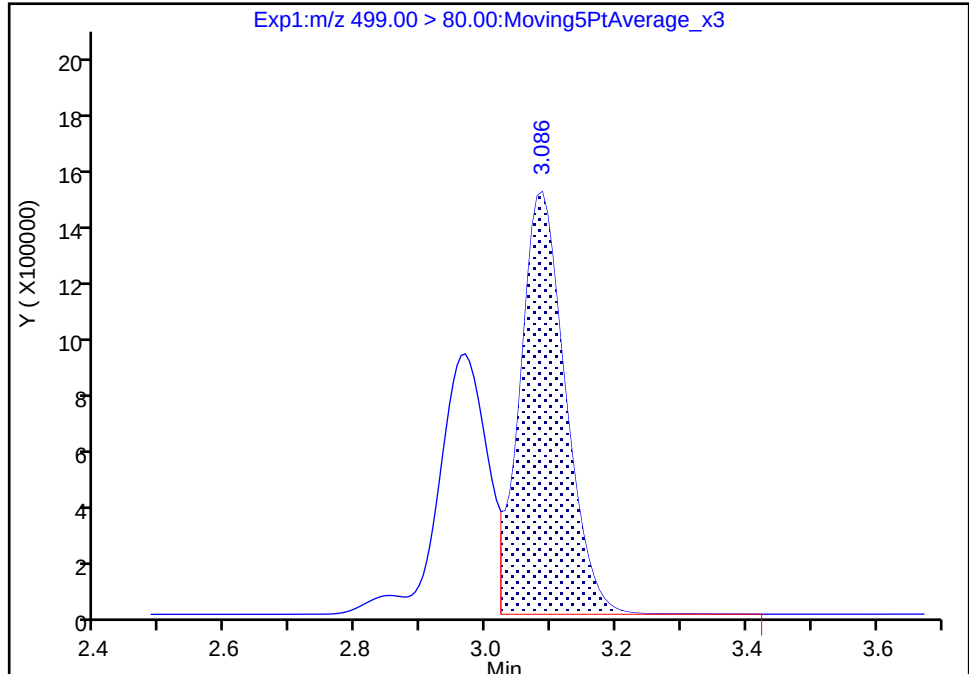
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_048.d |                |                    |                |    |
| Injection Date: | 29-May-2018 17:07:35                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-18-A                                                         | Lab Sample ID: | 320-39023-18       |                |    |
| Client ID:      | KLA02-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 36                 | Worklist Smp#: | 25 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

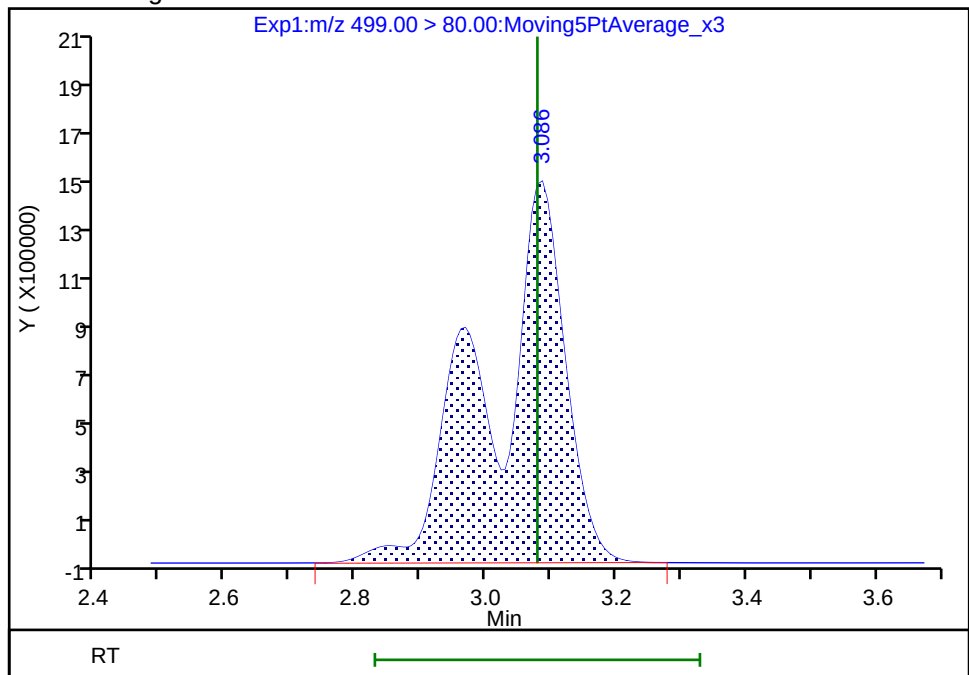
RT: 3.09  
Area: 7026285  
Amount: 5.099368  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 11685709  
Amount: 8.480972  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 11:01:32

Audit Action: Manually Integrated

Audit Reason: Isomers



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB3-01</u>   | Lab Sample ID: <u>320-39023-19</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_042.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:55</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.95(g)</u>           | Date Analyzed: <u>05/29/2018 08:30</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>16.2</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.47   |     | 0.36 | 0.24 | 0.094 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.45   |     | 0.36 | 0.24 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.40   |     | 0.36 | 0.24 | 0.098 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.50   |     | 0.48 | 0.22 | 0.071 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 5.4    |     | 0.36 | 0.24 | 0.075 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 110    | E M | 1.2  | 0.60 | 0.29  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 78   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 86   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 92   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 85   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 82   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_042.d  
 Lims ID: 320-39023-A-19-A  
 Client ID: KLA02-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 08:30:33 ALS Bottle#: 33 Worklist Smp#: 12  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-19-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:47:03 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:47:46

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |        |       |
| 298.90 > 80.00                   | 1.770 | 1.765     | 0.005     | 1.000     | 551913   | 0.2071          |                 |      | 2436   |       |
| 298.90 > 99.00                   | 1.770 | 1.765     | 0.005     | 1.000     | 239320   |                 | 2.31(1.25-3.74) |      | 735    |       |
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |        |       |
| 301.90 > 83.00                   | 1.770 | 1.766     | 0.004     | 1.000     | 79353    | 1.81            |                 | 77.7 | 593    |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |          |                 |                 |      |        |       |
| 363.00 > 319.00                  | 2.355 | 2.345     | 0.010     | 1.000     | 350345   | 0.1946          |                 |      | 501    |       |
| 363.00 > 169.00                  | 2.355 | 2.345     | 0.010     | 1.000     | 137354   |                 | 2.55(1.13-3.40) |      | 604    |       |
| D 9 13C4-PFHpa                   |       |           |           |           |          |                 |                 |      |        |       |
| 367.00 > 322.00                  | 2.355 | 2.347     | 0.008     | 1.000     | 4260324  | 2.15            |                 | 85.9 | 67881  |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |        |       |
| 399.00 > 80.00                   | 2.368 | 2.358     | 0.010     | 1.000     | 5127705  | 2.26            |                 |      | 7781   |       |
| 399.00 > 99.00                   | 2.368 | 2.358     | 0.010     | 1.000     | 1646455  |                 | 3.11(1.50-4.49) |      | 5964   |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |        |       |
| 403.00 > 84.00                   | 2.368 | 2.360     | 0.008     | 1.000     | 4760395  | 1.94            |                 | 82.1 | 86404  |       |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |        |       |
| 415.00 > 370.00                  | 2.711 | 2.704     | 0.007     |           | 4956887  | 2.50            |                 |      | 93688  |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 413.00 > 369.00                  | 2.711 | 2.704     | 0.007     | 1.000     | 379406   | 0.1874          |                 |      | 235    |       |
| 413.00 > 169.00                  | 2.703 | 2.704     | -0.001    | 0.997     | 209169   |                 | 1.81(0.84-2.52) |      | 542    |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |        |       |
| 417.00 > 372.00                  | 2.711 | 2.706     | 0.005     | 1.000     | 4299340  | 2.29            |                 | 91.6 | 74668  |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |        |       |
| 499.00 > 80.00                   | 3.081 | 3.071     | 0.010     | 1.003     | 59858788 | 44.2            |                 |      | 32113  | EM    |
| 499.00 > 99.00                   | 3.074 | 3.071     | 0.003     | 1.000     | 16979506 |                 | 3.53(2.31-6.93) |      | 107289 | EM    |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                   | 3.074 | 3.076     | -0.002    | 1.000     | 2752857  | 1.63            |                 | 68.3 | 21126  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |        |       |
| 468.00 > 423.00                  | 3.081 | 3.076     | 0.005     | 1.000     | 3262697  | 2.12            |                 | 85.0 | 47923  |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     |       |
| 463.00 > 419.00           | 3.081 | 3.079     | 0.002     | 1.000     | 229674   | 0.1662          |                 |      | 425 |       |
| 463.00 > 169.00           | 3.081 | 3.079     | 0.002     | 1.000     | 56971    |                 | 4.03(1.90-5.69) |      | 498 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_042.d

Injection Date: 29-May-2018 08:30:33

Instrument ID: A8\_N

Lims ID: 320-39023-A-19-A

Lab Sample ID: 320-39023-19

Client ID: KLA02-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

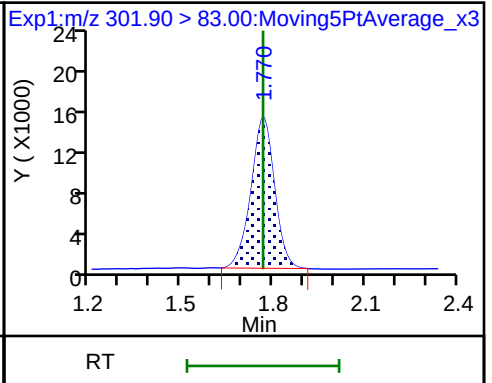
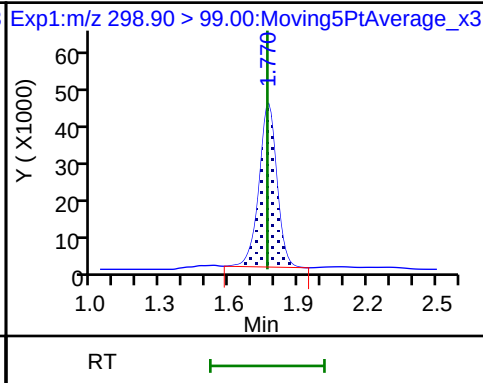
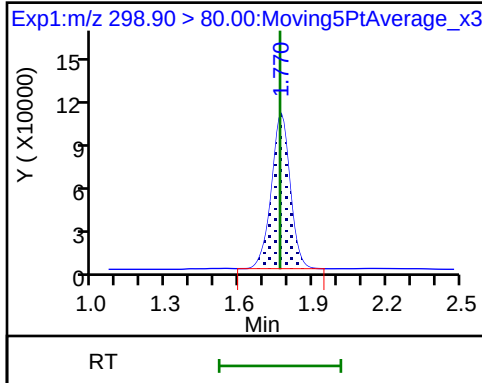
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

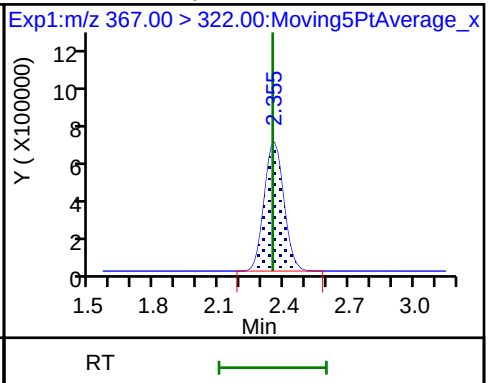
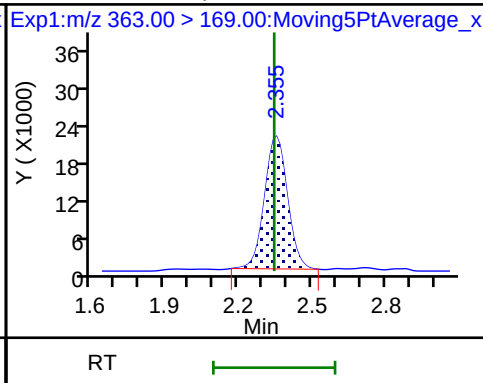
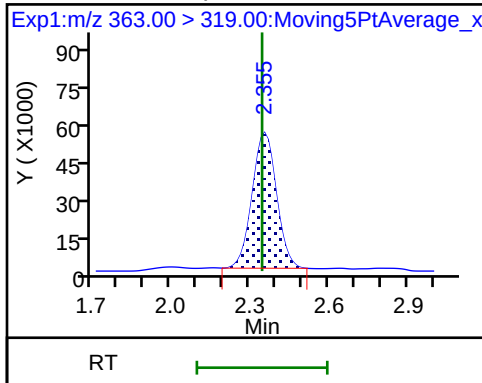
## D 47 13C3-PFBS



## 10 Perfluoroheptanoic acid

## 10 Perfluoroheptanoic acid

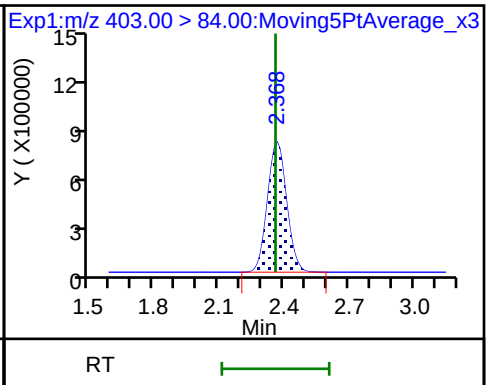
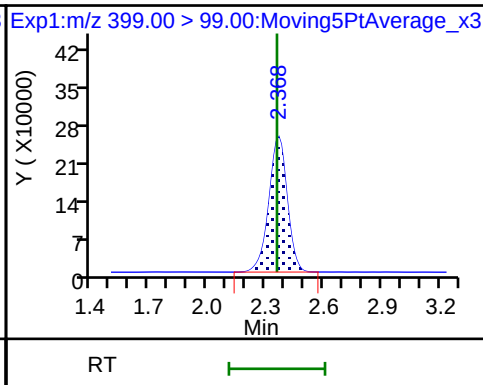
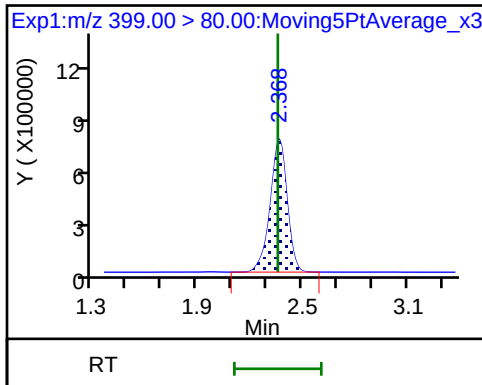
## D 9 13C4-PFHpA



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

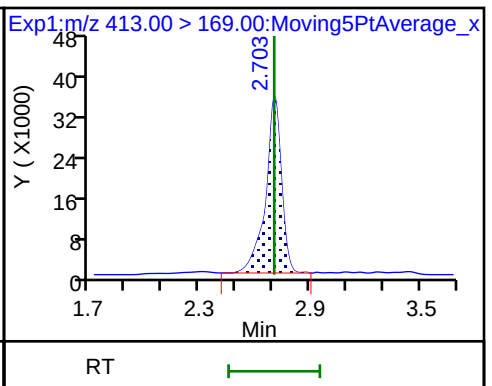
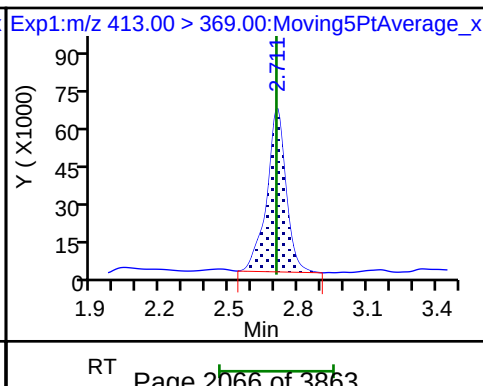
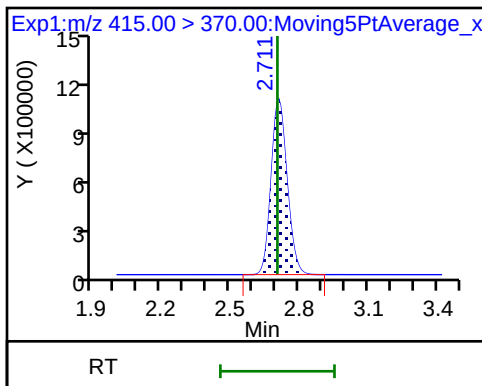
## D 11 18O2 PFHxS



## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

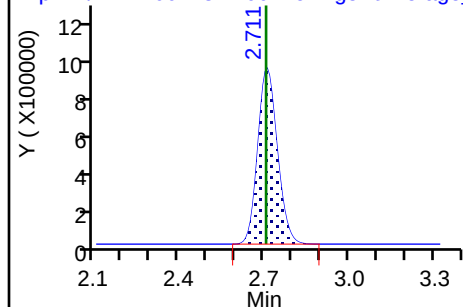


## D 14 13C4 PFOA

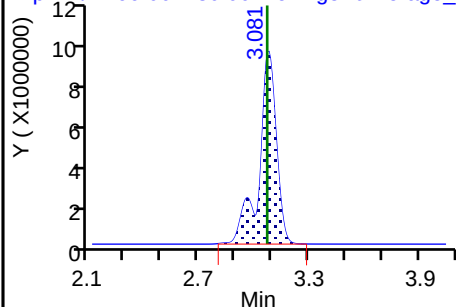
## 17 Perfluorooctane sulfonic acid (M)

## 17 Perfluorooctane sulfonic acid

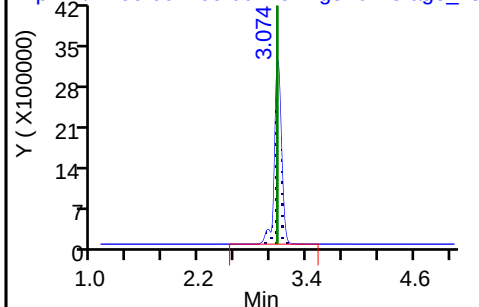
Exp1:m/z 417.00 &gt; 372.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

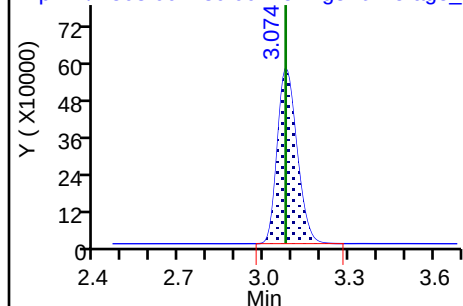


## D 18 13C4 PFOS

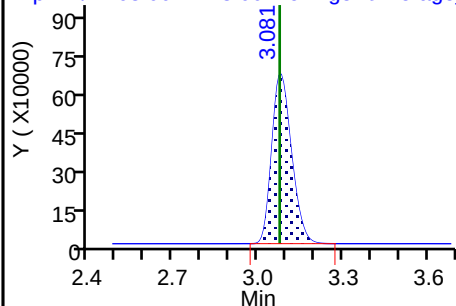
## D 19 13C5 PFNA

## 20 Perfluorononanoic acid

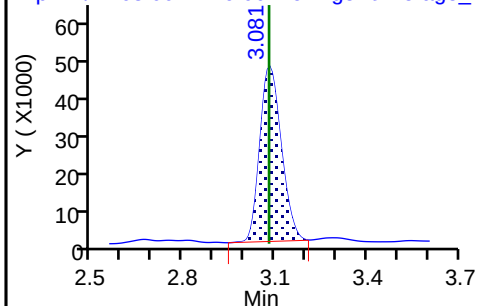
Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x

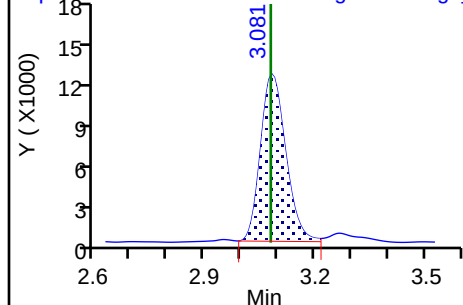


Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



## 20 Perfluorononanoic acid

Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x



## TestAmerica Sacramento

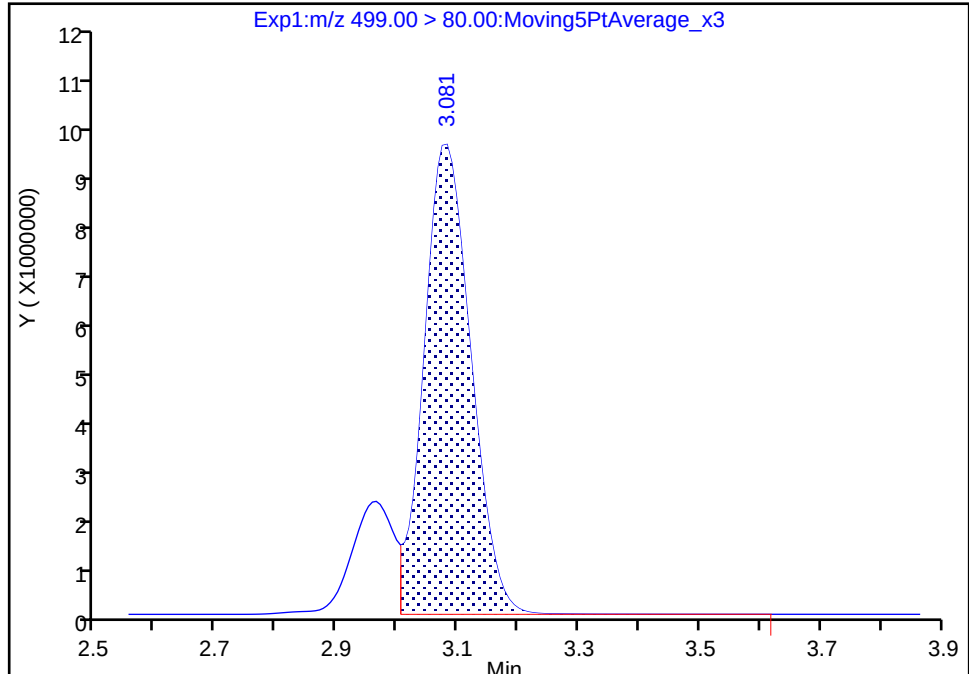
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_042.d |                |                    |                |    |
| Injection Date: | 29-May-2018 08:30:33                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-19-A                                                         | Lab Sample ID: | 320-39023-19       |                |    |
| Client ID:      | KLA02-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 33                 | Worklist Smp#: | 12 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

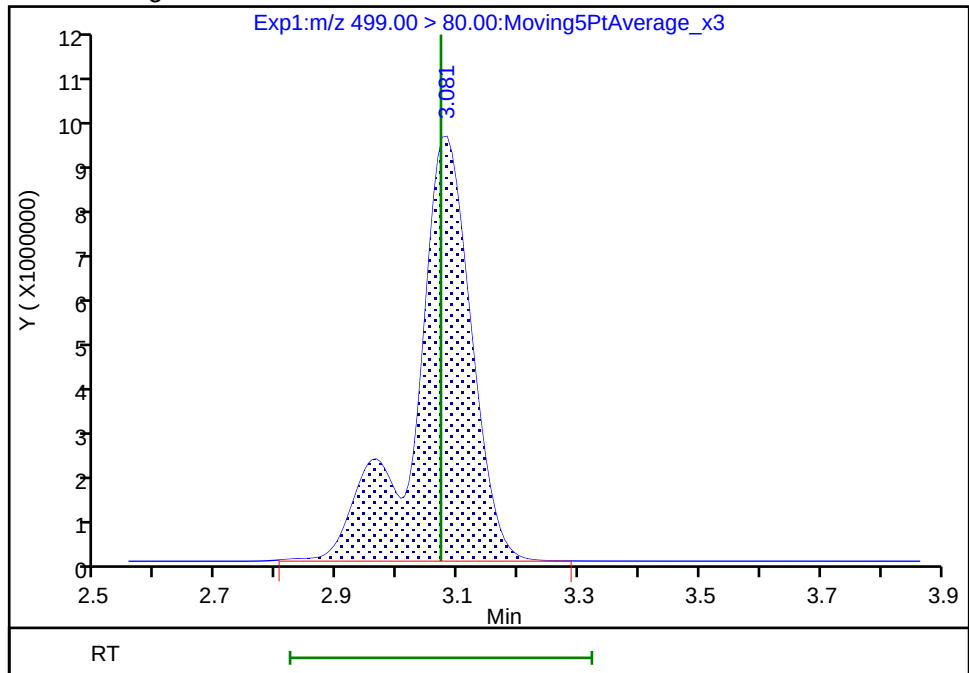
RT: 3.08  
Area: 49329093  
Amount: 36.423857  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 59858788  
Amount: 44.198825  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: hannigana, 29-May-2018 10:32:26  
Audit Action: Manually Integrated

Audit Reason: Isomers  
Page 2068 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA02-SB3-01 DL</u> | Lab Sample ID: <u>320-39023-19 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_028.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 13:55</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.95(g)</u>            | Date Analyzed: <u>05/29/2018 14:30</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>16.2</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 4.8    | U   | 7.2 | 4.8 | 1.9 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 4.8    | U   | 7.2 | 4.8 | 2.4 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 4.8    | U   | 7.2 | 4.8 | 2.0 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 4.3    | U   | 9.6 | 4.3 | 1.4 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 5.7    | J D | 7.2 | 4.8 | 1.5 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 140    | D   | 24  | 12  | 5.8 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 77   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 84   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 91   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 100  |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 74   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_028.d  
 Lims ID: 320-39023-A-19-A  
 Client ID: KLA02-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 14:30:56 ALS Bottle#: 21 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-19-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:15:35 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:15:35

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

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |   |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|---|
| 301.90 > 83.00 | 1.764 | 1.762 | 0.002 | 1.000 | 3864 | 0.0897 |  | 77.2 | 43.9 | M |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|---|

## 5 Perfluorobutanesulfonic acid

|                |       |       |        |       |       |        |  |  |     |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.764 | 1.770 | -0.006 | 1.000 | 29068 | 0.0112 |  |  | 151 |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|

|                |       |       |        |       |       |  |                 |  |      |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.764 | 1.770 | -0.006 | 1.000 | 11888 |  | 2.45(1.25-3.74) |  | 82.8 |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |       |          |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|----------|--|--|------|--|
| 363.00 > 319.00 | 2.358 | 2.353 | 0.005 | 1.000 | 14255 | 0.008261 |  |  | 16.4 |  |
|-----------------|-------|-------|-------|-------|-------|----------|--|--|------|--|

|                 |       |       |       |       |      |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.358 | 2.353 | 0.005 | 1.000 | 6763 |  | 2.11(1.13-3.40) |  | 27.1 |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.358 | 2.355 | 0.003 | 1.000 | 204200 | 0.1049 |  | 83.9 | 5455 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |        |        |  |  |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.371 | 2.366 | 0.005 | 1.000 | 241829 | 0.1191 |  |  | 1008 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                |       |       |       |       |       |  |                 |  |     |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 399.00 > 99.00 | 2.371 | 2.366 | 0.005 | 1.000 | 80559 |  | 3.00(1.50-4.49) |  | 445 |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 403.00 > 84.00 | 2.371 | 2.368 | 0.003 | 1.000 | 213150 | 0.0886 |  | 74.9 | 5808 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |        |        |  |  |      |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|------|--|
| 415.00 > 370.00 | 2.711 | 2.709 | 0.002 |  | 243200 | 0.1250 |  |  | 6464 |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |       |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|-----|--|
| 413.00 > 369.00 | 2.711 | 2.709 | 0.002 | 1.000 | 27140 | 0.0137 |  |  | 9.4 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|-----|--|

|                 |       |       |        |       |       |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|
| 413.00 > 169.00 | 2.704 | 2.709 | -0.005 | 0.997 | 11502 |  | 2.36(0.84-2.52) |  | 28.6 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|

## D 14 13C4 PFOA

|                 |       |       |     |       |        |        |  |      |      |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|
| 417.00 > 372.00 | 2.711 | 2.711 | 0.0 | 1.000 | 210445 | 0.1142 |  | 91.4 | 7560 |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |        |       |         |      |  |  |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|--|-------|--|
| 499.00 > 80.00 | 3.076 | 3.077 | -0.001 | 1.000 | 4088698 | 2.83 |  |  | 18039 |  |
|----------------|-------|-------|--------|-------|---------|------|--|--|-------|--|

|                |       |       |        |       |        |  |                 |  |       |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-------|--|
| 499.00 > 99.00 | 3.076 | 3.077 | -0.001 | 1.000 | 962936 |  | 4.25(2.31-6.93) |  | 12809 |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |       |          |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|----------|--|--|------|--|
| 463.00 > 419.00 | 3.083 | 3.077 | 0.006 | 1.003 | 12648 | 0.007894 |  |  | 33.5 |  |
|-----------------|-------|-------|-------|-------|-------|----------|--|--|------|--|

|                 |       |       |       |       |      |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|
| 463.00 > 169.00 | 3.091 | 3.077 | 0.014 | 1.005 | 3159 |  | 4.00(1.90-5.69) |  | 67.9 |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|



| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.076 | 3.079     | -0.003    | 1.000     | 146597   | 0.0886          |               | 74.2 | 1441  |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.076 | 3.079     | -0.003    | 1.000     | 189097   | 0.1255          |               | 100  | 10129 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_028.d

Injection Date: 29-May-2018 14:30:56

Instrument ID: A8\_N

Lims ID: 320-39023-A-19-A

Lab Sample ID: 320-39023-19

Client ID: KLA02-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

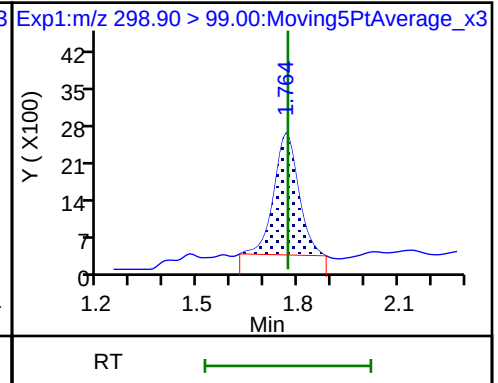
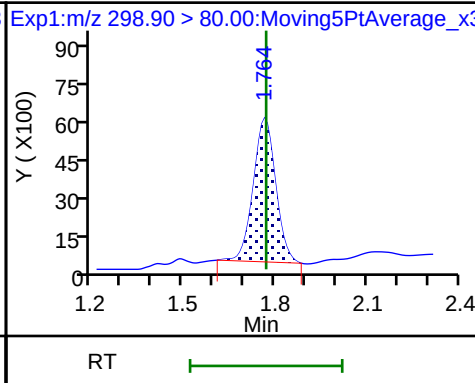
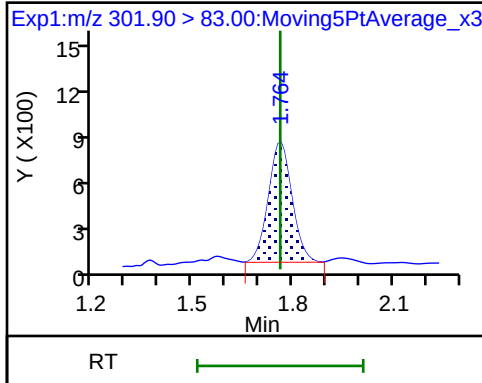
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

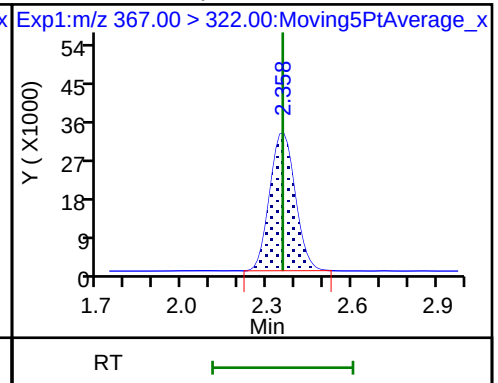
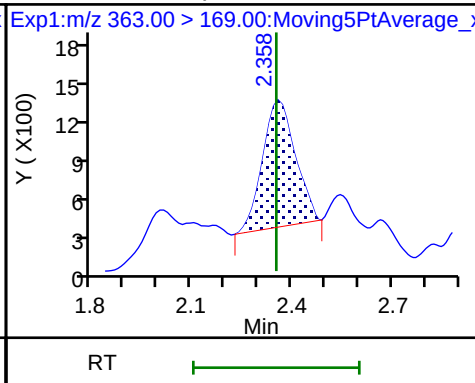
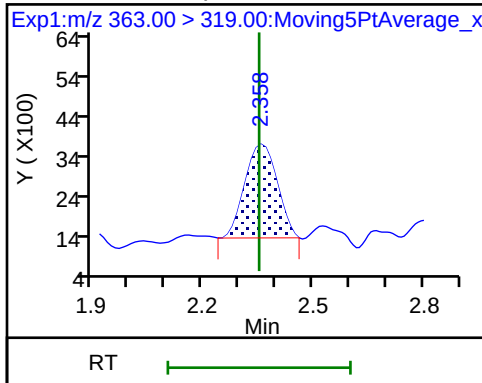
5 Perfluorobutanesulfonic acid



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

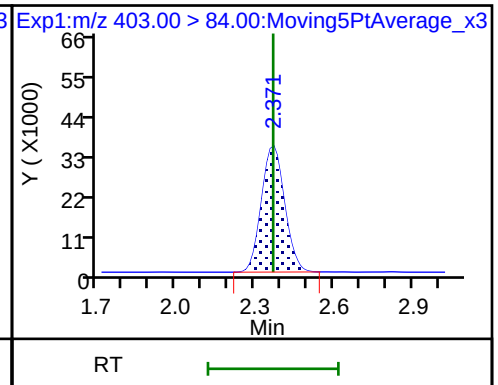
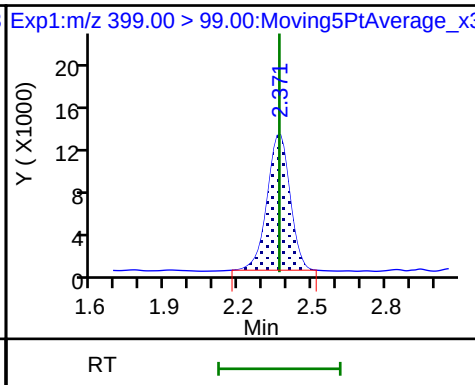
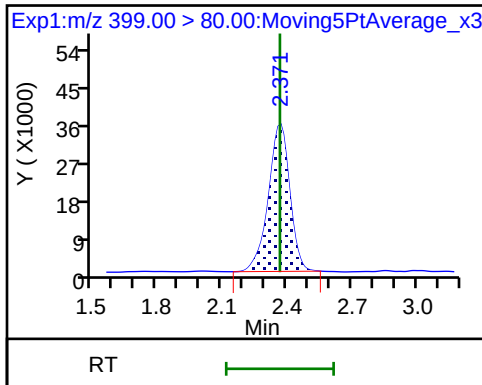
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

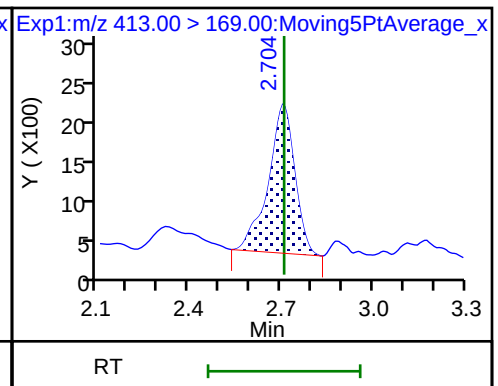
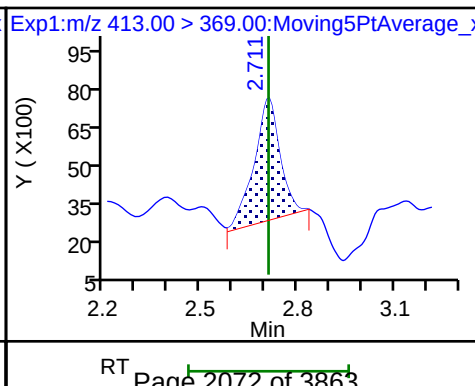
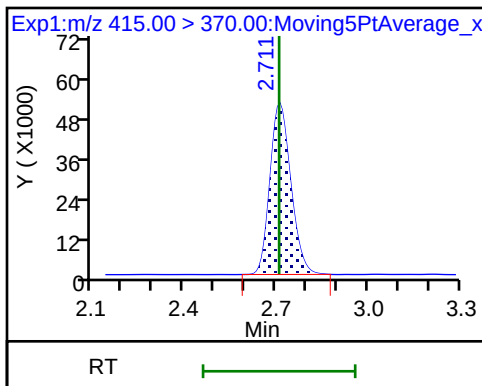
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

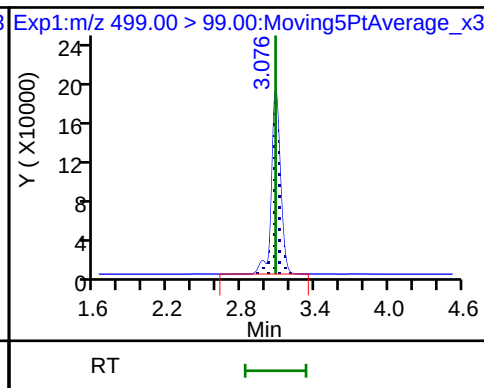
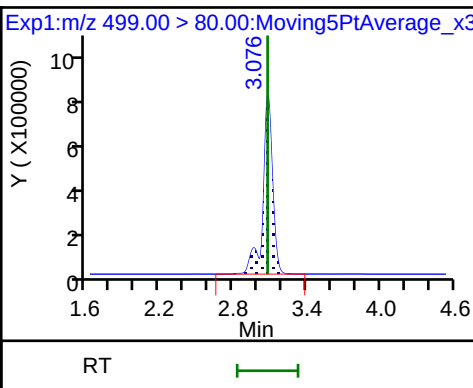
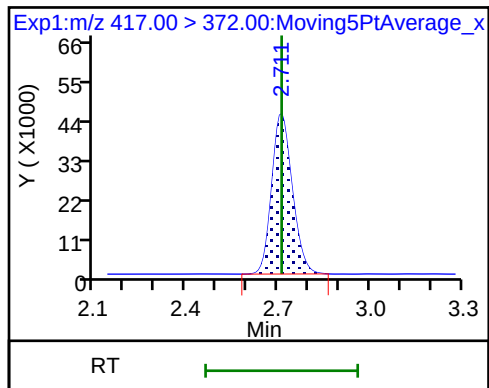
15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

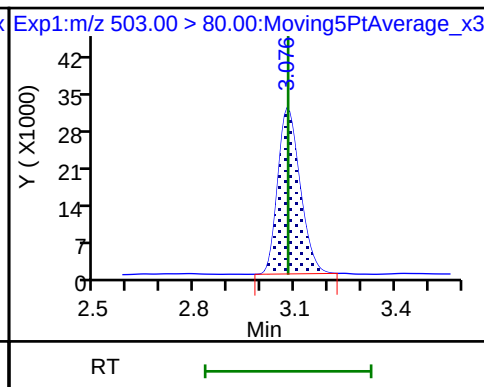
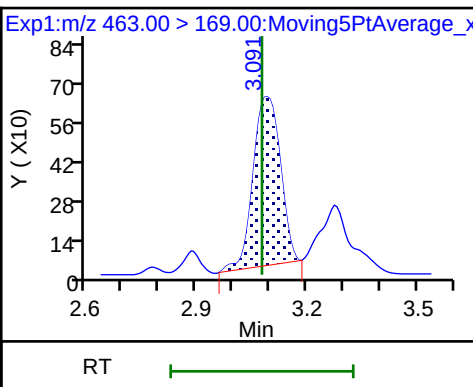
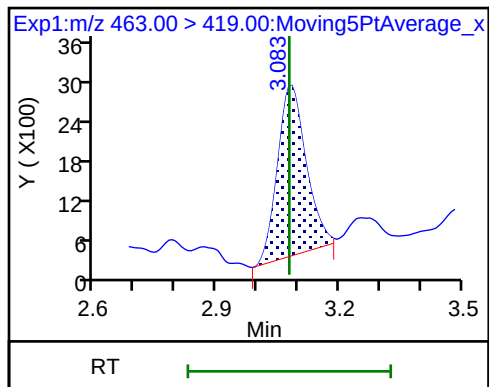
## 17 Perfluorooctane sulfonic acid



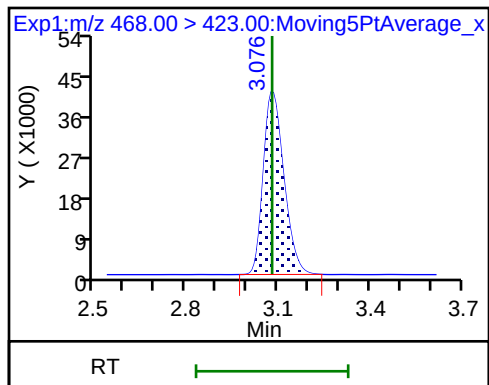
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

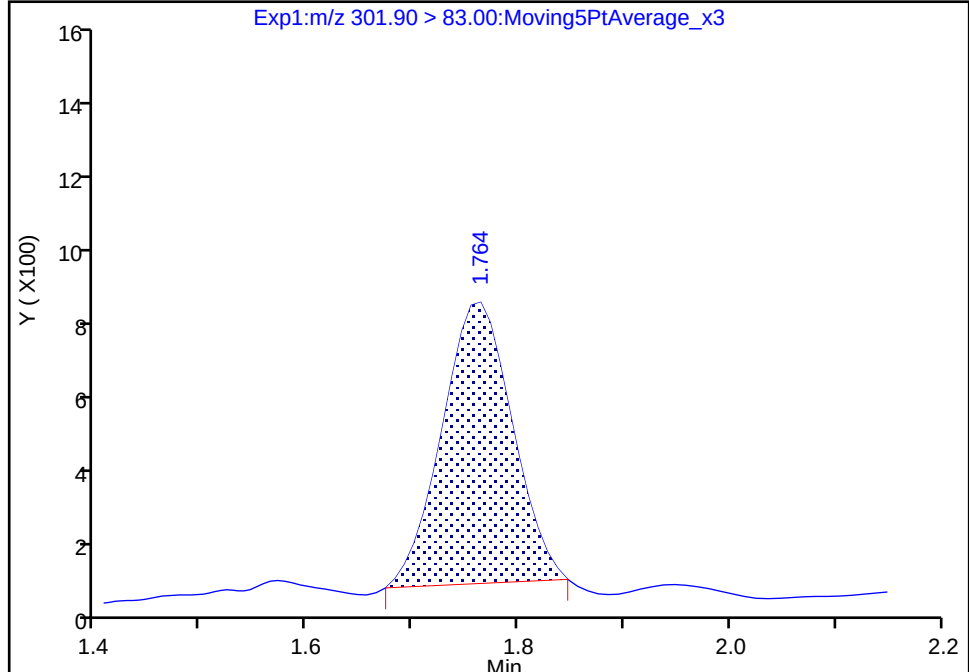
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_028.d |                |                    |                |   |
| Injection Date: | 29-May-2018 14:30:56                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-19-A                                                         | Lab Sample ID: | 320-39023-19       |                |   |
| Client ID:      | KLA02-SB3-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 21                 | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector:      | EXP1               |                |   |

**D 47 13C3-PFBS, CAS: STL02337**

Signal: 1

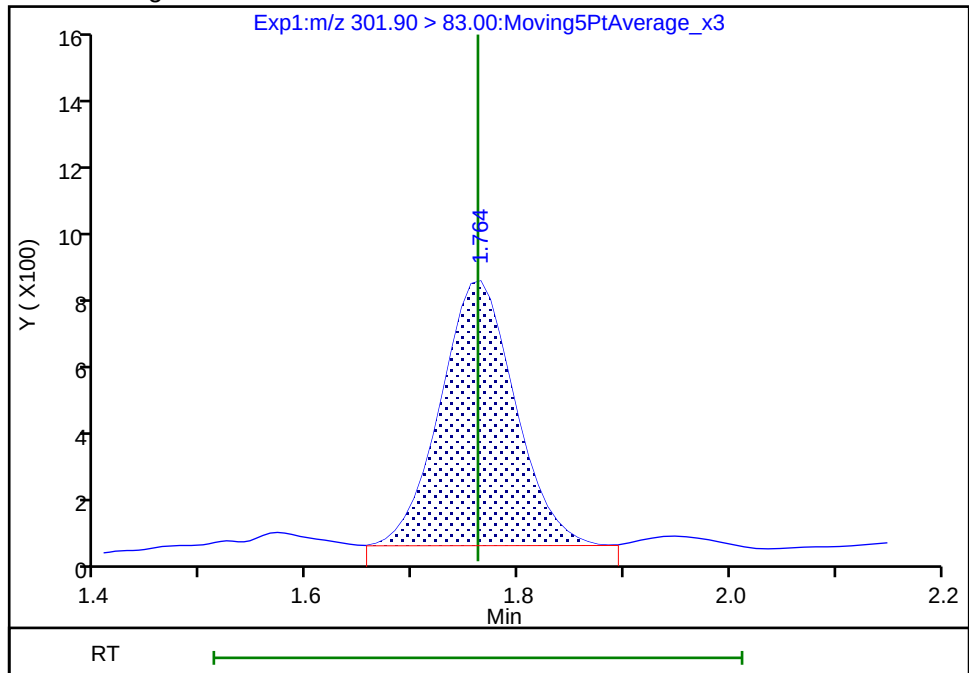
RT: 1.76  
Area: 3499  
Amount: 0.081218  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 3864  
Amount: 0.089691  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:15:18

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB3-02</u>   | Lab Sample ID: <u>320-39023-20</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_043.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 14:00</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.00 (g)</u>          | Date Analyzed: <u>05/29/2018 08:38</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>27.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.81   |     | 0.41 | 0.28 | 0.11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.0    |     | 0.41 | 0.28 | 0.14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.12   | J M | 0.41 | 0.28 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1.8    |     | 0.55 | 0.25 | 0.081 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 9.4    |     | 0.41 | 0.28 | 0.086 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 21     | M   | 1.4  | 0.69 | 0.33  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 75   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 80   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 90   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 92   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 80   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 76   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_043.d  
 Lims ID: 320-39023-A-20-A  
 Client ID: KLA02-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 08:38:27 ALS Bottle#: 34 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-20-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:49:46 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:49:46

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.766 | 1.765  | 0.001  | 1.005  | 1684056  | 0.6675       |                 |      | 6104  |       |
| 298.90 > 99.00                   | 1.757 | 1.765  | -0.008 | 1.000  | 733389   |              | 2.30(1.25-3.74) |      | 3704  |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.757 | 1.766  | -0.009 | 1.000  | 75118    | 1.74         |                 | 74.9 | 743   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.347 | 2.345  | 0.002  | 1.000  | 485878   | 0.2931       |                 |      | 662   |       |
| 363.00 > 169.00                  | 2.347 | 2.345  | 0.002  | 1.000  | 189850   |              | 2.56(1.13-3.40) |      | 879   |       |
| D 9 13C4-PFHpa                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.347 | 2.347  | 0.0    | 1.000  | 3922687  | 2.01         |                 | 80.5 | 77663 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.360 | 2.358  | 0.002  | 1.000  | 7370469  | 3.41         |                 |      | 18360 |       |
| 399.00 > 99.00                   | 2.360 | 2.358  | 0.002  | 1.000  | 2469232  |              | 2.98(1.50-4.49) |      | 6998  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.360 | 2.360  | 0.0    | 1.000  | 4537345  | 1.88         |                 | 79.6 | 66113 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.705 | 2.704  | 0.001  |        | 4869995  | 2.50         |                 |      | 72747 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.705 | 2.704  | 0.001  | 1.003  | 709969   | 0.3641       |                 |      | 252   |       |
| 413.00 > 169.00                  | 2.705 | 2.704  | 0.001  | 1.003  | 386748   |              | 1.84(0.84-2.52) |      | 1093  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.698 | 2.706  | -0.008 | 1.000  | 4141421  | 2.25         |                 | 89.8 | 72507 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.077 | 3.071  | 0.006  | 1.000  | 11343569 | 7.62         |                 |      | 18211 | M     |
| 499.00 > 99.00                   | 3.070 | 3.071  | -0.001 | 0.998  | 2440846  |              | 4.65(2.31-6.93) |      | 25168 | M     |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.077 | 3.076  | 0.001  | 1.000  | 3025914  | 1.83         |                 | 76.4 | 23590 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.077 | 3.076  | 0.001  | 1.000  | 3462586  | 2.30         |                 | 91.8 | 73908 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     | M     |
| 463.00 > 419.00           | 3.077 | 3.079     | -0.002    | 1.000     | 63209    | 0.0431          |                 |      | 170 | M     |
| 463.00 > 169.00           | 3.077 | 3.079     | -0.002    | 1.000     | 16235    |                 | 3.89(1.90-5.69) |      | 473 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_043.d

Injection Date: 29-May-2018 08:38:27

Instrument ID: A8\_N

Lims ID: 320-39023-A-20-A

Lab Sample ID: 320-39023-20

Client ID: KLA02-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

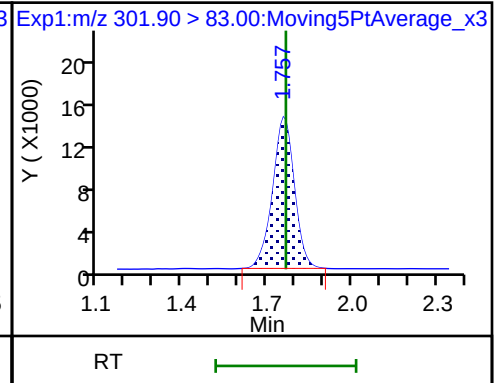
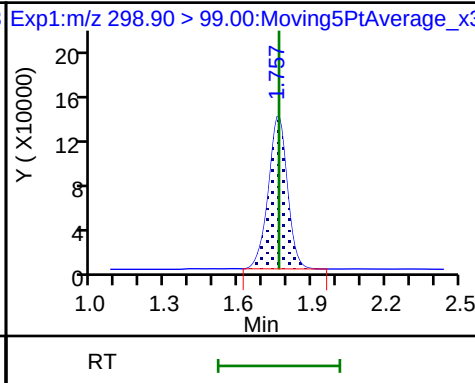
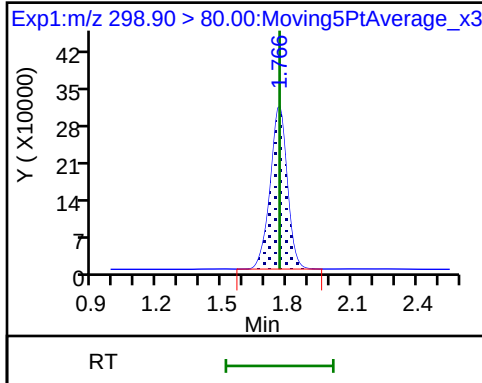
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

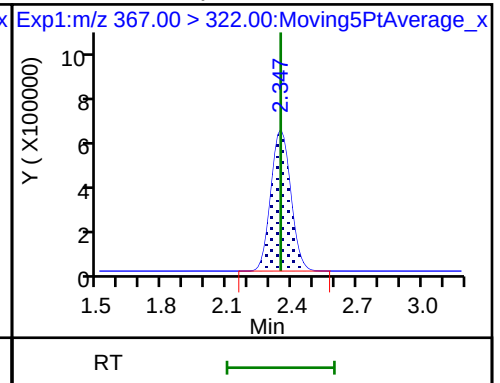
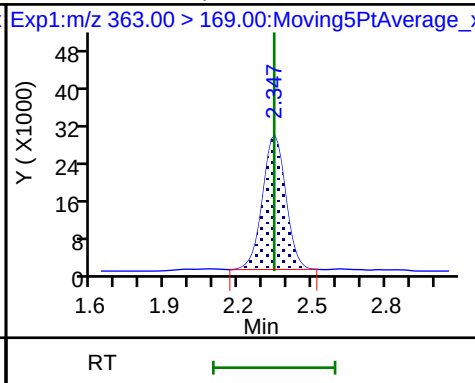
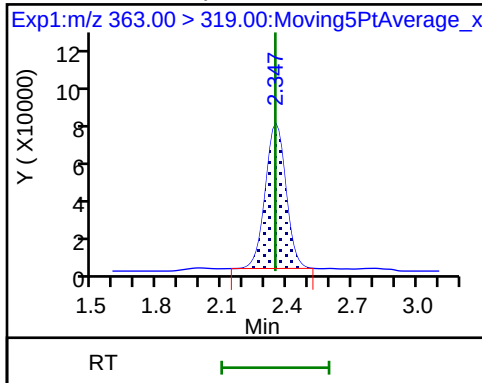
## D 47 13C3-PFBS



## 10 Perfluoroheptanoic acid

## 10 Perfluoroheptanoic acid

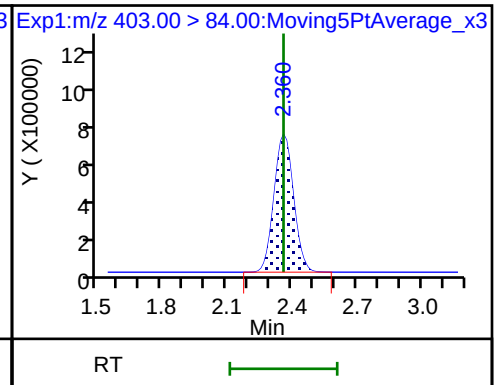
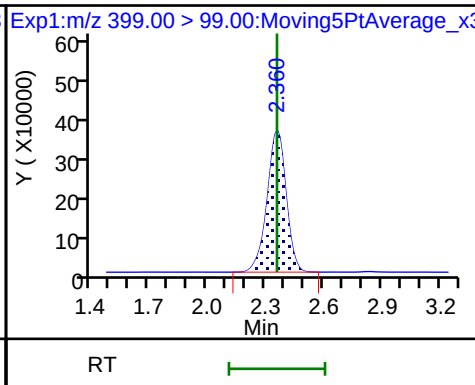
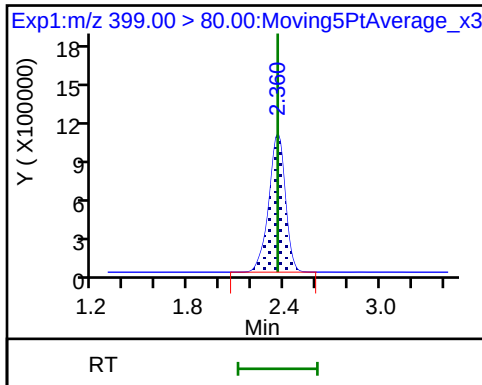
## D 9 13C4-PFHpA



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

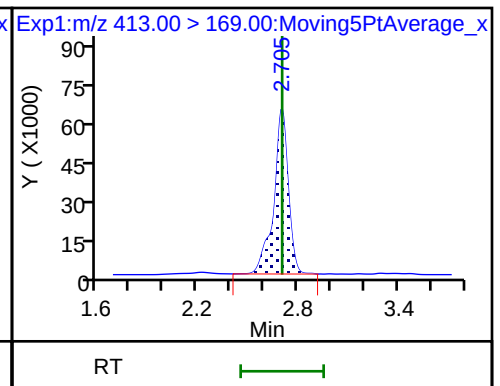
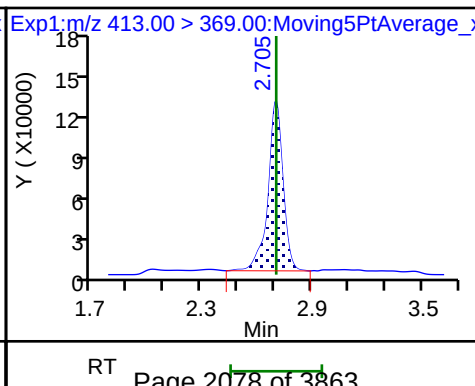
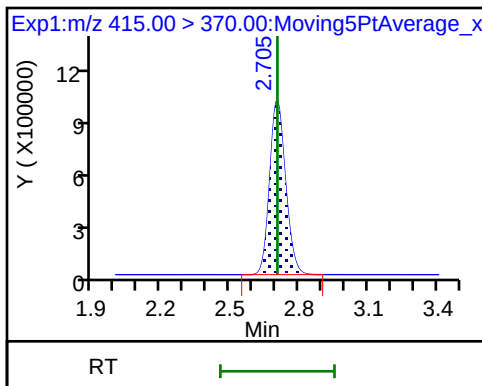
## D 11 18O2 PFHxS



## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid



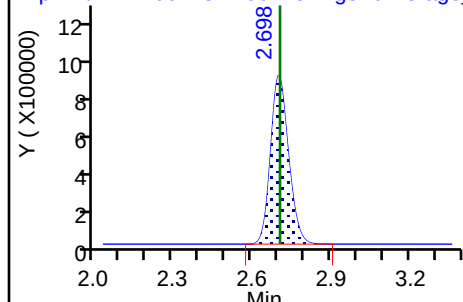


## D 14 13C4 PFOA

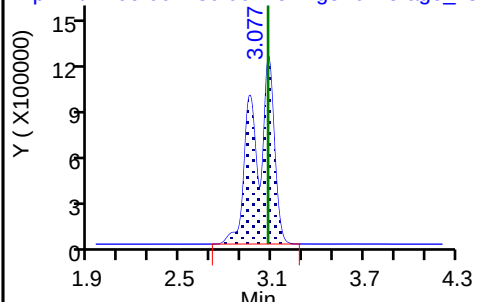
## 17 Perfluorooctane sulfonic acid (M)

## 17 Perfluorooctane sulfonic acid

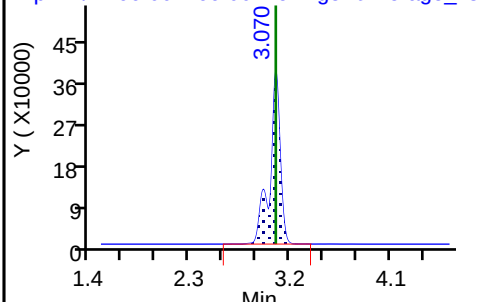
Exp1:m/z 417.00 &gt; 372.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

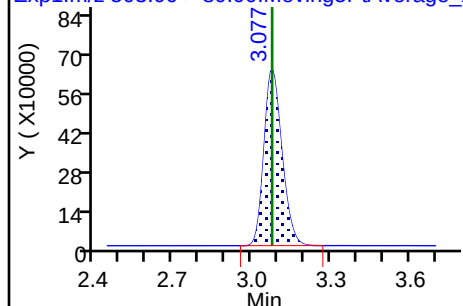


## D 18 13C4 PFOS

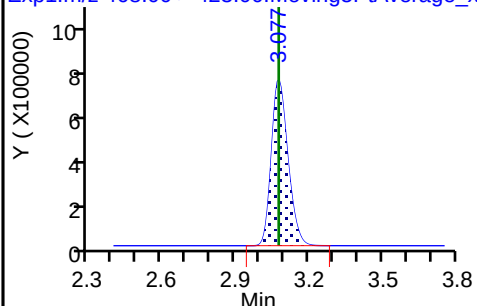
## D 19 13C5 PFNA

## 20 Perfluorononanoic acid (M)

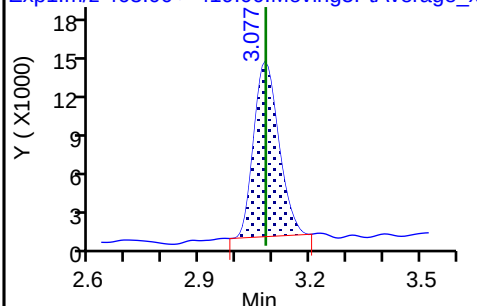
Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x

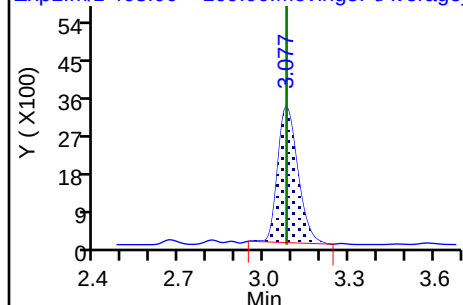


Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



## 20 Perfluorononanoic acid

Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x



## TestAmerica Sacramento

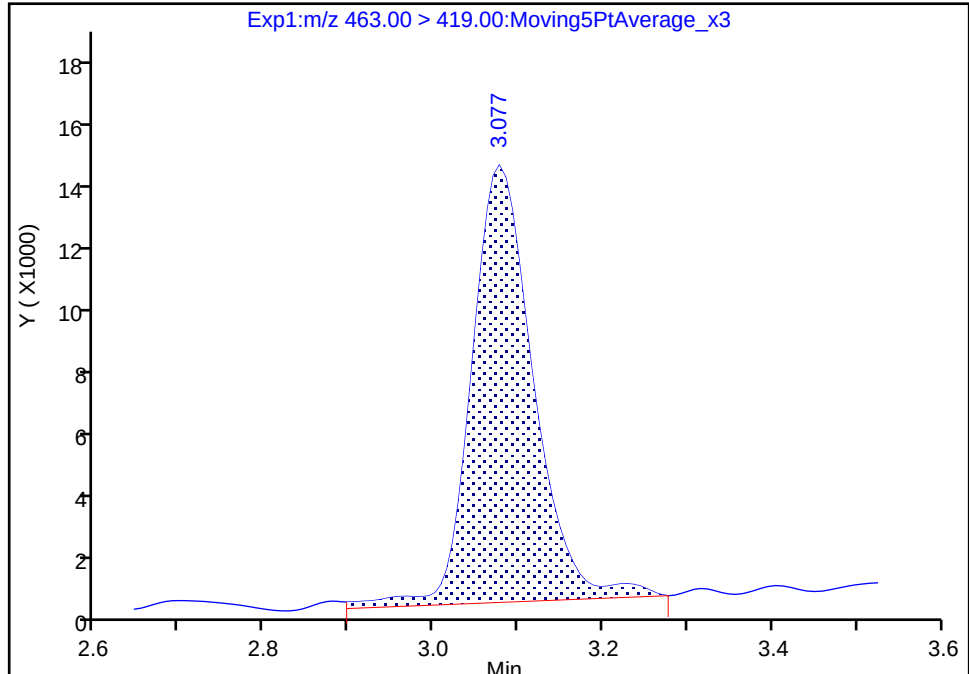
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_043.d |                |                    |                |    |
| Injection Date: | 29-May-2018 08:38:27                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-20-A                                                         | Lab Sample ID: | 320-39023-20       |                |    |
| Client ID:      | KLA02-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 34                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

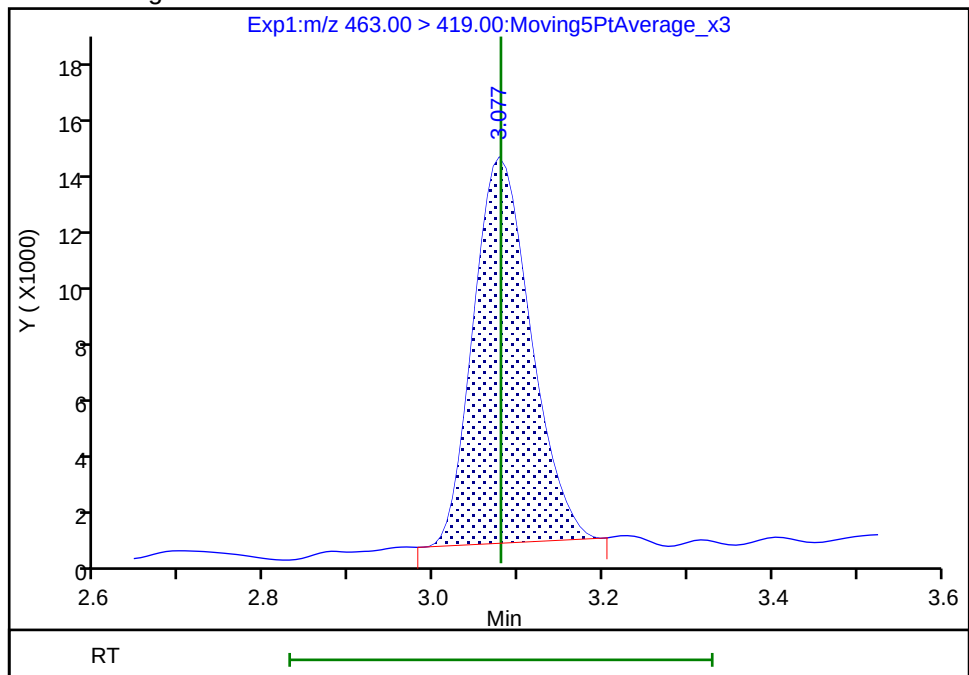
RT: 3.08  
Area: 70082  
Amount: 0.047772  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 63209  
Amount: 0.043087  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:49:29

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

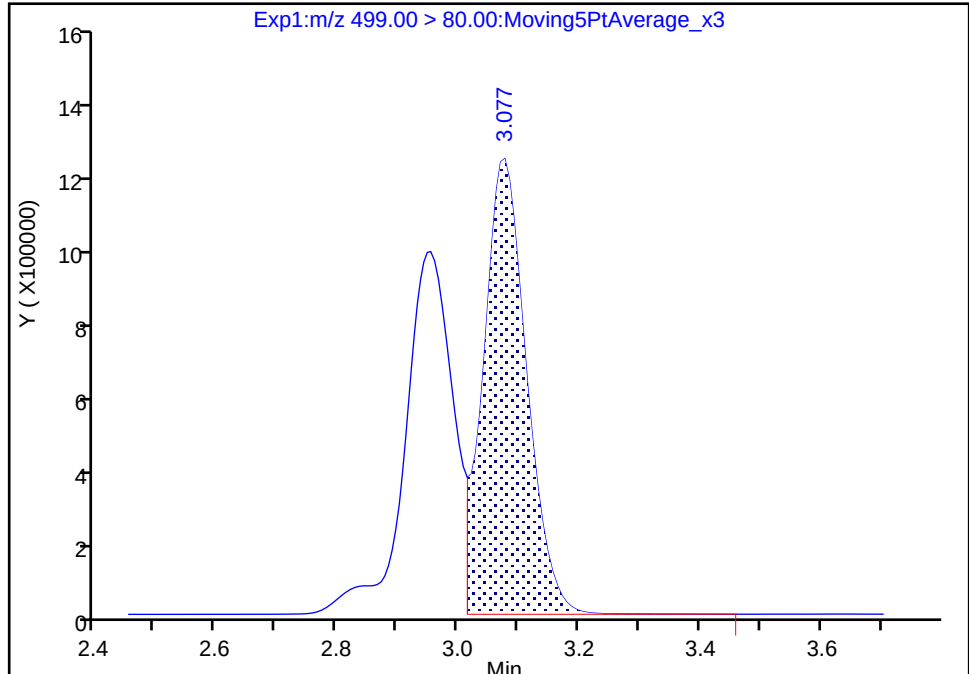
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_043.d |                |                    |                |    |
| Injection Date: | 29-May-2018 08:38:27                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-20-A                                                         | Lab Sample ID: | 320-39023-20       |                |    |
| Client ID:      | KLA02-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 34                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

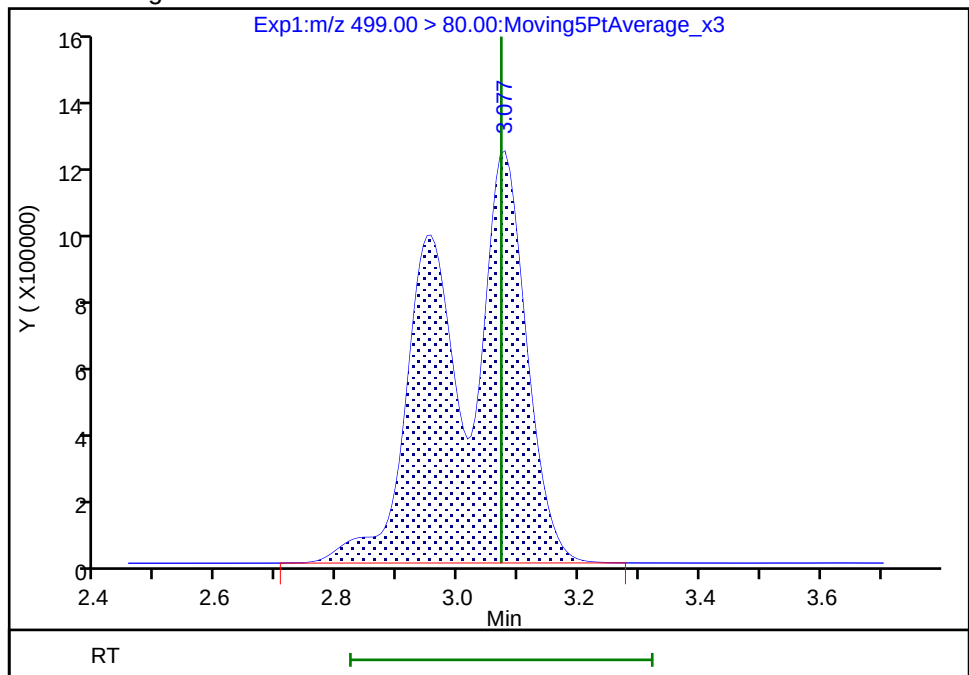
RT: 3.08  
Area: 6026831  
Amount: 4.048544  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 11343569  
Amount: 7.620081  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:48:14

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB1-01</u>   | Lab Sample ID: <u>320-39023-21</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_014.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 09:00</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.98(g)</u>           | Date Analyzed: <u>05/29/2018 04:19</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.3</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.26   | U   | 0.39 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.26   | U M | 0.39 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U   | 0.39 | 0.26 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.082  | J   | 0.52 | 0.23 | 0.076 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.99   |     | 0.39 | 0.26 | 0.080 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3.0    |     | 1.3  | 0.65 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 85   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 83   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 69   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_014.d  
 Lims ID: 320-39023-A-21-A  
 Client ID: KLA03-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 04:19:52 ALS Bottle#: 9 Worklist Smp#: 10  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-21-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:24:03 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:24:03

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.773 | 1.762  | 0.011  | 1.005  | 74139    | 0.0316       |                 |      | 349   |       |
| 298.90 > 99.00                   | 1.764 | 1.762  | 0.002  | 1.000  | 30947    |              | 2.40(1.25-3.74) |      | 160   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.764 | 1.765  | -0.001 | 1.000  | 69794    | 1.59         |                 | 68.2 | 706   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.358 | 2.345  | 0.013  | 1.000  | 4122525  | 2.07         |                 | 82.9 | 60015 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.358 | 2.355  | 0.003  | 1.000  | 57451    | 0.0330       |                 |      | 67.7  |       |
| 363.00 > 169.00                  | 2.358 | 2.355  | 0.003  | 1.000  | 25504    |              | 2.25(1.13-3.40) |      | 135   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.371 | 2.368  | 0.003  | 1.000  | 760954   | 0.3843       |                 |      | 3277  |       |
| 399.00 > 99.00                   | 2.371 | 2.368  | 0.003  | 1.000  | 232384   |              | 3.27(1.50-4.49) |      | 762   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.371 | 2.372  | -0.001 | 1.000  | 4155627  | 1.69         |                 | 71.5 | 67769 |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.712 | 2.704  | 0.008  | 1.000  | 3996461  | 2.12         |                 | 85.0 | 84497 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.712 | 2.711  | 0.001  | 1.000  | 70268    | 0.0373       |                 |      | 22.8  | M     |
| 413.00 > 169.00                  | 2.712 | 2.711  | 0.001  | 1.000  | 37733    |              | 1.86(0.84-2.52) |      | 101   | M     |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.712 | 2.711  | 0.001  |        | 4967937  | 2.50         |                 |      | 86290 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.084 | 3.074  | 0.010  | 1.000  | 2770225  | 1.64         |                 | 68.6 | 26800 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.084 | 3.076  | 0.008  | 1.000  | 1584289  | 1.16         |                 |      | 6755  |       |
| 499.00 > 99.00                   | 3.076 | 3.076  | 0.0    | 0.997  | 365964   |              | 4.33(2.31-6.93) |      | 3696  |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.084 | 3.081  | 0.003  | 1.000  | 3206669  | 2.08         |                 | 83.3 | 96650 |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_014.d

Injection Date: 29-May-2018 04:19:52

Instrument ID: A8\_N

Lims ID: 320-39023-A-21-A

Lab Sample ID: 320-39023-21

Client ID: KLA03-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

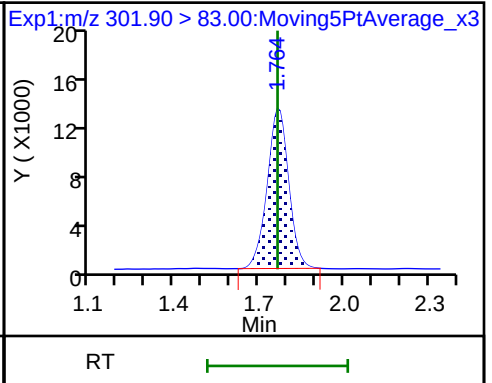
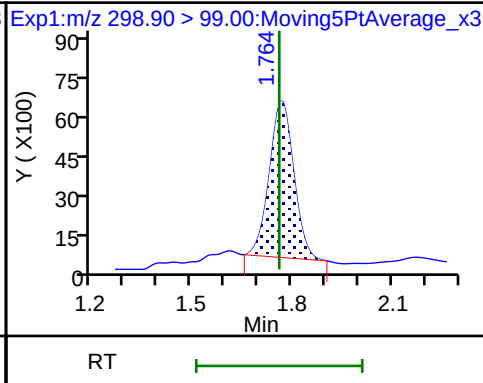
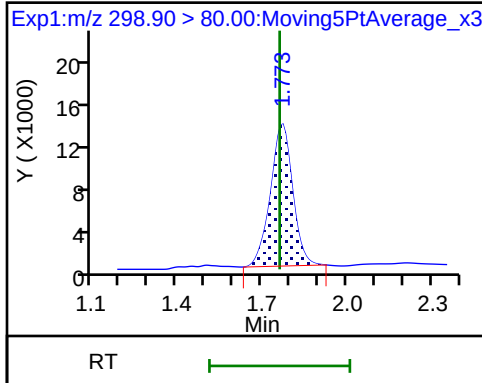
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

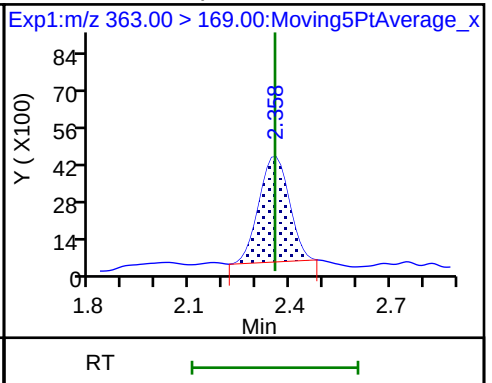
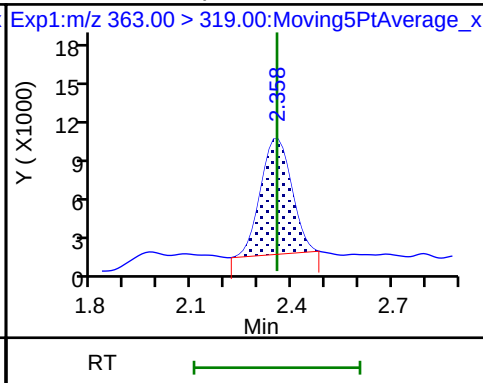
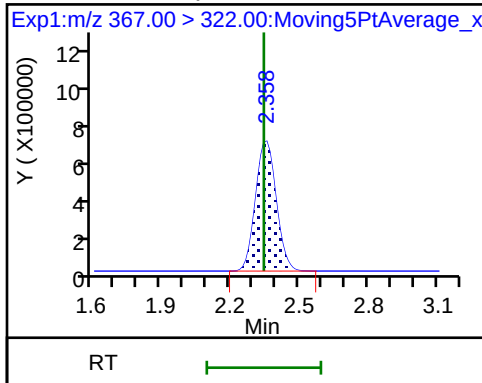
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

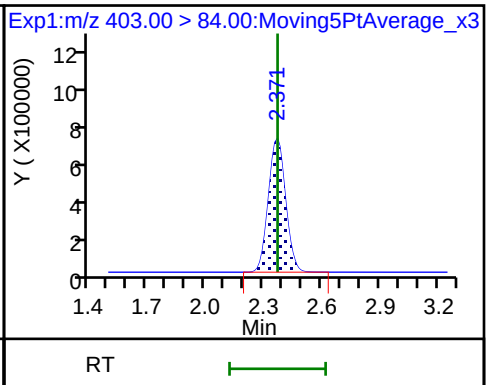
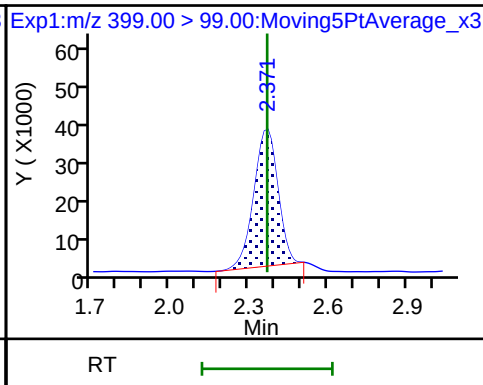
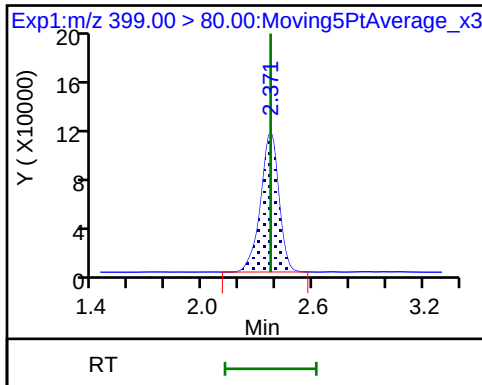
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

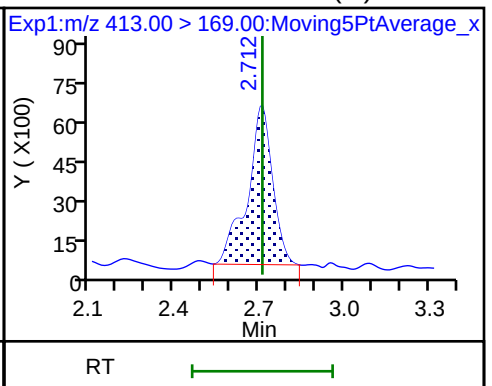
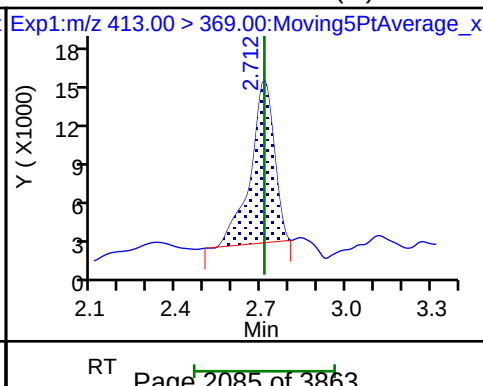
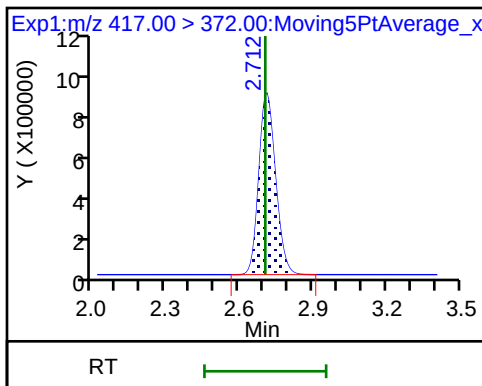
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid (M)

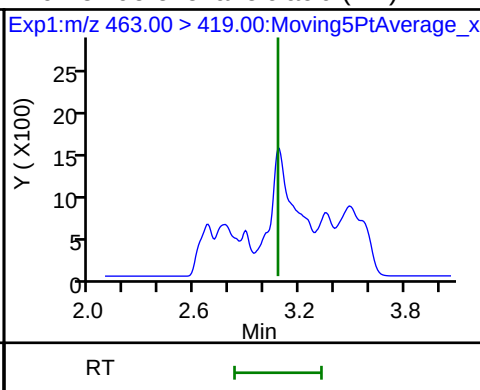
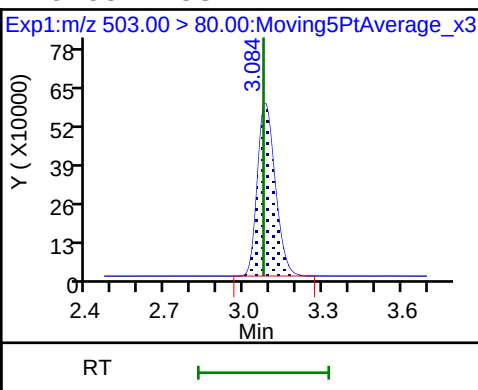
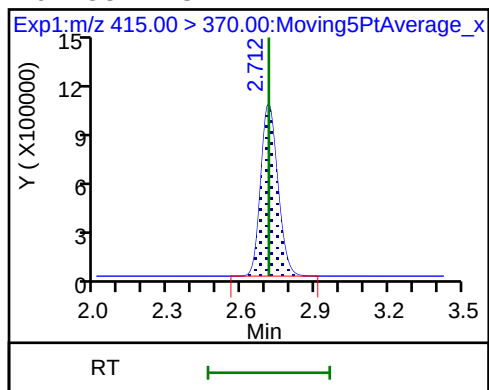
## 15 Perfluorooctanoic acid (M)



\* 62 13C2-PFOA

D 18 13C4 PFOS

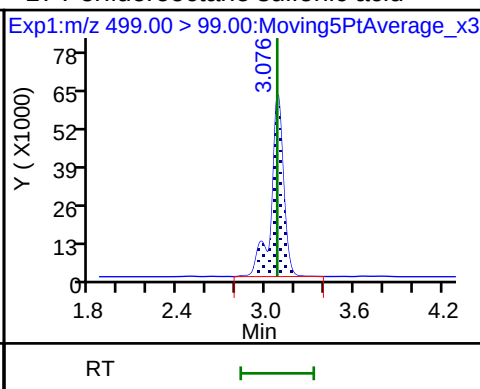
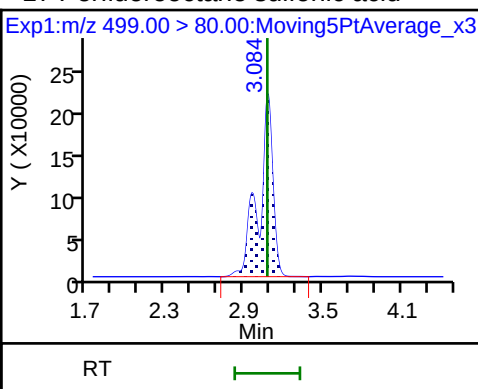
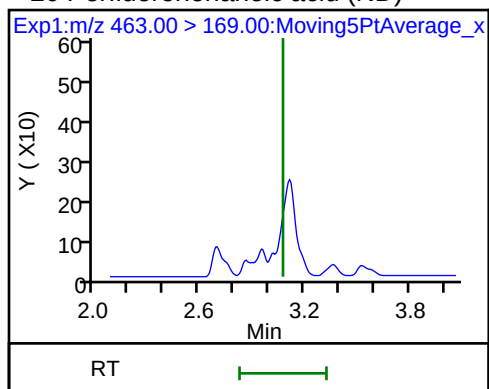
20 Perfluorononanoic acid (ND)



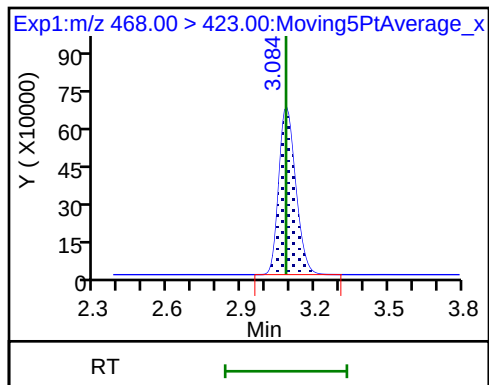
20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 19 13C5 PFNA





## TestAmerica Sacramento

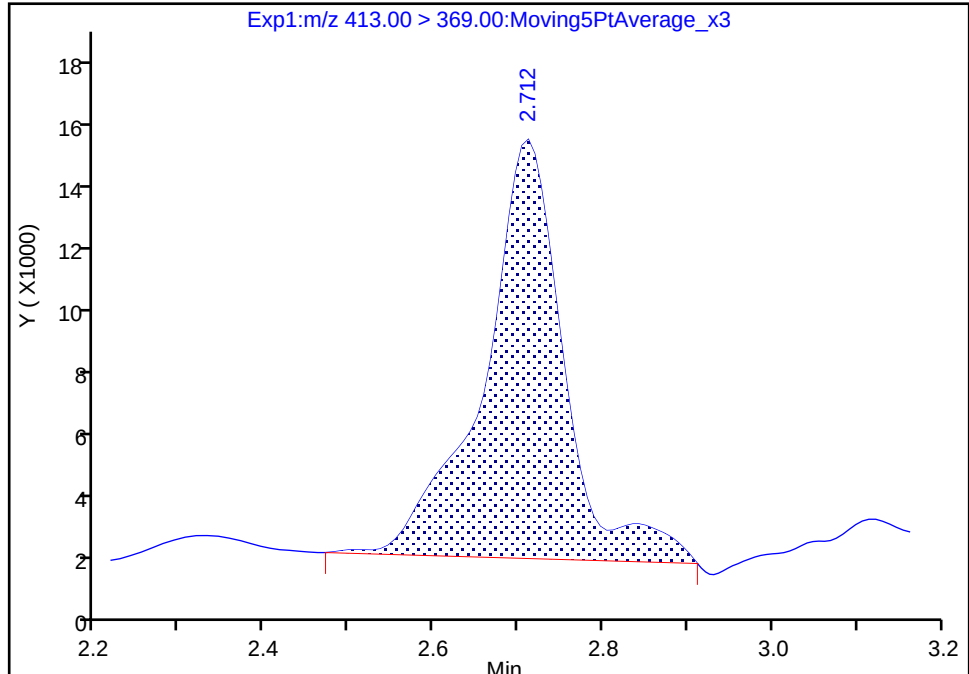
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58852.b\2018.05.28LLB_014.d |                |                    |                |    |
| Injection Date: | 29-May-2018 04:19:52                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-21-A                                                         | Lab Sample ID: | 320-39023-21       |                |    |
| Client ID:      | KLA03-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 9                  | Worklist Smp#: | 10 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

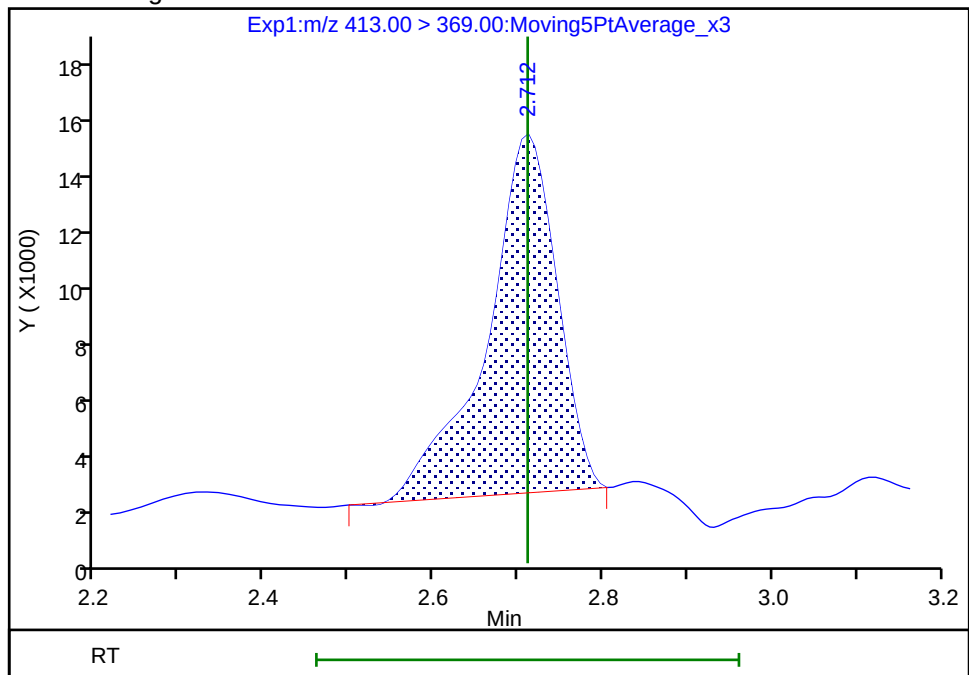
RT: 2.71  
Area: 85262  
Amount: 0.045314  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 70268  
Amount: 0.037345  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 16:23:54  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2087 of 3863

## TestAmerica Sacramento

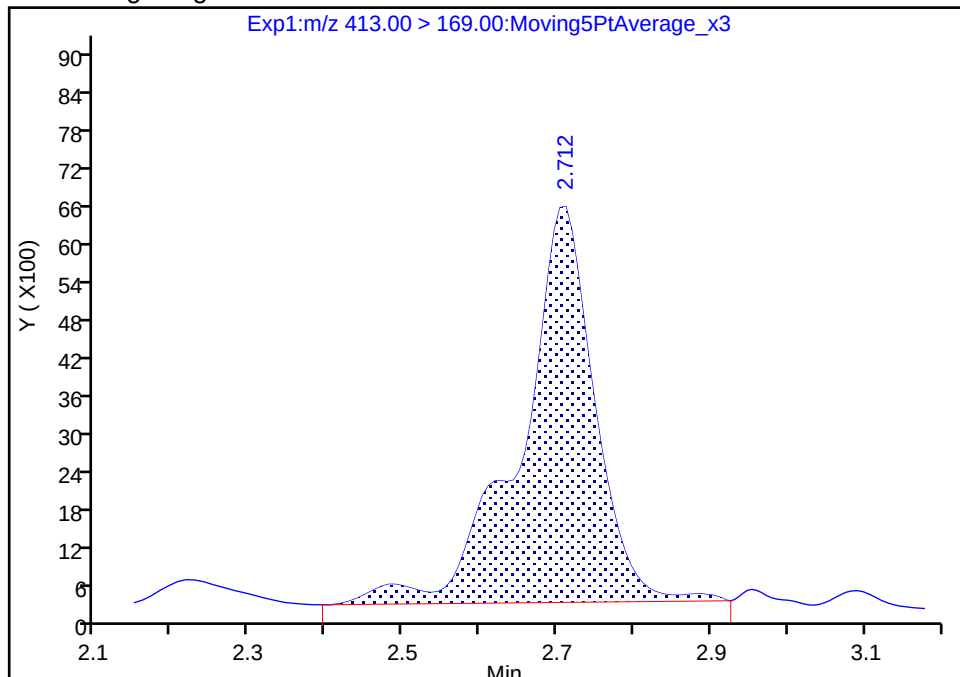
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58852.b\2018.05.28LLB_014.d |                |                    |                |    |
| Injection Date: | 29-May-2018 04:19:52                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-21-A                                                         | Lab Sample ID: | 320-39023-21       |                |    |
| Client ID:      | KLA03-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 9                  | Worklist Smp#: | 10 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

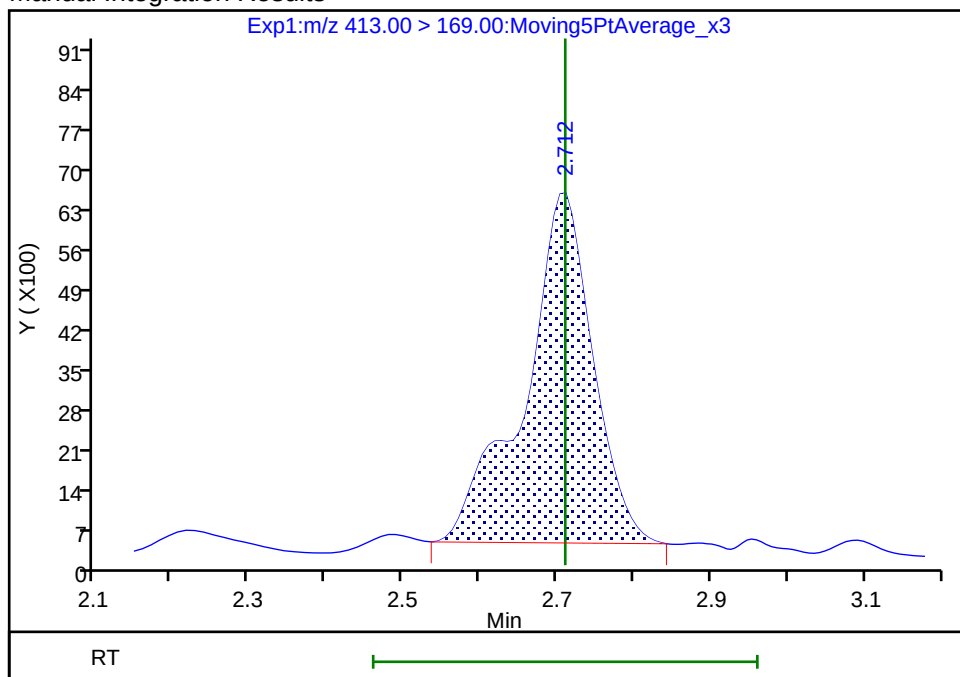
RT: 2.71  
Area: 42219  
Amount: 0.045314  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 37733  
Amount: 0.037345  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 16:23:57

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB1-02</u>   | Lab Sample ID: <u>320-39023-22</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_015.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 09:05</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>05/29/2018 04:27</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>25.3</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225894</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.26   | U   | 0.40 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.22   | J M | 0.40 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U   | 0.40 | 0.26 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.21   | J   | 0.53 | 0.24 | 0.078 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2.4    |     | 0.40 | 0.26 | 0.082 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 17     |     | 1.3  | 0.66 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 70   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 91   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 74   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 71   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_015.d  
 Lims ID: 320-39023-A-22-A  
 Client ID: KLA03-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 04:27:40 ALS Bottle#: 10 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-22-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:24:30 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:24:30

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.761 | 1.762  | -0.001 | 1.000  | 203755   | 0.0806       |                 |      | 569   |       |
| 298.90 > 99.00                 | 1.761 | 1.762  | -0.001 | 1.000  | 89462    |              | 2.28(1.25-3.74) |      | 216   |       |
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                 | 1.761 | 1.765  | -0.004 | 1.000  | 75311    | 1.63         |                 | 70.3 | 425   |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.355 | 2.345  | 0.010  | 1.000  | 4334037  | 2.08         |                 | 83.2 | 76955 |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.341 | 2.355  | -0.014 | 0.994  | 53033    | 0.0290       |                 |      | 57.5  |       |
| 363.00 > 169.00                | 2.355 | 2.355  | 0.0    | 1.000  | 20685    |              | 2.56(1.13-3.40) |      | 88.2  |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.368 | 2.368  | 0.0    | 1.000  | 1931701  | 0.8993       |                 |      | 2236  |       |
| 399.00 > 99.00                 | 2.355 | 2.368  | -0.013 | 0.994  | 616497   |              | 3.13(1.50-4.49) |      | 1622  |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.368 | 2.372  | -0.004 | 1.000  | 4508119  | 1.75         |                 | 74.0 | 72912 |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.703 | 2.704  | -0.001 | 1.000  | 4296803  | 2.18         |                 | 87.2 | 82628 |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.703 | 2.711  | -0.008 | 1.000  | 171054   | 0.0846       |                 |      | 75.6  | M     |
| 413.00 > 169.00                | 2.703 | 2.711  | -0.008 | 1.000  | 102064   |              | 1.68(0.84-2.52) |      | 272   | M     |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.703 | 2.711  | -0.008 |        | 5203294  | 2.50         |                 |      | 91842 |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.073 | 3.074  | -0.001 | 1.000  | 2987643  | 1.69         |                 | 70.6 | 21512 |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                | 3.073 | 3.076  | -0.003 | 1.000  | 20908    | 0.0134       |                 |      | 39.7  |       |
| 463.00 > 169.00                | 3.073 | 3.076  | -0.003 | 1.000  | 4466     |              | 4.68(1.90-5.69) |      | 89.6  |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.073 | 3.076     | -0.003    | 1.000     | 9648681  | 6.56            |                 |      | 36428 |       |
| 499.00 > 99.00                   | 3.073 | 3.076     | -0.003    | 1.000     | 2176863  |                 | 4.43(2.31-6.93) |      | 44228 |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.073 | 3.081     | -0.008    | 1.000     | 3681781  | 2.28            |                 | 91.4 | 61120 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_015.d

Injection Date: 29-May-2018 04:27:40

Instrument ID: A8\_N

Lims ID: 320-39023-A-22-A

Lab Sample ID: 320-39023-22

Client ID: KLA03-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

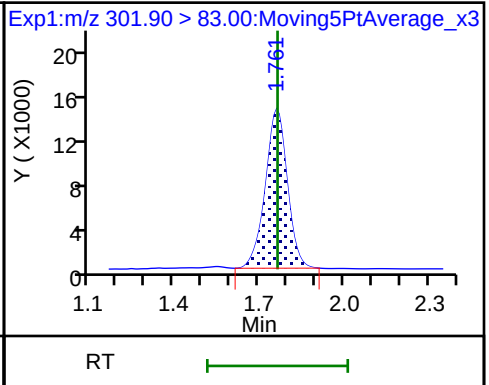
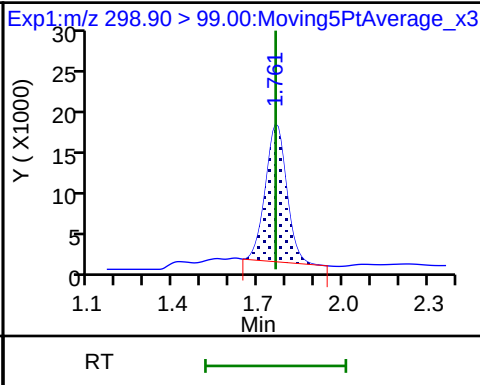
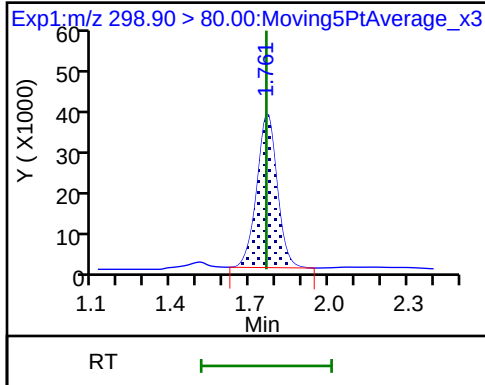
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

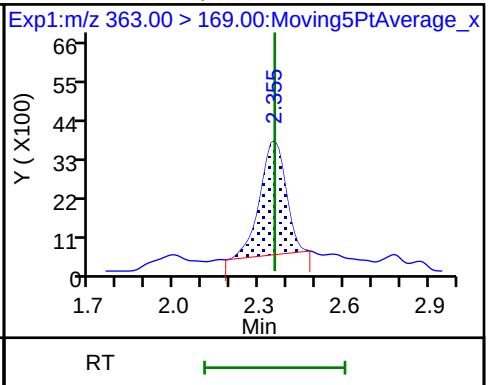
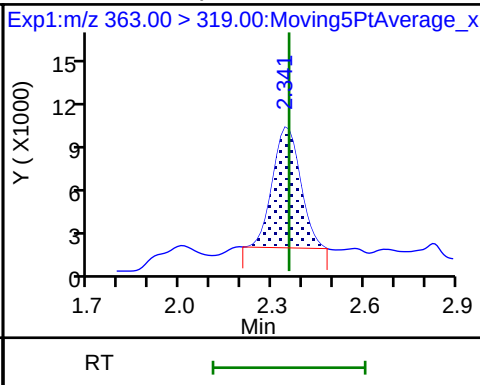
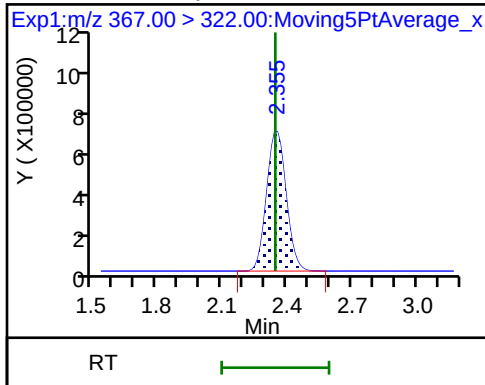
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

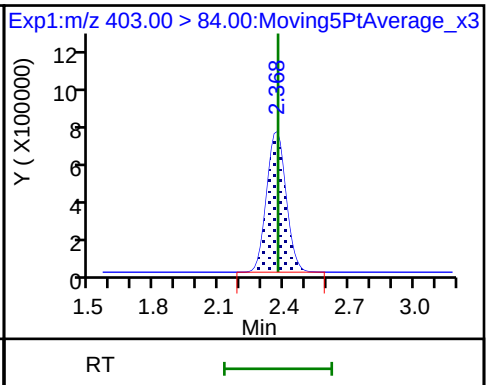
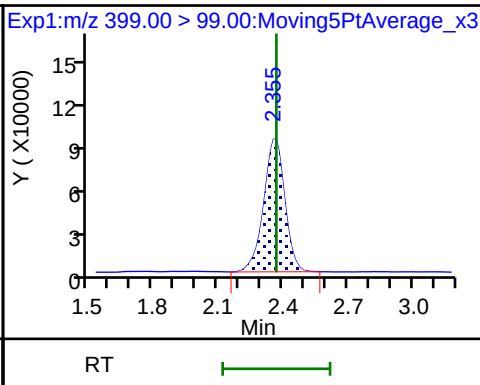
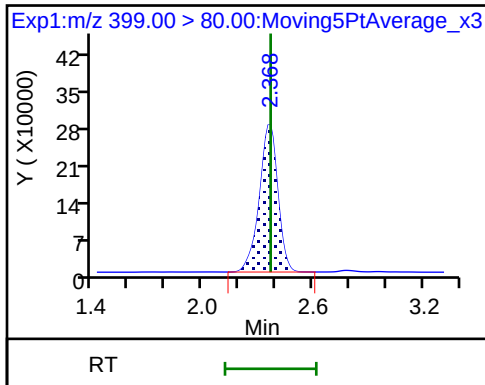
## 10 Perfluoroheptanoic acid



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

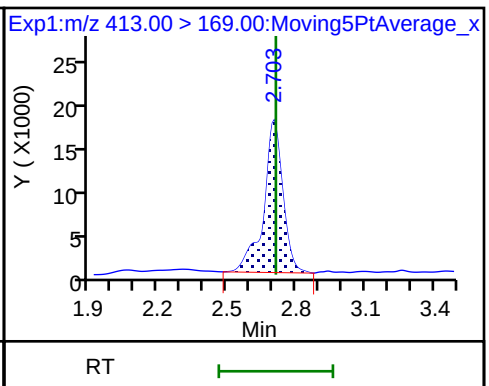
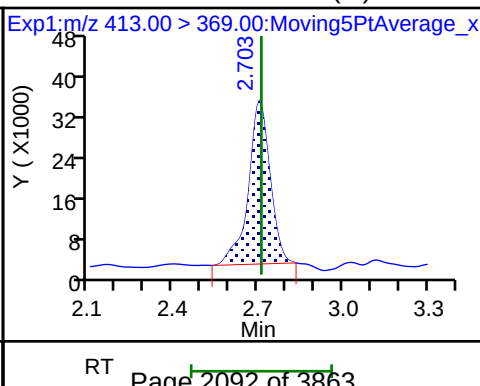
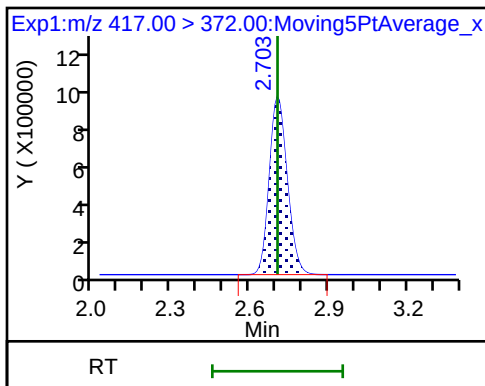
## D 11 18O2 PFHxS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid (M)

## 15 Perfluorooctanoic acid

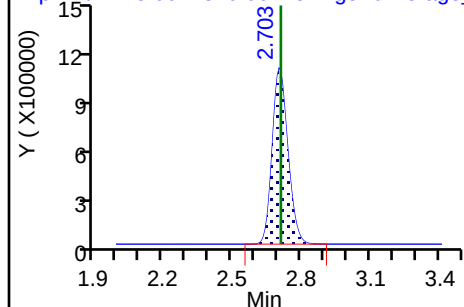


\* 62 13C2-PFOA

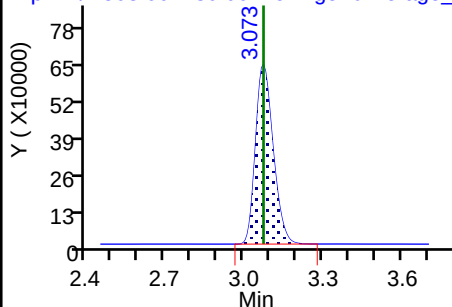
D 18 13C4 PFOS

20 Perfluorononanoic acid

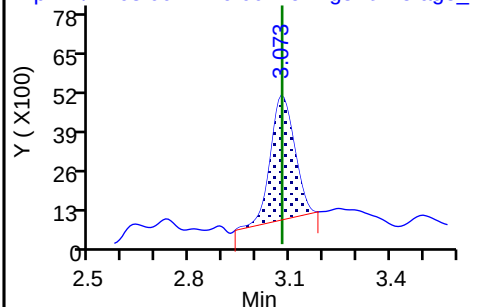
Exp1:m/z 415.00 &gt; 370.00:Moving5PtAverage\_x



Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x

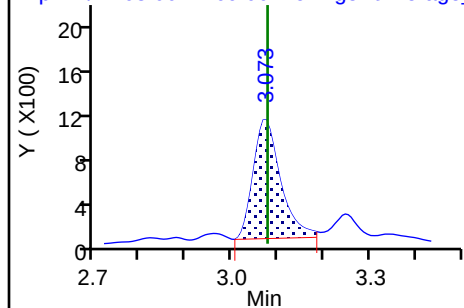


20 Perfluorononanoic acid

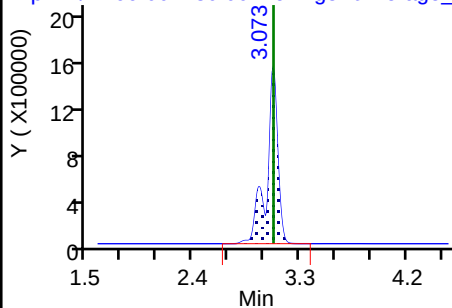
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

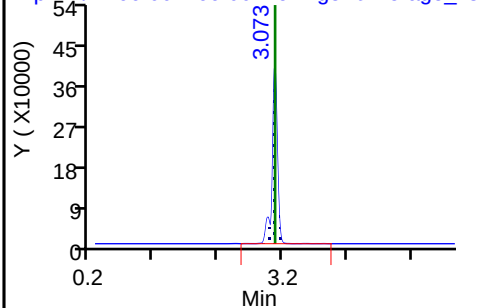
Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3

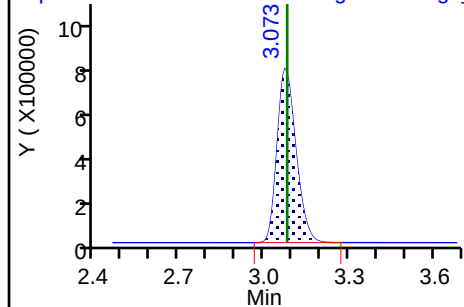


Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3



D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x



## TestAmerica Sacramento

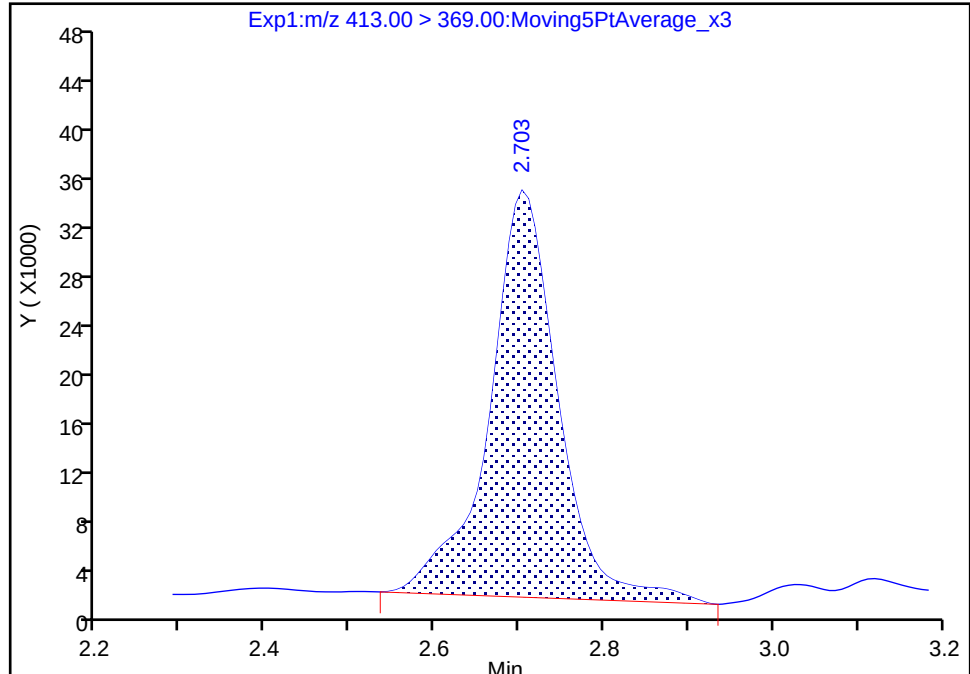
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58852.b\2018.05.28LLB_015.d |                |                    |                |    |
| Injection Date: | 29-May-2018 04:27:40                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-22-A                                                         | Lab Sample ID: | 320-39023-22       |                |    |
| Client ID:      | KLA03-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 10                 | Worklist Smp#: | 11 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

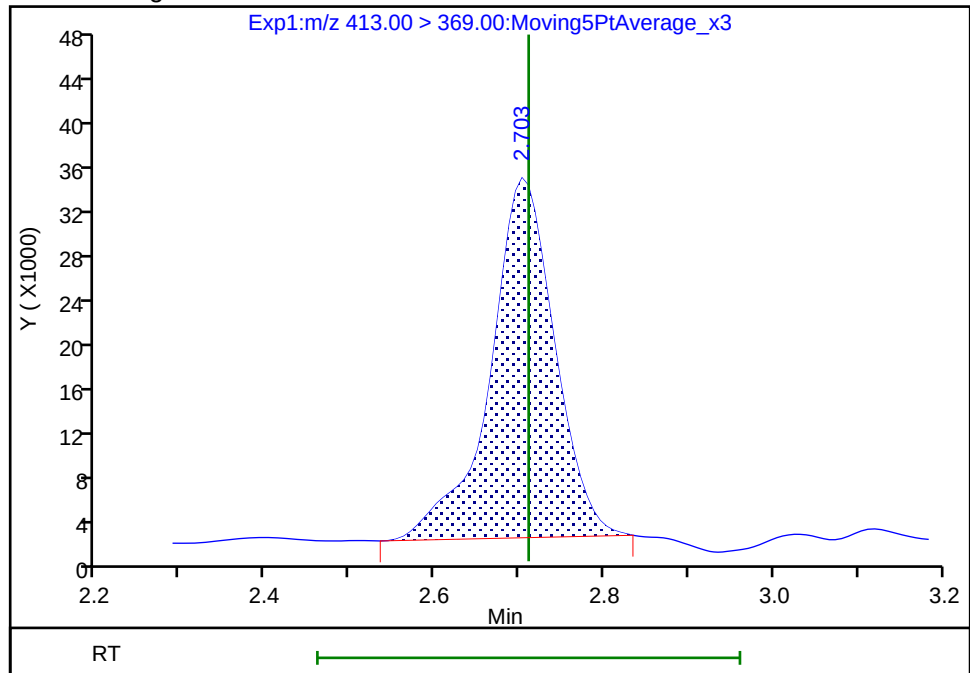
RT: 2.70  
Area: 186929  
Amount: 0.092402  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 171054  
Amount: 0.084555  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 16:24:21  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2094 of 3863



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB2-01</u>   | Lab Sample ID: <u>320-39023-23</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_059.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 12:15</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.03(g)</u>           | Date Analyzed: <u>06/06/2018 22:47</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>19.0</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.25   | U   | 0.37 | 0.25 | 0.096 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.15   | J   | 0.37 | 0.25 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.25   | U M | 0.37 | 0.25 | 0.099 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.10   | J   | 0.49 | 0.22 | 0.072 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.71   |     | 0.37 | 0.25 | 0.076 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3.4    |     | 1.2  | 0.61 | 0.29  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 69   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 83   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 81   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 72   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_059.d  
 Lims ID: 320-39023-A-23-A  
 Client ID: KLA03-SB2-01  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 22:47:24 ALS Bottle#: 31 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-23-a (# 223091)  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 14:43:33 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 14:43:33

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

## D 47 13C3-PFBS

301.90 > 83.00 1.770 1.766 0.004 0.653 69551 1.60 68.8 492

## 5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.770 1.766 0.004 1.000 97892 0.0422 359

298.90 > 99.00 1.770 1.766 0.004 1.000 42477 2.30(1.25-3.74) 171

## D 9 13C4-PFHpA

367.00 > 322.00 2.354 2.346 0.008 0.869 4165353 2.06 82.6 51874

## 10 Perfluoroheptanoic acid

363.00 > 319.00 2.354 2.347 0.007 1.000 40597 0.0215 46.2

363.00 > 169.00 2.341 2.347 -0.006 0.994 14295 2.84(1.13-3.40) 58.8

## D 11 18O2 PFHxS

403.00 > 84.00 2.368 2.360 0.008 0.874 4235302 1.73 73.2 20391

## 8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.368 2.360 0.008 1.000 591321 0.2880 2116

399.00 > 99.00 2.368 2.360 0.008 1.000 206427 2.86(1.50-4.49) 972

## D 14 13C4 PFOA

417.00 > 372.00 2.703 2.698 0.005 0.997 4137557 2.07 82.7 72512

## 15 Perfluorooctanoic acid

413.00 > 369.00 2.710 2.698 0.012 1.003 122986 0.0618 48.7

413.00 > 169.00 2.710 2.698 0.012 1.003 55883 2.20(0.84-2.52) 220

## \* 62 13C2-PFOA

415.00 > 370.00 2.710 2.698 0.012 5190943 2.50 71916

## D 19 13C5 PFNA

468.00 > 423.00 3.076 3.067 0.009 1.135 3435693 2.03 81.3 81410

## 17 Perfluorooctane sulfonic acid

499.00 > 80.00 3.084 3.074 0.010 1.000 1953687 1.37 4209

499.00 > 99.00 3.076 3.074 0.002 0.997 454747 4.30(2.31-6.93) 4857

## D 18 13C4 PFOS

503.00 > 80.00 3.084 3.074 0.010 1.138 2869700 1.73 72.4 20214

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_059.d

Injection Date: 06-Jun-2018 22:47:24

Instrument ID: A8\_N

Lims ID: 320-39023-A-23-A

Lab Sample ID: 320-39023-23

Client ID: KLA03-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

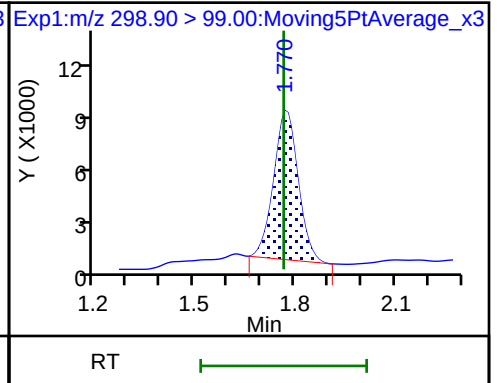
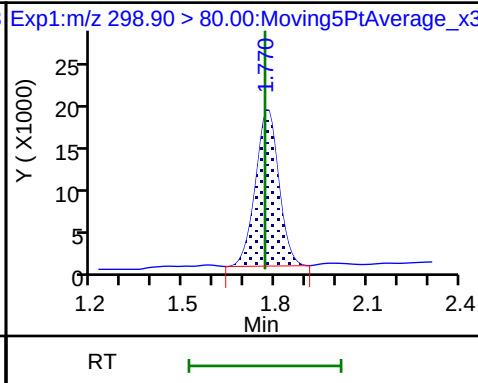
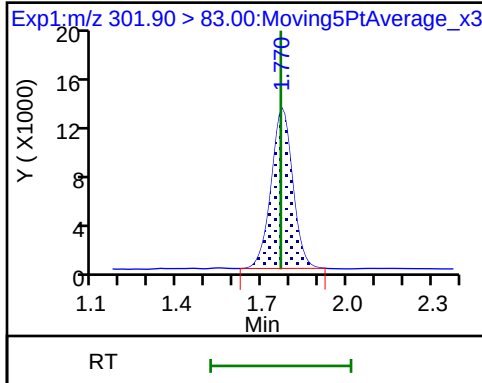
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

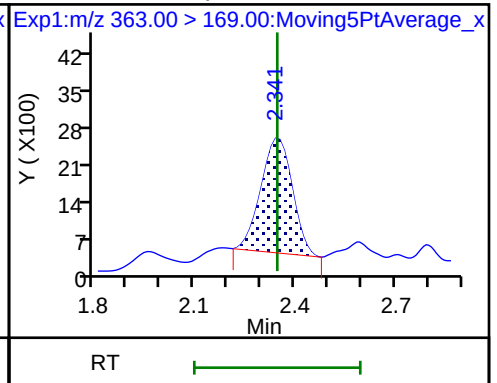
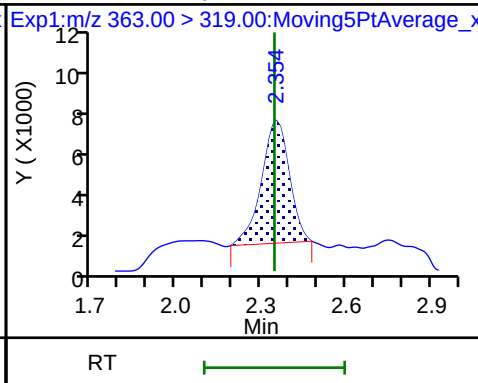
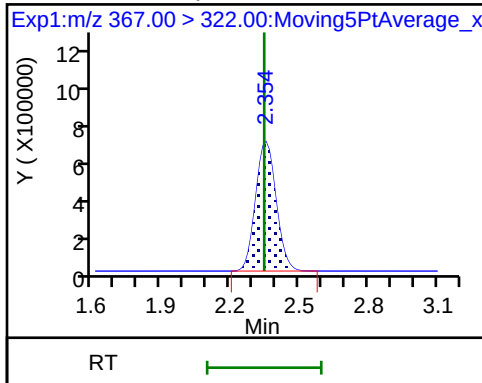
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

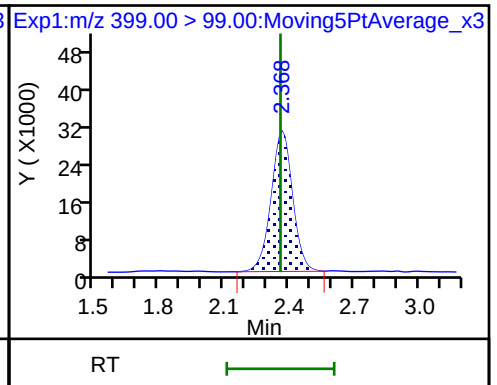
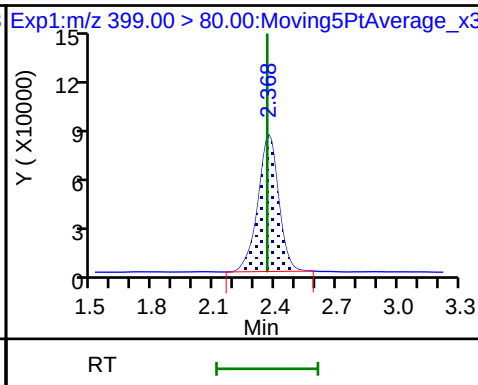
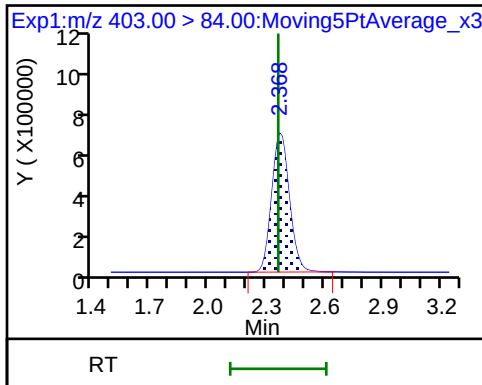
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

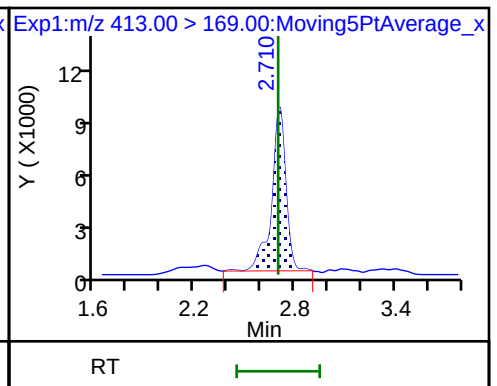
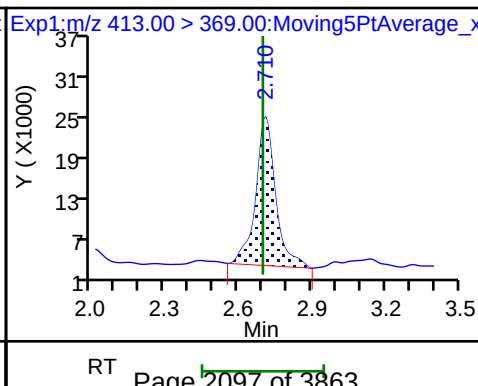
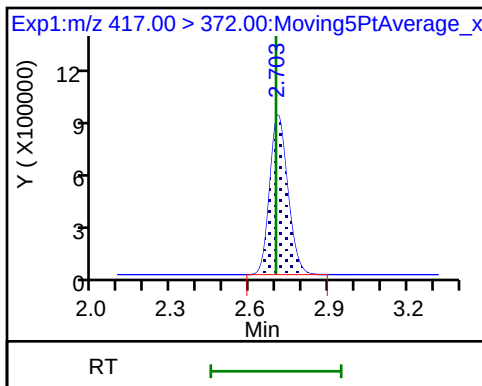
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

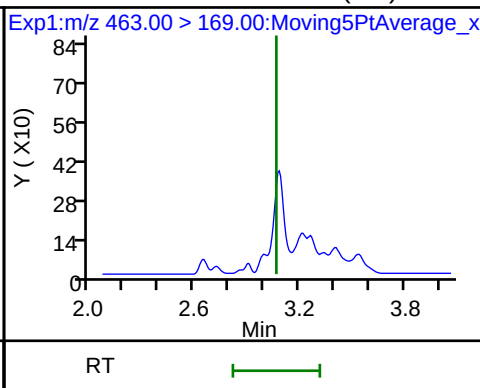
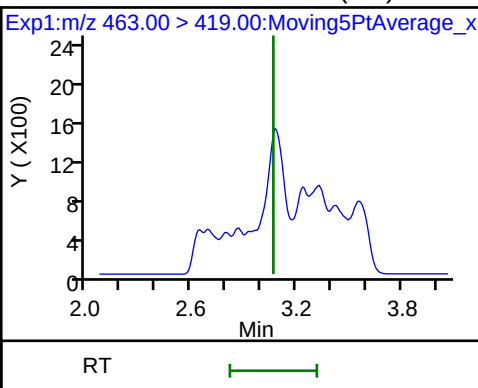
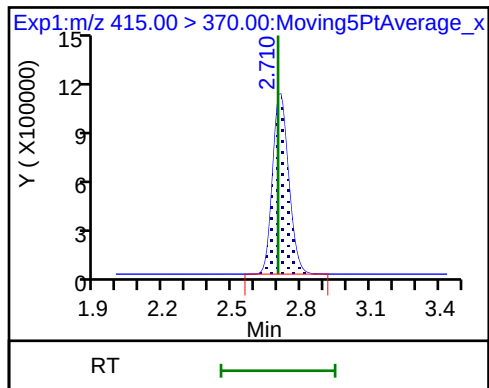
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

20 Perfluorononanoic acid (ND)

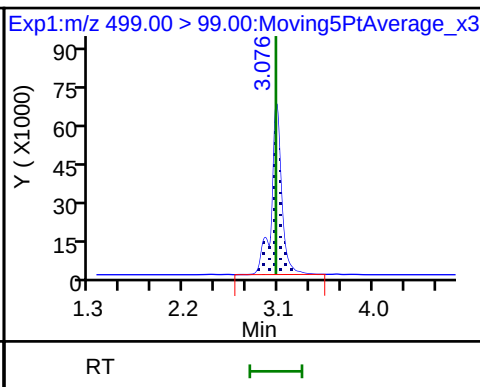
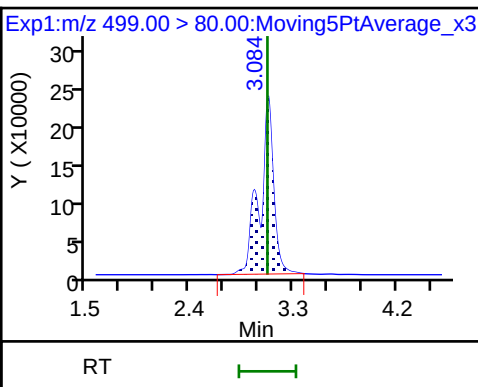
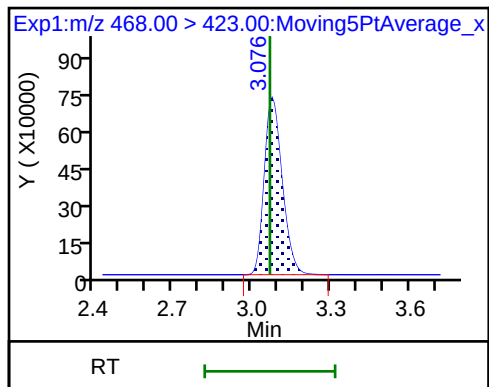
20 Perfluorononanoic acid (ND)



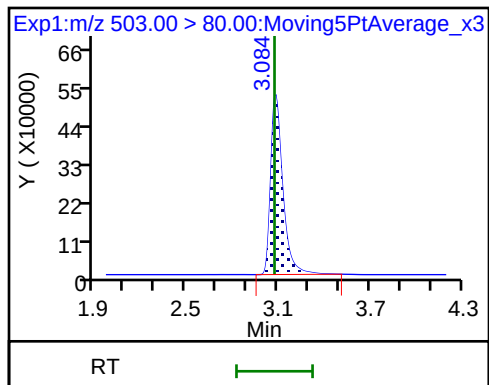
D 19 13C5 PFNA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB2-02</u>   | Lab Sample ID: <u>320-39023-24</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_060.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 12:20</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.07(g)</u>           | Date Analyzed: <u>06/06/2018 22:55</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.8</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.26   | U | 0.38 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.15   | J | 0.38 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U | 0.38 | 0.26 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.15   | J | 0.51 | 0.23 | 0.075 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.1    |   | 0.38 | 0.26 | 0.079 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 4.9    | M | 1.3  | 0.64 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 82   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 70   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_060.d  
 Lims ID: 320-39023-A-24-A  
 Client ID: KLA03-SB2-02  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 22:55:13 ALS Bottle#: 32 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-24-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 14:44:41 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 14:44:41

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

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.770 | 1.766 | 0.004 | 0.655 | 70518 | 1.57 |  | 67.7 | 470 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |        |        |  |  |     |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.770 | 1.766 | 0.004 | 1.000 | 139371 | 0.0592 |  |  | 508 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                |       |       |       |       |       |  |                 |  |     |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.770 | 1.766 | 0.004 | 1.000 | 57326 |  | 2.43(1.25-3.74) |  | 208 |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.342 | 2.346 | -0.004 | 0.866 | 4310484 | 2.07 |  | 83.0 | 69244 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |       |        |  |  |      |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.342 | 2.347 | -0.005 | 1.000 | 30233 | 0.0155 |  |  | 29.7 |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|

|                 |       |       |        |       |       |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.342 | 2.347 | -0.005 | 1.000 | 14361 |  | 2.11(1.13-3.40) |  | 66.6 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.368 | 2.360 | 0.008 | 0.876 | 4444278 | 1.76 |  | 74.6 | 58203 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |        |        |  |  |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.368 | 2.360 | 0.008 | 1.000 | 888966 | 0.4126 |  |  | 2382 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.368 | 2.360 | 0.008 | 1.000 | 299083 |  | 2.97(1.50-4.49) |  | 1293 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.703 | 2.698 | 0.005 | 1.000 | 4220740 | 2.05 |  | 81.9 | 68636 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 413.00 > 369.00 | 2.703 | 2.698 | 0.005 | 1.000 | 115827 | 0.0571 |  |  | 47.7 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                 |       |       |        |       |       |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.696 | 2.698 | -0.002 | 0.997 | 73751 |  | 1.57(0.84-2.52) |  | 236 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |         |      |  |  |       |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.703 | 2.698 | 0.005 |  | 5346204 | 2.50 |  |  | 94766 |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |     |       |         |      |  |      |       |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.067 | 3.067 | 0.0 | 1.135 | 3381008 | 1.94 |  | 77.7 | 55610 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |     |       |         |      |  |  |      |   |
|----------------|-------|-------|-----|-------|---------|------|--|--|------|---|
| 499.00 > 80.00 | 3.074 | 3.074 | 0.0 | 1.000 | 2703358 | 1.91 |  |  | 8157 | M |
|----------------|-------|-------|-----|-------|---------|------|--|--|------|---|

|                |       |       |     |       |        |  |                 |  |      |   |
|----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|---|
| 499.00 > 99.00 | 3.074 | 3.074 | 0.0 | 1.000 | 601935 |  | 4.49(2.31-6.93) |  | 5602 | M |
|----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|---|

## D 18 13C4 PFOS

|                |       |       |     |       |         |      |  |      |       |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 503.00 > 80.00 | 3.074 | 3.074 | 0.0 | 1.137 | 2845504 | 1.67 |  | 69.7 | 23699 |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_060.d

Injection Date: 06-Jun-2018 22:55:13

Instrument ID: A8\_N

Lims ID: 320-39023-A-24-A

Lab Sample ID: 320-39023-24

Client ID: KLA03-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

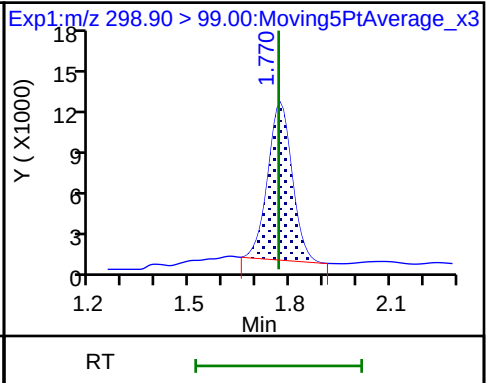
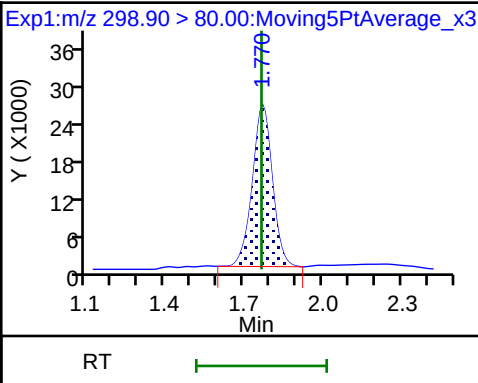
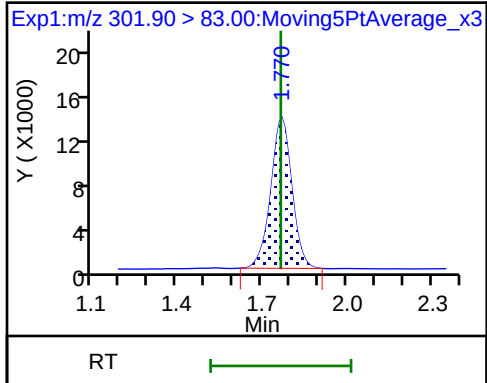
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

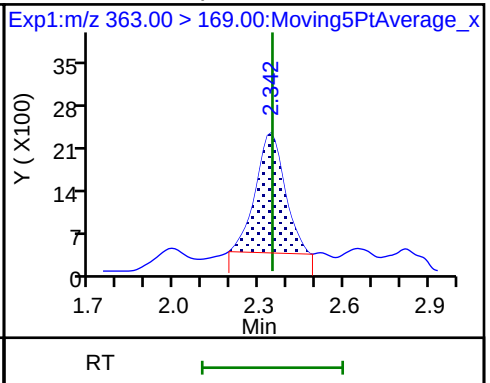
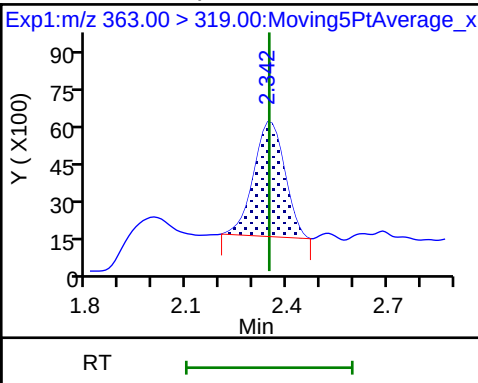
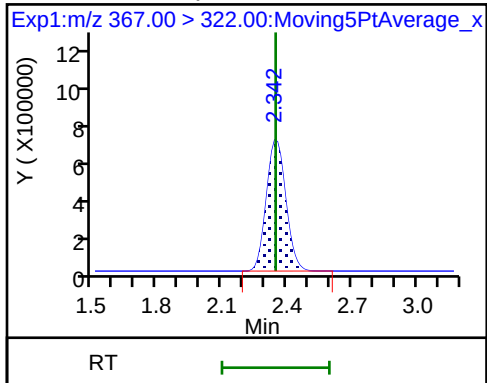
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

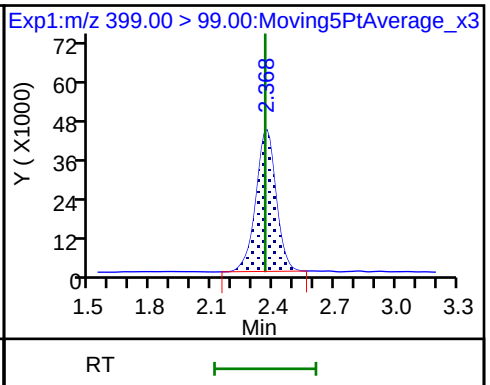
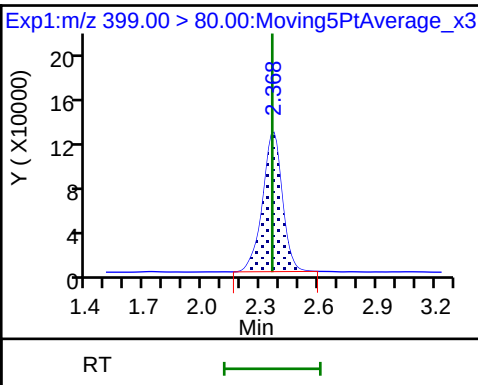
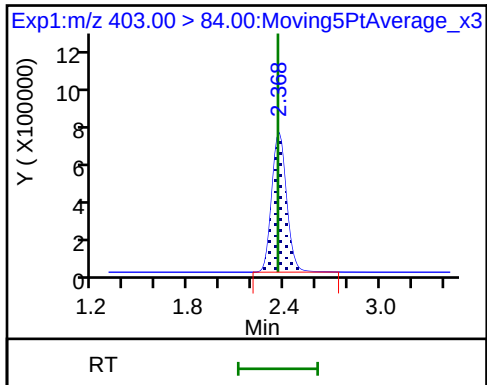
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

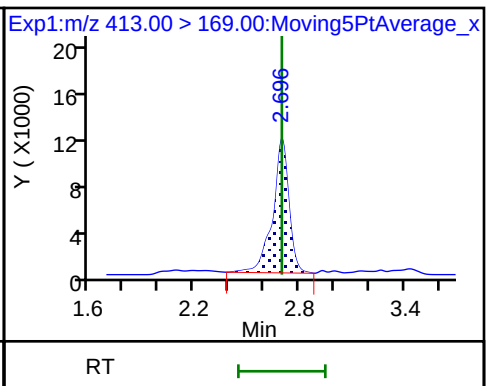
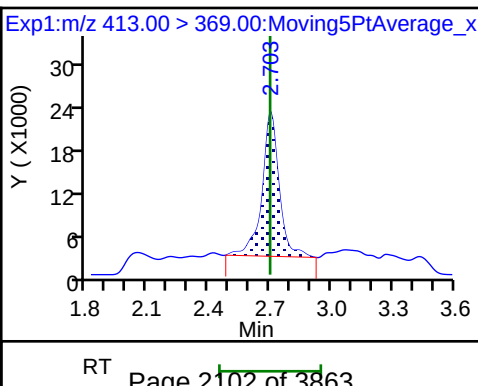
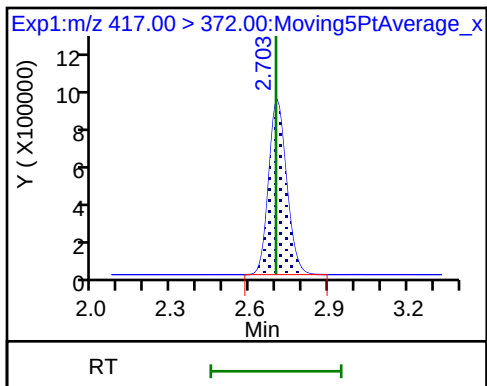
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

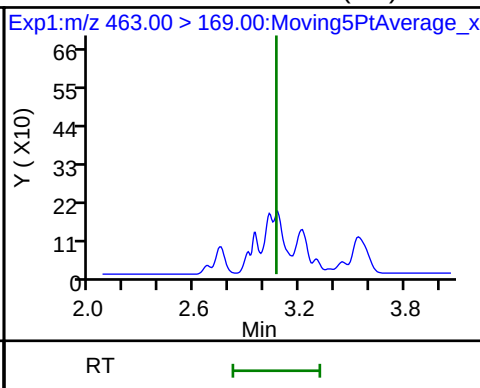
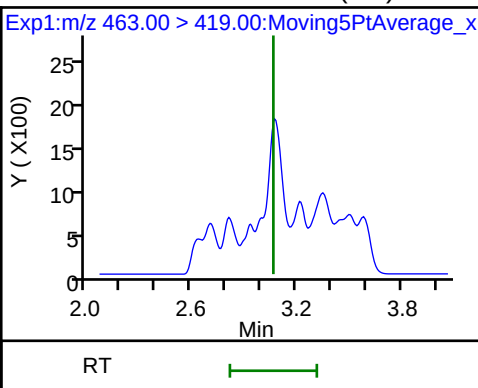
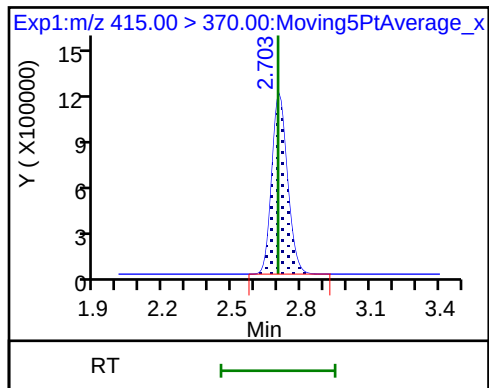




\* 62 13C2-PFOA

20 Perfluorononanoic acid (ND)

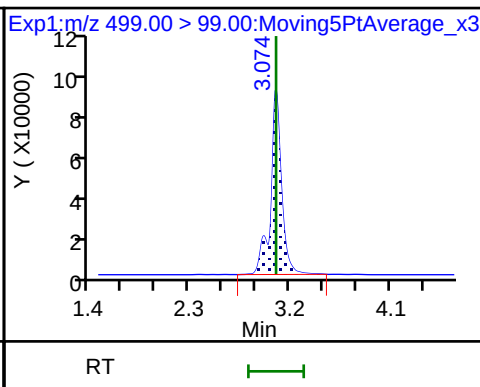
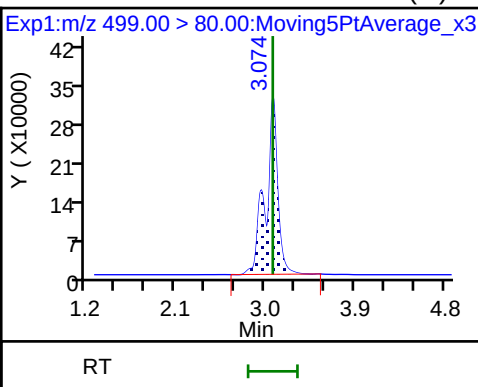
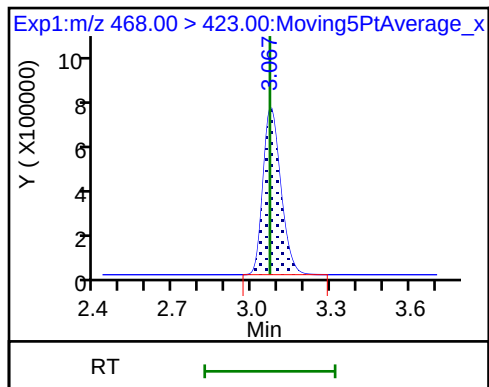
20 Perfluorononanoic acid (ND)



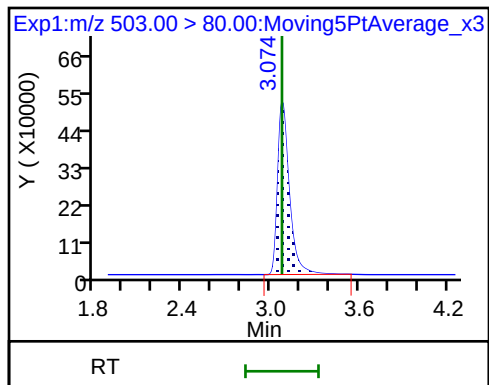
D 19 13C5 PFNA

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



## TestAmerica Sacramento

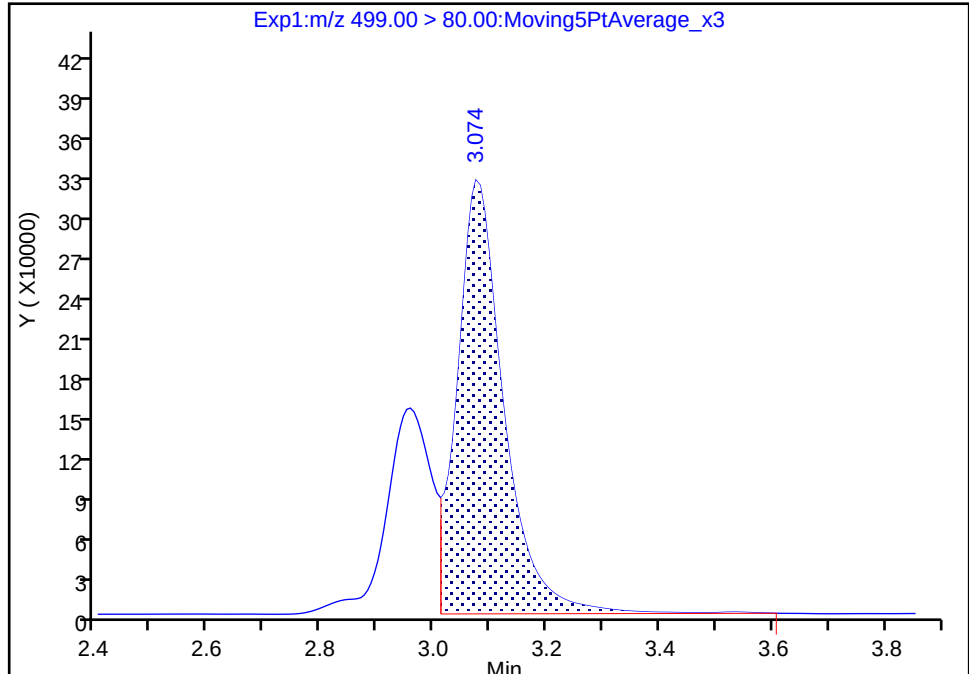
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180606-59323.b\2018.06.06LLC_060.d |                |                    |                |   |
| Injection Date: | 06-Jun-2018 22:55:13                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-24-A                                                         | Lab Sample ID: | 320-39023-24       |                |   |
| Client ID:      | KLA03-SB2-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 3 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

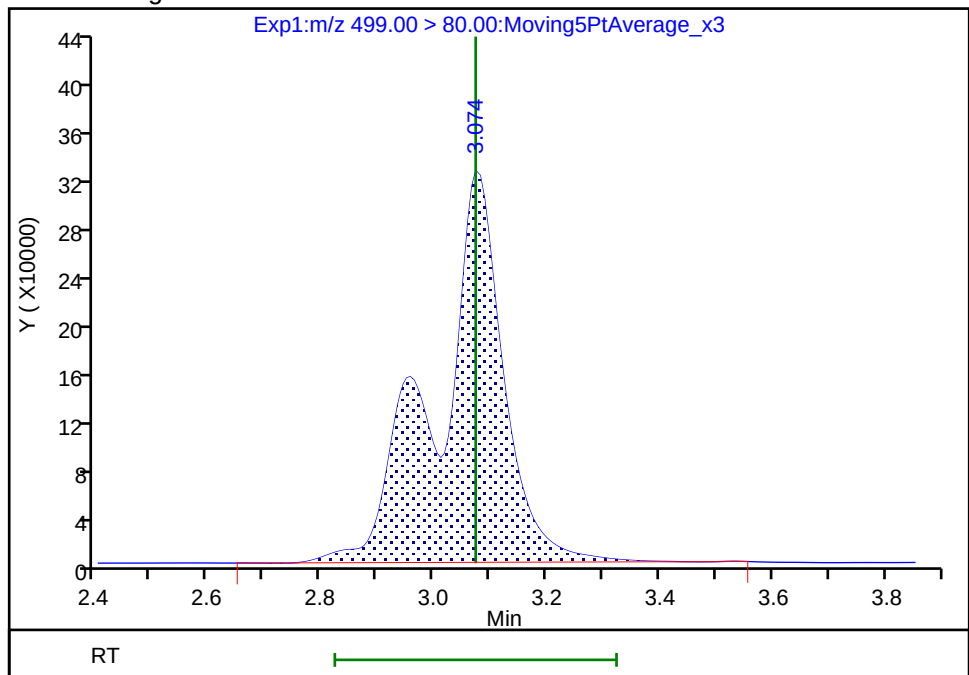
RT: 3.07  
Area: 1865413  
Amount: 1.319591  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 2703358  
Amount: 1.912352  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 07-Jun-2018 14:44:36

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB3-01</u>   | Lab Sample ID: <u>320-39023-25</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_061.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 08:45</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.94(g)</u>           | Date Analyzed: <u>06/06/2018 23:03</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>25.1</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.36   | J   | 0.41 | 0.27 | 0.11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.37   | J   | 0.41 | 0.27 | 0.14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.27   | U M | 0.41 | 0.27 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.21   | J   | 0.54 | 0.24 | 0.080 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2.7    |     | 0.41 | 0.27 | 0.084 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3.2    |     | 1.4  | 0.68 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 78   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 85   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 85   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 87   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 83   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 79   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_061.d  
 Lims ID: 320-39023-A-25-A  
 Client ID: KLA03-SB3-01  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 23:03:03 ALS Bottle#: 33 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-25-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 14:54:44 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 14:54:44

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

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.770 | 1.766 | 0.004 | 0.655 | 76238 | 1.80 |  | 77.6 | 469 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |        |        |  |  |     |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.770 | 1.766 | 0.004 | 1.000 | 193181 | 0.0759 |  |  | 844 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                |       |       |       |       |       |  |                 |  |     |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.770 | 1.766 | 0.004 | 1.000 | 83553 |  | 2.31(1.25-3.74) |  | 235 |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.354 | 2.346 | 0.008 | 0.871 | 4178864 | 2.13 |  | 85.3 | 55918 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |        |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.354 | 2.347 | 0.007 | 1.000 | 252024 | 0.1329 |  |  | 368 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 363.00 > 169.00 | 2.354 | 2.347 | 0.007 | 1.000 | 99417 |  | 2.54(1.13-3.40) |  | 546 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.368 | 2.360 | 0.008 | 0.876 | 4688252 | 1.97 |  | 83.4 | 39544 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |         |      |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 399.00 > 80.00 | 2.368 | 2.360 | 0.008 | 1.000 | 2304415 | 1.01 |  |  | 7347 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.368 | 2.360 | 0.008 | 1.000 | 741498 |  | 3.11(1.50-4.49) |  | 2635 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.703 | 2.698 | 0.005 | 1.000 | 4119789 | 2.12 |  | 84.8 | 53517 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 413.00 > 369.00 | 2.703 | 2.698 | 0.005 | 1.000 | 267887 | 0.1352 |  |  | 132 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                 |       |       |       |       |        |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.703 | 2.698 | 0.005 | 1.000 | 143646 |  | 1.86(0.84-2.52) |  | 543 |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |         |      |  |  |       |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.703 | 2.698 | 0.005 |  | 5041334 | 2.50 |  |  | 75546 |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.076 | 3.067 | 0.009 | 1.138 | 3571347 | 2.18 |  | 87.0 | 76541 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |         |      |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 499.00 > 80.00 | 3.076 | 3.074 | 0.002 | 1.000 | 1774526 | 1.18 |  |  | 3795 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 499.00 > 99.00 | 3.076 | 3.074 | 0.002 | 1.000 | 383504 |  | 4.63(2.31-6.93) |  | 3247 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 18 13C4 PFOS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 503.00 > 80.00 | 3.076 | 3.074 | 0.002 | 1.138 | 3030375 | 1.88 |  | 78.7 | 36807 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_061.d

Injection Date: 06-Jun-2018 23:03:03

Instrument ID: A8\_N

Lims ID: 320-39023-A-25-A

Lab Sample ID: 320-39023-25

Client ID: KLA03-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

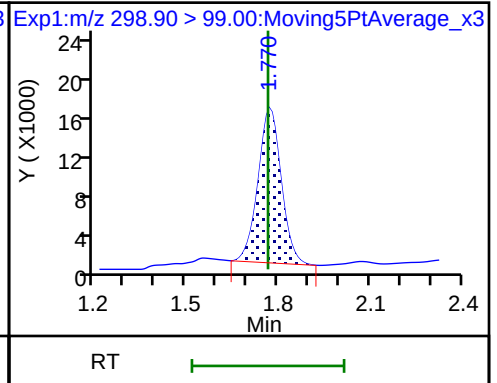
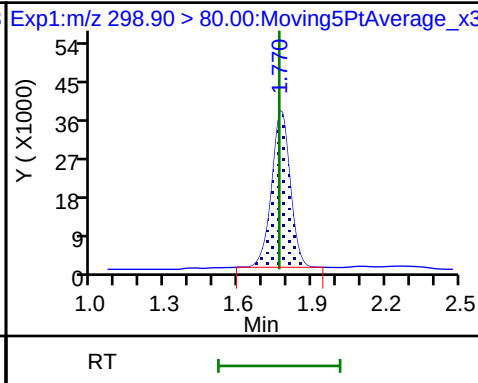
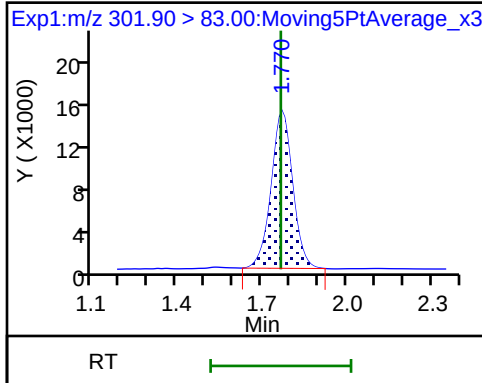
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

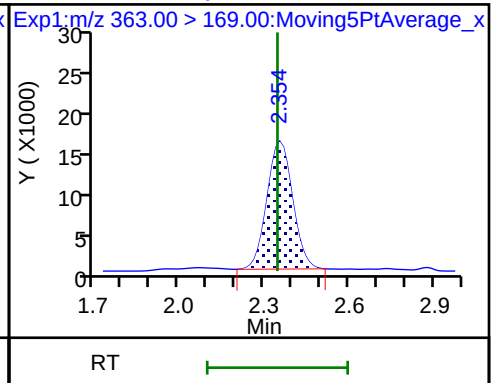
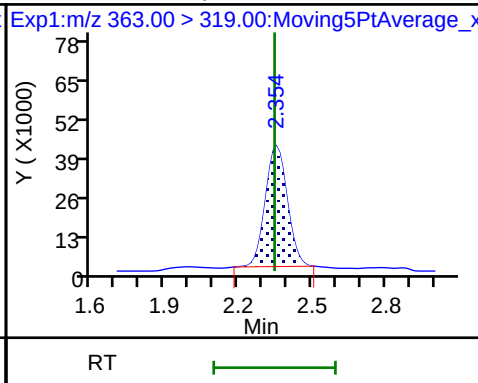
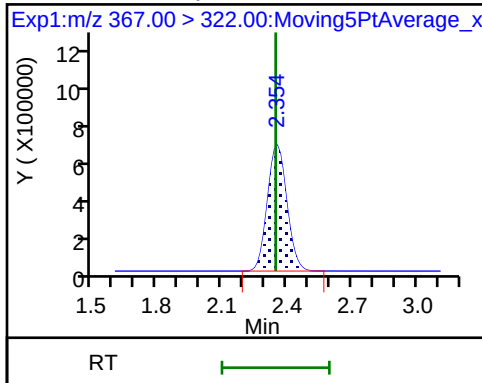
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

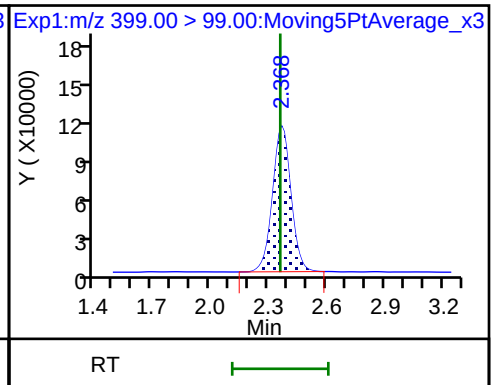
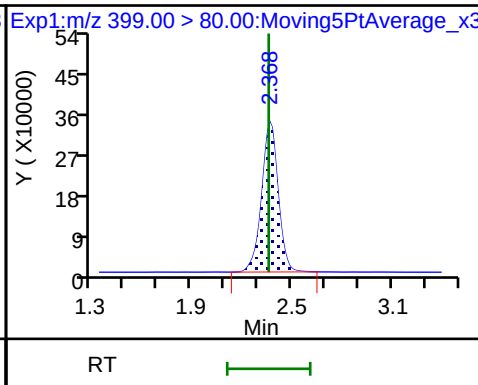
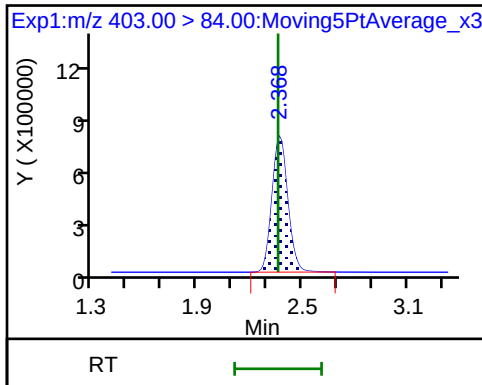
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

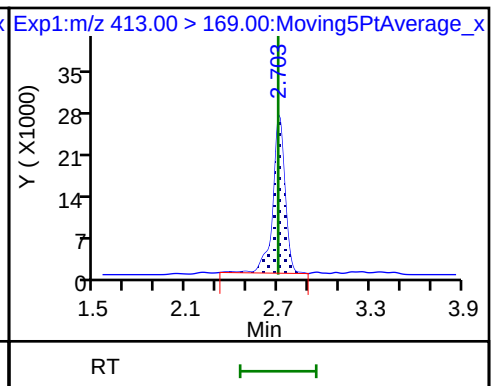
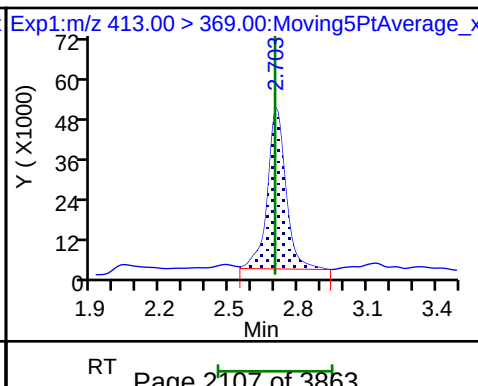
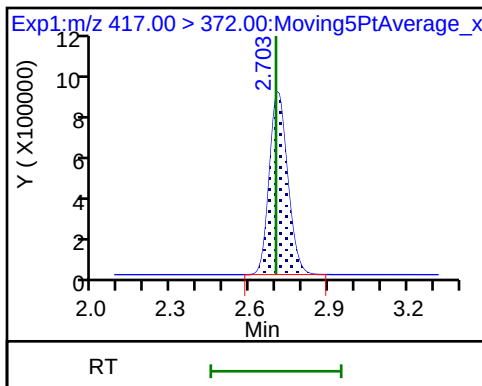
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

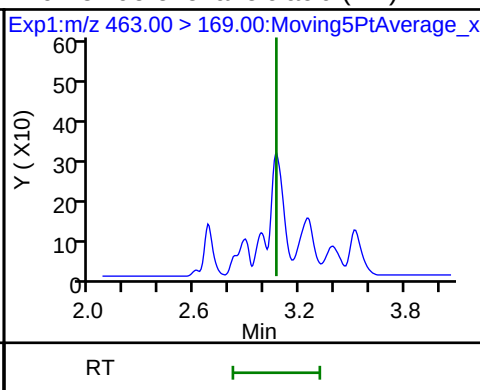
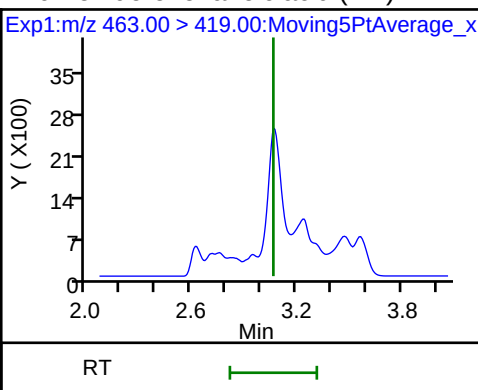
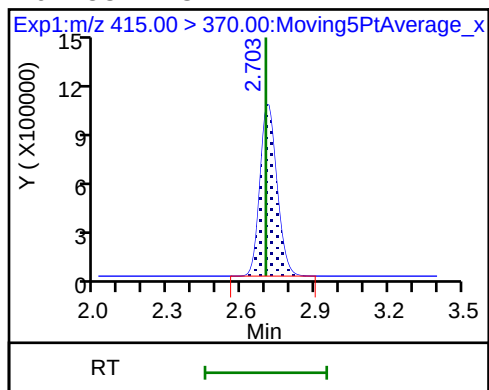
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

20 Perfluorononanoic acid (ND)

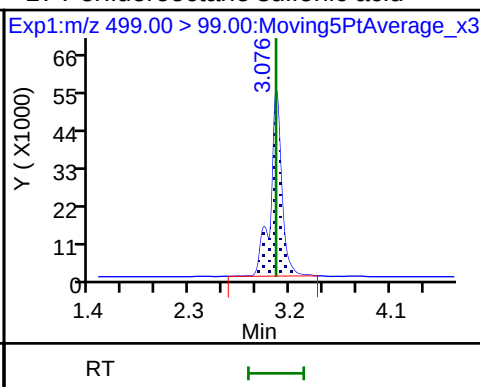
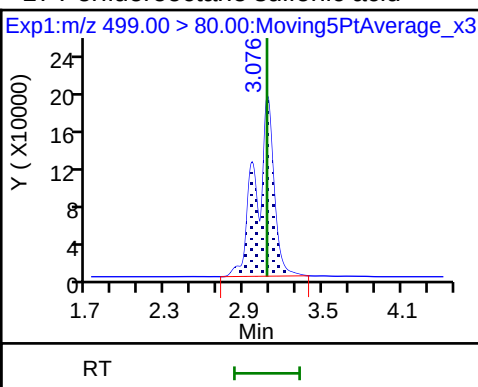
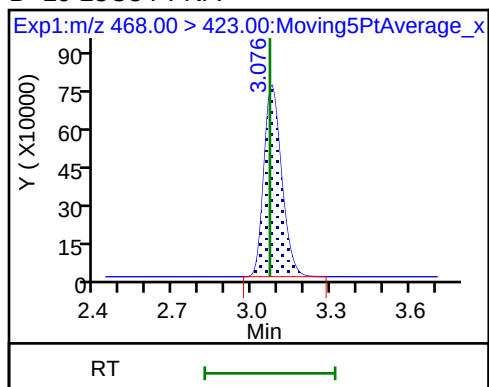
20 Perfluorononanoic acid (ND)



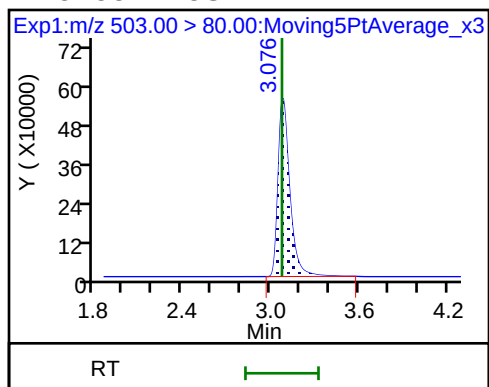
D 19 13C5 PFNA

17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB3-02</u>   | Lab Sample ID: <u>320-39023-26</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_062.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 08:50</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.02(g)</u>           | Date Analyzed: <u>06/06/2018 23:10</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>26.4</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.59   |   | 0.41 | 0.27 | 0.11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.3    |   | 0.41 | 0.27 | 0.14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.27   | U | 0.41 | 0.27 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.75   |   | 0.54 | 0.24 | 0.080 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 12     |   | 0.41 | 0.27 | 0.084 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 14     | M | 1.4  | 0.68 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 77   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 85   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 83   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 79   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 76   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_062.d  
 Lims ID: 320-39023-A-26-A  
 Client ID: KLA03-SB3-02  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 23:10:51 ALS Bottle#: 34 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-26-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 14:55:16 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols Date: 07-Jun-2018 14:55:16

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

D 47 13C3-PFBS

301.90 > 83.00 1.766 1.766 0.0 0.654 76770 1.80 77.5 1848

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.766 1.766 0.0 1.000 705174 0.2753 1825

298.90 > 99.00 1.766 1.766 0.0 1.000 303893 2.32(1.25-3.74) 2133

D 9 13C4-PFHpA

367.00 > 322.00 2.347 2.346 0.001 0.870 4191623 2.12 84.8 61208

10 Perfluoroheptanoic acid

363.00 > 319.00 2.347 2.347 0.0 1.000 413988 0.2177 572

363.00 > 169.00 2.347 2.347 0.0 1.000 156754 2.64(1.13-3.40) 873

D 11 18O2 PFHxS

403.00 > 84.00 2.360 2.360 0.0 0.874 4456530 1.86 78.6 40727

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.360 2.360 0.0 1.000 9235314 4.27 22099

399.00 > 99.00 2.360 2.360 0.0 1.000 2904904 3.18(1.50-4.49) 10719

D 14 13C4 PFOA

417.00 > 372.00 2.698 2.698 0.0 1.000 4122389 2.10 84.1 65953

15 Perfluorooctanoic acid

413.00 > 369.00 2.698 2.698 0.0 1.000 924186 0.4661 363

413.00 > 169.00 2.698 2.698 0.0 1.000 499623 1.85(0.84-2.52) 1675

\* 62 13C2-PFOA

415.00 > 370.00 2.698 2.698 0.0 5086769 2.50 58514

20 Perfluorononanoic acid

463.00 > 419.00 3.071 3.067 0.004 1.000 32476 0.0220 101

463.00 > 169.00 3.064 3.067 -0.003 0.998 6032 5.38(1.90-5.69) 146

D 19 13C5 PFNA

468.00 > 423.00 3.071 3.067 0.004 1.138 3434424 2.07 83.0 56049



| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | M     |
| 499.00 > 80.00                   | 3.079 | 3.074     | 0.005     | 1.000     | 7594288  | 5.18            |                 |      | 8696  | M     |
| 499.00 > 99.00                   | 3.071 | 3.074     | -0.003    | 0.997     | 1660827  |                 | 4.57(2.31-6.93) |      | 24322 |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.079 | 3.074     | 0.005     | 1.141     | 2951696  | 1.82            |                 | 76.0 | 28040 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_062.d

Injection Date: 06-Jun-2018 23:10:51

Instrument ID: A8\_N

Lims ID: 320-39023-A-26-A

Lab Sample ID: 320-39023-26

Client ID: KLA03-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

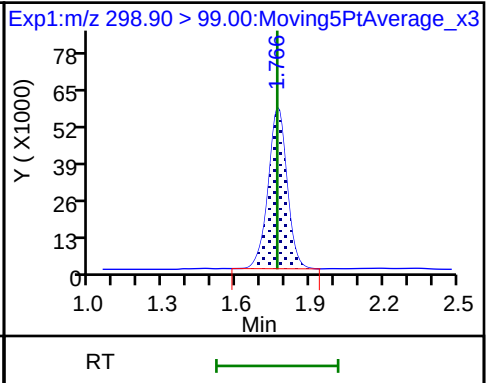
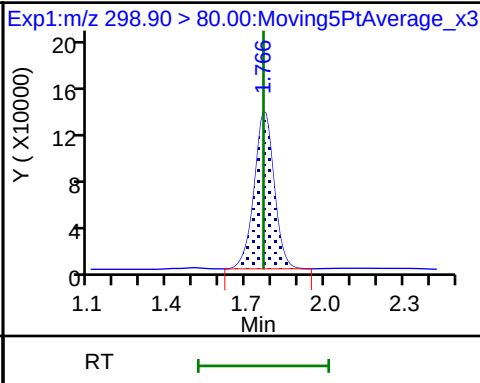
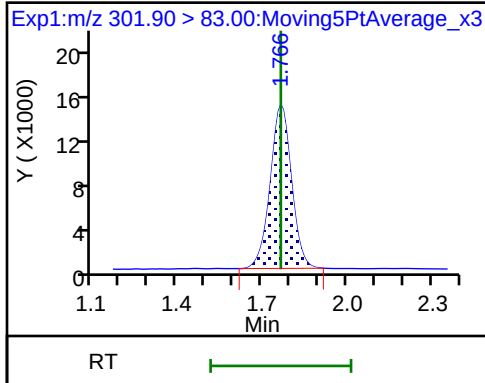
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

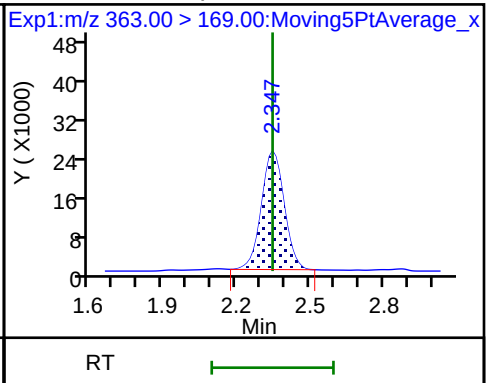
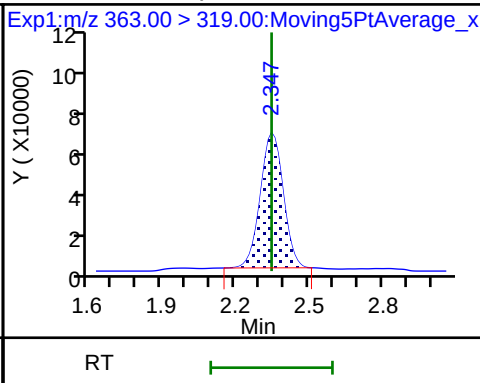
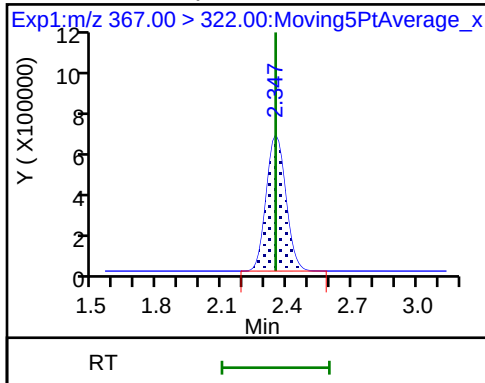
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

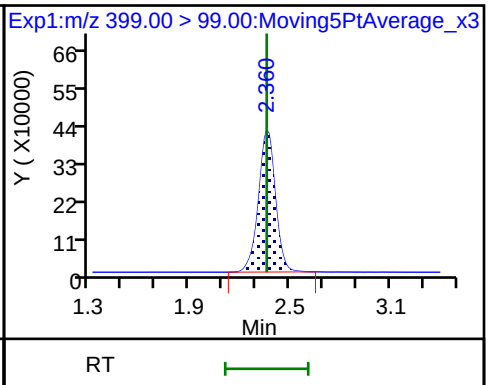
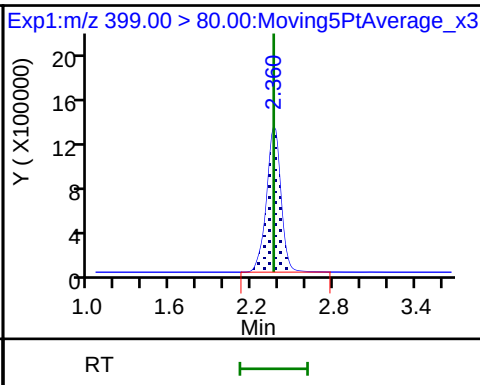
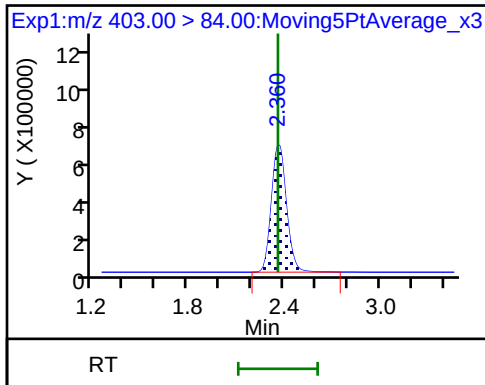
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

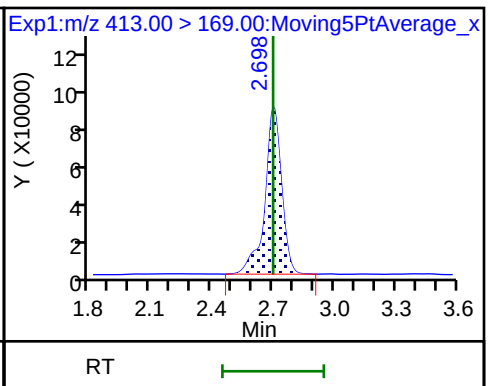
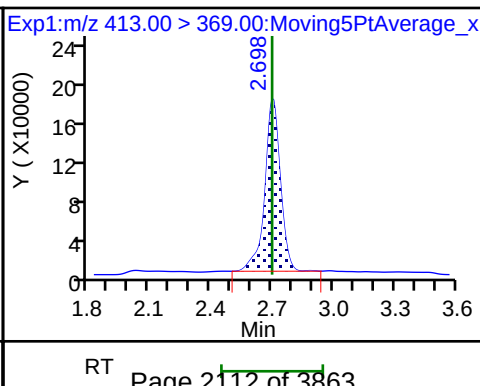
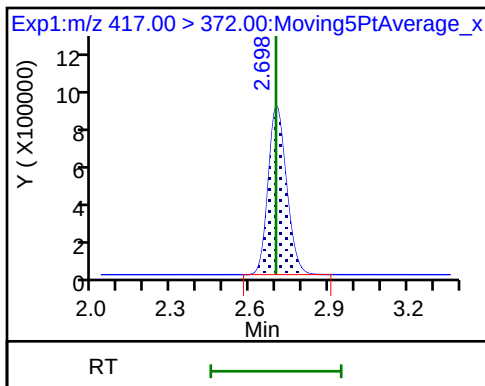
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

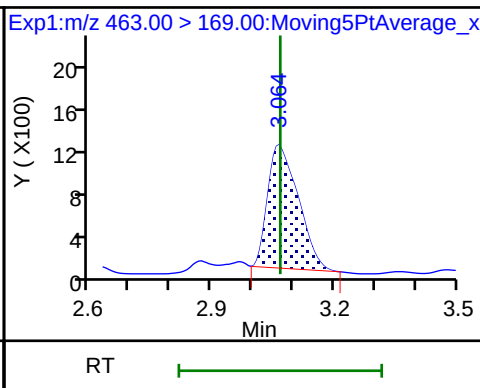
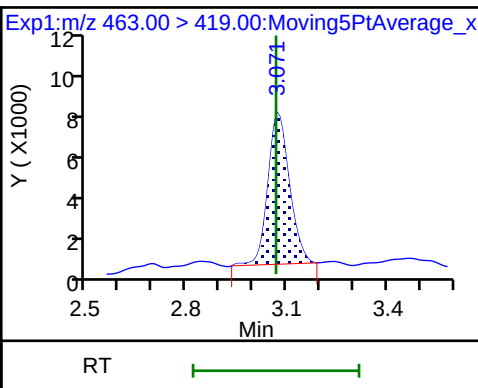
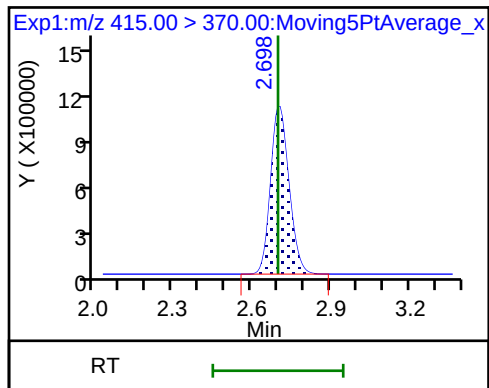
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

20 Perfluorononanoic acid

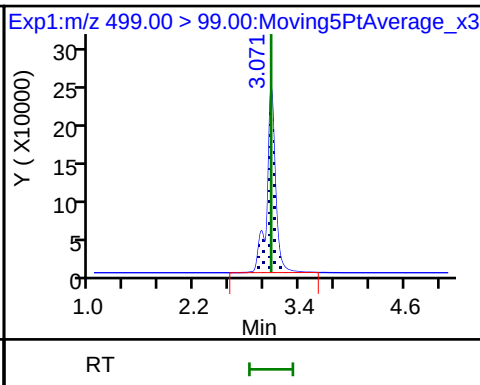
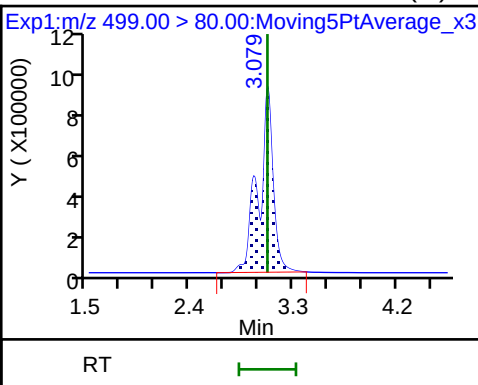
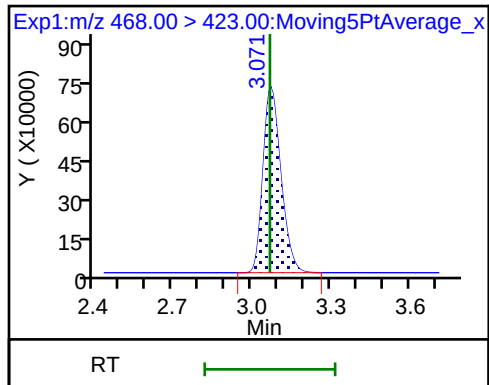
20 Perfluorononanoic acid



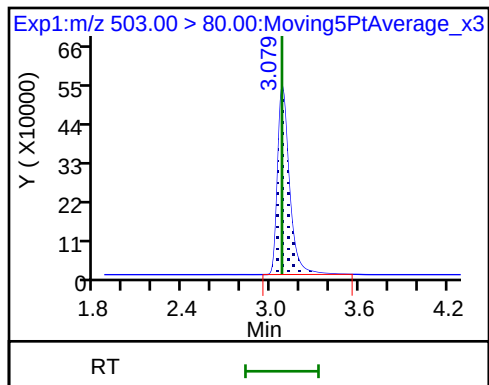
D 19 13C5 PFNA

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



## TestAmerica Sacramento

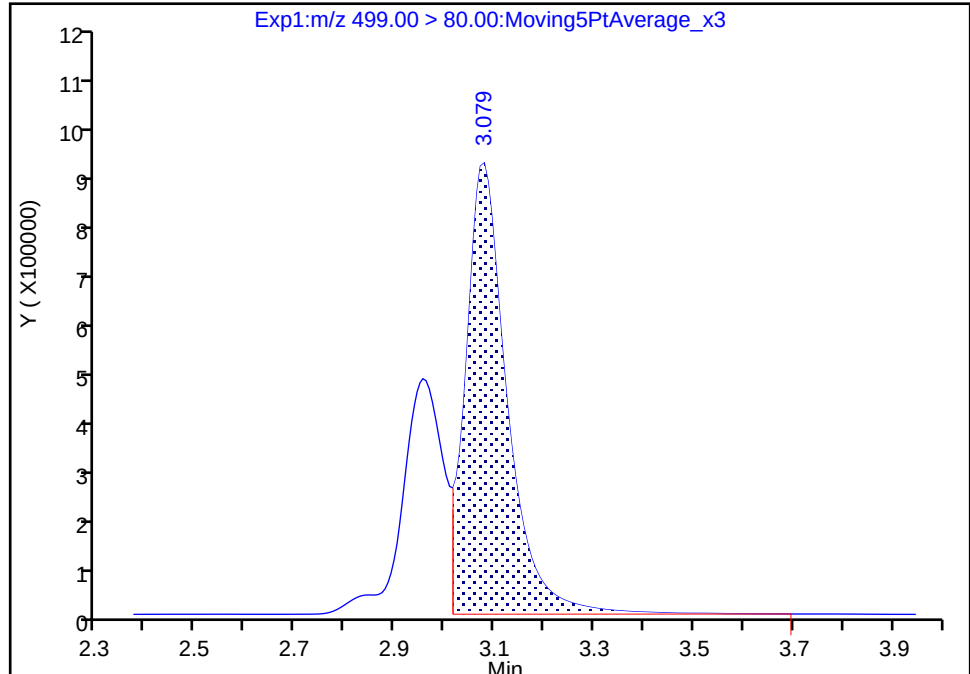
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180606-59323.b\2018.06.06LLC_062.d |                |                    |                |   |
| Injection Date: | 06-Jun-2018 23:10:51                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-26-A                                                         | Lab Sample ID: | 320-39023-26       |                |   |
| Client ID:      | KLA03-SB3-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 34                 | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

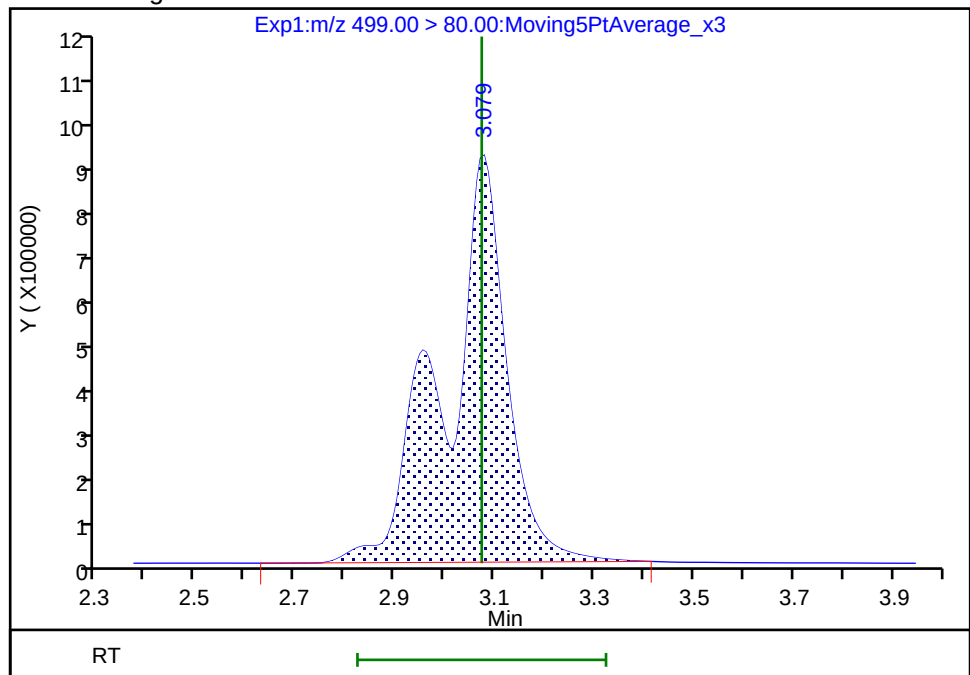
RT: 3.08  
Area: 5060560  
Amount: 3.451043  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 7594288  
Amount: 5.178916  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 07-Jun-2018 14:55:12

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA04-SB1-01</u>   | Lab Sample ID: <u>320-39023-27</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_045.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 08:35</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>           | Date Analyzed: <u>05/29/2018 08:54</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>27.4</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.66   |     | 0.42 | 0.28 | 0.11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 3.2    |     | 0.42 | 0.28 | 0.14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.16   | J M | 0.42 | 0.28 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.45   | J   | 0.56 | 0.25 | 0.082 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 24     |     | 0.42 | 0.28 | 0.086 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 930    | E   | 1.4  | 0.69 | 0.33  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 87   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 98   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 88   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 37   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 87   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 30   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_045.d  
 Lims ID: 320-39023-A-27-A  
 Client ID: KLA04-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 08:54:10 ALS Bottle#: 35 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-27-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:50:57 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:50:57

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response  | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|-----------|-----------|-----------|-----------|-----------------|-----------------|------|---------|-------|
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |           |                 |                 |      |         |       |
| 298.90 > 80.00                   | 1.765 | 1.765     | -0.001    | 1.000     | 401275    | 0.1632          |                 |      | 1621    |       |
| 298.90 > 99.00                   | 1.765 | 1.765     | -0.001    | 1.000     | 177585    |                 | 2.26(1.25-3.74) |      | 419     |       |
| D 47 13C3-PFBS                   |       |           |           |           |           |                 |                 |      |         |       |
| 301.90 > 83.00                   | 1.765 | 1.766     | -0.002    | 1.000     | 73209     | 2.02            |                 | 86.7 | 615     |       |
| D 9 13C4-PFHpA                   |       |           |           |           |           |                 |                 |      |         |       |
| 367.00 > 322.00                  | 2.345 | 2.347     | -0.002    | 1.000     | 4024499   | 2.45            |                 | 98.1 | 80635   |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |           |                 |                 |      |         |       |
| 363.00 > 319.00                  | 2.345 | 2.359     | -0.014    | 1.000     | 405205    | 0.2383          |                 |      | 473     |       |
| 363.00 > 169.00                  | 2.345 | 2.359     | -0.014    | 1.000     | 153186    |                 | 2.65(1.13-3.40) |      | 780     |       |
| D 11 18O2 PFHxS                  |       |           |           |           |           |                 |                 |      |         |       |
| 403.00 > 84.00                   | 2.358 | 2.360     | -0.002    | 1.000     | 4151761   | 2.05            |                 | 86.6 | 82457   |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |           |                 |                 |      |         |       |
| 399.00 > 80.00                   | 2.358 | 2.372     | -0.014    | 1.000     | 16745991  | 8.47            |                 |      | 32235   |       |
| 399.00 > 99.00                   | 2.358 | 2.372     | -0.014    | 1.000     | 5404221   |                 | 3.10(1.50-4.49) |      | 16723   |       |
| D 14 13C4 PFOA                   |       |           |           |           |           |                 |                 |      |         |       |
| 417.00 > 372.00                  | 2.704 | 2.706     | -0.002    | 1.000     | 3399349   | 2.19            |                 | 87.6 | 43817   |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |           |                 |                 |      |         |       |
| 413.00 > 369.00                  | 2.704 | 2.713     | -0.009    | 1.000     | 1815024   | 1.13            |                 |      | 669     |       |
| 413.00 > 169.00                  | 2.704 | 2.713     | -0.009    | 1.000     | 1136520   |                 | 1.60(0.84-2.52) |      | 342     |       |
| * 62 13C2-PFOA                   |       |           |           |           |           |                 |                 |      |         |       |
| 415.00 > 370.00                  | 2.704 | 2.713     | -0.009    |           | 4098691   | 2.50            |                 |      | 70414   |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |           |                 |                 |      |         |       |
| 499.00 > 80.00                   | 3.084 | 3.076     | 0.008     | 1.005     | 163571688 | 336.3           |                 |      | 5834    | E     |
| 499.00 > 99.00                   | 3.069 | 3.076     | -0.007    | 1.000     | 69925269  |                 | 2.34(2.31-6.93) |      | 1534086 | E     |
| D 18 13C4 PFOS                   |       |           |           |           |           |                 |                 |      |         |       |
| 503.00 > 80.00                   | 3.069 | 3.076     | -0.007    | 1.000     | 988680    | 0.7093          |                 | 29.7 | 5843    |       |
| D 19 13C5 PFNA                   |       |           |           |           |           |                 |                 |      |         |       |
| 468.00 > 423.00                  | 3.076 | 3.076     | 0.0       | 1.000     | 1187416   | 0.9352          |                 | 37.4 | 26554   |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | M     |
| 463.00 > 419.00           | 3.076 | 3.083     | -0.007    | 1.000     | 29095    | 0.0578          |                 |      | 63.9 | M     |
| 463.00 > 169.00           | 3.069 | 3.083     | -0.014    | 0.998     | 8941     |                 | 3.25(1.90-5.69) |      | 50.8 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_045.d

Injection Date: 29-May-2018 08:54:10

Instrument ID: A8\_N

Lims ID: 320-39023-A-27-A

Lab Sample ID: 320-39023-27

Client ID: KLA04-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

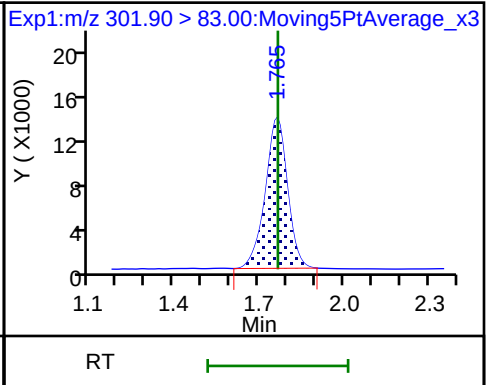
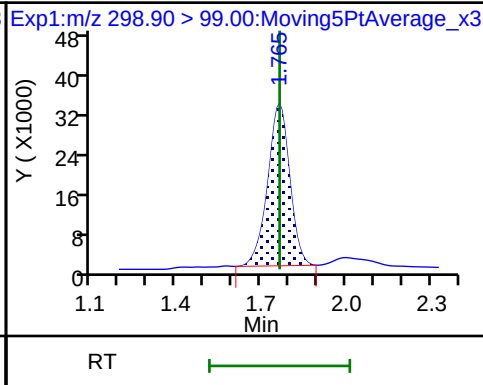
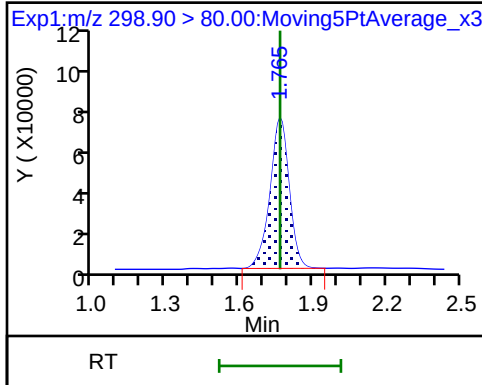
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

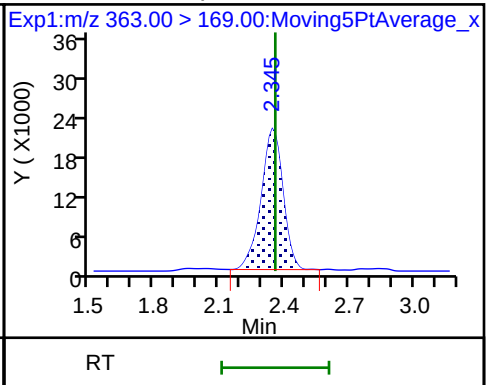
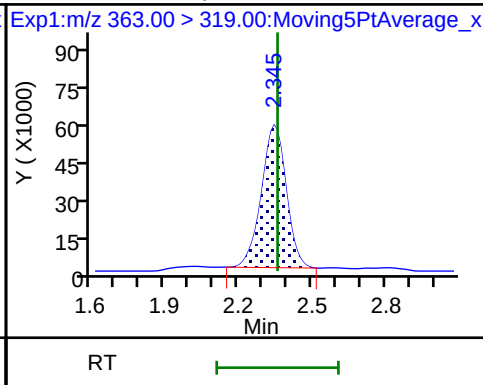
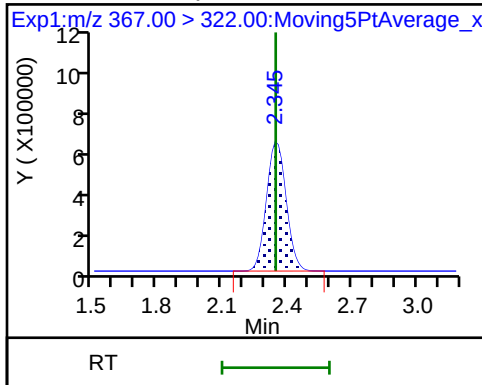
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

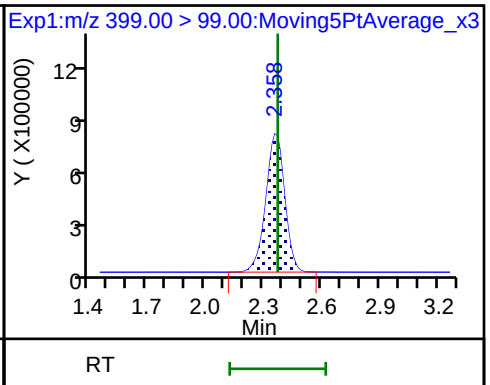
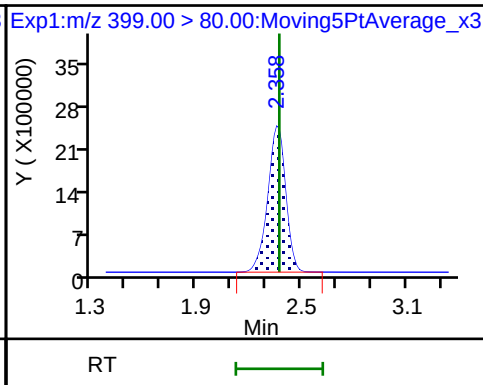
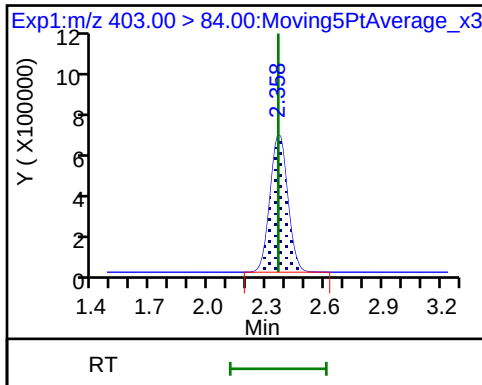
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

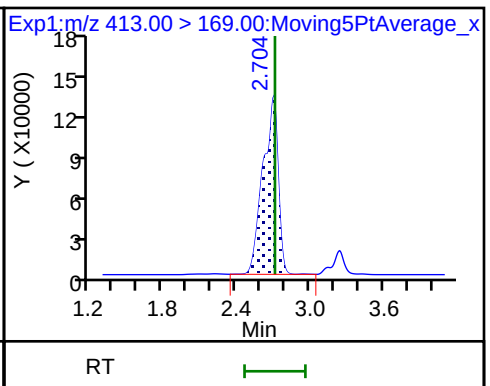
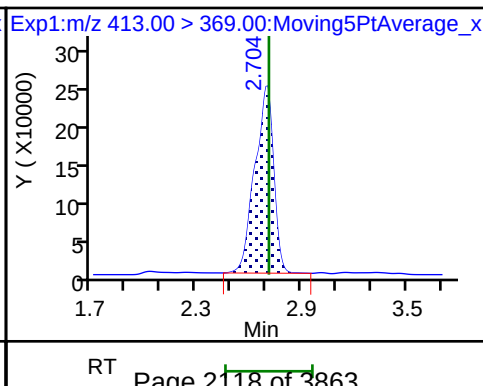
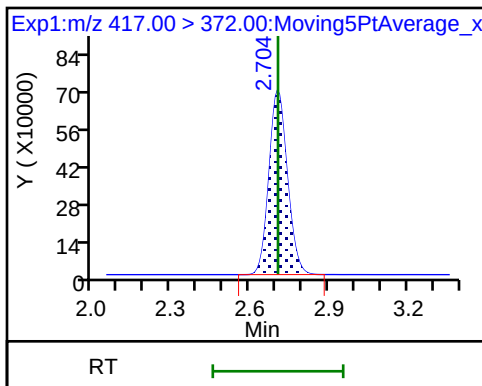
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

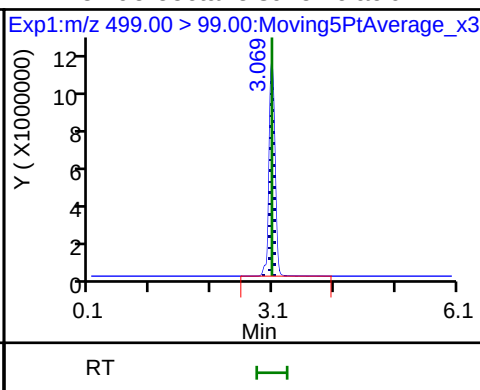
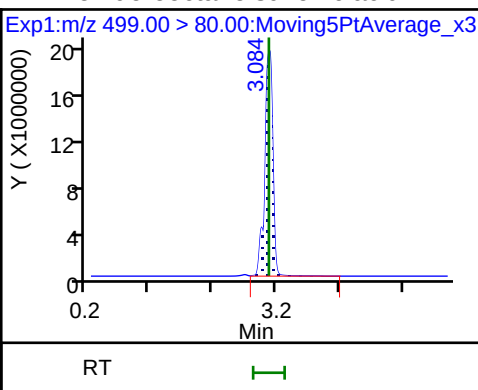
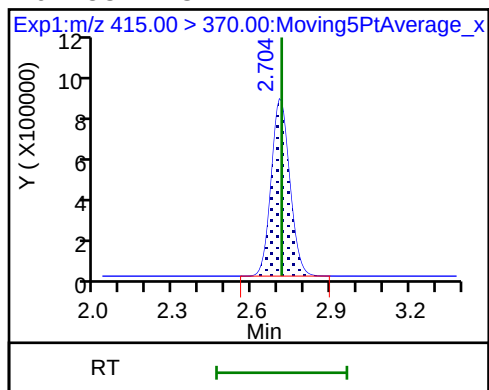




\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

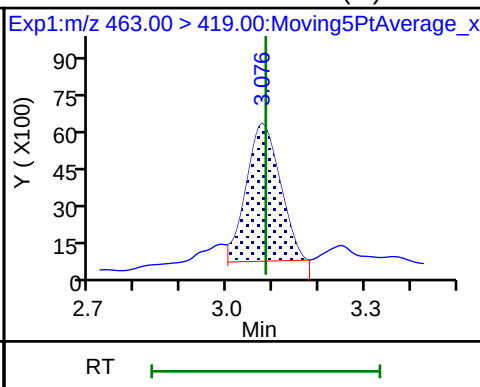
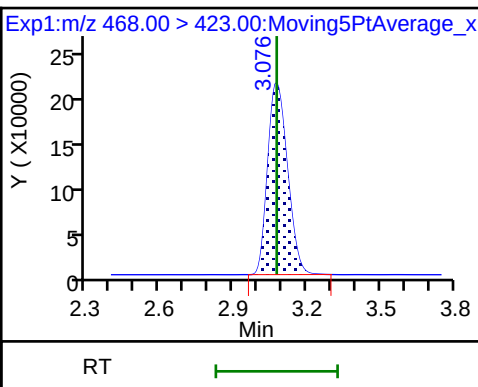
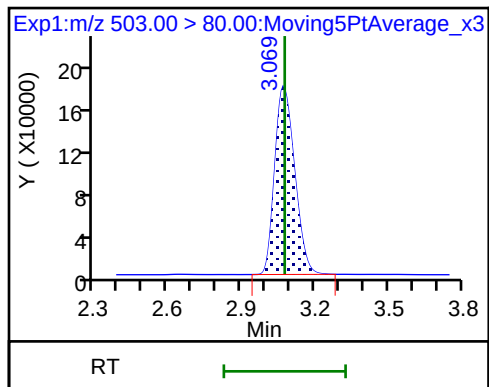
17 Perfluorooctane sulfonic acid



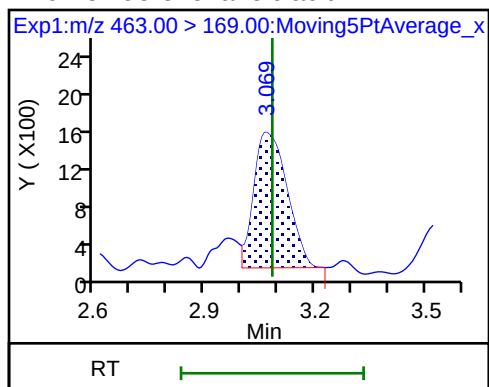
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid



## TestAmerica Sacramento

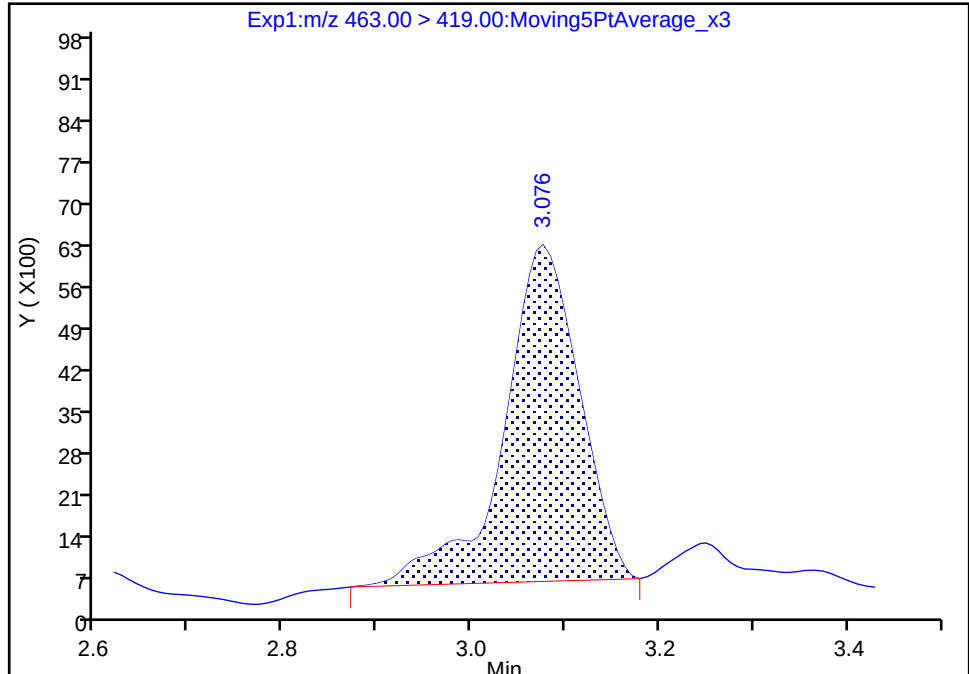
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_045.d |                |                    |                |    |
| Injection Date: | 29-May-2018 08:54:10                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-27-A                                                         | Lab Sample ID: | 320-39023-27       |                |    |
| Client ID:      | KLA04-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 35                 | Worklist Smp#: | 15 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

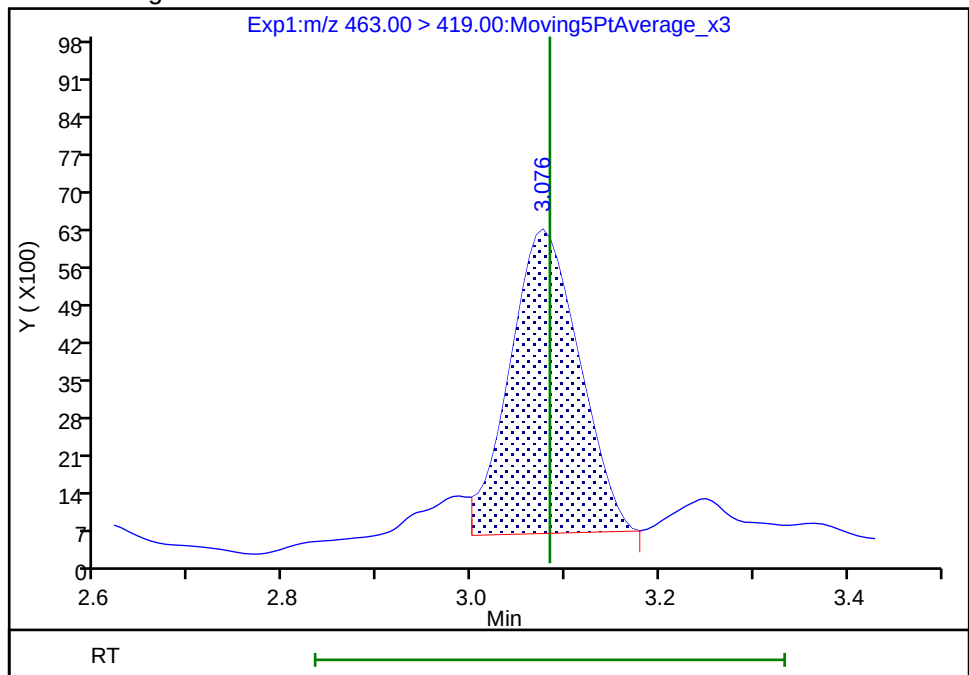
RT: 3.08  
Area: 31874  
Amount: 0.063358  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 29095  
Amount: 0.057834  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:50:41

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA04-SB1-01 DL</u> | Lab Sample ID: <u>320-39023-27 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_036.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 08:35</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>            | Date Analyzed: <u>05/29/2018 15:33</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>27.4</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 28     | U   | 42  | 28  | 11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 28     | U M | 42  | 28  | 14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 28     | U   | 42  | 28  | 11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 25     | U   | 56  | 25  | 8.2 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 23     | J D | 42  | 28  | 8.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 2200   | D   | 140 | 69  | 33  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 99   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 77   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 93   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 79   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 67   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 70   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_036.d  
 Lims ID: 320-39023-A-27-A  
 Client ID: KLA04-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 15:33:40 ALS Bottle#: 27 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-27-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:26:51 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:25:18

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |       | M     |
| 301.90 > 83.00                   | 1.765 | 1.762     | 0.003     | 1.000     | 1073     | 0.0230          |                 | 99.1 | 10.1  | M     |
| D 9 13C4-PFHpA                   |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                  | 2.358 | 2.355     | 0.003     | 1.000     | 40764    | 0.0194          |                 | 77.5 | 1111  |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                   | 2.372 | 2.368     | 0.004     | 1.000     | 41367    | 0.0159          |                 | 67.2 | 1381  |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                   | 2.372 | 2.371     | 0.001     | 1.000     | 164750   | 0.0836          |                 |      | 667   |       |
| 399.00 > 99.00                   | 2.372 | 2.371     | 0.001     | 1.000     | 50381    |                 | 3.27(1.50-4.49) |      | 279   |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                  | 2.712 | 2.711     | 0.001     | 1.000     | 46080    | 0.0231          |                 | 92.6 | 1122  |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |       | M     |
| 413.00 > 369.00                  | 2.719 | 2.712     | 0.007     | 1.003     | 28634    | 0.0132          |                 |      | 7.3   |       |
| 413.00 > 169.00                  | 2.704 | 2.712     | -0.008    | 0.997     | 12362    |                 | 2.32(0.84-2.52) |      | 26.8  | M     |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                  | 2.712 | 2.712     | 0.0       |           | 52579    | 0.0250          |                 |      | 1389  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.076 | 3.079     | -0.003    | 1.000     | 32077    | 0.0197          |                 | 78.8 | 1356  |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.084 | 3.079     | 0.005     | 1.000     | 30103    | 0.0168          |                 | 70.4 | 305   |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.076 | 3.082     | -0.006    | 0.997     | 11666035 | 7.88            |                 |      | 23914 |       |
| 499.00 > 99.00                   | 3.076 | 3.082     | -0.006    | 0.997     | 2705938  |                 | 4.31(2.31-6.93) |      | 24891 |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_036.d

Injection Date: 29-May-2018 15:33:40

Instrument ID: A8\_N

Lims ID: 320-39023-A-27-A

Lab Sample ID: 320-39023-27

Client ID: KLA04-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

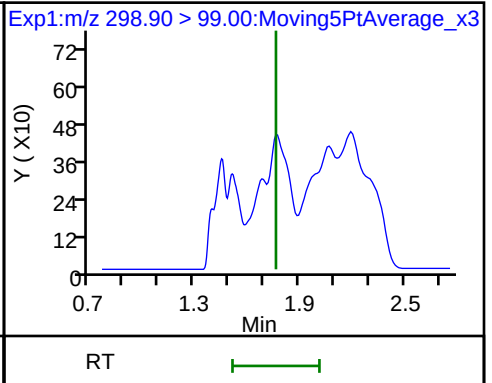
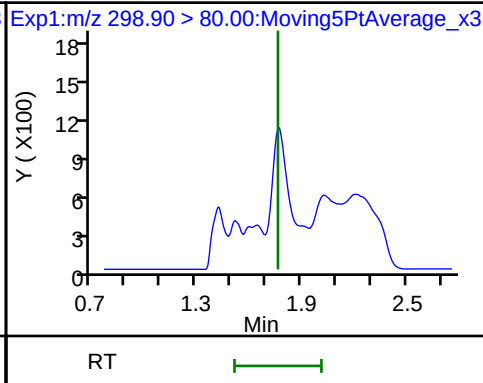
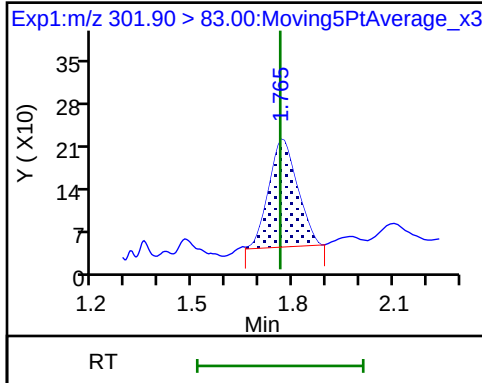
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid (ND)

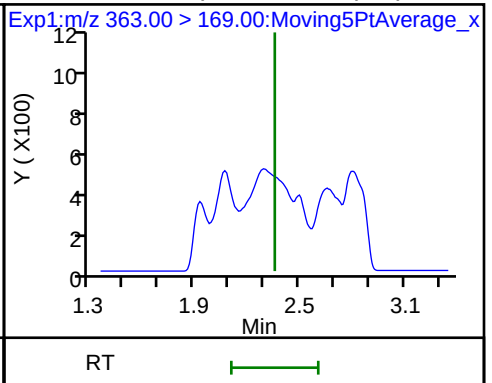
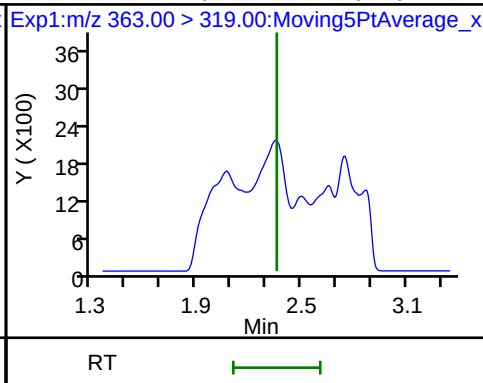
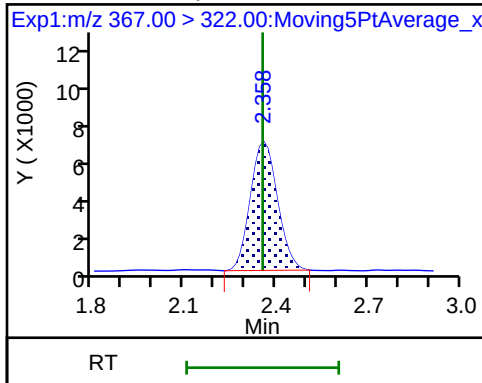
5 Perfluorobutanesulfonic acid (ND)



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid (ND)

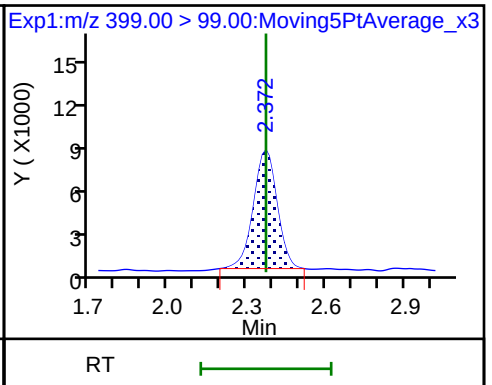
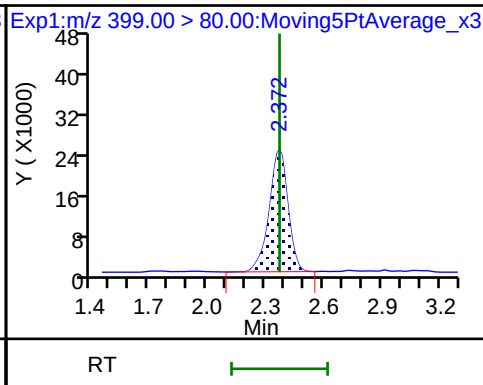
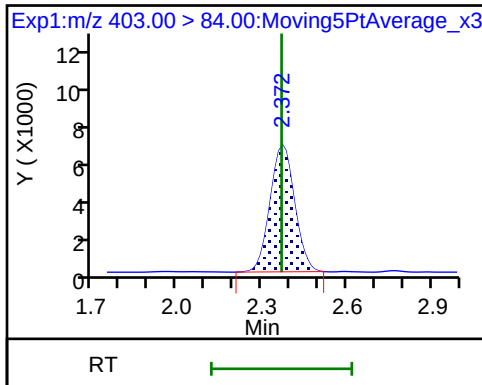
10 Perfluoroheptanoic acid (ND)



D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

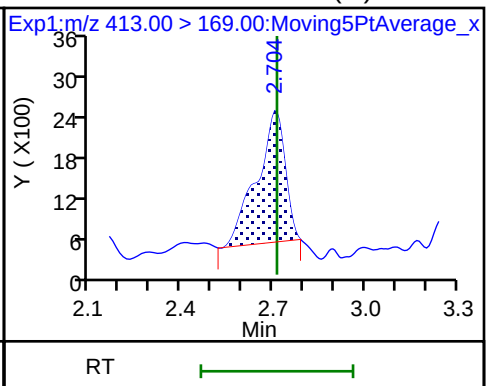
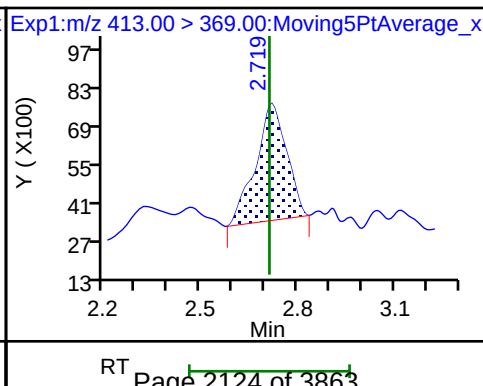
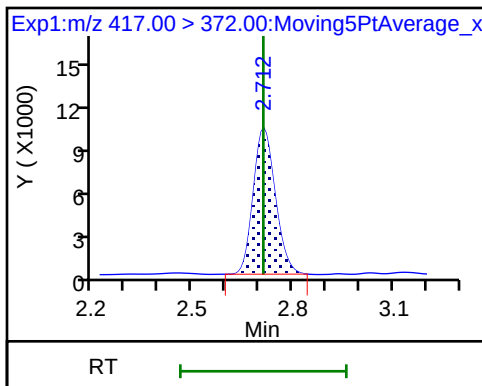
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

15 Perfluorooctanoic acid

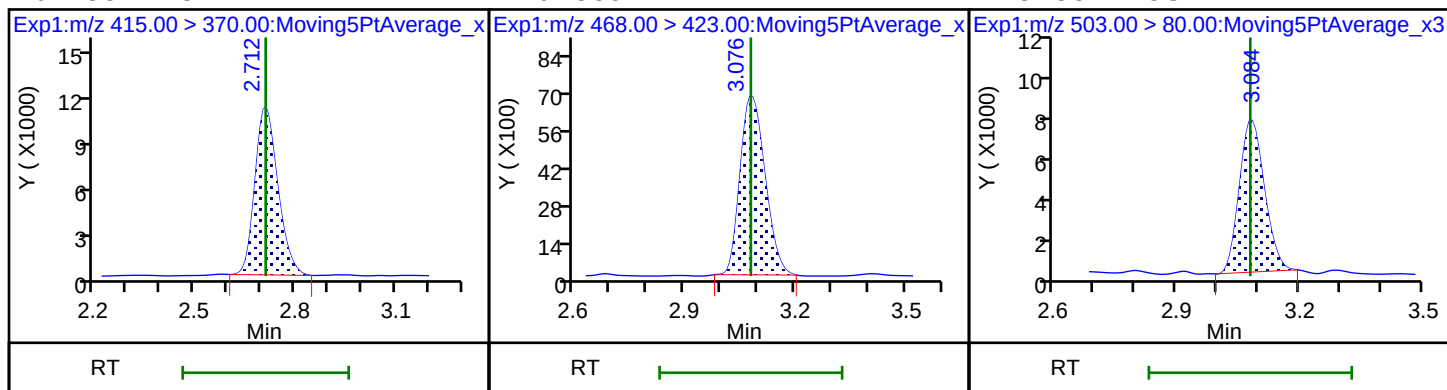
15 Perfluorooctanoic acid (M)



\* 62 13C2-PFOA

D 19 13C5 PFNA

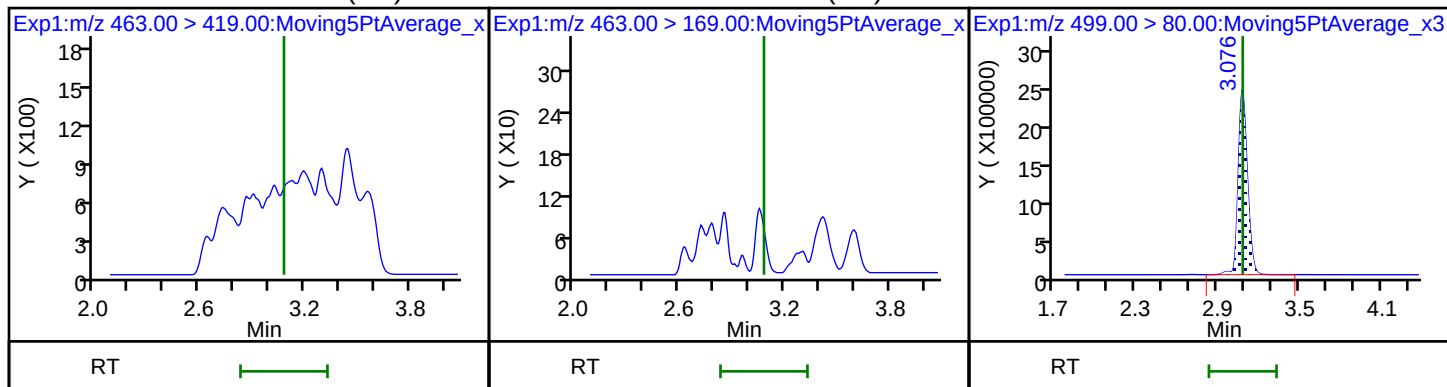
D 18 13C4 PFOS



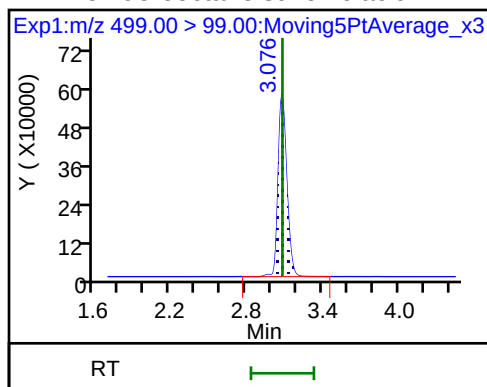
20 Perfluorononanoic acid (ND)

20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

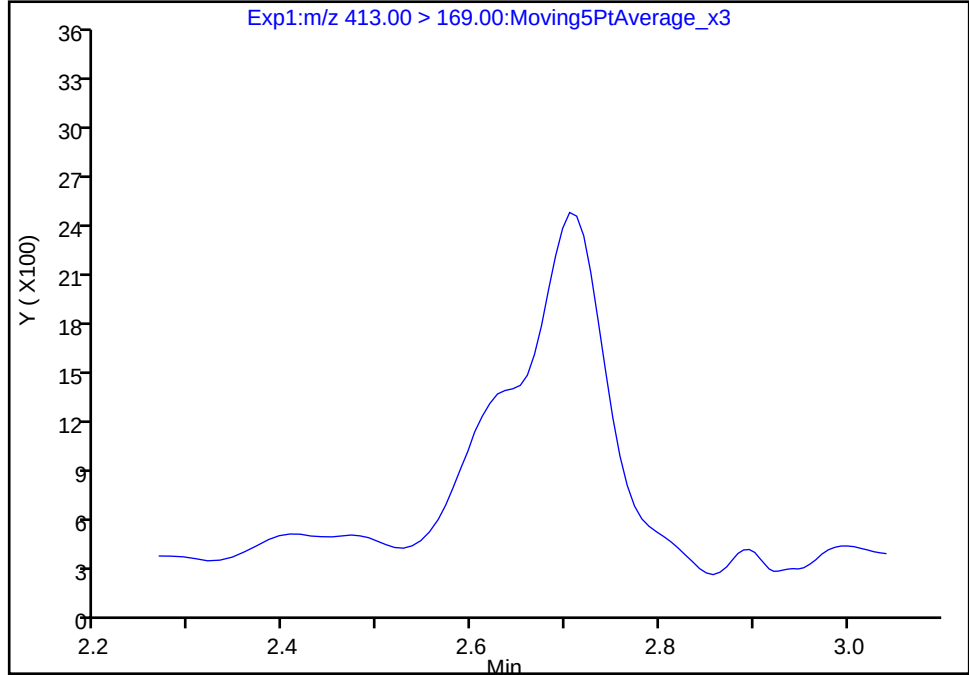
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_036.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:33:40                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-27-A                                                         | Lab Sample ID: | 320-39023-27       |                |    |
| Client ID:      | KLA04-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 27                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

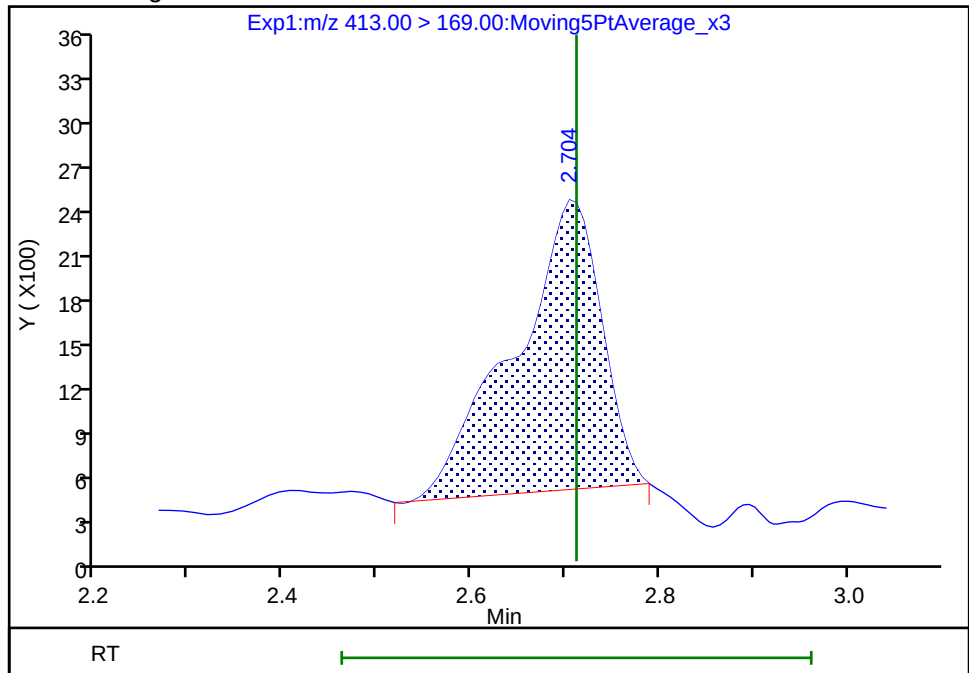
RT: 2.71  
Area: 0  
Amount: 0.013198  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 12362  
Amount: 0.013198  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:26:41

Audit Action: Manually Integrated

Audit Reason: Assign Peak



## TestAmerica Sacramento

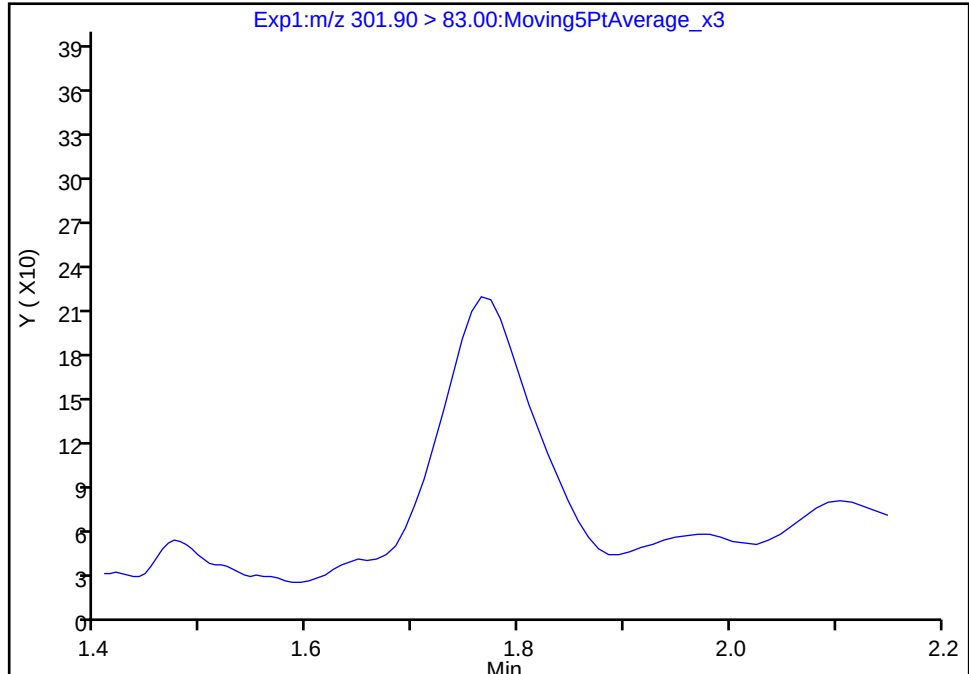
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_036.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:33:40                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-27-A                                                         | Lab Sample ID: | 320-39023-27       |                |    |
| Client ID:      | KLA04-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 27                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

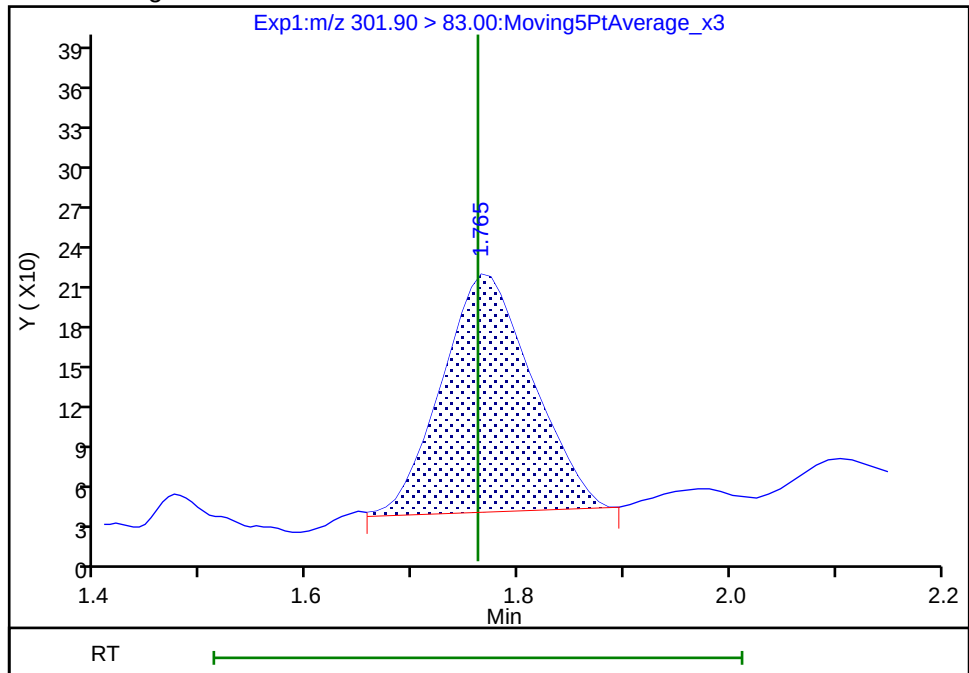
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.76  
Area: 1073  
Amount: 0.023040  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:25:01

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA04-SB1-02</u>   | Lab Sample ID: <u>320-39023-28</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_046.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 08:40</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>           | Date Analyzed: <u>05/29/2018 09:02</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.8</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 4.4    |     | 0.39 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 19     |     | 0.39 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.60   | M   | 0.39 | 0.26 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 14     |     | 0.52 | 0.24 | 0.077 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 130    | E   | 0.39 | 0.26 | 0.081 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1800   | E M | 1.3  | 0.65 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 95   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 85   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 34   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 78   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 26   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_046.d  
 Lims ID: 320-39023-A-28-A  
 Client ID: KLA04-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:02:02 ALS Bottle#: 36 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-28-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:52:08 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:52:08

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|---------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |         |       |
| 298.90 > 80.00                   | 1.770 | 1.765  | 0.005  | 1.005  | 13822901  | 5.54         |                 |      | 49312   |       |
| 298.90 > 99.00                   | 1.770 | 1.765  | 0.005  | 1.005  | 6169252   |              | 2.24(1.25-3.74) |      | 18075   |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |         |       |
| 301.90 > 83.00                   | 1.761 | 1.766  | -0.005 | 1.000  | 74290     | 2.20         |                 | 94.6 | 458     |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |         |       |
| 367.00 > 322.00                  | 2.355 | 2.347  | 0.008  | 1.000  | 3228313   | 2.11         |                 | 84.6 | 56258   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |         |       |
| 363.00 > 319.00                  | 2.355 | 2.359  | -0.004 | 1.000  | 2301271   | 1.69         |                 |      | 2393    |       |
| 363.00 > 169.00                  | 2.355 | 2.359  | -0.004 | 1.000  | 861834    |              | 2.67(1.13-3.40) |      | 3623    |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |         |       |
| 403.00 > 84.00                   | 2.369 | 2.360  | 0.009  | 1.000  | 3467137   | 1.84         |                 | 77.7 | 68124   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |         |       |
| 399.00 > 80.00                   | 2.369 | 2.372  | -0.003 | 1.000  | 82367566  | 49.9         |                 |      | 45199   | E     |
| 399.00 > 99.00                   | 2.369 | 2.372  | -0.003 | 1.000  | 34702163  |              | 2.37(1.50-4.49) |      | 57562   | E     |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 417.00 > 372.00                  | 2.711 | 2.706  | 0.005  | 1.000  | 3036046   | 2.10         |                 | 84.1 | 56237   |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |         |       |
| 413.00 > 369.00                  | 2.711 | 2.713  | -0.002 | 1.000  | 10457884  | 7.32         |                 |      | 5617    |       |
| 413.00 > 169.00                  | 2.711 | 2.713  | -0.002 | 1.000  | 6099907   |              | 1.71(0.84-2.52) |      | 3946    |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 415.00 > 370.00                  | 2.711 | 2.713  | -0.002 |        | 3813248   | 2.50         |                 |      | 49329   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |         |       |
| 499.00 > 80.00                   | 3.098 | 3.076  | 0.022  | 1.008  | 268386090 | 673.3        |                 |      | 11139   | EM    |
| 499.00 > 99.00                   | 3.075 | 3.076  | -0.001 | 1.000  | 103556768 |              | 2.59(2.31-6.93) |      | 1248630 | EM    |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |         |       |
| 503.00 > 80.00                   | 3.075 | 3.076  | -0.001 | 1.000  | 810272    | 0.6248       |                 | 26.1 | 4480    |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |         |       |
| 468.00 > 423.00                  | 3.083 | 3.076  | 0.007  | 1.000  | 1017992   | 0.8618       |                 | 34.5 | 22423   |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     | M     |
| 463.00 > 419.00           | 3.083 | 3.083     | 0.0       | 1.000     | 98776    | 0.2290          |                 |      | 114 | M     |
| 463.00 > 169.00           | 3.091 | 3.083     | 0.008     | 1.002     | 28777    |                 | 3.43(1.90-5.69) |      | 112 | M     |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_046.d

Injection Date: 29-May-2018 09:02:02

Instrument ID: A8\_N

Lims ID: 320-39023-A-28-A

Lab Sample ID: 320-39023-28

Client ID: KLA04-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

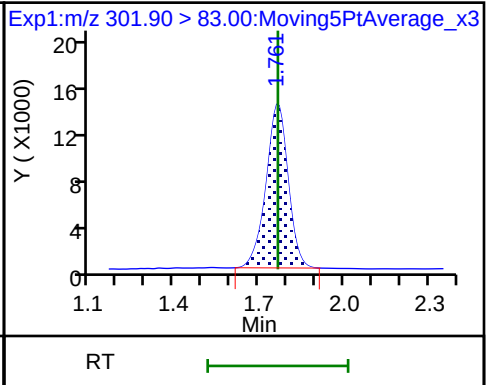
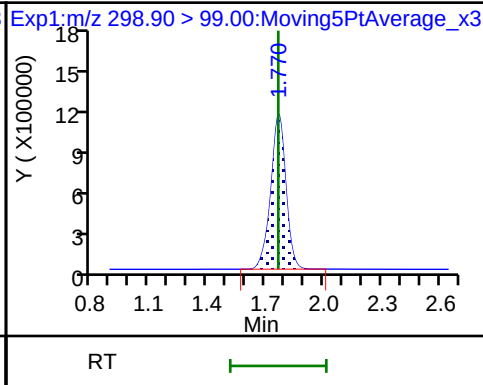
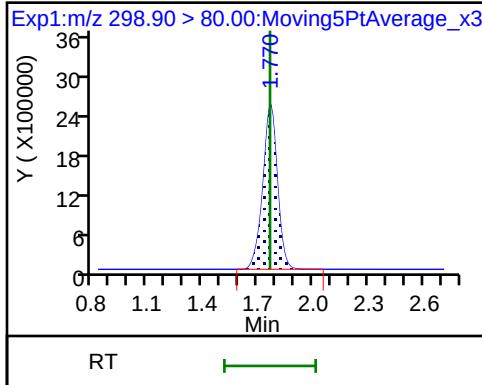
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

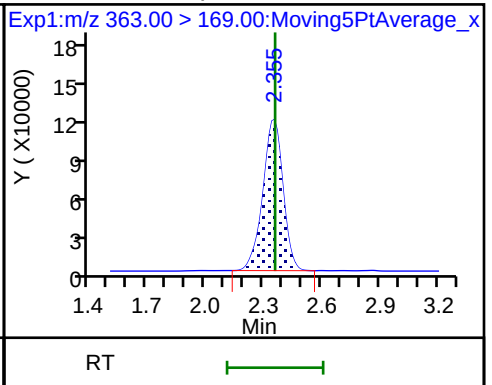
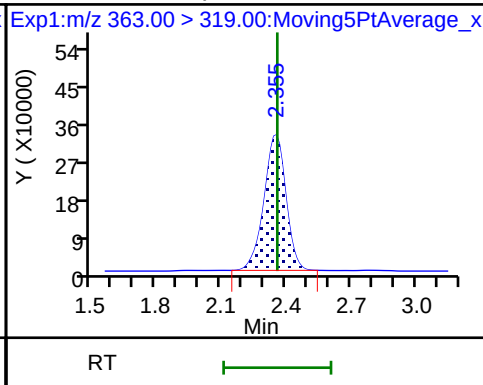
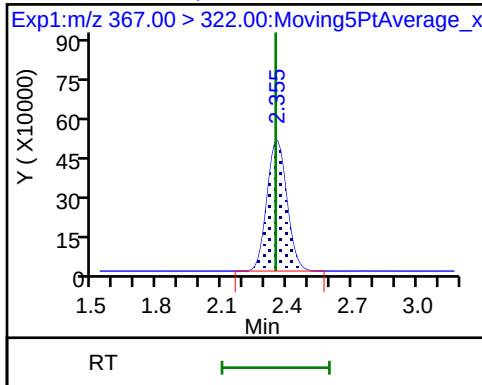
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

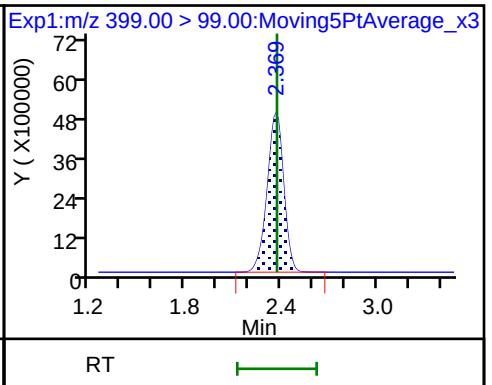
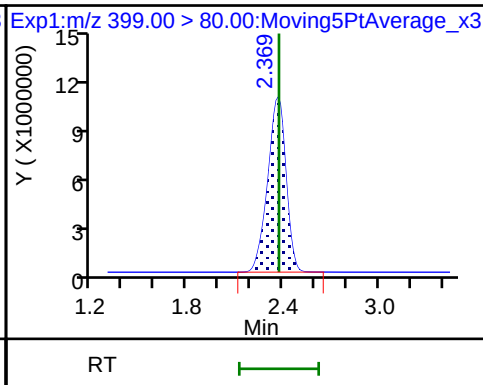
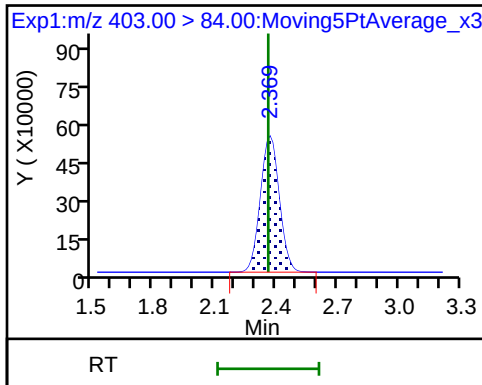
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

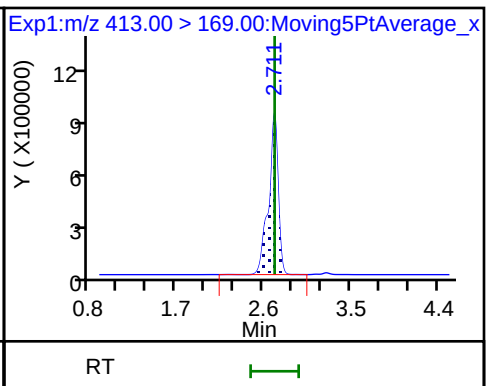
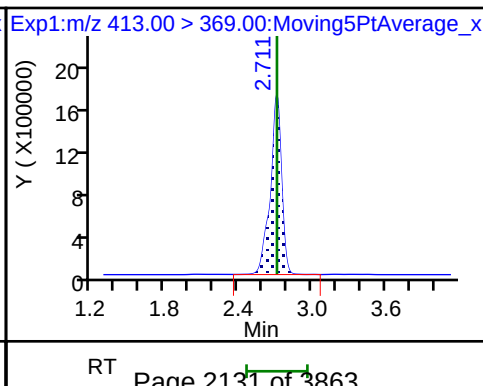
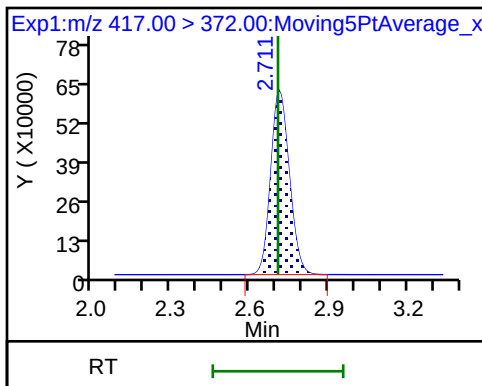
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

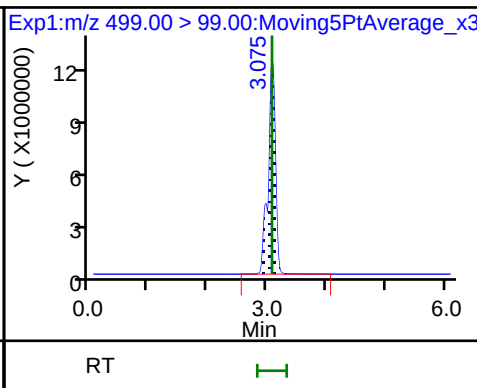
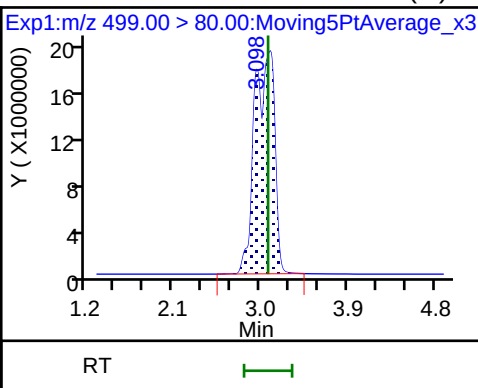
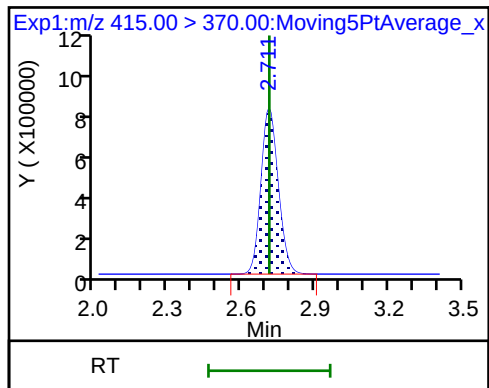
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (M)

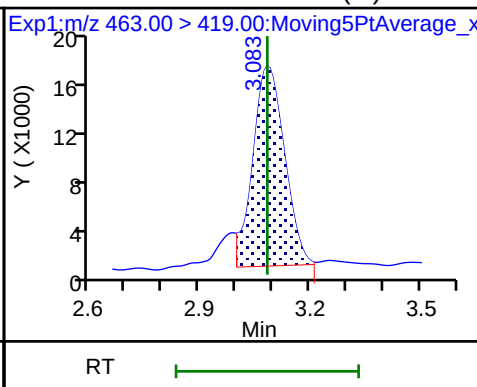
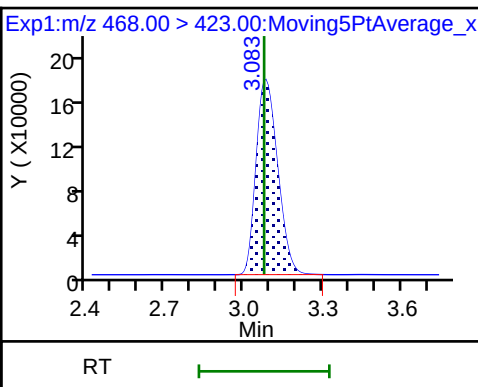
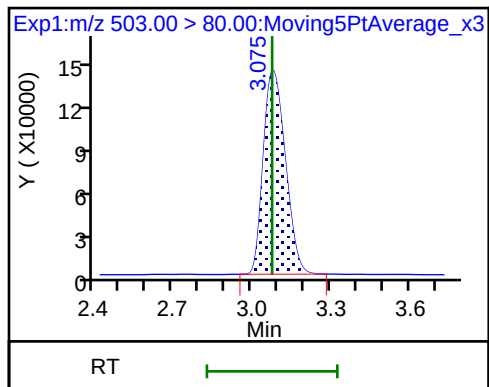
17 Perfluorooctane sulfonic acid



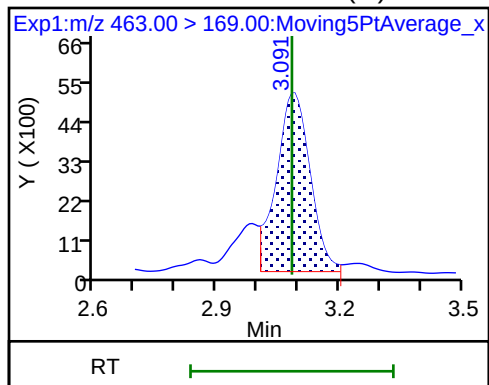
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

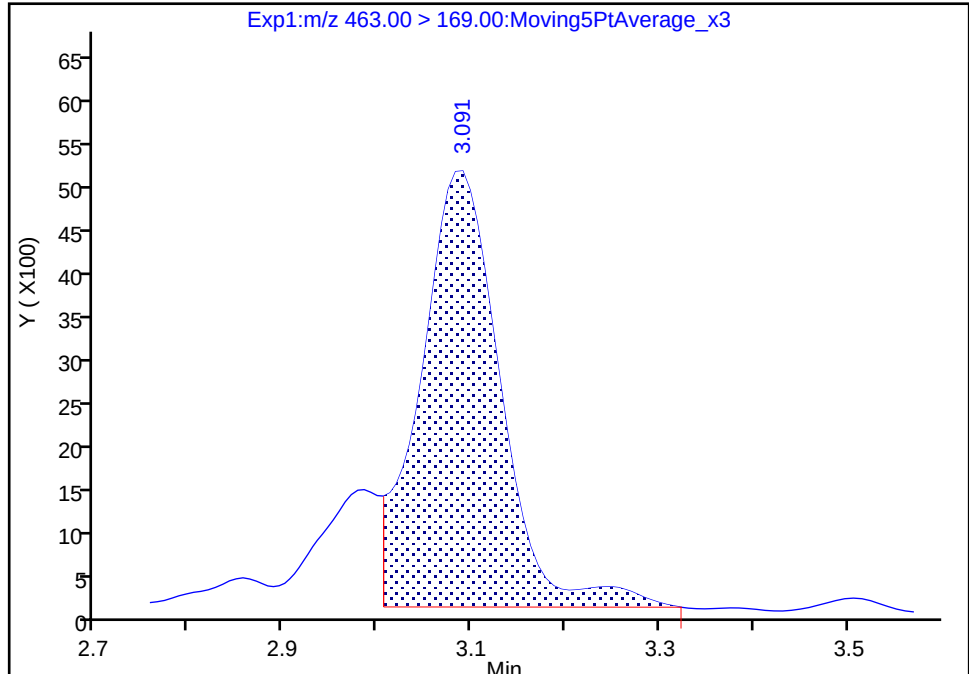
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_046.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:02:02                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-28-A                                                         | Lab Sample ID: | 320-39023-28       |                |    |
| Client ID:      | KLA04-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 36                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

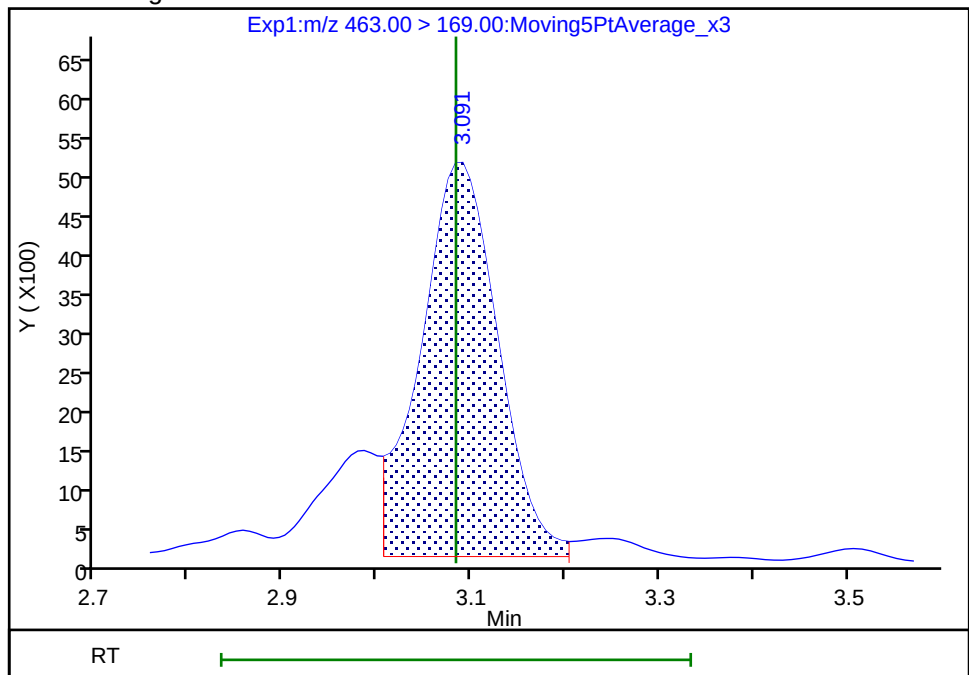
RT: 3.09  
Area: 29873  
Amount: 0.231700  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 28777  
Amount: 0.229020  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 09:51:43

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

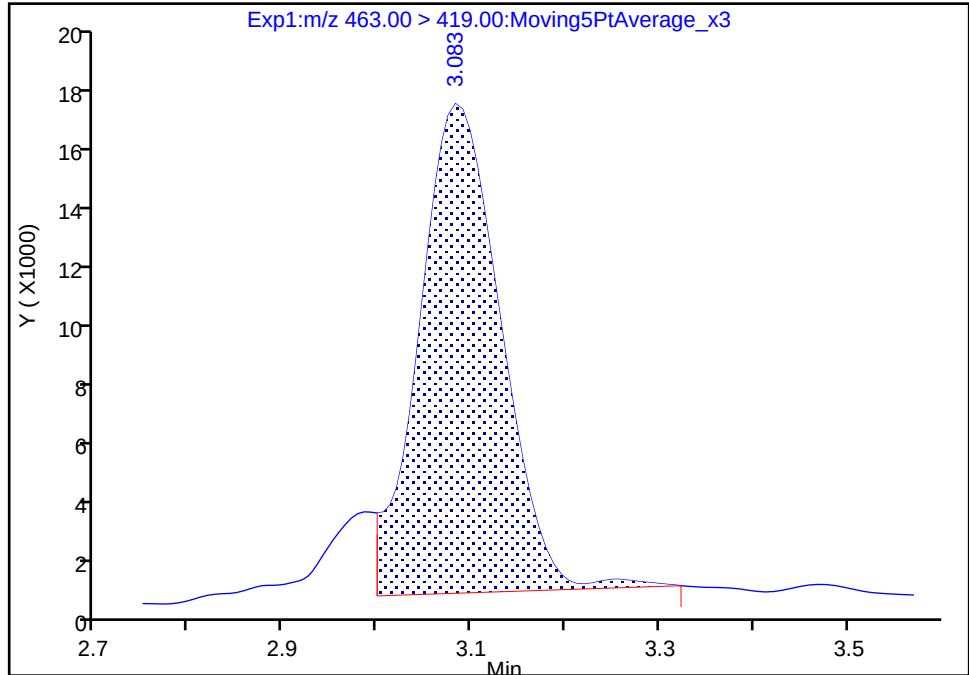
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_046.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:02:02                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-28-A                                                         | Lab Sample ID: | 320-39023-28       |                |    |
| Client ID:      | KLA04-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 36                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

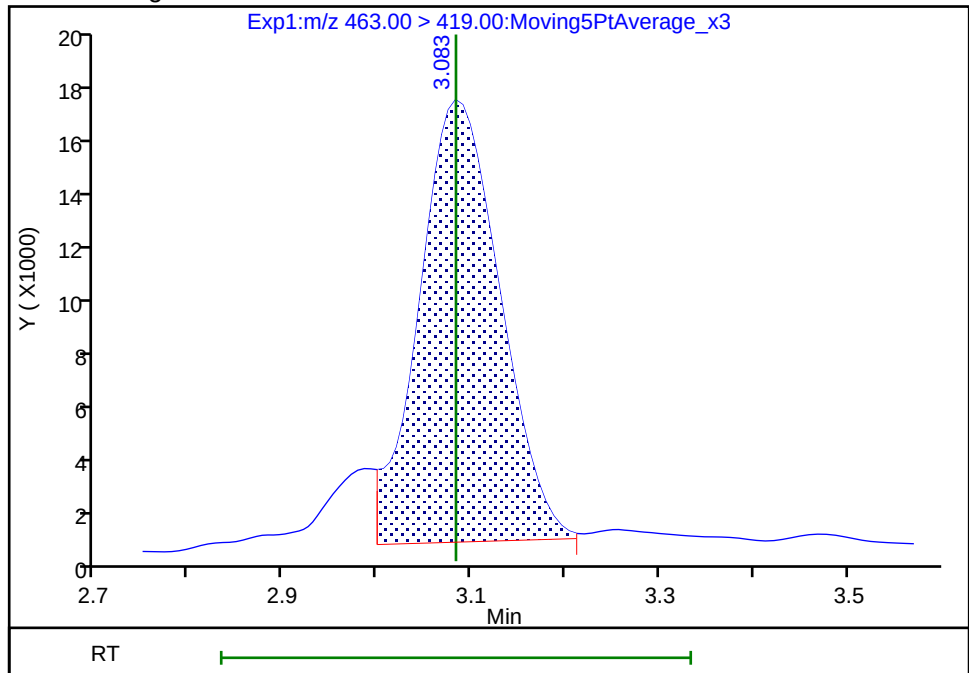
RT: 3.08  
Area: 99932  
Amount: 0.231700  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 98776  
Amount: 0.229020  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:51:49

Audit Action: Manually Integrated

Audit Reason: Split Peak



## TestAmerica Sacramento

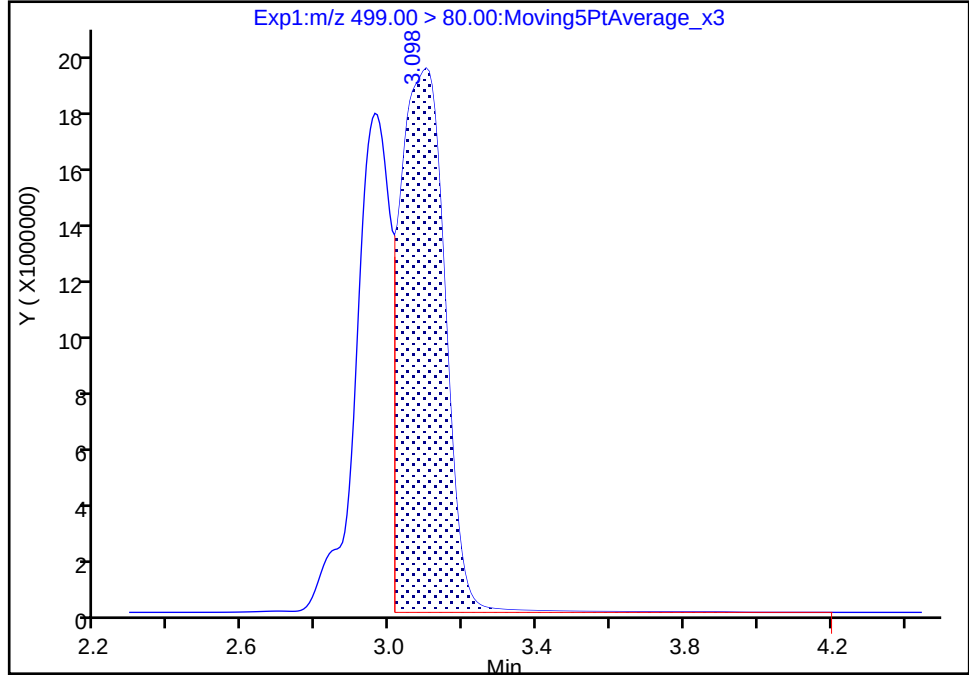
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_046.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:02:02                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-28-A                                                         | Lab Sample ID: | 320-39023-28       |                |    |
| Client ID:      | KLA04-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 36                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

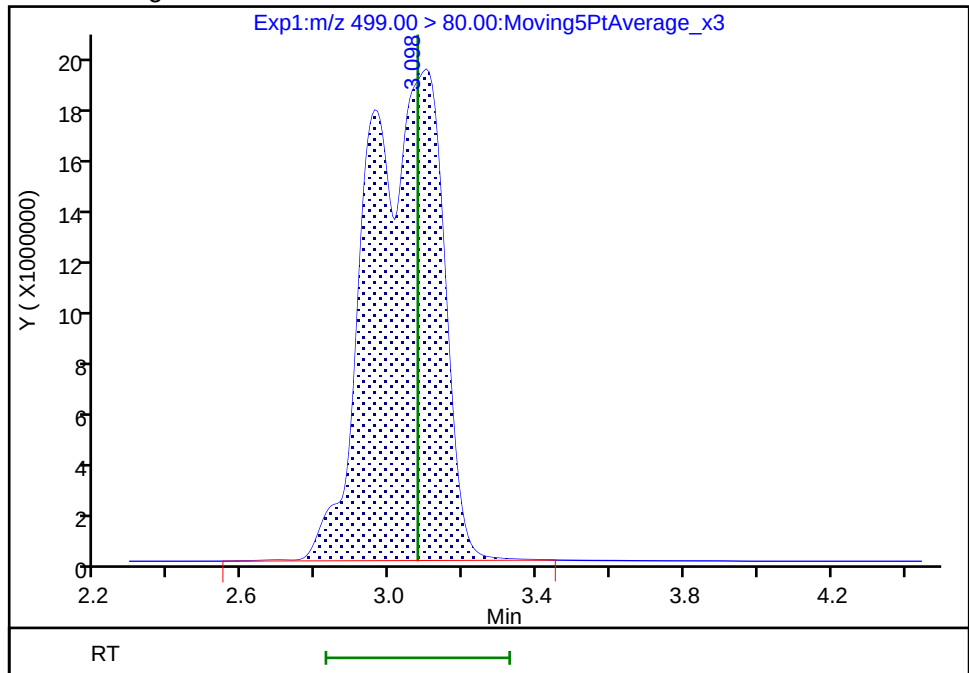
RT: 3.10  
Area: 156791627  
Amount: 393.3313  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.10  
Area: 268386090  
Amount: 673.2799  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 09:51:27

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA04-SB1-02 DL</u> | Lab Sample ID: <u>320-39023-28 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_049.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 08:40</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>            | Date Analyzed: <u>05/29/2018 17:15</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.8</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 4.0    | J D | 7.8 | 5.2 | 2.0 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 19     | D   | 7.8 | 5.2 | 2.6 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 5.2    | U   | 7.8 | 5.2 | 2.1 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 15     | D   | 10  | 4.7 | 1.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 190    | D   | 7.8 | 5.2 | 1.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 2900   | E D | 26  | 13  | 6.3 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 70   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 84   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 76   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 59   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_049.d  
 Lims ID: 320-39023-A-28-A  
 Client ID: KLA04-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 17:15:26 ALS Bottle#: 37 Worklist Smp#: 26  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-28-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 11:02:34 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 11:02:34

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |        | M     |
| 301.90 > 83.00                   | 1.764 | 1.762  | 0.002  | 1.000  | 3417     | 0.0812       |                 | 69.9 | 39.4   | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.764 | 1.765  | 0.0    | 1.000  | 643556   | 0.2804       |                 |      | 2853   |       |
| 298.90 > 99.00                   | 1.764 | 1.765  | 0.0    | 1.000  | 289653   |              | 2.22(1.25-3.74) |      | 1975   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.358 | 2.355  | 0.003  | 1.000  | 198698   | 0.1045       |                 | 83.6 | 3936   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.358 | 2.358  | 0.0    | 1.000  | 127442   | 0.0759       |                 |      | 141    |       |
| 363.00 > 169.00                  | 2.345 | 2.358  | -0.013 | 0.994  | 48136    |              | 2.65(1.13-3.40) |      | 247    |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.371 | 2.358  | 0.013  | 1.000  | 6846856  | 3.65         |                 |      | 20639  |       |
| 399.00 > 99.00                   | 2.371 | 2.358  | 0.013  | 1.000  | 2206766  |              | 3.10(1.50-4.49) |      | 7441   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.371 | 2.368  | 0.003  | 1.000  | 197045   | 0.0838       |                 | 70.9 | 6436   |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.712 | 2.711  | 0.001  | 1.000  | 187990   | 0.1045       |                 | 83.6 | 5605   |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.704 | 2.712  | -0.008 | 0.997  | 634678   | 0.3585       |                 |      | 207    |       |
| 413.00 > 169.00                  | 2.704 | 2.712  | -0.008 | 0.997  | 354655   |              | 1.79(0.84-2.52) |      | 982    |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.704 | 2.712  | -0.008 |        | 237462   | 0.1250       |                 |      | 6365   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |        | E     |
| 499.00 > 80.00                   | 3.076 | 3.079  | -0.003 | 1.000  | 61536191 | 54.6         |                 |      | 38114  | E     |
| 499.00 > 99.00                   | 3.076 | 3.079  | -0.003 | 1.000  | 17389227 |              | 3.54(2.31-6.93) |      | 120603 |       |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                  | 3.084 | 3.079  | 0.005  | 1.003  | 13300    | 0.0113       |                 |      | 37.2   |       |
| 463.00 > 169.00                  | 3.076 | 3.079  | -0.003 | 1.000  | 3008     |              | 4.42(1.90-5.69) |      | 89.2   |       |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |      |       |
| 503.00 > 80.00  | 3.076 | 3.079     | -0.003    | 1.000     | 114596   | 0.0709          |               | 59.4 | 1121 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |      |       |
| 468.00 > 423.00 | 3.076 | 3.079     | -0.003    | 1.000     | 139024   | 0.0945          |               | 75.6 | 4202 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_049.d

Injection Date: 29-May-2018 17:15:26

Instrument ID: A8\_N

Lims ID: 320-39023-A-28-A

Lab Sample ID: 320-39023-28

Client ID: KLA04-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

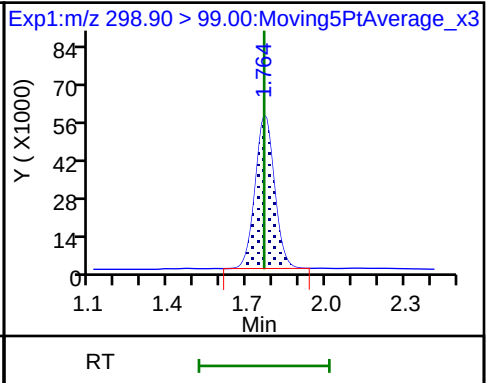
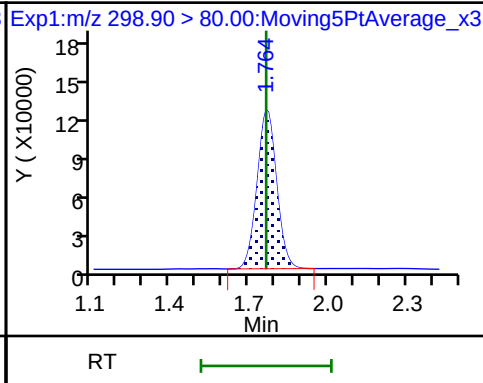
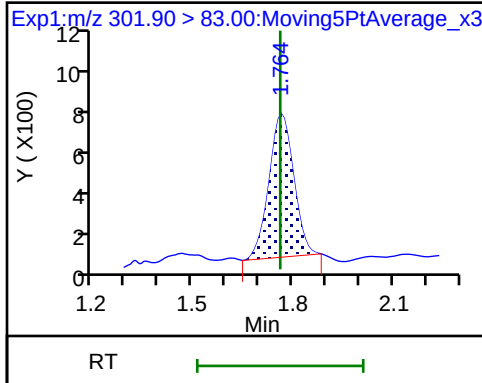
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

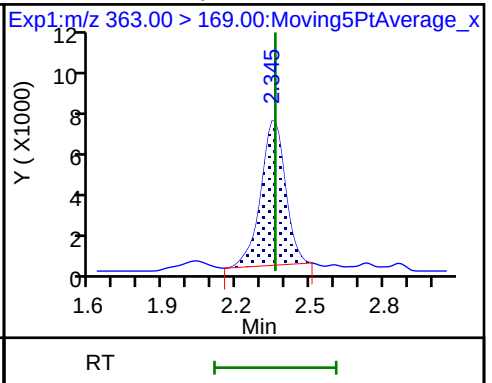
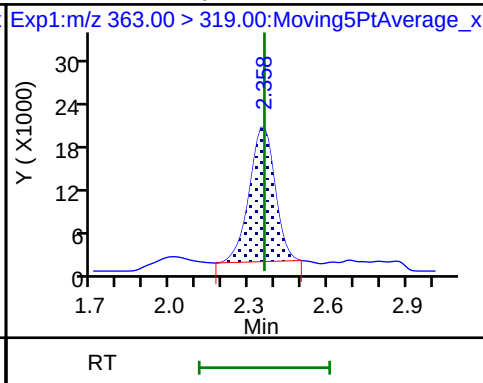
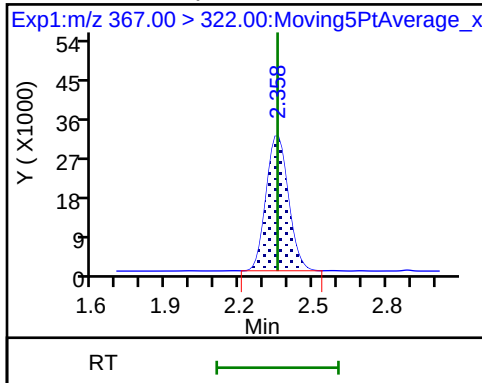
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

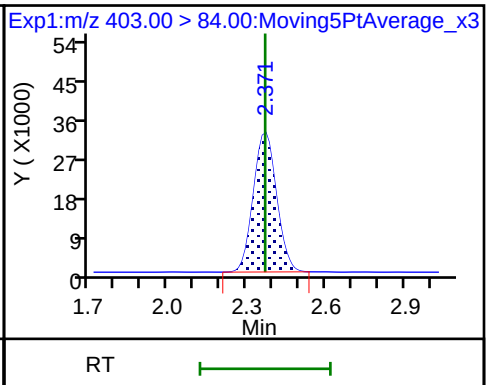
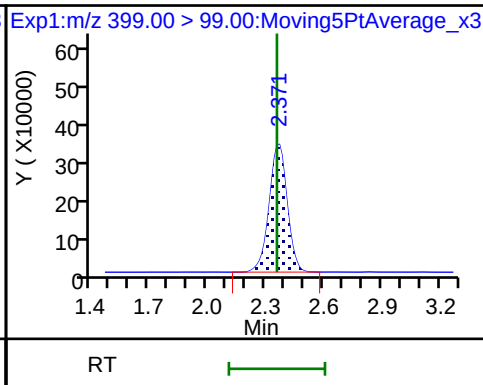
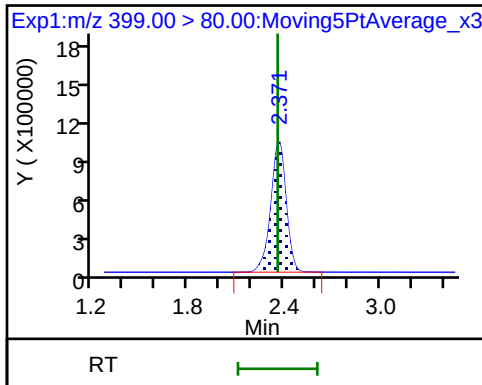
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

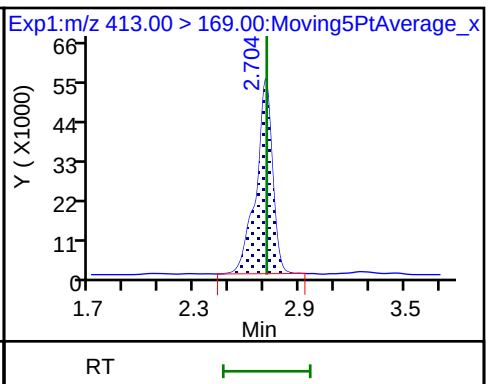
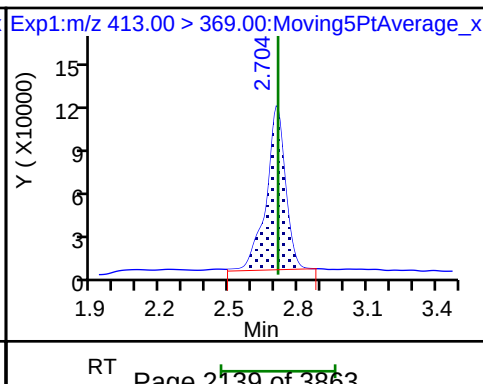
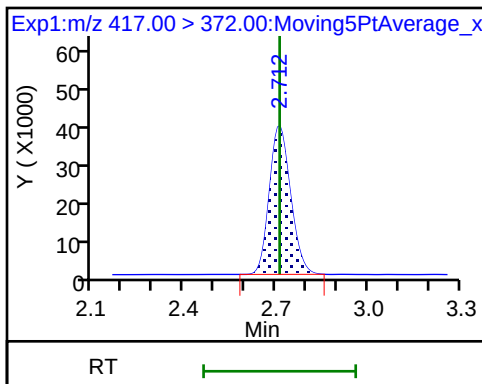
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

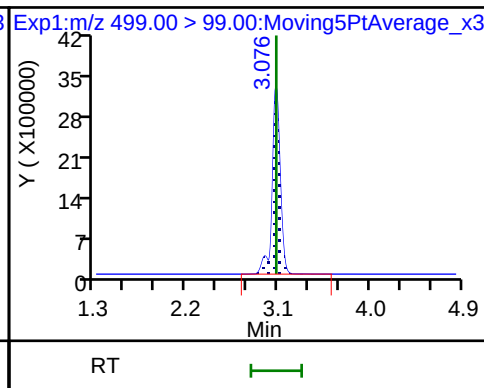
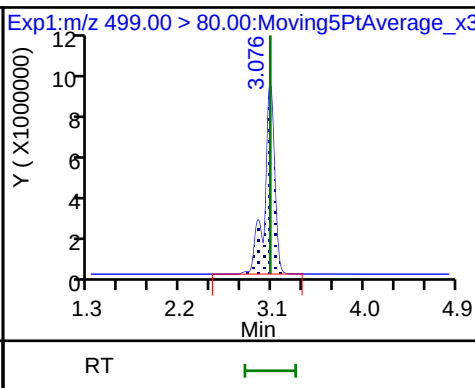
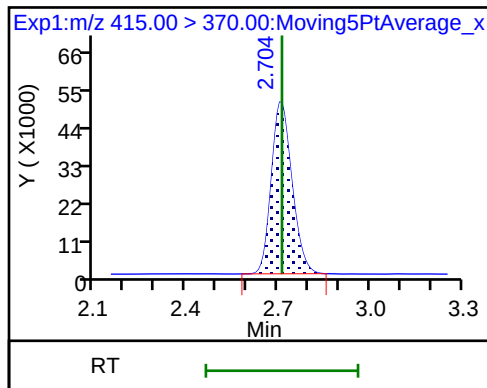
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

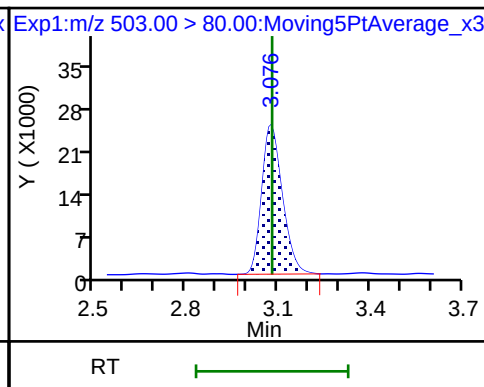
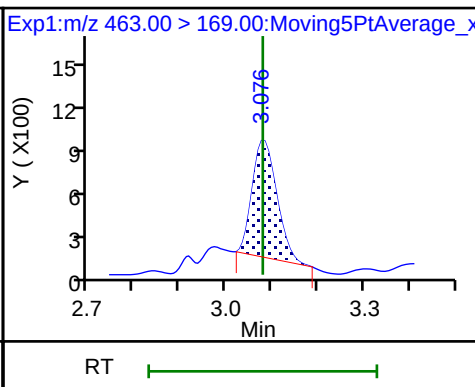
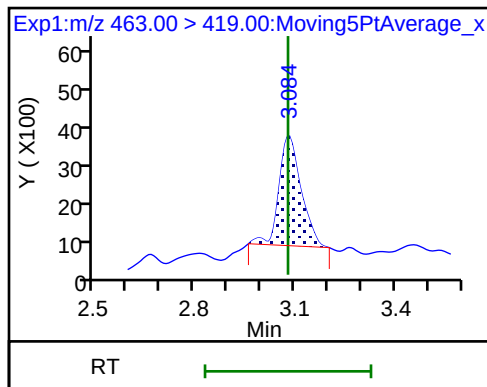
17 Perfluorooctane sulfonic acid



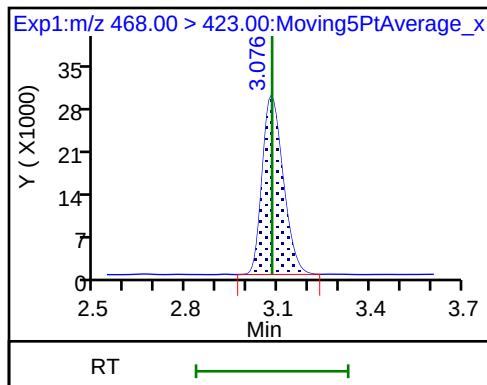
20 Perfluorononanoic acid

20 Perfluorononanoic acid

D 18 13C4 PFOS



D 19 13C5 PFNA



## TestAmerica Sacramento

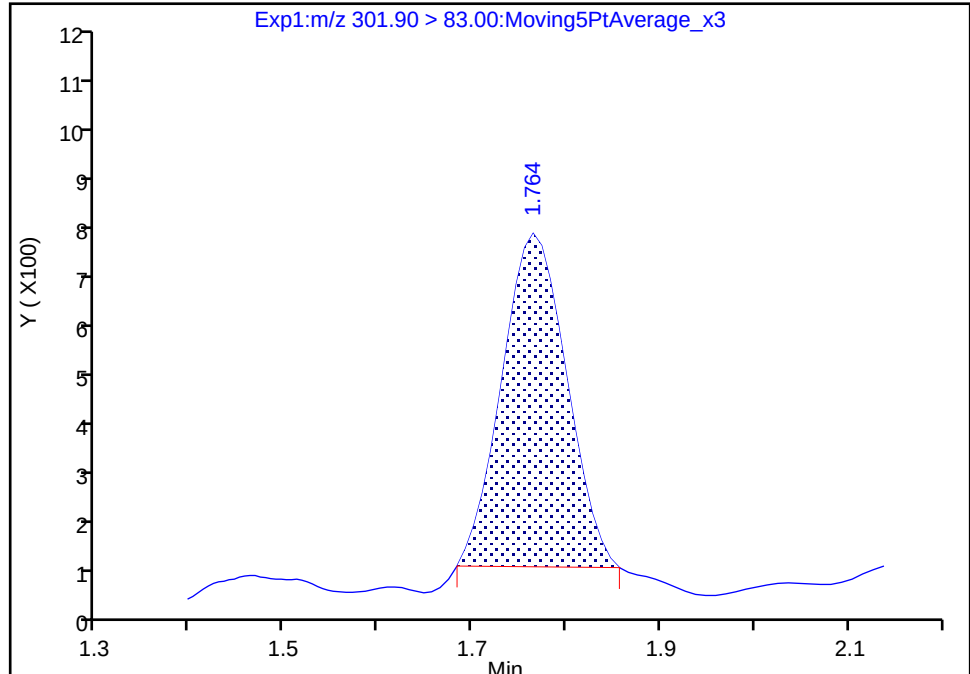
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_049.d |                |                    |                |    |
| Injection Date: | 29-May-2018 17:15:26                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-28-A                                                         | Lab Sample ID: | 320-39023-28       |                |    |
| Client ID:      | KLA04-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 37                 | Worklist Smp#: | 26 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

Signal: 1

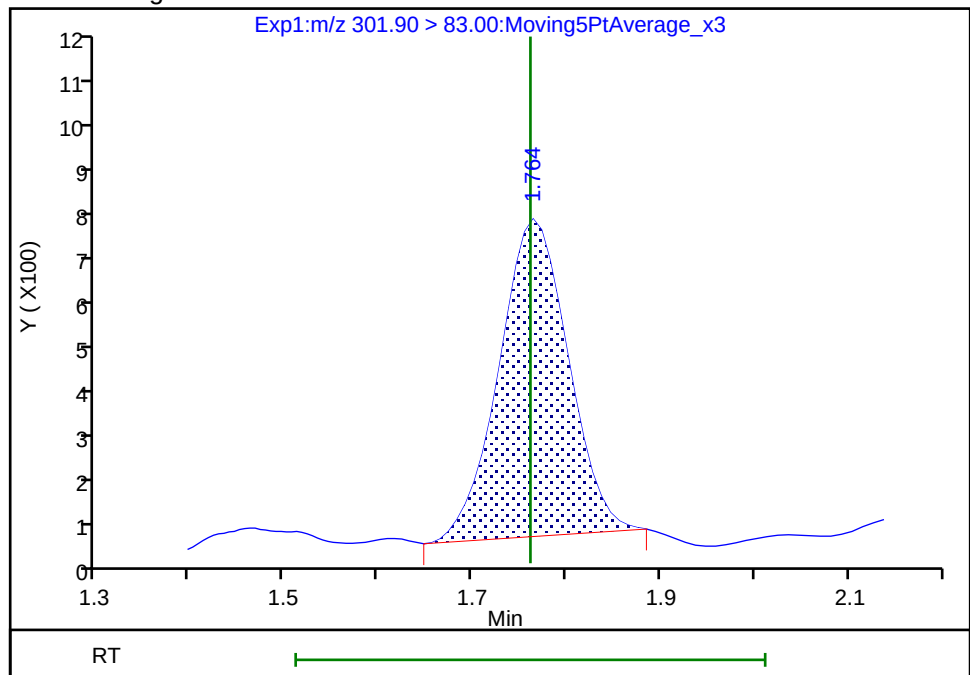
RT: 1.76  
Area: 3025  
Amount: 0.071913  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 3417  
Amount: 0.081232  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 11:02:11

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA04-SB1-02 DL2</u> | Lab Sample ID: <u>320-39023-28 DL2</u>       |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_037.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/04/2018 08:40</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>             | Date Analyzed: <u>05/29/2018 15:41</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>22.8</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q     | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 26     | U     | 39  | 26  | 10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 17     | J D   | 39  | 26  | 13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 26     | U     | 39  | 26  | 11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 10     | J D   | 52  | 24  | 7.7 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 160    | D     | 39  | 26  | 8.1 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3600   | E D M | 130 | 65  | 31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 96   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 80   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 95   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 73   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 76   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 63   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_037.d  
 Lims ID: 320-39023-A-28-A  
 Client ID: KLA04-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 15:41:31 ALS Bottle#: 28 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-28-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:27:59 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:27:59

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |       | M     |
| 301.90 > 83.00                   | 1.771 | 1.762     | 0.009     | 1.000     | 1037     | 0.0224          |                 | 96.4 | 9.2   | M     |
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 298.90 > 80.00                   | 1.771 | 1.765     | 0.006     | 1.000     | 134188   | 0.0385          |                 |      | 600   |       |
| 298.90 > 99.00                   | 1.771 | 1.765     | 0.006     | 1.000     | 58978    |                 | 2.28(1.25-3.74) |      | 449   |       |
| D 9 13C4-PFHpA                   |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.355     | 0.0       | 1.000     | 41757    | 0.0200          |                 | 79.8 | 870   |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                  | 2.355 | 2.358     | -0.003    | 1.000     | 27035    | 0.0153          |                 |      | 29.9  |       |
| 363.00 > 169.00                  | 2.355 | 2.358     | -0.003    | 1.000     | 8847     |                 | 3.06(1.13-3.40) |      | 33.5  |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.368     | 0.0       | 1.000     | 46703    | 0.0181          |                 | 76.4 | 1962  |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                   | 2.368 | 2.371     | -0.003    | 1.000     | 1389900  | 0.6246          |                 |      | 5536  |       |
| 399.00 > 99.00                   | 2.368 | 2.371     | -0.003    | 1.000     | 472557   |                 | 2.94(1.50-4.49) |      | 2039  |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                  | 2.718 | 2.711     | 0.007     | 1.000     | 46848    | 0.0237          |                 | 94.7 | 1461  |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                  | 2.718 | 2.712     | 0.006     | 1.000     | 144213   | 0.0654          |                 |      | 45.4  |       |
| 413.00 > 169.00                  | 2.711 | 2.712     | -0.001    | 0.997     | 85491    |                 | 1.69(0.84-2.52) |      | 212   |       |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                  | 2.711 | 2.712     | -0.001    |           | 52259    | 0.0250          |                 |      | 1579  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.081 | 3.079     | 0.002     | 1.000     | 29533    | 0.0182          |                 | 73.0 | 1000  |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.081 | 3.079     | 0.002     | 1.000     | 26824    | 0.0151          |                 | 63.1 | 296   |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | EM    |
| 499.00 > 80.00                   | 3.081 | 3.082     | -0.001    | 1.000     | 18069642 | 13.7            |                 |      | 26985 | EM    |
| 499.00 > 99.00                   | 3.081 | 3.082     | -0.001    | 1.000     | 4271325  |                 | 4.23(2.31-6.93) |      | 37012 |       |

## QC Flag Legend

### Processing Flags

E - Exceeded Maximum Amount

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_037.d

Injection Date: 29-May-2018 15:41:31

Instrument ID: A8\_N

Lims ID: 320-39023-A-28-A

Lab Sample ID: 320-39023-28

Client ID: KLA04-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

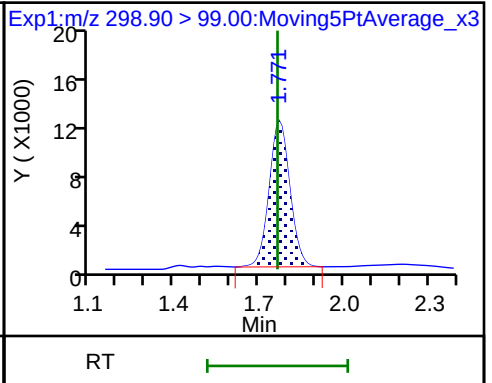
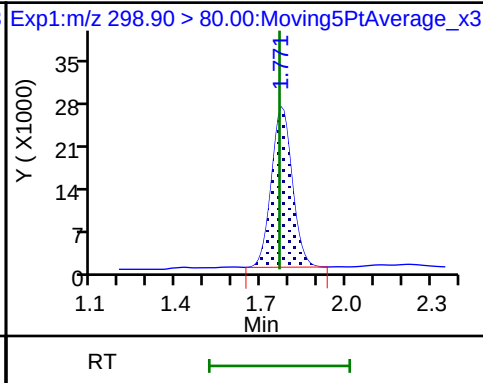
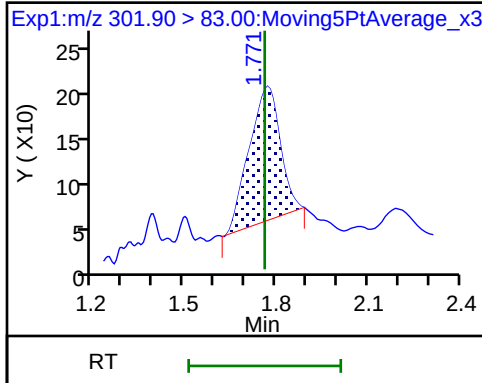
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

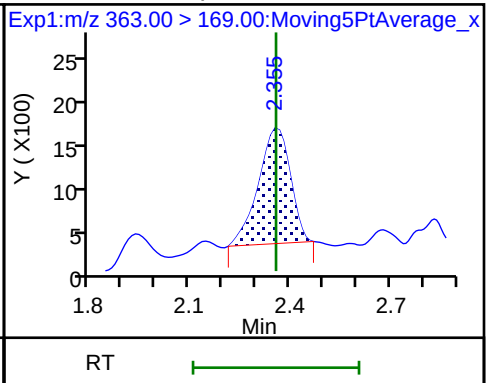
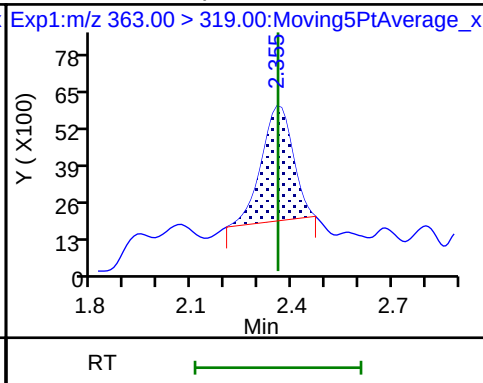
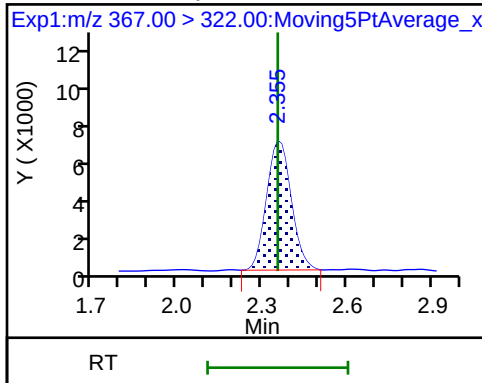
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpa

## 10 Perfluoroheptanoic acid

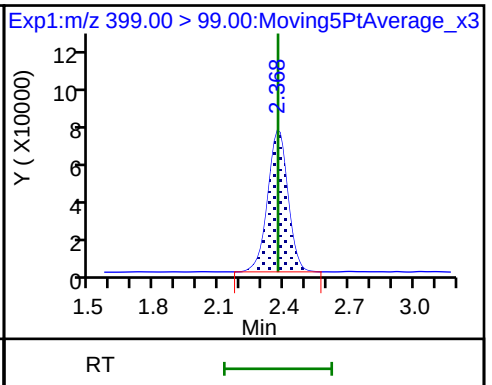
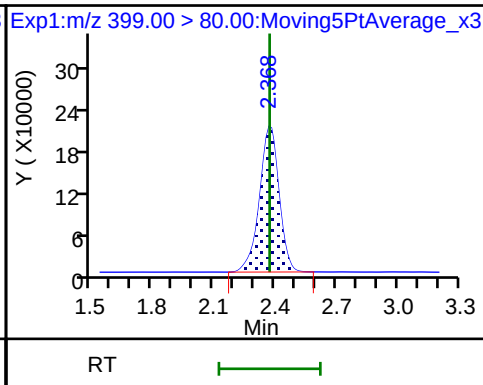
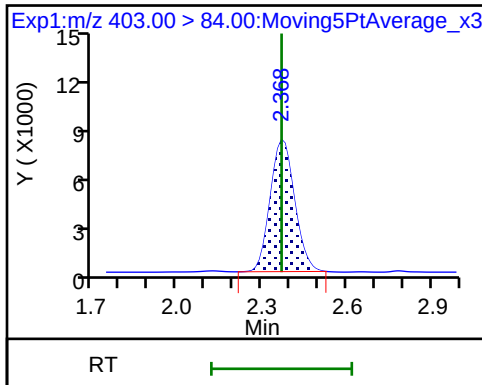
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

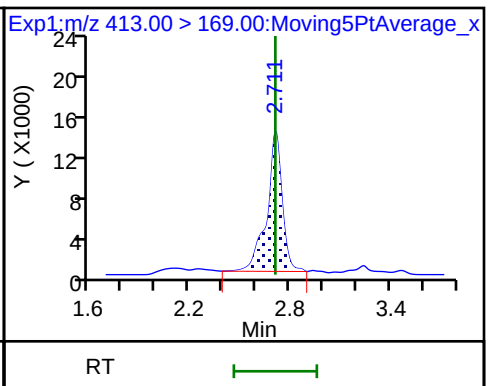
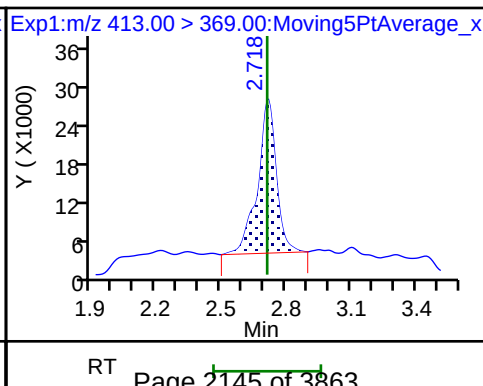
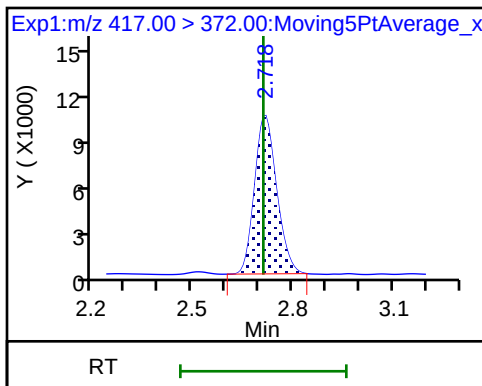
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

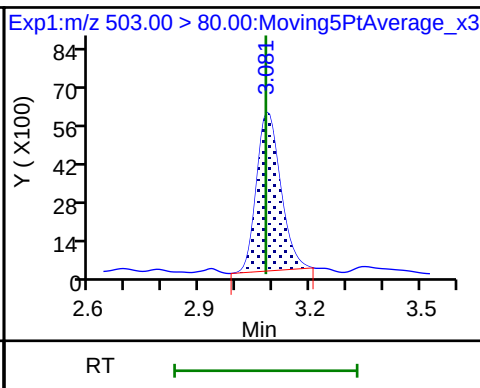
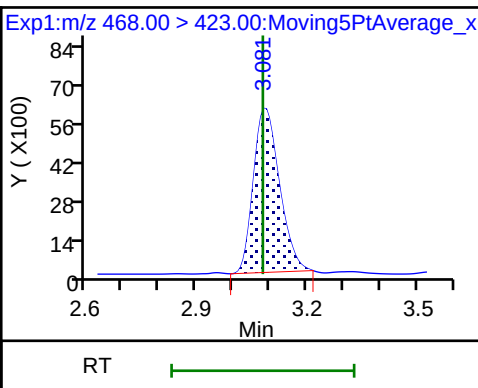
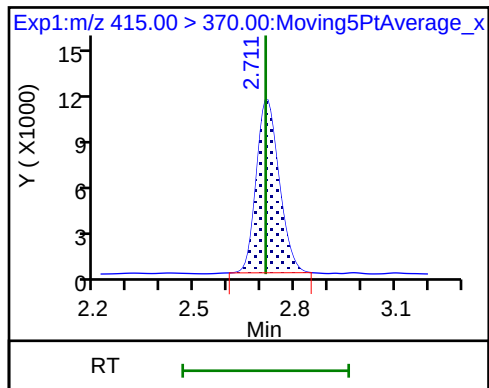
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

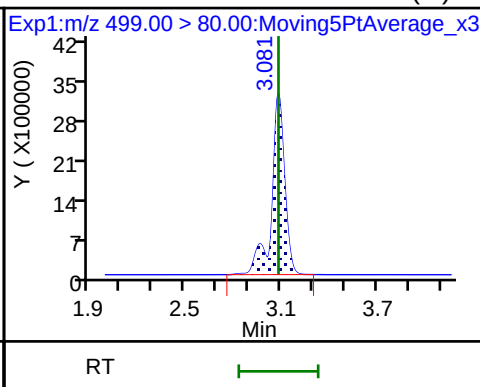
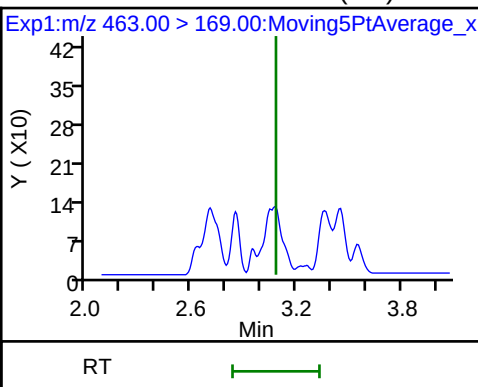
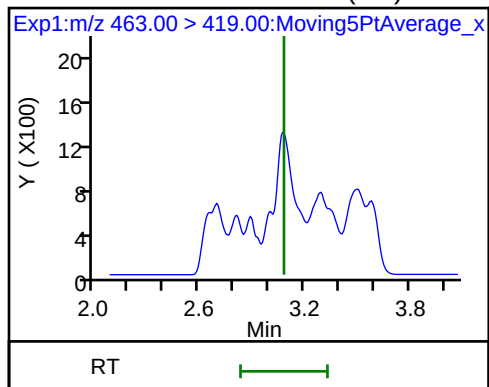
D 18 13C4 PFOS



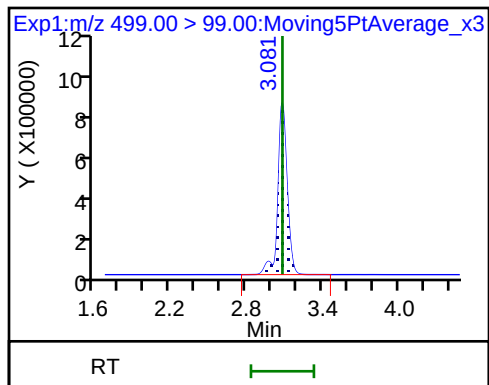
20 Perfluorononanoic acid (ND)

20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

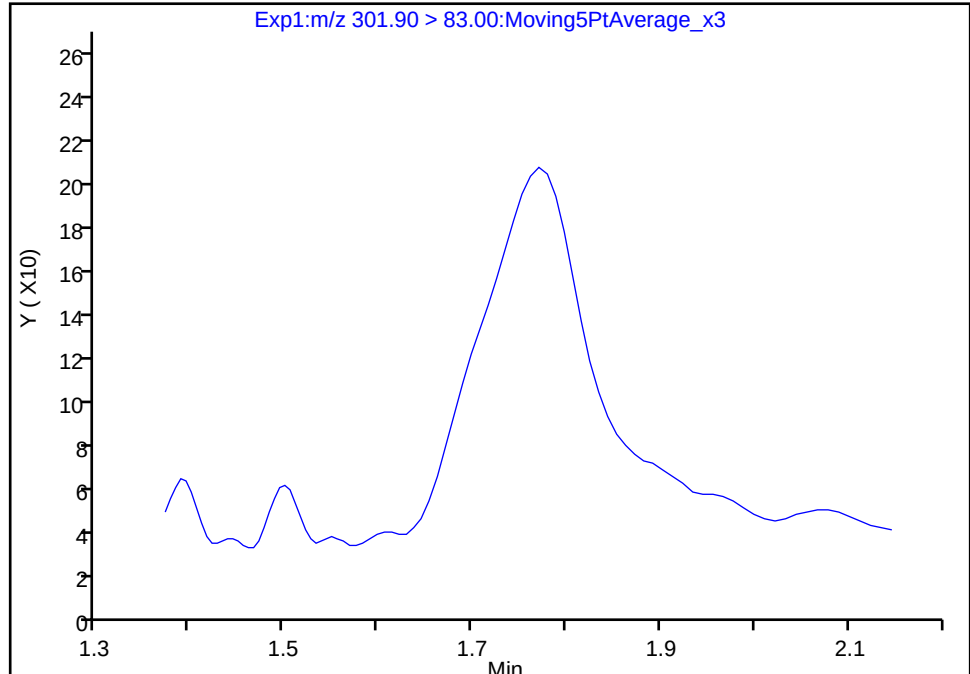
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_037.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:41:31                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-28-A                                                         | Lab Sample ID: | 320-39023-28       |                |    |
| Client ID:      | KLA04-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 28                 | Worklist Smp#: | 14 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

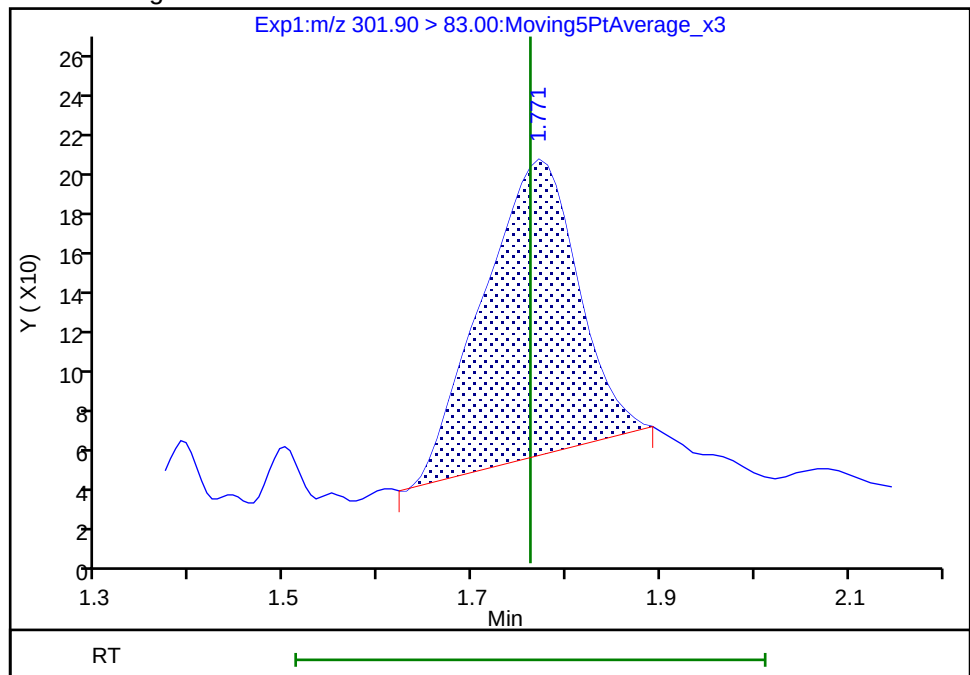
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 1037  
Amount: 0.022404  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:27:21

Audit Action: Manually Integrated

Audit Reason: Assign Peak

## TestAmerica Sacramento

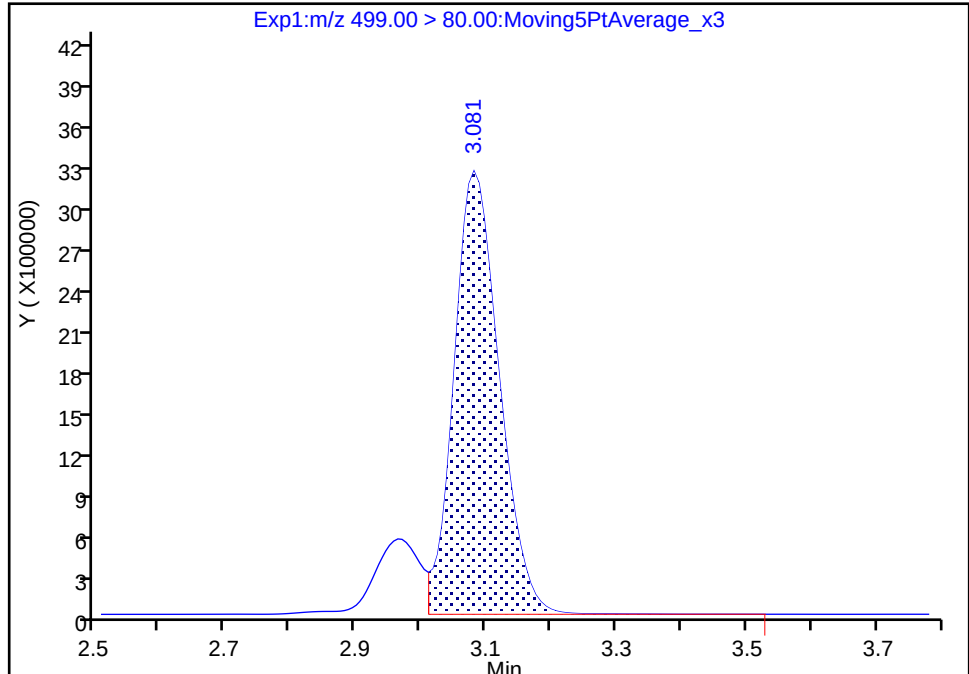
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_037.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:41:31                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-28-A                                                         | Lab Sample ID: | 320-39023-28       |                |    |
| Client ID:      | KLA04-SB1-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 28                 | Worklist Smp#: | 14 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

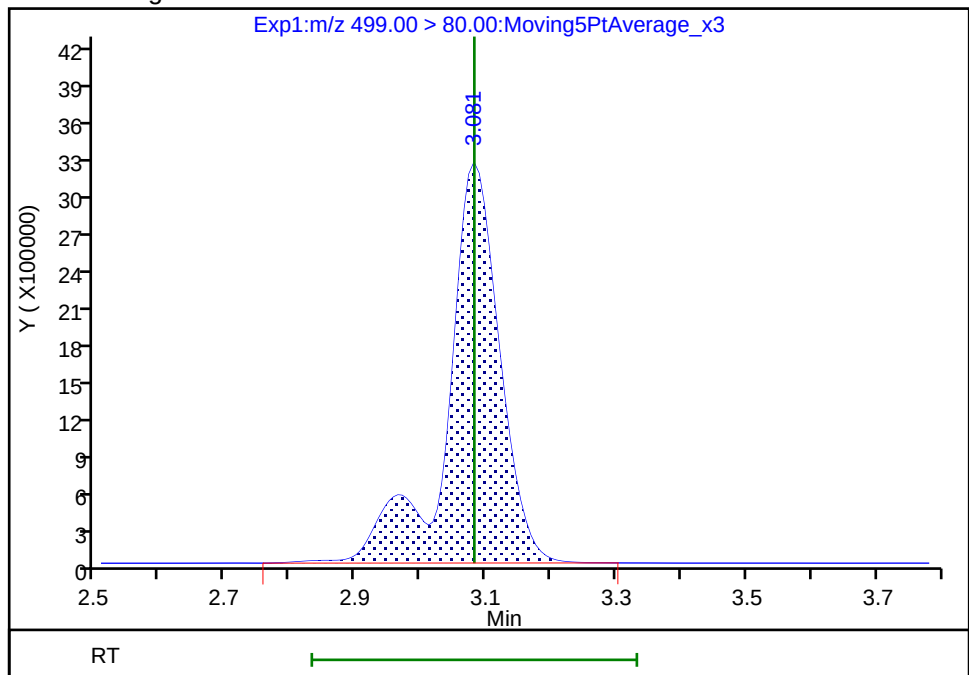
RT: 3.08  
Area: 15479360  
Amount: 11.729943  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 18069642  
Amount: 13.692806  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:27:53

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA04-SB2-01</u>   | Lab Sample ID: <u>320-39023-29</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_047.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 08:20</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>           | Date Analyzed: <u>05/29/2018 09:09</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.1</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 14     |   | 0.38 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 27     | E | 0.38 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.6    | M | 0.38 | 0.26 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 24     | E | 0.51 | 0.23 | 0.075 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 140    | E | 0.38 | 0.26 | 0.079 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 2600   | E | 1.3  | 0.64 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 96   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 88   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 83   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 25   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 86   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 18   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_047.d  
 Lims ID: 320-39023-A-29-A  
 Client ID: KLA04-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:09:52 ALS Bottle#: 37 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-29-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:53:20 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:53:20

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.775 | 1.765  | 0.010  | 1.005  | 21101469  | 9.29         |                 |      | 45408  | E     |
| 298.90 > 99.00                   | 1.775 | 1.765  | 0.010  | 1.005  | 9597923   |              | 2.20(1.25-3.74) |      | 6477   | E     |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.766 | 1.766  | 0.0    | 1.000  | 67656     | 2.23         |                 | 95.8 | 238    |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.360 | 2.347  | 0.013  | 1.000  | 3035502   | 2.21         |                 | 88.4 | 78924  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.360 | 2.359  | 0.001  | 1.000  | 7117516   | 5.55         |                 |      | 4676   |       |
| 363.00 > 169.00                  | 2.360 | 2.359  | 0.001  | 1.000  | 2713081   |              | 2.62(1.13-3.40) |      | 10334  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.373 | 2.360  | 0.013  | 1.000  | 3434924   | 2.02         |                 | 85.6 | 68752  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.373 | 2.372  | 0.001  | 1.000  | 90398688  | 55.2         |                 |      | 32668  | E     |
| 399.00 > 99.00                   | 2.373 | 2.372  | 0.001  | 1.000  | 37727836  |              | 2.40(1.50-4.49) |      | 37050  | E     |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.721 | 2.706  | 0.015  | 1.000  | 2702031   | 2.08         |                 | 83.2 | 49578  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.714 | 2.713  | 0.001  | 0.997  | 13279012  | 10.4         |                 |      | 5604   | E     |
| 413.00 > 169.00                  | 2.714 | 2.713  | 0.001  | 0.997  | 7742405   |              | 1.72(0.84-2.52) |      | 1196   | E     |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.721 | 2.713  | 0.008  |        | 3428795   | 2.50         |                 |      | 62277  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |        |       |
| 499.00 > 80.00                   | 3.122 | 3.076  | 0.046  | 1.013  | 250427021 | 1006.1       |                 |      | 8809   | E     |
| 499.00 > 99.00                   | 3.083 | 3.076  | 0.006  | 1.000  | 120673105 |              | 2.08(2.31-6.93) |      | 312152 | E     |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |        |       |
| 503.00 > 80.00                   | 3.083 | 3.076  | 0.006  | 1.000  | 505973    | 0.4339       |                 | 18.2 | 1795   |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |        |       |
| 468.00 > 423.00                  | 3.083 | 3.076  | 0.006  | 1.000  | 666022    | 0.6270       |                 | 25.1 | 9059   |       |



| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | M     |
| 463.00 > 419.00           | 3.083 | 3.083     | -0.001    | 1.000     | 173119   | 0.6135          |                 |      | 106  | M     |
| 463.00 > 169.00           | 3.083 | 3.083     | -0.001    | 1.000     | 38792    |                 | 4.46(1.90-5.69) |      | 82.3 | M     |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_047.d

Injection Date: 29-May-2018 09:09:52

Instrument ID: A8\_N

Lims ID: 320-39023-A-29-A

Lab Sample ID: 320-39023-29

Client ID: KLA04-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

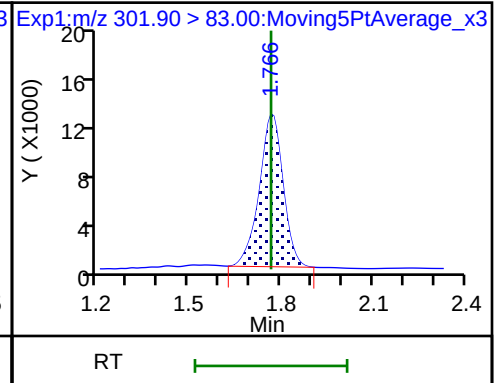
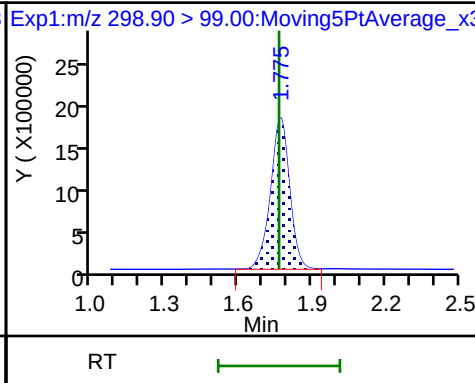
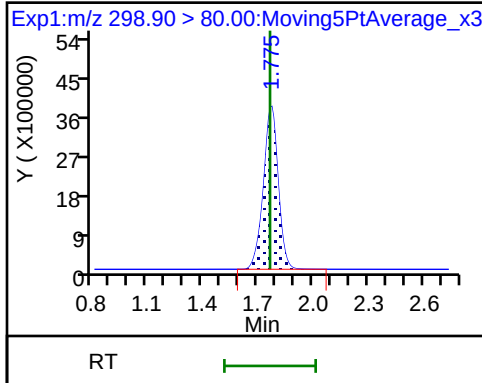
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

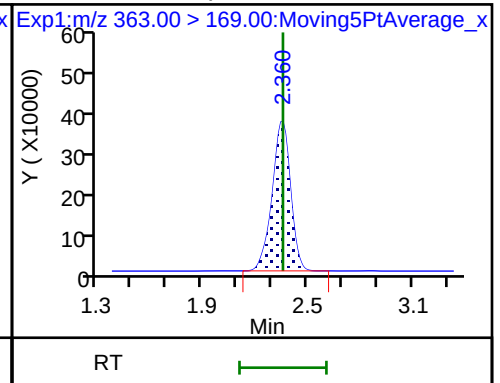
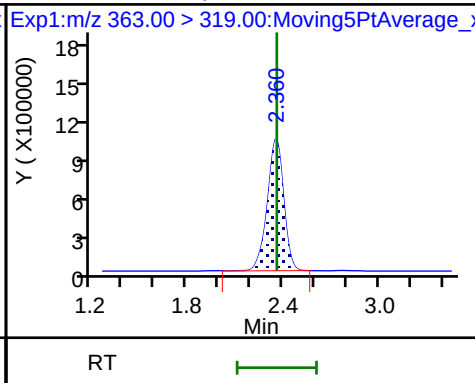
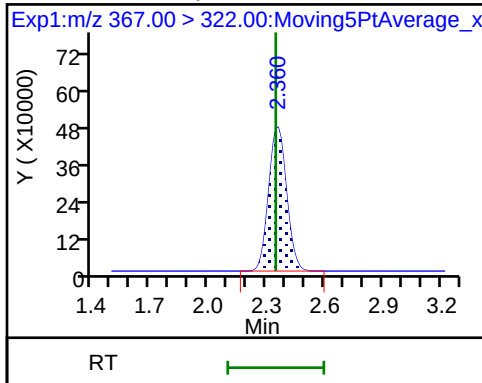
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

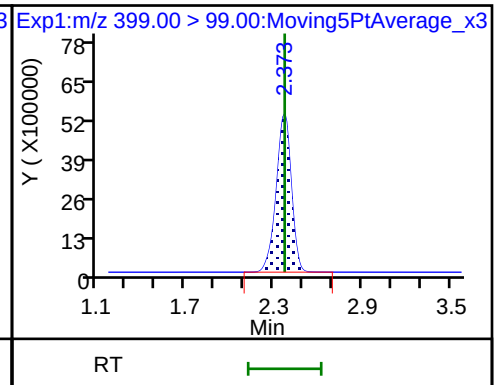
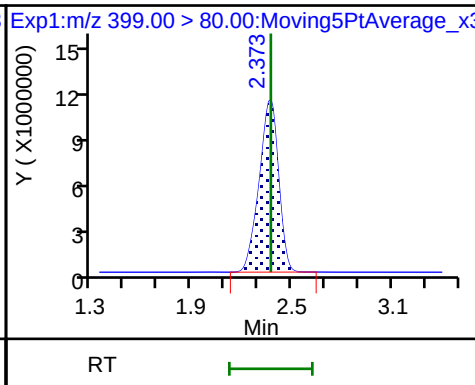
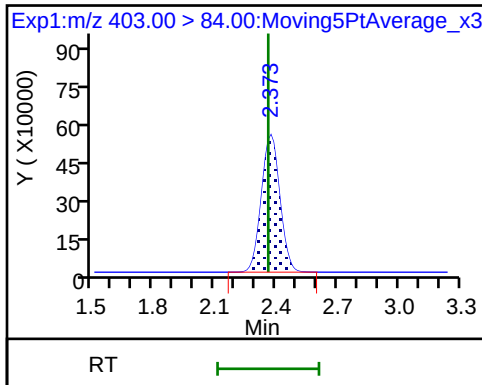
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

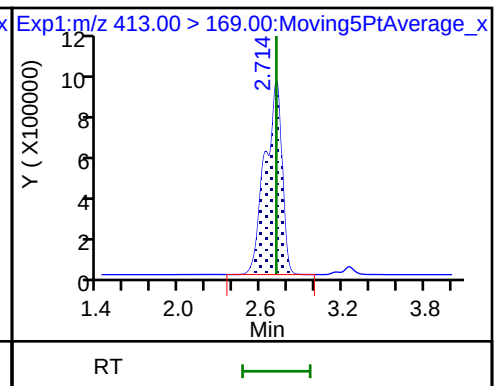
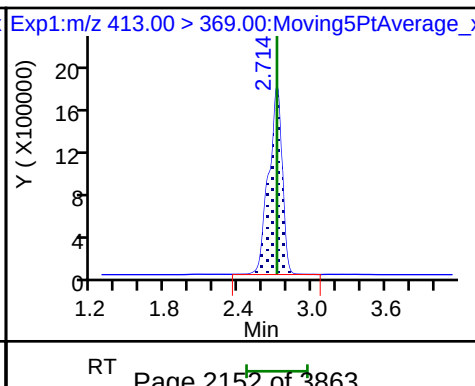
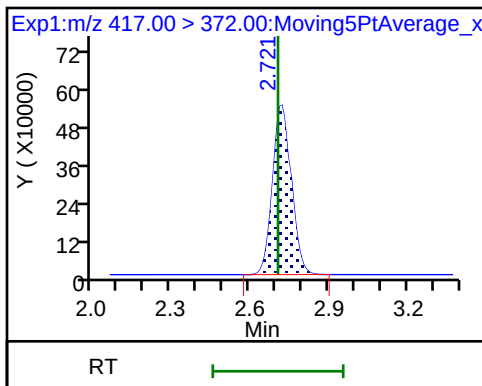
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

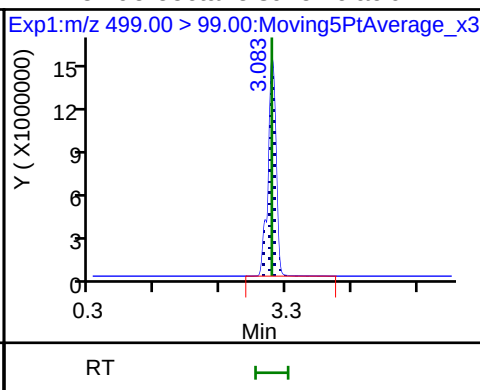
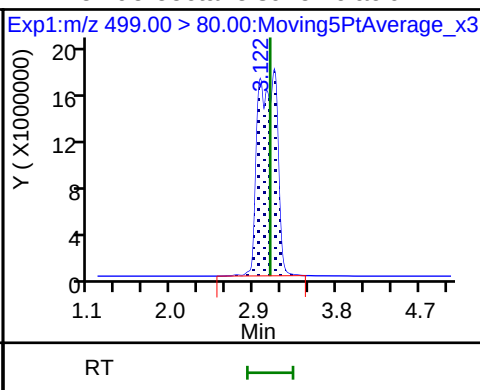
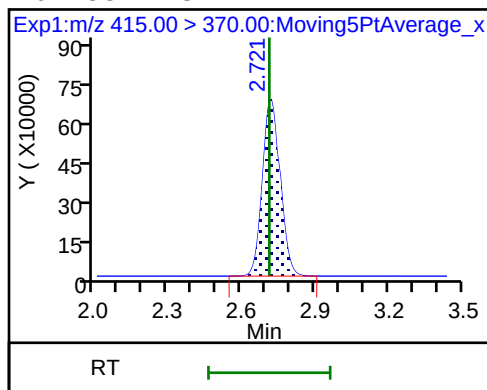
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

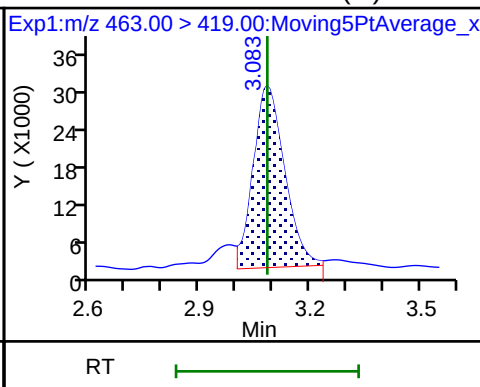
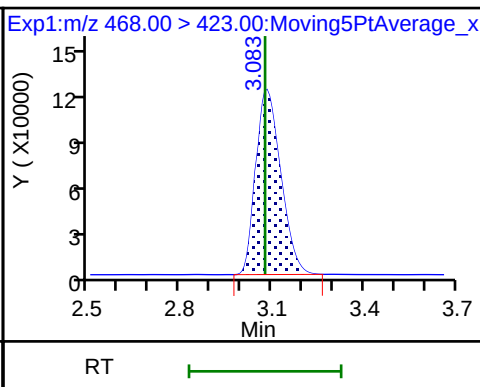
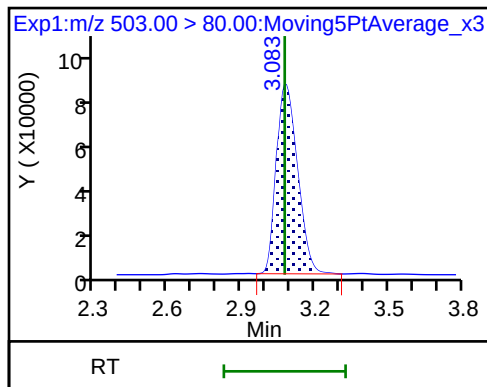
17 Perfluorooctane sulfonic acid



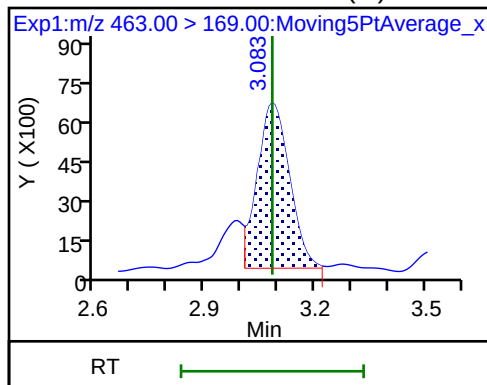
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

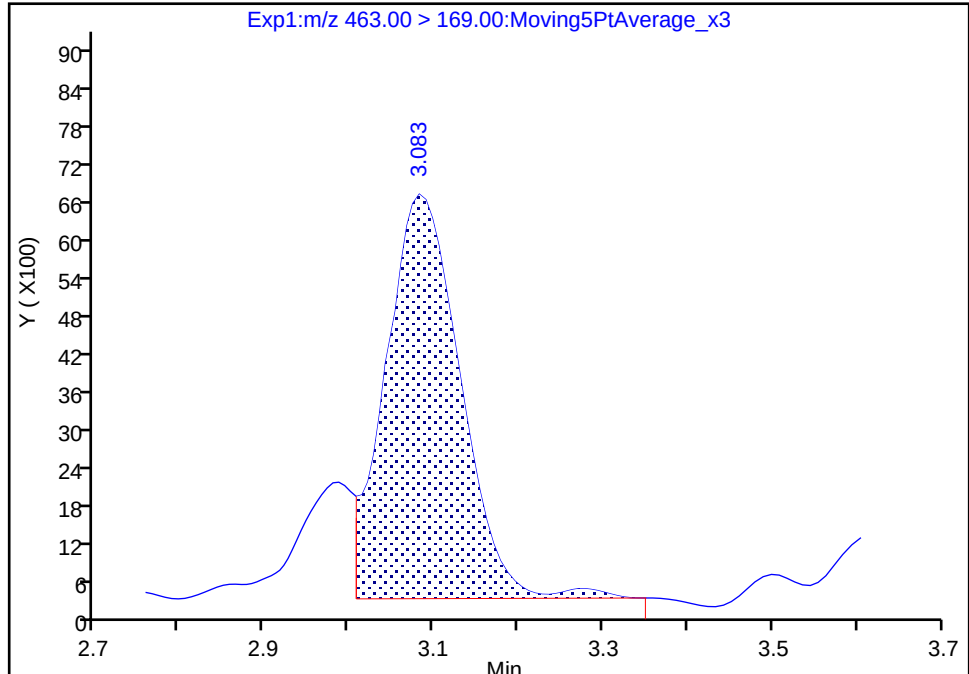
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_047.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:09:52                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-29-A                                                         | Lab Sample ID: | 320-39023-29       |                |    |
| Client ID:      | KLA04-SB2-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 37                 | Worklist Smp#: | 17 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

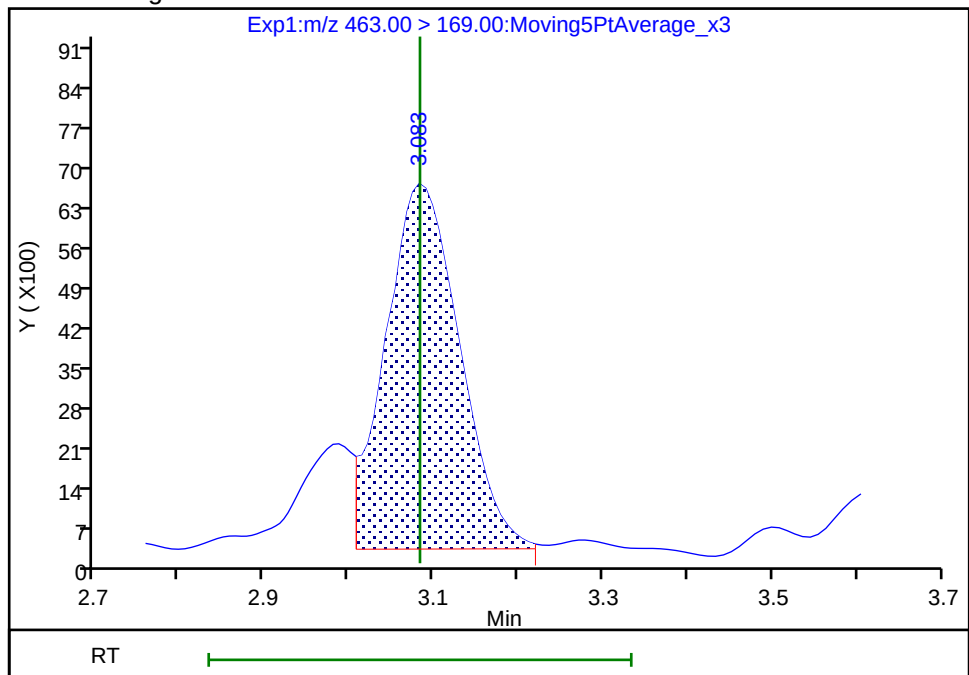
RT: 3.08  
Area: 39386  
Amount: 0.625517  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 38792  
Amount: 0.613511  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:52:36

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

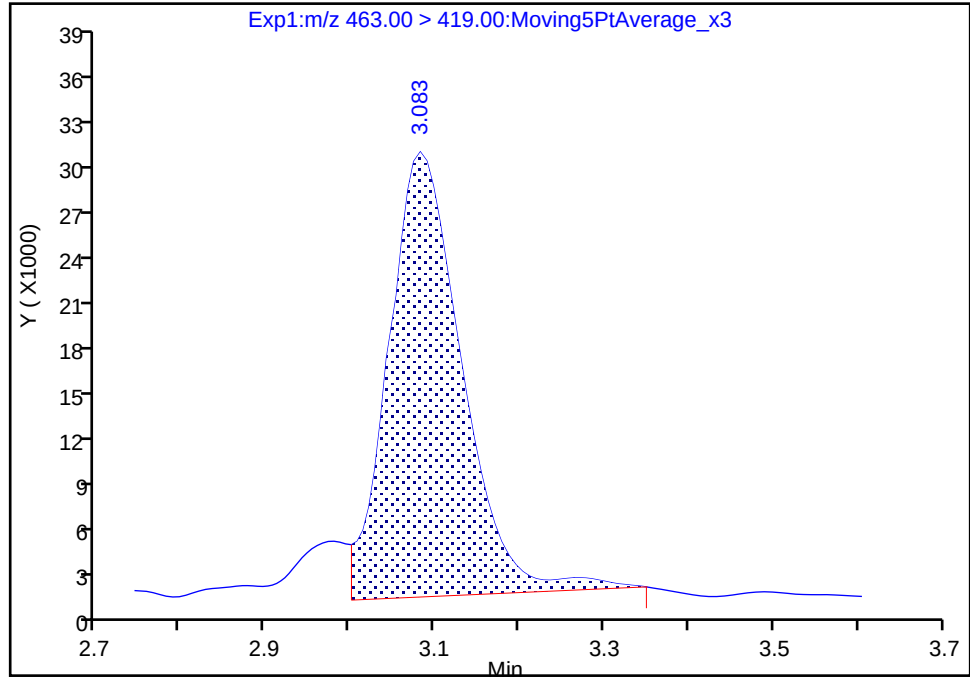
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_047.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:09:52                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-29-A                                                         | Lab Sample ID: | 320-39023-29       |                |    |
| Client ID:      | KLA04-SB2-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 37                 | Worklist Smp#: | 17 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

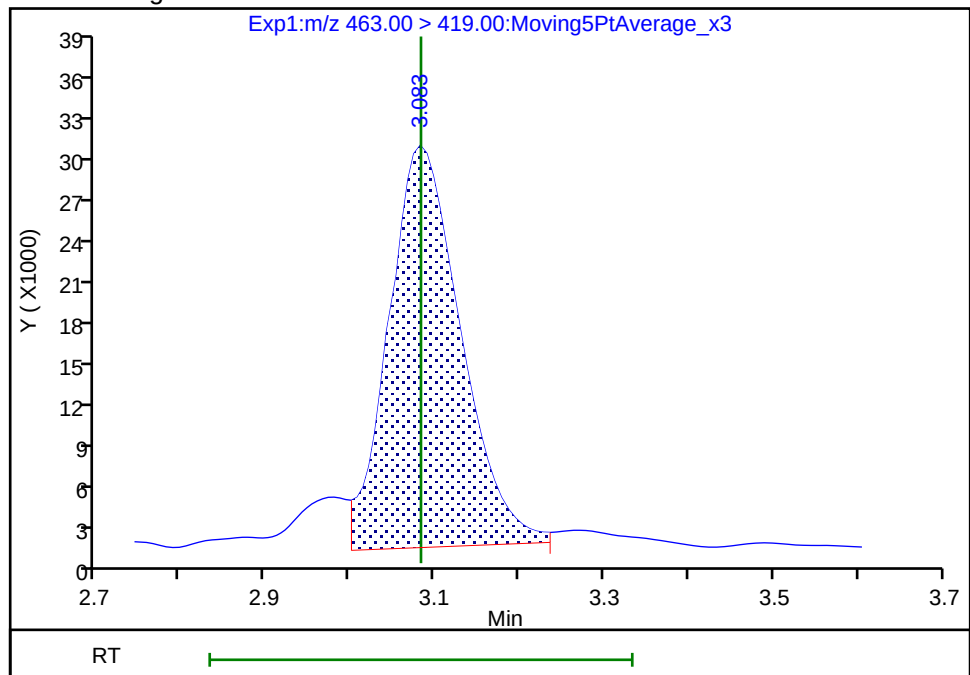
RT: 3.08  
Area: 176507  
Amount: 0.625517  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 173119  
Amount: 0.613511  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:52:42

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA04-SB2-01 DL</u> | Lab Sample ID: <u>320-39023-29 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_038.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 08:20</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>            | Date Analyzed: <u>05/29/2018 15:49</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.1</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q     | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 14     | J D   | 38  | 26  | 10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 26     | J D M | 38  | 26  | 13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 26     | U M   | 38  | 26  | 10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 14     | J D   | 51  | 23  | 7.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 200    | D     | 38  | 26  | 7.9 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 6600   | E D   | 130 | 64  | 31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 111  | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 74   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 80   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 68   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 64   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 58   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_038.d  
 Lims ID: 320-39023-A-29-A  
 Client ID: KLA04-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 15:49:24 ALS Bottle#: 29 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-29-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:29:42 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:29:42

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |      | M     |
| 301.90 > 83.00                 | 1.771 | 1.762  | 0.009  | 1.000  | 1185     | 0.0258       |                 | 111  | 10.3 | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 298.90 > 80.00                 | 1.771 | 1.765  | 0.006  | 1.000  | 212973   | 0.0535       |                 |      | 1044 |       |
| 298.90 > 99.00                 | 1.771 | 1.765  | 0.006  | 1.000  | 86841    |              | 2.45(1.25-3.74) |      | 604  |       |
| D 9 13C4-PFHpa                 |       |        |        |        |          |              |                 |      |      |       |
| 367.00 > 322.00                | 2.355 | 2.355  | 0.0    | 1.000  | 38213    | 0.0184       |                 | 73.5 | 635  |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |      |       |
| 363.00 > 319.00                | 2.355 | 2.358  | -0.003 | 1.000  | 88715    | 0.0549       |                 |      | 102  |       |
| 363.00 > 169.00                | 2.355 | 2.358  | -0.003 | 1.000  | 28766    |              | 3.08(1.13-3.40) |      | 124  |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |      |       |
| 403.00 > 84.00                 | 2.368 | 2.368  | 0.0    | 1.000  | 39149    | 0.0152       |                 | 64.4 | 1326 |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 399.00 > 80.00                 | 2.368 | 2.371  | -0.003 | 1.000  | 1445116  | 0.7748       |                 |      | 5680 |       |
| 399.00 > 99.00                 | 2.368 | 2.371  | -0.003 | 1.000  | 453551   |              | 3.19(1.50-4.49) |      | 2344 |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 417.00 > 372.00                | 2.711 | 2.711  | 0.0    | 1.000  | 39096    | 0.0199       |                 | 79.5 | 871  |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |      | M     |
| 413.00 > 369.00                | 2.711 | 2.712  | -0.001 | 1.000  | 184281   | 0.1001       |                 |      | 51.3 | M     |
| 413.00 > 169.00                | 2.711 | 2.712  | -0.001 | 1.000  | 104094   |              | 1.77(0.84-2.52) |      | 227  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 415.00 > 370.00                | 2.718 | 2.712  | 0.006  |        | 51909    | 0.0250       |                 |      | 1213 |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |      |       |
| 468.00 > 423.00                | 3.081 | 3.079  | 0.002  | 1.000  | 27234    | 0.0169       |                 | 67.7 | 855  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |      |       |
| 503.00 > 80.00                 | 3.081 | 3.079  | 0.002  | 1.000  | 24625    | 0.0139       |                 | 58.4 | 241  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |      | M     |
| 463.00 > 419.00                | 3.081 | 3.082  | -0.001 | 1.000  | 5915     | 0.005126     |                 |      | 16.5 | M     |
| 463.00 > 169.00                | 3.081 | 3.082  | -0.001 | 1.000  | 1534     |              | 3.86(1.90-5.69) |      | 39.1 |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | E     |
| 499.00 > 80.00                   | 3.081 | 3.082     | -0.001    | 1.000     | 31100968 | 25.7            |                 |      | 47433 | E     |
| 499.00 > 99.00                   | 3.081 | 3.082     | -0.001    | 1.000     | 8059459  |                 | 3.86(2.31-6.93) |      | 66088 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_038.d

Injection Date: 29-May-2018 15:49:24

Instrument ID: A8\_N

Lims ID: 320-39023-A-29-A

Lab Sample ID: 320-39023-29

Client ID: KLA04-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

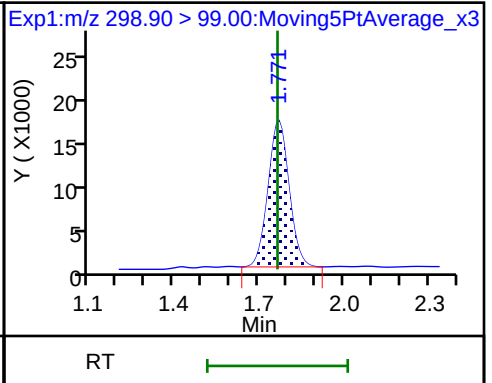
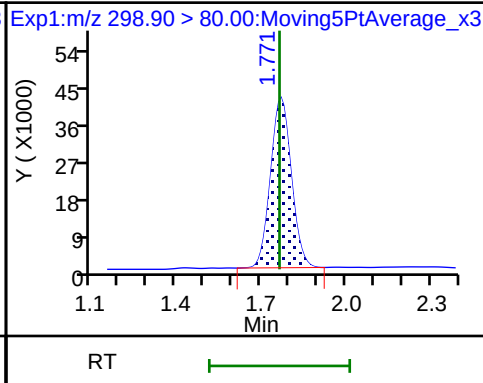
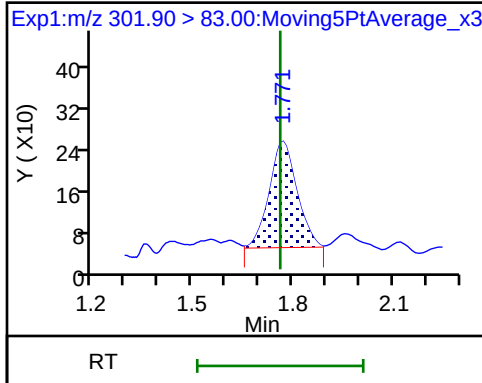
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

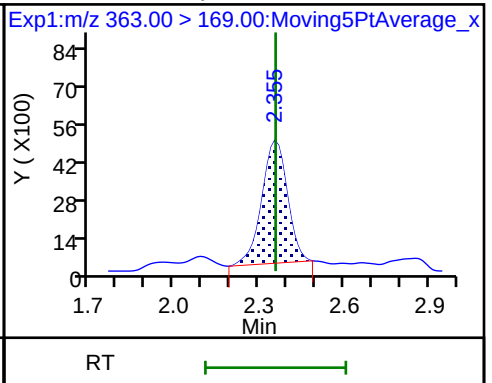
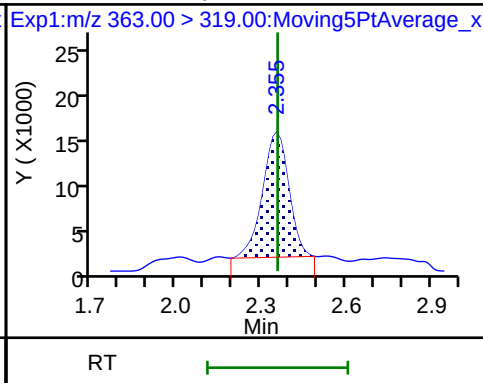
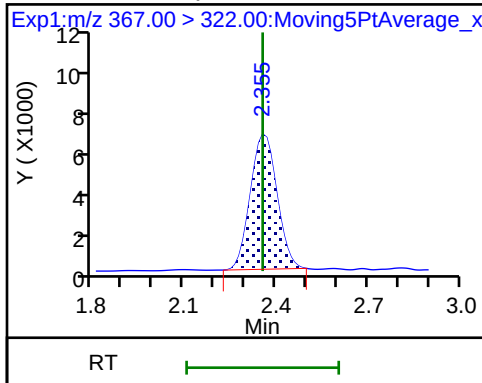
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

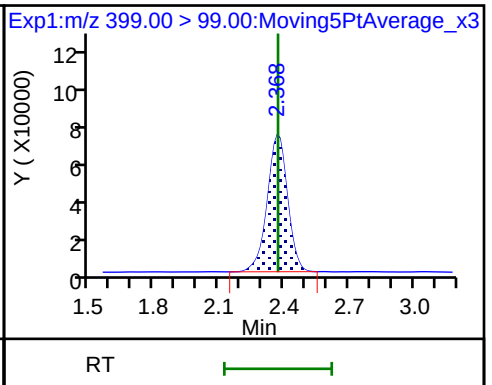
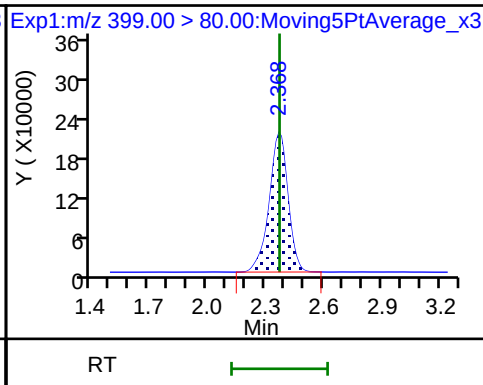
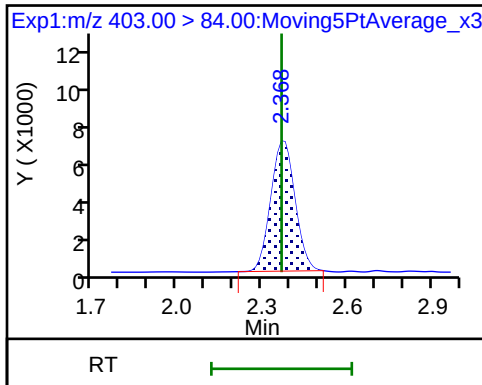
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

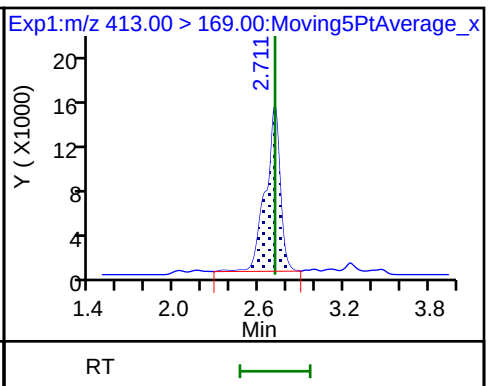
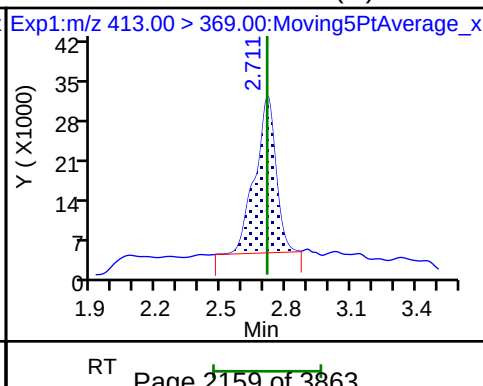
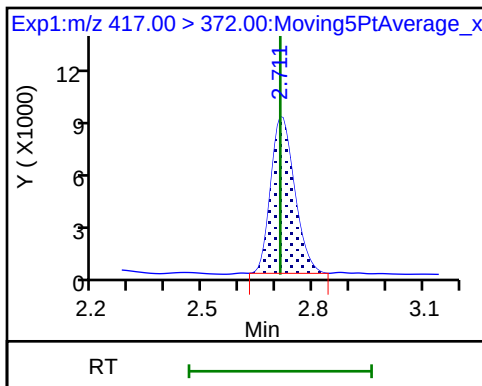
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid (M)

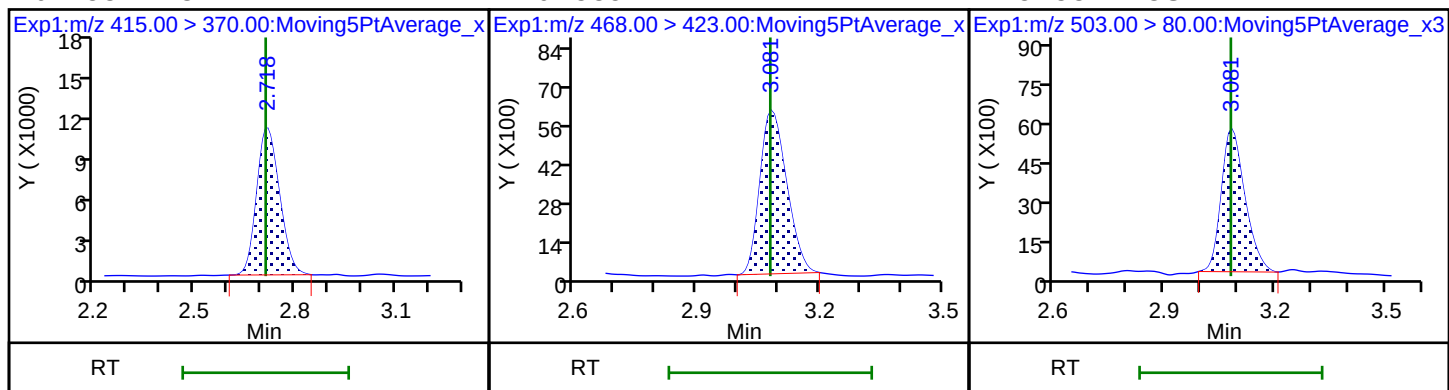
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

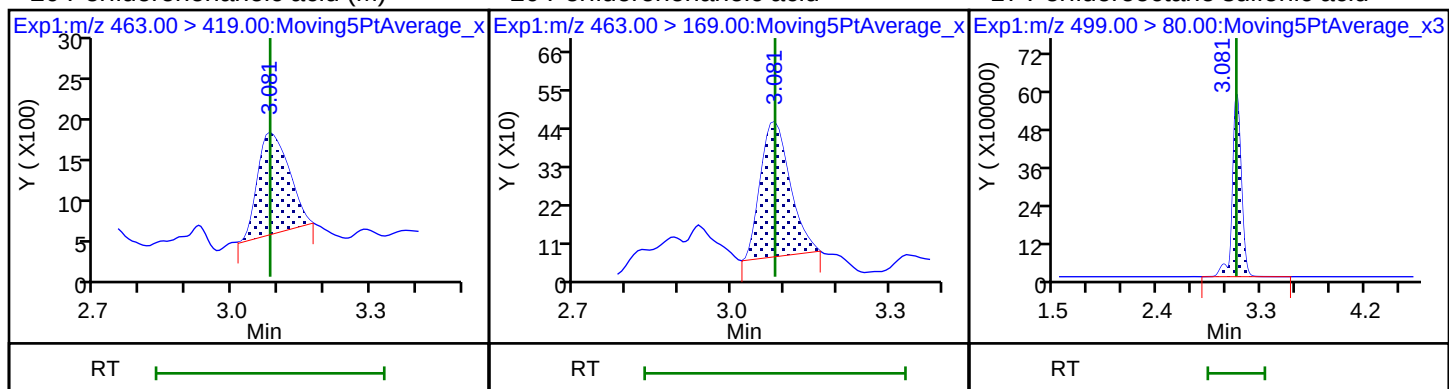
D 18 13C4 PFOS



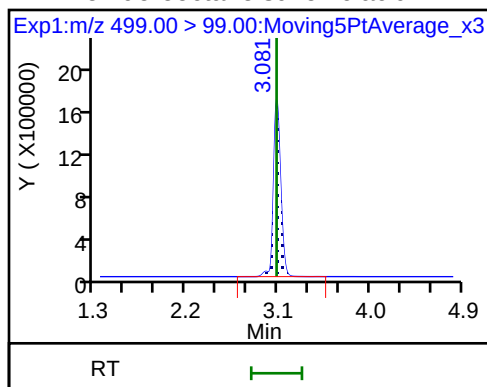
20 Perfluorononanoic acid (M)

20 Perfluorononanoic acid

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

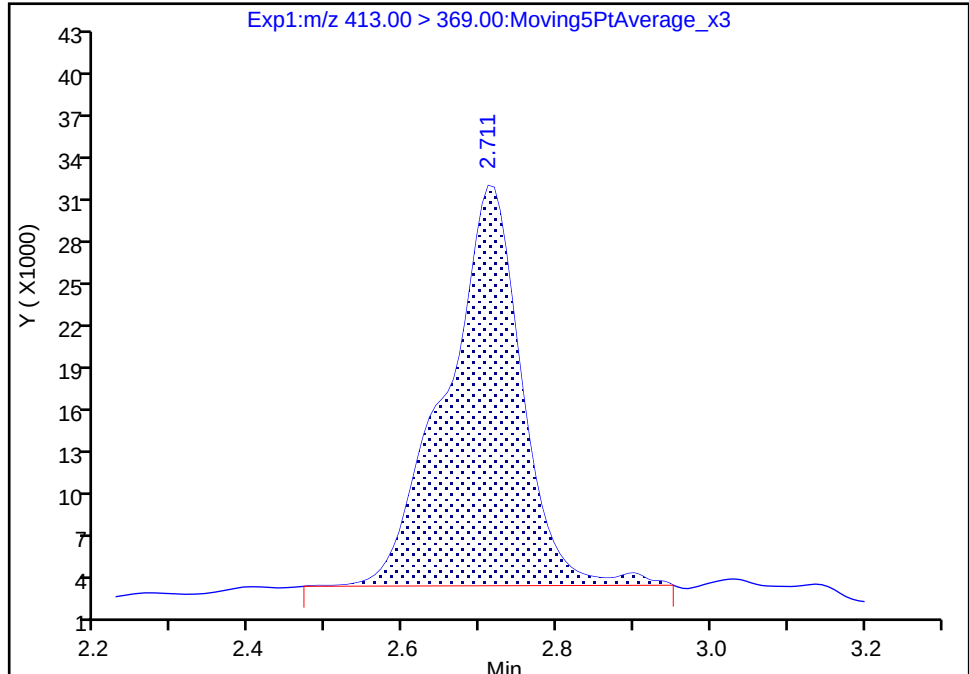
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_038.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:49:24                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-29-A                                                         | Lab Sample ID: | 320-39023-29       |                |    |
| Client ID:      | KLA04-SB2-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 29                 | Worklist Smp#: | 15 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

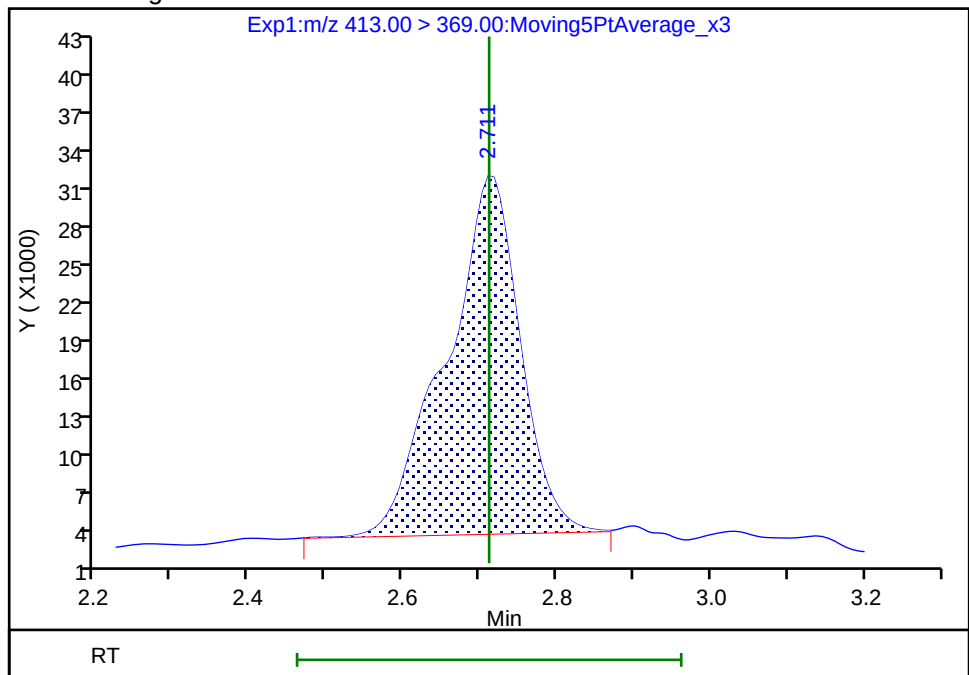
RT: 2.71  
Area: 191377  
Amount: 0.103970  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 184281  
Amount: 0.100115  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:28:43

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

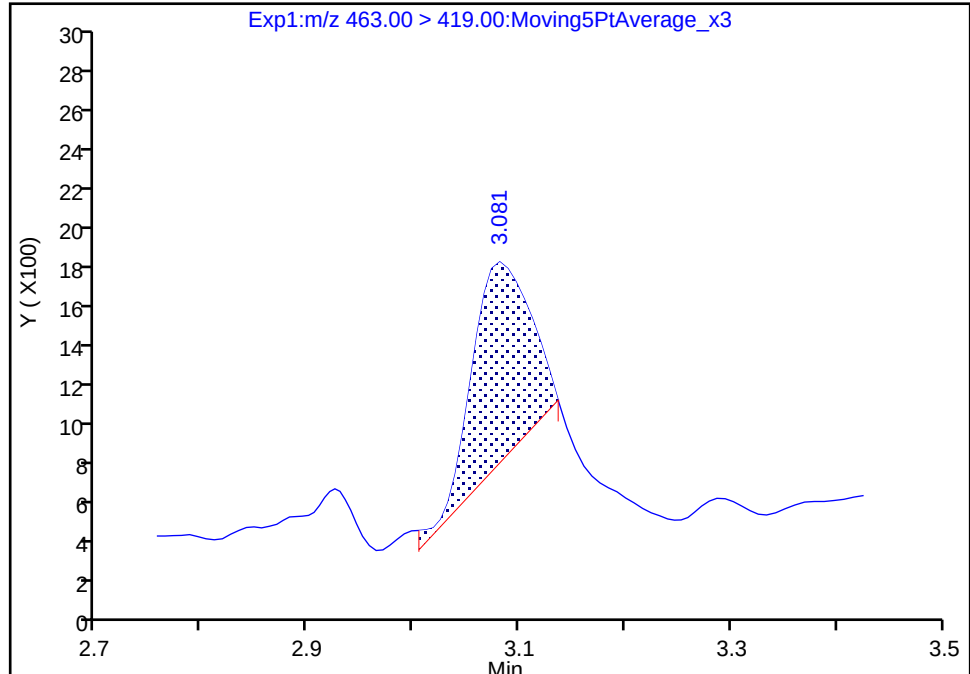
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_038.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:49:24                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-29-A                                                         | Lab Sample ID: | 320-39023-29       |                |    |
| Client ID:      | KLA04-SB2-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 29                 | Worklist Smp#: | 15 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

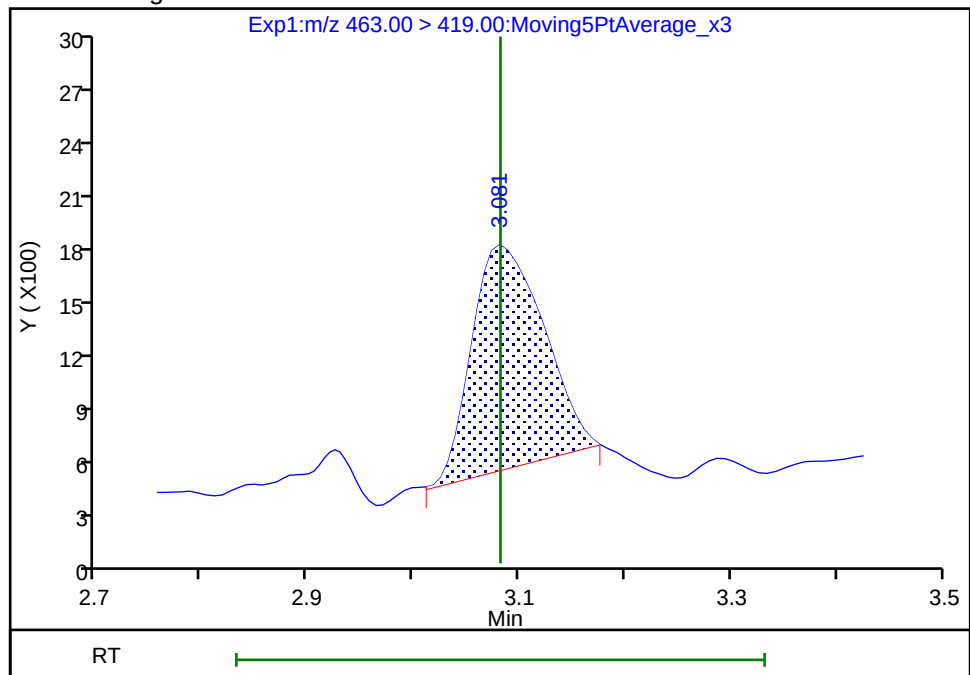
RT: 3.08  
Area: 3866  
Amount: 0.003351  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 5915  
Amount: 0.005126  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:28:54

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

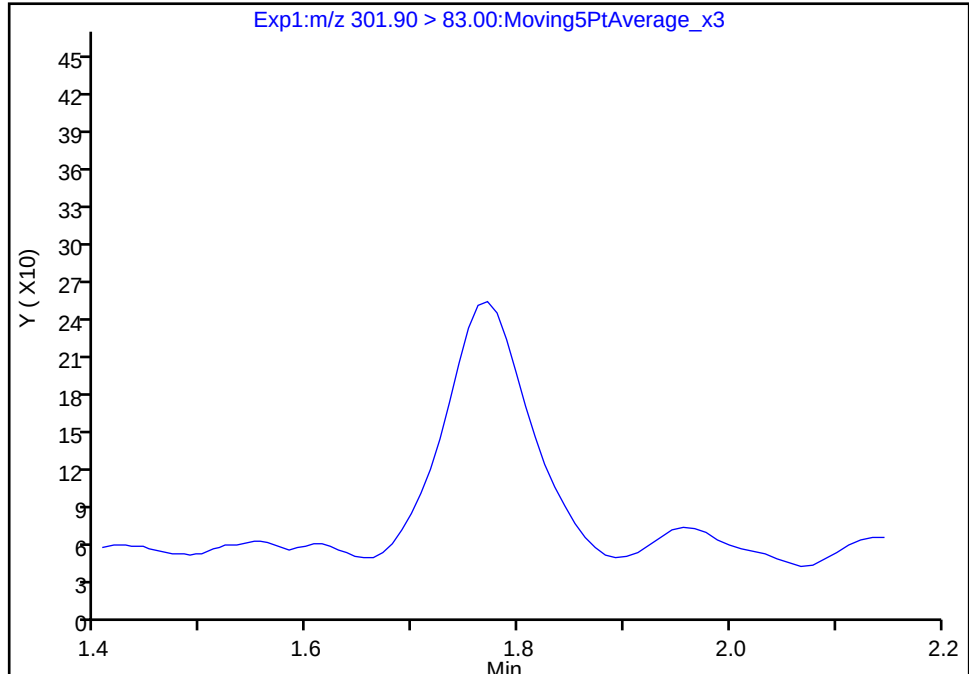
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_038.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:49:24                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-29-A                                                         | Lab Sample ID: | 320-39023-29       |                |    |
| Client ID:      | KLA04-SB2-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 29                 | Worklist Smp#: | 15 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

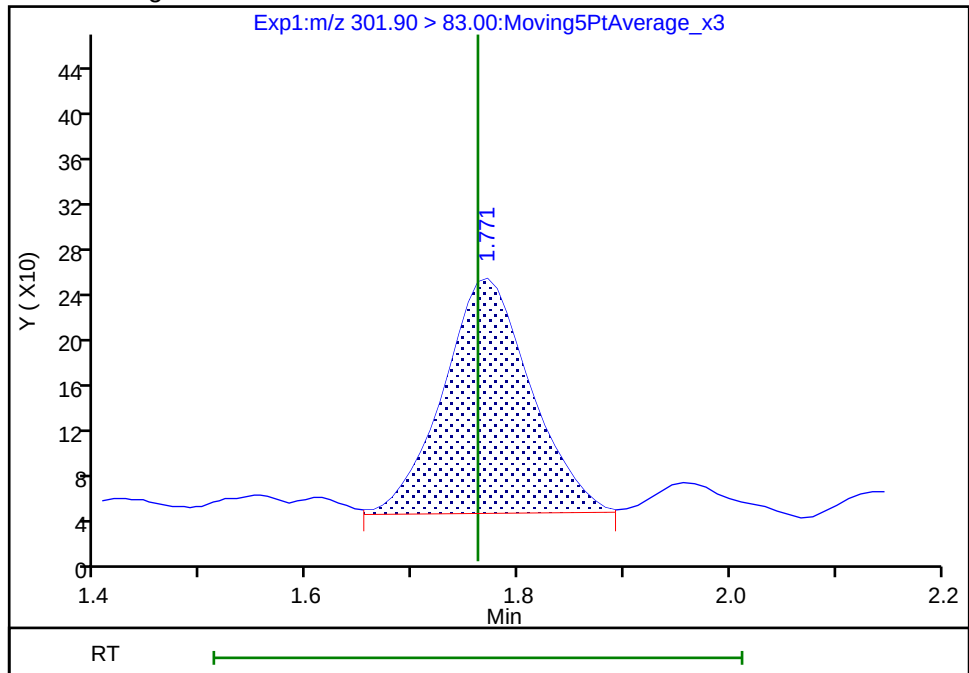
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 1185  
Amount: 0.025774  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:28:18

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA04-SB2-02</u>   | Lab Sample ID: <u>320-39023-30</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_048.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 08:25</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.00(g)</u>           | Date Analyzed: <u>05/29/2018 09:17</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>24.0</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 45     | E | 0.39 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 200    | E | 0.39 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.6    |   | 0.39 | 0.26 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 91     | E | 0.53 | 0.24 | 0.078 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 510    | E | 0.39 | 0.26 | 0.082 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 2100   | E | 1.3  | 0.66 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 125  |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 69   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 82   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 55   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 65   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 39   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_048.d  
 Lims ID: 320-39023-A-30-A  
 Client ID: KLA04-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:17:46 ALS Bottle#: 38 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-30-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:53:20 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:53:37

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|---------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |         | E     |
| 298.90 > 80.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 79792687  | 34.6         |                 |      | 177920  | E     |
| 298.90 > 99.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 44647557  |              | 1.79(1.25-3.74) |      | 285628  |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |         |       |
| 301.90 > 83.00                   | 1.766 | 1.766  | 0.0    | 1.000  | 68575     | 2.90         |                 | 125  | 488     |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |         |       |
| 367.00 > 322.00                  | 2.347 | 2.347  | 0.0    | 1.000  | 1843907   | 1.72         |                 | 68.9 | 34641   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |         | E     |
| 363.00 > 319.00                  | 2.347 | 2.359  | -0.012 | 1.000  | 13424095  | 17.2         |                 |      | 17934   | E     |
| 363.00 > 169.00                  | 2.347 | 2.359  | -0.012 | 1.000  | 5128630   |              | 2.62(1.13-3.40) |      | 24513   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |         |       |
| 403.00 > 84.00                   | 2.360 | 2.360  | 0.0    | 1.000  | 2038978   | 1.54         |                 | 65.2 | 37098   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |         | E     |
| 399.00 > 80.00                   | 2.360 | 2.372  | -0.012 | 1.000  | 188545300 | 194.1        |                 |      | 97546   | E     |
| 399.00 > 99.00                   | 2.360 | 2.372  | -0.012 | 1.000  | 100001843 |              | 1.89(1.50-4.49) |      | 56443   |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 417.00 > 372.00                  | 2.713 | 2.706  | 0.007  | 1.000  | 2079673   | 2.05         |                 | 82.2 | 36795   |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |         | E     |
| 413.00 > 369.00                  | 2.713 | 2.713  | 0.0    | 1.000  | 72984369  | 74.5         |                 |      | 25963   | E     |
| 413.00 > 169.00                  | 2.713 | 2.713  | 0.0    | 1.000  | 50153804  |              | 1.46(0.84-2.52) |      | 47341   |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 415.00 > 370.00                  | 2.713 | 2.713  | 0.0    |        | 2673010   | 2.50         |                 |      | 52117   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |         | E     |
| 499.00 > 80.00                   | 2.967 | 3.076  | -0.109 | 0.964  | 338321096 | 809.3        |                 |      | 7852    | E     |
| 499.00 > 99.00                   | 3.070 | 3.076  | -0.006 | 0.998  | 136739741 |              | 2.47(2.31-6.93) |      | 4644162 |       |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |         |       |
| 503.00 > 80.00                   | 3.077 | 3.076  | 0.001  | 1.000  | 849723    | 0.9347       |                 | 39.1 | 4894    |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |         |       |
| 468.00 > 423.00                  | 3.077 | 3.076  | 0.001  | 1.000  | 1129065   | 1.36         |                 | 54.5 | 22370   |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      |       |
| 463.00 > 419.00           | 3.077 | 3.083     | -0.006    | 1.000     | 283846   | 0.5934          |                 |      | 142  |       |
| 463.00 > 169.00           | 3.077 | 3.083     | -0.006    | 1.000     | 68579    |                 | 4.14(1.90-5.69) |      | 59.1 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_048.d

Injection Date: 29-May-2018 09:17:46

Instrument ID: A8\_N

Lims ID: 320-39023-A-30-A

Lab Sample ID: 320-39023-30

Client ID: KLA04-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

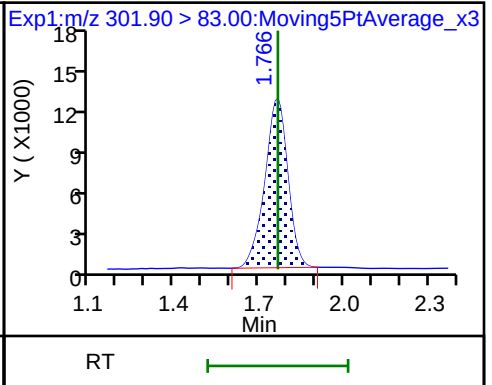
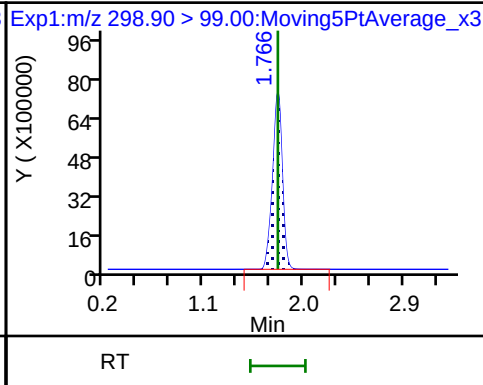
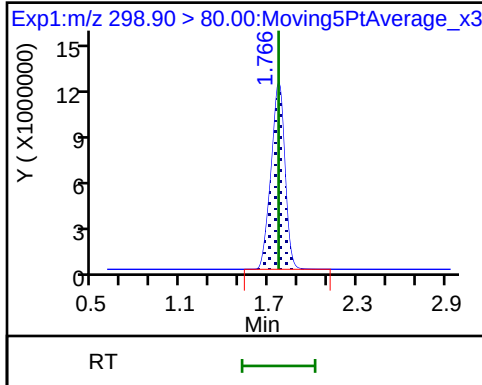
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

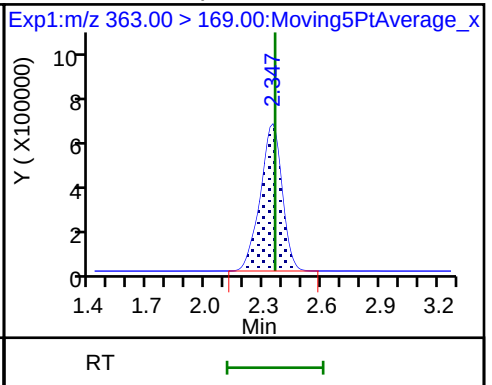
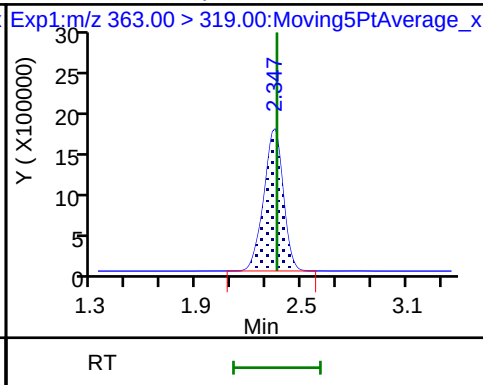
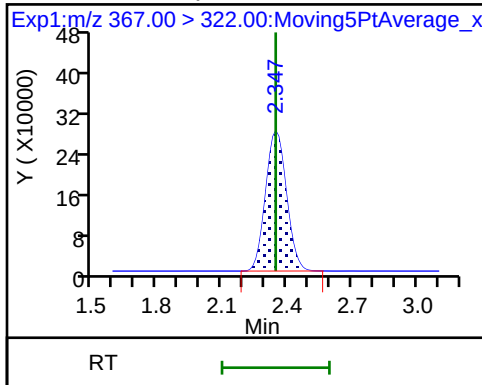
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

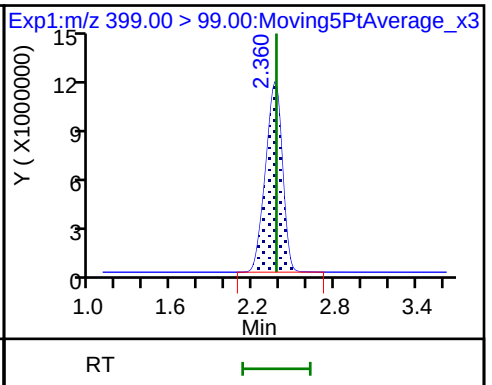
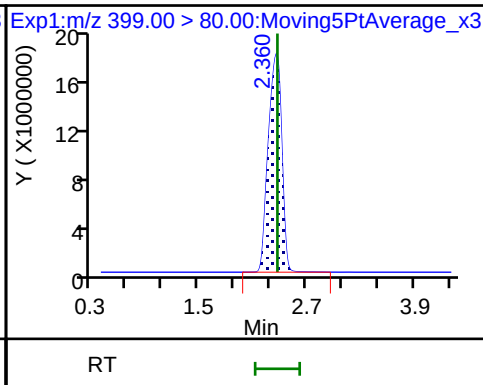
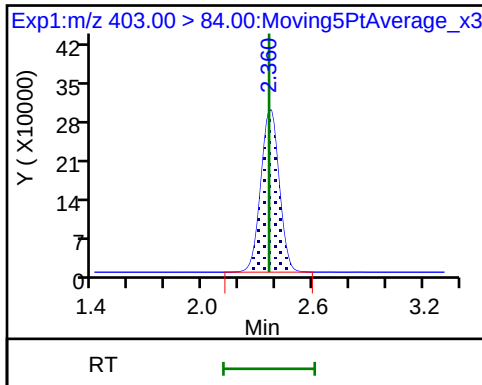
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

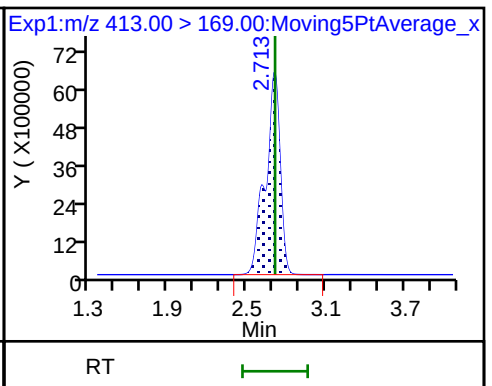
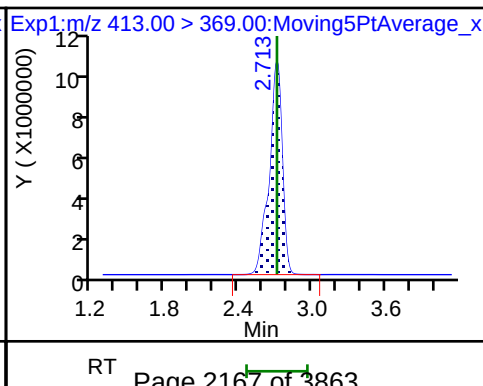
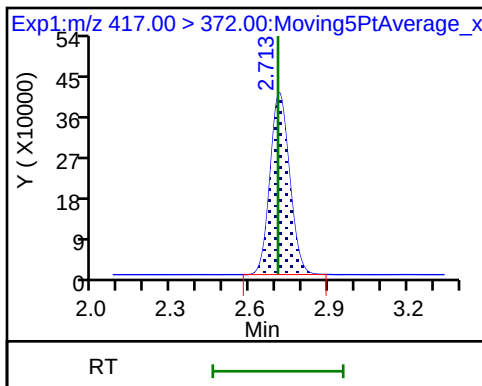
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

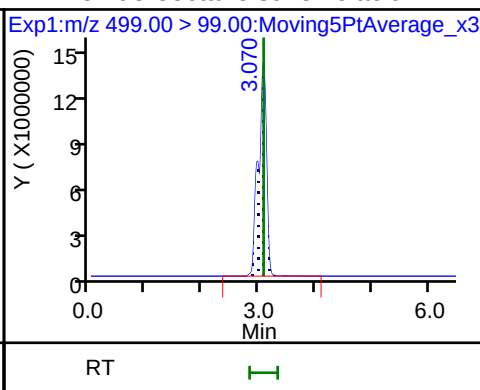
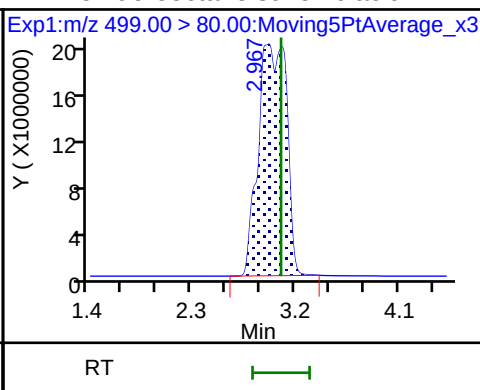
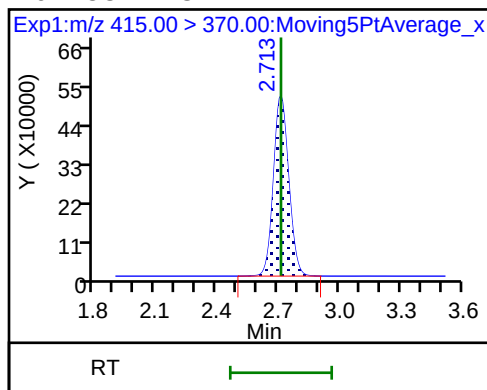
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

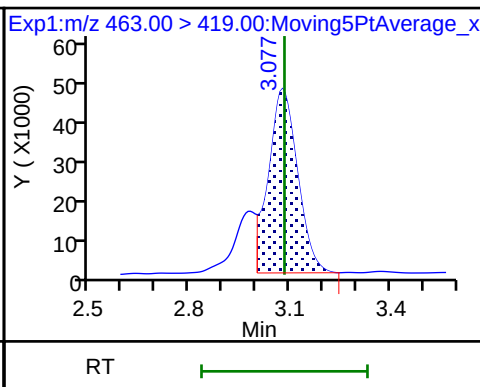
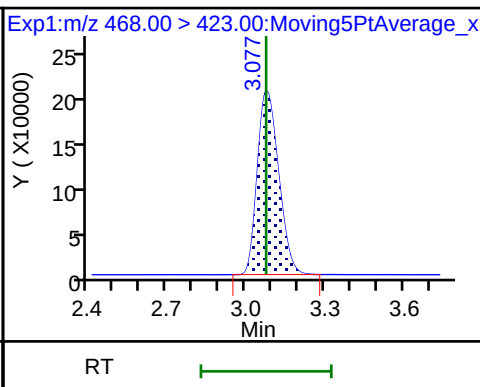
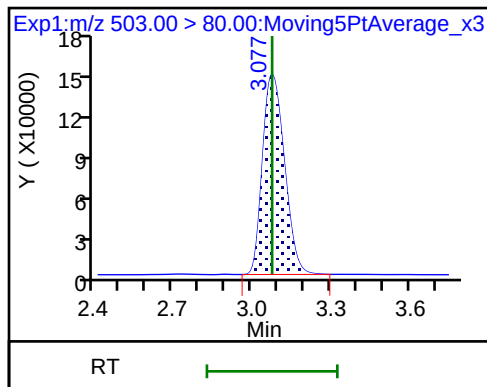
17 Perfluorooctane sulfonic acid



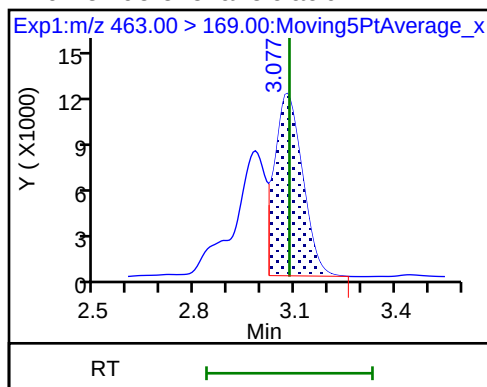
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



20 Perfluorononanoic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA04-SB2-02 DL</u> | Lab Sample ID: <u>320-39023-30 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_039.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 08:25</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.00 (g)</u>           | Date Analyzed: <u>05/29/2018 15:57</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>24.0</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q     | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 44     | D     | 39  | 26  | 10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 210    | D     | 39  | 26  | 13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 26     | U M   | 39  | 26  | 11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 84     | D     | 53  | 24  | 7.8 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1100   | D     | 39  | 26  | 8.2 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 4800   | E D M | 130 | 66  | 32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 133  | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 70   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 95   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 78   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 61   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_039.d  
 Lims ID: 320-39023-A-30-A  
 Client ID: KLA04-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 15:57:12 ALS Bottle#: 30 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-30-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:31:57 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:31:56

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                 | 1.766 | 1.762  | 0.004  | 1.000  | 1442     | 0.0309       |                 | 133  | 11.0  | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.775 | 1.765  | 0.010  | 1.005  | 1538553  | 0.3177       |                 |      | 7291  |       |
| 298.90 > 99.00                 | 1.775 | 1.765  | 0.010  | 1.005  | 664848   |              | 2.31(1.25-3.74) |      | 5231  |       |
| D 9 13C4-PFHpa                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.360 | 2.355  | 0.005  | 1.000  | 36895    | 0.0175       |                 | 70.0 | 747   |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.360 | 2.358  | 0.002  | 1.000  | 261087   | 0.1675       |                 |      | 305   |       |
| 363.00 > 169.00                | 2.360 | 2.358  | 0.002  | 1.000  | 104962   |              | 2.49(1.13-3.40) |      | 479   |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.373 | 2.368  | 0.005  | 1.000  | 47960    | 0.0184       |                 | 77.8 | 1581  |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.373 | 2.371  | 0.002  | 1.000  | 9232300  | 4.04         |                 |      | 18914 |       |
| 399.00 > 99.00                 | 2.373 | 2.371  | 0.002  | 1.000  | 3052148  |              | 3.02(1.50-4.49) |      | 11082 |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.721 | 2.711  | 0.010  | 1.000  | 47234    | 0.0237       |                 | 94.8 | 1302  |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.714 | 2.712  | 0.002  | 0.997  | 1784895  | 0.8026       |                 |      | 748   |       |
| 413.00 > 169.00                | 2.714 | 2.712  | 0.002  | 0.997  | 995510   |              | 1.79(0.84-2.52) |      | 2787  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.714 | 2.712  | 0.002  |        | 52642    | 0.0250       |                 |      | 1917  |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                | 3.087 | 3.079  | 0.008  | 1.000  | 31876    | 0.0195       |                 | 78.2 | 1105  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.087 | 3.079  | 0.008  | 1.000  | 26124    | 0.0146       |                 | 61.1 | 237   |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       | RM    |
| 463.00 > 419.00                | 3.087 | 3.082  | 0.005  | 1.000  | 8396     | 0.006217     |                 |      | 23.6  | RM    |
| 463.00 > 169.00                | 3.079 | 3.082  | -0.003 | 0.998  | 1077     |              | 7.80(1.90-5.69) |      | 32.6  | M     |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | EM    |
| 499.00 > 80.00                   | 3.087 | 3.082     | 0.005     | 1.000     | 23634912 | 18.4            |                 |      | 28662 | EM    |
| 499.00 > 99.00                   | 3.087 | 3.082     | 0.005     | 1.000     | 5206601  |                 | 4.54(2.31-6.93) |      | 38727 |       |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_039.d

Injection Date: 29-May-2018 15:57:12

Instrument ID: A8\_N

Lims ID: 320-39023-A-30-A

Lab Sample ID: 320-39023-30

Client ID: KLA04-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

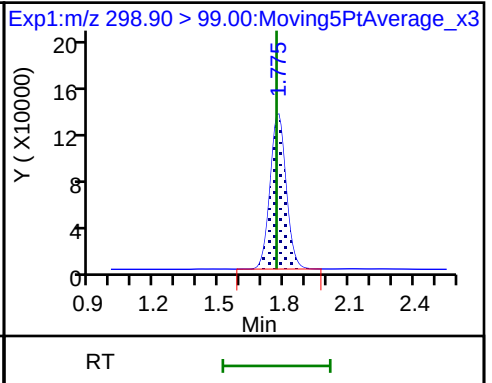
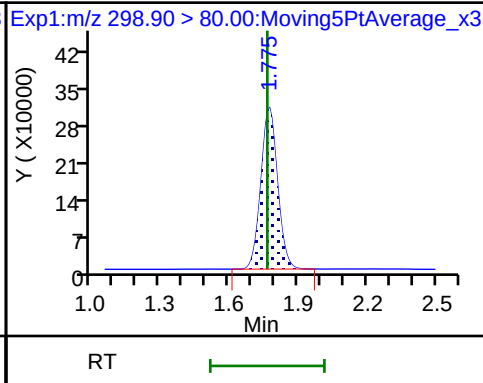
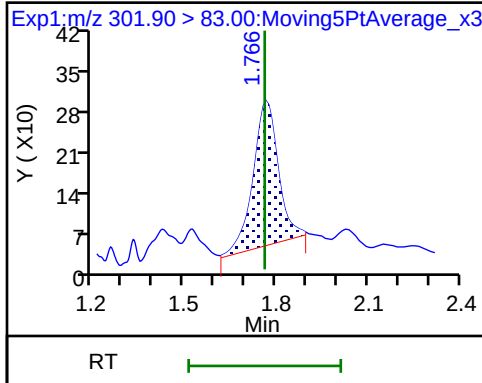
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

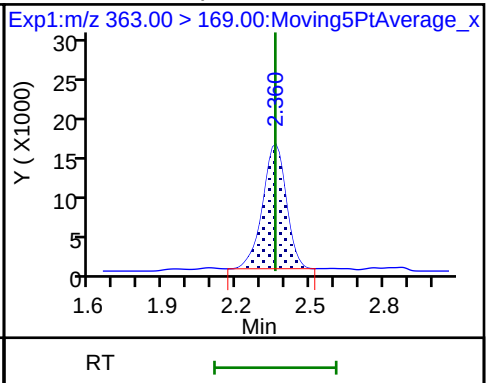
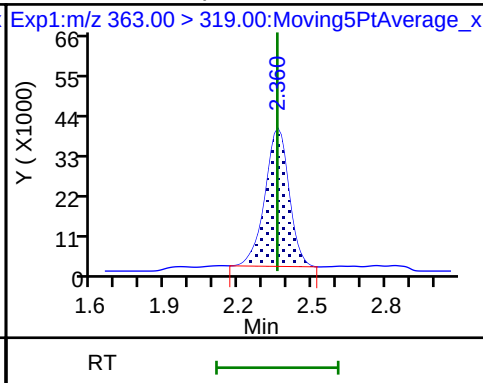
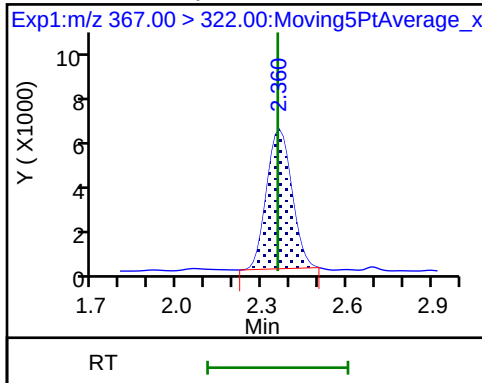
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

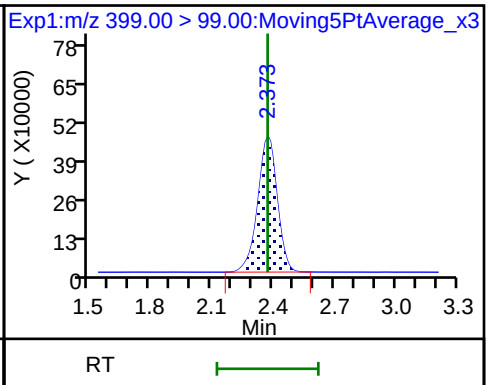
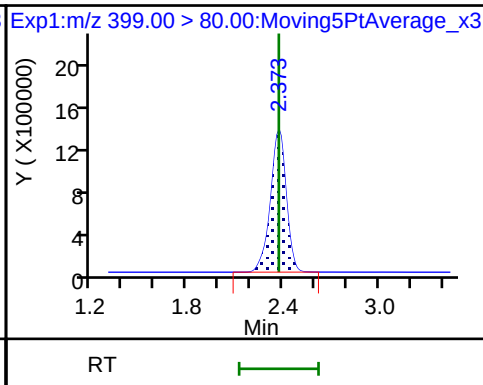
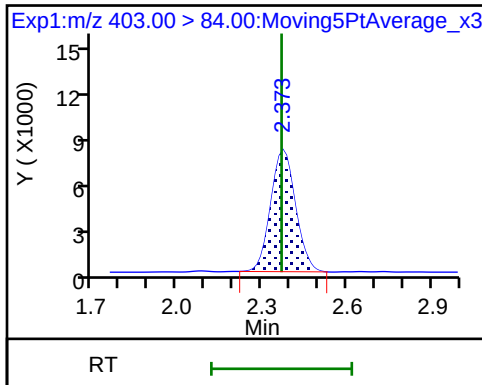
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

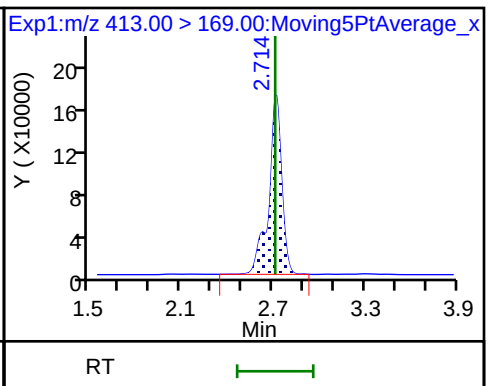
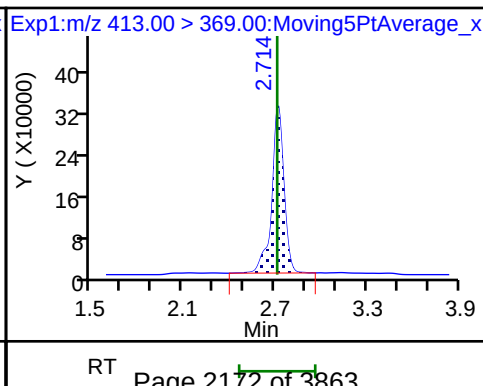
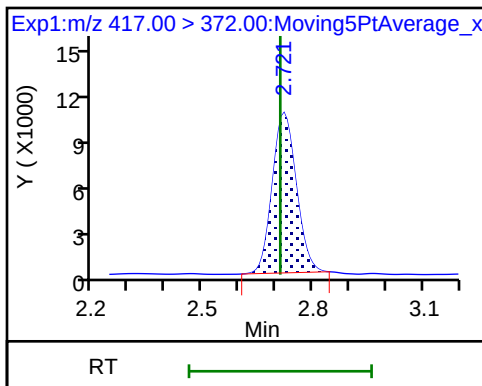
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

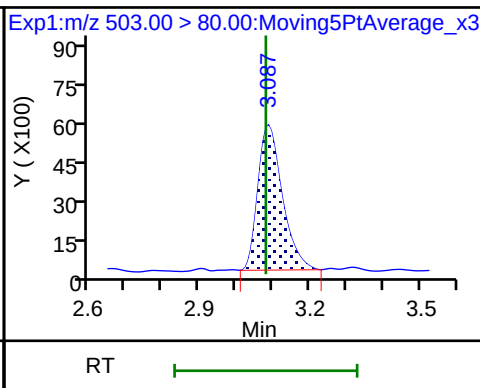
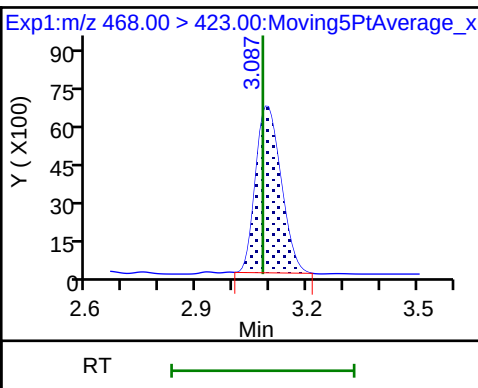
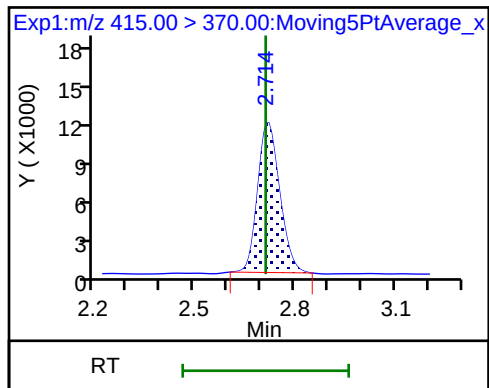
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

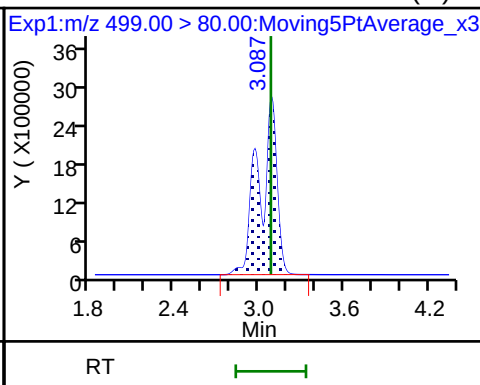
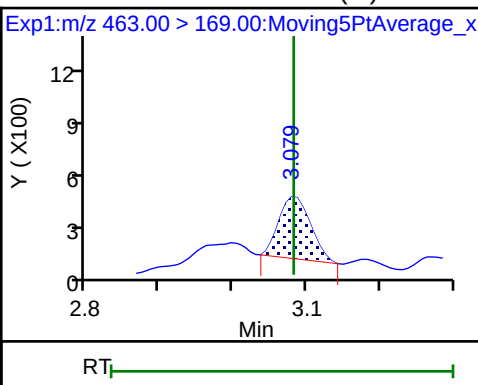
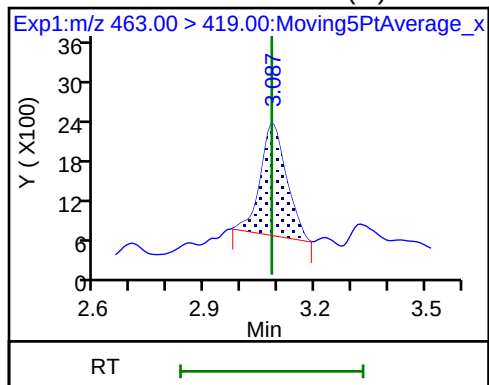
D 18 13C4 PFOS



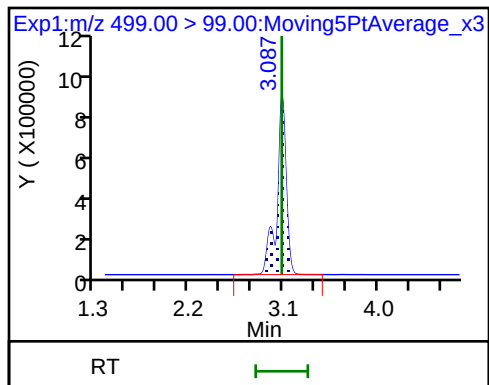
20 Perfluorononanoic acid (M)

20 Perfluorononanoic acid (M)

17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

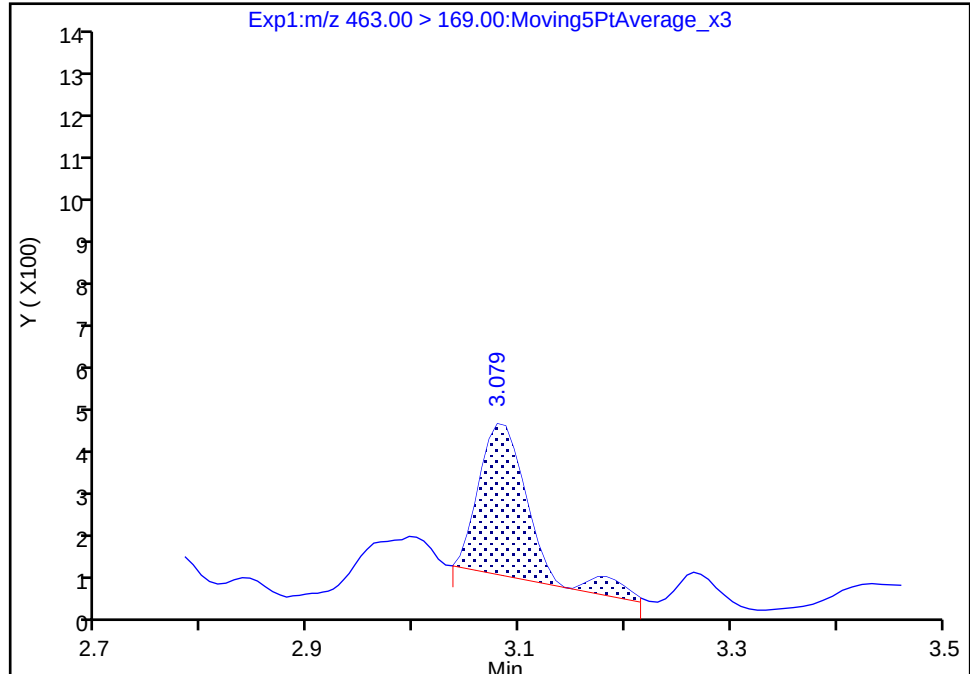
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_039.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:57:12                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-30-A                                                         | Lab Sample ID: | 320-39023-30       |                |    |
| Client ID:      | KLA04-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 30                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

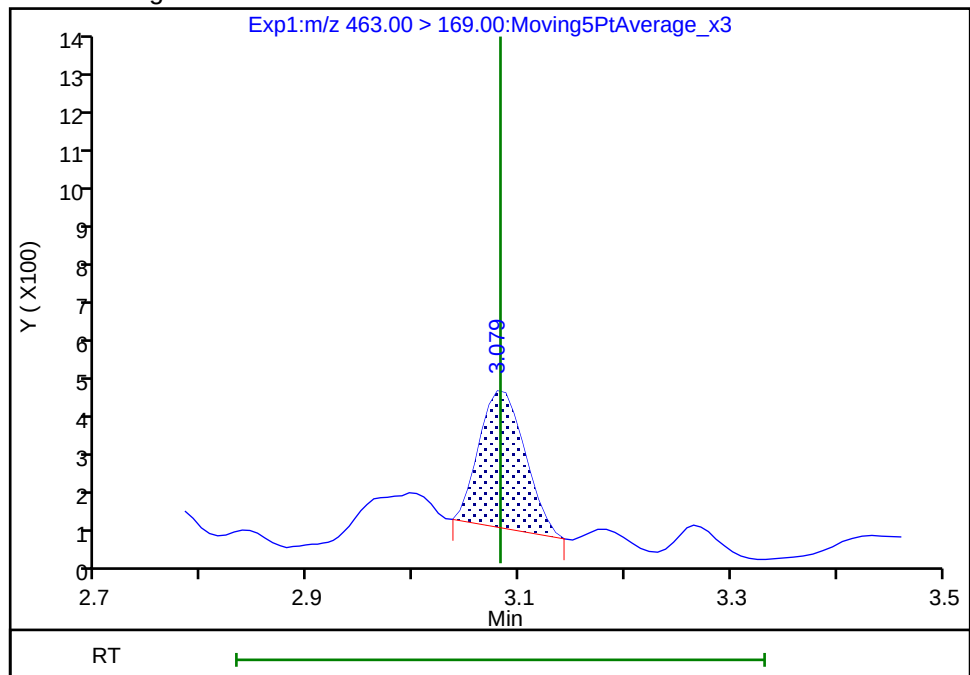
RT: 3.08  
Area: 1185  
Amount: 0.005924  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 1077  
Amount: 0.006217  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:31:01

Audit Action: Manually Integrated

Audit Reason: Baseline



## TestAmerica Sacramento

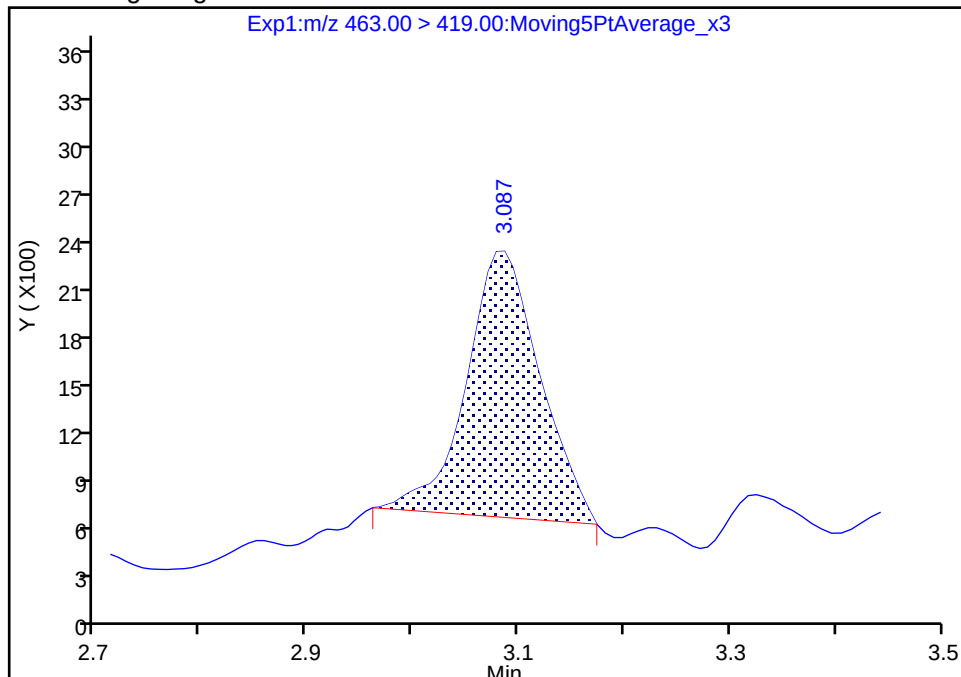
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_039.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:57:12                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-30-A                                                         | Lab Sample ID: | 320-39023-30       |                |    |
| Client ID:      | KLA04-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 30                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

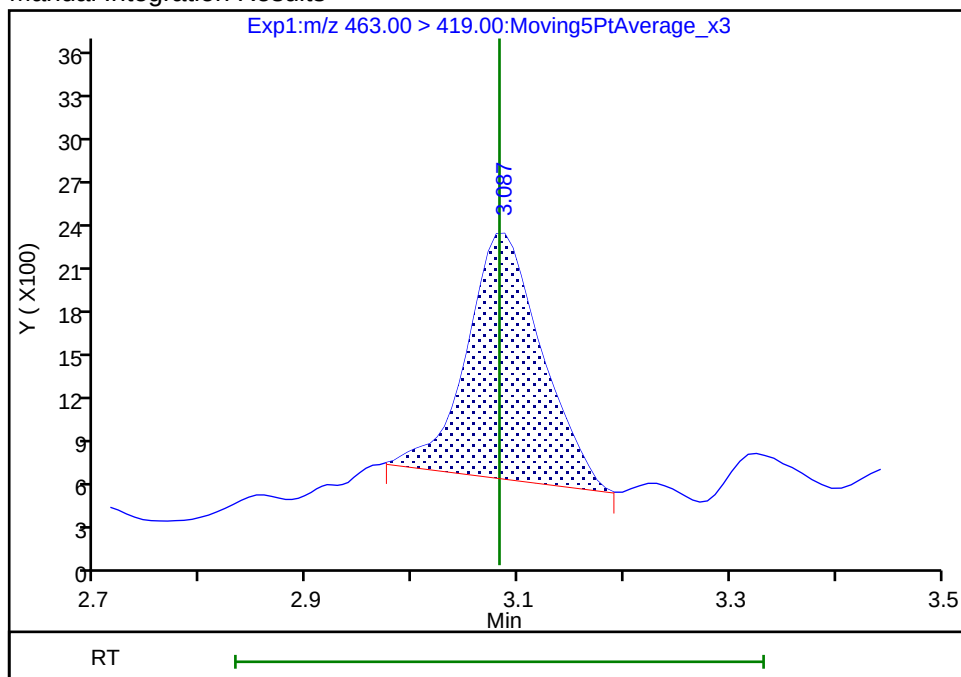
RT: 3.09  
Area: 8001  
Amount: 0.005924  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 8396  
Amount: 0.006217  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:31:09

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

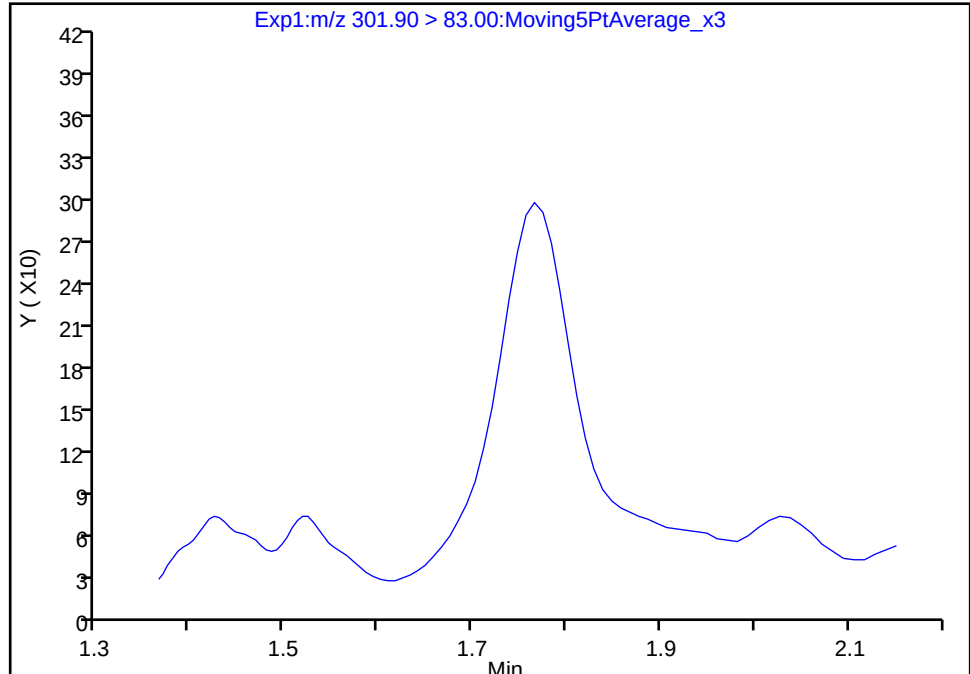
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_039.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:57:12                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-30-A                                                         | Lab Sample ID: | 320-39023-30       |                |    |
| Client ID:      | KLA04-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 30                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

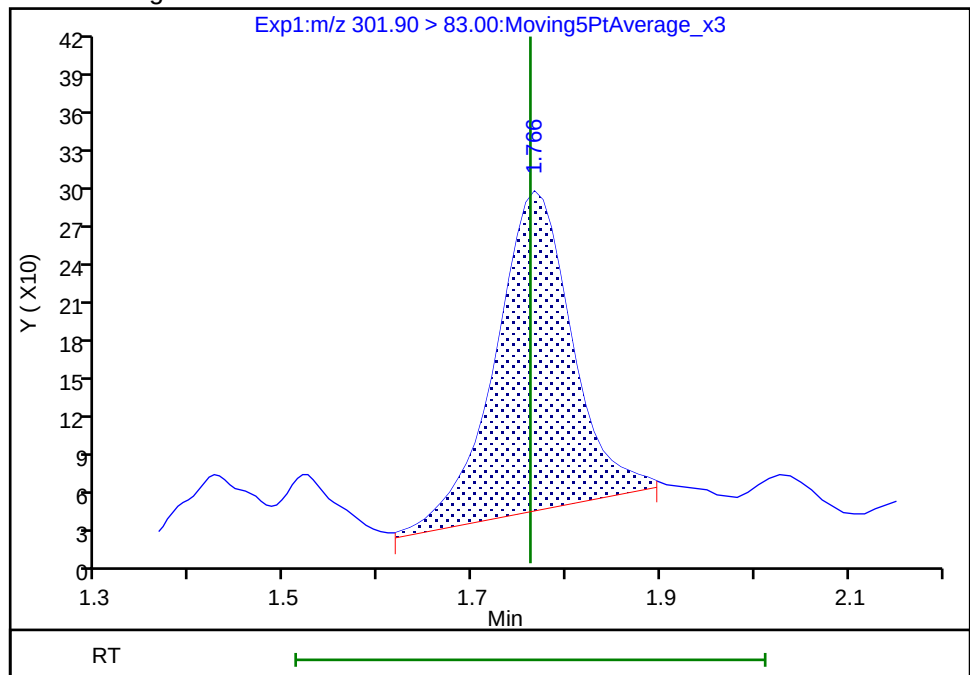
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 1442  
Amount: 0.030927  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:29:58

Audit Action: Manually Integrated

Audit Reason: Assign Peak

## TestAmerica Sacramento

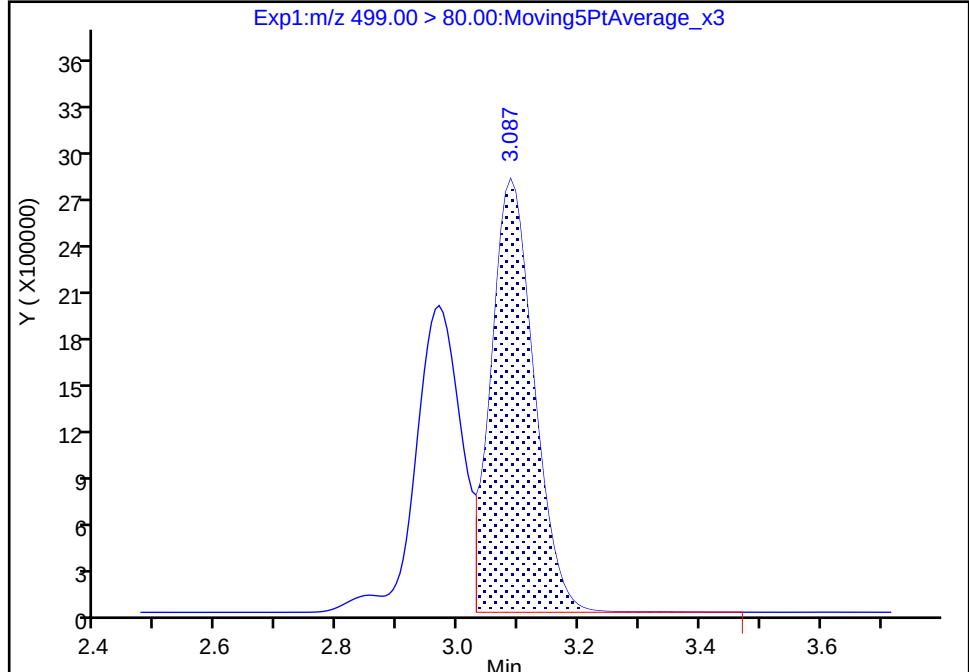
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_039.d |                |                    |                |    |
| Injection Date: | 29-May-2018 15:57:12                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-30-A                                                         | Lab Sample ID: | 320-39023-30       |                |    |
| Client ID:      | KLA04-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 30                 | Worklist Smp#: | 16 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

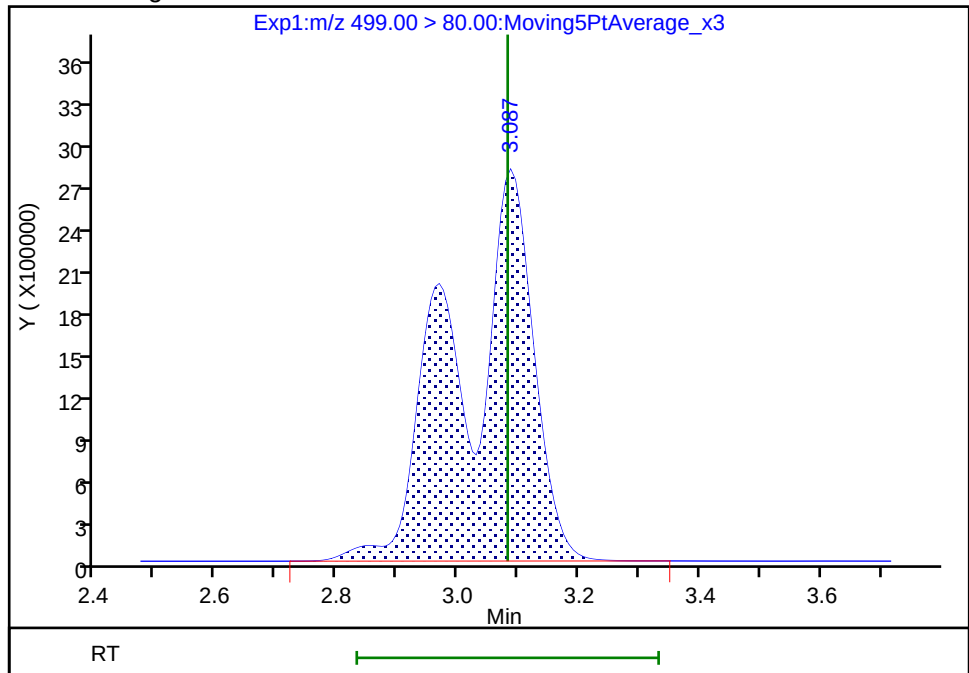
RT: 3.09  
Area: 13444175  
Amount: 10.460705  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 23634912  
Amount: 18.389960  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:31:23

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA04-SB3-01</u>   | Lab Sample ID: <u>320-39023-31</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_049.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 08:05</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.98(g)</u>           | Date Analyzed: <u>05/29/2018 09:25</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 3.8    |   | 0.38 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 12     |   | 0.38 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.1    | M | 0.38 | 0.26 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 19     |   | 0.51 | 0.23 | 0.076 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 51     | E | 0.38 | 0.26 | 0.079 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1600   | E | 1.3  | 0.64 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 86   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 88   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 28   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 77   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 20   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_049.d  
 Lims ID: 320-39023-A-31-A  
 Client ID: KLA04-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:25:37 ALS Bottle#: 39 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-31-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:54:07 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:54:07

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|---------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |         |       |
| 298.90 > 80.00                   | 1.773 | 1.765  | 0.008  | 1.000  | 17565304  | 7.44         |                 |      | 84035   |       |
| 298.90 > 99.00                   | 1.773 | 1.765  | 0.008  | 1.000  | 7743136   |              | 2.27(1.25-3.74) |      | 33309   |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |         |       |
| 301.90 > 83.00                   | 1.773 | 1.766  | 0.007  | 1.000  | 70300     | 1.99         |                 | 85.5 | 540     |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |         |       |
| 367.00 > 322.00                  | 2.358 | 2.347  | 0.011  | 1.000  | 3522952   | 2.20         |                 | 88.2 | 50739   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |         |       |
| 363.00 > 319.00                  | 2.358 | 2.359  | -0.001 | 1.000  | 2222683   | 1.49         |                 |      | 3001    |       |
| 363.00 > 169.00                  | 2.358 | 2.359  | -0.001 | 1.000  | 850882    |              | 2.61(1.13-3.40) |      | 3744    |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |         |       |
| 403.00 > 84.00                   | 2.371 | 2.360  | 0.011  | 1.000  | 3583575   | 1.81         |                 | 76.7 | 81439   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |         |       |
| 399.00 > 80.00                   | 2.371 | 2.372  | -0.001 | 1.000  | 33999760  | 19.9         |                 |      | 65631   | E     |
| 399.00 > 99.00                   | 2.371 | 2.372  | -0.001 | 1.000  | 11505899  |              | 2.95(1.50-4.49) |      | 33399   | E     |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 417.00 > 372.00                  | 2.711 | 2.706  | 0.005  | 1.000  | 3165266   | 2.09         |                 | 83.8 | 80233   |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |         |       |
| 413.00 > 369.00                  | 2.711 | 2.713  | -0.002 | 1.000  | 6894616   | 4.63         |                 |      | 3916    |       |
| 413.00 > 169.00                  | 2.711 | 2.713  | -0.002 | 1.000  | 4072965   |              | 1.69(0.84-2.52) |      | 1241    |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 415.00 > 370.00                  | 2.711 | 2.713  | -0.002 |        | 3990595   | 2.50         |                 |      | 82699   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |         |       |
| 499.00 > 80.00                   | 3.107 | 3.076  | 0.031  | 1.010  | 201726821 | 634.6        |                 |      | 6038760 | E     |
| 499.00 > 99.00                   | 3.076 | 3.076  | 0.0    | 1.000  | 93768152  |              | 2.15(2.31-6.93) |      | 74344   |       |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |         |       |
| 503.00 > 80.00                   | 3.076 | 3.076  | 0.0    | 1.000  | 646114    | 0.4761       |                 | 19.9 | 4619    |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |         |       |
| 468.00 > 423.00                  | 3.084 | 3.076  | 0.008  | 1.000  | 853465    | 0.6904       |                 | 27.6 | 16825   |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     | M     |
| 463.00 > 419.00           | 3.076 | 3.083     | -0.007    | 0.997     | 161999   | 0.4480          |                 |      | 262 |       |
| 463.00 > 169.00           | 3.076 | 3.083     | -0.007    | 0.997     | 45594    |                 | 3.55(1.90-5.69) |      | 150 | M     |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_049.d

Injection Date: 29-May-2018 09:25:37

Instrument ID: A8\_N

Lims ID: 320-39023-A-31-A

Lab Sample ID: 320-39023-31

Client ID: KLA04-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 39

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

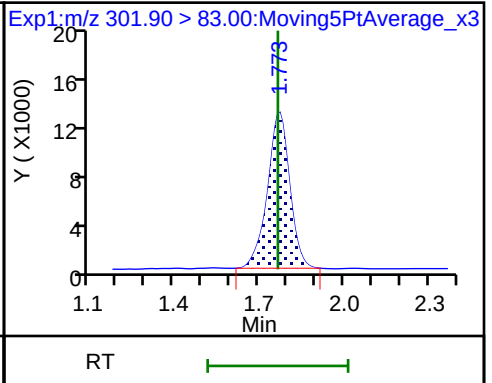
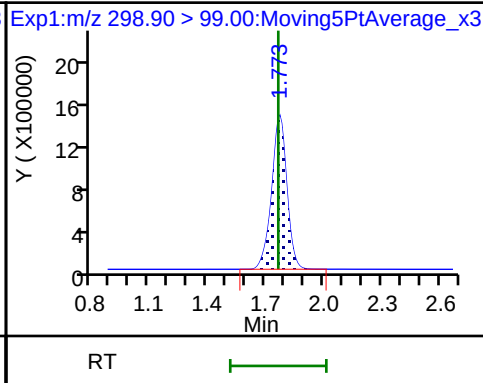
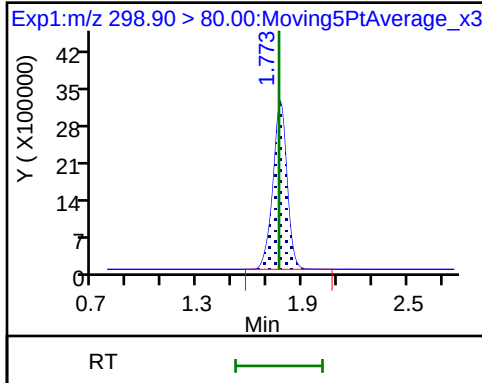
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

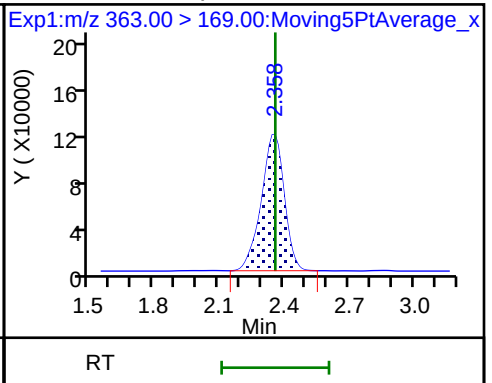
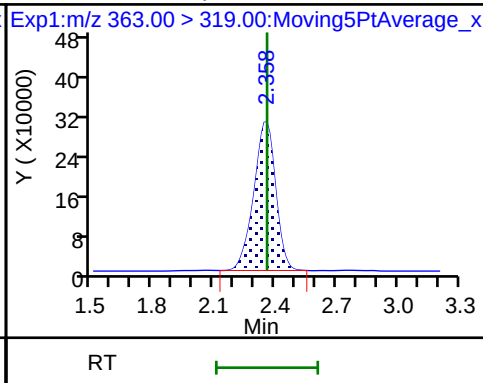
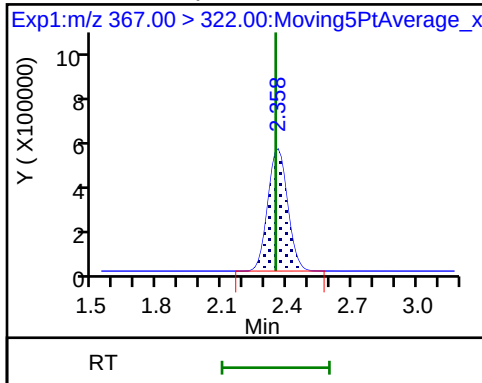
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

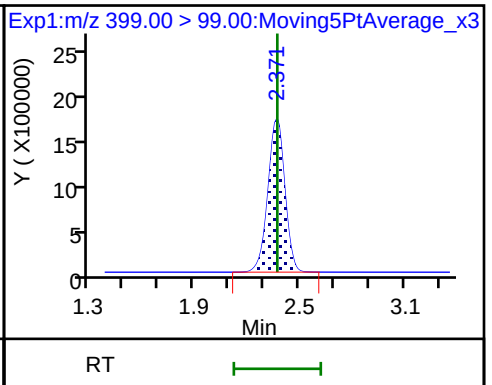
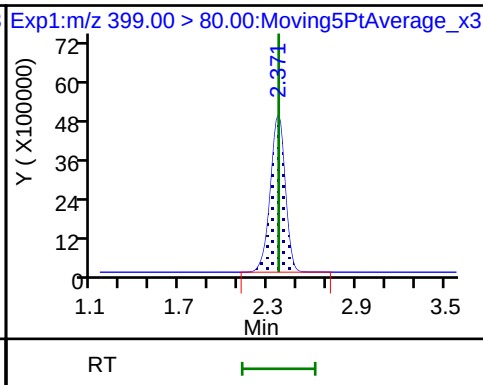
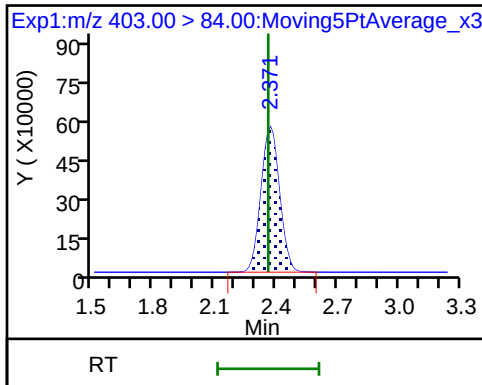
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

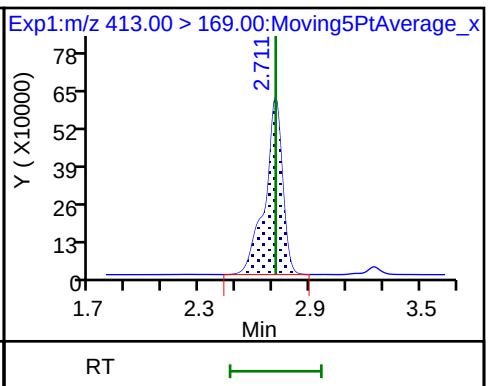
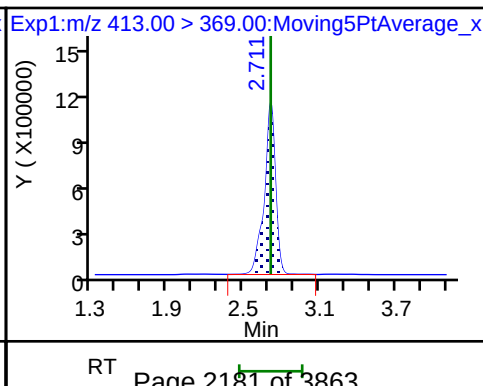
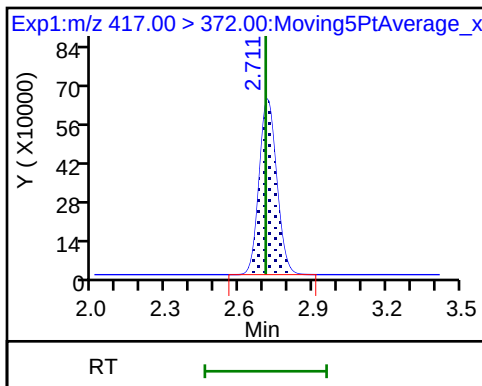
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

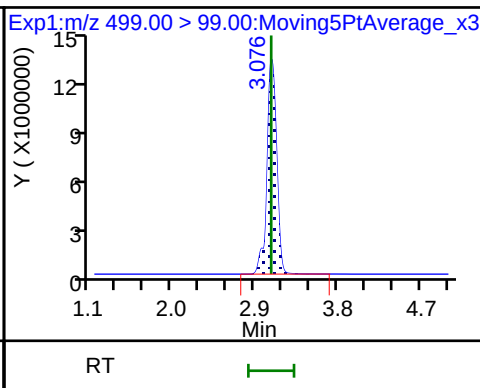
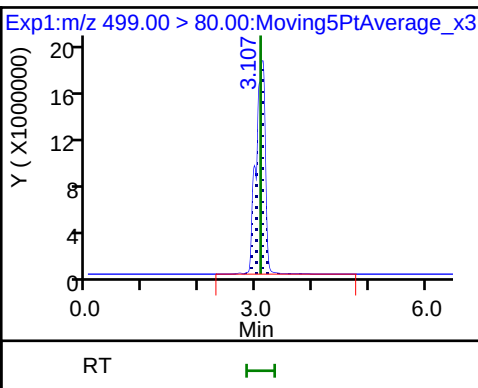
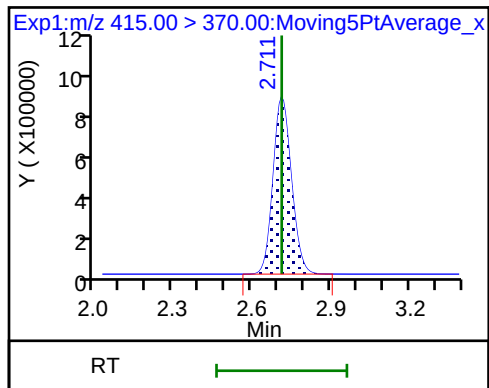
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

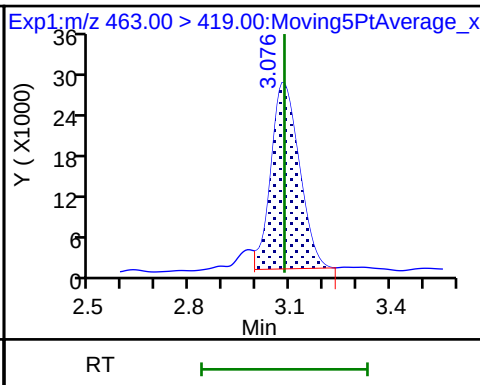
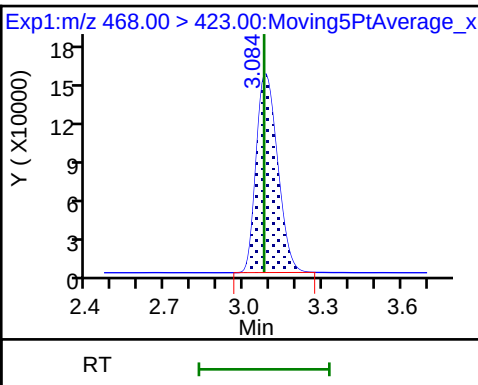
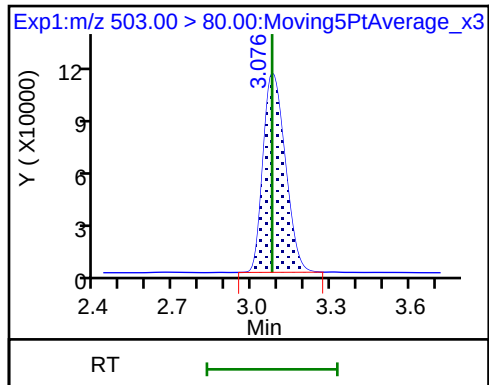
17 Perfluorooctane sulfonic acid



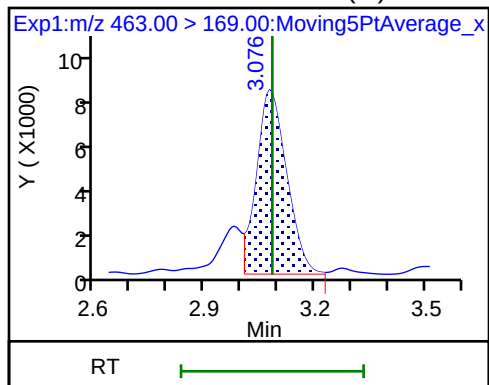
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



20 Perfluorononanoic acid (M)





## TestAmerica Sacramento

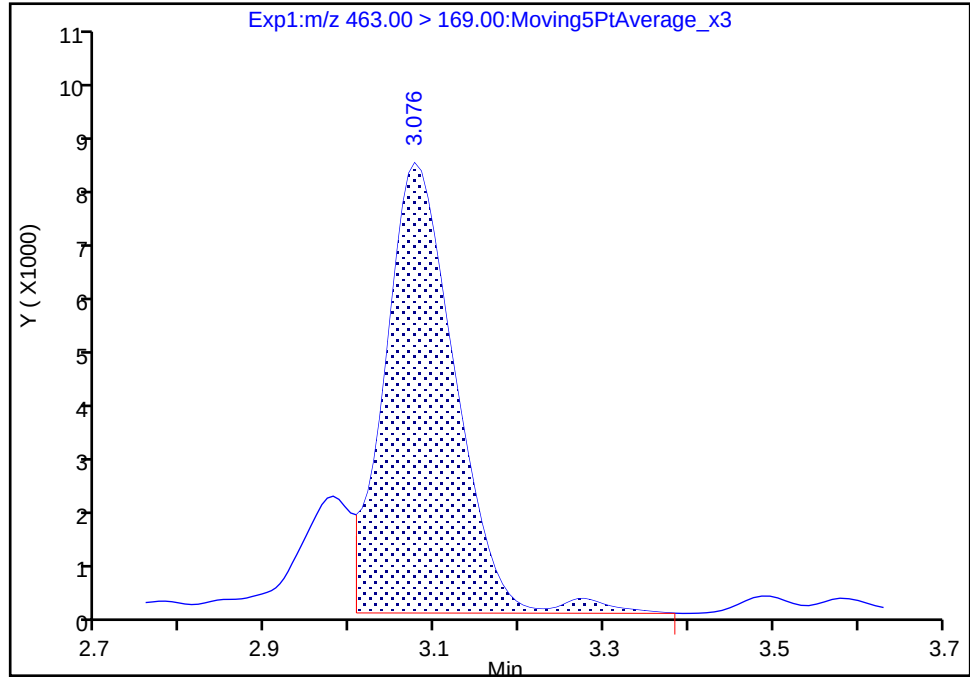
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_049.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:25:37                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-31-A                                                         | Lab Sample ID: | 320-39023-31       |                |    |
| Client ID:      | KLA04-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 39                 | Worklist Smp#: | 19 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

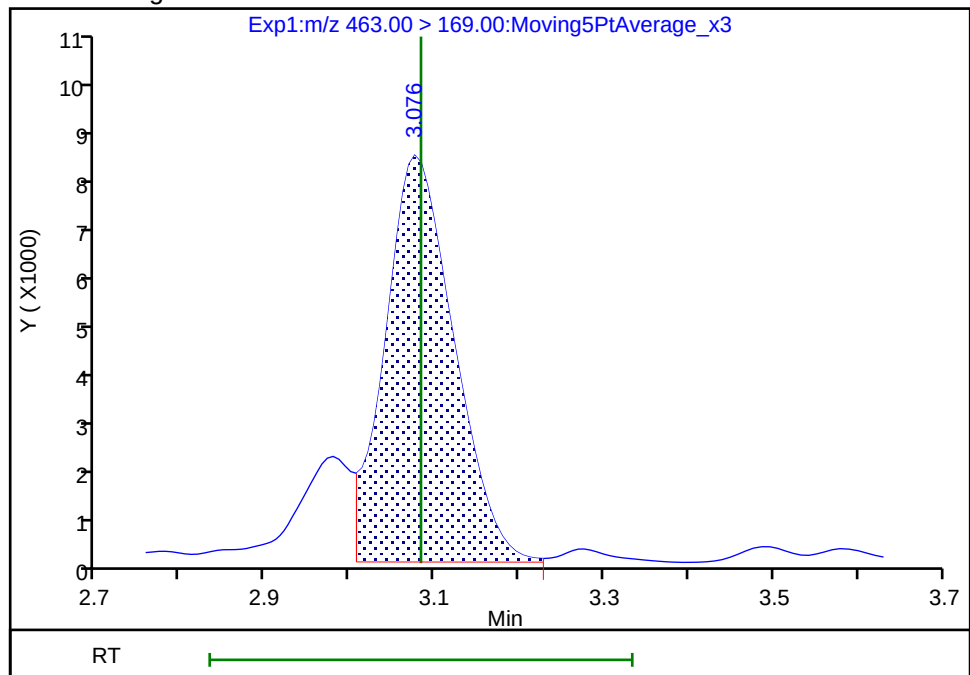
RT: 3.08  
Area: 46689  
Amount: 0.448015  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 45594  
Amount: 0.448015  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:54:03

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA04-SB3-01 DL</u> | Lab Sample ID: <u>320-39023-31 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_050.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 08:05</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.98(g)</u>            | Date Analyzed: <u>05/29/2018 17:23</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.6</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 3.7    | J D | 7.7 | 5.1 | 2.0 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 12     | D   | 7.7 | 5.1 | 2.6 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 5.1    | U M | 7.7 | 5.1 | 2.1 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 24     | D   | 10  | 4.6 | 1.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 53     | D   | 7.7 | 5.1 | 1.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3500   | E D | 26  | 13  | 6.1 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 54   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 75   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 82   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 59   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 69   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 47   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_050.d  
 Lims ID: 320-39023-A-31-A  
 Client ID: KLA04-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 17:23:18 ALS Bottle#: 38 Worklist Smp#: 27  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-31-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 11:03:13 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 11:03:12

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

## D 47 13C3-PFBS

|                |       |       |        |       |      |        |  |      |      |  |
|----------------|-------|-------|--------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.761 | 1.762 | -0.001 | 1.000 | 2829 | 0.0631 |  | 54.3 | 37.3 |  |
|----------------|-------|-------|--------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |        |        |  |  |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 298.90 > 80.00 | 1.770 | 1.765 | 0.006 | 1.005 | 885045 | 0.4657 |  |  | 4439 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.770 | 1.765 | 0.006 | 1.005 | 389302 |  | 2.27(1.25-3.74) |  | 3099 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |     |       |        |        |  |      |      |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.355 | 2.355 | 0.0 | 1.000 | 190499 | 0.0940 |  | 75.2 | 4481 |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.355 | 2.358 | -0.003 | 1.000 | 116440 | 0.0723 |  |  | 129 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |       |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 363.00 > 169.00 | 2.355 | 2.358 | -0.003 | 1.000 | 42836 |  | 2.72(1.13-3.40) |  | 189 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |         |      |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 399.00 > 80.00 | 2.368 | 2.358 | 0.010 | 1.000 | 1998508 | 1.03 |  |  | 8583 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.368 | 2.358 | 0.010 | 1.000 | 641696 |  | 3.11(1.50-4.49) |  | 3396 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |     |       |        |        |  |      |      |  |
|----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|
| 403.00 > 84.00 | 2.368 | 2.368 | 0.0 | 1.000 | 203188 | 0.0812 |  | 68.6 | 6709 |  |
|----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|

## D 14 13C4 PFOA

|                 |       |       |        |       |        |        |  |      |      |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|------|------|--|
| 417.00 > 372.00 | 2.710 | 2.711 | -0.001 | 1.000 | 197437 | 0.1030 |  | 82.4 | 5949 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|------|------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 413.00 > 369.00 | 2.710 | 2.712 | -0.002 | 1.000 | 437898 | 0.2355 |  |  | 141 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.703 | 2.712 | -0.009 | 0.997 | 238639 |  | 1.83(0.84-2.52) |  | 495 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|

## \* 62 13C2-PFOA

|                 |       |       |        |  |        |        |  |  |      |  |
|-----------------|-------|-------|--------|--|--------|--------|--|--|------|--|
| 415.00 > 370.00 | 2.710 | 2.712 | -0.002 |  | 252970 | 0.1250 |  |  | 5931 |  |
|-----------------|-------|-------|--------|--|--------|--------|--|--|------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |        |       |          |      |  |  |        |   |
|----------------|-------|-------|--------|-------|----------|------|--|--|--------|---|
| 499.00 > 80.00 | 3.076 | 3.079 | -0.003 | 1.000 | 65269201 | 68.2 |  |  | 142762 | E |
|----------------|-------|-------|--------|-------|----------|------|--|--|--------|---|

|                |       |       |        |       |          |  |                 |  |       |   |
|----------------|-------|-------|--------|-------|----------|--|-----------------|--|-------|---|
| 499.00 > 99.00 | 3.076 | 3.079 | -0.003 | 1.000 | 20768254 |  | 3.14(2.31-6.93) |  | 73280 | E |
|----------------|-------|-------|--------|-------|----------|--|-----------------|--|-------|---|

## 20 Perfluorononanoic acid

|                 |       |       |        |       |       |        |  |  |      |   |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|---|
| 463.00 > 419.00 | 3.076 | 3.079 | -0.003 | 1.000 | 22982 | 0.0235 |  |  | 61.4 | M |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|---|

|                 |       |       |        |       |      |  |                 |  |     |   |
|-----------------|-------|-------|--------|-------|------|--|-----------------|--|-----|---|
| 463.00 > 169.00 | 3.076 | 3.079 | -0.003 | 1.000 | 6770 |  | 3.39(1.90-5.69) |  | 137 | M |
|-----------------|-------|-------|--------|-------|------|--|-----------------|--|-----|---|

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

D 18 13C4 PFOS

503.00 &gt; 80.00 3.076 3.079 -0.003 1.000 97258 0.0565 47.3 928

D 19 13C5 PFNA

468.00 &gt; 423.00 3.076 3.079 -0.003 1.000 115237 0.0735 58.8 3474

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_050.d

Injection Date: 29-May-2018 17:23:18

Instrument ID: A8\_N

Lims ID: 320-39023-A-31-A

Lab Sample ID: 320-39023-31

Client ID: KLA04-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

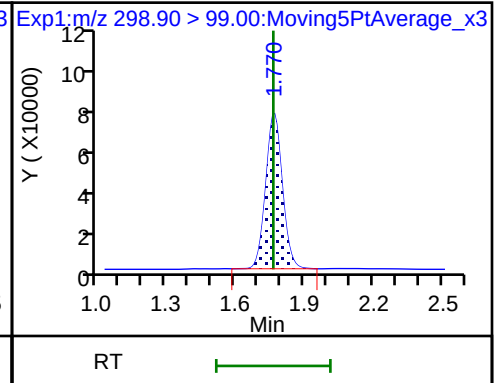
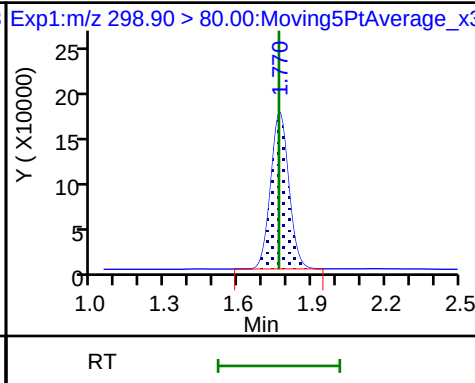
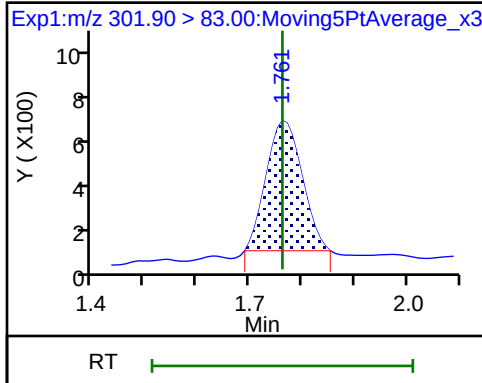
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

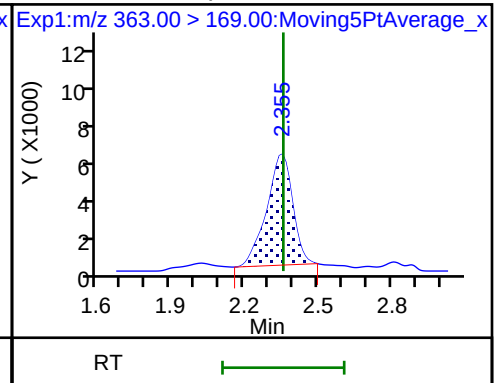
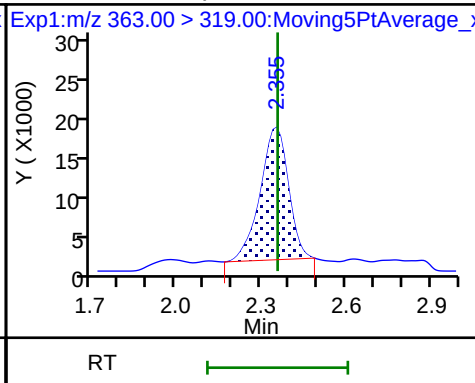
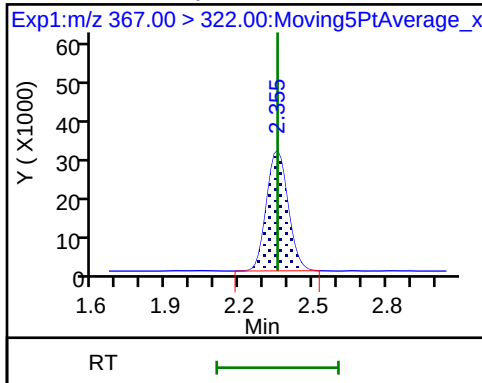
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

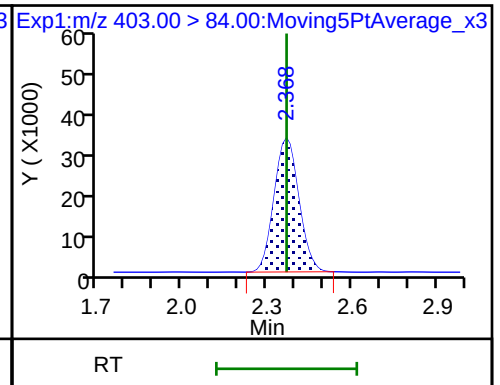
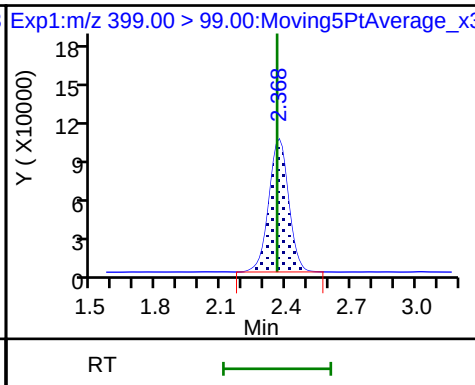
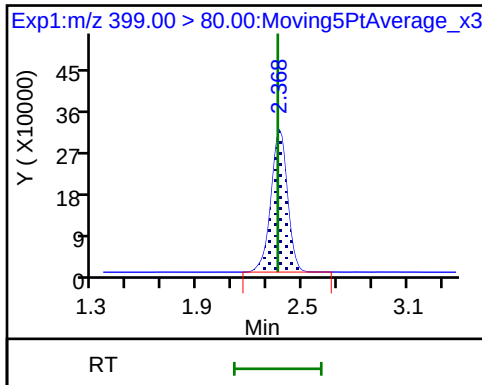
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

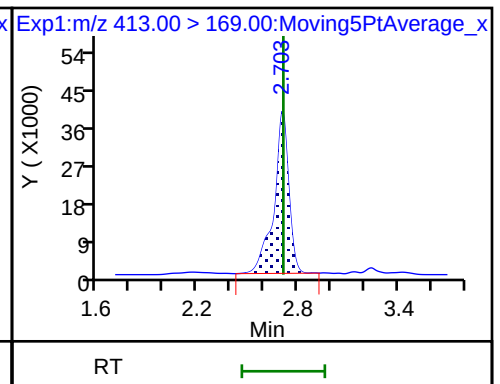
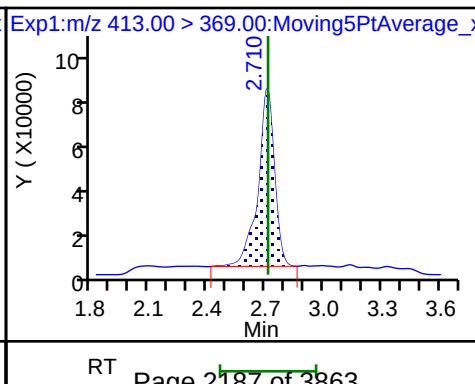
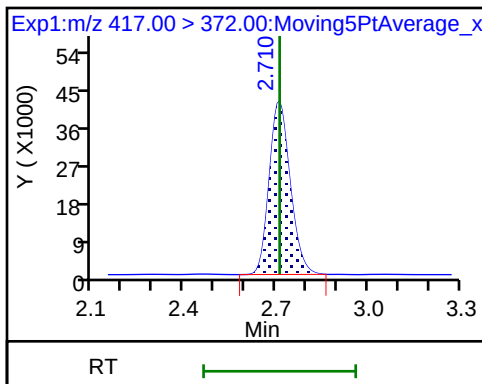
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

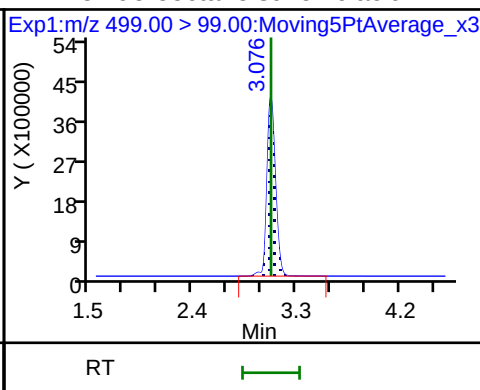
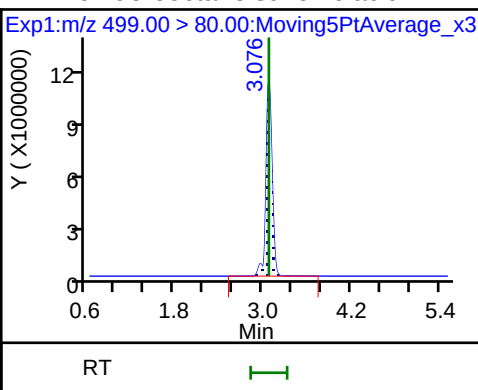
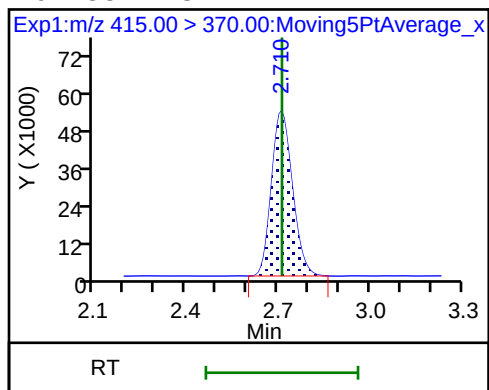
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

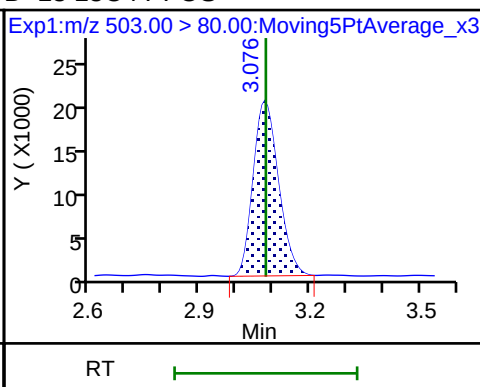
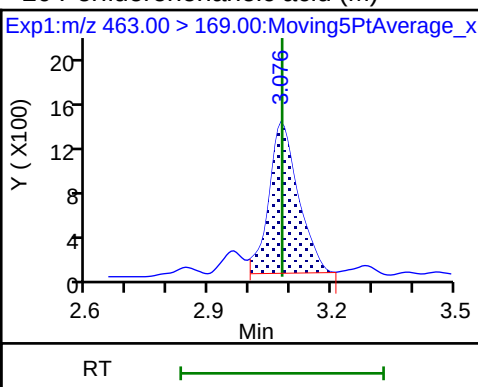
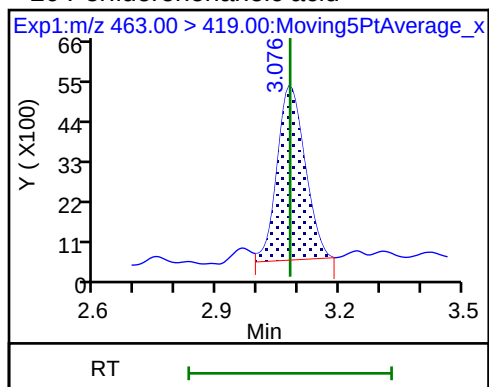
17 Perfluorooctane sulfonic acid



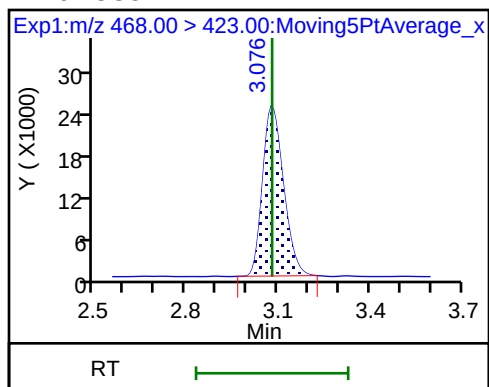
20 Perfluorononanoic acid

20 Perfluorononanoic acid (M)

D 18 13C4 PFOS



D 19 13C5 PFNA



## TestAmerica Sacramento

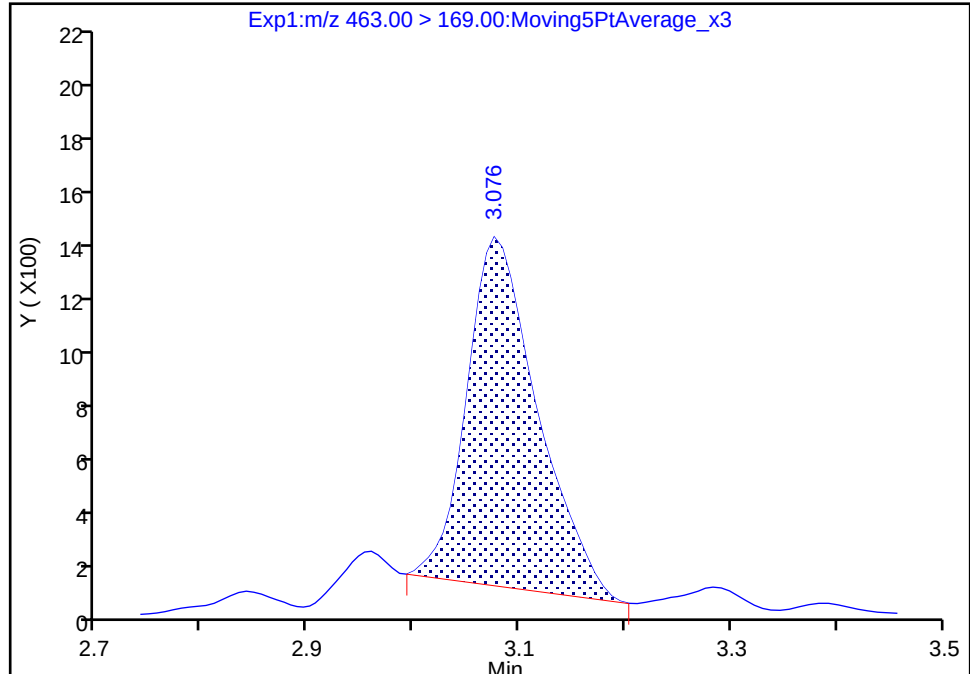
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_050.d |                |                    |                |    |
| Injection Date: | 29-May-2018 17:23:18                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-31-A                                                         | Lab Sample ID: | 320-39023-31       |                |    |
| Client ID:      | KLA04-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 38                 | Worklist Smp#: | 27 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

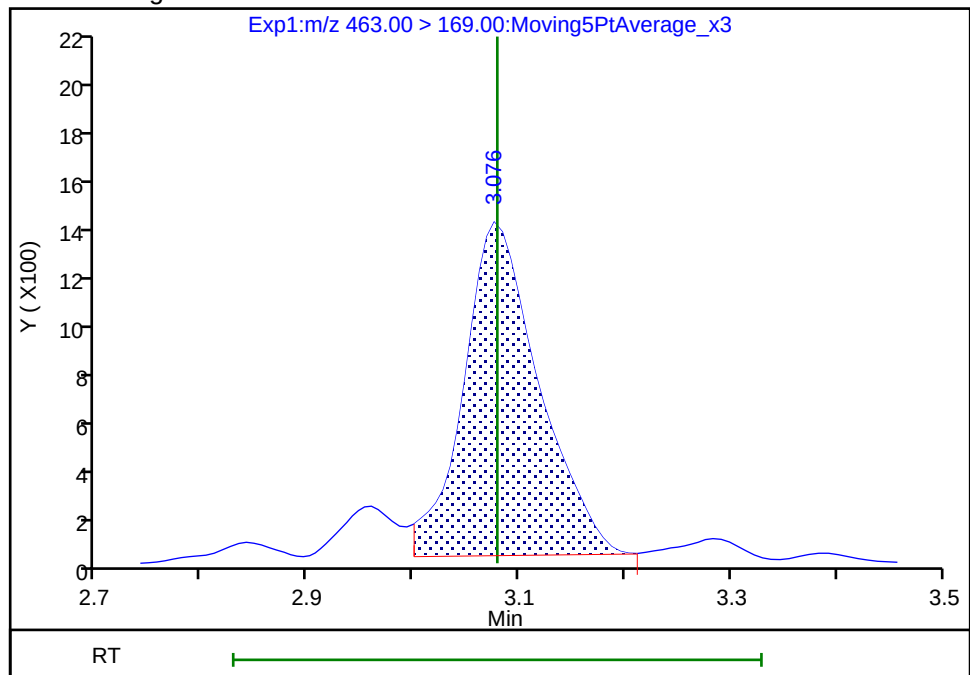
RT: 3.08  
Area: 6035  
Amount: 0.023536  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 6770  
Amount: 0.023536  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 11:03:04

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA04-SB3-01 DL2</u> | Lab Sample ID: <u>320-39023-31 DL2</u>       |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_041.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/04/2018 08:05</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.98(g)</u>             | Date Analyzed: <u>05/29/2018 16:12</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.6</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 26     | U   | 38  | 26  | 10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 13     | J D | 38  | 26  | 13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 26     | U   | 38  | 26  | 10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 16     | J D | 51  | 23  | 7.6 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 61     | D   | 38  | 26  | 7.9 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 4500   | E D | 130 | 64  | 31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 71   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 74   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 78   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 73   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 53   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 57   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_041.d  
 Lims ID: 320-39023-A-31-A  
 Client ID: KLA04-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 16:12:49 ALS Bottle#: 31 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-31-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:33:04 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:33:04

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |      | M     |
| 301.90 > 83.00                 | 1.774 | 1.762  | 0.012  | 1.000  | 830      | 0.0164       |                 | 70.6 | 6.7  | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 298.90 > 80.00                 | 1.774 | 1.765  | 0.009  | 1.000  | 170082   | 0.0610       |                 |      | 804  |       |
| 298.90 > 99.00                 | 1.774 | 1.765  | 0.009  | 1.000  | 80533    |              | 2.11(1.25-3.74) |      | 582  |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |      |       |
| 367.00 > 322.00                | 2.359 | 2.355  | 0.004  | 1.000  | 42141    | 0.0184       |                 | 73.8 | 872  |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |      | R     |
| 363.00 > 319.00                | 2.359 | 2.358  | 0.001  | 1.000  | 20371    | 0.0114       |                 |      | 23.6 | R     |
| 363.00 > 169.00                | 2.359 | 2.358  | 0.001  | 1.000  | 5741     |              | 3.55(1.13-3.40) |      | 27.2 |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |      |       |
| 403.00 > 84.00                 | 2.372 | 2.368  | 0.004  | 1.000  | 35446    | 0.0126       |                 | 53.1 | 1009 |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 399.00 > 80.00                 | 2.372 | 2.371  | 0.001  | 1.000  | 405515   | 0.2401       |                 |      | 1814 |       |
| 399.00 > 99.00                 | 2.372 | 2.371  | 0.001  | 1.000  | 121152   |              | 3.35(1.50-4.49) |      | 505  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 417.00 > 372.00                | 2.713 | 2.711  | 0.002  | 1.000  | 41913    | 0.0194       |                 | 77.6 | 1074 |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |      |       |
| 413.00 > 369.00                | 2.720 | 2.712  | 0.008  | 1.003  | 101706   | 0.0515       |                 |      | 30.9 |       |
| 413.00 > 169.00                | 2.713 | 2.712  | 0.001  | 1.000  | 53276    |              | 1.91(0.84-2.52) |      | 130  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 415.00 > 370.00                | 2.713 | 2.712  | 0.001  |        | 57055    | 0.0250       |                 |      | 1432 |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |      |       |
| 468.00 > 423.00                | 3.085 | 3.079  | 0.006  | 1.000  | 32443    | 0.0184       |                 | 73.4 | 1358 |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |      |       |
| 503.00 > 80.00                 | 3.085 | 3.079  | 0.006  | 1.000  | 26435    | 0.0136       |                 | 57.0 | 253  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |      |       |
| 463.00 > 419.00                | 3.085 | 3.082  | 0.003  | 1.000  | 6054     | 0.004404     |                 |      | 17.6 |       |
| 463.00 > 169.00                | 3.085 | 3.082  | 0.003  | 1.000  | 2017     |              | 3.00(1.90-5.69) |      | 51.4 |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | E     |
| 499.00 > 80.00                   | 3.085 | 3.082     | 0.003     | 1.000     | 22842245 | 17.6            |                 |      | 76902 | E     |
| 499.00 > 99.00                   | 3.085 | 3.082     | 0.003     | 1.000     | 5633650  |                 | 4.05(2.31-6.93) |      | 46751 |       |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_041.d

Injection Date: 29-May-2018 16:12:49

Instrument ID: A8\_N

Lims ID: 320-39023-A-31-A

Lab Sample ID: 320-39023-31

Client ID: KLA04-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

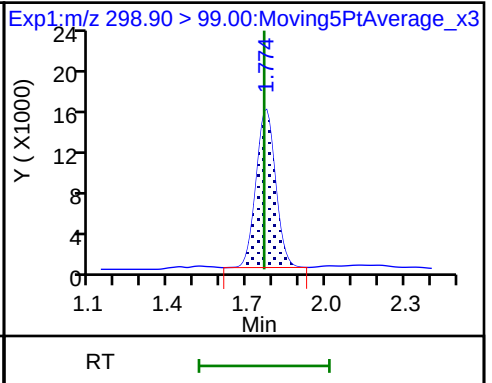
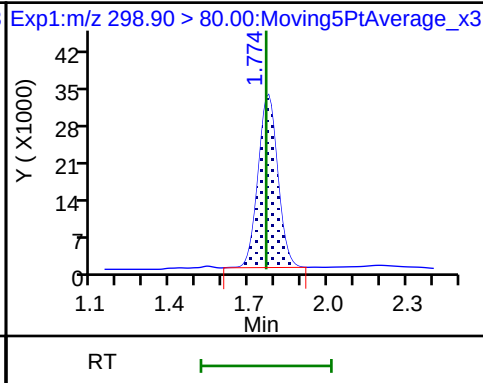
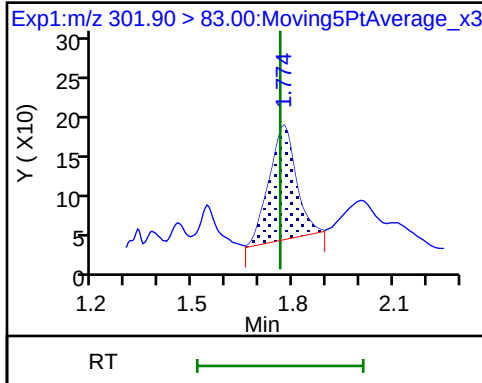
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

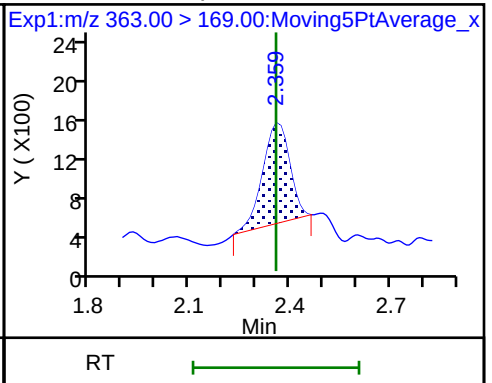
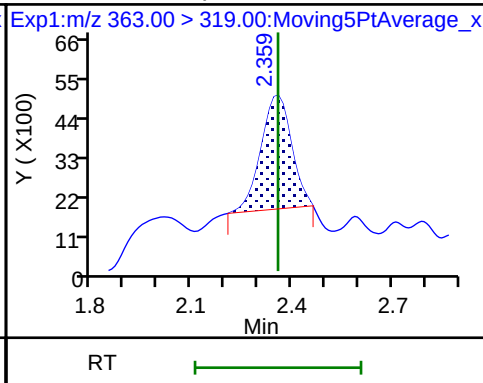
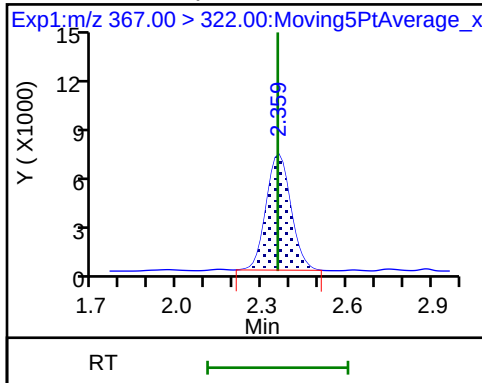
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

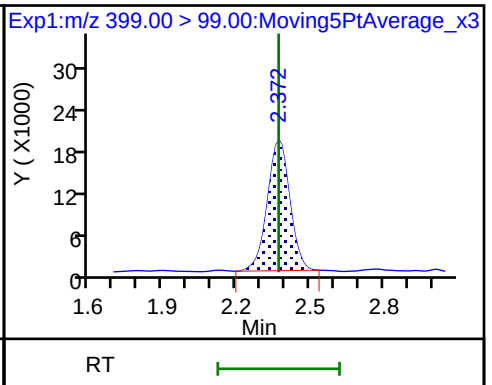
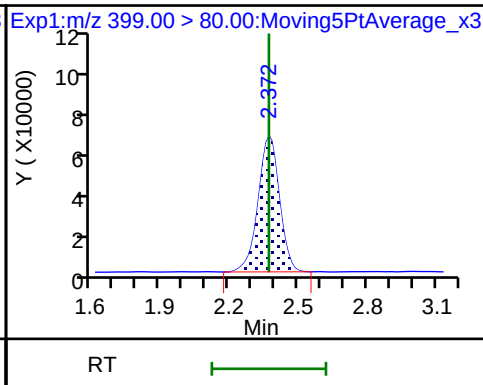
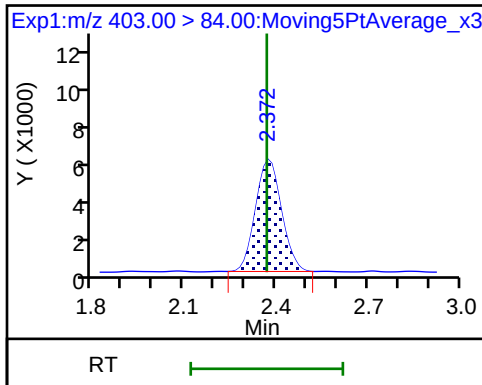
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

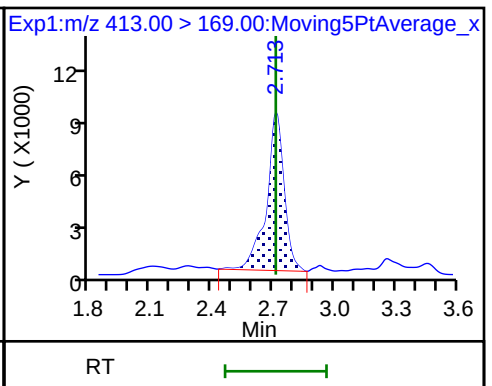
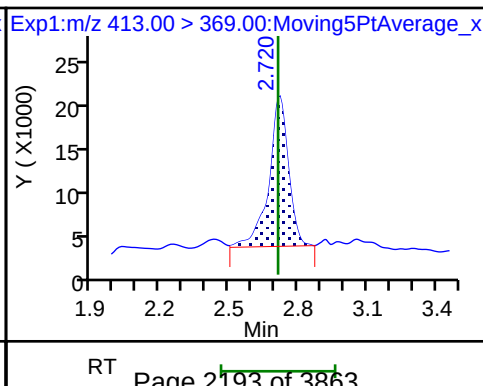
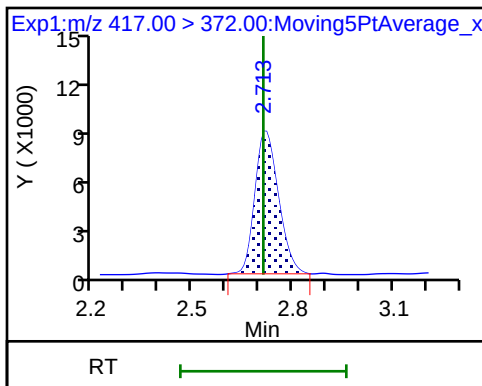
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

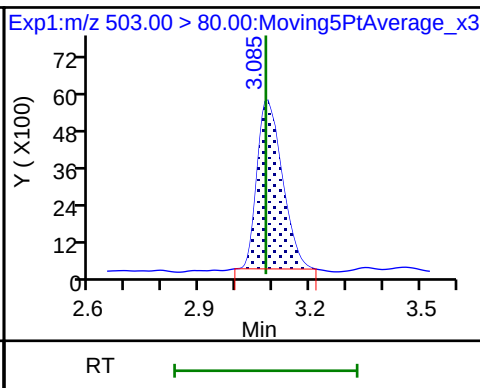
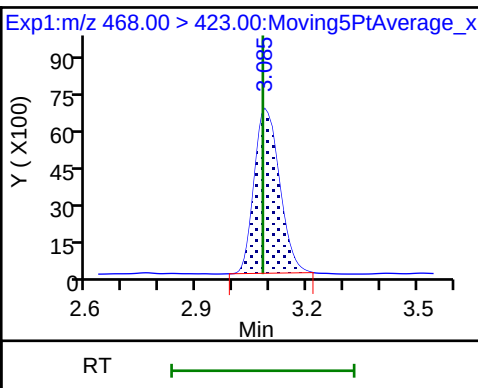
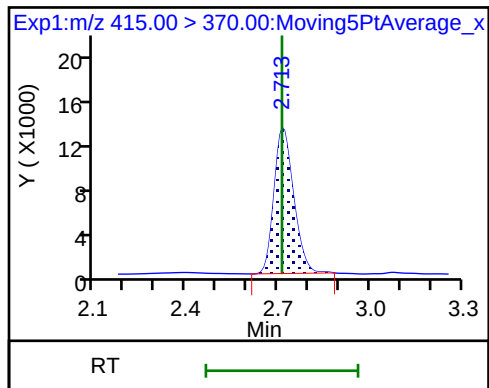
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

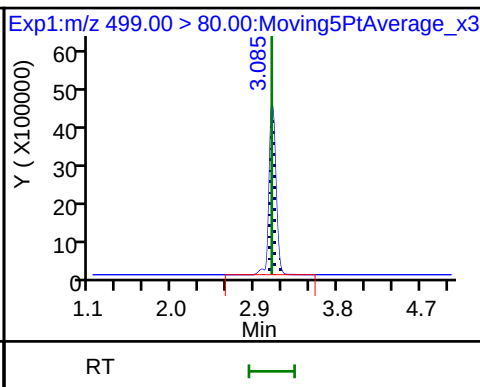
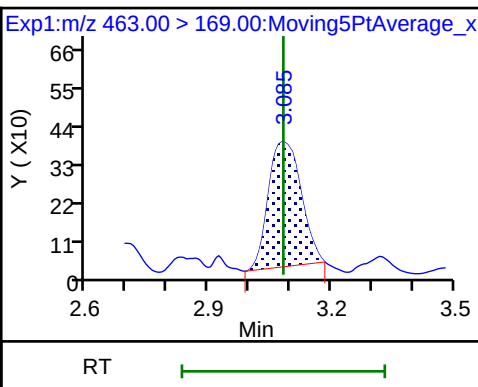
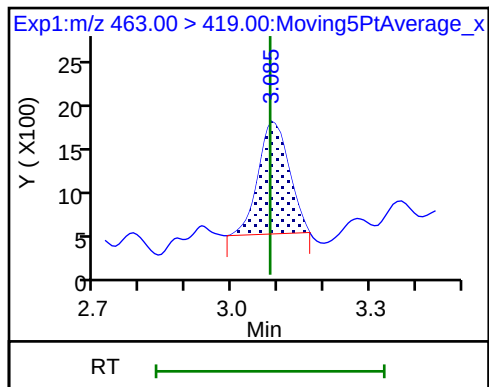
D 18 13C4 PFOS



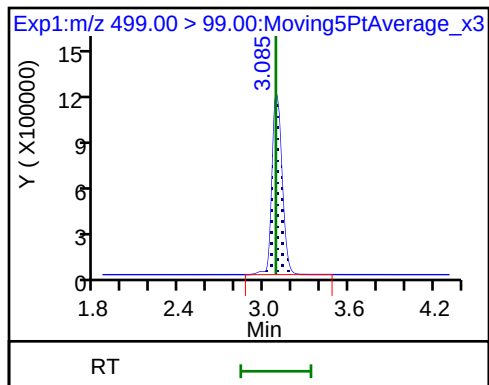
20 Perfluorononanoic acid

20 Perfluorononanoic acid

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

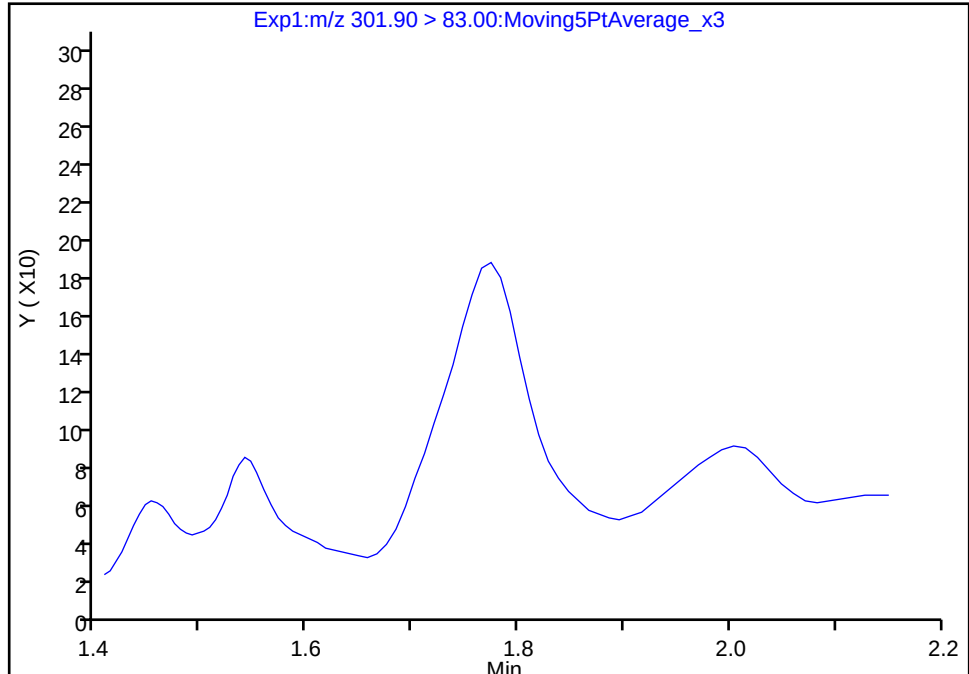
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_041.d |                |                    |                |    |
| Injection Date: | 29-May-2018 16:12:49                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-31-A                                                         | Lab Sample ID: | 320-39023-31       |                |    |
| Client ID:      | KLA04-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 31                 | Worklist Smp#: | 18 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

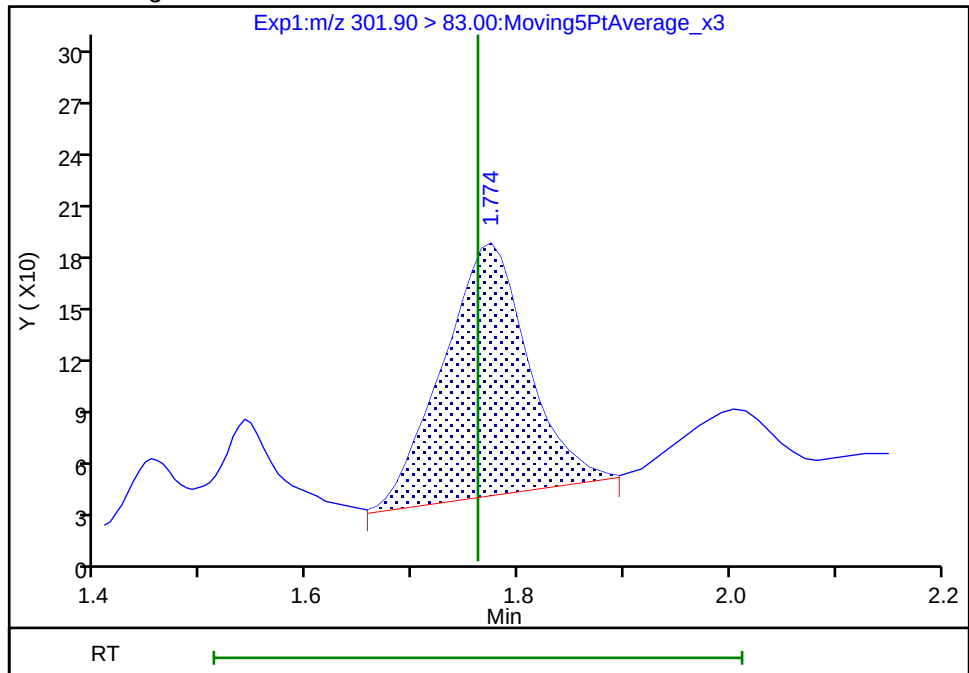
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 830  
Amount: 0.016424  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:32:44

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA04-SB3-02</u>   | Lab Sample ID: <u>320-39023-32</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_050.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 08:10</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>           | Date Analyzed: <u>05/29/2018 09:33</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>34.8</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 29     |     | 0.46 | 0.31 | 0.12  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 83     | E   | 0.46 | 0.31 | 0.15  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.2    |     | 0.46 | 0.31 | 0.12  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 80     | E   | 0.61 | 0.28 | 0.091 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 410    | E   | 0.46 | 0.31 | 0.095 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1900   | E M | 1.5  | 0.77 | 0.37  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 109  |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 77   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 51   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 65   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 39   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_050.d  
 Lims ID: 320-39023-A-32-A  
 Client ID: KLA04-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:33:29 ALS Bottle#: 40 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-32-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:54:07 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:54:25

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|---------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |         | E     |
| 298.90 > 80.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 64042959  | 26.1         |                 |      | 191812  | E     |
| 298.90 > 99.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 34257775  |              | 1.87(1.25-3.74) |      | 252368  |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |         |       |
| 301.90 > 83.00                   | 1.766 | 1.766  | 0.0    | 1.000  | 72928     | 2.53         |                 | 109  | 728     |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |         |       |
| 367.00 > 322.00                  | 2.347 | 2.347  | 0.0    | 1.000  | 2505725   | 1.92         |                 | 76.8 | 38024   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |         |       |
| 363.00 > 319.00                  | 2.347 | 2.359  | -0.012 | 1.000  | 9908668   | 9.36         |                 |      | 14051   |       |
| 363.00 > 169.00                  | 2.347 | 2.359  | -0.012 | 1.000  | 3703001   |              | 2.68(1.13-3.40) |      | 17239   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |         |       |
| 403.00 > 84.00                   | 2.360 | 2.360  | 0.0    | 1.000  | 2469540   | 1.53         |                 | 64.8 | 45911   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |         | E     |
| 399.00 > 80.00                   | 2.360 | 2.372  | -0.012 | 1.000  | 157192666 | 133.6        |                 |      | 97088   | E     |
| 399.00 > 99.00                   | 2.360 | 2.372  | -0.012 | 1.000  | 76865774  |              | 2.05(1.50-4.49) |      | 81108   |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 417.00 > 372.00                  | 2.713 | 2.706  | 0.007  | 1.000  | 2695563   | 2.18         |                 | 87.4 | 59324   |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |         | E     |
| 413.00 > 369.00                  | 2.713 | 2.713  | 0.0    | 1.000  | 34294742  | 27.0         |                 |      | 15373   | E     |
| 413.00 > 169.00                  | 2.705 | 2.713  | -0.008 | 0.997  | 21362605  |              | 1.61(0.84-2.52) |      | 22634   |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 415.00 > 370.00                  | 2.705 | 2.713  | -0.008 |        | 3258189   | 2.50         |                 |      | 53646   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |         | EM    |
| 499.00 > 80.00                   | 2.954 | 3.076  | -0.122 | 0.960  | 321376310 | 626.5        |                 |      | 6607    | EM    |
| 499.00 > 99.00                   | 3.070 | 3.076  | -0.006 | 0.998  | 124451317 |              | 2.58(2.31-6.93) |      | 4356136 |       |
| D 18 13C4 PFOS                   |       |        |        |        |           |              |                 |      |         |       |
| 503.00 > 80.00                   | 3.077 | 3.076  | 0.001  | 1.000  | 1042672   | 0.9409       |                 | 39.4 | 5159    |       |
| D 19 13C5 PFNA                   |       |        |        |        |           |              |                 |      |         |       |
| 468.00 > 423.00                  | 3.077 | 3.076  | 0.001  | 1.000  | 1281581   | 1.27         |                 | 50.8 | 18983   |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      |       |
| 463.00 > 419.00           | 3.077 | 3.083     | -0.006    | 1.000     | 206774   | 0.3808          |                 |      | 172  |       |
| 463.00 > 169.00           | 3.077 | 3.083     | -0.006    | 1.000     | 55594    |                 | 3.72(1.90-5.69) |      | 93.1 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_050.d

Injection Date: 29-May-2018 09:33:29

Instrument ID: A8\_N

Lims ID: 320-39023-A-32-A

Lab Sample ID: 320-39023-32

Client ID: KLA04-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

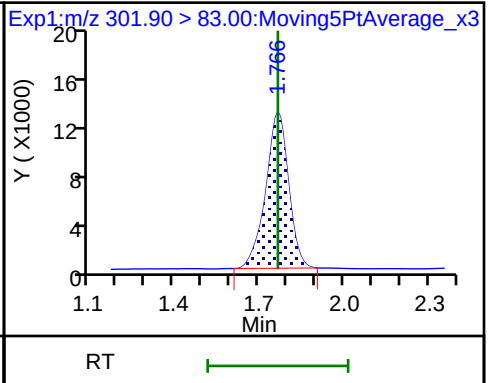
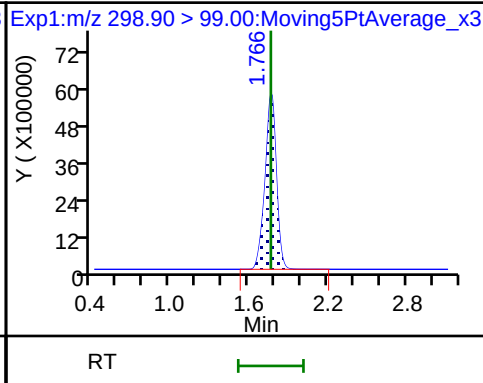
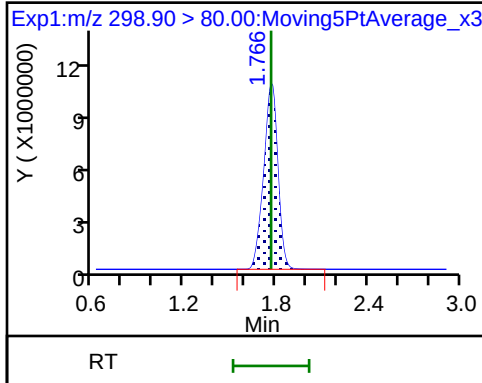
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

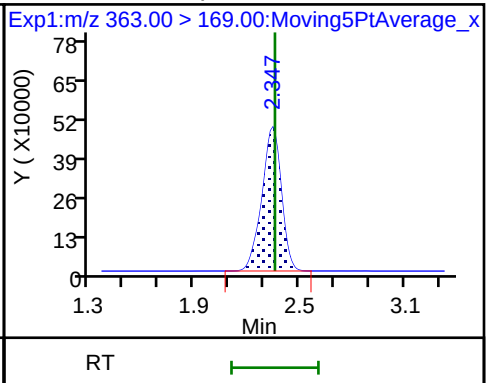
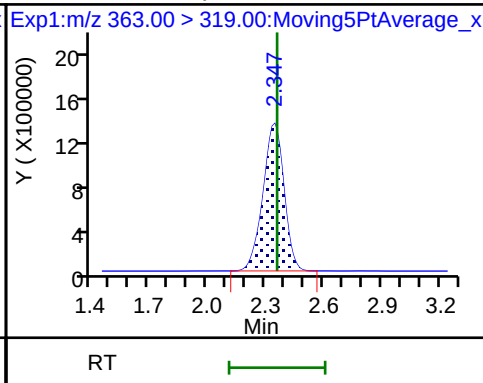
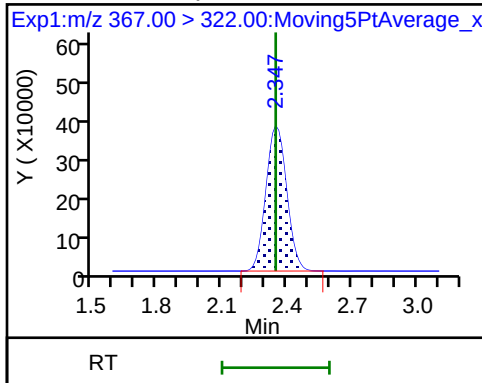
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

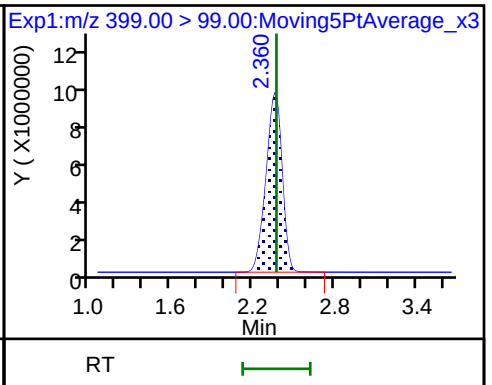
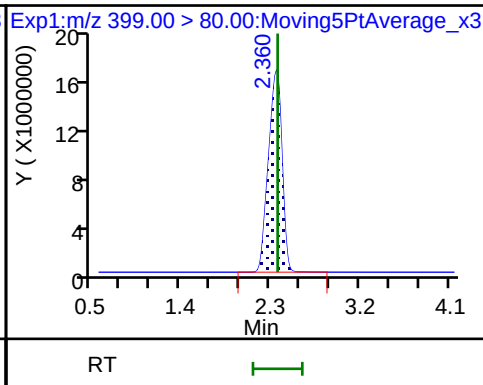
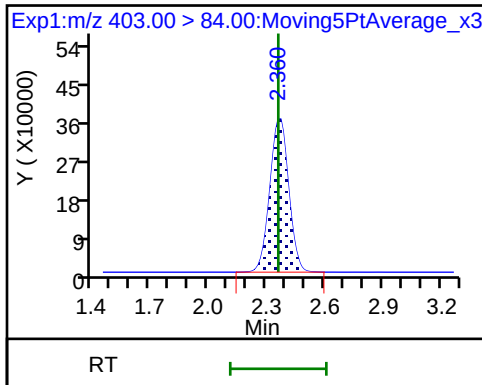
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

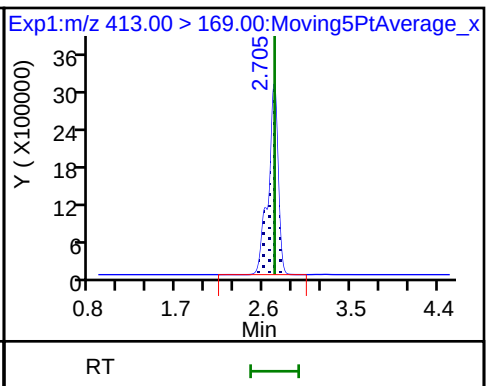
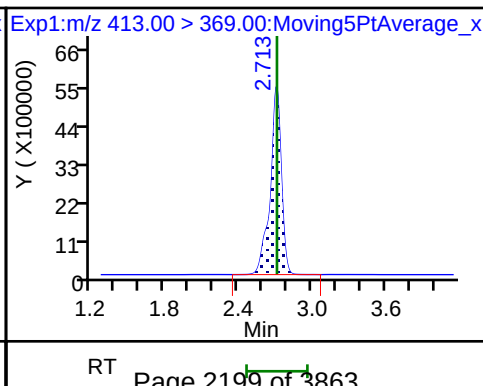
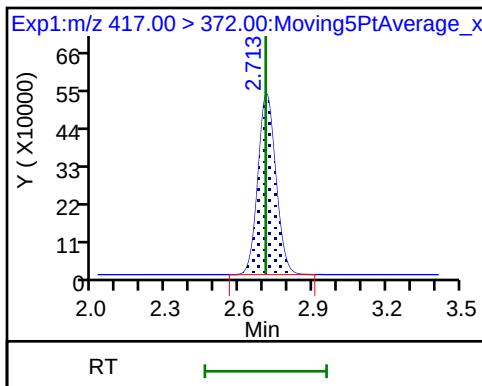
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

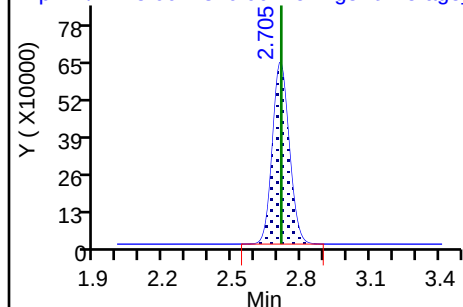


\* 62 13C2-PFOA

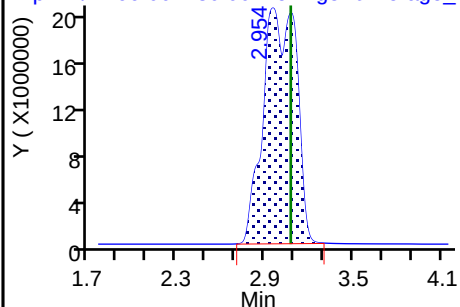
17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid

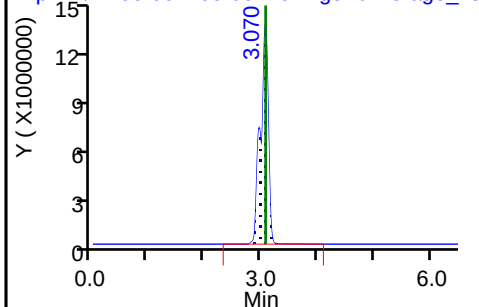
Exp1:m/z 415.00 &gt; 370.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

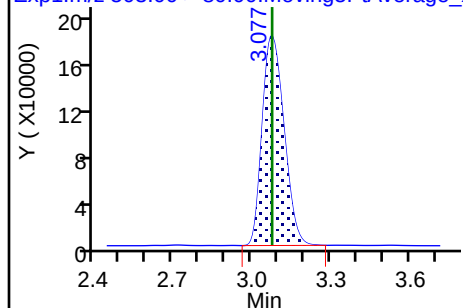


D 18 13C4 PFOS

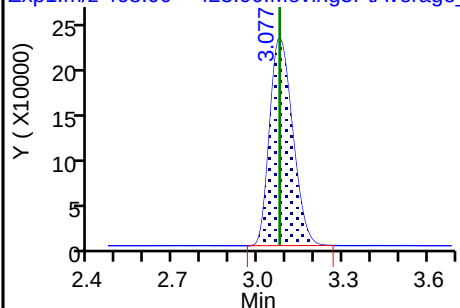
D 19 13C5 PFNA

20 Perfluorononanoic acid

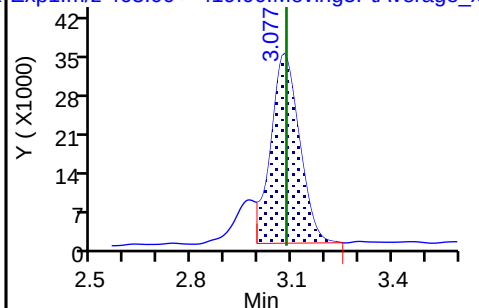
Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x

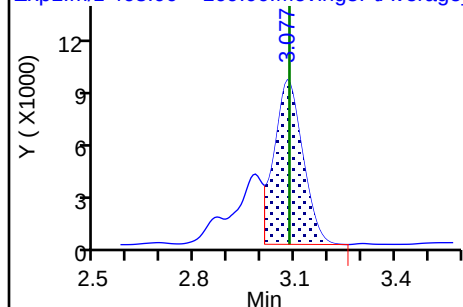


Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



20 Perfluorononanoic acid

Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x



## TestAmerica Sacramento

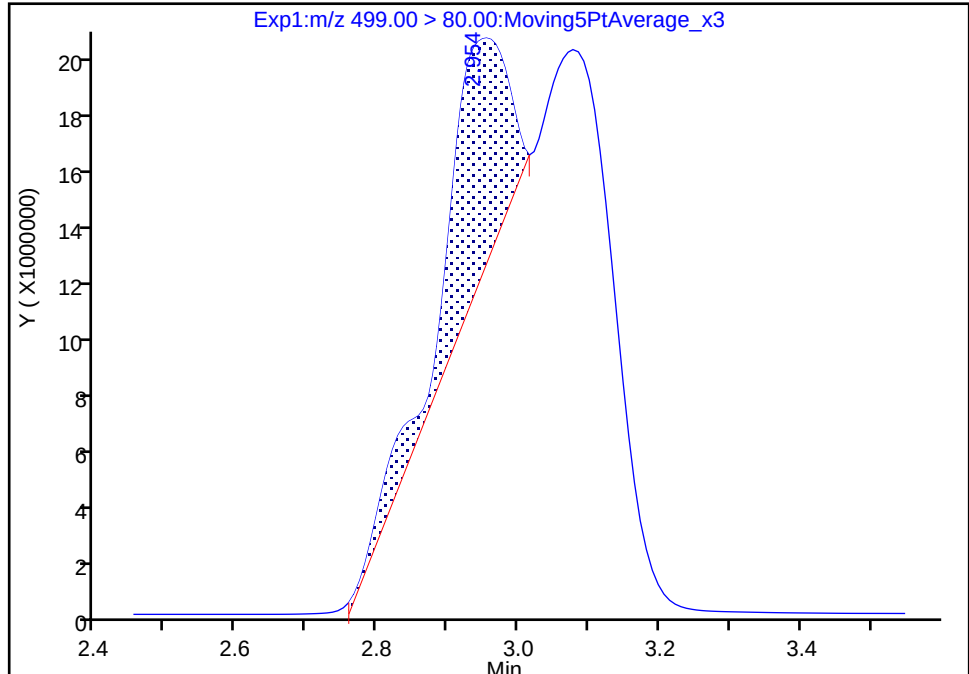
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_050.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:33:29                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-32-A                                                         | Lab Sample ID: | 320-39023-32       |                |    |
| Client ID:      | KLA04-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 40                 | Worklist Smp#: | 20 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

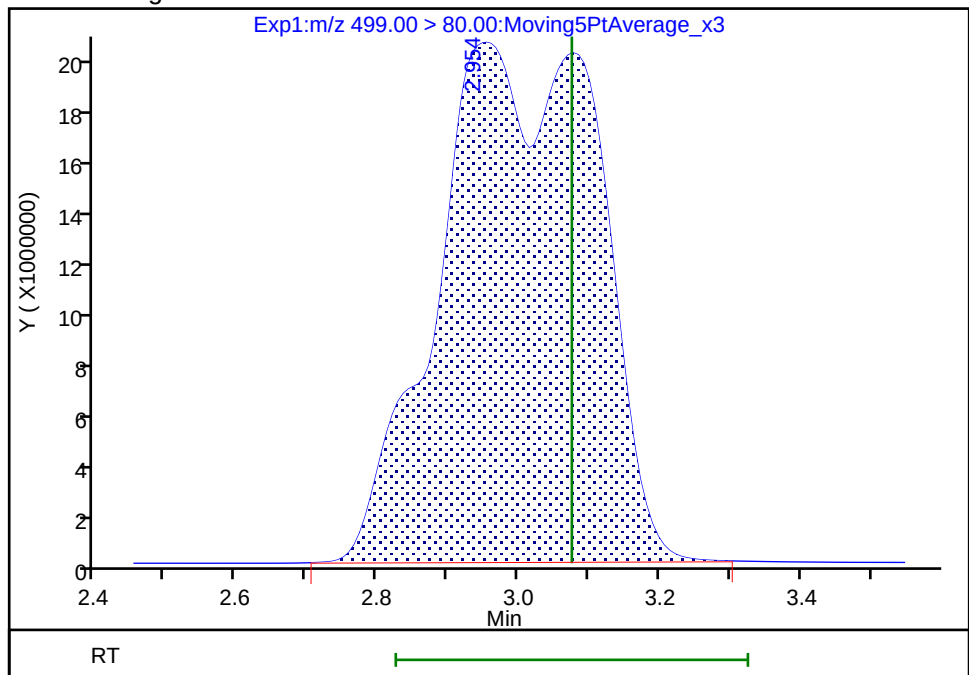
RT: 2.95  
Area: 51001626  
Amount: 99.426642  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.95  
Area: 321376310  
Amount: 626.5166  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: hannigana, 29-May-2018 11:42:09  
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration  
Page 2201 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA04-SB3-02 DL</u> | Lab Sample ID: <u>320-39023-32 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_051.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/04/2018 08:10</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>            | Date Analyzed: <u>05/29/2018 17:31</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>34.8</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q     | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 27     | D     | 9.2 | 6.1 | 2.4 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 85     | D     | 9.2 | 6.1 | 3.1 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 6.1    | U M   | 9.2 | 6.1 | 2.5 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 110    | D     | 12  | 5.5 | 1.8 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 730    | E D   | 9.2 | 6.1 | 1.9 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3500   | E D M | 31  | 15  | 7.4 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 88   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 84   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 76   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 63   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_051.d  
 Lims ID: 320-39023-A-32-A  
 Client ID: KLA04-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 17:31:08 ALS Bottle#: 39 Worklist Smp#: 28  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-32-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 11:04:03 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 11:04:03

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

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.774 | 1.762 | 0.012 | 1.000 | 4380 | 0.1020 |  | 87.7 | 46.0 |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |         |      |  |  |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|-------|--|
| 298.90 > 80.00 | 1.774 | 1.765 | 0.010 | 1.000 | 5323192 | 1.81 |  |  | 29091 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|-------|--|

|                |       |       |       |       |         |  |                 |  |       |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|
| 298.90 > 99.00 | 1.774 | 1.765 | 0.010 | 1.000 | 2414508 |  | 2.20(1.25-3.74) |  | 18294 |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|

## D 9 13C4-PFHpa

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.358 | 2.355 | 0.003 | 1.000 | 204860 | 0.1055 |  | 84.4 | 5561 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |     |       |        |        |  |  |     |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.358 | 2.358 | 0.0 | 1.000 | 773991 | 0.4471 |  |  | 911 |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|--|-----|--|

|                 |       |       |     |       |        |  |                 |  |      |  |
|-----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.358 | 2.358 | 0.0 | 1.000 | 284035 |  | 2.72(1.13-3.40) |  | 1404 |  |
|-----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |          |      |  |  |       |   |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|---|
| 399.00 > 80.00 | 2.372 | 2.358 | 0.014 | 1.000 | 24478956 | 11.9 |  |  | 38241 | E |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|---|

|                |       |       |       |       |         |  |                 |  |       |   |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|---|
| 399.00 > 99.00 | 2.372 | 2.358 | 0.014 | 1.000 | 8520303 |  | 2.87(1.50-4.49) |  | 29112 | E |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|---|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 403.00 > 84.00 | 2.372 | 2.368 | 0.004 | 1.000 | 216768 | 0.0903 |  | 76.4 | 7106 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 417.00 > 372.00 | 2.712 | 2.711 | 0.001 | 1.000 | 200494 | 0.1091 |  | 87.3 | 5446 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |         |      |  |  |     |  |
|-----------------|-------|-------|-------|-------|---------|------|--|--|-----|--|
| 413.00 > 369.00 | 2.719 | 2.712 | 0.007 | 1.003 | 2604232 | 1.38 |  |  | 855 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|--|-----|--|

|                 |       |       |     |       |         |  |                 |  |      |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|
| 413.00 > 169.00 | 2.712 | 2.712 | 0.0 | 1.000 | 1468820 |  | 1.77(0.84-2.52) |  | 4659 |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|

## \* 62 13C2-PFOA

|                 |       |       |     |  |        |        |  |  |      |  |
|-----------------|-------|-------|-----|--|--------|--------|--|--|------|--|
| 415.00 > 370.00 | 2.712 | 2.712 | 0.0 |  | 242527 | 0.1250 |  |  | 6402 |  |
|-----------------|-------|-------|-----|--|--------|--------|--|--|------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |          |      |  |  |       |    |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|----|
| 499.00 > 80.00 | 3.084 | 3.079 | 0.005 | 1.000 | 69761748 | 57.5 |  |  | 34715 | EM |
|----------------|-------|-------|-------|-------|----------|------|--|--|-------|----|

|                |       |       |       |       |          |  |                 |  |       |    |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|-------|----|
| 499.00 > 99.00 | 3.084 | 3.079 | 0.005 | 1.000 | 17553163 |  | 3.97(2.31-6.93) |  | 85148 | EM |
|----------------|-------|-------|-------|-------|----------|--|-----------------|--|-------|----|

## 20 Perfluorononanoic acid

|                 |       |       |        |       |       |        |  |  |      |   |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|---|
| 463.00 > 419.00 | 3.076 | 3.079 | -0.003 | 0.997 | 23614 | 0.0189 |  |  | 54.3 | M |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|---|

|                 |       |       |       |       |      |  |                 |  |      |   |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|---|
| 463.00 > 169.00 | 3.084 | 3.079 | 0.005 | 1.000 | 4516 |  | 5.23(1.90-5.69) |  | 82.1 | M |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|---|

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |      |       |
| 503.00 > 80.00  | 3.084 | 3.079     | 0.005     | 1.000     | 123254   | 0.0747          |               | 62.5 | 1148 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |      |       |
| 468.00 > 423.00 | 3.084 | 3.079     | 0.005     | 1.000     | 147084   | 0.0979          |               | 78.3 | 7829 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_051.d

Injection Date: 29-May-2018 17:31:08

Instrument ID: A8\_N

Lims ID: 320-39023-A-32-A

Lab Sample ID: 320-39023-32

Client ID: KLA04-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 39

Worklist Smp#: 28

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

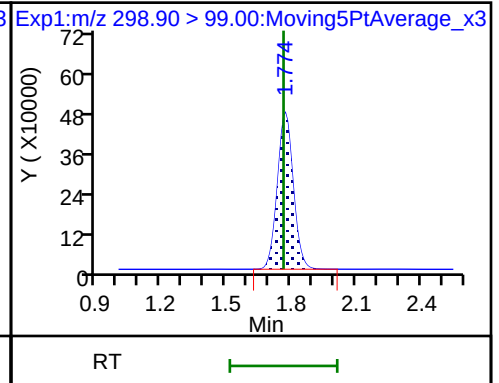
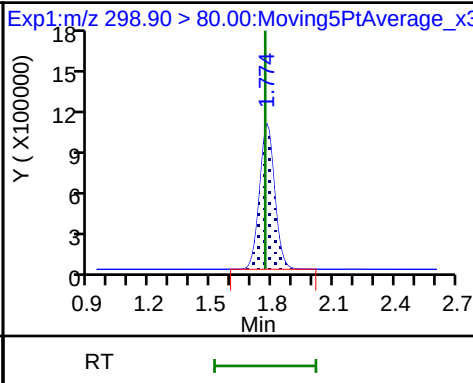
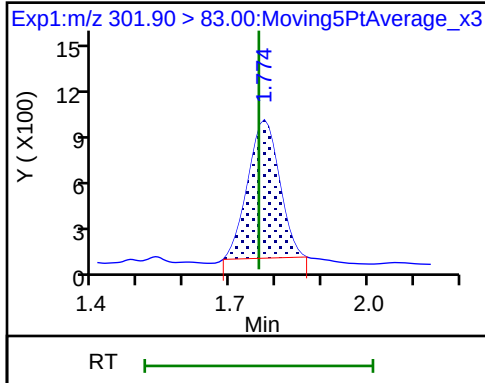
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

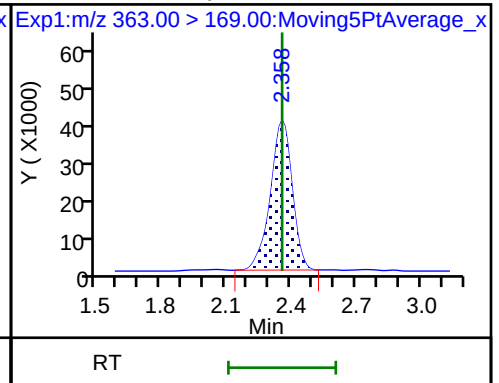
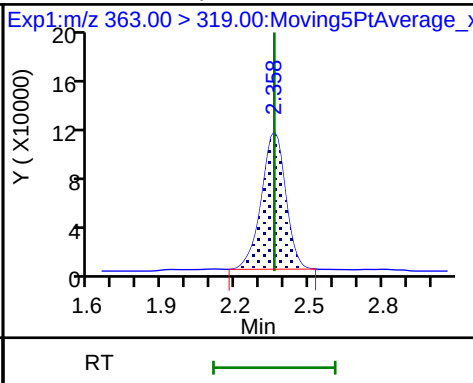
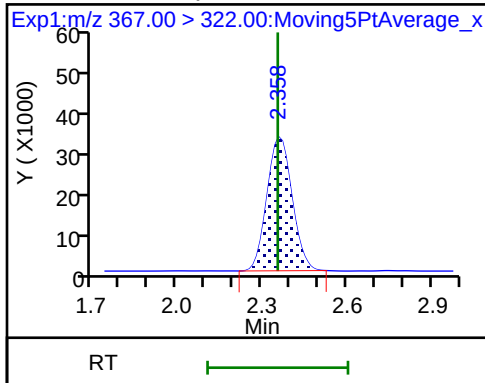
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

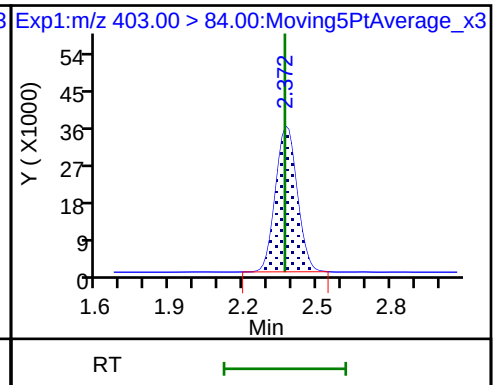
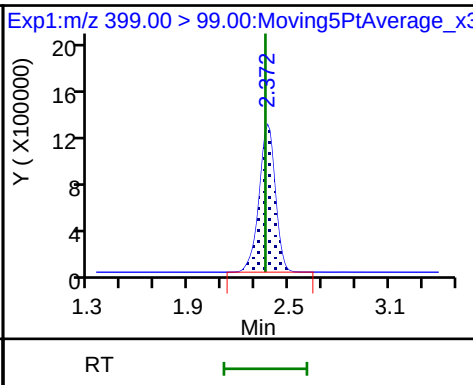
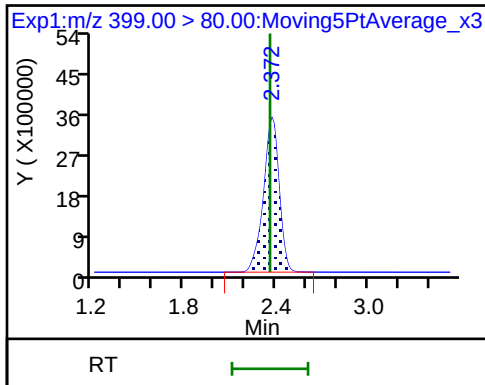
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

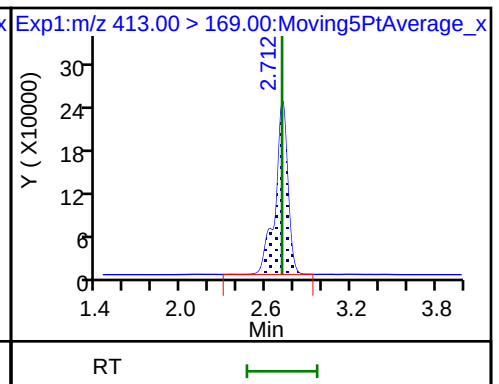
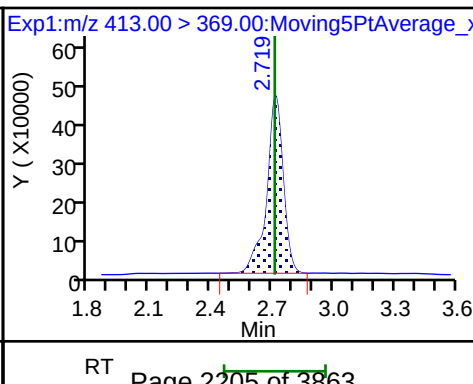
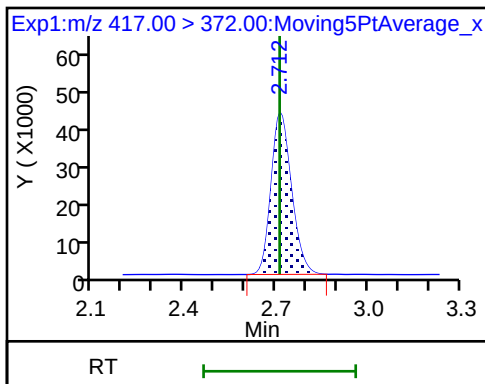
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

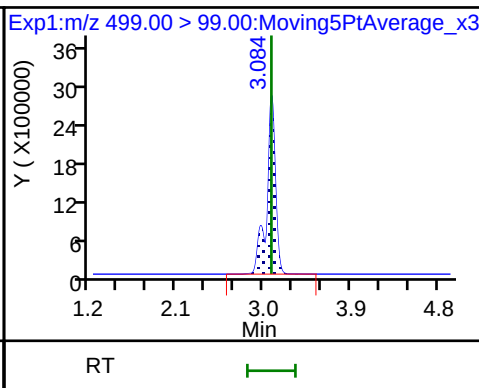
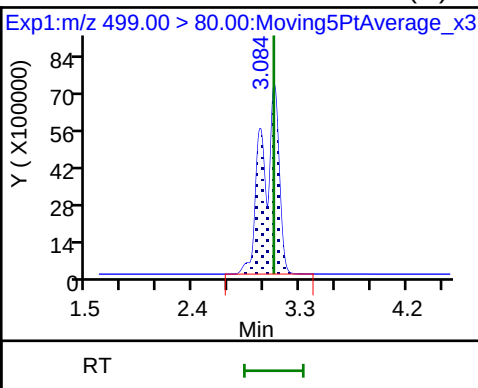
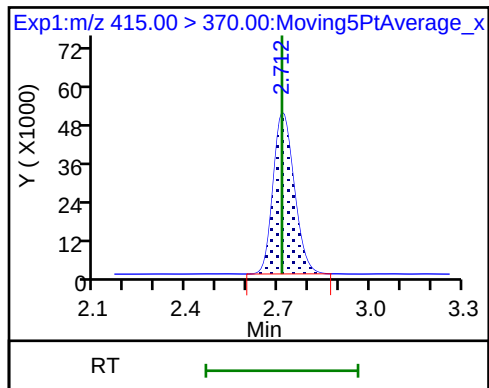
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid (M)

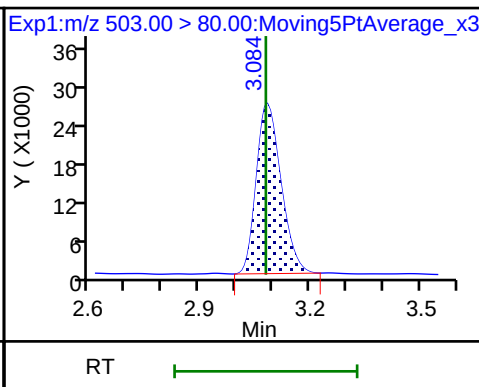
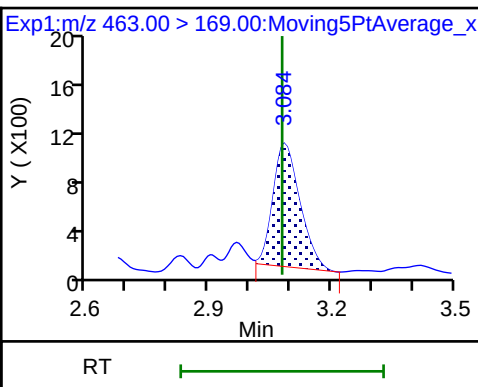
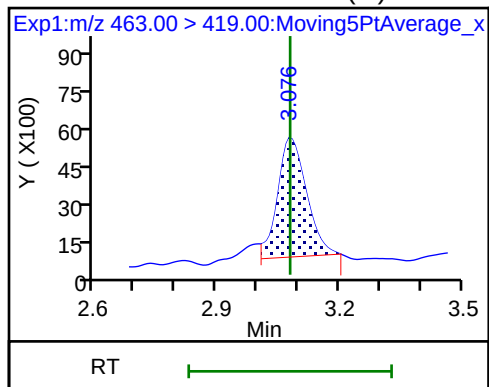
17 Perfluorooctane sulfonic acid



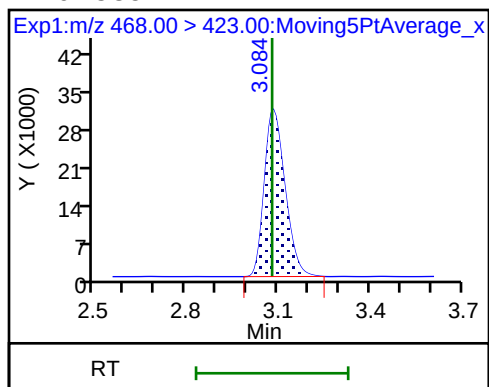
20 Perfluorononanoic acid (M)

20 Perfluorononanoic acid

D 18 13C4 PFOS



D 19 13C5 PFNA





## TestAmerica Sacramento

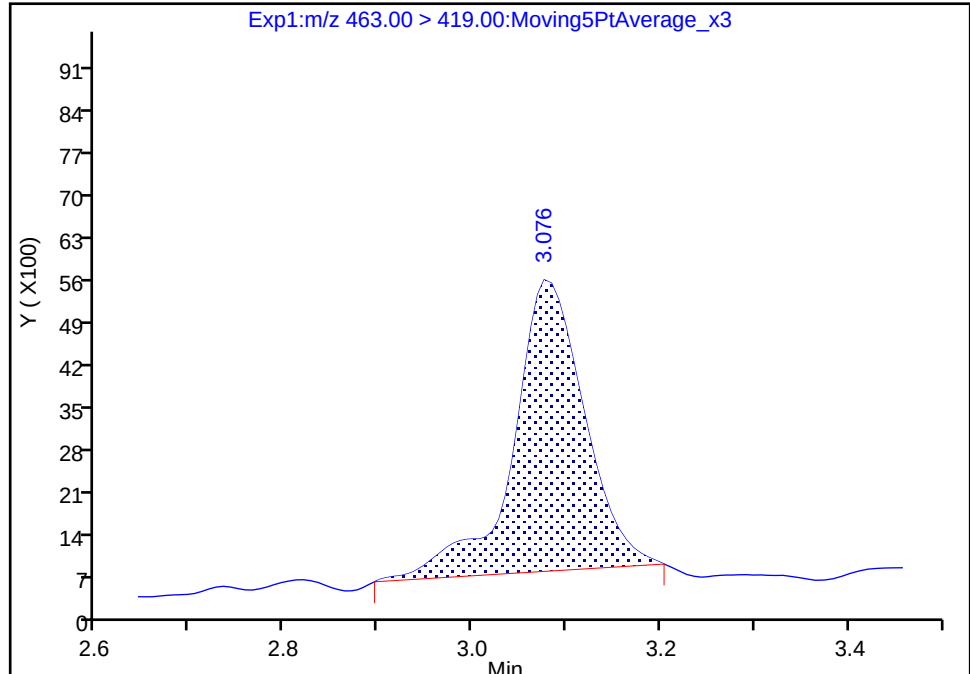
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_051.d |                |                    |                |    |
| Injection Date: | 29-May-2018 17:31:08                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-32-A                                                         | Lab Sample ID: | 320-39023-32       |                |    |
| Client ID:      | KLA04-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 39                 | Worklist Smp#: | 28 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

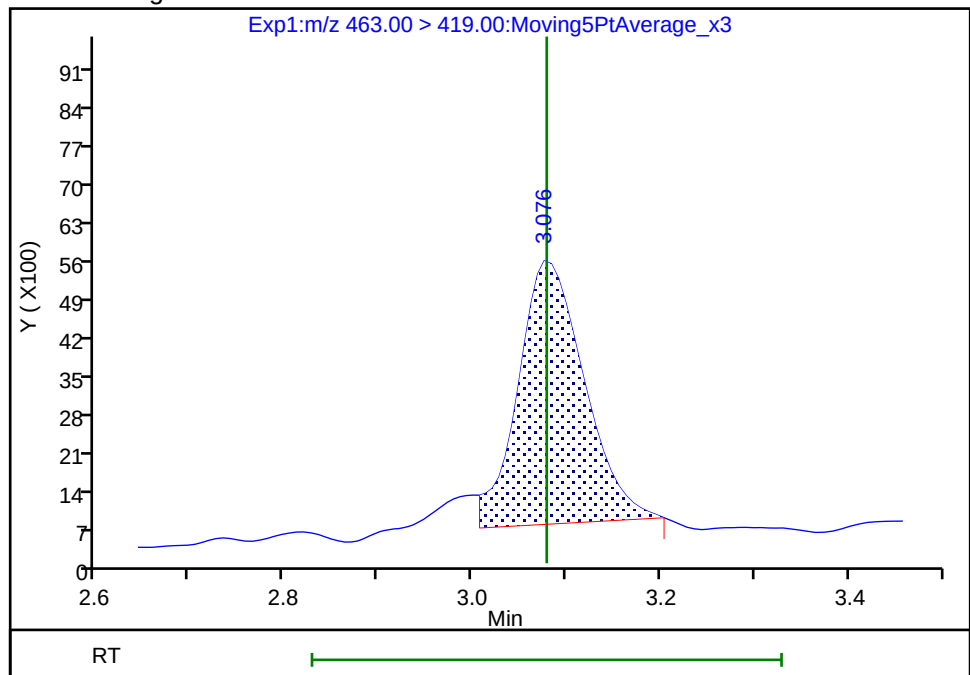
RT: 3.08  
Area: 25633  
Amount: 0.020567  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 23614  
Amount: 0.018947  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 11:03:53

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

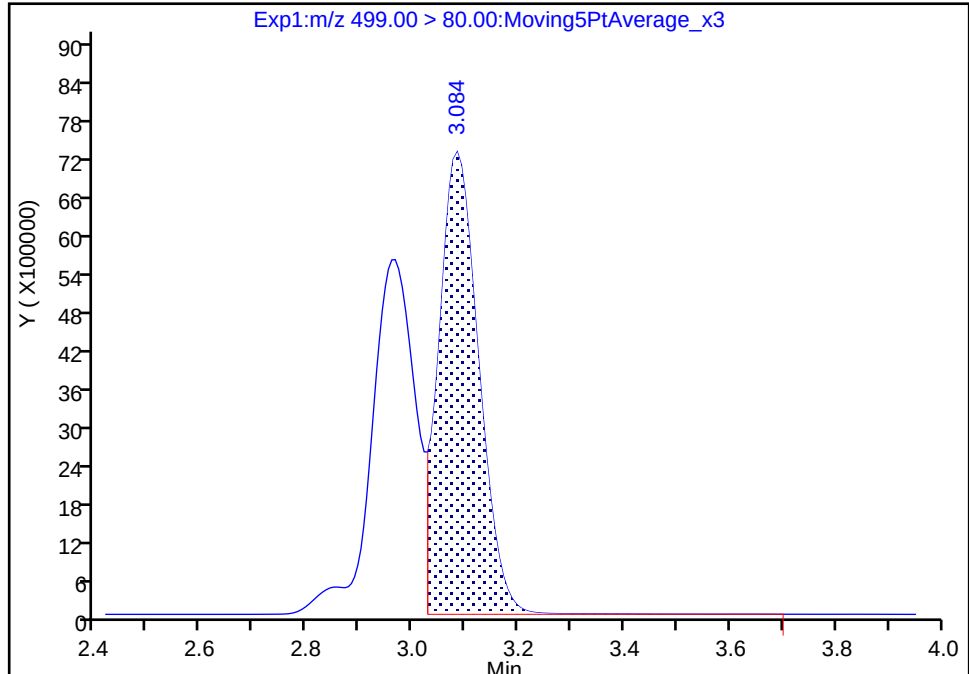
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_051.d |                |                    |                |    |
| Injection Date: | 29-May-2018 17:31:08                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-32-A                                                         | Lab Sample ID: | 320-39023-32       |                |    |
| Client ID:      | KLA04-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 39                 | Worklist Smp#: | 28 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

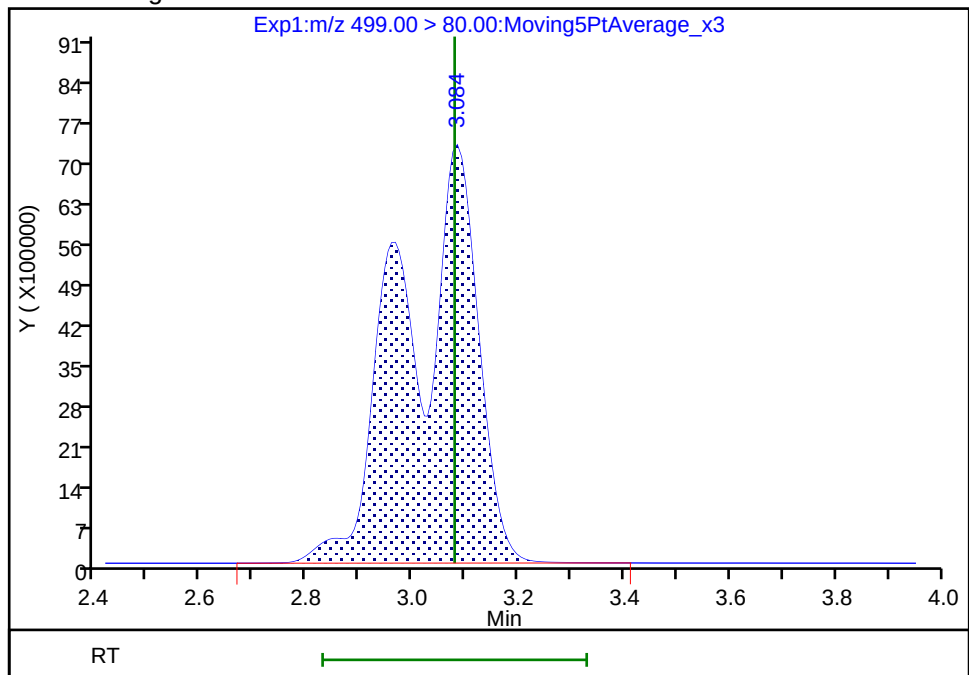
RT: 3.08  
Area: 37784685  
Amount: 31.156685  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 69761748  
Amount: 57.524492  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 11:03:41

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA04-SB3-02 DL2</u> | Lab Sample ID: <u>320-39023-32 DL2</u>       |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_042.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/04/2018 08:10</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>             | Date Analyzed: <u>05/29/2018 16:20</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>34.8</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q     | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 33     | J D   | 46  | 31  | 12  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 79     | D     | 46  | 31  | 15  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 31     | U M   | 46  | 31  | 12  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 110    | D     | 61  | 28  | 9.1 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 730    | D     | 46  | 31  | 9.5 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 3800   | E D M | 150 | 77  | 37  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 72   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 62   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 89   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 69   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 64   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_042.d  
 Lims ID: 320-39023-A-32-A  
 Client ID: KLA04-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 16:20:38 ALS Bottle#: 32 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-32-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:34:28 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:34:28

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                 | 1.774 | 1.762  | 0.012  | 1.000  | 835      | 0.0168       |                 | 72.3 | 7.6   | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.774 | 1.765  | 0.009  | 1.000  | 1026718  | 0.3661       |                 |      | 5203  |       |
| 298.90 > 99.00                 | 1.774 | 1.765  | 0.009  | 1.000  | 463992   |              | 2.21(1.25-3.74) |      | 3565  |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.358 | 2.355  | 0.003  | 1.000  | 34876    | 0.0155       |                 | 62.2 | 741   |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.358 | 2.358  | 0.0    | 1.000  | 158117   | 0.1073       |                 |      | 205   |       |
| 363.00 > 169.00                | 2.358 | 2.358  | 0.0    | 1.000  | 53974    |              | 2.93(1.13-3.40) |      | 238   |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.372 | 2.368  | 0.004  | 1.000  | 45273    | 0.0163       |                 | 69.0 | 1923  |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.372 | 2.371  | 0.001  | 1.000  | 5101342  | 2.36         |                 |      | 15039 |       |
| 399.00 > 99.00                 | 2.372 | 2.371  | 0.001  | 1.000  | 1710240  |              | 2.98(1.50-4.49) |      | 6031  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.719 | 2.711  | 0.008  | 1.000  | 47425    | 0.0223       |                 | 89.3 | 1700  |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.719 | 2.712  | 0.007  | 1.000  | 576756   | 0.2583       |                 |      | 187   |       |
| 413.00 > 169.00                | 2.719 | 2.712  | 0.007  | 1.000  | 338037   |              | 1.71(0.84-2.52) |      | 1048  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.719 | 2.712  | 0.007  |        | 56058    | 0.0250       |                 |      | 1343  |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                | 3.092 | 3.079  | 0.013  | 1.000  | 33996    | 0.0196       |                 | 78.3 | 1503  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.084 | 3.079  | 0.005  | 1.000  | 28980    | 0.0152       |                 | 63.6 | 345   |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       | M     |
| 463.00 > 419.00                | 3.092 | 3.082  | 0.010  | 1.000  | 5049     | 0.003505     |                 |      | 15.4  |       |
| 463.00 > 169.00                | 3.099 | 3.082  | 0.017  | 1.002  | 1278     |              | 3.95(1.90-5.69) |      | 27.2  | M     |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | EM    |
| 499.00 > 80.00                   | 3.084 | 3.082     | 0.002     | 1.000     | 17634466 | 12.4            |                 |      | 24508 | EM    |
| 499.00 > 99.00                   | 3.084 | 3.082     | 0.002     | 1.000     | 3928785  |                 | 4.49(2.31-6.93) |      | 29861 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_042.d

Injection Date: 29-May-2018 16:20:38

Instrument ID: A8\_N

Lims ID: 320-39023-A-32-A

Lab Sample ID: 320-39023-32

Client ID: KLA04-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

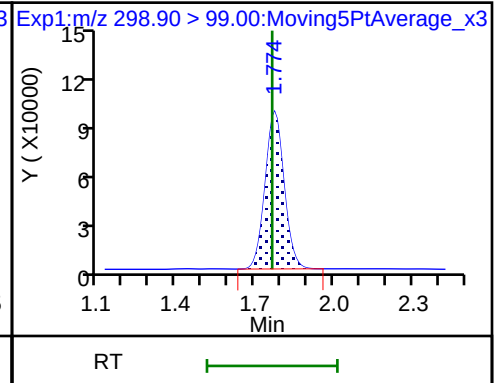
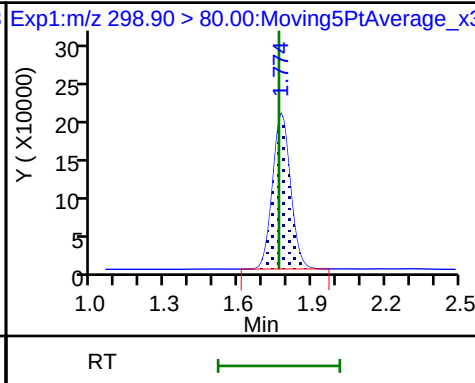
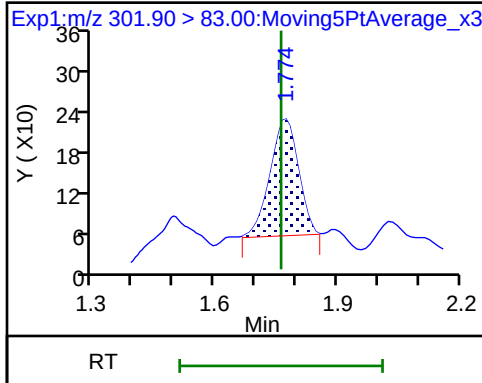
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

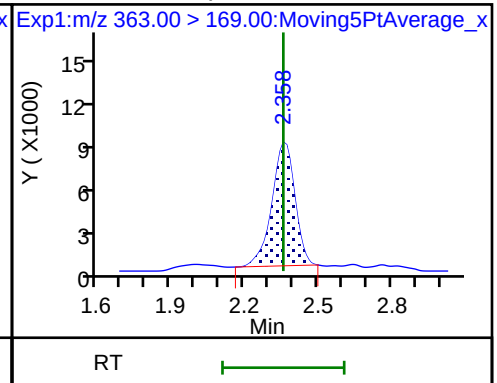
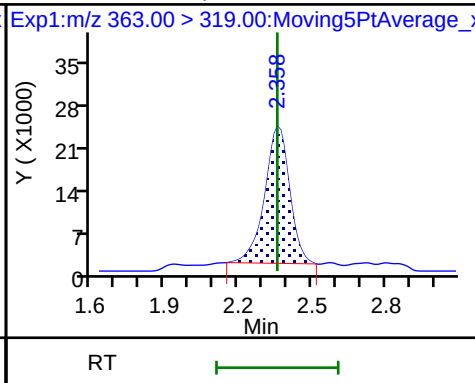
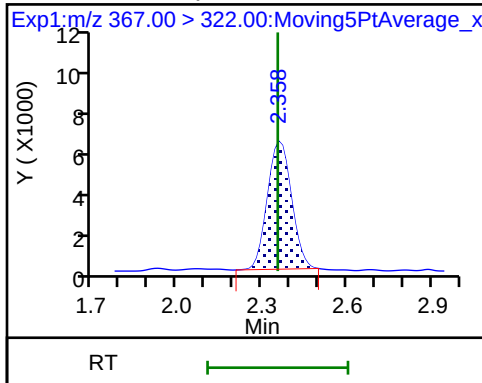
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

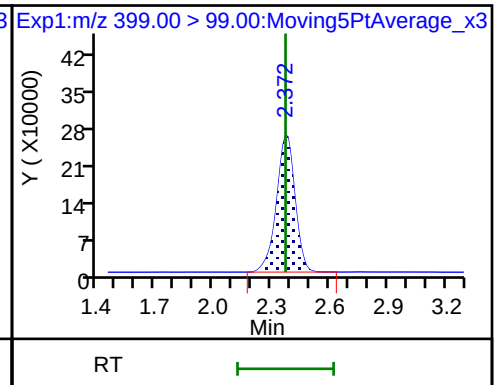
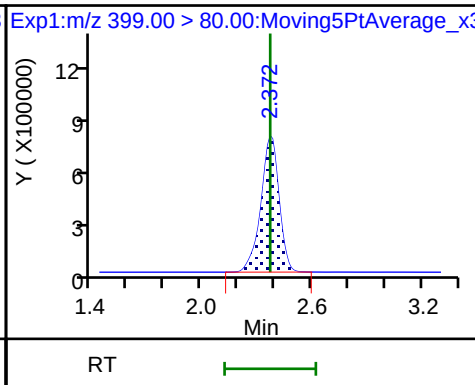
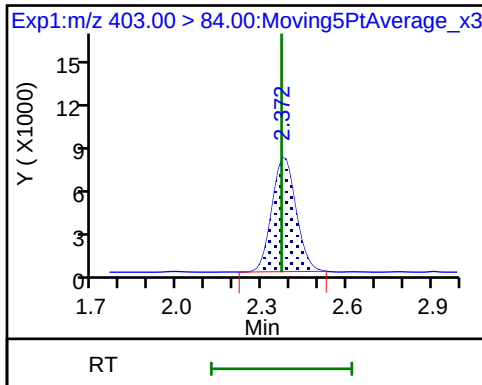
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

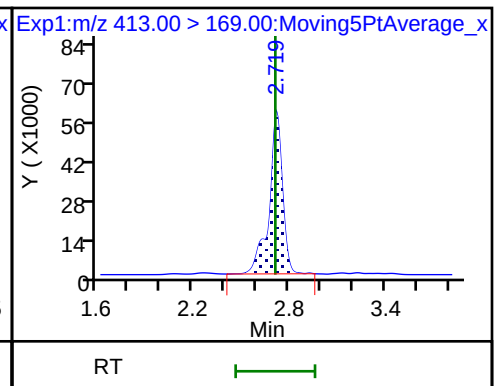
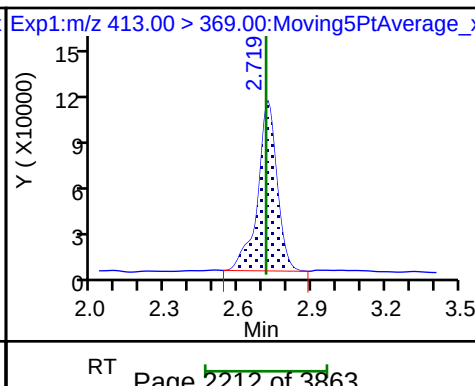
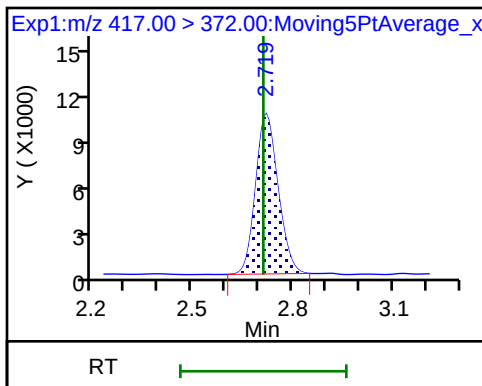
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

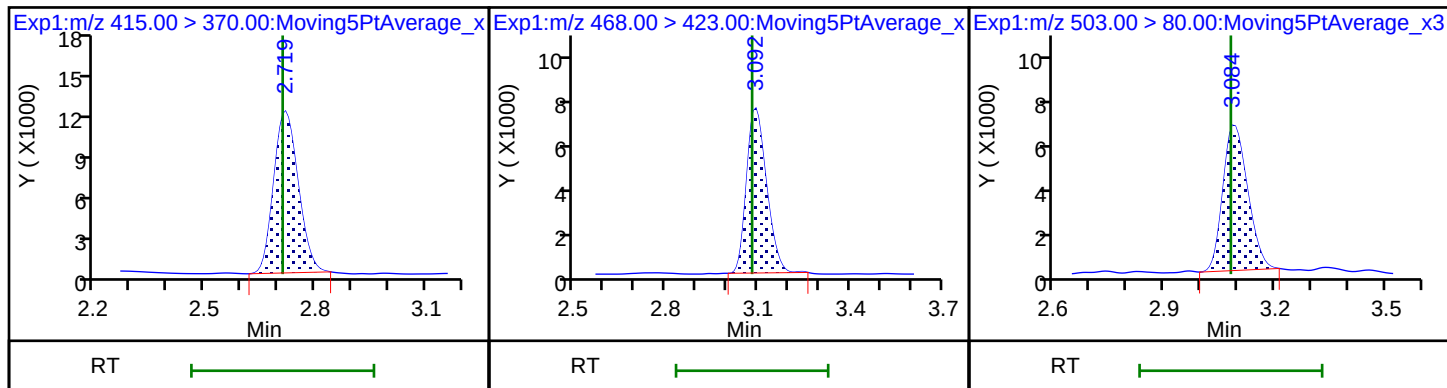
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

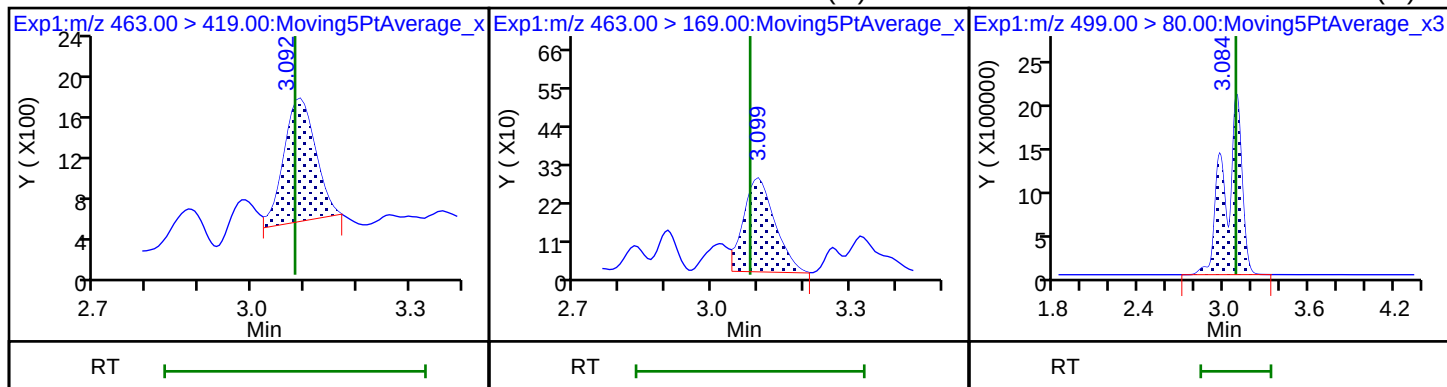
D 18 13C4 PFOS



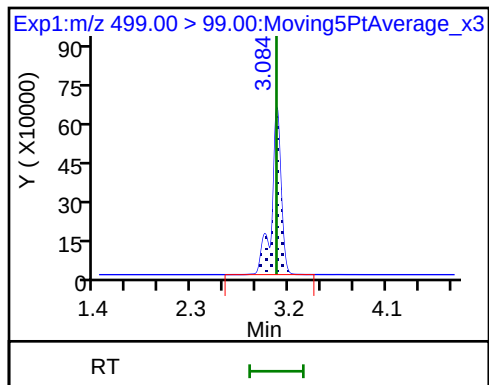
20 Perfluorononanoic acid

20 Perfluorononanoic acid (M)

17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

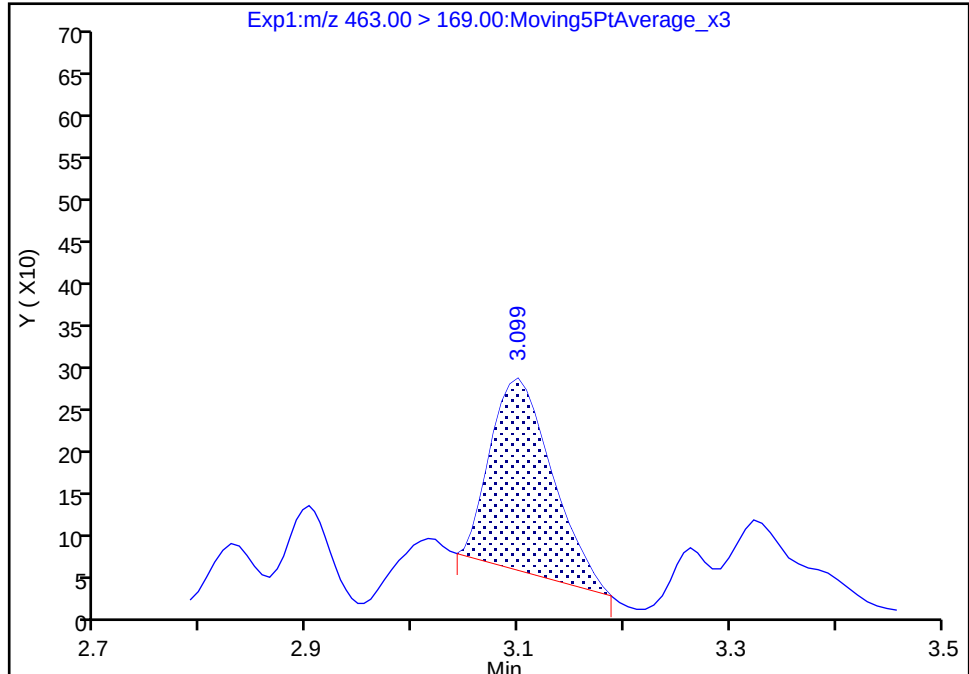
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_042.d |                |                    |                |    |
| Injection Date: | 29-May-2018 16:20:38                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-32-A                                                         | Lab Sample ID: | 320-39023-32       |                |    |
| Client ID:      | KLA04-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 19 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

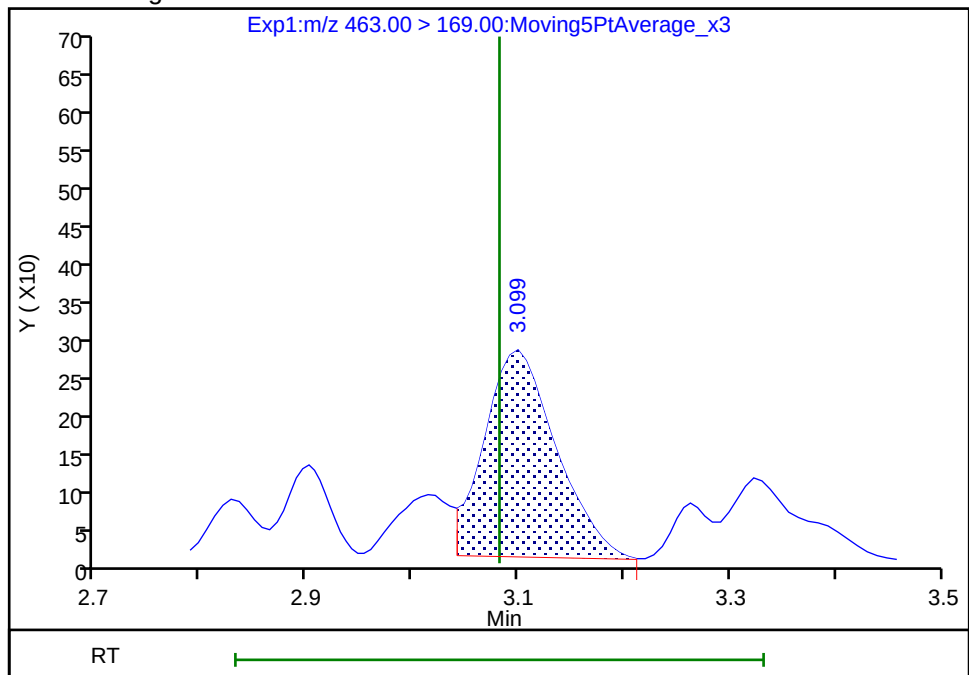
RT: 3.10  
Area: 925  
Amount: 0.003505  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.10  
Area: 1278  
Amount: 0.003505  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:33:46

Audit Action: Manually Integrated

Audit Reason: Assign Peak



## TestAmerica Sacramento

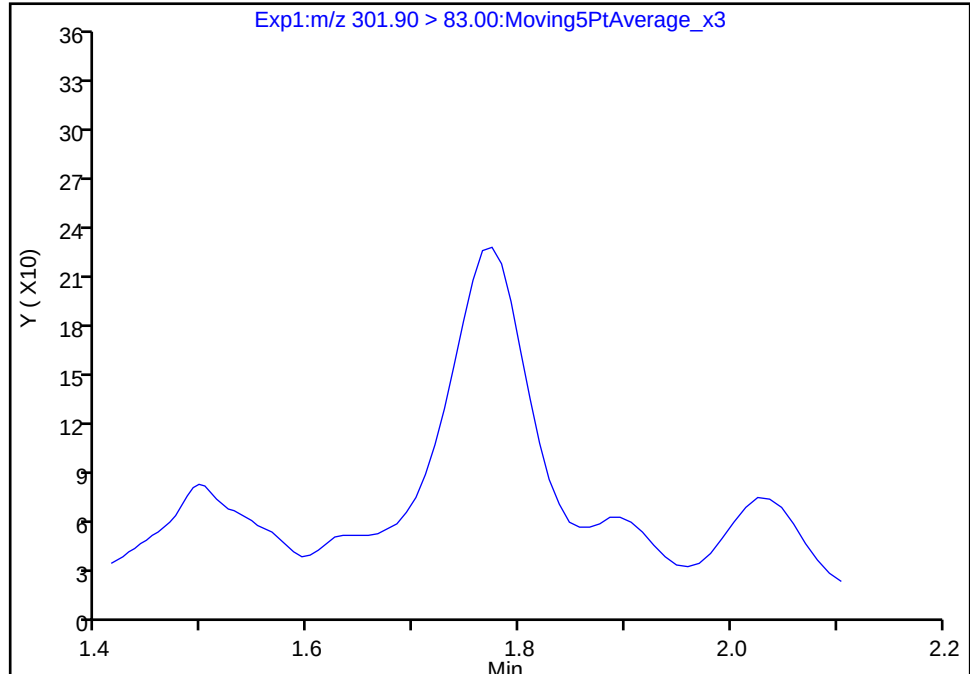
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_042.d |                |                    |                |    |
| Injection Date: | 29-May-2018 16:20:38                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-32-A                                                         | Lab Sample ID: | 320-39023-32       |                |    |
| Client ID:      | KLA04-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 19 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

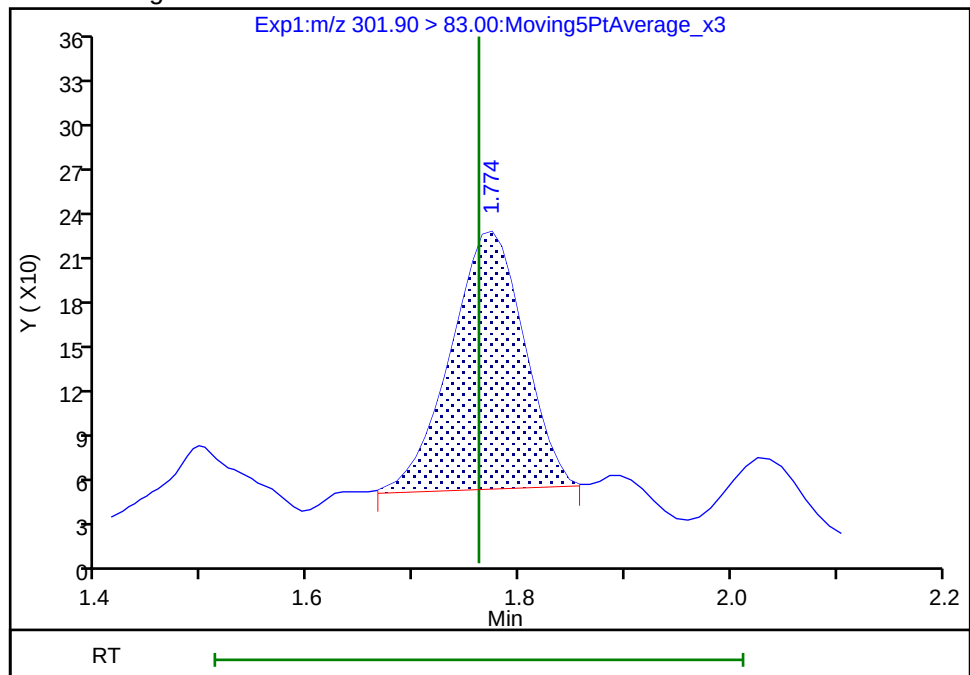
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results



## Manual Integration Results

RT: 1.77  
Area: 835  
Amount: 0.016817  
Amount Units: ng/ml

Reviewer: ruangyotsakuld, 31-May-2018 10:33:23

Audit Action: Manually Integrated

Audit Reason: Assign Peak

## TestAmerica Sacramento

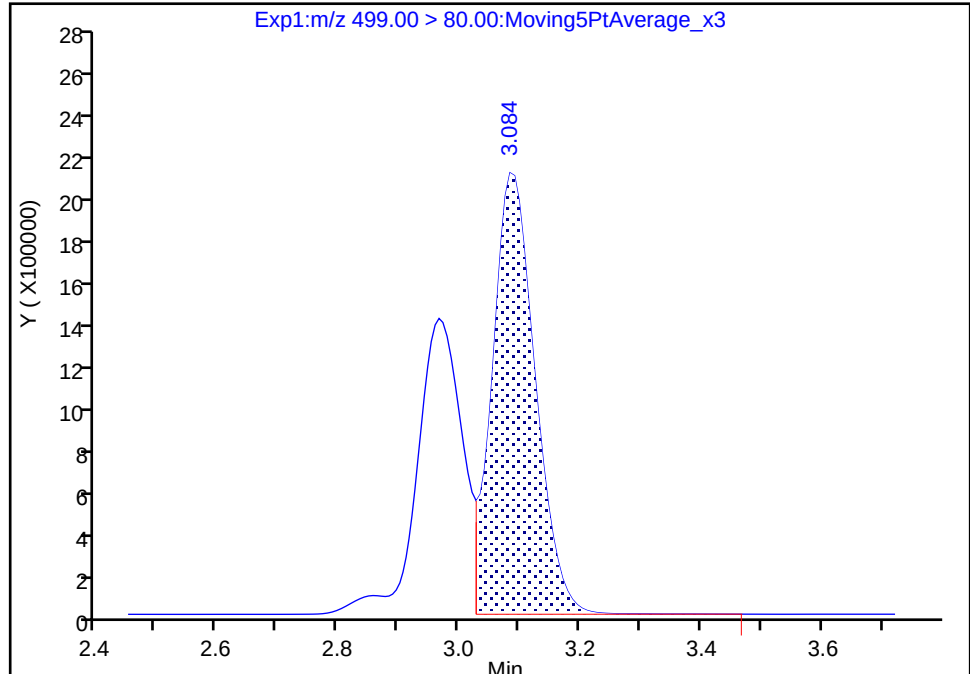
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_042.d |                |                    |                |    |
| Injection Date: | 29-May-2018 16:20:38                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-32-A                                                         | Lab Sample ID: | 320-39023-32       |                |    |
| Client ID:      | KLA04-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 32                 | Worklist Smp#: | 19 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

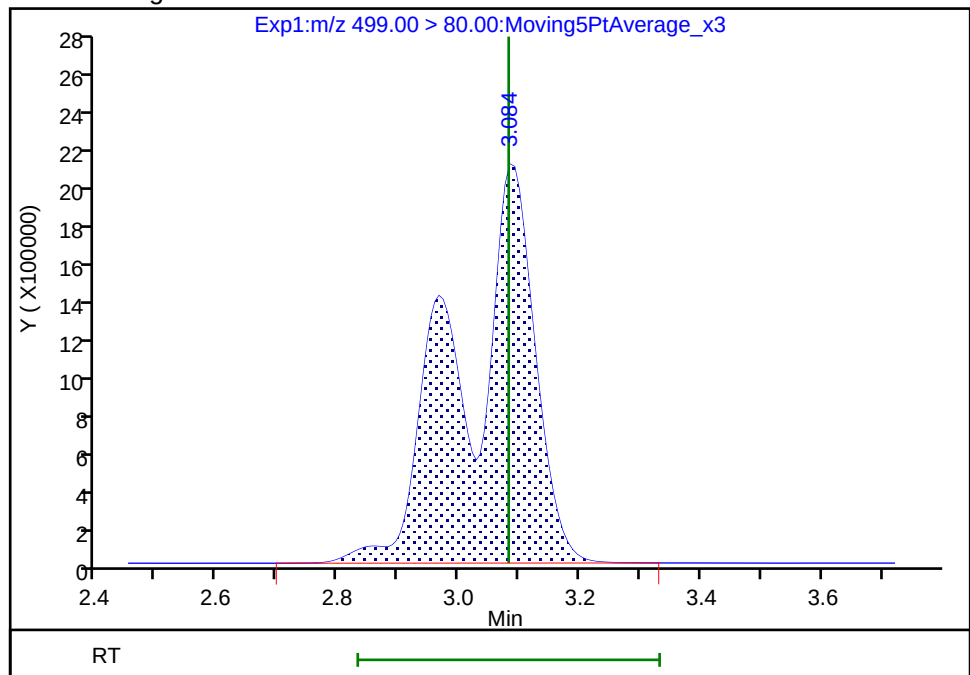
RT: 3.08  
Area: 10332939  
Amount: 7.247562  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 17634466  
Amount: 12.368880  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:34:07

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB1-01</u>   | Lab Sample ID: <u>320-39023-33</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_051.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 09:00</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.97(g)</u>           | Date Analyzed: <u>05/29/2018 09:41</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>20.1</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.6    |   | 0.38 | 0.25 | 0.098 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 2.3    |   | 0.38 | 0.25 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.61   | M | 0.38 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 4.9    |   | 0.50 | 0.23 | 0.074 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 74     | E | 0.38 | 0.25 | 0.078 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 130    | E | 1.3  | 0.63 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 72   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 90   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 74   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 68   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_051.d  
 Lims ID: 320-39023-A-33-A  
 Client ID: KLA05-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:41:21 ALS Bottle#: 41 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-33-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:55:06 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:55:06

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.773 | 1.765  | 0.008  | 1.005  | 4758184  | 1.96         |                 |      | 12269 |       |
| 298.90 > 99.00                   | 1.764 | 1.765  | -0.001 | 1.000  | 2067429  |              | 2.30(1.25-3.74) |      | 3853  |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.764 | 1.766  | -0.002 | 1.000  | 72176    | 1.67         |                 | 71.8 | 433   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 3969018  | 2.03         |                 | 81.2 | 69222 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.345 | 2.359  | -0.014 | 1.000  | 1078320  | 0.6430       |                 |      | 768   |       |
| 363.00 > 169.00                  | 2.345 | 2.359  | -0.014 | 1.000  | 410385   |              | 2.63(1.13-3.40) |      | 1984  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.371 | 2.360  | 0.011  | 1.000  | 3879852  | 1.61         |                 | 67.9 | 75658 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.358 | 2.372  | -0.014 | 0.994  | 54607231 | 29.5         |                 |      | 48970 | E     |
| 399.00 > 99.00                   | 2.358 | 2.372  | -0.014 | 0.994  | 18755497 |              | 2.91(1.50-4.49) |      | 31265 | E     |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.704 | 2.706  | -0.002 | 1.000  | 4145835  | 2.24         |                 | 89.7 | 66238 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.704 | 2.713  | -0.009 | 1.000  | 1769062  | 0.9063       |                 |      | 640   |       |
| 413.00 > 169.00                  | 2.704 | 2.713  | -0.009 | 1.000  | 1002177  |              | 1.77(0.84-2.52) |      | 1904  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.704 | 2.713  | -0.009 |        | 4880332  | 2.50         |                 |      | 84454 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.076 | 3.076  | 0.0    | 1.000  | 66067322 | 50.1         |                 |      | 38117 | E     |
| 499.00 > 99.00                   | 3.076 | 3.076  | 0.0    | 1.000  | 19372122 |              | 3.41(2.31-6.93) |      | 69476 | E     |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.076 | 3.076  | 0.0    | 1.000  | 2677998  | 1.61         |                 | 67.5 | 9971  |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.076 | 3.076  | 0.0    | 1.000  | 2803949  | 1.85         |                 | 74.2 | 46978 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     | M     |
| 463.00 > 419.00           | 3.076 | 3.083     | -0.007    | 1.000     | 289287   | 0.2435          |                 |      | 319 | M     |
| 463.00 > 169.00           | 3.076 | 3.083     | -0.007    | 1.000     | 72162    |                 | 4.01(1.90-5.69) |      | 510 | M     |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_051.d

Injection Date: 29-May-2018 09:41:21

Instrument ID: A8\_N

Lims ID: 320-39023-A-33-A

Lab Sample ID: 320-39023-33

Client ID: KLA05-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 41

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

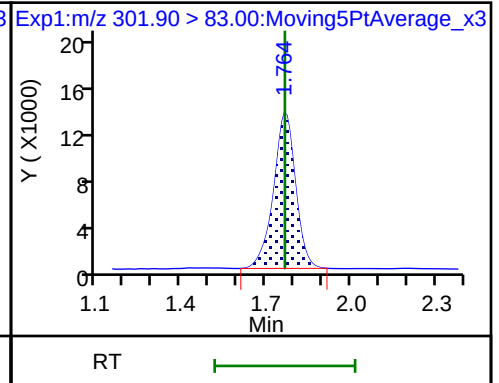
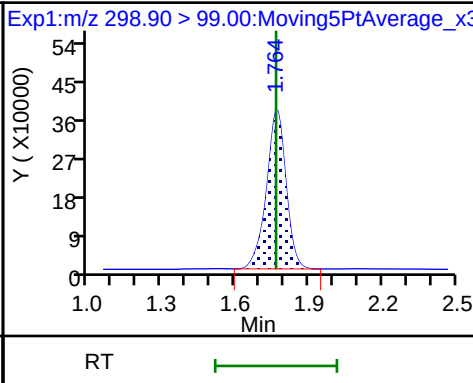
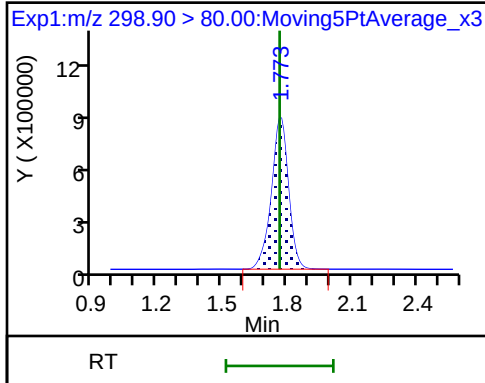
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

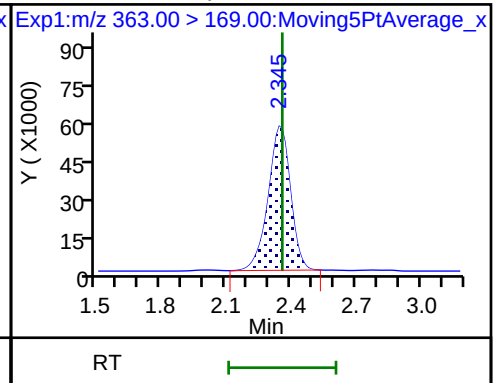
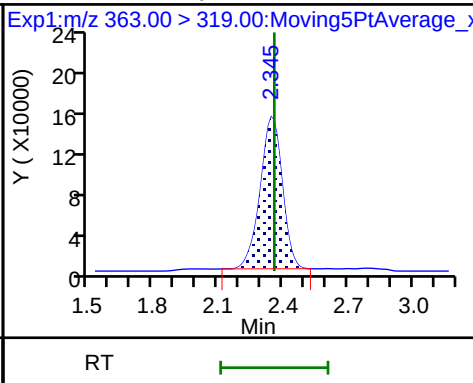
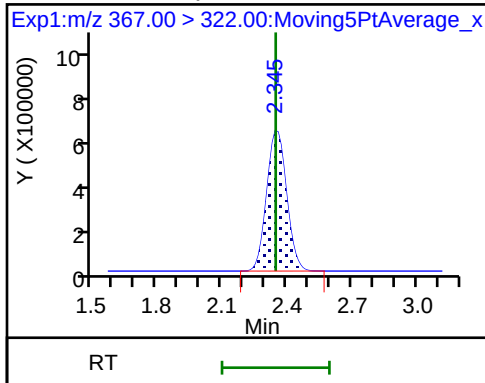
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

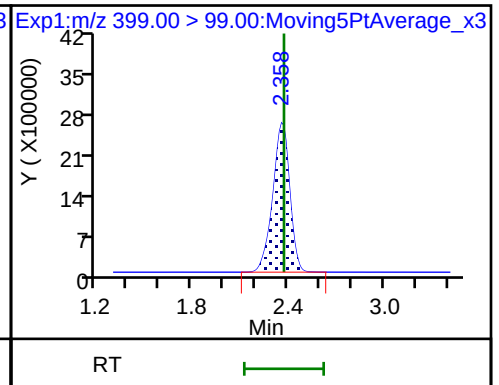
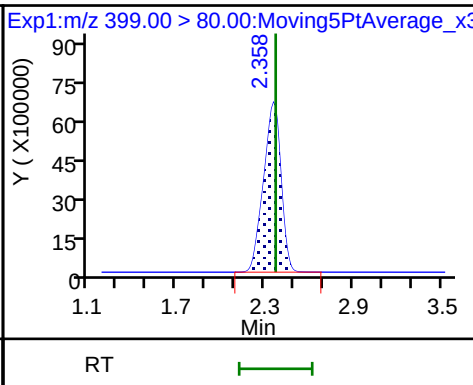
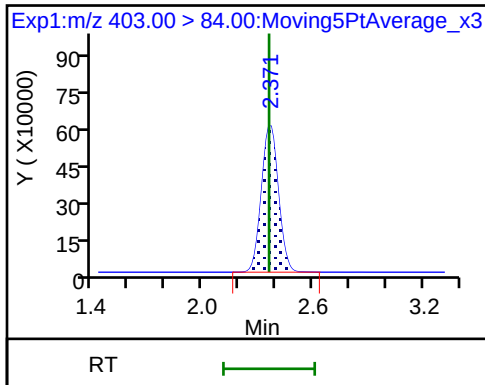
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

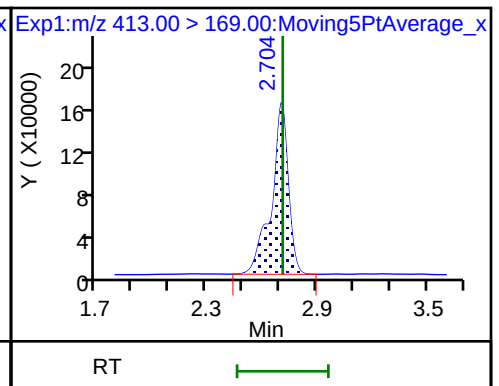
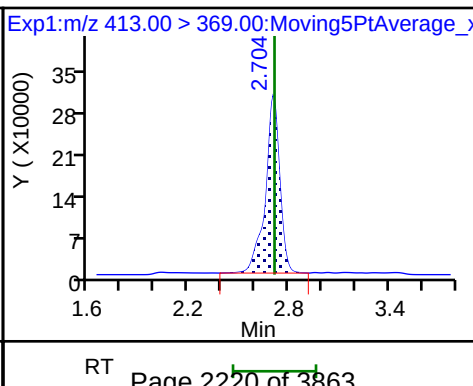
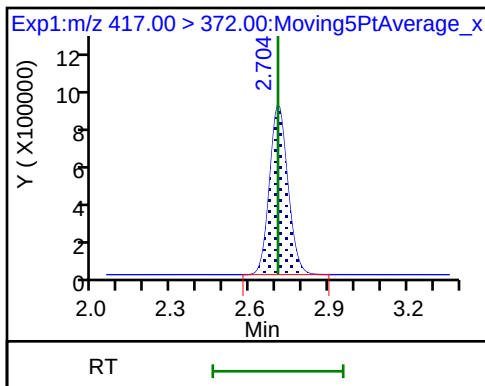
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

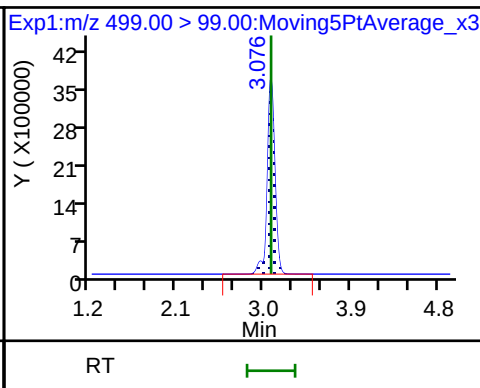
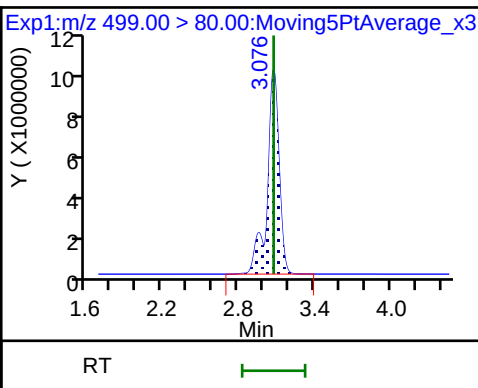
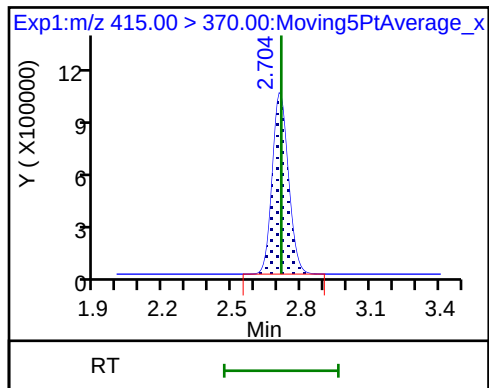
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

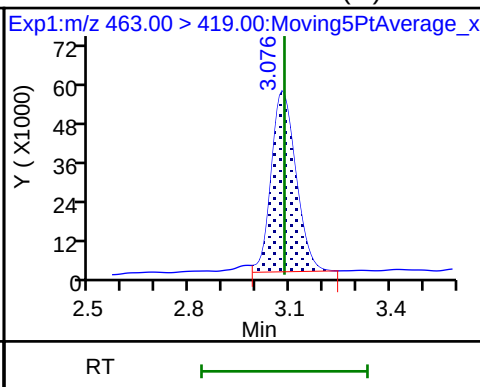
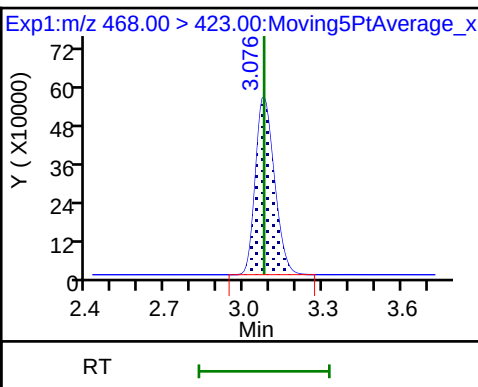
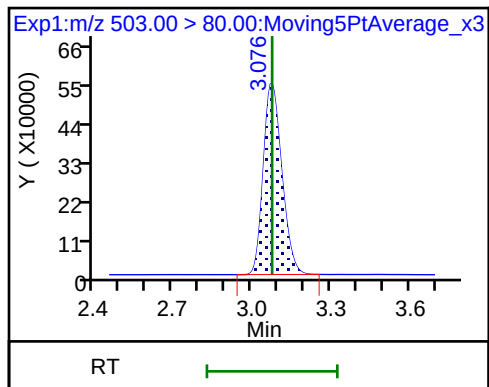
17 Perfluorooctane sulfonic acid



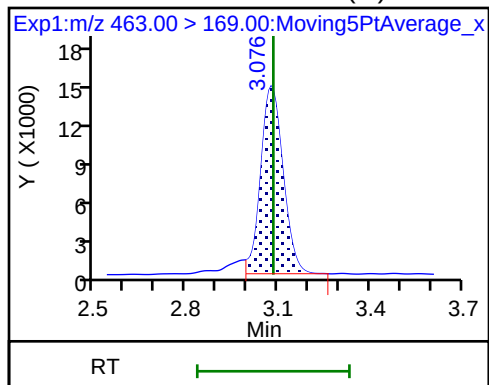
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

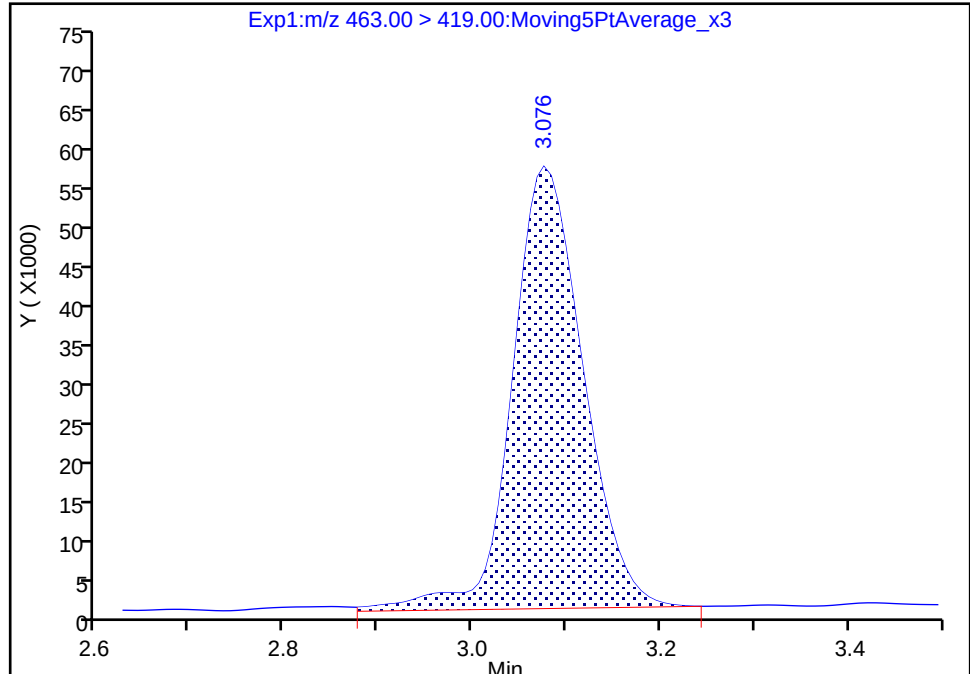
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_051.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:41:21                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-33-A                                                         | Lab Sample ID: | 320-39023-33       |                |    |
| Client ID:      | KLA05-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 41                 | Worklist Smp#: | 21 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

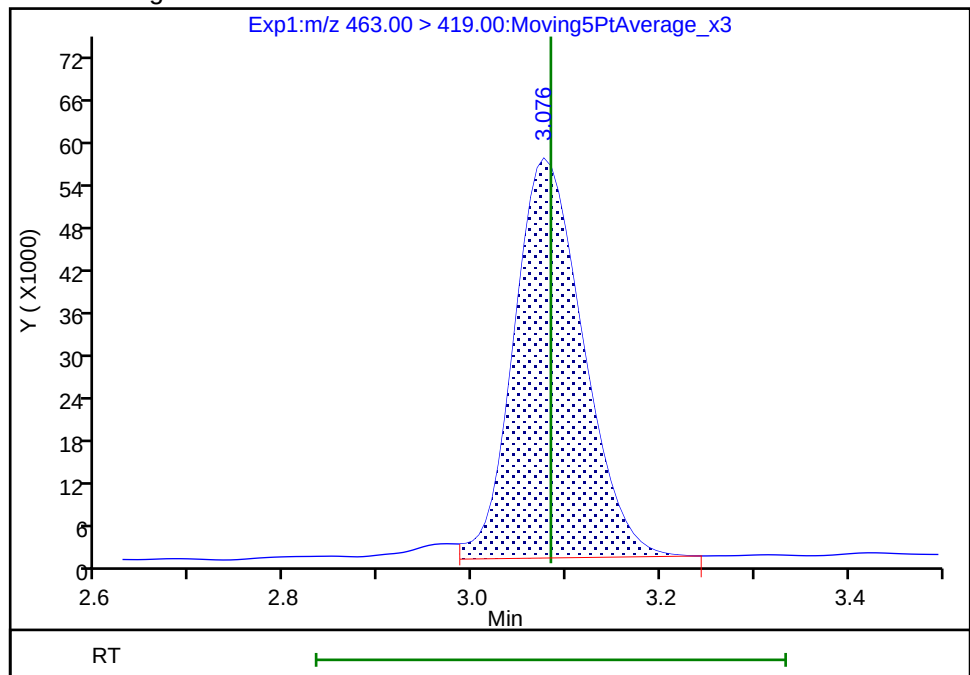
RT: 3.08  
Area: 298242  
Amount: 0.251053  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 289287  
Amount: 0.243514  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:54:49

Audit Action: Manually Integrated

Audit Reason: Split Peak



## TestAmerica Sacramento

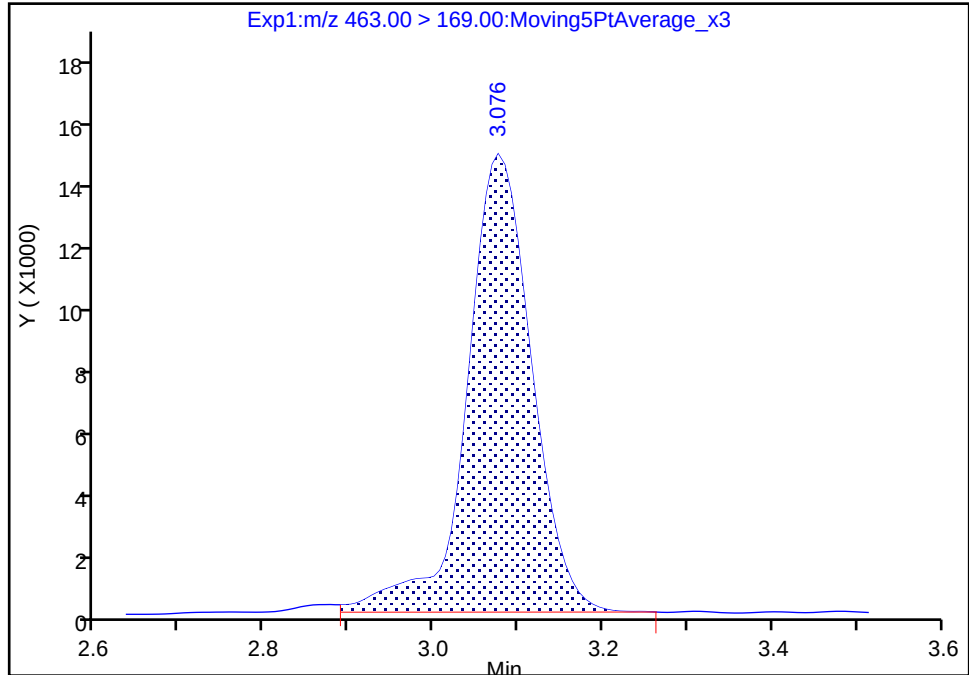
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_051.d |                |                    |                |    |
| Injection Date: | 29-May-2018 09:41:21                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-33-A                                                         | Lab Sample ID: | 320-39023-33       |                |    |
| Client ID:      | KLA05-SB1-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 41                 | Worklist Smp#: | 21 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

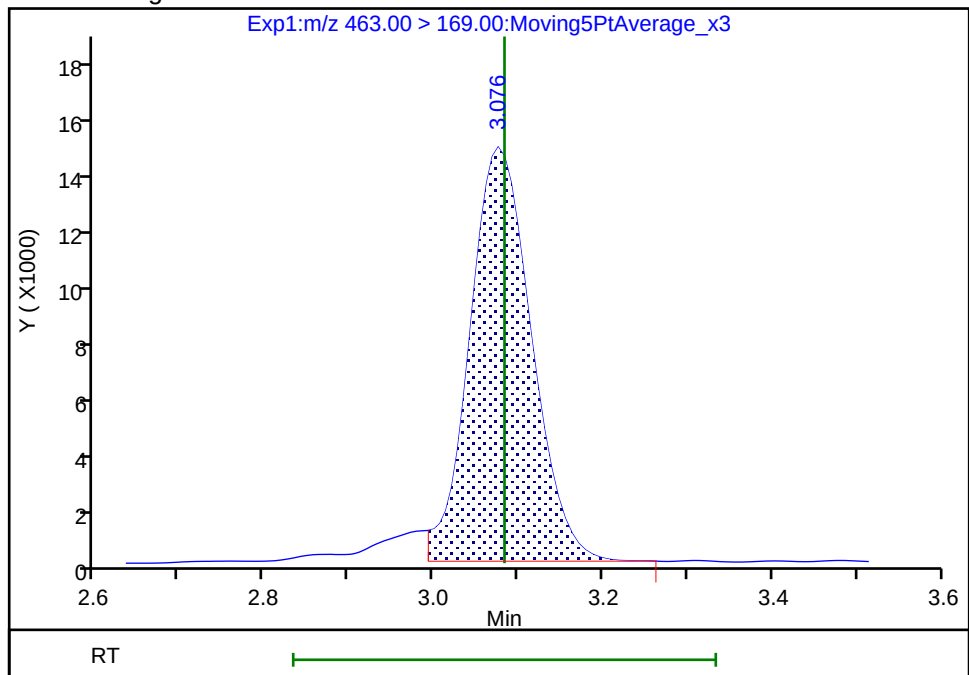
RT: 3.08  
Area: 76306  
Amount: 0.251053  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 72162  
Amount: 0.243514  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 09:54:55

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA05-SB1-01 DL</u> | Lab Sample ID: <u>320-39023-33 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_029.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/05/2018 09:00</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.97(g)</u>            | Date Analyzed: <u>05/29/2018 14:38</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>20.1</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.0    | U   | 7.6 | 5.0 | 2.0 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 5.0    | U M | 7.6 | 5.0 | 2.5 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 5.0    | U   | 7.6 | 5.0 | 2.0 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 6.2    | J D | 10  | 4.5 | 1.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 78     | D   | 7.6 | 5.0 | 1.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 170    | D   | 25  | 13  | 6.0 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 54   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 97   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 90   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 69   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_029.d  
 Lims ID: 320-39023-A-33-A  
 Client ID: KLA05-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 14:38:45 ALS Bottle#: 22 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-33-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:16:12 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:16:12

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.773 | 1.762 | 0.011 | 1.000 | 2996 | 0.0626 |  | 53.8 | 35.4 |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |        |       |        |        |  |  |      |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|
| 298.90 > 80.00 | 1.764 | 1.770 | -0.006 | 0.995 | 246127 | 0.1223 |  |  | 1249 |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|

|                |       |       |        |       |        |  |                 |  |     |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.764 | 1.770 | -0.006 | 0.995 | 109742 |  | 2.24(1.25-3.74) |  | 919 |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |       |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.358 | 2.353 | 0.005 | 1.000 | 54613 | 0.0288 |  |  | 60.3 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 363.00 > 169.00 | 2.358 | 2.353 | 0.005 | 1.000 | 23312 |  | 2.34(1.13-3.40) |  | 111 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.358 | 2.355 | 0.003 | 1.000 | 224087 | 0.1036 |  | 82.9 | 4617 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |         |      |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 399.00 > 80.00 | 2.371 | 2.366 | 0.005 | 1.000 | 3458720 | 1.54 |  |  | 9997 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                |       |       |       |       |         |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.371 | 2.366 | 0.005 | 1.000 | 1055645 |  | 3.28(1.50-4.49) |  | 4346 |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 403.00 > 84.00 | 2.371 | 2.368 | 0.003 | 1.000 | 235691 | 0.0881 |  | 74.5 | 7896 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |        |        |  |  |      |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|------|--|
| 415.00 > 370.00 | 2.712 | 2.709 | 0.003 |  | 270174 | 0.1250 |  |  | 5222 |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |      |   |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|---|
| 413.00 > 369.00 | 2.712 | 2.709 | 0.003 | 1.000 | 105036 | 0.0449 |  |  | 32.6 | M |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|---|

|                 |       |       |       |       |       |  |                 |  |     |   |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|---|
| 413.00 > 169.00 | 2.712 | 2.709 | 0.003 | 1.000 | 54078 |  | 1.94(0.84-2.52) |  | 160 | M |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|---|

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 417.00 > 372.00 | 2.712 | 2.711 | 0.001 | 1.000 | 248235 | 0.1213 |  | 97.0 | 7519 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |         |      |  |  |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|-------|--|
| 499.00 > 80.00 | 3.084 | 3.077 | 0.007 | 1.003 | 5076696 | 3.40 |  |  | 37600 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|-------|--|

|                |       |       |       |       |         |  |                 |  |       |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|
| 499.00 > 99.00 | 3.084 | 3.077 | 0.007 | 1.003 | 1210810 |  | 4.19(2.31-6.93) |  | 17764 |  |
|----------------|-------|-------|-------|-------|---------|--|-----------------|--|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |       |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|
| 463.00 > 419.00 | 3.084 | 3.077 | 0.007 | 1.000 | 21558 | 0.0135 |  |  | 58.0 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |      |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|-----|--|
| 463.00 > 169.00 | 3.091 | 3.077 | 0.014 | 1.002 | 4313 |  | 5.00(1.90-5.69) |  | 101 |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|-----|--|

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |      |       |
| 503.00 > 80.00  | 3.076 | 3.079     | -0.003    | 1.000     | 151622   | 0.0825          |               | 69.0 | 1512 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |      |       |
| 468.00 > 423.00 | 3.084 | 3.079     | 0.005     | 1.000     | 187982   | 0.1123          |               | 89.8 | 6567 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_029.d

Injection Date: 29-May-2018 14:38:45

Instrument ID: A8\_N

Lims ID: 320-39023-A-33-A

Lab Sample ID: 320-39023-33

Client ID: KLA05-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 22

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

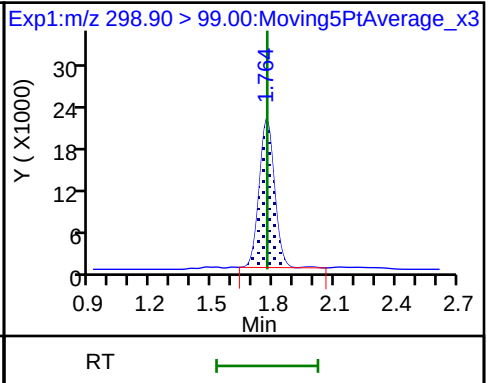
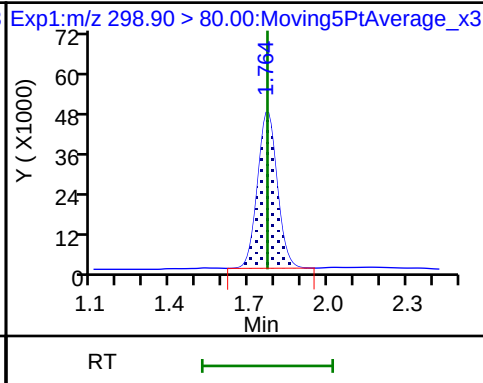
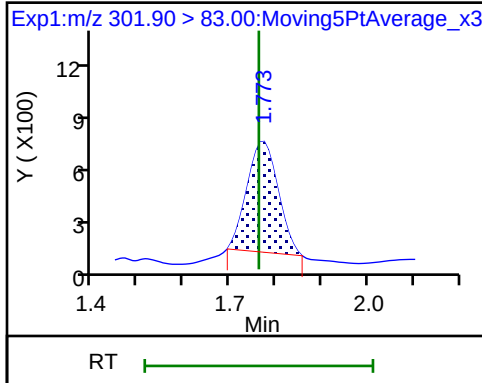
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

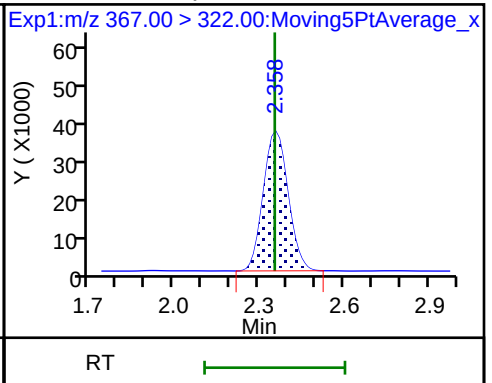
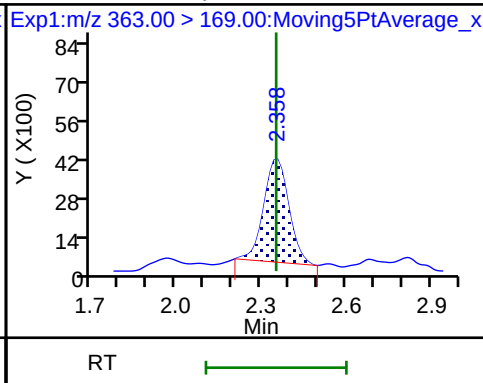
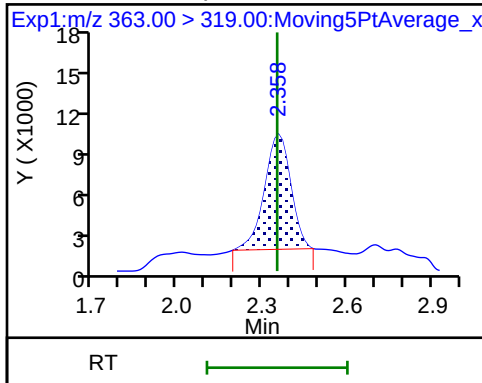
5 Perfluorobutanesulfonic acid



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

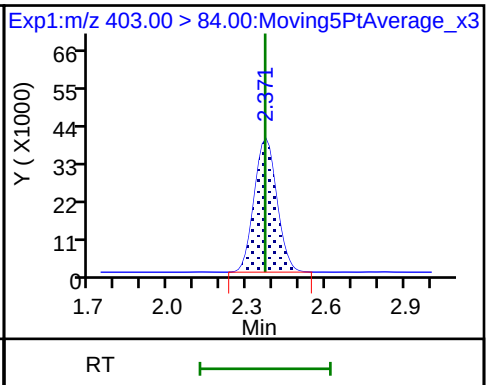
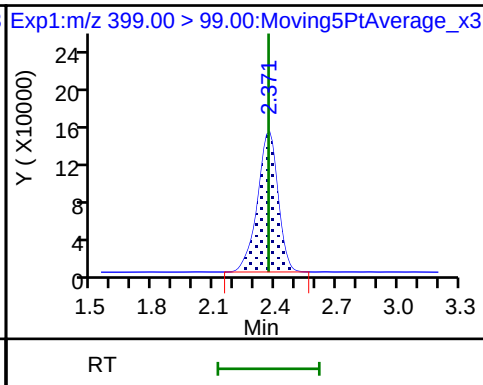
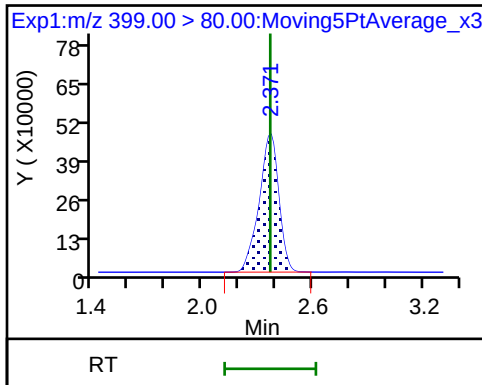
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

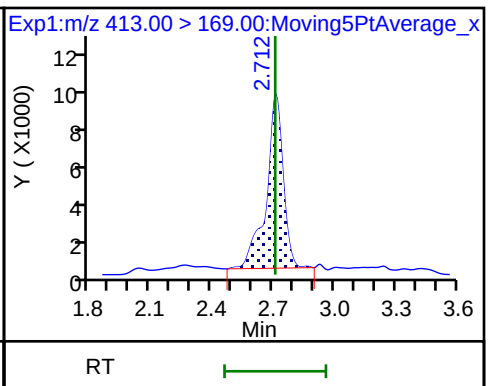
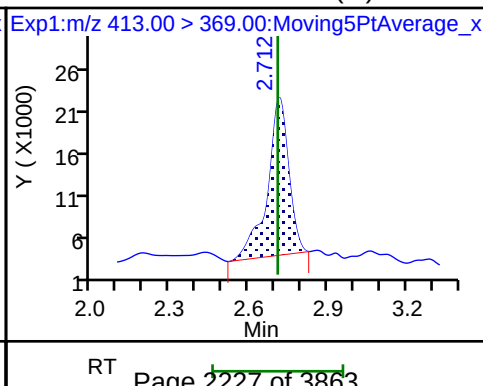
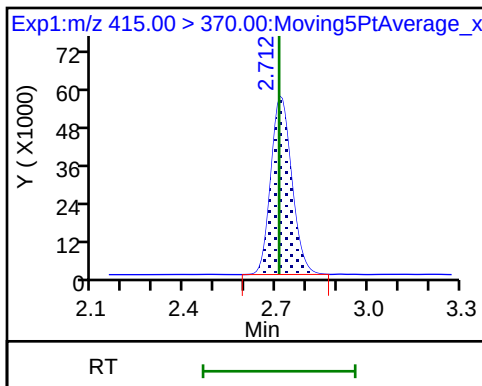
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

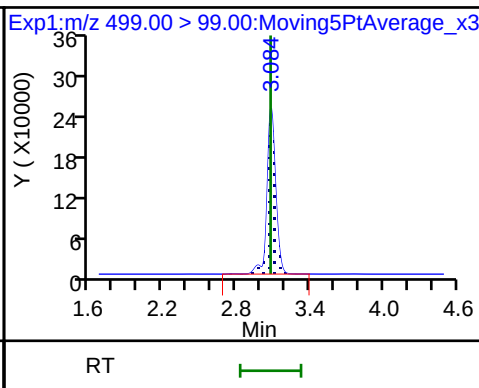
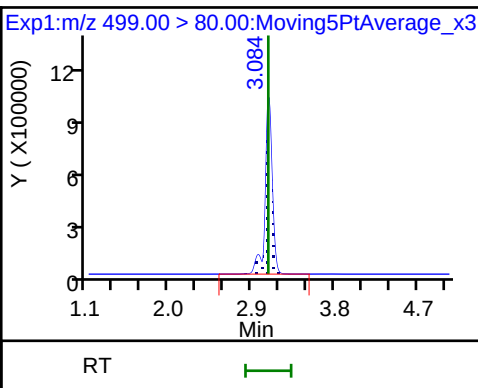
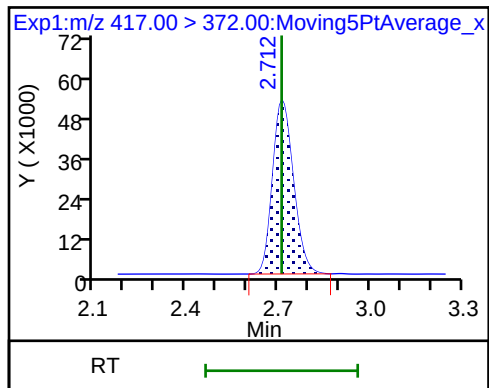
15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

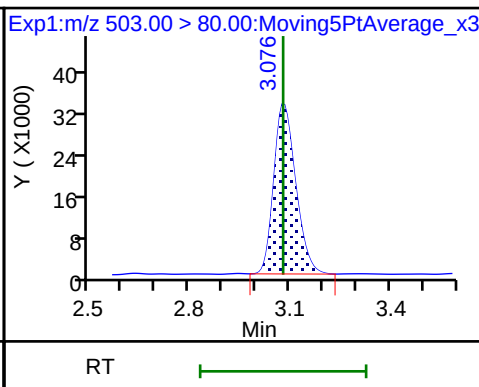
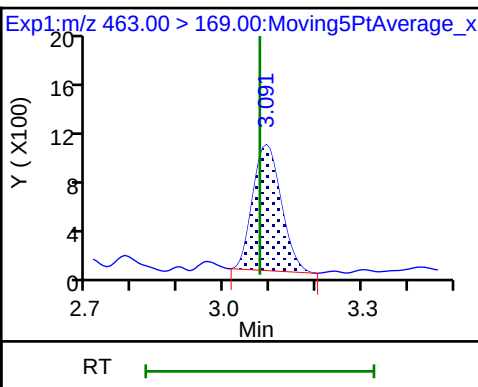
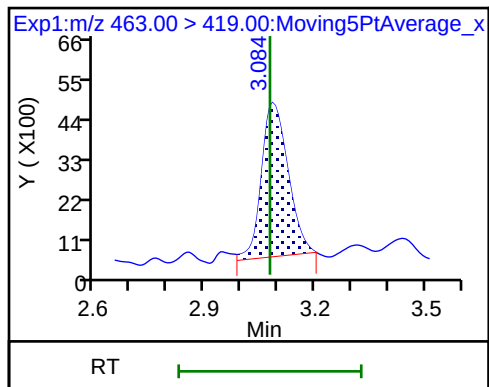
## 17 Perfluorooctane sulfonic acid



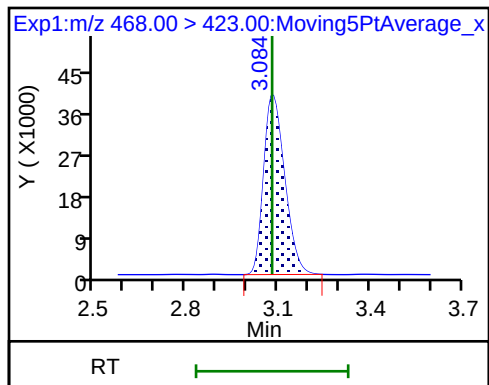
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

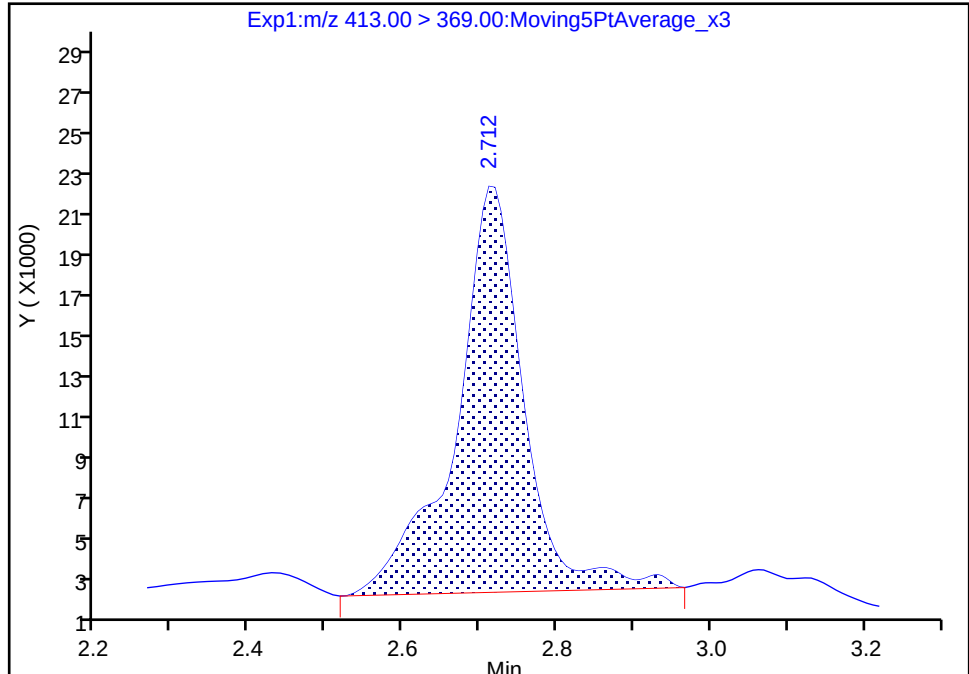
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_029.d |                |                    |                |   |
| Injection Date: | 29-May-2018 14:38:45                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-33-A                                                         | Lab Sample ID: | 320-39023-33       |                |   |
| Client ID:      | KLA05-SB1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 22                 | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector:      | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

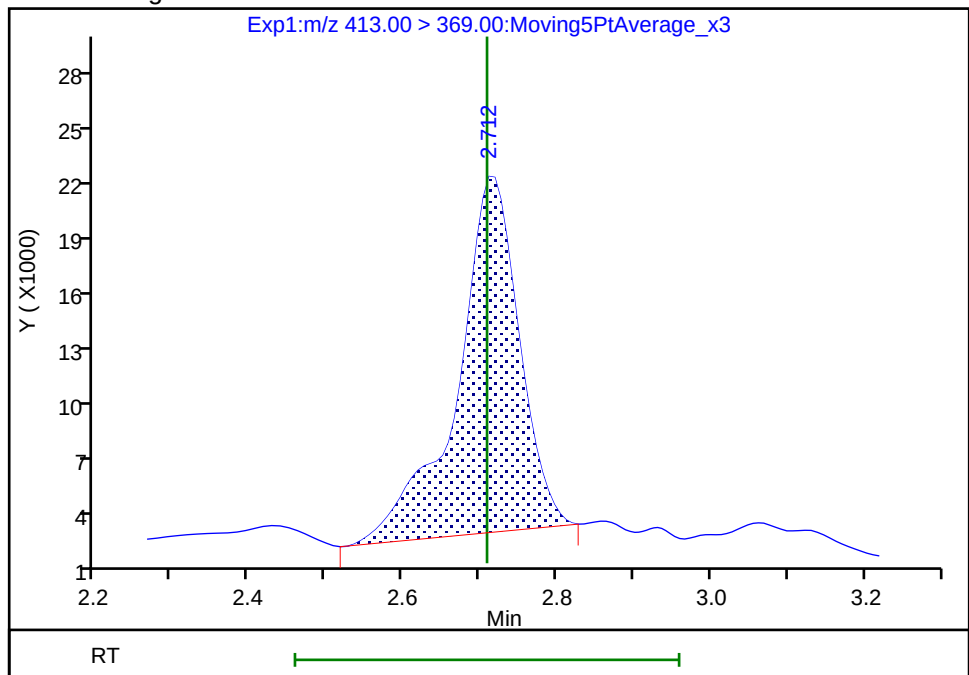
RT: 2.71  
Area: 118719  
Amount: 0.050790  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 105036  
Amount: 0.044936  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:16:03

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB1-02</u>   | Lab Sample ID: <u>320-39023-34</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.29LLA_026.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 09:10</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>05/29/2018 14:15</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.5</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.25   | U | 0.38 | 0.25 | 0.098 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.23   | J | 0.38 | 0.25 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.25   | U | 0.38 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.077  | J | 0.50 | 0.23 | 0.074 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2.6    |   | 0.38 | 0.25 | 0.078 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 6.5    |   | 1.3  | 0.63 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 88   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 88   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 70   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 72   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_026.d  
 Lims ID: 320-39023-A-34-A  
 Client ID: KLA05-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 14:15:18 ALS Bottle#: 19 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-34-a  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:12:44 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:13:36

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.765 | 1.762 | 0.003 | 1.000 | 64701 | 1.59 |  | 68.2 | 510 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |        |       |       |        |  |  |     |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.765 | 1.770 | -0.005 | 1.000 | 66161 | 0.0304 |  |  | 256 |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|

|                |       |       |        |       |       |  |                 |  |      |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.765 | 1.770 | -0.005 | 1.000 | 26825 |  | 2.47(1.25-3.74) |  | 98.2 |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |       |        |  |  |      |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.345 | 2.353 | -0.008 | 0.994 | 53925 | 0.0340 |  |  | 53.9 |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.358 | 2.353 | 0.005 | 1.000 | 19156 |  | 2.82(1.13-3.40) |  | 79.4 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|

## D 9 13C4-PFHpa

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.358 | 2.355 | 0.003 | 1.000 | 3751558 | 2.03 |  | 81.3 | 53595 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |         |      |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 399.00 > 80.00 | 2.372 | 2.366 | 0.006 | 1.000 | 1837687 | 1.03 |  |  | 5644 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.372 | 2.366 | 0.006 | 1.000 | 581210 |  | 3.16(1.50-4.49) |  | 2270 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.372 | 2.368 | 0.004 | 1.000 | 3752773 | 1.65 |  | 69.6 | 49652 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |         |      |  |  |       |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.712 | 2.709 | 0.003 |  | 4607254 | 2.50 |  |  | 59474 |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 413.00 > 369.00 | 2.712 | 2.709 | 0.003 | 1.000 | 163707 | 0.0909 |  |  | 57.6 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.712 | 2.709 | 0.003 | 1.000 | 89806 |  | 1.82(0.84-2.52) |  | 228 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.712 | 2.711 | 0.001 | 1.000 | 3824438 | 2.19 |  | 87.7 | 88548 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |         |      |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|
| 499.00 > 80.00 | 3.084 | 3.077 | 0.007 | 1.003 | 3395676 | 2.58 |  |  | 9421 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 499.00 > 99.00 | 3.084 | 3.077 | 0.007 | 1.003 | 782204 |  | 4.34(2.31-6.93) |  | 7137 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |       |        |  |  |      |   |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|---|
| 463.00 > 419.00 | 3.084 | 3.077 | 0.007 | 1.000 | 27039 | 0.0202 |  |  | 59.0 | R |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|---|

|                 |       |       |       |       |      |  |                 |  |      |   |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|---|
| 463.00 > 169.00 | 3.084 | 3.077 | 0.007 | 1.000 | 4231 |  | 6.39(1.90-5.69) |  | 92.6 | R |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|---|

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.076 | 3.079     | -0.003    | 1.000     | 2680048  | 1.71            |               | 71.6 | 14743 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.084 | 3.079     | 0.005     | 1.000     | 3151742  | 2.21            |               | 88.3 | 66419 |       |

### QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_026.d

Injection Date: 29-May-2018 14:15:18

Instrument ID: A8\_N

Lims ID: 320-39023-A-34-A

Lab Sample ID: 320-39023-34

Client ID: KLA05-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 19

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

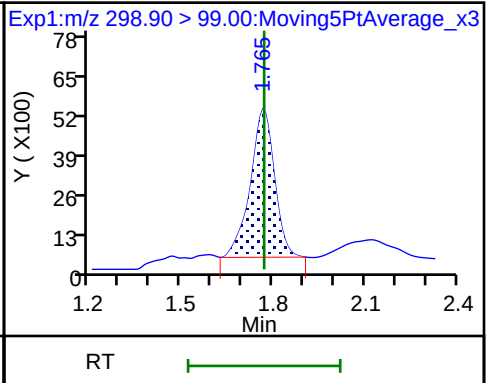
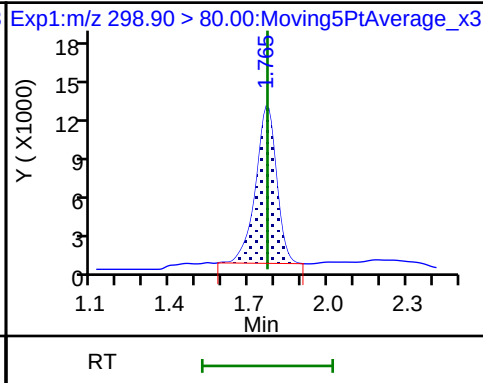
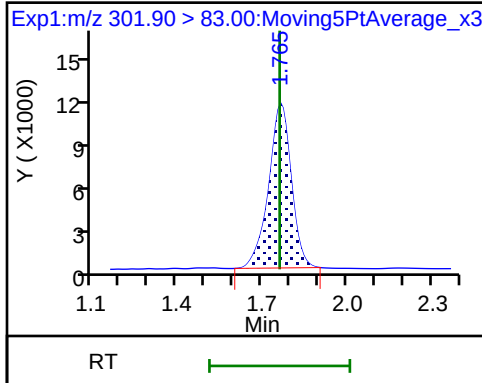
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

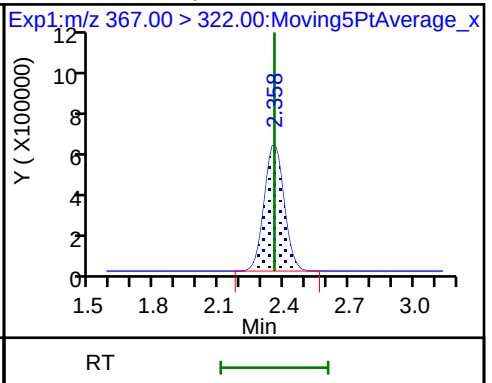
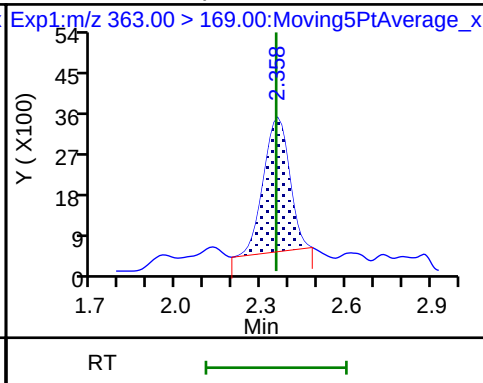
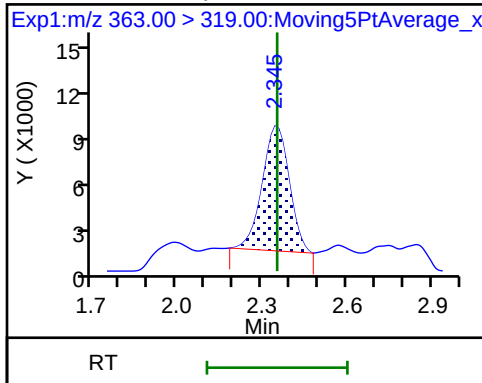
5 Perfluorobutanesulfonic acid



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

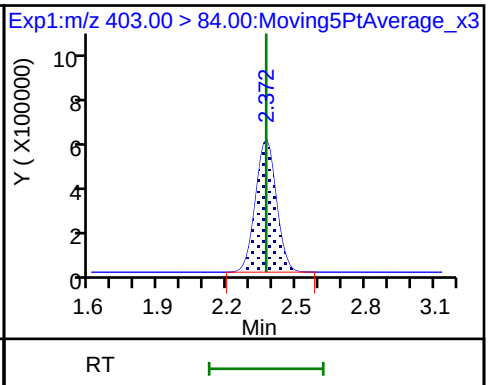
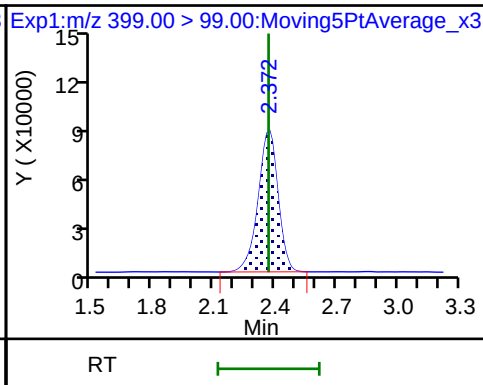
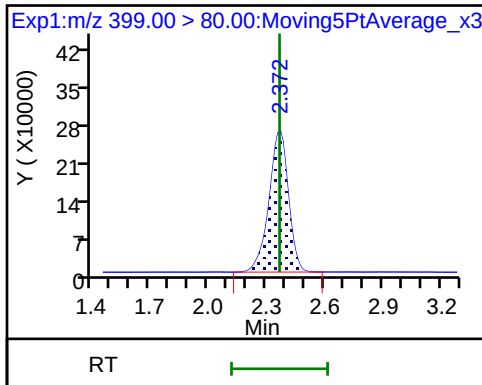
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

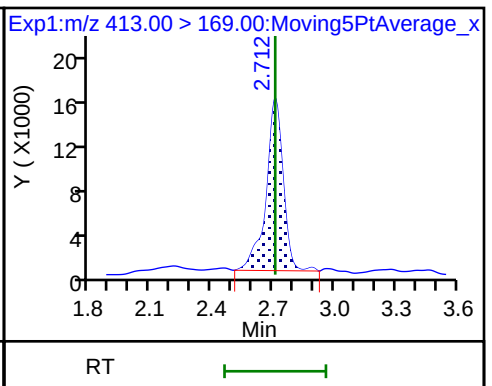
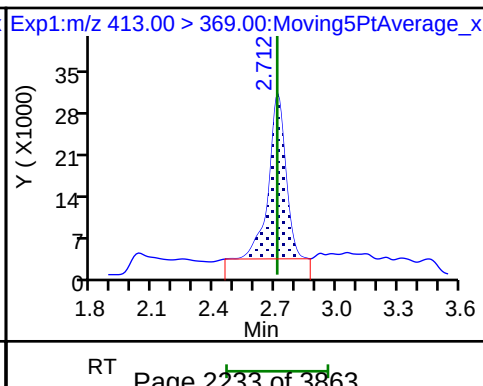
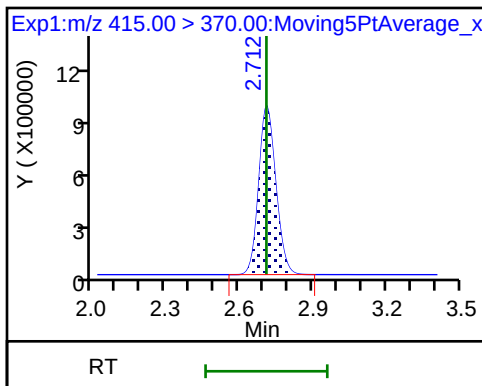
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

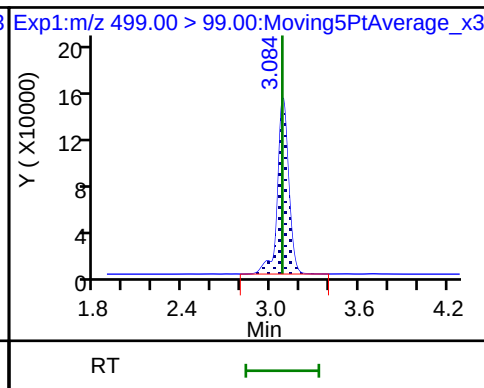
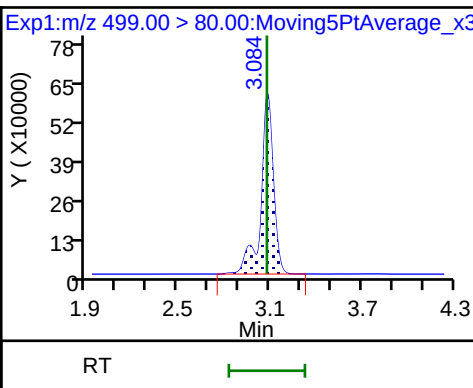
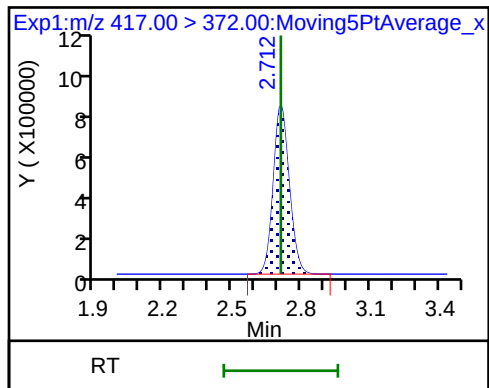
15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

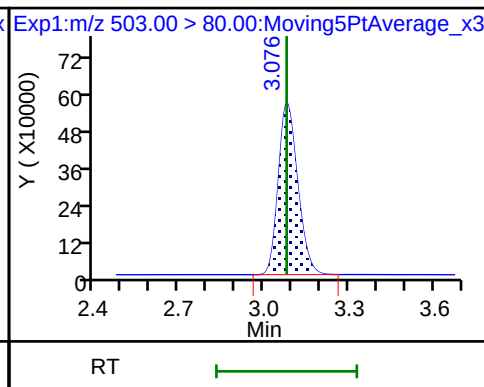
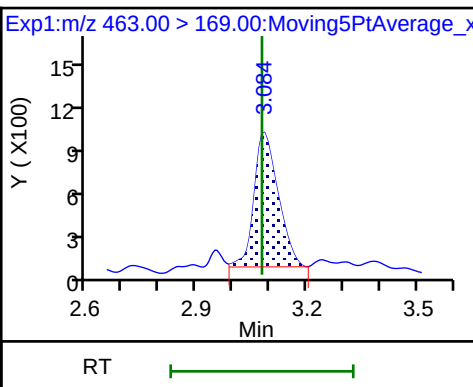
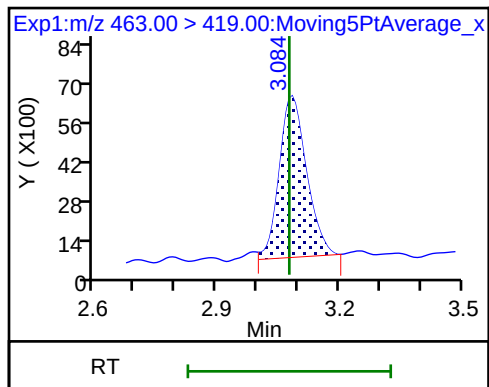
## 17 Perfluorooctane sulfonic acid



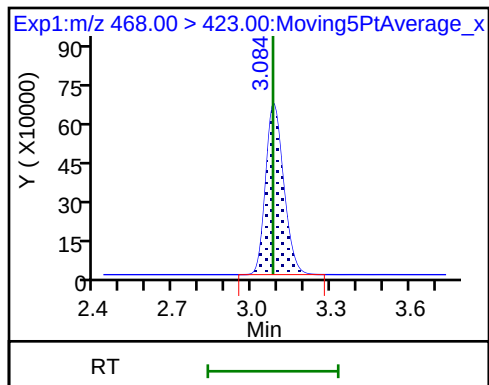
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## D 18 13C4 PFOS



## D 19 13C5 PFNA



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB2-01</u>   | Lab Sample ID: <u>320-39023-35</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_053.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 09:30</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>           | Date Analyzed: <u>05/29/2018 09:56</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>14.8</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.45   |   | 0.36 | 0.24 | 0.092 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.6    |   | 0.36 | 0.24 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.36   |   | 0.36 | 0.24 | 0.096 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.32   | J | 0.47 | 0.21 | 0.070 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 20     |   | 0.36 | 0.24 | 0.073 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 37     | E | 1.2  | 0.59 | 0.28  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 69   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 85   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 92   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 89   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 73   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_053.d  
 Lims ID: 320-39023-A-35-A  
 Client ID: KLA05-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 09:56:59 ALS Bottle#: 43 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-35-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 09:55:45 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 09:56:02

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.774 | 1.765  | 0.009  | 1.005  | 306580   | 0.1359       |                 |      | 1316  |       |
| 298.90 > 99.00                   | 1.765 | 1.765  | 0.0    | 1.000  | 131851   |              | 2.33(1.25-3.74) |      | 386   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.765 | 1.766  | -0.001 | 1.000  | 67162    | 1.60         |                 | 68.7 | 441   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 4041015  | 2.13         |                 | 85.0 | 71240 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.345 | 2.359  | -0.014 | 1.000  | 327669   | 0.1919       |                 |      | 289   |       |
| 363.00 > 169.00                  | 2.345 | 2.359  | -0.014 | 1.000  | 132987   |              | 2.46(1.13-3.40) |      | 579   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 3942711  | 1.68         |                 | 71.0 | 78525 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.358 | 2.372  | -0.014 | 1.000  | 15936006 | 8.48         |                 |      | 27917 |       |
| 399.00 > 99.00                   | 2.358 | 2.372  | -0.014 | 1.000  | 5070715  |              | 3.14(1.50-4.49) |      | 11910 |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.704 | 2.706  | -0.002 | 1.000  | 4125643  | 2.29         |                 | 91.8 | 65478 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.704 | 2.713  | -0.009 | 1.000  | 1286415  | 0.6623       |                 |      | 459   |       |
| 413.00 > 169.00                  | 2.704 | 2.713  | -0.009 | 1.000  | 733408   |              | 1.75(0.84-2.52) |      | 1569  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.704 | 2.713  | -0.009 |        | 4746976  | 2.50         |                 |      | 61671 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.076 | 3.076  | 0.0    | 1.002  | 21728638 | 15.8         |                 |      | 18855 | E     |
| 499.00 > 99.00                   | 3.069 | 3.076  | -0.007 | 1.000  | 5405454  |              | 4.02(2.31-6.93) |      | 32560 | E     |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.069 | 3.076  | -0.007 | 1.000  | 2803315  | 1.74         |                 | 72.7 | 10199 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.076 | 3.076  | 0.0    | 1.000  | 3272246  | 2.23         |                 | 89.0 | 45946 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     |       |
| 463.00 > 419.00           | 3.076 | 3.083     | -0.007    | 1.000     | 208446   | 0.1504          |                 |      | 259 |       |
| 463.00 > 169.00           | 3.069 | 3.083     | -0.014    | 0.998     | 51568    |                 | 4.04(1.90-5.69) |      | 424 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_053.d

Injection Date: 29-May-2018 09:56:59

Instrument ID: A8\_N

Lims ID: 320-39023-A-35-A

Lab Sample ID: 320-39023-35

Client ID: KLA05-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 43

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

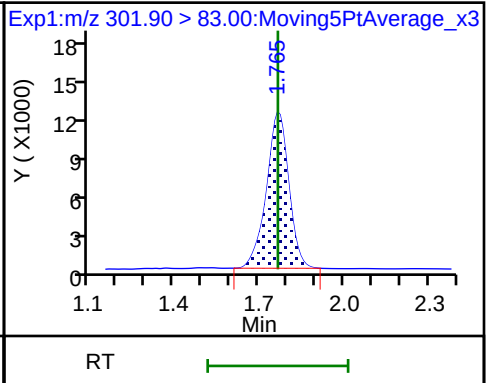
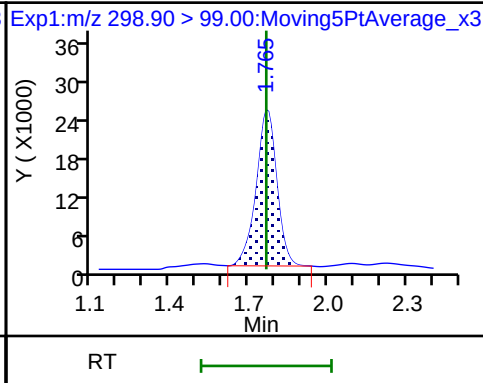
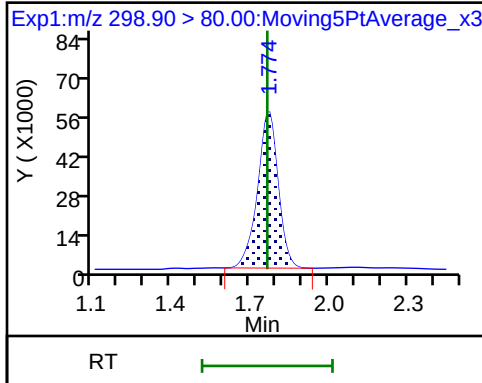
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

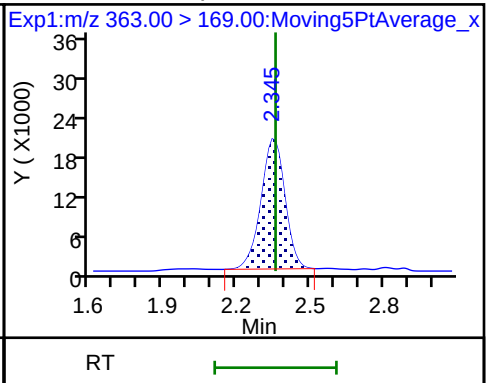
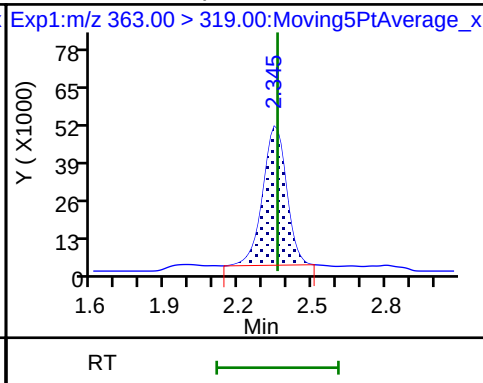
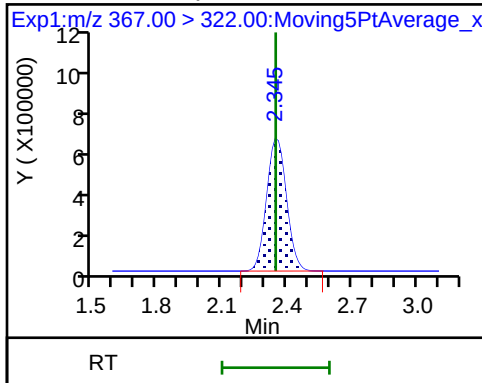
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

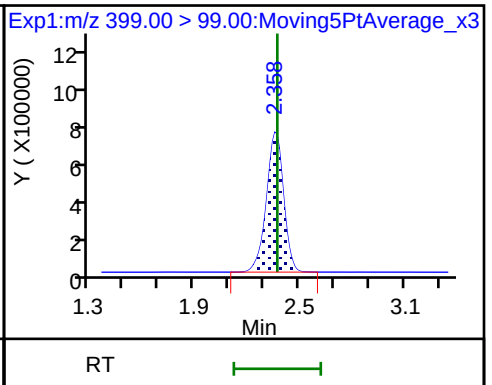
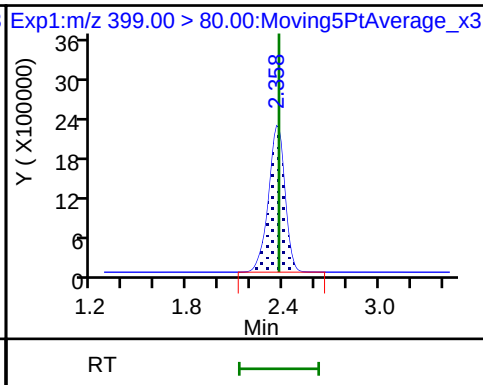
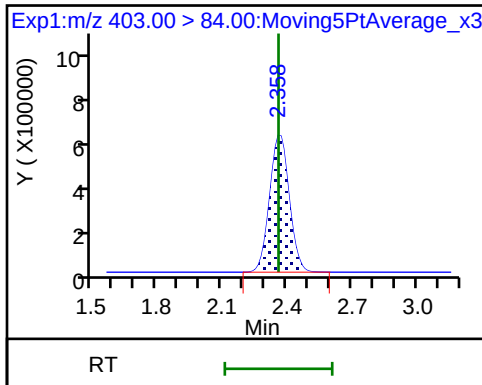
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

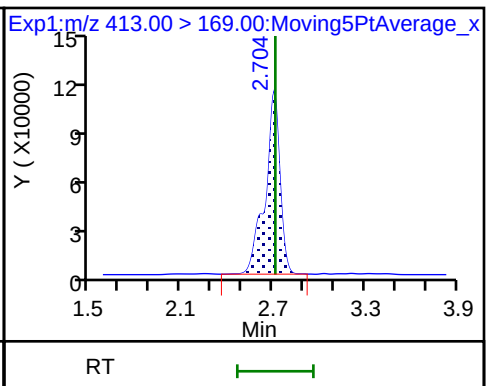
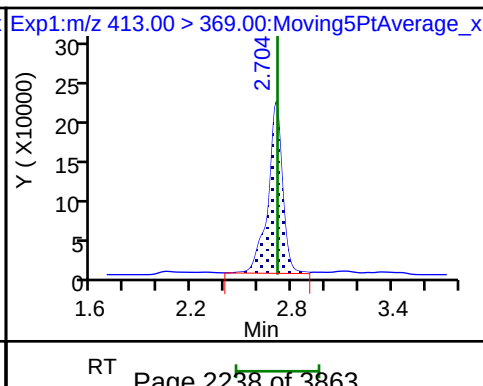
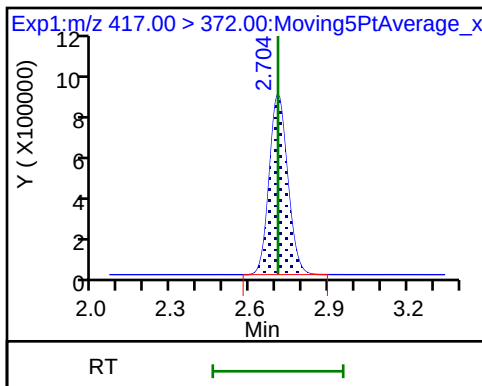
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

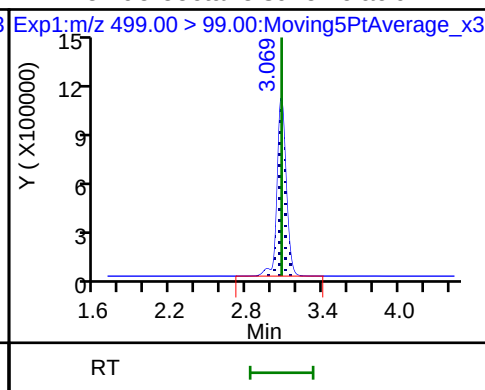
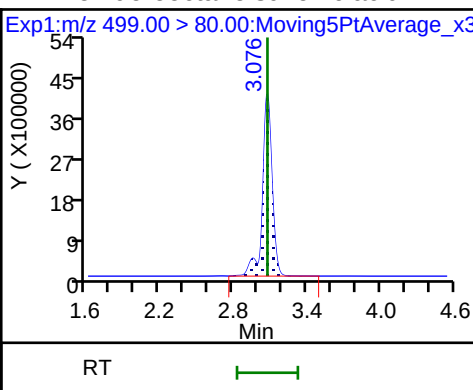
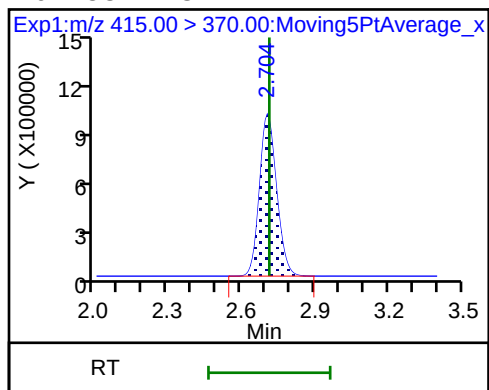




\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

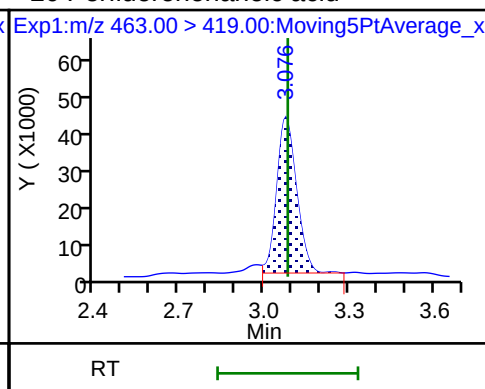
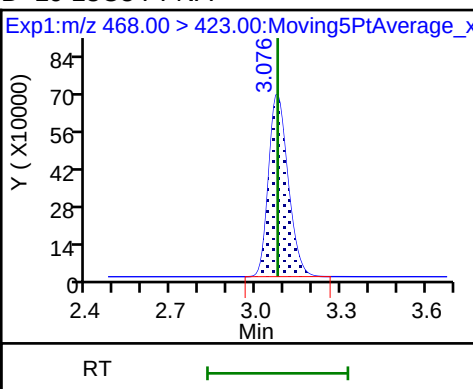
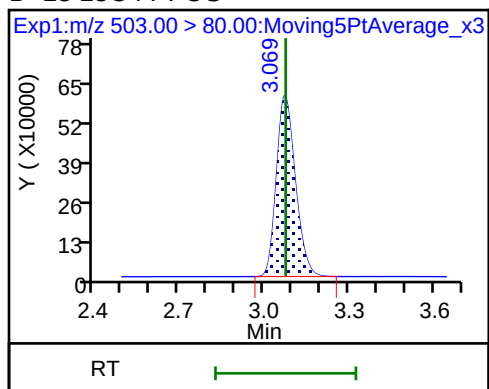
17 Perfluorooctane sulfonic acid



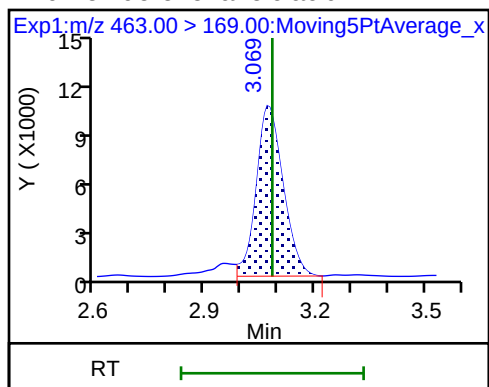
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid



20 Perfluorononanoic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA05-SB2-01 DL</u> | Lab Sample ID: <u>320-39023-35 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_030.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/05/2018 09:30</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.96(g)</u>            | Date Analyzed: <u>05/29/2018 14:46</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>14.8</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL   |
|-----------|--------------------------------------|--------|-----|-----|-----|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 2.4    | U   | 3.6 | 2.4 | 0.92 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.8    | J D | 3.6 | 2.4 | 1.2  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 2.4    | U M | 3.6 | 2.4 | 0.96 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 2.1    | U   | 4.7 | 2.1 | 0.70 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 20     | D   | 3.6 | 2.4 | 0.73 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 40     | D   | 12  | 5.9 | 2.8  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 59   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 82   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 86   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 89   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 70   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 69   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_030.d  
 Lims ID: 320-39023-A-35-A  
 Client ID: KLA05-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 14:46:33 ALS Bottle#: 23 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-a-35-a 10X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:16:51 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:16:51

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.775 | 1.762 | 0.013 | 1.000 | 6368 | 0.1383 |  | 59.5 | 59.7 |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |       |        |  |  |     |  |
|----------------|-------|-------|-------|-------|-------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.775 | 1.770 | 0.005 | 1.000 | 32019 | 0.0150 |  |  | 156 |  |
|----------------|-------|-------|-------|-------|-------|--------|--|--|-----|--|

|                |       |       |       |       |       |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.775 | 1.770 | 0.005 | 1.000 | 12404 |  | 2.58(1.25-3.74) |  | 80.0 |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |       |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.360 | 2.353 | 0.007 | 1.000 | 33019 | 0.0184 |  |  | 35.0 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.360 | 2.353 | 0.007 | 1.000 | 14250 |  | 2.32(1.13-3.40) |  | 73.0 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.360 | 2.355 | 0.005 | 1.000 | 424564 | 0.2039 |  | 81.6 | 8738 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |         |        |  |  |      |  |
|----------------|-------|-------|-------|-------|---------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.373 | 2.366 | 0.007 | 1.000 | 1694627 | 0.8373 |  |  | 6447 |  |
|----------------|-------|-------|-------|-------|---------|--------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.373 | 2.366 | 0.007 | 1.000 | 545044 |  | 3.11(1.50-4.49) |  | 2896 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |       |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 403.00 > 84.00 | 2.373 | 2.368 | 0.005 | 1.000 | 424777 | 0.1651 |  | 69.8 | 17498 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |        |        |  |  |       |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|-------|--|
| 415.00 > 370.00 | 2.721 | 2.709 | 0.012 |  | 520023 | 0.2500 |  |  | 15876 |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 413.00 > 369.00 | 2.721 | 2.709 | 0.012 | 1.000 | 155356 | 0.0776 |  |  | 51.5 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.714 | 2.709 | 0.005 | 0.997 | 81426 |  | 1.91(0.84-2.52) |  | 231 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |       |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 417.00 > 372.00 | 2.721 | 2.711 | 0.010 | 1.000 | 424987 | 0.2158 |  | 86.3 | 13011 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |         |      |  |  |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|-------|--|
| 499.00 > 80.00 | 3.087 | 3.077 | 0.010 | 1.000 | 2455707 | 1.71 |  |  | 14909 |  |
|----------------|-------|-------|-------|-------|---------|------|--|--|-------|--|

|                |       |       |       |       |        |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 499.00 > 99.00 | 3.087 | 3.077 | 0.010 | 1.000 | 583204 |  | 4.21(2.31-6.93) |  | 5450 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |       |        |  |  |      |   |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|---|
| 463.00 > 419.00 | 3.087 | 3.077 | 0.010 | 1.000 | 24279 | 0.0160 |  |  | 72.0 | M |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|---|

|                 |       |       |       |       |      |  |                 |  |     |   |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|-----|---|
| 463.00 > 169.00 | 3.094 | 3.077 | 0.017 | 1.002 | 4793 |  | 5.07(1.90-5.69) |  | 125 | M |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|-----|---|

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.087 | 3.079     | 0.008     | 1.000     | 291945   | 0.1651          |               | 69.1 | 2375  |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.087 | 3.079     | 0.008     | 1.000     | 358480   | 0.2225          |               | 89.0 | 12594 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_030.d

Injection Date: 29-May-2018 14:46:33

Instrument ID: A8\_N

Lims ID: 320-39023-A-35-A

Lab Sample ID: 320-39023-35

Client ID: KLA05-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

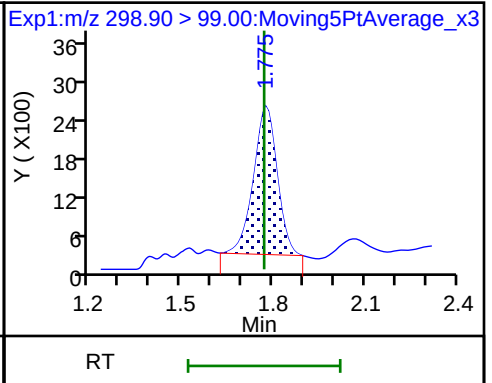
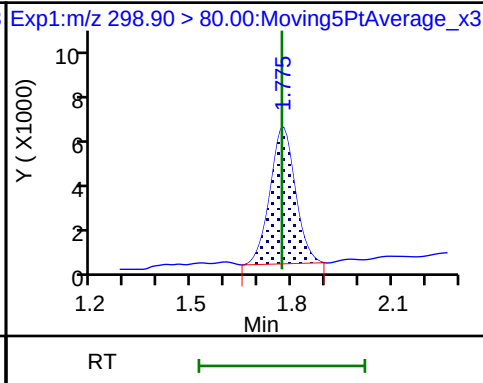
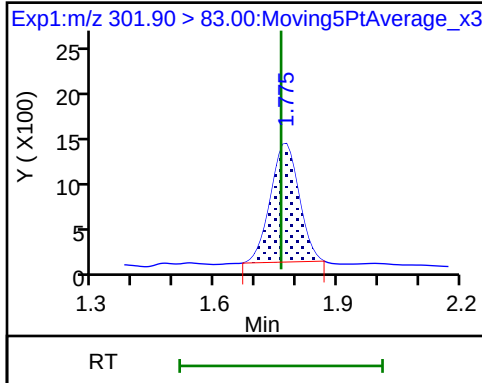
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

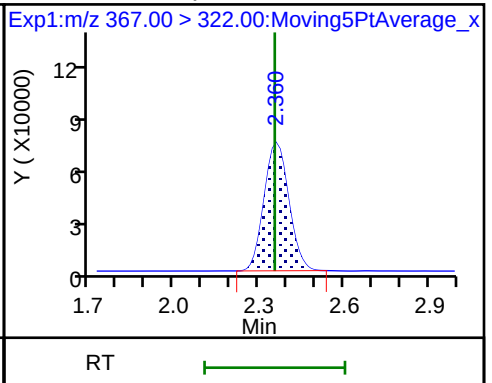
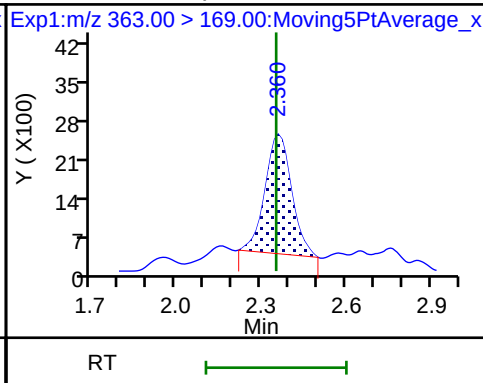
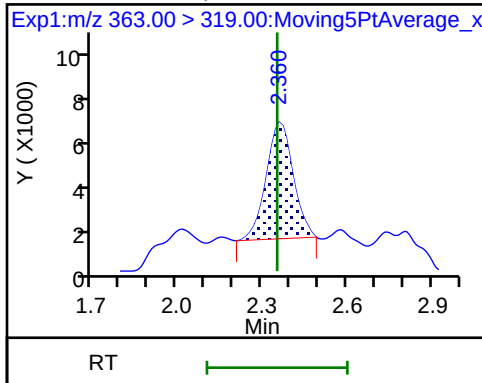
5 Perfluorobutanesulfonic acid



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

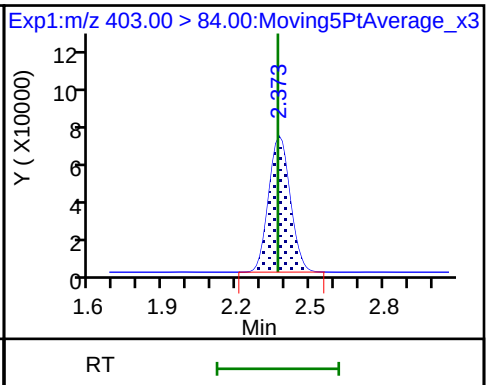
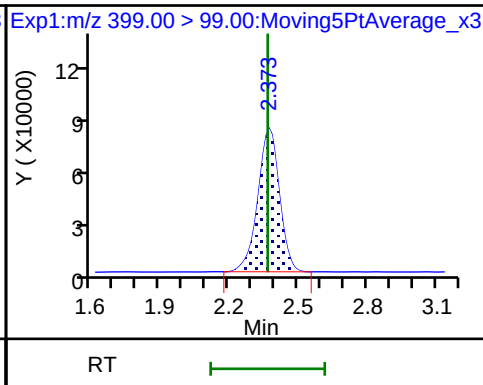
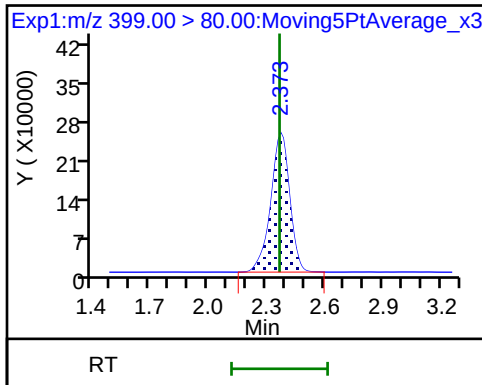
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

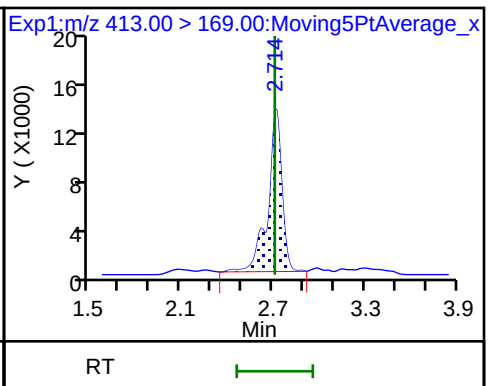
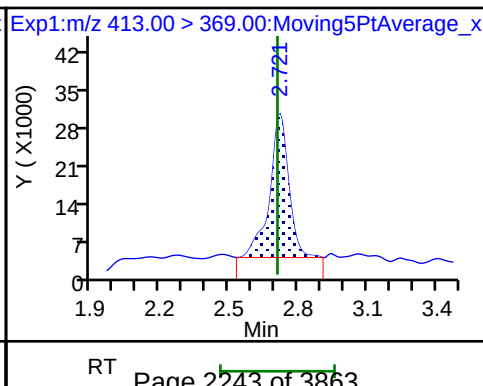
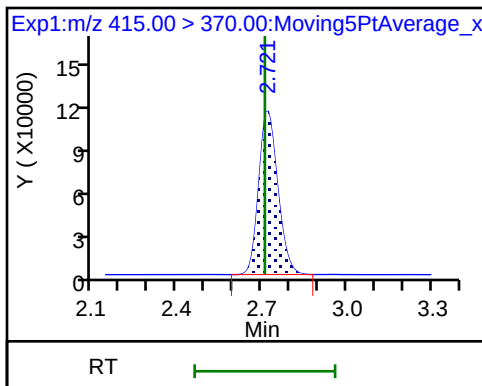
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

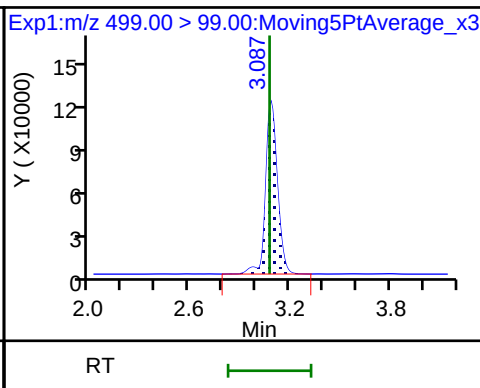
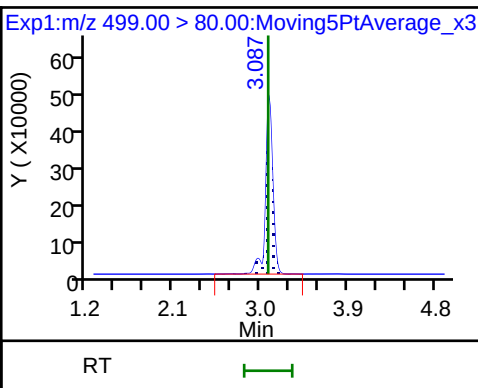
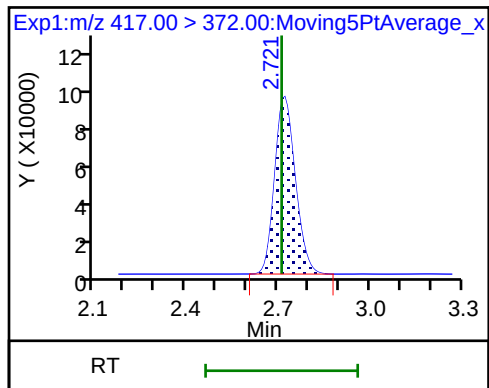
15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

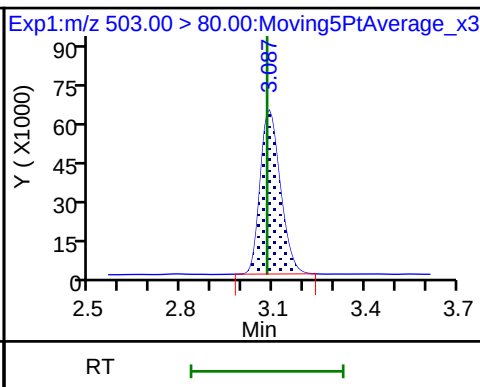
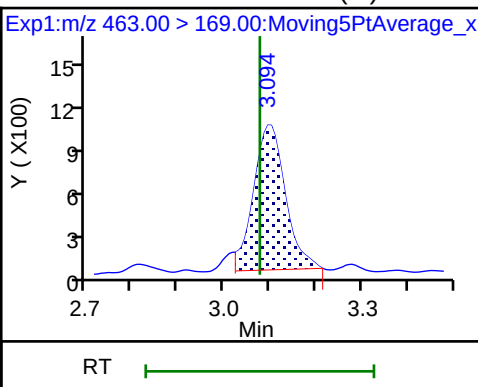
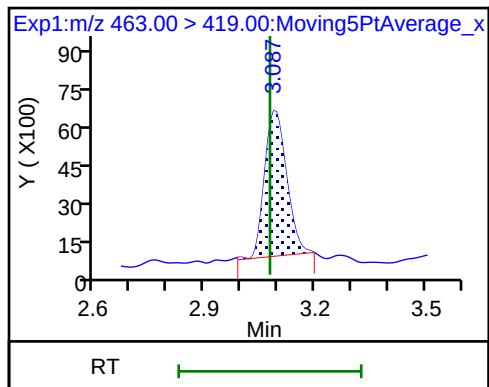
## 17 Perfluorooctane sulfonic acid



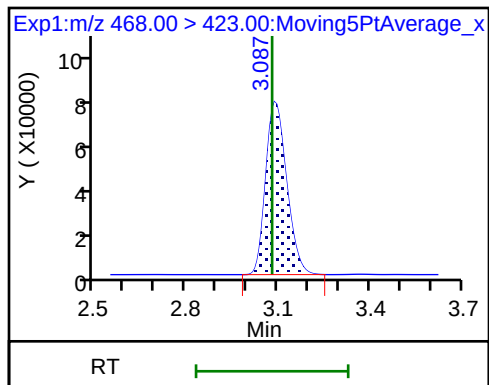
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid (M)

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_030.d

Injection Date: 29-May-2018 14:46:33

Instrument ID: A8\_N

Lims ID: 320-39023-A-35-A

Lab Sample ID: 320-39023-35

Client ID: KLA05-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 23 Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

Column:

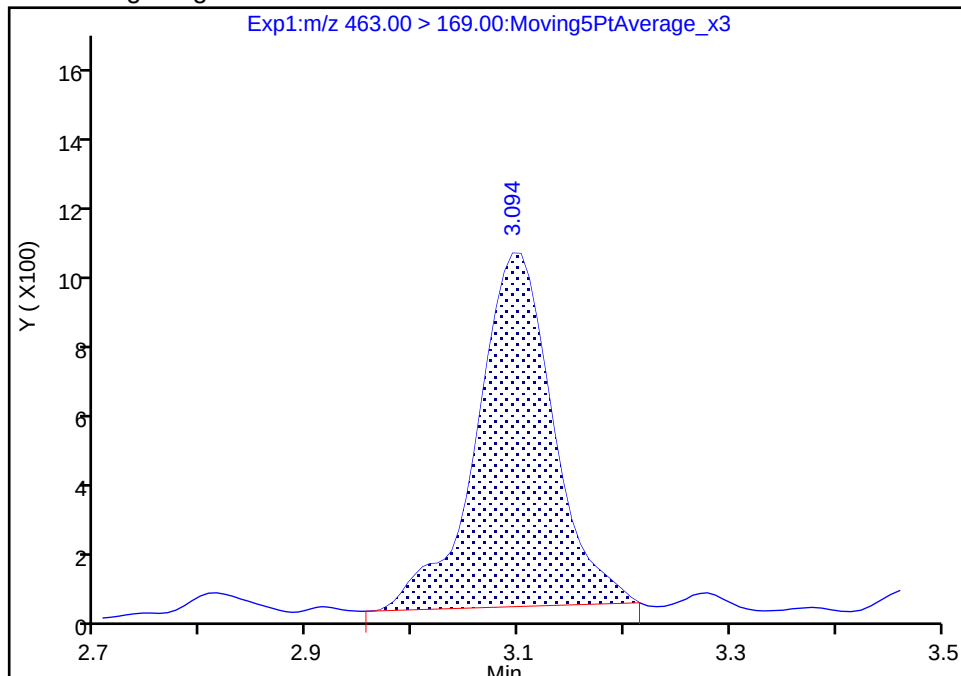
Detector: EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

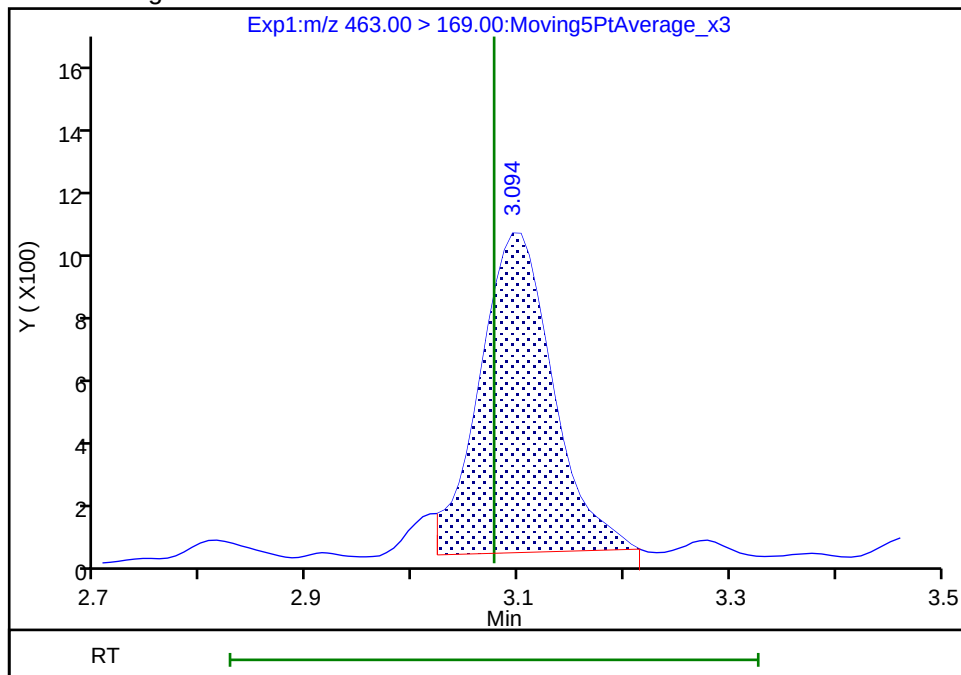
RT: 3.09  
Area: 5028  
Amount: 0.015986  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.09  
Area: 4793  
Amount: 0.015986  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:16:47

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB2-02</u>   | Lab Sample ID: <u>320-39023-36</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_054.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 09:40</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>           | Date Analyzed: <u>05/29/2018 10:04</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>24.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.38   | J   | 0.40 | 0.27 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.2    |     | 0.40 | 0.27 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.34   | J M | 0.40 | 0.27 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.29   | J   | 0.53 | 0.24 | 0.078 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 8.9    |     | 0.40 | 0.27 | 0.082 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 40     | E   | 1.3  | 0.66 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 70   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 74   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 85   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 87   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 74   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 72   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_054.d  
 Lims ID: 320-39023-A-36-A  
 Client ID: KLA05-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 10:04:48 ALS Bottle#: 44 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-36-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:07:00 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:07:00

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 298.90 > 80.00                   | 1.765 | 1.765     | 0.0       | 1.000     | 264201   | 0.1102          |                 |      | 854   |       |
| 298.90 > 99.00                   | 1.765 | 1.765     | 0.0       | 1.000     | 116661   |                 | 2.26(1.25-3.74) |      | 206   |       |
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |       |       |
| 301.90 > 83.00                   | 1.765 | 1.766     | -0.001    | 1.000     | 71347    | 1.62            |                 | 69.7 | 457   |       |
| D 9 13C4-PFHpa                   |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                  | 2.342 | 2.347     | -0.005    | 1.000     | 3701307  | 1.86            |                 | 74.4 | 47700 |       |
| 10 Perfluoroheptanoic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                  | 2.355 | 2.359     | -0.004    | 1.006     | 223870   | 0.1431          |                 |      | 107   |       |
| 363.00 > 169.00                  | 2.342 | 2.359     | -0.017    | 1.000     | 87534    |                 | 2.56(1.13-3.40) |      | 364   |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                   | 2.369 | 2.360     | 0.009     | 1.000     | 4303184  | 1.75            |                 | 74.0 | 62326 |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                   | 2.369 | 2.372     | -0.003    | 1.000     | 6863751  | 3.35            |                 |      | 6855  |       |
| 399.00 > 99.00                   | 2.369 | 2.372     | -0.003    | 1.000     | 2183482  |                 | 3.14(1.50-4.49) |      | 3015  |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                  | 2.703 | 2.706     | -0.003    | 1.000     | 3996703  | 2.12            |                 | 84.9 | 54805 |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                  | 2.703 | 2.713     | -0.010    | 1.000     | 845435   | 0.4493          |                 |      | 197   |       |
| 413.00 > 169.00                  | 2.703 | 2.713     | -0.010    | 1.000     | 475362   |                 | 1.78(0.84-2.52) |      | 802   |       |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                  | 2.703 | 2.713     | -0.010    |           | 4971924  | 2.50            |                 |      | 64520 |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.074 | 3.076     | -0.002    | 1.002     | 21577554 | 15.0            |                 |      | 8589  | E     |
| 499.00 > 99.00                   | 3.074 | 3.076     | -0.002    | 1.002     | 5175778  |                 | 4.17(2.31-6.93) |      | 21461 | E     |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                   | 3.067 | 3.076     | -0.009    | 1.000     | 2921611  | 1.73            |                 | 72.3 | 6099  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                  | 3.074 | 3.076     | -0.002    | 1.000     | 3353634  | 2.18            |                 | 87.1 | 46560 |       |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     | M     |
| 463.00 > 419.00           | 3.074 | 3.083     | -0.009    | 1.000     | 179985   | 0.1267          |                 |      | 129 | M     |
| 463.00 > 169.00           | 3.067 | 3.083     | -0.016    | 0.998     | 42682    |                 | 4.22(1.90-5.69) |      | 297 | M     |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_054.d

Injection Date: 29-May-2018 10:04:48

Instrument ID: A8\_N

Lims ID: 320-39023-A-36-A

Lab Sample ID: 320-39023-36

Client ID: KLA05-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 44

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

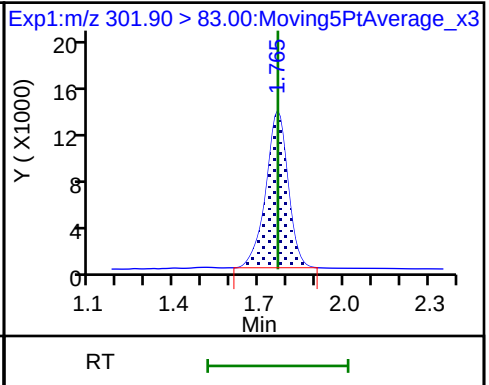
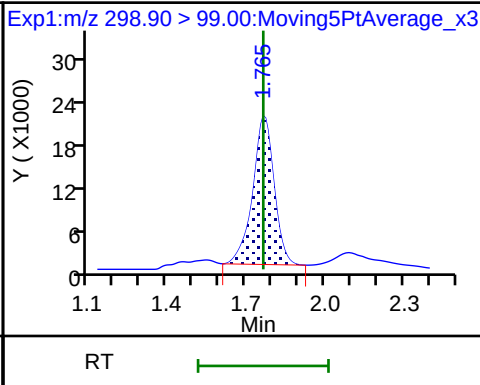
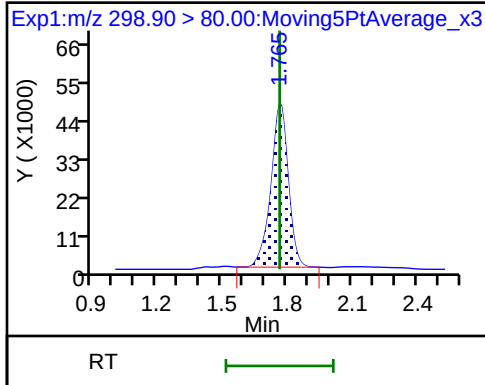
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

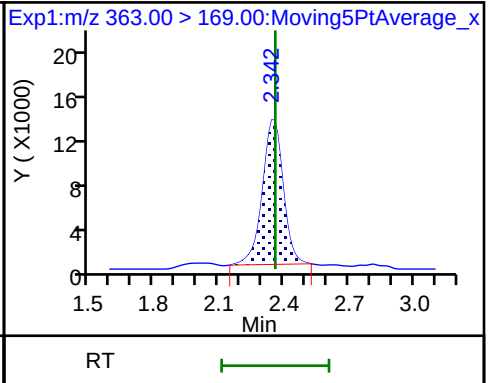
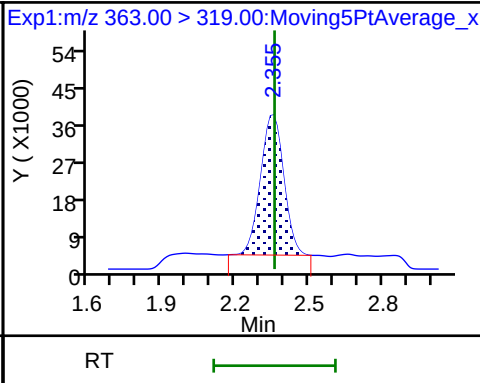
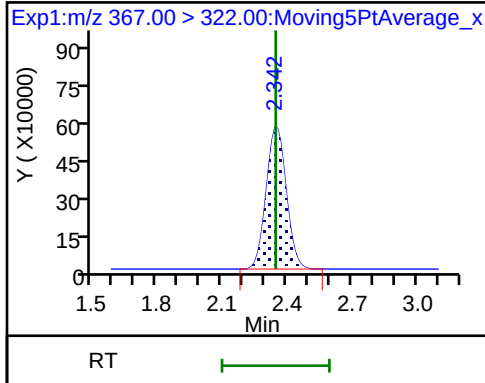
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

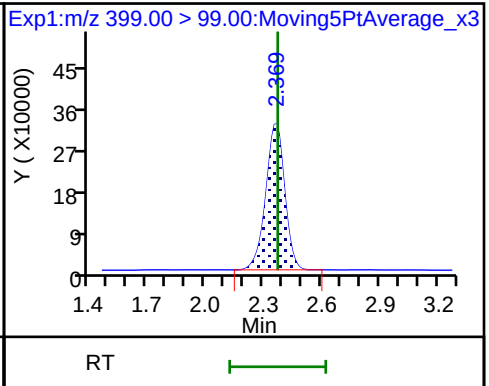
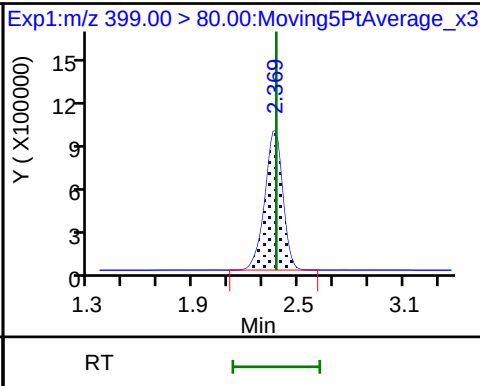
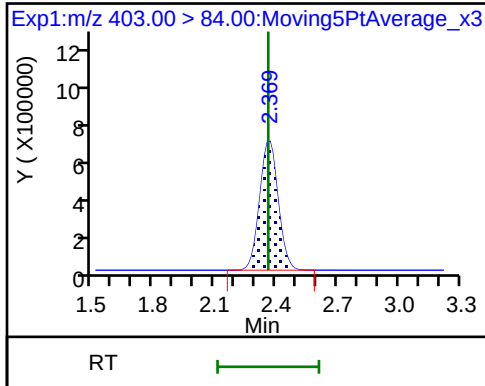
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

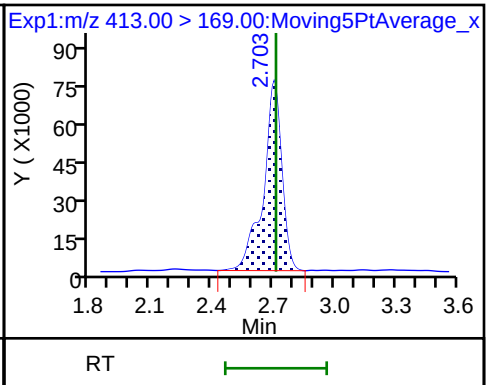
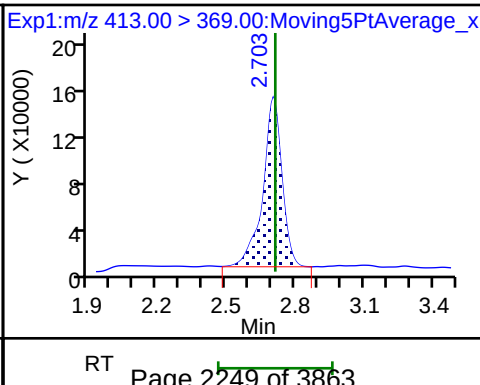
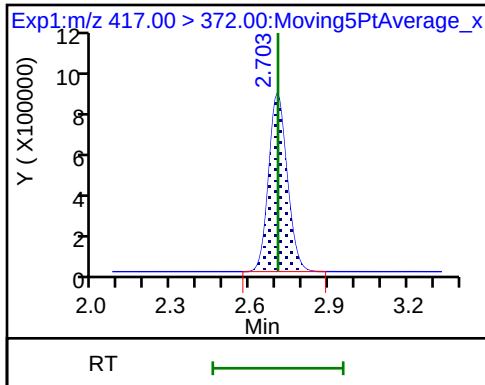
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

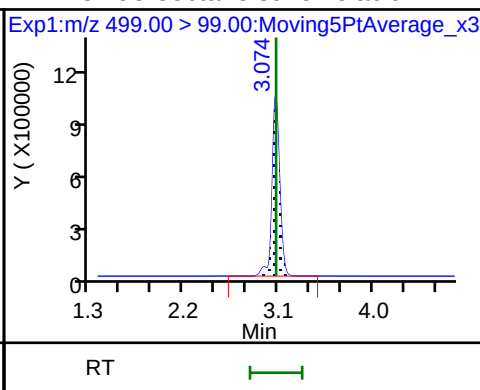
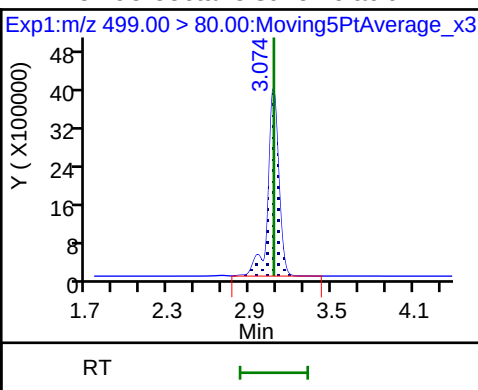
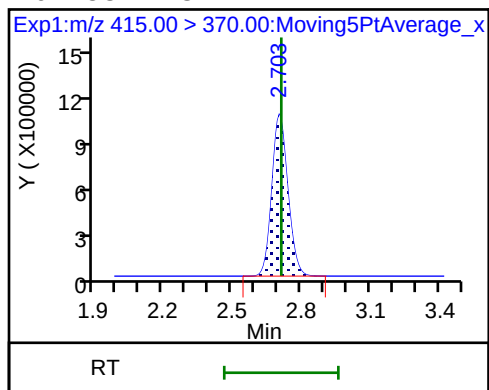
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

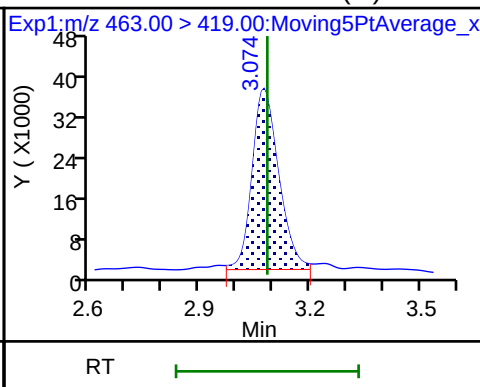
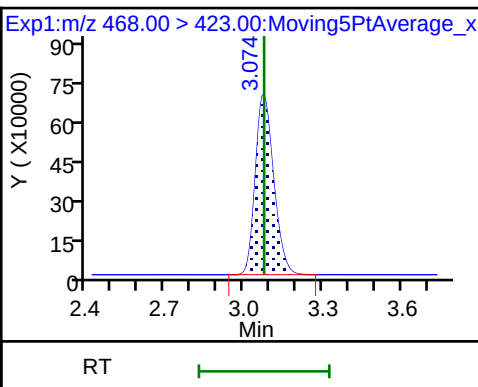
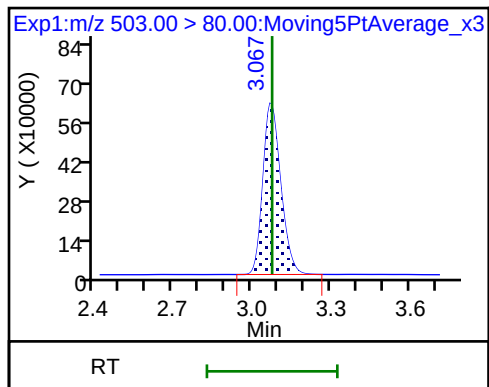
17 Perfluorooctane sulfonic acid



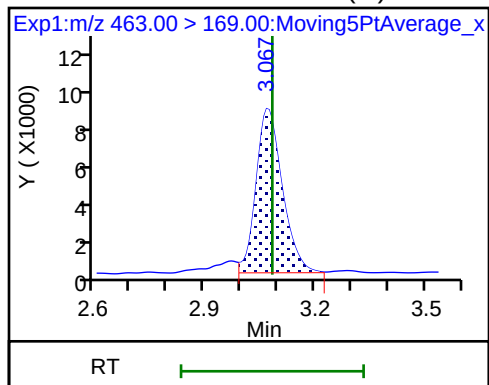
D 18 13C4 PFOS

D 19 13C5 PFNA

20 Perfluorononanoic acid (M)



20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

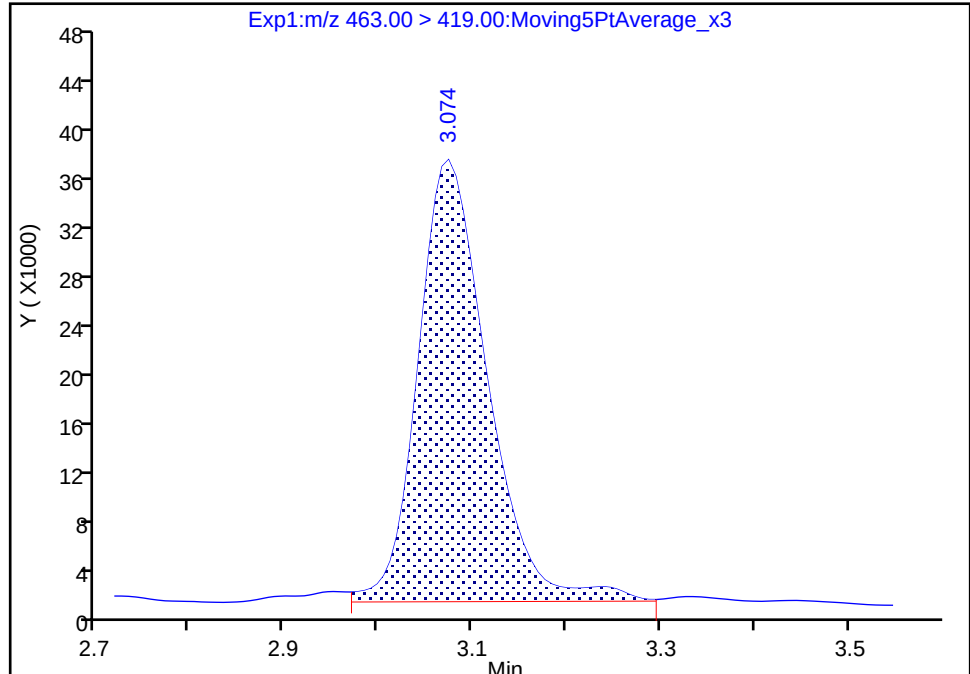
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_054.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:04:48                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-36-A                                                         | Lab Sample ID: | 320-39023-36       |                |    |
| Client ID:      | KLA05-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 44                 | Worklist Smp#: | 24 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

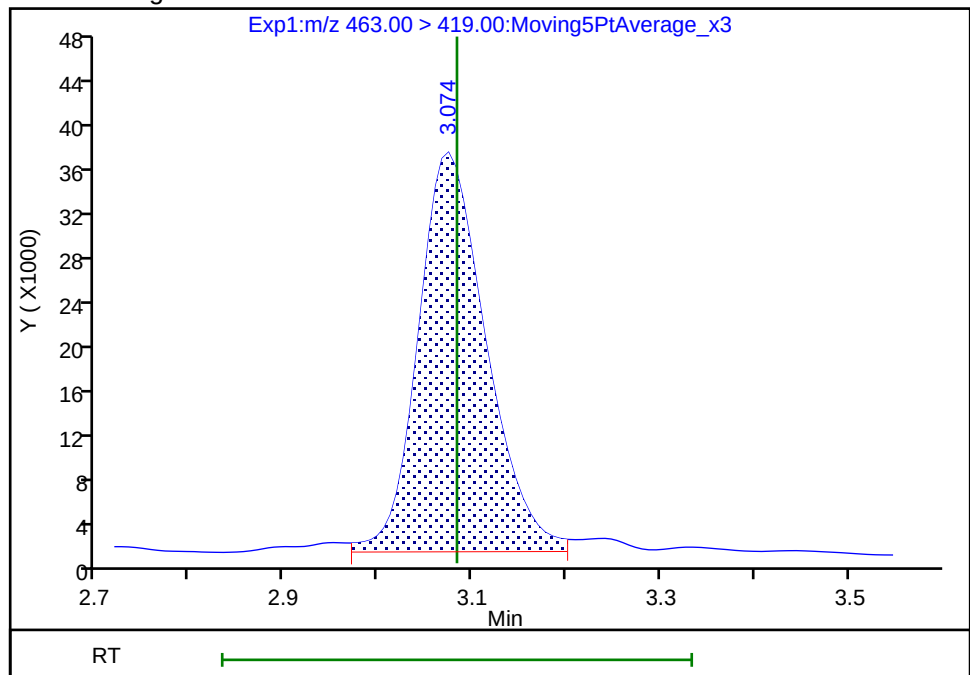
RT: 3.07  
Area: 184489  
Amount: 0.129844  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 179985  
Amount: 0.126674  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:06:36

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

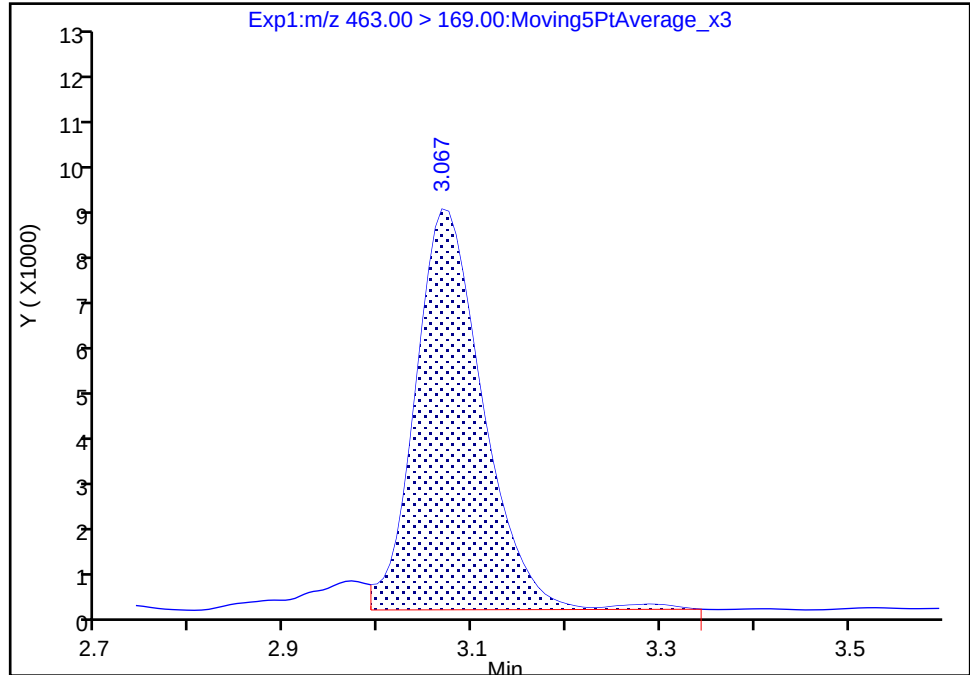
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_054.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:04:48                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-36-A                                                         | Lab Sample ID: | 320-39023-36       |                |    |
| Client ID:      | KLA05-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 44                 | Worklist Smp#: | 24 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

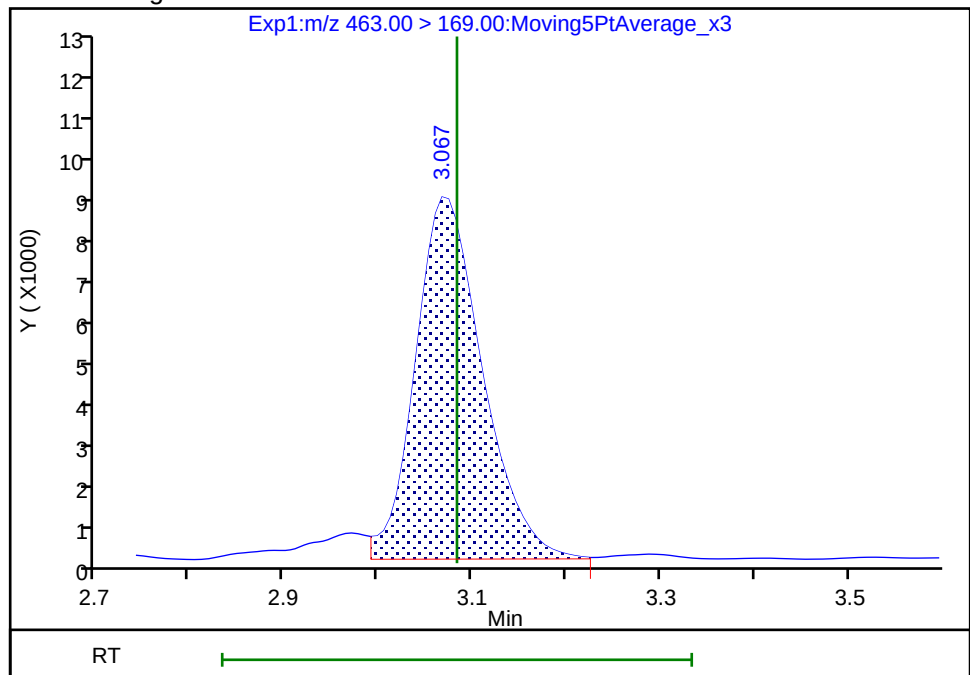
RT: 3.07  
Area: 43140  
Amount: 0.129844  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 42682  
Amount: 0.126674  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:06:44

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA05-SB2-02 DL</u> | Lab Sample ID: <u>320-39023-36 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_031.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/05/2018 09:40</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>            | Date Analyzed: <u>05/29/2018 14:54</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>24.6</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL   |
|-----------|--------------------------------------|--------|-----|-----|-----|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 2.7    | U   | 4.0 | 2.7 | 1.0  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.3    | J D | 4.0 | 2.7 | 1.3  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 2.7    | U   | 4.0 | 2.7 | 1.1  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 2.4    | U   | 5.3 | 2.4 | 0.78 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 9.7    | D   | 4.0 | 2.7 | 0.82 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 42     | D M | 13  | 6.6 | 3.2  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 72   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 77   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 92   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 85   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 72   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 70   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_031.d  
 Lims ID: 320-39023-A-36-A  
 Client ID: KLA05-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 14:54:25 ALS Bottle#: 24 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-a-36-a 10X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:17:34 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:17:34

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

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.764 | 1.762 | 0.002 | 1.000 | 7815 | 0.1685 |  | 72.5 | 75.2 |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |        |       |       |        |  |  |     |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.764 | 1.770 | -0.006 | 1.000 | 27018 | 0.0103 |  |  | 117 |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|

|                |       |       |       |       |       |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.773 | 1.770 | 0.003 | 1.005 | 10152 |  | 2.66(1.25-3.74) |  | 54.5 |  |
|----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |       |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.358 | 2.353 | 0.005 | 1.000 | 27391 | 0.0161 |  |  | 27.5 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.358 | 2.353 | 0.005 | 1.000 | 12466 |  | 2.20(1.13-3.40) |  | 59.4 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |        |        |  |      |       |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 367.00 > 322.00 | 2.358 | 2.355 | 0.003 | 1.000 | 402120 | 0.1918 |  | 76.7 | 10973 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |        |        |  |  |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.371 | 2.366 | 0.005 | 1.000 | 775950 | 0.3669 |  |  | 2773 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |     |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|
| 399.00 > 99.00 | 2.371 | 2.366 | 0.005 | 1.000 | 254026 |  | 3.05(1.50-4.49) |  | 792 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |       |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 403.00 > 84.00 | 2.371 | 2.368 | 0.003 | 1.000 | 443910 | 0.1713 |  | 72.4 | 24304 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |        |        |  |  |       |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|-------|--|
| 415.00 > 370.00 | 2.712 | 2.709 | 0.003 |  | 523724 | 0.2500 |  |  | 15901 |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 413.00 > 369.00 | 2.712 | 2.709 | 0.003 | 1.000 | 104013 | 0.0484 |  |  | 35.9 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.712 | 2.709 | 0.003 | 1.000 | 57938 |  | 1.80(0.84-2.52) |  | 173 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |       |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 417.00 > 372.00 | 2.712 | 2.711 | 0.001 | 1.000 | 455994 | 0.2299 |  | 92.0 | 12302 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |       |       |         |      |  |  |      |   |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|---|
| 499.00 > 80.00 | 3.084 | 3.077 | 0.007 | 1.000 | 2359457 | 1.60 |  |  | 5608 | M |
|----------------|-------|-------|-------|-------|---------|------|--|--|------|---|

|                |       |       |       |       |        |  |                 |  |      |   |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|---|
| 499.00 > 99.00 | 3.084 | 3.077 | 0.007 | 1.000 | 544547 |  | 4.33(2.31-6.93) |  | 5504 | M |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|---|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |       |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|
| 463.00 > 419.00 | 3.084 | 3.077 | 0.007 | 1.000 | 20159 | 0.0138 |  |  | 52.1 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |      |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|
| 463.00 > 169.00 | 3.084 | 3.077 | 0.007 | 1.000 | 5215 |  | 3.87(1.90-5.69) |  | 93.7 |  |
|-----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|



| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.084 | 3.079     | 0.005     | 1.000     | 299815   | 0.1683          |               | 70.4 | 2385  |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.084 | 3.079     | 0.005     | 1.000     | 345376   | 0.2129          |               | 85.2 | 12538 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_031.d

Injection Date: 29-May-2018 14:54:25

Instrument ID: A8\_N

Lims ID: 320-39023-A-36-A

Lab Sample ID: 320-39023-36

Client ID: KLA05-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

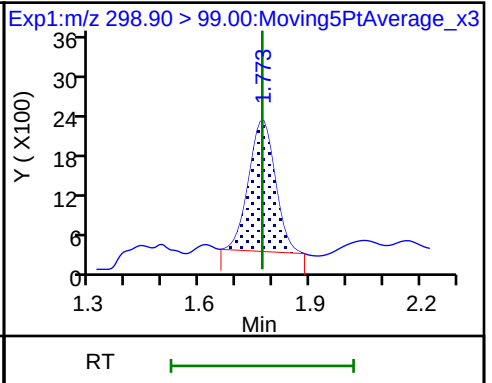
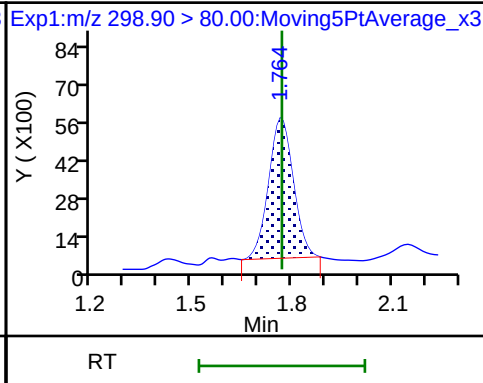
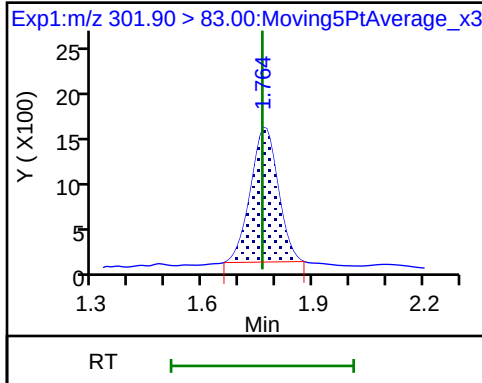
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

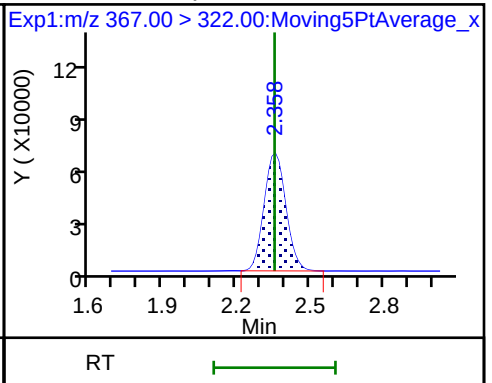
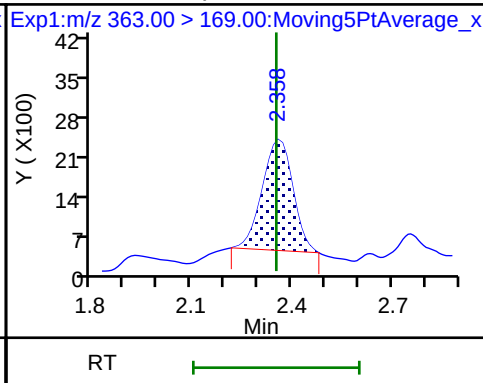
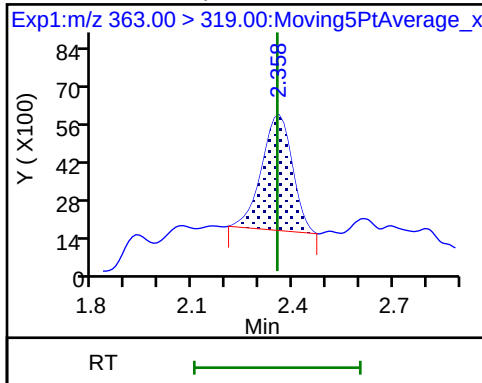
5 Perfluorobutanesulfonic acid



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

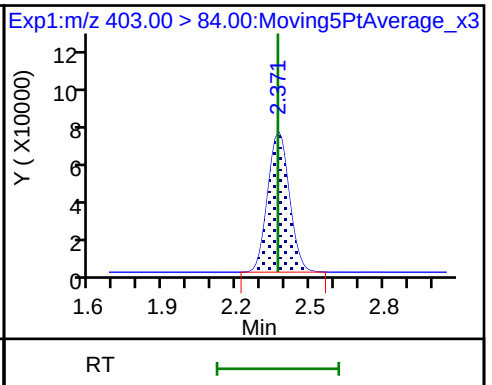
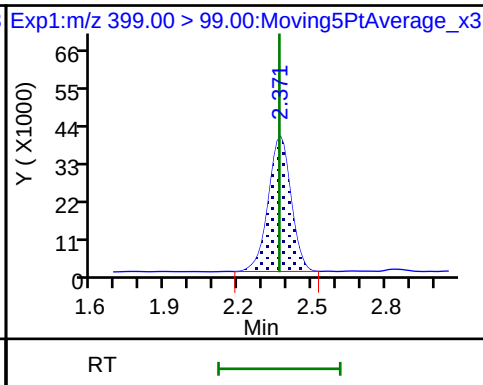
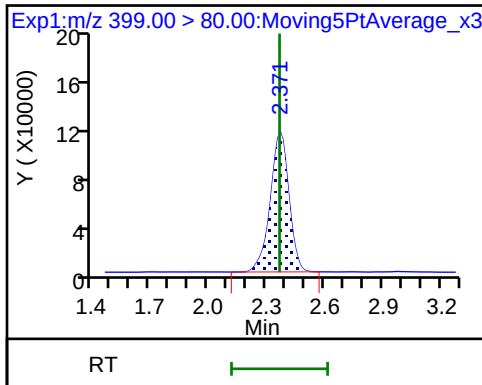
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

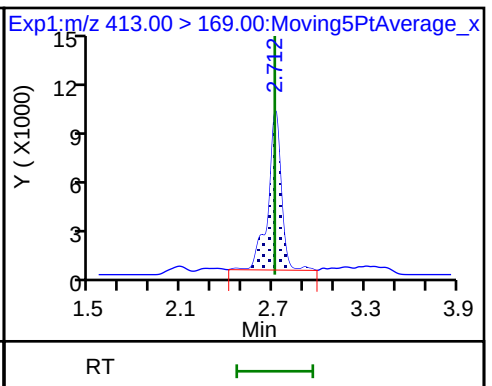
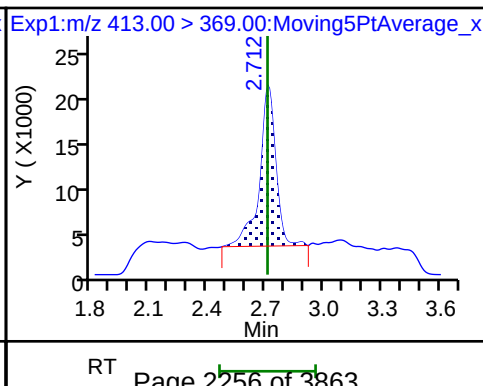
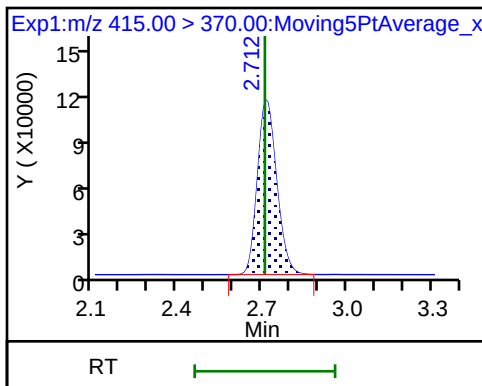
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

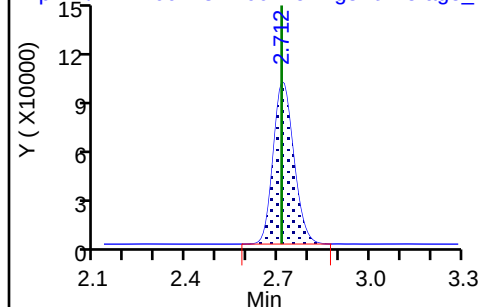


## D 14 13C4 PFOA

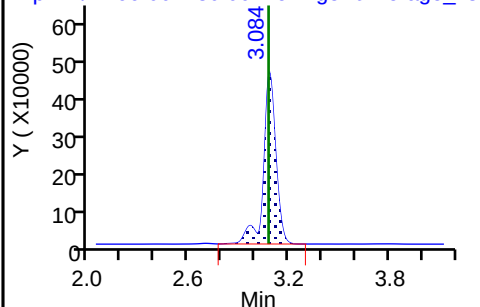
## 17 Perfluorooctane sulfonic acid (M)

## 17 Perfluorooctane sulfonic acid

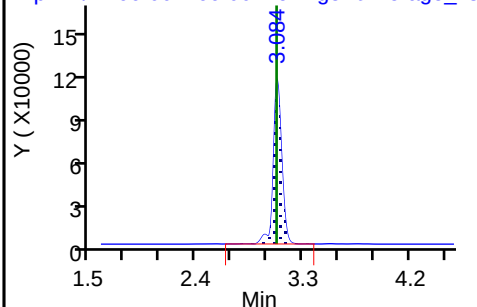
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Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

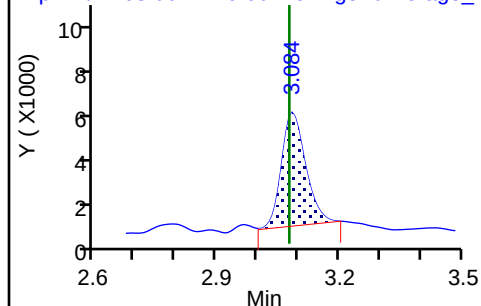


## 20 Perfluorononanoic acid

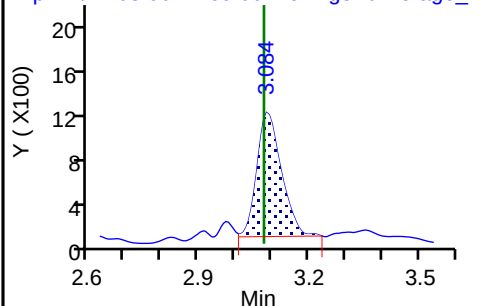
## 20 Perfluorononanoic acid

## D 18 13C4 PFOS

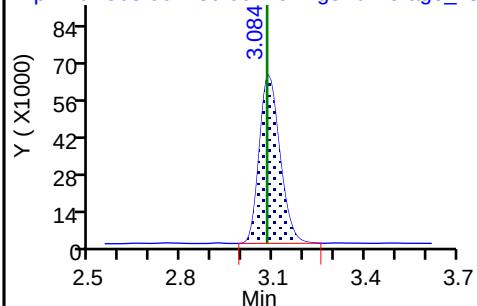
Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

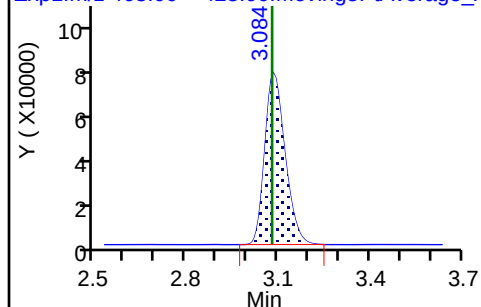


Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



## D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x



## TestAmerica Sacramento

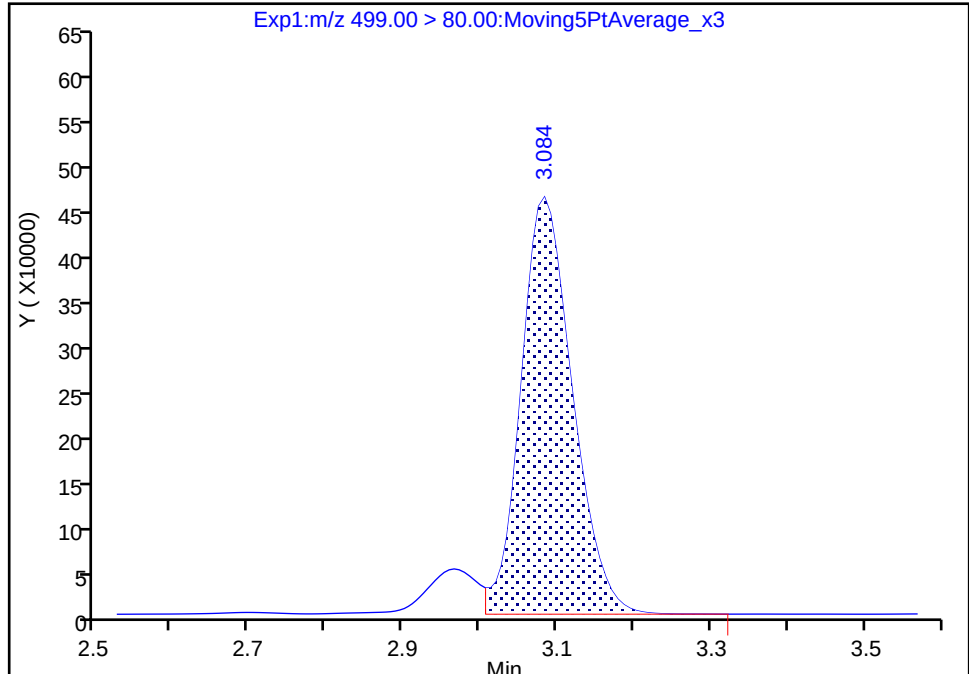
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_031.d |                |                    |                |   |
| Injection Date: | 29-May-2018 14:54:25                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-36-A                                                         | Lab Sample ID: | 320-39023-36       |                |   |
| Client ID:      | KLA05-SB2-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 24                 | Worklist Smp#: | 8 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 10.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

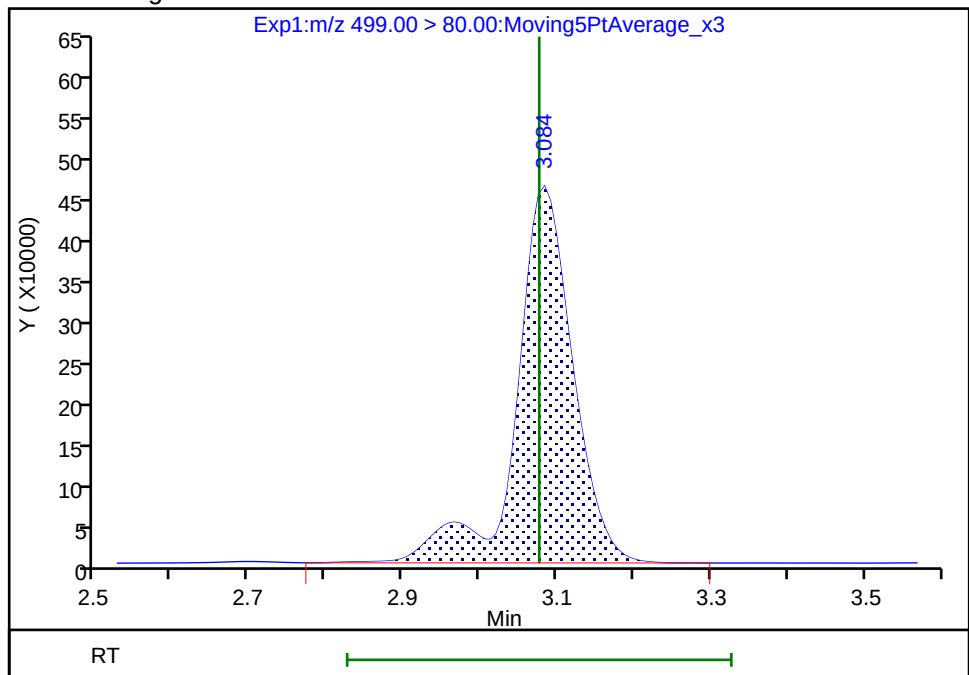
RT: 3.08  
Area: 2137614  
Amount: 1.449247  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 2359457  
Amount: 1.599651  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:17:20

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB3-01</u>   | Lab Sample ID: <u>320-39023-37</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_056.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 10:10</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.04(g)</u>           | Date Analyzed: <u>05/29/2018 10:20</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>16.2</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 14     |   | 0.36 | 0.24 | 0.092 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 57     | E | 0.36 | 0.24 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 2.6    | M | 0.36 | 0.24 | 0.096 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 6.7    |   | 0.47 | 0.21 | 0.070 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 430    | E | 0.36 | 0.24 | 0.073 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 4600   | E | 1.2  | 0.59 | 0.28  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 122  |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 66   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 19   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 46   | Q | 50-150 |
| STL00991 | 13C4 PFOS        | 13   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_056.d  
 Lims ID: 320-39023-A-37-A  
 Client ID: KLA05-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 10:20:25 ALS Bottle#: 45 Worklist Smp#: 26  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-37-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:08:24 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:08:24

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|---------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |         |       |
| 298.90 > 80.00                   | 1.762 | 1.761  | 0.001  | 1.000  | 6877866   | 2.85         |                 |      | 20107   |       |
| 298.90 > 99.00                   | 1.762 | 1.761  | 0.001  | 1.000  | 2877733   |              | 2.39(1.25-3.74) |      | 5264    |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |         |       |
| 301.90 > 83.00                   | 1.762 | 1.766  | -0.004 | 1.000  | 71929     | 2.84         |                 | 122  | 387     |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |         |       |
| 367.00 > 322.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 1903825   | 1.66         |                 | 66.4 | 36311   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |         |       |
| 363.00 > 319.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 4865681   | 6.05         |                 |      | 4429    |       |
| 363.00 > 169.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 1873122   |              | 2.60(1.13-3.40) |      | 9291    |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |         |       |
| 403.00 > 84.00                   | 2.355 | 2.360  | -0.005 | 1.000  | 1553779   | 1.10         |                 | 46.4 | 25016   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |         |       |
| 399.00 > 80.00                   | 2.355 | 2.360  | -0.005 | 1.000  | 134699696 | 182.0        |                 |      | 239114  | E     |
| 399.00 > 99.00                   | 2.355 | 2.360  | -0.005 | 1.000  | 58420304  |              | 2.31(1.50-4.49) |      | 74903   | E     |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |         |       |
| 413.00 > 369.00                  | 2.703 | 2.705  | -0.002 | 1.000  | 26947036  | 24.3         |                 |      | 15677   | E     |
| 413.00 > 169.00                  | 2.703 | 2.705  | -0.002 | 1.000  | 15977401  |              | 1.69(0.84-2.52) |      | 15722   |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 415.00 > 370.00                  | 2.711 | 2.705  | 0.006  |        | 2864077   | 2.50         |                 |      | 55954   |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |         |       |
| 417.00 > 372.00                  | 2.703 | 2.706  | -0.003 | 1.000  | 2357546   | 2.17         |                 | 86.9 | 57900   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |         |       |
| 499.00 > 80.00                   | 2.984 | 3.072  | -0.088 | 0.975  | 299488161 | 1946.6       |                 |      | 3370    | E     |
| 499.00 > 99.00                   | 3.060 | 3.072  | -0.012 | 1.000  | 180128961 |              | 1.66(2.31-6.93) |      | 1213352 |       |
| 20 Perfluorononanoic acid        |       |        |        |        |           |              |                 |      |         |       |
| 463.00 > 419.00                  | 3.060 | 3.072  | -0.012 | 0.998  | 201783    | 1.11         |                 |      | 211     | M     |
| 463.00 > 169.00                  | 3.067 | 3.072  | -0.005 | 1.000  | 50688     |              | 3.98(1.90-5.69) |      | 140     | M     |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |      |       |
| 503.00 > 80.00  | 3.060 | 3.076     | -0.016    | 1.000     | 312737   | 0.3211          |               | 13.4 | 979  |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |      |       |
| 468.00 > 423.00 | 3.067 | 3.076     | -0.009    | 1.000     | 427982   | 0.4824          |               | 19.3 | 8284 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_056.d

Injection Date: 29-May-2018 10:20:25

Instrument ID: A8\_N

Lims ID: 320-39023-A-37-A

Lab Sample ID: 320-39023-37

Client ID: KLA05-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 45

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

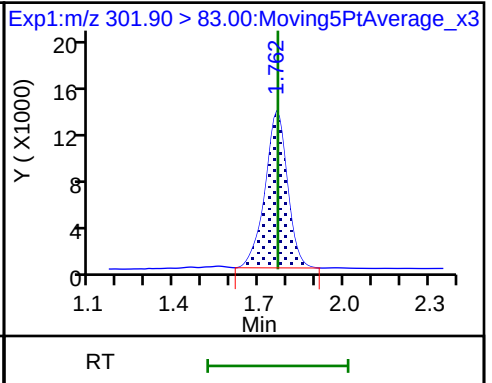
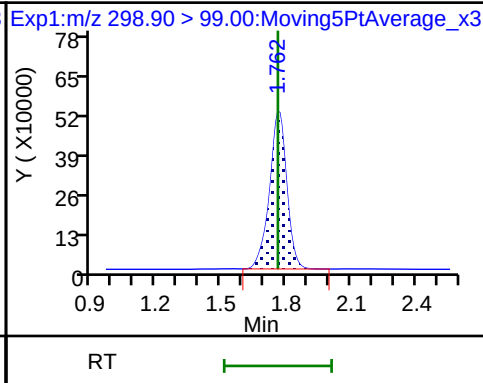
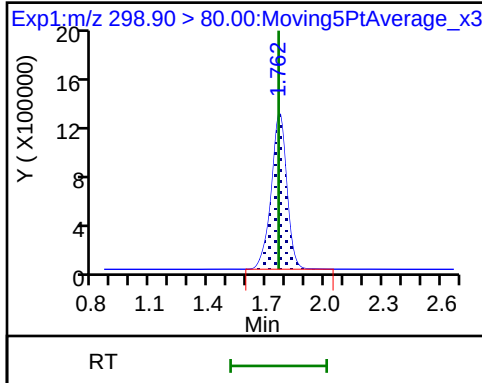
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

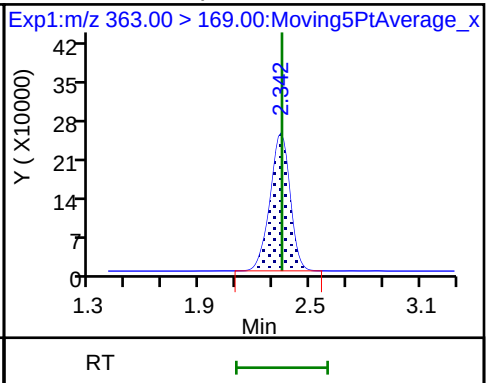
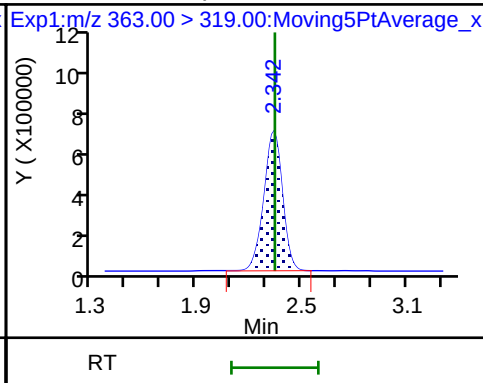
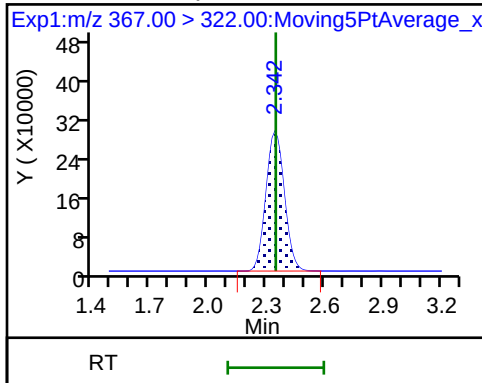
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

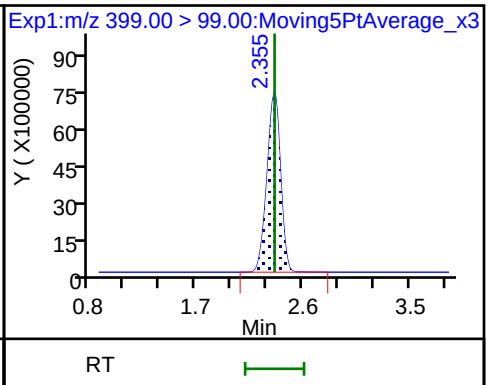
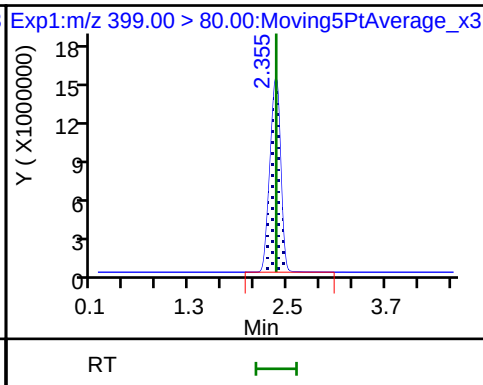
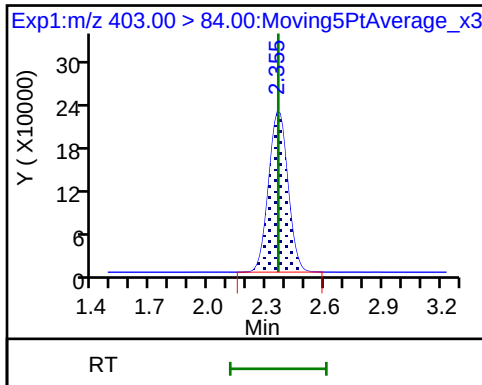
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

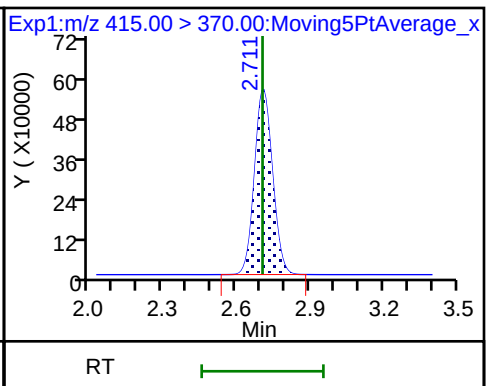
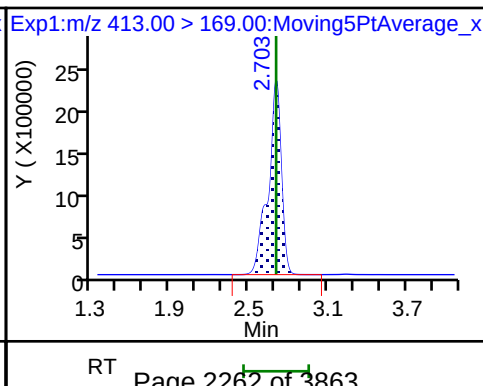
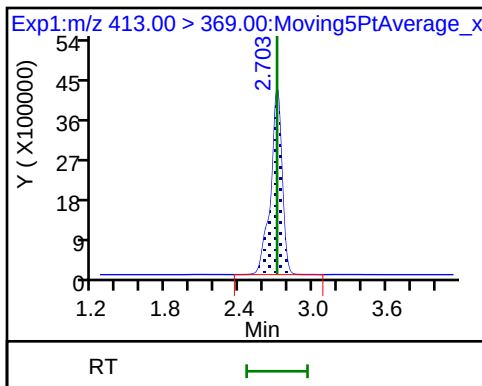
## 8 Perfluorohexanesulfonic acid



## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

## \* 62 13C2-PFOA

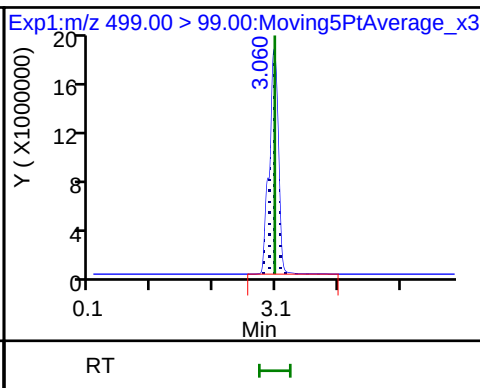
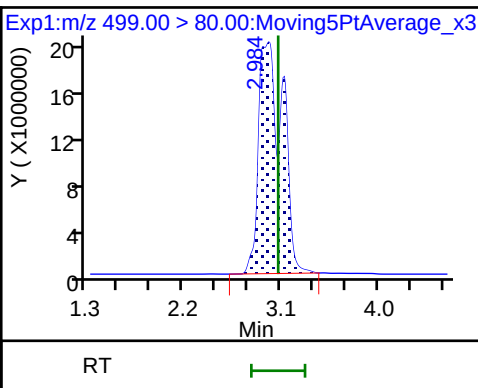
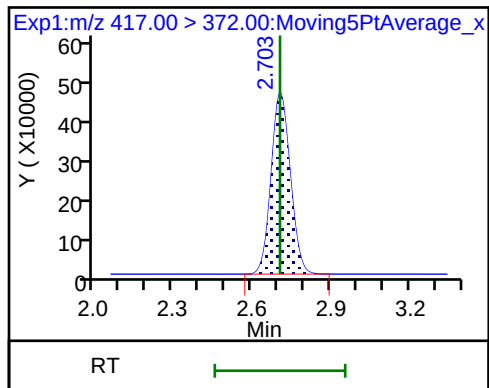




## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

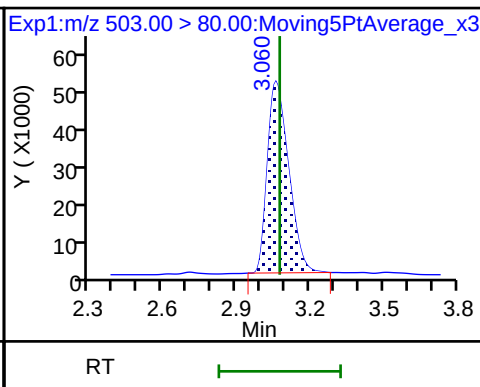
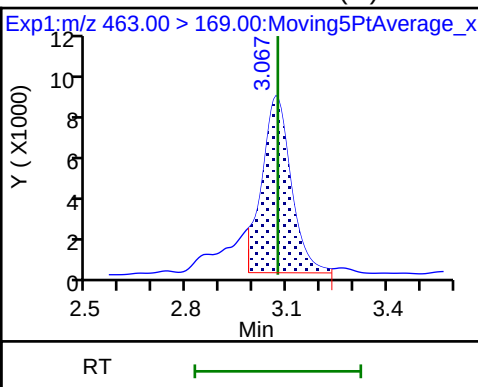
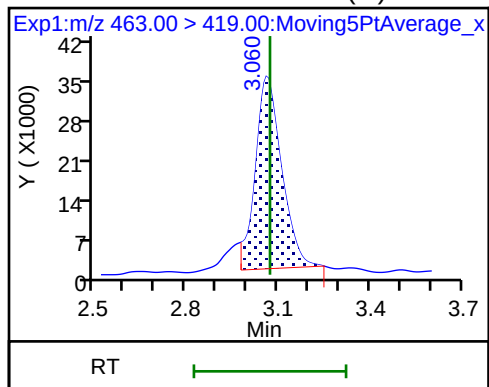
## 17 Perfluorooctane sulfonic acid



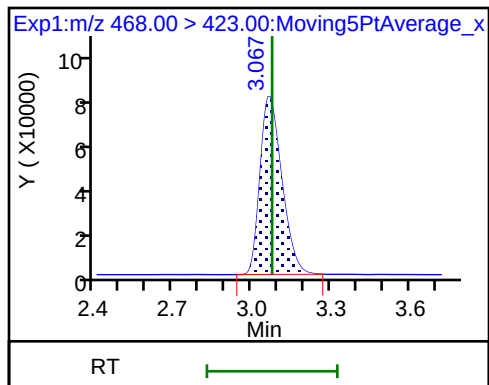
## 20 Perfluorononanoic acid (M)

## 20 Perfluorononanoic acid (M)

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

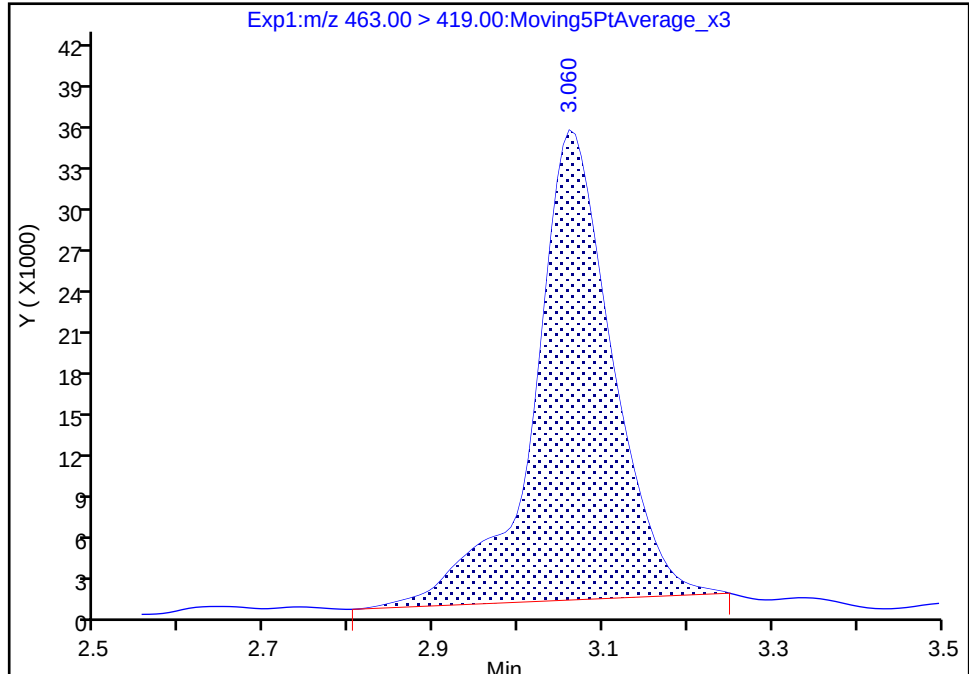
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_056.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:20:25                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-37-A                                                         | Lab Sample ID: | 320-39023-37       |                |    |
| Client ID:      | KLA05-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 45                 | Worklist Smp#: | 26 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

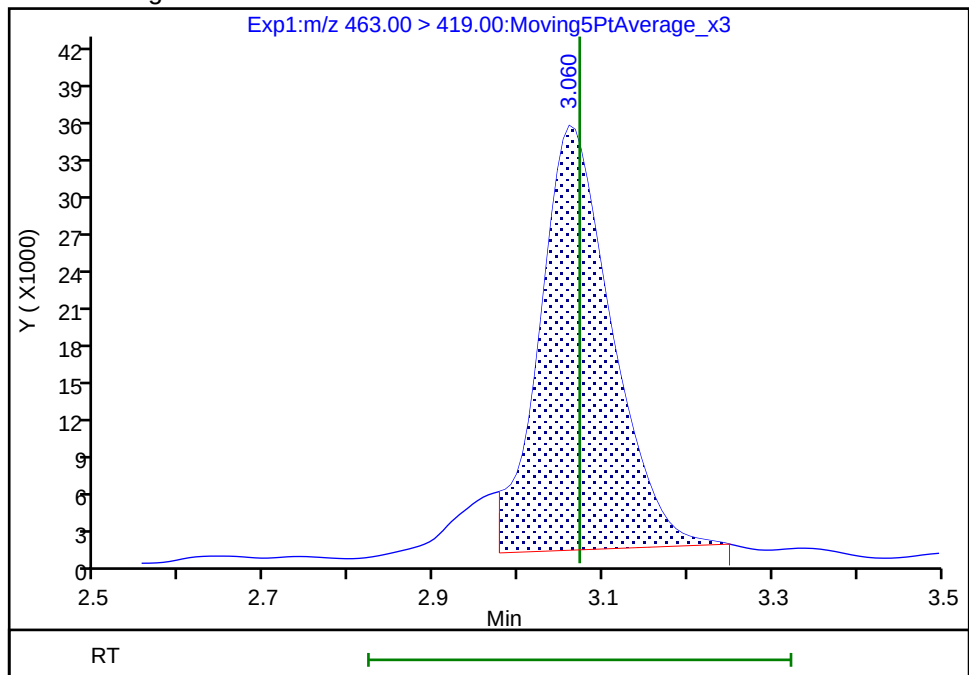
RT: 3.06  
Area: 220581  
Amount: 1.216490  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 201783  
Amount: 1.112820  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:07:56

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

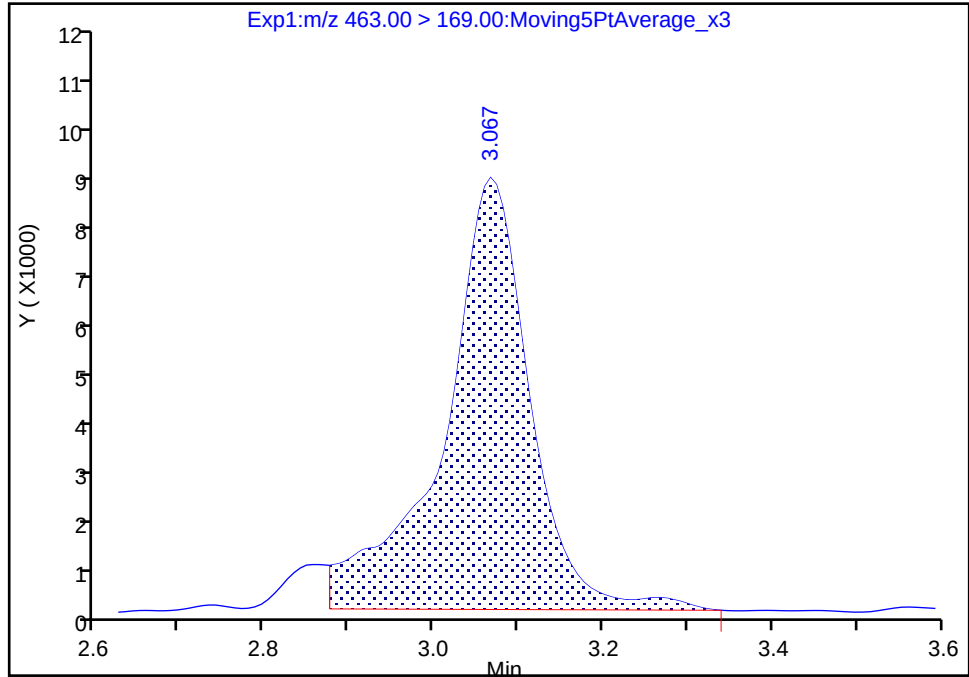
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_056.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:20:25                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-37-A                                                         | Lab Sample ID: | 320-39023-37       |                |    |
| Client ID:      | KLA05-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 45                 | Worklist Smp#: | 26 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

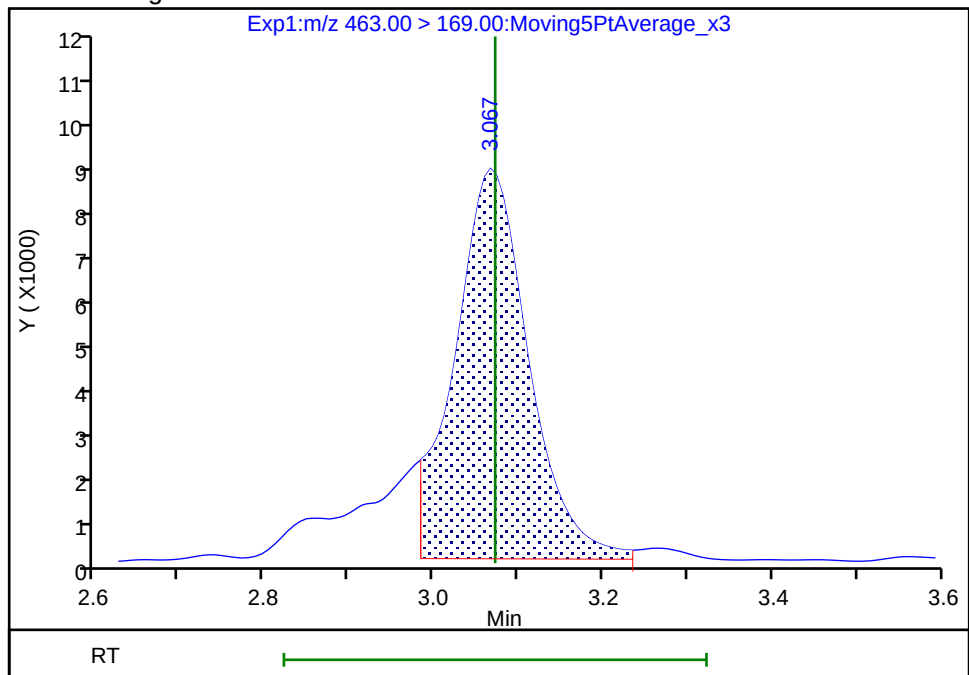
RT: 3.07  
Area: 60173  
Amount: 1.216490  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 50688  
Amount: 1.112820  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:08:04

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA05-SB3-01 DL</u> | Lab Sample ID: <u>320-39023-37 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_043.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/05/2018 10:10</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.04(g)</u>            | Date Analyzed: <u>05/29/2018 16:28</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>16.2</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 13     | J D | 36  | 24  | 9.2 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 62     | D   | 36  | 24  | 12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 24     | U   | 36  | 24  | 9.6 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 7.3    | J D | 47  | 21  | 7.0 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 650    | D   | 36  | 24  | 7.3 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 14000  | E D | 120 | 59  | 28  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 60   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 80   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 82   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 68   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 53   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_043.d  
 Lims ID: 320-39023-A-37-A  
 Client ID: KLA05-SB3-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 16:28:27 ALS Bottle#: 33 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-37-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:34:58 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:34:58

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                 | 1.755 | 1.762  | -0.007 | 1.000  | 626      | 0.0141       |                 | 60.4 | 6.2   | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.774 | 1.765  | 0.009  | 1.010  | 64491    | 0.0307       |                 |      | 305   |       |
| 298.90 > 99.00                 | 1.774 | 1.765  | 0.009  | 1.010  | 28313    |              | 2.28(1.25-3.74) |      | 212   |       |
| D 9 13C4-PFHpa                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.358 | 2.355  | 0.003  | 1.000  | 40426    | 0.0201       |                 | 80.3 | 941   |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.358 | 2.358  | 0.0    | 1.000  | 93044    | 0.0545       |                 |      | 115   |       |
| 363.00 > 169.00                | 2.358 | 2.358  | 0.0    | 1.000  | 34188    |              | 2.72(1.13-3.40) |      | 151   |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.371 | 2.368  | 0.003  | 1.000  | 43944    | 0.0177       |                 | 74.6 | 2412  |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.371 | 2.371  | 0.0    | 1.000  | 5771683  | 2.76         |                 |      | 17691 |       |
| 399.00 > 99.00                 | 2.371 | 2.371  | 0.0    | 1.000  | 1737006  |              | 3.32(1.50-4.49) |      | 7407  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.719 | 2.711  | 0.008  | 1.000  | 39284    | 0.0206       |                 | 82.5 | 910   |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.719 | 2.712  | 0.007  | 1.000  | 482749   | 0.2610       |                 |      | 182   |       |
| 413.00 > 169.00                | 2.719 | 2.712  | 0.007  | 1.000  | 274844   |              | 1.76(0.84-2.52) |      | 726   |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.719 | 2.712  | 0.007  |        | 50302    | 0.0250       |                 |      | 1176  |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                | 3.084 | 3.079  | 0.005  | 1.000  | 26316    | 0.0169       |                 | 67.6 | 773   |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.084 | 3.079  | 0.005  | 1.000  | 21818    | 0.0128       |                 | 53.4 | 233   |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                | 3.084 | 3.082  | 0.002  | 1.000  | 11656    | 0.0105       |                 |      | 33.2  |       |
| 463.00 > 169.00                | 3.084 | 3.082  | 0.002  | 1.000  | 2601     |              | 4.48(1.90-5.69) |      | 77.4  |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |        | E     |
| 499.00 > 80.00                   | 3.092 | 3.082     | 0.010     | 1.003     | 64699630 | 60.3            |                 |      | 118911 | E     |
| 499.00 > 99.00                   | 3.092 | 3.082     | 0.010     | 1.003     | 19241091 |                 | 3.36(2.31-6.93) |      | 125338 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_043.d

Injection Date: 29-May-2018 16:28:27

Instrument ID: A8\_N

Lims ID: 320-39023-A-37-A

Lab Sample ID: 320-39023-37

Client ID: KLA05-SB3-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

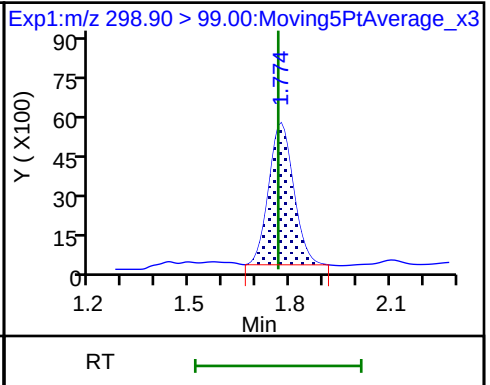
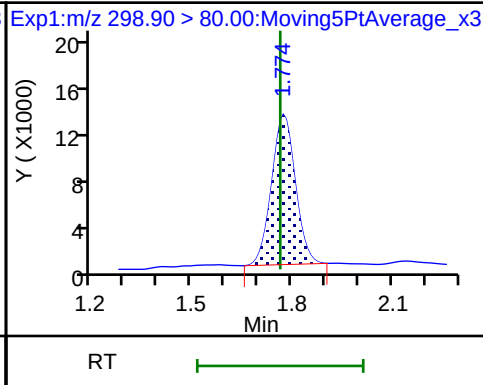
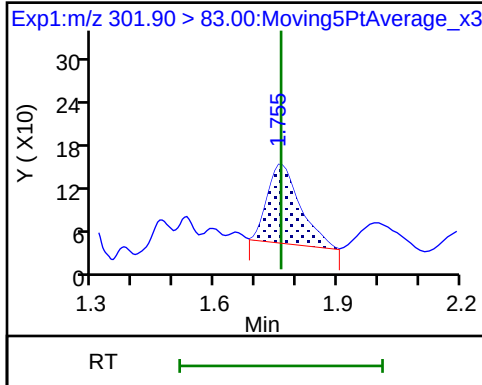
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

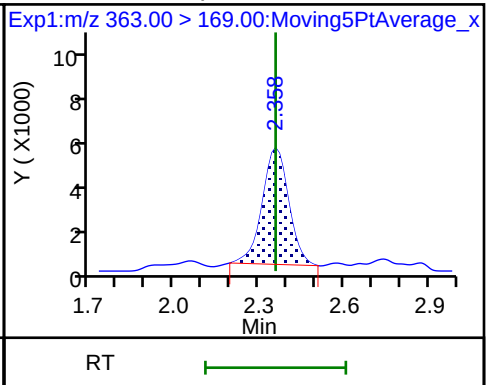
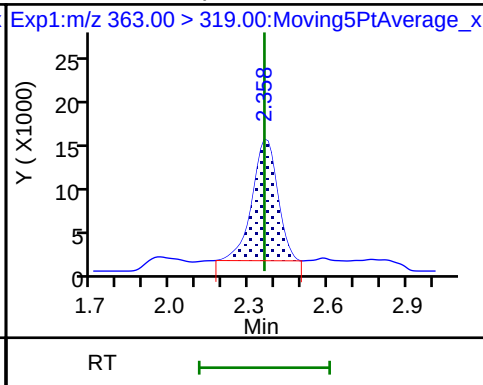
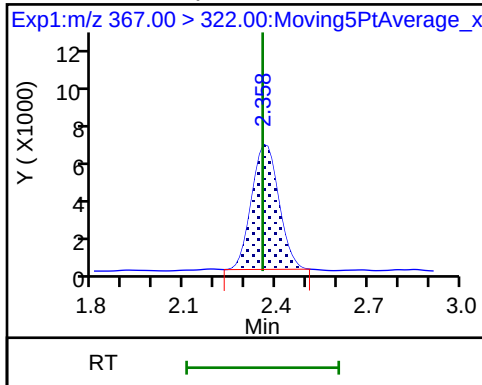
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

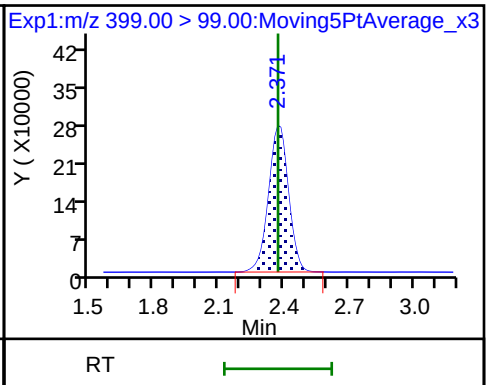
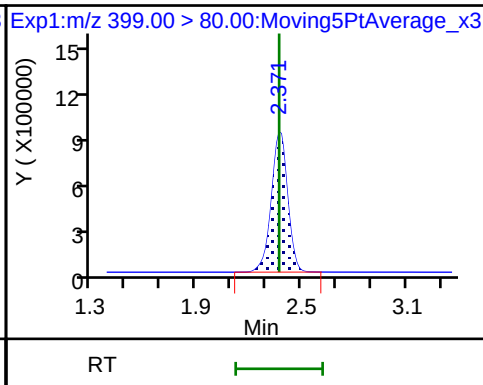
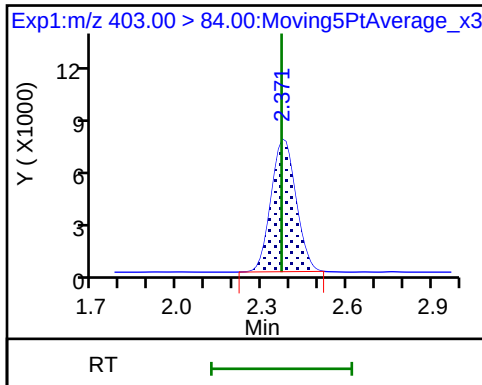
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

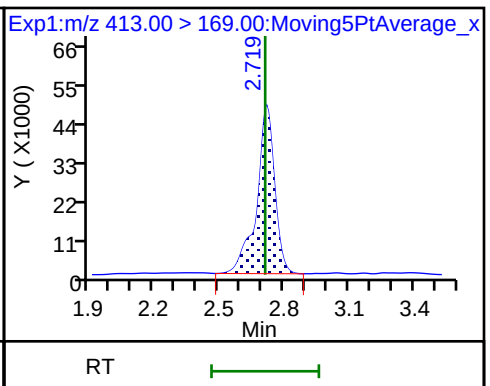
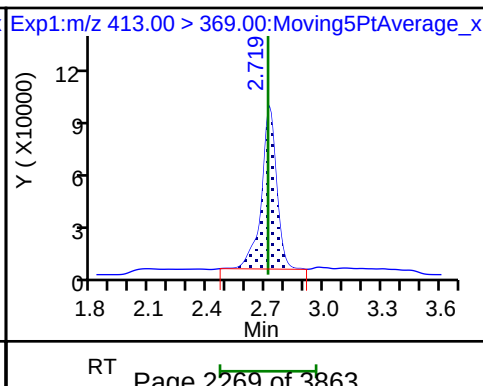
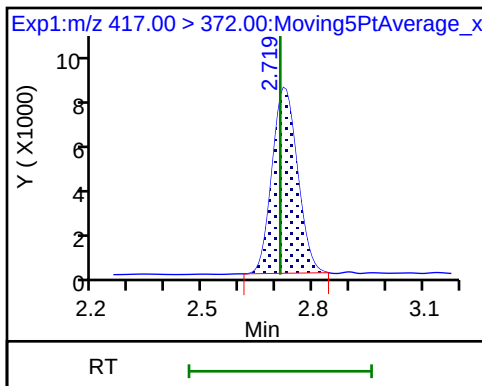
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

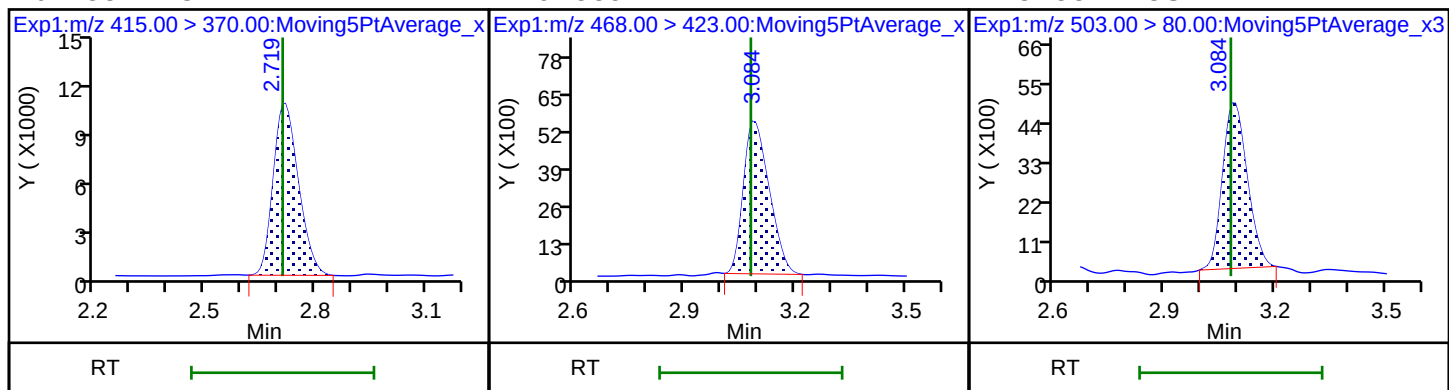
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

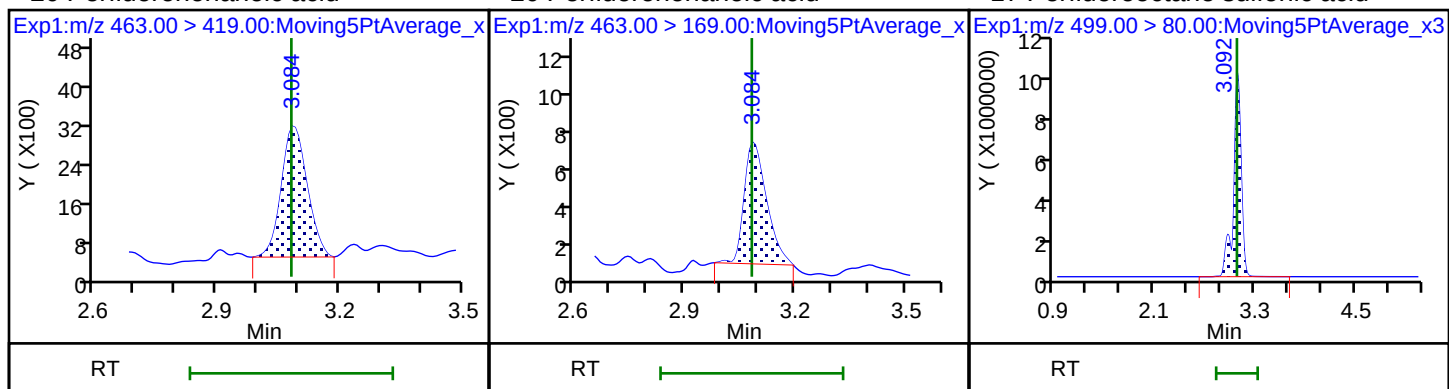
D 18 13C4 PFOS



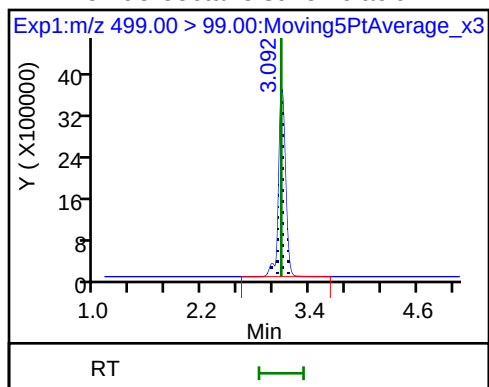
20 Perfluorononanoic acid

20 Perfluorononanoic acid

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid





## TestAmerica Sacramento

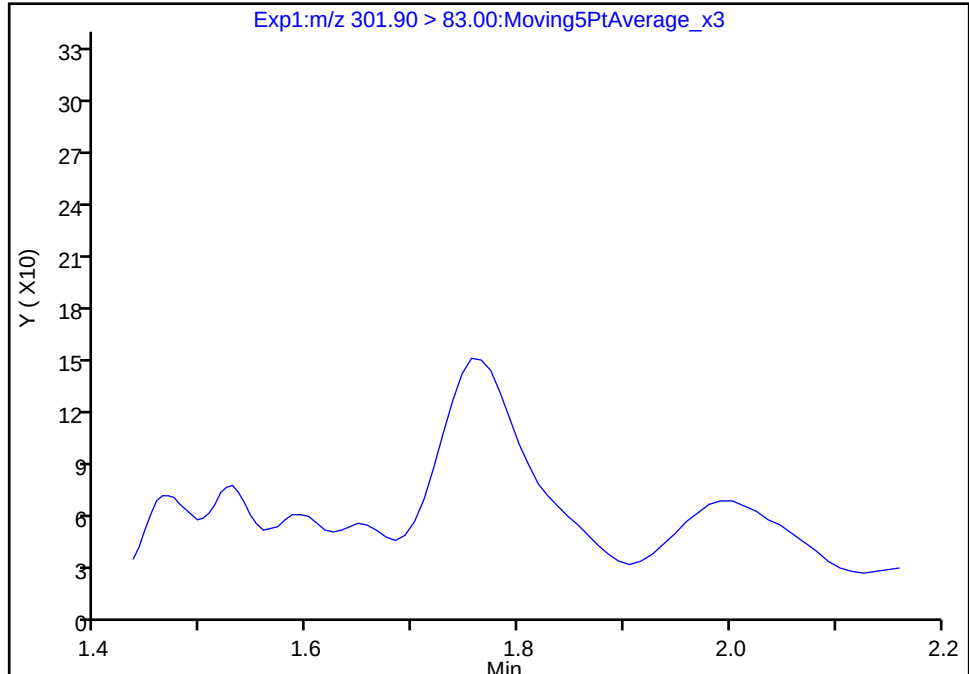
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_043.d |                |                    |                |    |
| Injection Date: | 29-May-2018 16:28:27                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-37-A                                                         | Lab Sample ID: | 320-39023-37       |                |    |
| Client ID:      | KLA05-SB3-01                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 33                 | Worklist Smp#: | 20 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

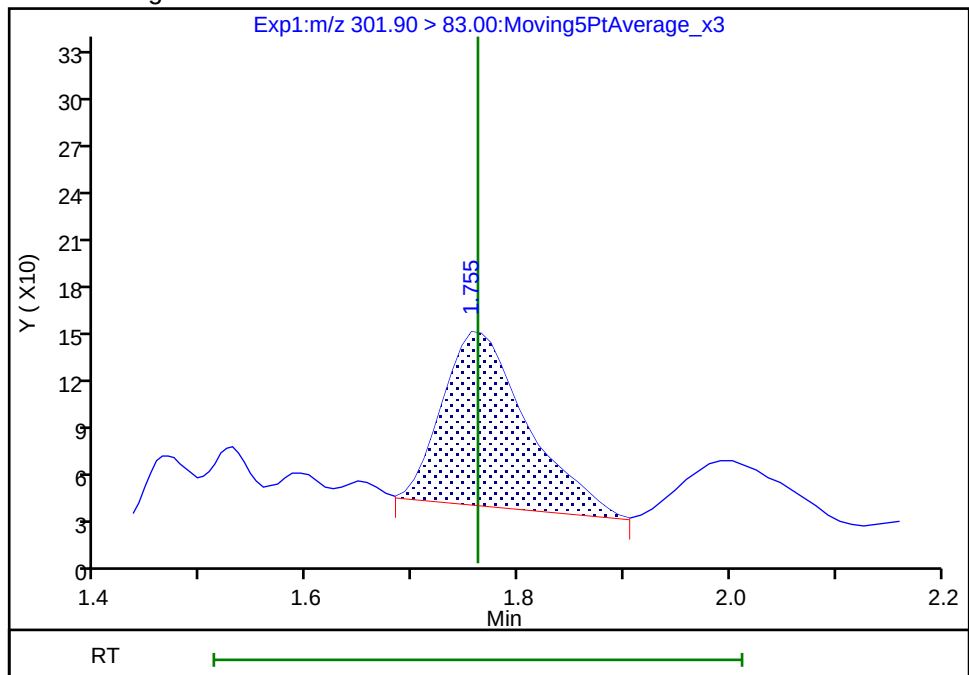
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.76  
Area: 626  
Amount: 0.014051  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:34:42

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB3-02</u>   | Lab Sample ID: <u>320-39023-38</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_057.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 10:20</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>           | Date Analyzed: <u>05/29/2018 10:28</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>19.6</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.5    |     | 0.37 | 0.25 | 0.097 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 3.8    |     | 0.37 | 0.25 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.25   | J M | 0.37 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.58   |     | 0.50 | 0.22 | 0.074 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 15     |     | 0.37 | 0.25 | 0.077 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 560    | E   | 1.2  | 0.62 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 73   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 87   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 50   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 40   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_057.d  
 Lims ID: 320-39023-A-38-A  
 Client ID: KLA05-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 10:28:14 ALS Bottle#: 46 Worklist Smp#: 27  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-38-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:09:02 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:09:02

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|--------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 298.90 > 80.00                   | 1.764 | 1.761  | 0.003  | 1.005  | 539555    | 0.2343       |                 |      | 2609   |       |
| 298.90 > 99.00                   | 1.764 | 1.761  | 0.003  | 1.005  | 216847    |              | 2.49(1.25-3.74) |      | 1222   |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |        |       |
| 301.90 > 83.00                   | 1.755 | 1.766  | -0.011 | 1.000  | 68548     | 1.69         |                 | 72.7 | 627    |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |        |       |
| 367.00 > 322.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 3712608   | 2.03         |                 | 81.0 | 82825  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |        |       |
| 363.00 > 319.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 953888    | 0.6081       |                 |      | 1279   |       |
| 363.00 > 169.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 379309    |              | 2.51(1.13-3.40) |      | 2144   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |        |       |
| 403.00 > 84.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 3933087   | 1.74         |                 | 73.4 | 88299  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |        |       |
| 399.00 > 80.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 10956451  | 5.85         |                 |      | 24779  |       |
| 399.00 > 99.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 3519766   |              | 3.11(1.50-4.49) |      | 15362  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |        |       |
| 413.00 > 369.00                  | 2.704 | 2.705  | -0.001 | 1.000  | 2724592   | 1.54         |                 |      | 1042   |       |
| 413.00 > 169.00                  | 2.704 | 2.705  | -0.001 | 1.000  | 1583296   |              | 1.72(0.84-2.52) |      | 2369   |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 415.00 > 370.00                  | 2.704 | 2.705  | -0.001 |        | 4578018   | 2.50         |                 |      | 62732  |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |        |       |
| 417.00 > 372.00                  | 2.704 | 2.706  | -0.002 | 1.000  | 3762123   | 2.17         |                 | 86.8 | 55771  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |        |       |
| 499.00 > 80.00                   | 3.076 | 3.072  | 0.004  | 1.002  | 162749573 | 223.2        |                 |      | 19603  | E     |
| 499.00 > 99.00                   | 3.069 | 3.072  | -0.003 | 1.000  | 53590710  |              | 3.04(2.31-6.93) |      | 491981 | E     |
| 20 Perfluorononanoic acid        |       |        |        |        |           |              |                 |      |        |       |
| 463.00 > 419.00                  | 3.069 | 3.072  | -0.003 | 0.998  | 74137     | 0.0989       |                 |      | 169    | M     |
| 463.00 > 169.00                  | 3.069 | 3.072  | -0.003 | 0.998  | 19423     |              | 3.82(1.90-5.69) |      | 168    | M     |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.069 | 3.076     | -0.007    | 1.000     | 1481828  | 0.9517          |               | 39.8 | 10259 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.076 | 3.076     | 0.0       | 1.000     | 1769123  | 1.25            |               | 49.9 | 30068 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_057.d

Injection Date: 29-May-2018 10:28:14

Instrument ID: A8\_N

Lims ID: 320-39023-A-38-A

Lab Sample ID: 320-39023-38

Client ID: KLA05-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 46

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

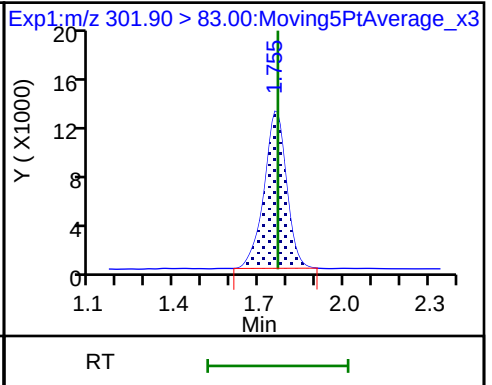
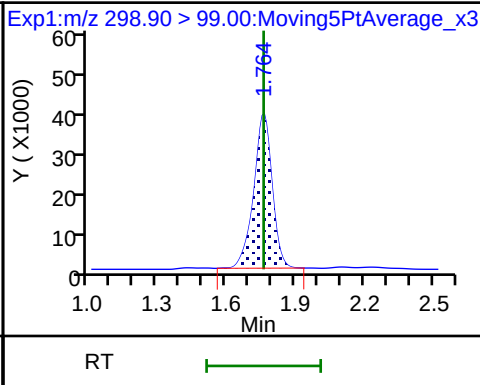
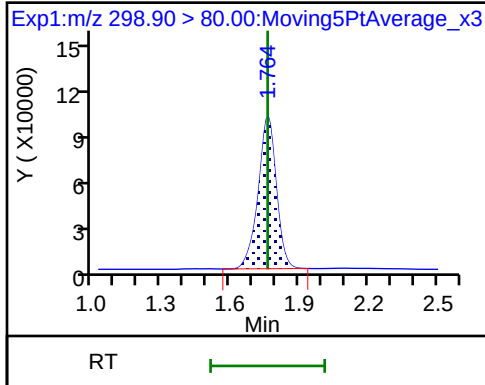
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

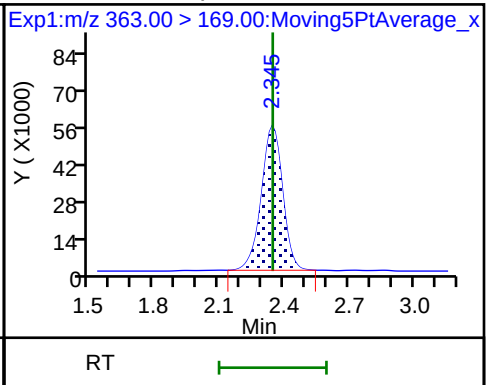
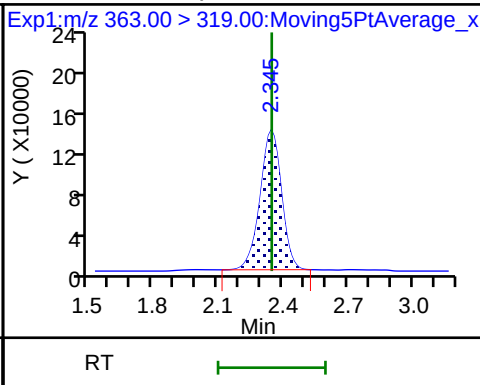
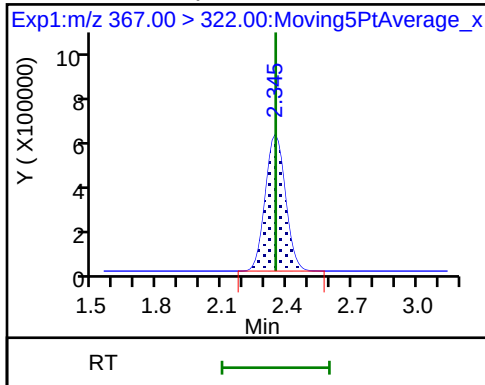
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

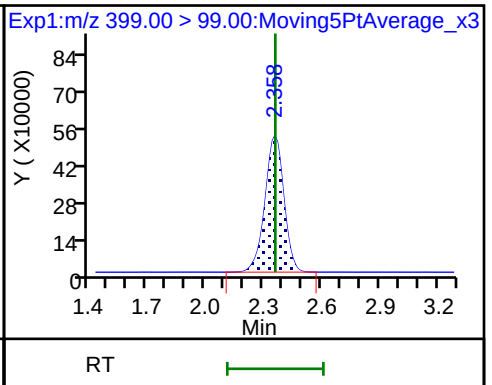
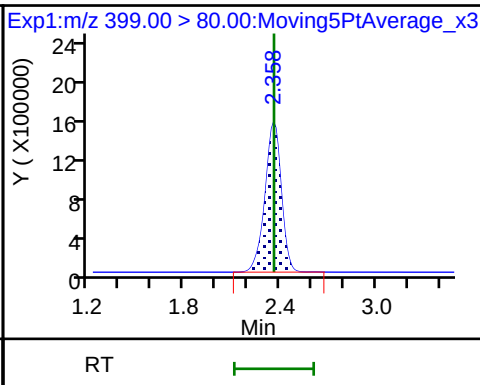
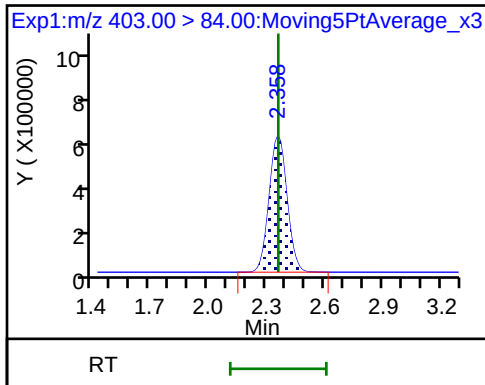
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

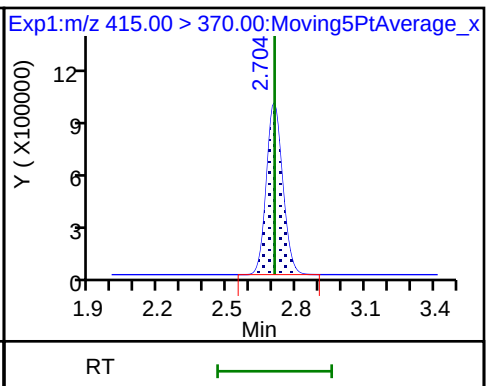
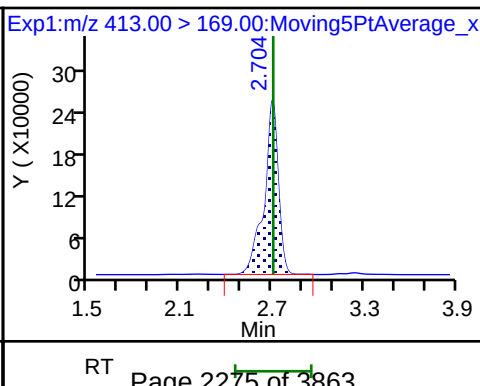
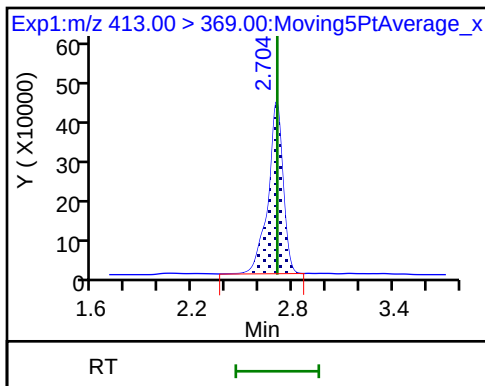
## 8 Perfluorohexanesulfonic acid



## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

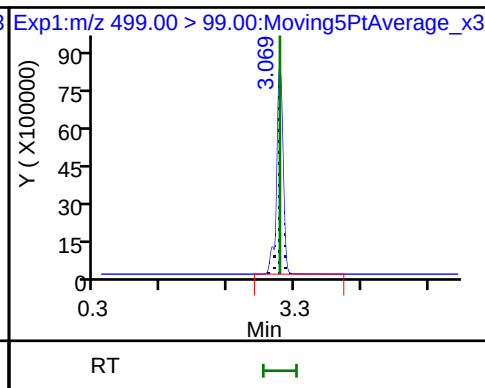
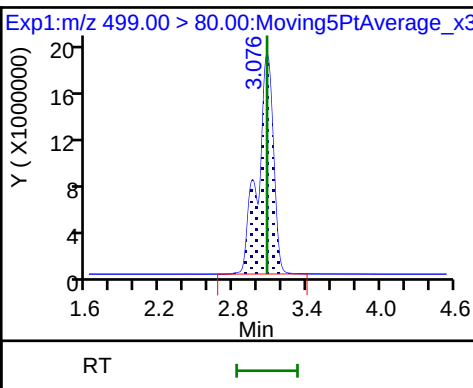
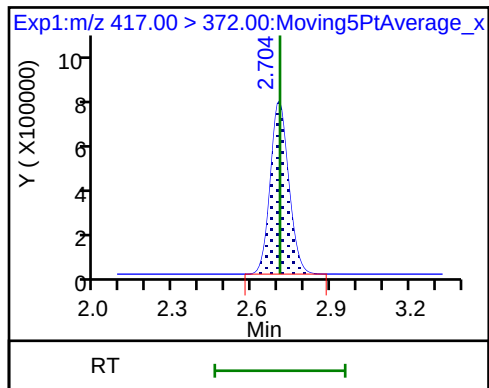
## \* 62 13C2-PFOA



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

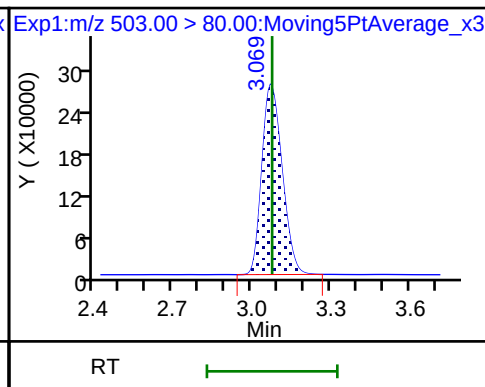
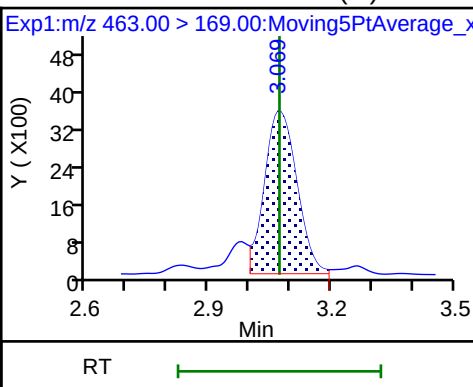
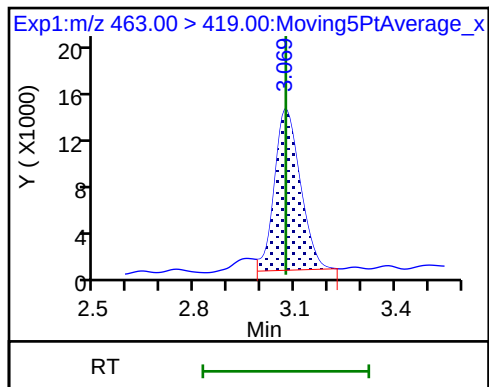
## 17 Perfluorooctane sulfonic acid



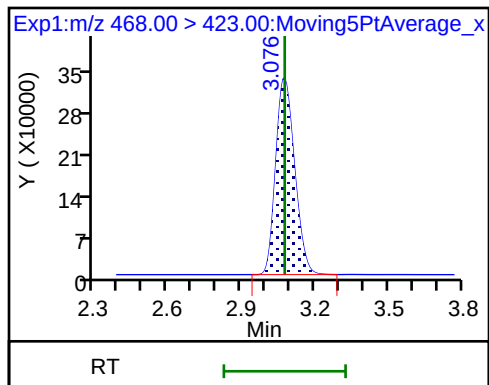
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid (M)

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

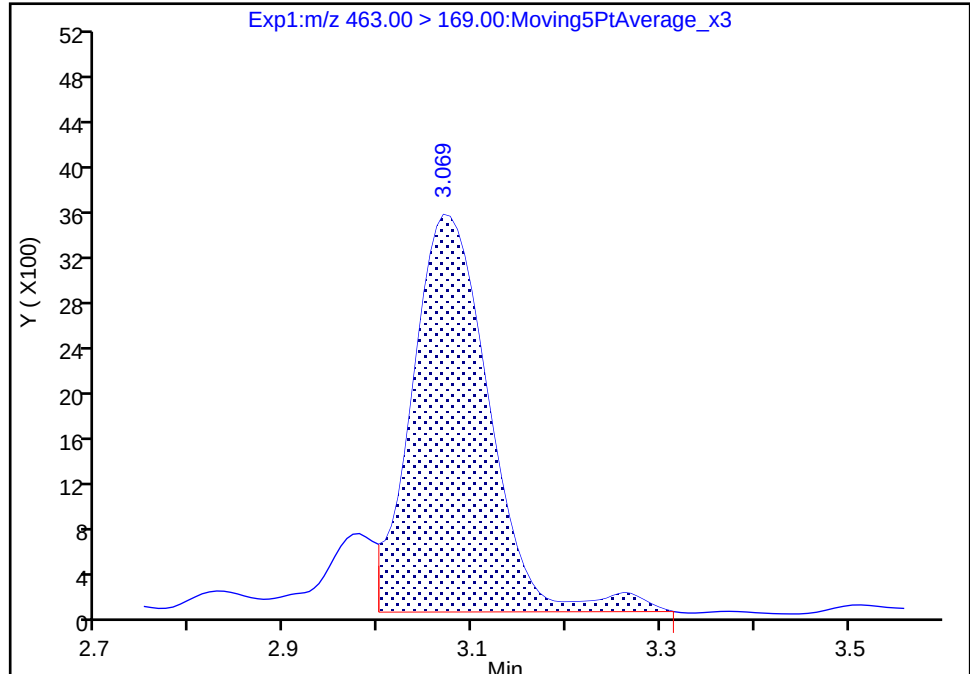
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_057.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:28:14                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-38-A                                                         | Lab Sample ID: | 320-39023-38       |                |    |
| Client ID:      | KLA05-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 46                 | Worklist Smp#: | 27 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

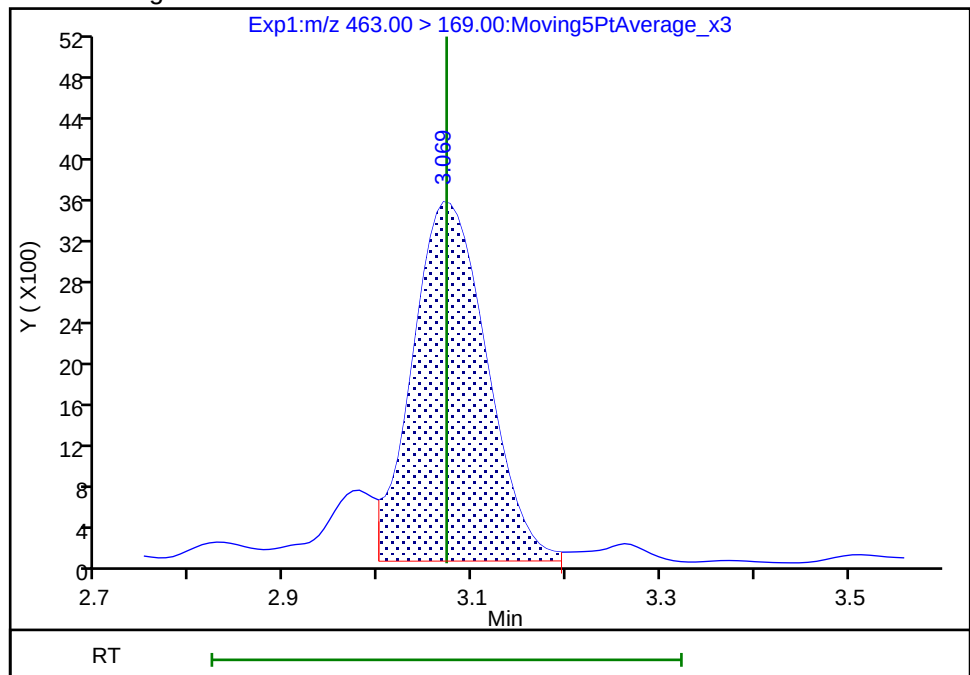
RT: 3.07  
Area: 20125  
Amount: 0.098911  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 19423  
Amount: 0.098911  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:08:58

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA05-SB3-02 DL</u> | Lab Sample ID: <u>320-39023-38 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_045.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/05/2018 10:20</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>4.99(g)</u>            | Date Analyzed: <u>05/29/2018 16:44</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>19.6</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 25     | U   | 37  | 25  | 9.7 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 25     | U   | 37  | 25  | 12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 25     | U   | 37  | 25  | 10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 22     | U   | 50  | 22  | 7.4 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 13     | J D | 37  | 25  | 7.7 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 980    | D   | 120 | 62  | 30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 78   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 99   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 98   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 79   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 70   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_045.d  
 Lims ID: 320-39023-A-38-A  
 Client ID: KLA05-SB3-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 16:44:04 ALS Bottle#: 34 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-38-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:36:10 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:36:10

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.771 | 1.762  | 0.009  | 1.000  | 803      | 0.0181       |                 | 77.9 | 5.5   | M     |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.355  | 0.0    | 1.000  | 40453    | 0.0202       |                 | 80.7 | 862   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       | R     |
| 363.00 > 319.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 8259     | 0.004832     |                 |      | 9.6   | R     |
| 363.00 > 169.00                  | 2.355 | 2.358  | -0.003 | 1.000  | 2251     |              | 3.67(1.13-3.40) |      | 11.2  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.368  | 0.0    | 1.000  | 46045    | 0.0186       |                 | 78.6 | 1922  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.368 | 2.371  | -0.003 | 1.000  | 113618   | 0.0518       |                 |      | 585   |       |
| 399.00 > 99.00                   | 2.368 | 2.371  | -0.003 | 1.000  | 33962    |              | 3.35(1.50-4.49) |      | 153   |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.718 | 2.711  | 0.007  | 1.000  | 47037    | 0.0248       |                 | 99.2 | 2005  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.718 | 2.712  | 0.006  | 1.000  | 39544    | 0.0179       |                 |      | 11.8  |       |
| 413.00 > 169.00                  | 2.718 | 2.712  | 0.006  | 1.000  | 18575    |              | 2.13(0.84-2.52) |      | 47.2  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.711 | 2.712  | -0.001 |        | 50073    | 0.0250       |                 |      | 1534  |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.081 | 3.079  | 0.002  | 1.000  | 38112    | 0.0246       |                 | 98.3 | 1380  |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.081 | 3.079  | 0.002  | 1.000  | 28385    | 0.0167       |                 | 69.7 | 299   |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.081 | 3.082  | -0.001 | 1.000  | 5492709  | 3.93         |                 |      | 25264 |       |
| 499.00 > 99.00                   | 3.081 | 3.082  | -0.001 | 1.000  | 1241279  |              | 4.43(2.31-6.93) |      | 12741 |       |

## QC Flag Legend

### Processing Flags

R - Failed Signal Ratio Test

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_045.d

Injection Date: 29-May-2018 16:44:04

Instrument ID: A8\_N

Lims ID: 320-39023-A-38-A

Lab Sample ID: 320-39023-38

Client ID: KLA05-SB3-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

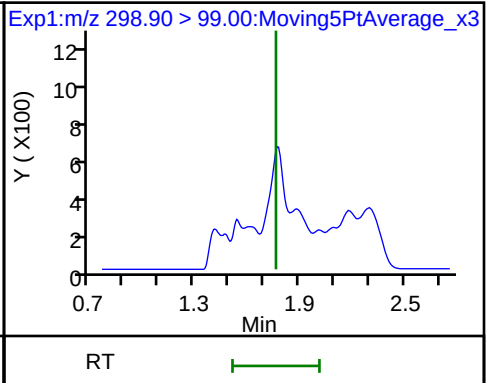
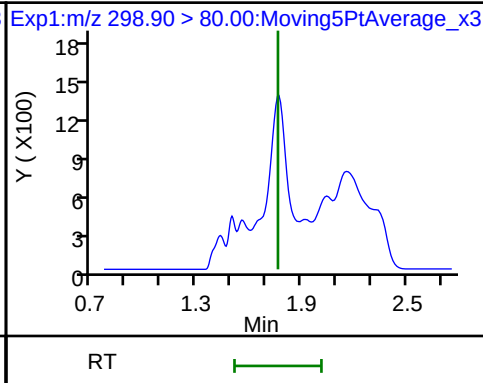
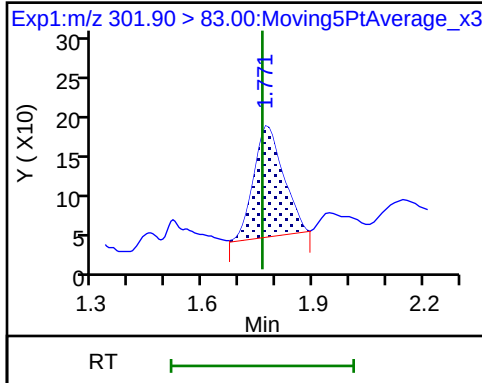
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid (ND)

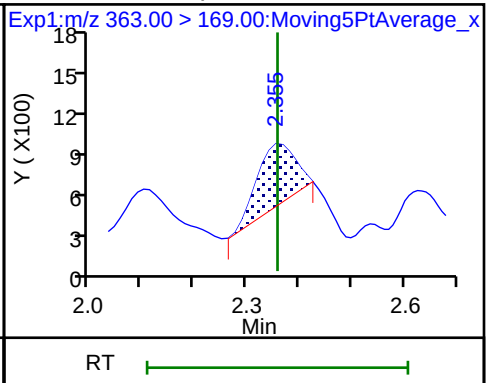
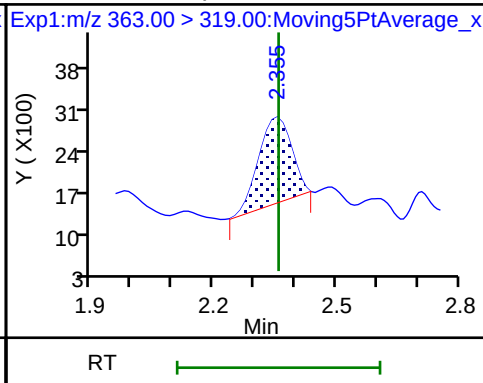
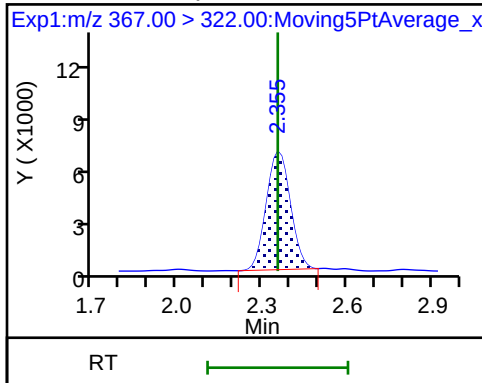
5 Perfluorobutanesulfonic acid (ND)



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

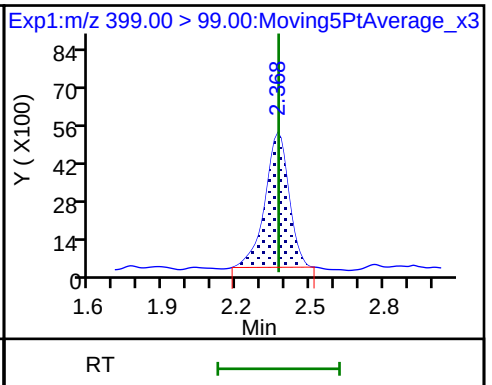
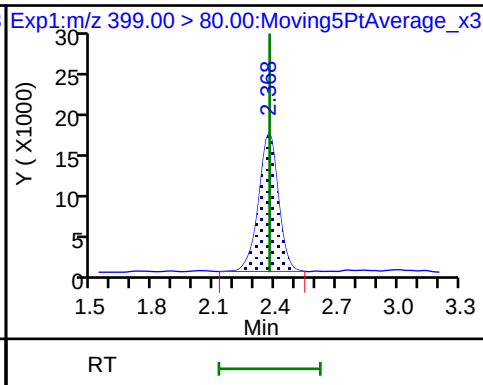
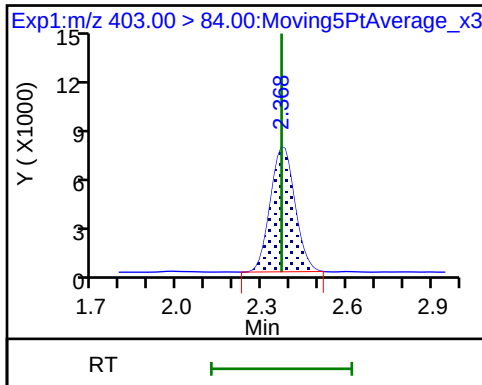
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

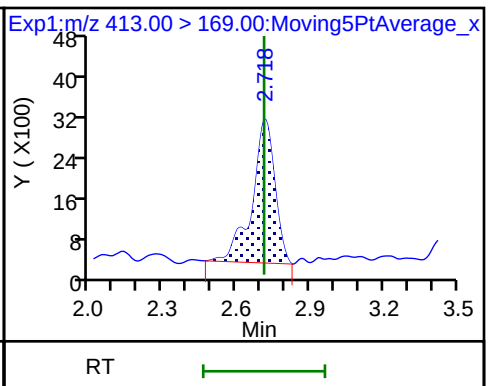
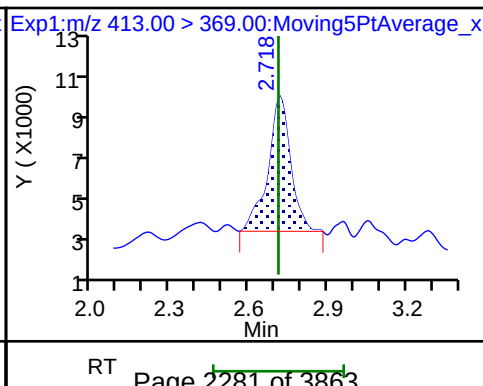
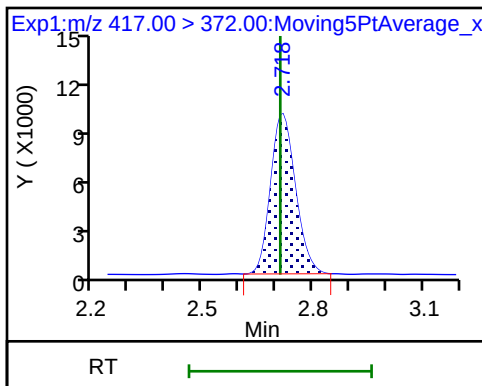
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

15 Perfluorooctanoic acid

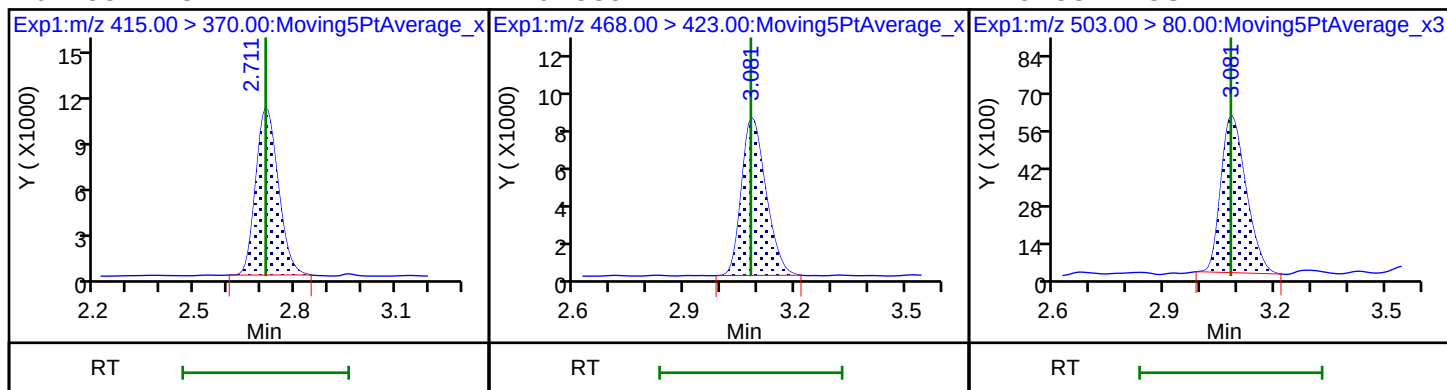
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

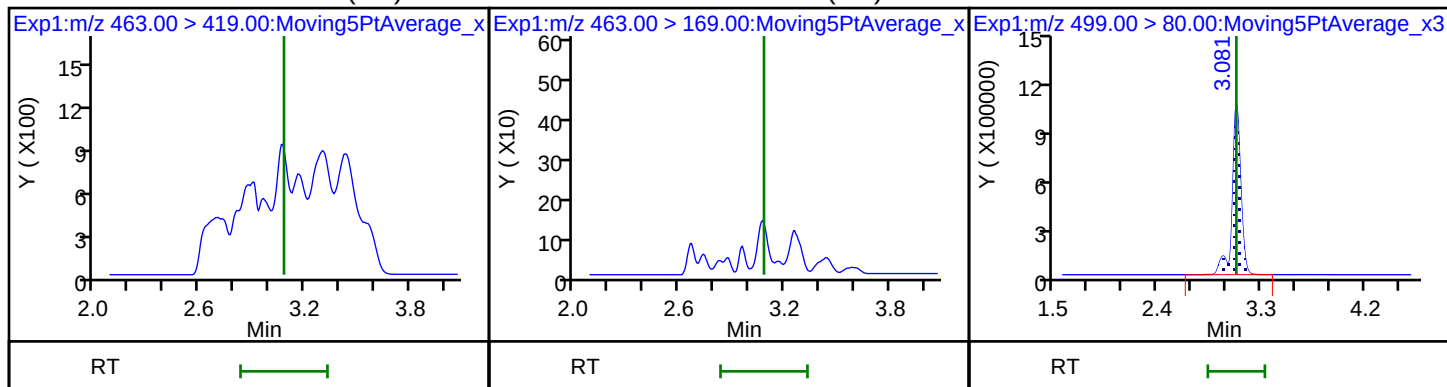
D 18 13C4 PFOS



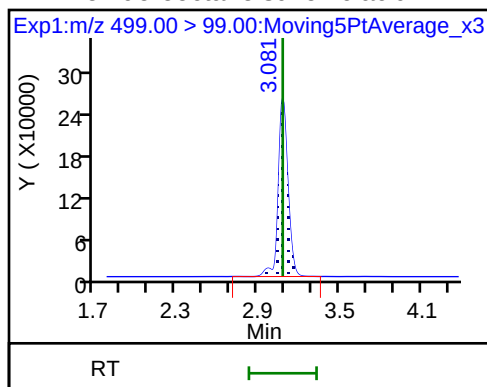
20 Perfluorononanoic acid (ND)

20 Perfluorononanoic acid (ND)

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

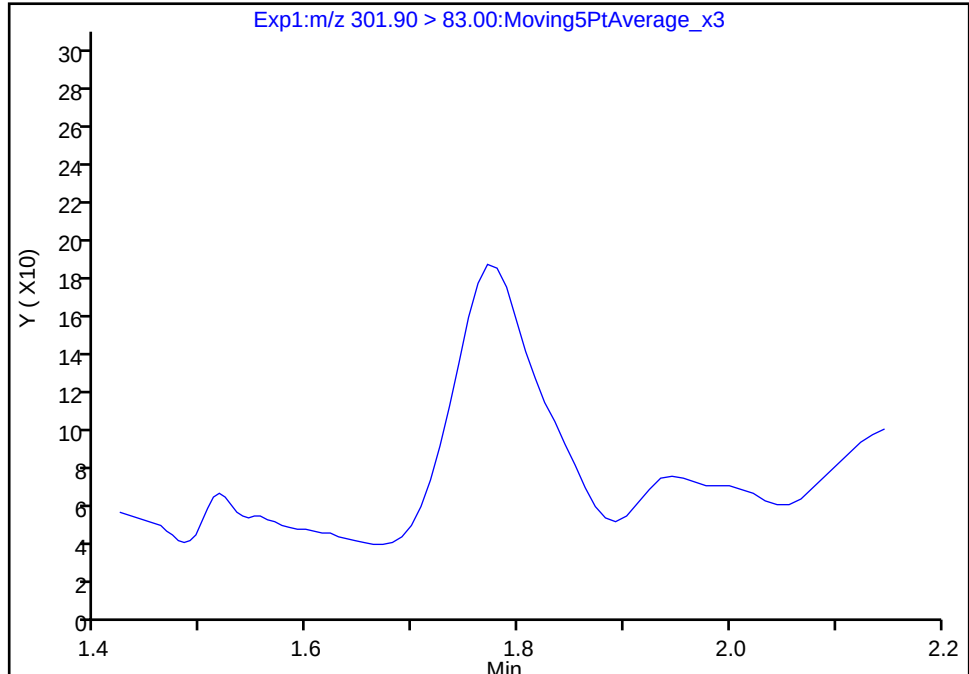
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_045.d |                |                    |                |    |
| Injection Date: | 29-May-2018 16:44:04                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-38-A                                                         | Lab Sample ID: | 320-39023-38       |                |    |
| Client ID:      | KLA05-SB3-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 34                 | Worklist Smp#: | 22 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

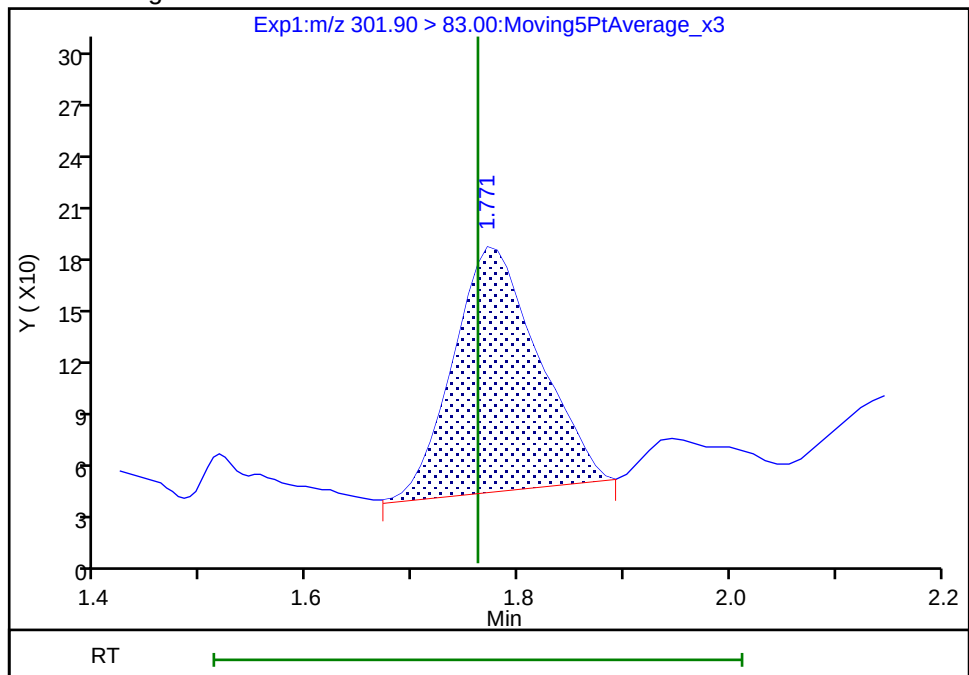
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 803  
Amount: 0.018106  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:35:47

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA06-SB1-01</u>   | Lab Sample ID: <u>320-39023-39</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_063.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 14:15</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>06/06/2018 23:18</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>26.8</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.71   |     | 0.41 | 0.27 | 0.11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.3    |     | 0.41 | 0.27 | 0.14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 2.4    |     | 0.41 | 0.27 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.27   | J   | 0.54 | 0.24 | 0.080 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 11     |     | 0.41 | 0.27 | 0.084 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 190    | M E | 1.4  | 0.68 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 72   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 77   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 79   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 62   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 62   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_063.d  
 Lims ID: 320-39023-A-39-A  
 Client ID: KLA06-SB1-01  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 23:18:38 ALS Bottle#: 35 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-39-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 14:56:02 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 14:56:02

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

## D 47 13C3-PFBS

|                |       |       |     |       |       |      |  |      |     |  |
|----------------|-------|-------|-----|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.766 | 1.766 | 0.0 | 0.653 | 73487 | 1.66 |  | 71.6 | 406 |  |
|----------------|-------|-------|-----|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |        |        |  |  |     |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.775 | 1.766 | 0.009 | 1.005 | 243620 | 0.0994 |  |  | 768 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                |       |       |       |       |        |  |                 |  |     |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.775 | 1.766 | 0.009 | 1.005 | 101541 |  | 2.40(1.25-3.74) |  | 187 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.347 | 2.346 | 0.001 | 0.867 | 3930575 | 1.92 |  | 76.8 | 69831 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |     |       |        |        |  |  |     |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.347 | 2.347 | 0.0 | 1.000 | 466367 | 0.2616 |  |  | 622 |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|--|-----|--|

|                 |       |       |     |       |        |  |                 |  |     |  |
|-----------------|-------|-------|-----|-------|--------|--|-----------------|--|-----|--|
| 363.00 > 169.00 | 2.347 | 2.347 | 0.0 | 1.000 | 184073 |  | 2.53(1.13-3.40) |  | 928 |  |
|-----------------|-------|-------|-----|-------|--------|--|-----------------|--|-----|--|

## D 11 18O2 PFHxS

|                |       |       |     |       |         |      |  |      |       |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.360 | 2.360 | 0.0 | 0.872 | 4307745 | 1.73 |  | 73.4 | 31282 |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |     |       |         |      |  |  |       |  |
|----------------|-------|-------|-----|-------|---------|------|--|--|-------|--|
| 399.00 > 80.00 | 2.360 | 2.360 | 0.0 | 1.000 | 8413994 | 4.03 |  |  | 14150 |  |
|----------------|-------|-------|-----|-------|---------|------|--|--|-------|--|

|                |       |       |     |       |         |  |                 |  |      |  |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.360 | 2.360 | 0.0 | 1.000 | 2631403 |  | 3.20(1.50-4.49) |  | 6338 |  |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.706 | 2.698 | 0.008 | 1.000 | 4005048 | 1.97 |  | 78.8 | 64612 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |        |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 413.00 > 369.00 | 2.706 | 2.698 | 0.008 | 1.000 | 942860 | 0.4894 |  |  | 515 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                 |       |       |       |       |        |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 413.00 > 169.00 | 2.706 | 2.698 | 0.008 | 1.000 | 514558 |  | 1.83(0.84-2.52) |  | 1540 |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |         |      |  |  |       |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.706 | 2.698 | 0.008 |  | 5269422 | 2.50 |  |  | 78837 |  |
|-----------------|-------|-------|-------|--|---------|------|--|--|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |         |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|---------|--------|--|--|------|--|
| 463.00 > 419.00 | 3.071 | 3.067 | 0.004 | 1.000 | 1023660 | 0.8950 |  |  | 2761 |  |
|-----------------|-------|-------|-------|-------|---------|--------|--|--|------|--|

|                 |       |       |       |       |        |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|
| 463.00 > 169.00 | 3.071 | 3.067 | 0.004 | 1.000 | 245817 |  | 4.16(1.90-5.69) |  | 7151 |  |
|-----------------|-------|-------|-------|-------|--------|--|-----------------|--|------|--|

## D 19 13C5 PFNA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.071 | 3.067 | 0.004 | 1.135 | 2657281 | 1.55 |  | 62.0 | 54575 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |        | EM    |
| 499.00 > 80.00                   | 3.079 | 3.074     | 0.005     | 1.000     | 85682110 | 69.4            |                 |      | 37607  | EM    |
| 499.00 > 99.00                   | 3.071 | 3.074     | -0.003    | 0.997     | 25163234 |                 | 3.41(2.31-6.93) |      | 311077 |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                   | 3.079 | 3.074     | 0.005     | 1.138     | 2484630  | 1.48            |                 | 61.7 | 19390  |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_063.d

Injection Date: 06-Jun-2018 23:18:38

Instrument ID: A8\_N

Lims ID: 320-39023-A-39-A

Lab Sample ID: 320-39023-39

Client ID: KLA06-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

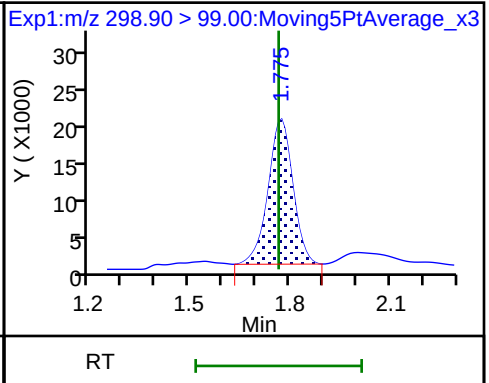
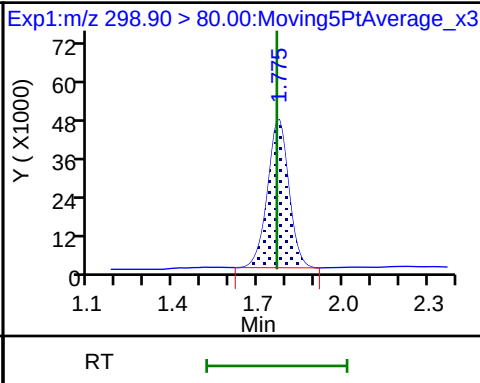
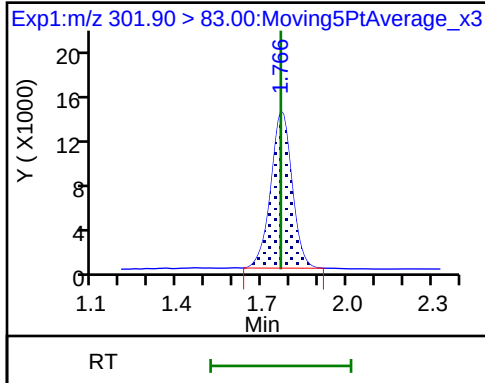
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

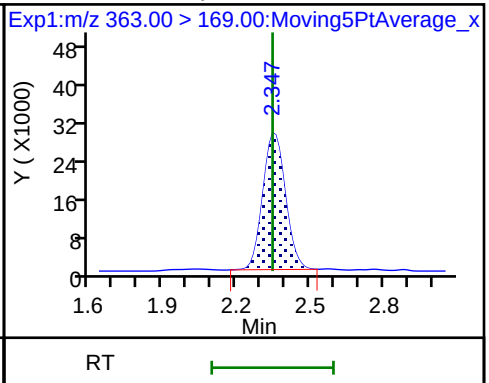
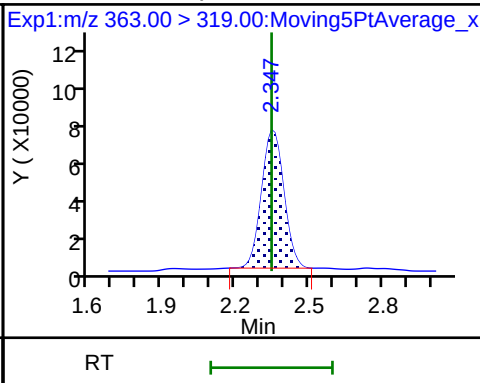
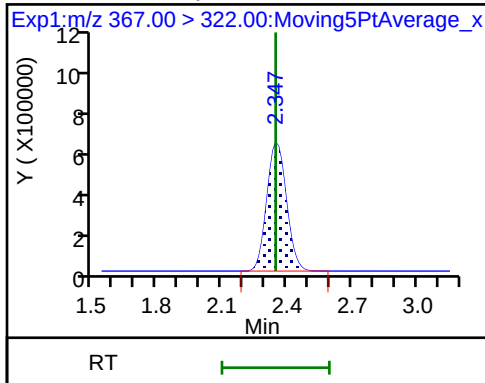
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

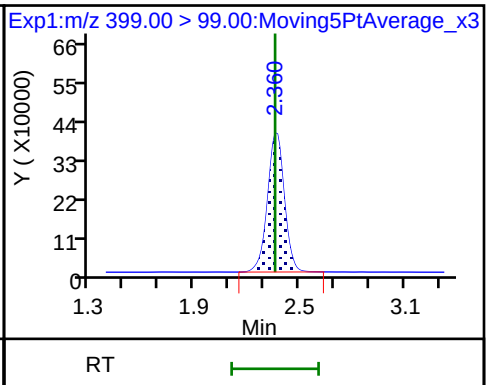
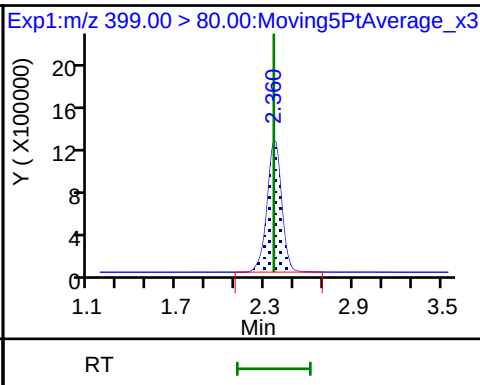
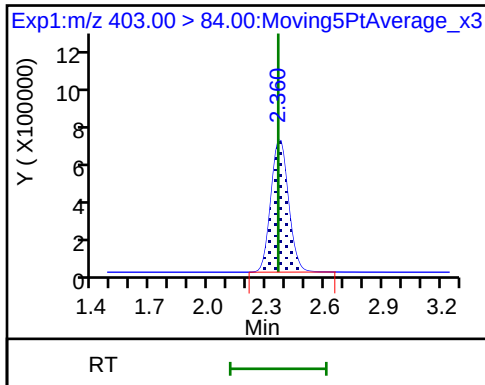
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

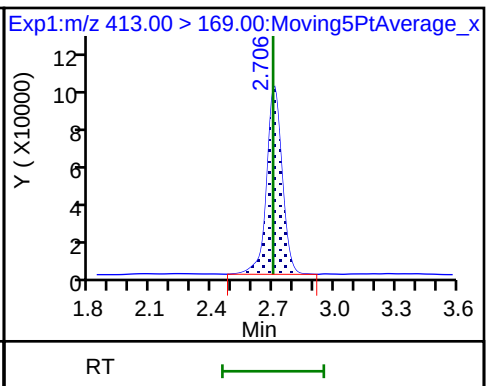
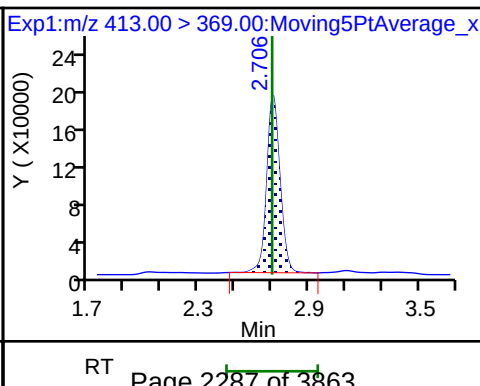
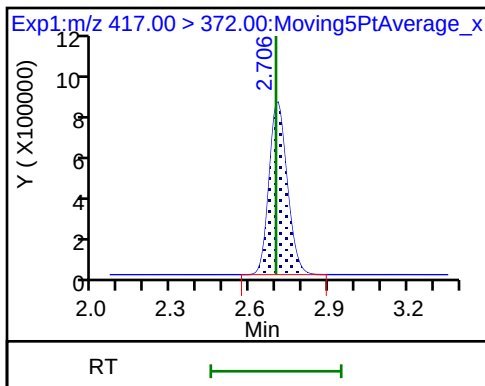
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

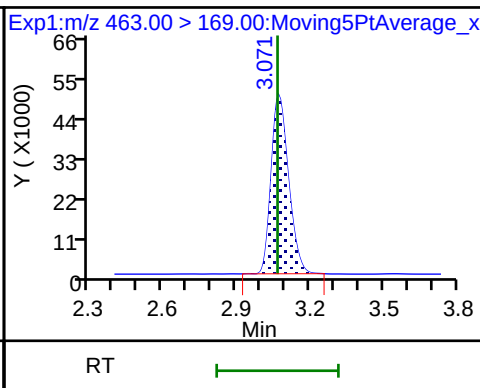
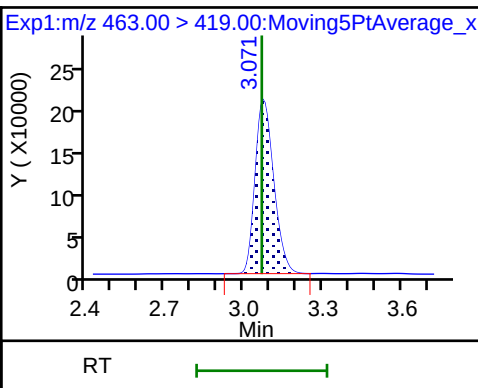
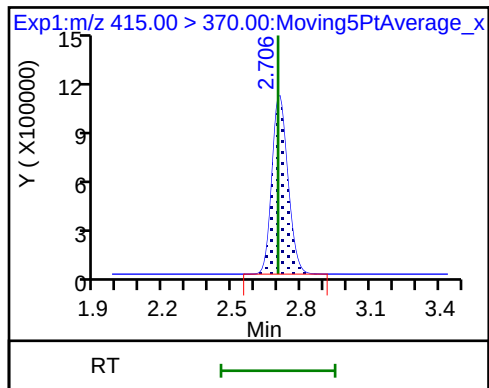
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

20 Perfluorononanoic acid

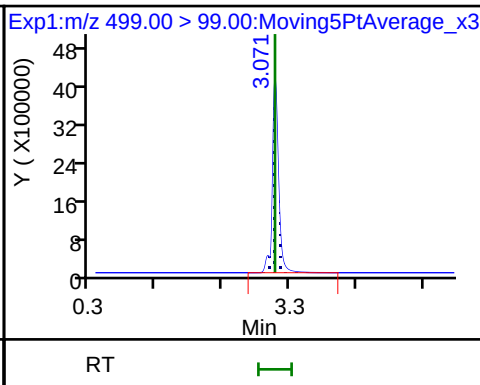
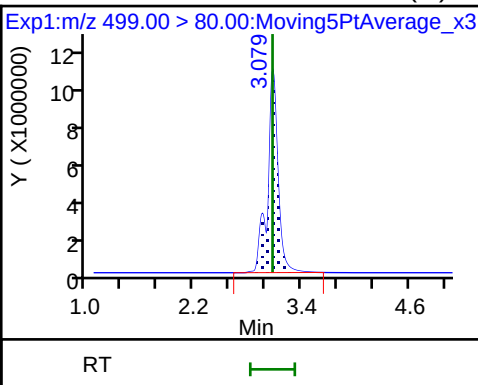
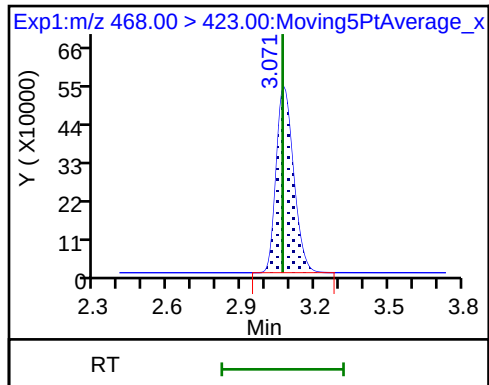
20 Perfluorononanoic acid



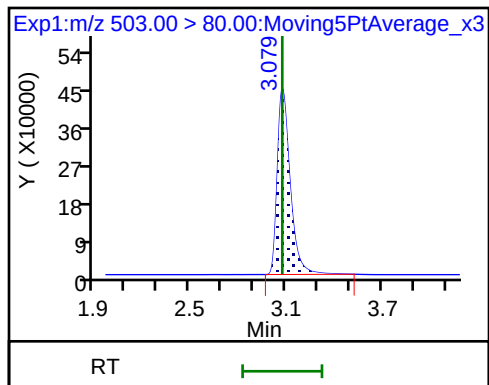
D 19 13C5 PFNA

17 Perfluorooctane sulfonic acid (M)

17 Perfluorooctane sulfonic acid



D 18 13C4 PFOS



## TestAmerica Sacramento

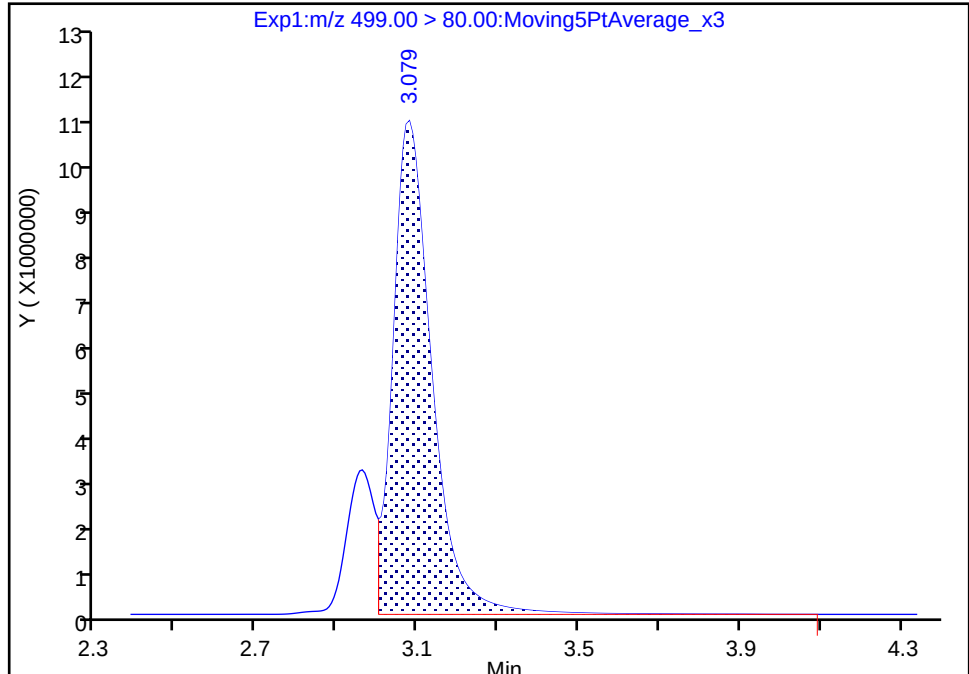
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180606-59323.b\2018.06.06LLC_063.d |                |                    |                |   |
| Injection Date: | 06-Jun-2018 23:18:38                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-39-A                                                         | Lab Sample ID: | 320-39023-39       |                |   |
| Client ID:      | KLA06-SB1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 35                 | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

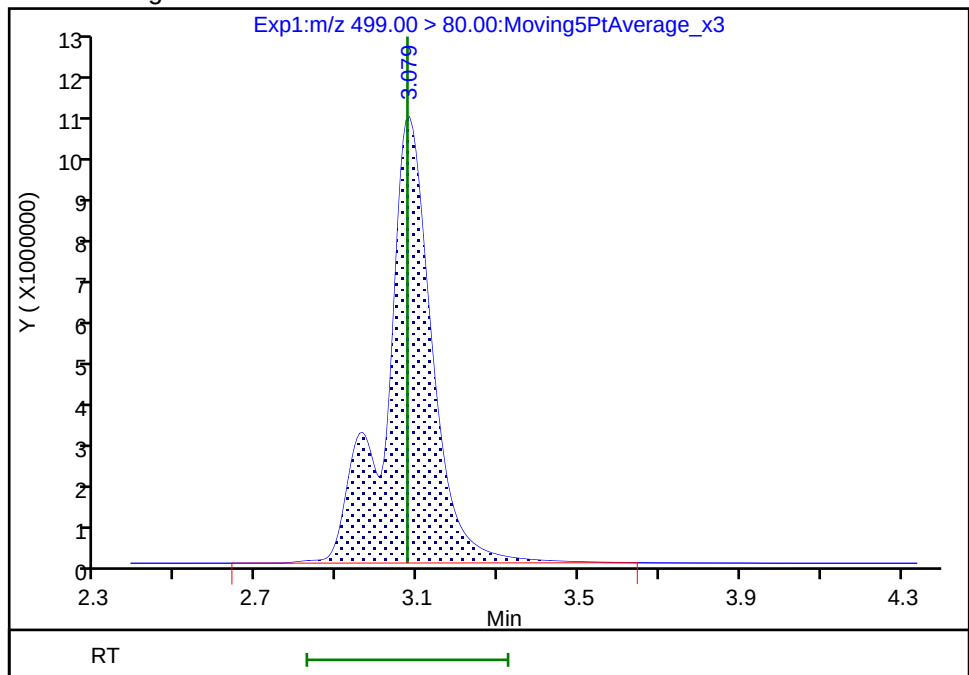
RT: 3.08  
Area: 71239850  
Amount: 57.714466  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 85682110  
Amount: 69.414762  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 07-Jun-2018 14:55:59

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA06-SB1-01 DL</u> | Lab Sample ID: <u>320-39023-39 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_005.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/01/2018 14:15</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>            | Date Analyzed: <u>05/29/2018 11:30</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>26.8</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.4    | U   | 8.1 | 5.4 | 2.1 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 5.4    | U M | 8.1 | 5.4 | 2.7 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 2.5    | J D | 8.1 | 5.4 | 2.2 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 4.9    | U   | 11  | 4.9 | 1.6 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 11     | D   | 8.1 | 5.4 | 1.7 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 250    | D   | 27  | 14  | 6.5 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 67   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 76   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 82   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 79   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_005.d  
 Lims ID: 320-39023-A-39-A  
 Client ID: KLA06-SB1-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 11:30:56 ALS Bottle#: 4 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-39-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:06:38 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:06:38

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.775 | 1.764 | 0.011 | 1.000 | 3542 | 0.0784 |  | 67.4 | 45.8 |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |       |       |       |          |  |  |      |  |
|----------------|-------|-------|-------|-------|-------|----------|--|--|------|--|
| 298.90 > 80.00 | 1.775 | 1.764 | 0.011 | 1.000 | 11827 | 0.004971 |  |  | 43.1 |  |
|----------------|-------|-------|-------|-------|-------|----------|--|--|------|--|

|                |       |       |       |       |      |  |                 |  |      |  |
|----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.775 | 1.764 | 0.011 | 1.000 | 4221 |  | 2.80(1.25-3.74) |  | 25.0 |  |
|----------------|-------|-------|-------|-------|------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.360 | 2.345 | 0.015 | 1.000 | 193829 | 0.0949 |  | 75.9 | 3496 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 403.00 > 84.00 | 2.373 | 2.358 | 0.015 | 1.000 | 210956 | 0.0836 |  | 70.7 | 4996 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |       |       |       |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.360 | 2.358 | 0.002 | 1.000 | 25509 | 0.0156 |  |  | 33.7 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|--|

|                 |       |       |       |       |       |  |                 |  |      |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.360 | 2.358 | 0.002 | 1.000 | 10016 |  | 2.55(1.13-3.40) |  | 54.7 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |        |        |  |  |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.373 | 2.358 | 0.015 | 1.000 | 419467 | 0.2087 |  |  | 1597 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                |       |       |       |       |        |  |                 |  |     |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|
| 399.00 > 99.00 | 2.373 | 2.358 | 0.015 | 1.000 | 122515 |  | 3.42(1.50-4.49) |  | 569 |  |
|----------------|-------|-------|-------|-------|--------|--|-----------------|--|-----|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 417.00 > 372.00 | 2.713 | 2.704 | 0.009 | 1.000 | 197429 | 0.1022 |  | 81.7 | 3831 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## \* 62 13C2-PFOA

|                 |       |       |       |  |        |        |  |  |      |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|------|--|
| 415.00 > 370.00 | 2.713 | 2.704 | 0.009 |  | 255085 | 0.1250 |  |  | 7748 |  |
|-----------------|-------|-------|-------|--|--------|--------|--|--|------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |       |       |       |        |  |  |      |   |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|---|
| 413.00 > 369.00 | 2.713 | 2.712 | 0.001 | 1.000 | 47767 | 0.0257 |  |  | 17.6 | M |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|------|---|

|                 |       |       |       |       |       |  |                 |  |      |   |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|---|
| 413.00 > 169.00 | 2.713 | 2.712 | 0.001 | 1.000 | 23492 |  | 2.03(0.84-2.52) |  | 69.7 | M |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|---|

## D 19 13C5 PFNA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 468.00 > 423.00 | 3.079 | 3.072 | 0.007 | 1.000 | 156686 | 0.0991 |  | 79.3 | 4234 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## D 18 13C4 PFOS

|                |       |       |       |       |        |        |  |      |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 503.00 > 80.00 | 3.079 | 3.072 | 0.007 | 1.000 | 141952 | 0.0818 |  | 68.5 | 1567 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |       |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|-----|--|
| 463.00 > 419.00 | 3.087 | 3.076 | 0.011 | 1.003 | 61582 | 0.0464 |  |  | 183 |  |
|-----------------|-------|-------|-------|-------|-------|--------|--|--|-----|--|

|                 |       |       |       |       |       |  |                 |  |     |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|
| 463.00 > 169.00 | 3.087 | 3.076 | 0.011 | 1.003 | 14927 |  | 4.13(1.90-5.69) |  | 397 |  |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|-----|--|

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.079 | 3.076     | 0.003     | 1.000     | 6370558  | 4.56            |                 |      | 19776 |       |
| 499.00 > 99.00                   | 3.079 | 3.076     | 0.003     | 1.000     | 1430973  |                 | 4.45(2.31-6.93) |      | 15886 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_005.d

Injection Date: 29-May-2018 11:30:56

Instrument ID: A8\_N

Lims ID: 320-39023-A-39-A

Lab Sample ID: 320-39023-39

Client ID: KLA06-SB1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

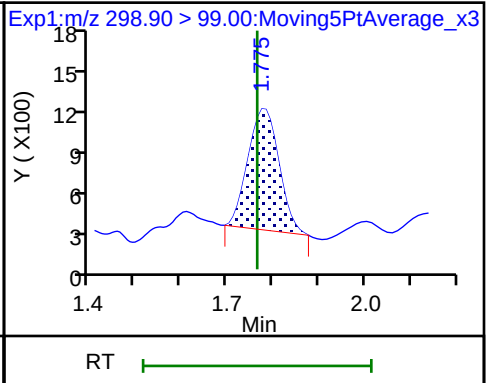
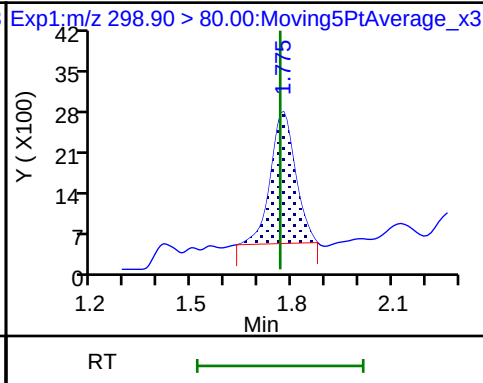
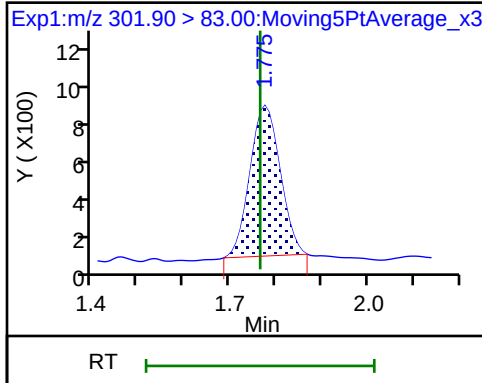
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

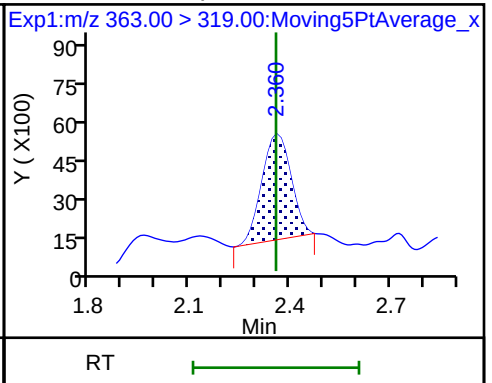
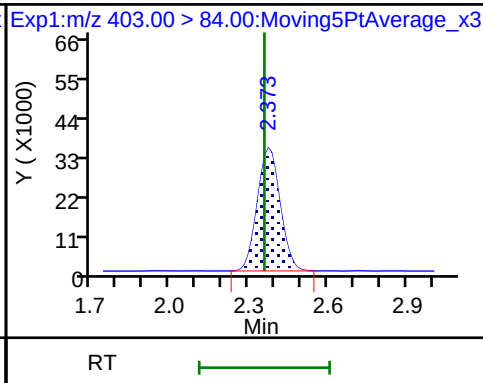
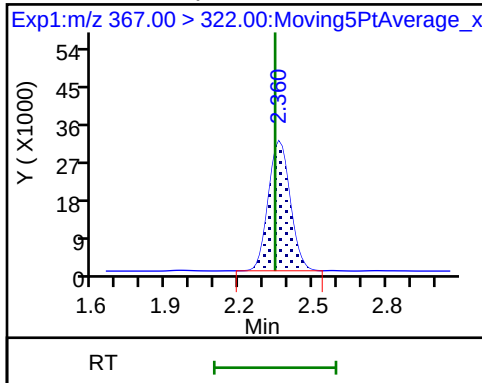
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

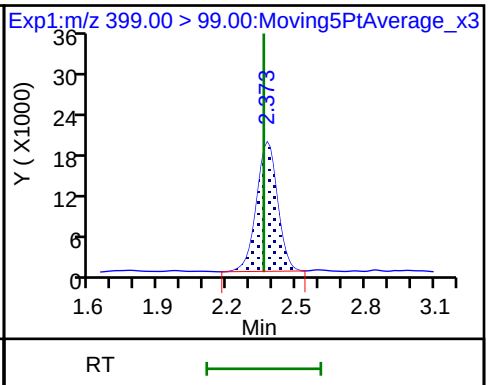
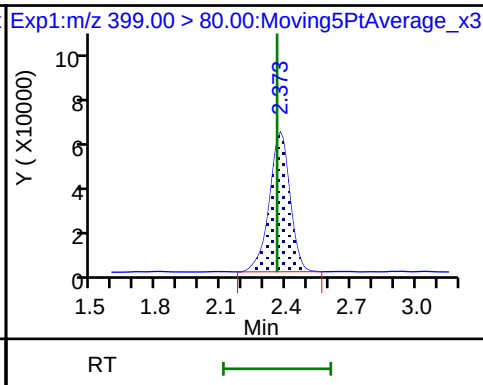
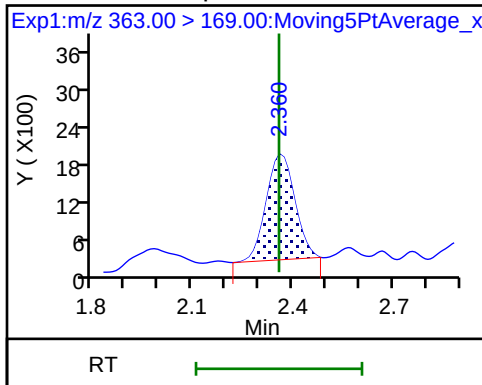
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

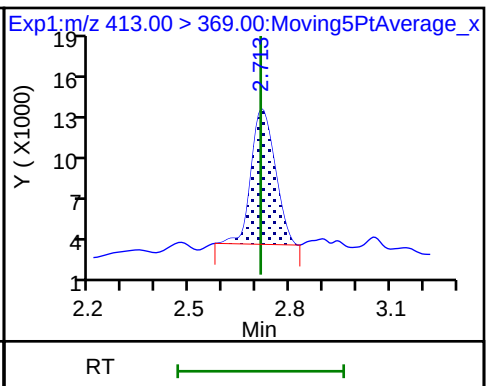
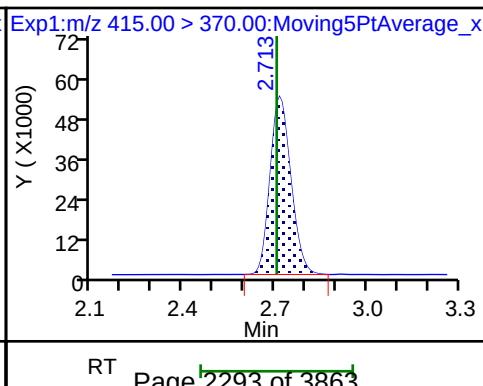
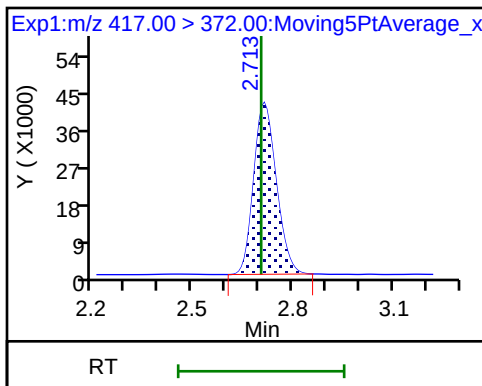
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

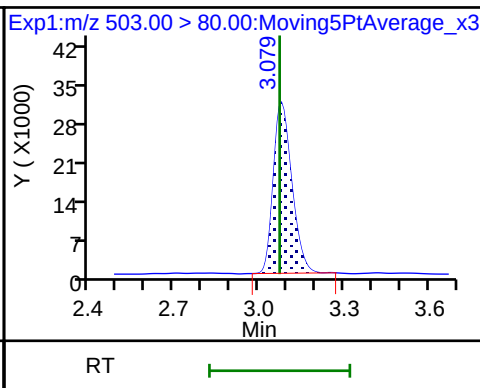
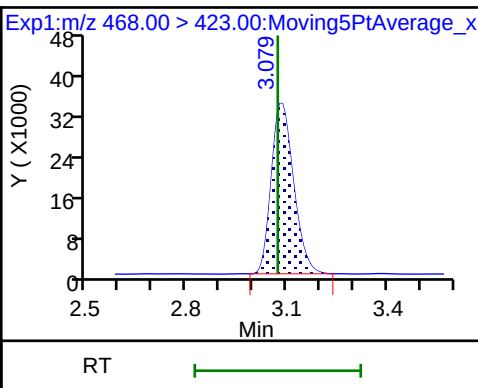
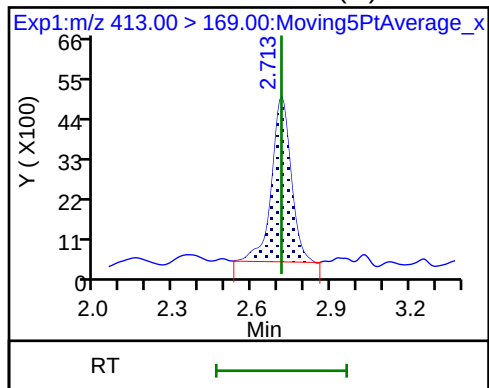
15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid (M)

## D 19 13C5 PFNA

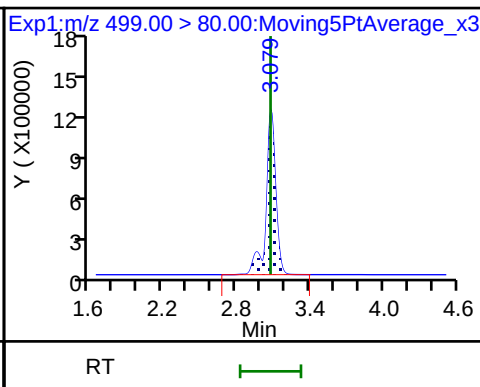
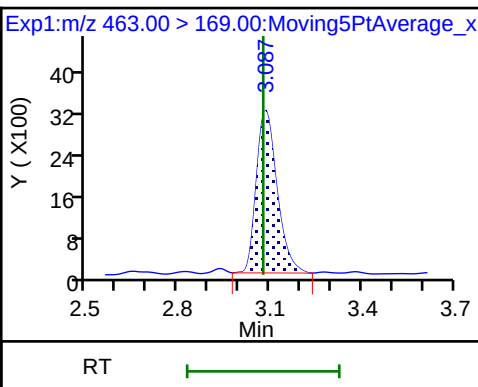
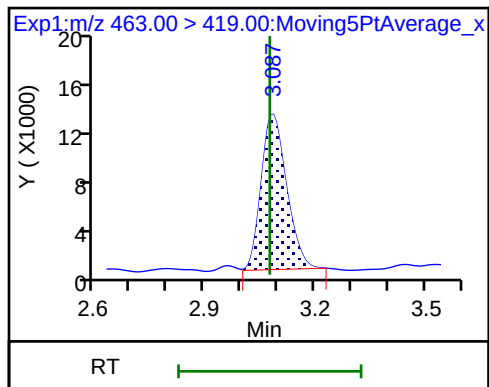
## D 18 13C4 PFOS



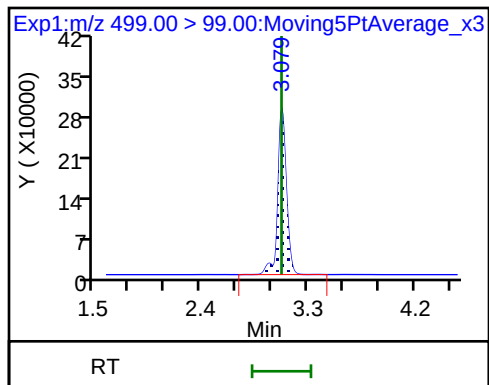
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid





## TestAmerica Sacramento

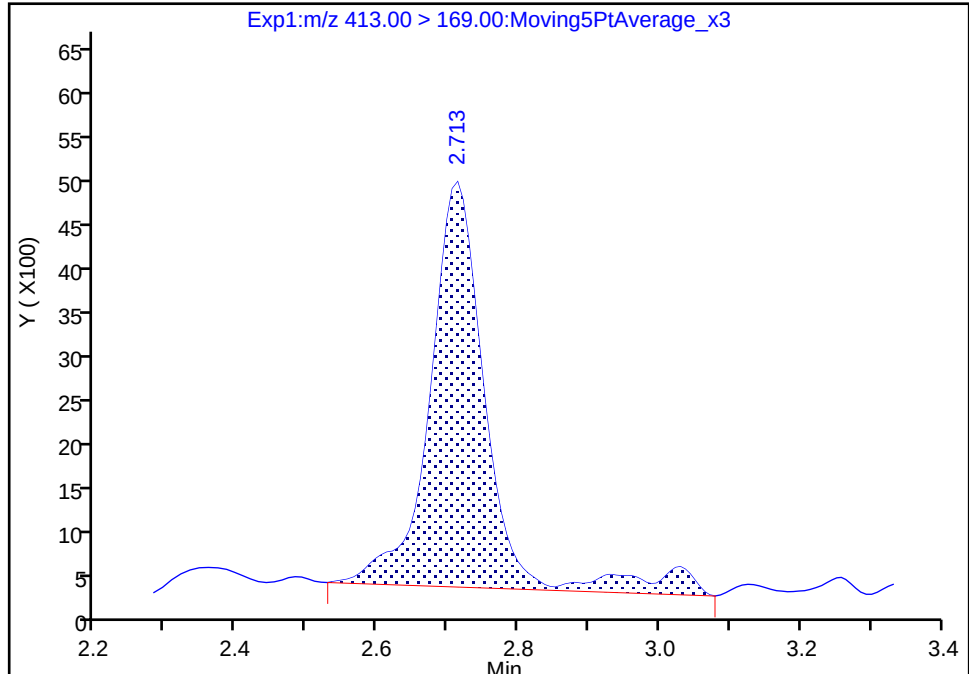
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_005.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:30:56                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-39-A                                                         | Lab Sample ID: | 320-39023-39       |                |   |
| Client ID:      | KLA06-SB1-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 4                  | Worklist Smp#: | 5 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

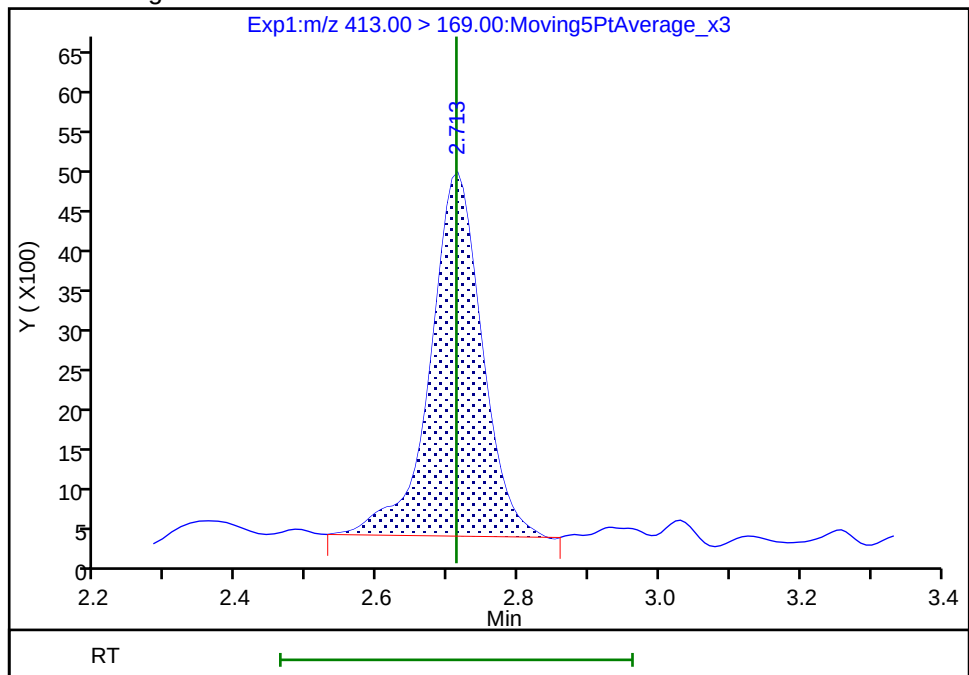
RT: 2.71  
Area: 26101  
Amount: 0.025694  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 23492  
Amount: 0.025694  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:06:32  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2295 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA06-SB1-02</u>   | Lab Sample ID: <u>320-39023-40</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_064.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 14:20</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>06/06/2018 23:26</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>20.4</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.25   | J   | 0.37 | 0.25 | 0.097 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.1    |     | 0.37 | 0.25 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.4    |     | 0.37 | 0.25 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.19   | J   | 0.50 | 0.22 | 0.073 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 6.8    |     | 0.37 | 0.25 | 0.077 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 100    | M E | 1.2  | 0.62 | 0.30  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 76   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 70   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 72   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_064.d  
 Lims ID: 320-39023-A-40-A  
 Client ID: KLA06-SB1-02  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 23:26:29 ALS Bottle#: 36 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-40-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 15:03:51 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 15:03:56

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                 | 1.766 | 1.766  | 0.0    | 0.653  | 69210    | 1.58         |                 | 67.8 | 374   |       |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.775 | 1.770  | 0.005  | 1.005  | 177663   | 0.0769       |                 |      | 594   |       |
| 298.90 > 99.00                 | 1.766 | 1.770  | -0.004 | 1.000  | 76966    |              | 2.31(1.25-3.74) |      | 180   |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.347 | 2.346  | 0.001  | 0.868  | 4103687  | 2.01         |                 | 80.6 | 73813 |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.347 | 2.354  | -0.007 | 1.000  | 184051   | 0.0989       |                 |      | 229   |       |
| 363.00 > 169.00                | 2.347 | 2.354  | -0.007 | 1.000  | 64168    |              | 2.87(1.13-3.40) |      | 331   |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.372 | 2.360  | 0.012  | 0.877  | 4202715  | 1.70         |                 | 71.9 | 33634 |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.360 | 2.368  | -0.008 | 0.995  | 5613548  | 2.76         |                 |      | 11840 |       |
| 399.00 > 99.00                 | 2.360 | 2.368  | -0.008 | 0.995  | 1777801  |              | 3.16(1.50-4.49) |      | 6157  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.705 | 2.698  | 0.007  | 1.000  | 3854175  | 1.91         |                 | 76.3 | 57490 |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.705 | 2.703  | 0.002  | 1.000  | 825684   | 0.4454       |                 |      | 447   |       |
| 413.00 > 169.00                | 2.705 | 2.703  | 0.002  | 1.000  | 429391   |              | 1.92(0.84-2.52) |      | 1211  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.705 | 2.703  | 0.002  |        | 5241313  | 2.50         |                 |      | 83653 |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                | 3.070 | 3.067  | 0.003  | 1.135  | 2965842  | 1.74         |                 | 69.5 | 62092 |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                | 3.070 | 3.071  | -0.001 | 1.000  | 704799   | 0.5521       |                 |      | 1796  |       |
| 463.00 > 169.00                | 3.070 | 3.071  | -0.001 | 1.000  | 163867   |              | 4.30(1.90-5.69) |      | 2421  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.077 | 3.074  | 0.003  | 1.137  | 2715659  | 1.62         |                 | 67.8 | 41661 |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |        | EM    |
| 499.00 > 80.00                   | 3.077 | 3.079     | -0.002    | 1.000     | 54116208 | 40.1            |                 |      | 8469   | EM    |
| 499.00 > 99.00                   | 3.077 | 3.079     | -0.002    | 1.000     | 14701132 |                 | 3.68(2.31-6.93) |      | 305791 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_064.d

Injection Date: 06-Jun-2018 23:26:29

Instrument ID: A8\_N

Lims ID: 320-39023-A-40-A

Lab Sample ID: 320-39023-40

Client ID: KLA06-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

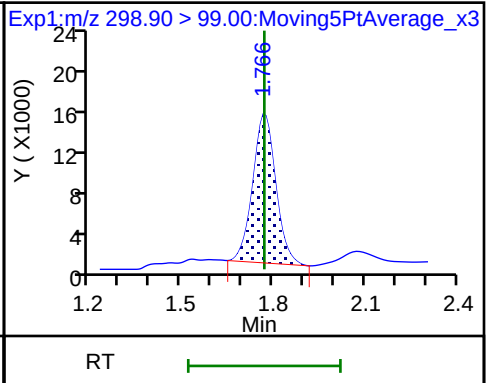
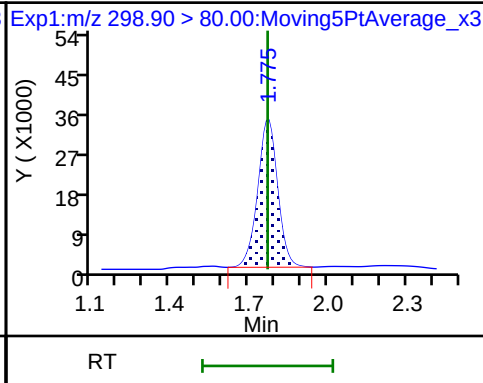
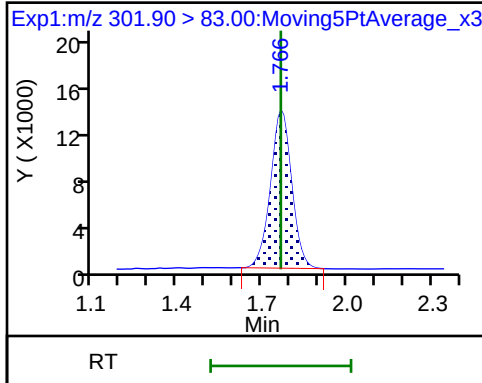
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

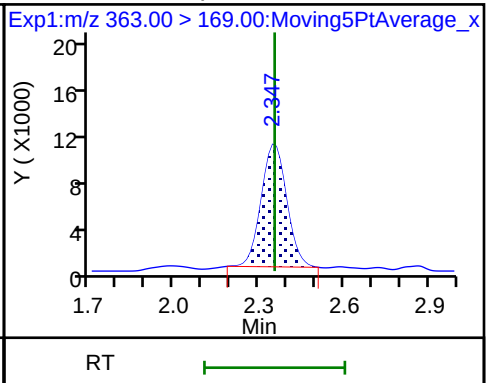
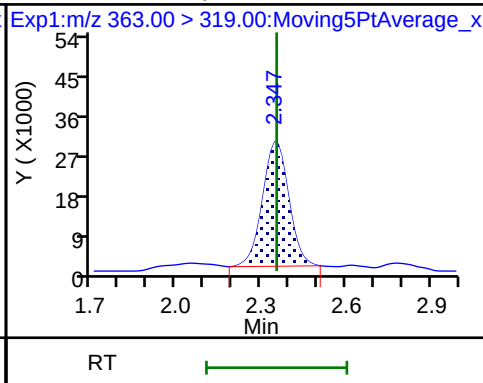
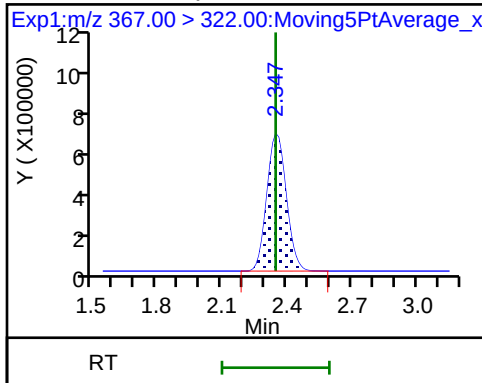
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

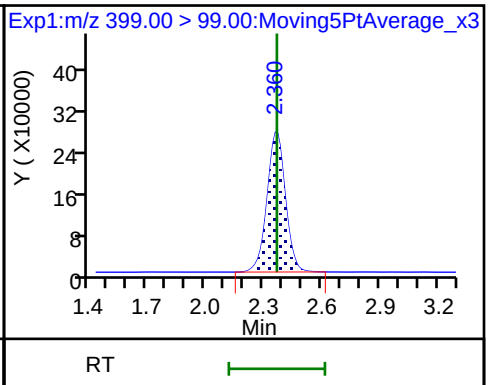
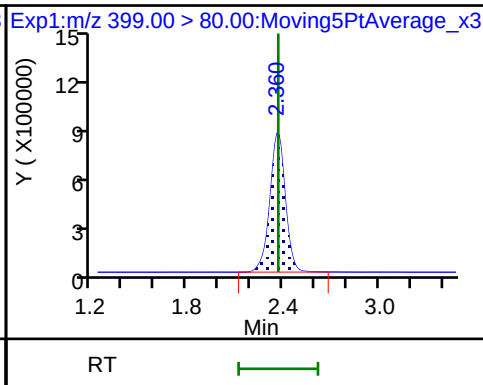
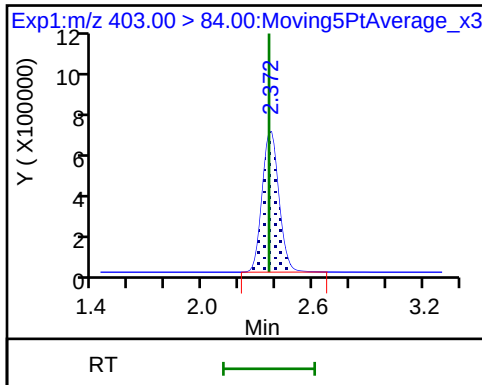
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

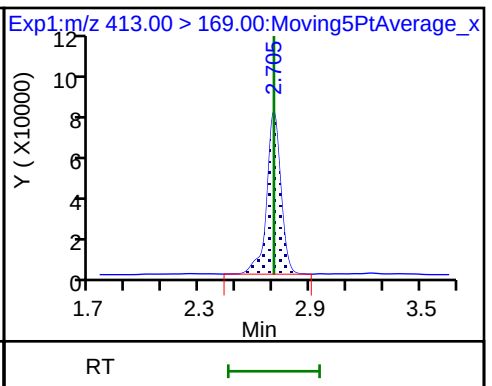
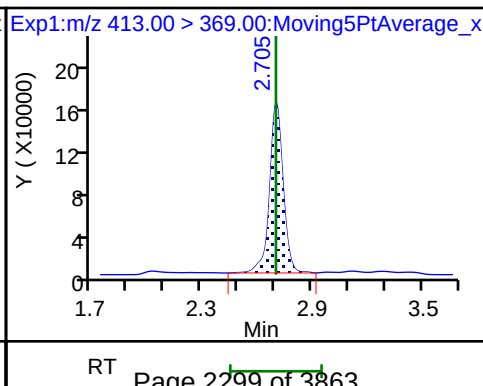
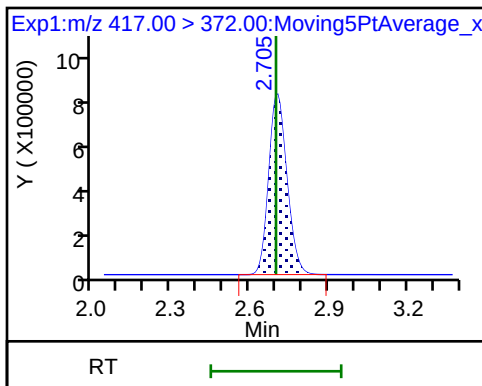
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

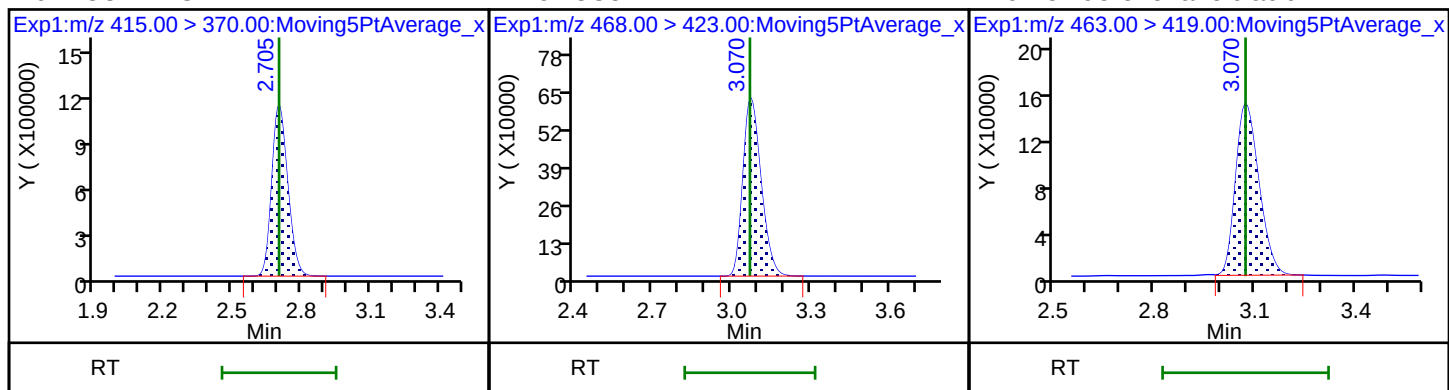
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

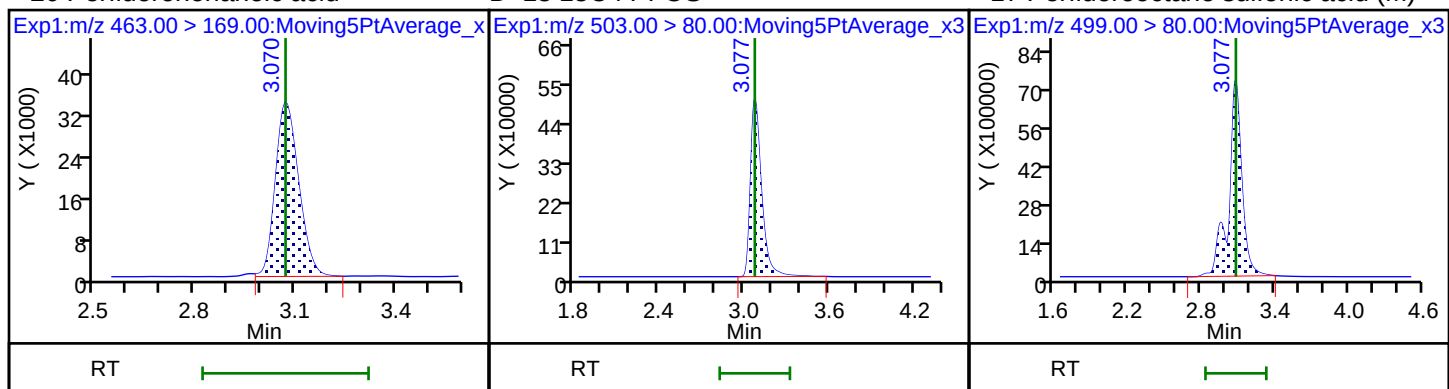
20 Perfluorononanoic acid



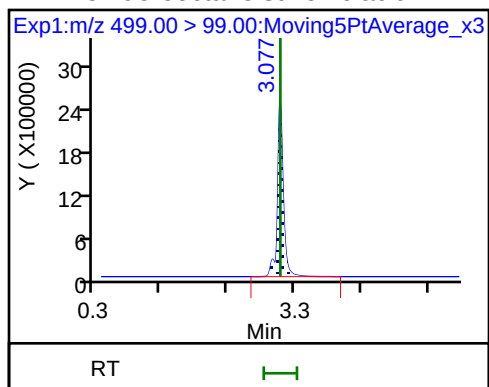
20 Perfluorononanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid (M)



17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

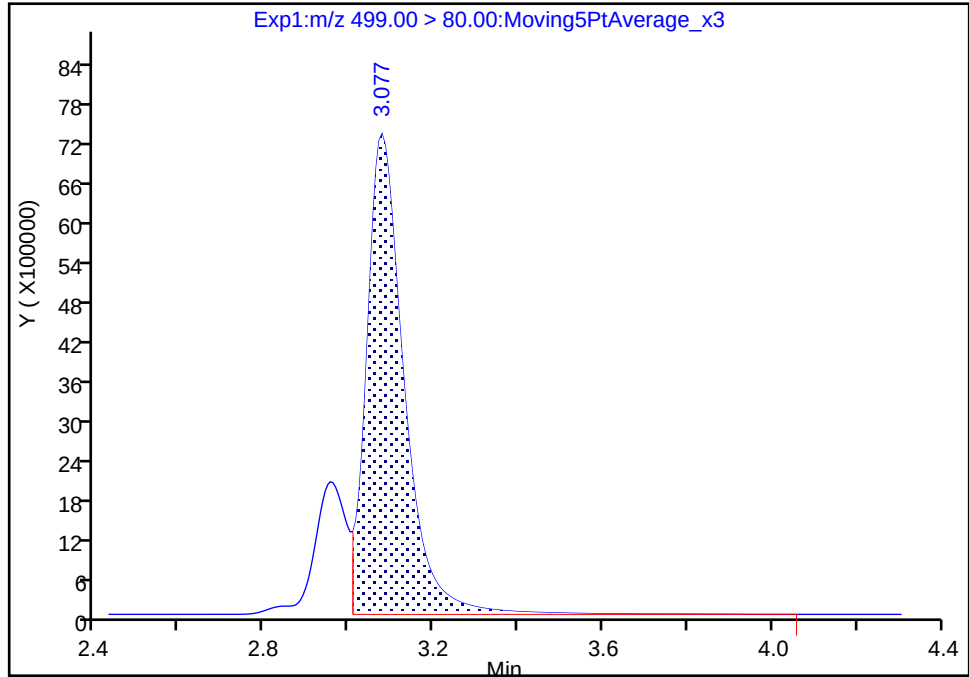
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180606-59323.b\2018.06.06LLC_064.d |                |                    |                |   |
| Injection Date: | 06-Jun-2018 23:26:29                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-40-A                                                         | Lab Sample ID: | 320-39023-40       |                |   |
| Client ID:      | KLA06-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 36                 | Worklist Smp#: | 7 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

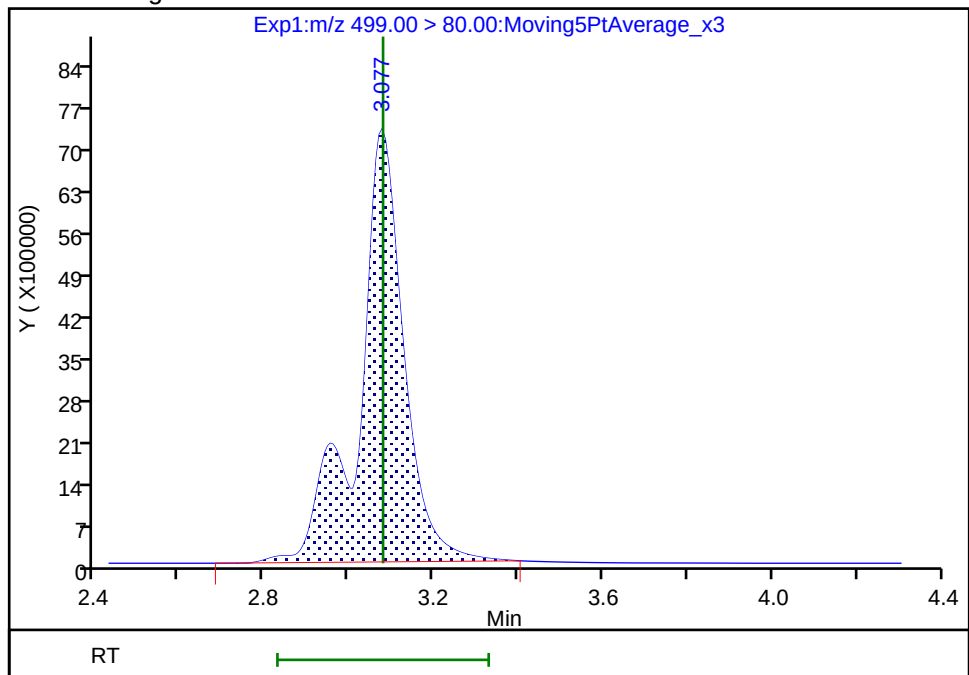
RT: 3.08  
Area: 44687470  
Amount: 33.123326  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 54116208  
Amount: 40.112112  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 07-Jun-2018 14:56:27

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA06-SB1-02 DL</u> | Lab Sample ID: <u>320-39023-40 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_006.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/01/2018 14:20</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.06(g)</u>            | Date Analyzed: <u>05/29/2018 11:38</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>20.4</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.0    | U M | 7.4 | 5.0 | 1.9 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 5.0    | U   | 7.4 | 5.0 | 2.5 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 5.0    | U M | 7.4 | 5.0 | 2.0 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 4.5    | U M | 9.9 | 4.5 | 1.5 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 6.6    | J D | 7.4 | 5.0 | 1.5 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 120    | D   | 25  | 12  | 6.0 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 69   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 76   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 81   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 69   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 68   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_006.d  
 Lims ID: 320-39023-A-40-A  
 Client ID: KLA06-SB1-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 11:38:44 ALS Bottle#: 5 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-40-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:08:04 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:08:04

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                                |       |       |        |       |      |          |                 |      |      |   |
|--------------------------------|-------|-------|--------|-------|------|----------|-----------------|------|------|---|
| 301.90 > 83.00                 | 1.761 | 1.764 | -0.003 | 1.000 | 3347 | 0.0799   |                 | 68.7 | 39.3 |   |
| 5 Perfluorobutanesulfonic acid |       |       |        |       |      |          |                 |      |      | M |
| 298.90 > 80.00                 | 1.761 | 1.764 | -0.003 | 1.000 | 7792 | 0.003466 |                 |      | 27.7 | M |
| 298.90 > 99.00                 | 1.761 | 1.764 | -0.003 | 1.000 | 4791 |          | 1.63(1.25-3.74) |      | 30.4 | M |

## D 9 13C4-PFHpA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.355 | 2.345 | 0.010 | 1.000 | 179885 | 0.0950 |  | 76.0 | 3685 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## D 11 18O2 PFHxS

|                                |       |       |       |       |        |        |                 |      |      |  |
|--------------------------------|-------|-------|-------|-------|--------|--------|-----------------|------|------|--|
| 403.00 > 84.00                 | 2.368 | 2.358 | 0.010 | 1.000 | 189633 | 0.0810 |                 | 68.5 | 6319 |  |
| 8 Perfluorohexanesulfonic acid |       |       |       |       |        |        |                 |      |      |  |
| 399.00 > 80.00                 | 2.368 | 2.358 | 0.010 | 1.000 | 238917 | 0.1322 |                 |      | 894  |  |
| 399.00 > 99.00                 | 2.368 | 2.358 | 0.010 | 1.000 | 76659  |        | 3.12(1.50-4.49) |      | 369  |  |

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 417.00 > 372.00 | 2.711 | 2.704 | 0.007 | 1.000 | 181969 | 0.1016 |  | 81.3 | 4777 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## \* 62 13C2-PFOA

|                           |       |       |        |       |        |        |                 |  |      |  |
|---------------------------|-------|-------|--------|-------|--------|--------|-----------------|--|------|--|
| 415.00 > 370.00           | 2.711 | 2.704 | 0.007  |       | 236462 | 0.1250 |                 |  | 5095 |  |
| 15 Perfluorooctanoic acid |       |       |        |       |        |        |                 |  |      |  |
| 413.00 > 369.00           | 2.711 | 2.712 | -0.001 | 1.000 | 40645  | 0.0237 |                 |  | 14.0 |  |
| 413.00 > 169.00           | 2.711 | 2.712 | -0.001 | 1.000 | 22419  |        | 1.81(0.84-2.52) |  | 76.5 |  |

## D 19 13C5 PFNA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 468.00 > 423.00 | 3.074 | 3.072 | 0.002 | 1.000 | 143482 | 0.0979 |  | 78.3 | 4957 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## D 18 13C4 PFOS

|                           |       |       |        |       |        |        |                 |      |      |   |
|---------------------------|-------|-------|--------|-------|--------|--------|-----------------|------|------|---|
| 503.00 > 80.00            | 3.074 | 3.072 | 0.002  | 1.000 | 131159 | 0.0815 |                 | 68.2 | 1167 |   |
| 20 Perfluorononanoic acid |       |       |        |       |        |        |                 |      |      | M |
| 463.00 > 419.00           | 3.081 | 3.076 | 0.005  | 1.003 | 36691  | 0.0302 |                 |      | 119  | M |
| 463.00 > 169.00           | 3.074 | 3.076 | -0.002 | 1.000 | 7323   |        | 5.01(1.90-5.69) |      | 236  | M |

## 17 Perfluorooctane sulfonic acid

|                |       |       |        |       |         |      |                 |  |      |  |
|----------------|-------|-------|--------|-------|---------|------|-----------------|--|------|--|
| 499.00 > 80.00 | 3.074 | 3.076 | -0.002 | 1.000 | 3088207 | 2.39 |                 |  | 9023 |  |
| 499.00 > 99.00 | 3.074 | 3.076 | -0.002 | 1.000 | 734901  |      | 4.20(2.31-6.93) |  | 8005 |  |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_006.d

Injection Date: 29-May-2018 11:38:44

Instrument ID: A8\_N

Lims ID: 320-39023-A-40-A

Lab Sample ID: 320-39023-40

Client ID: KLA06-SB1-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

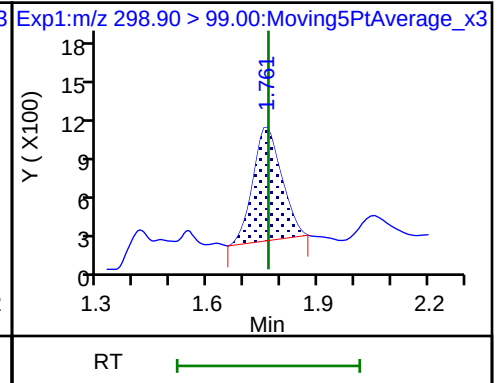
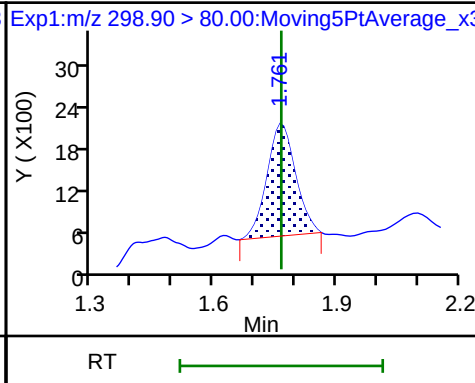
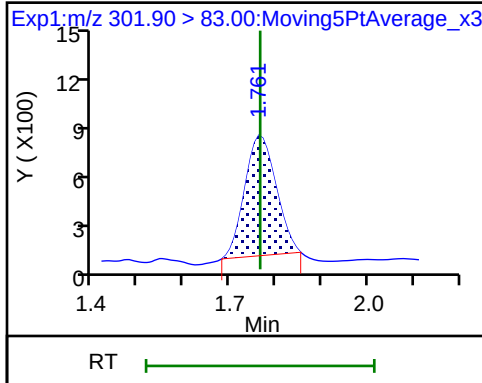
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (M)

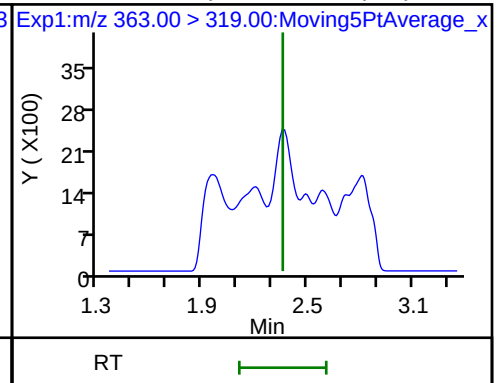
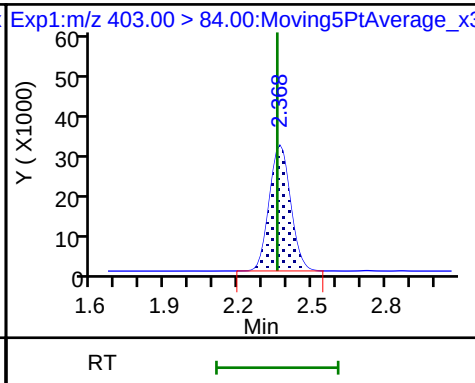
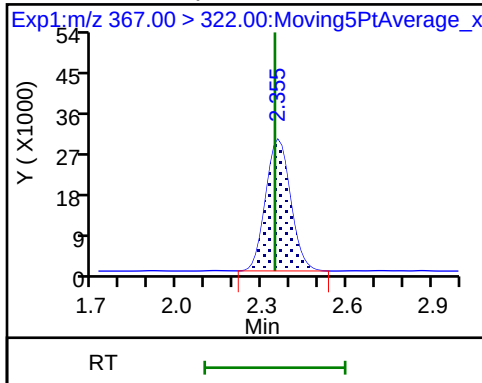
5 Perfluorobutanesulfonic acid (M)



D 9 13C4-PFHpA

D 11 18O2 PFHxS

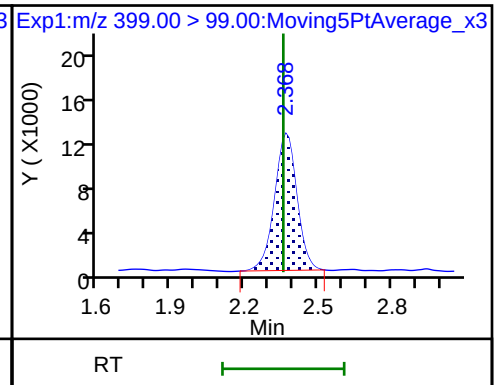
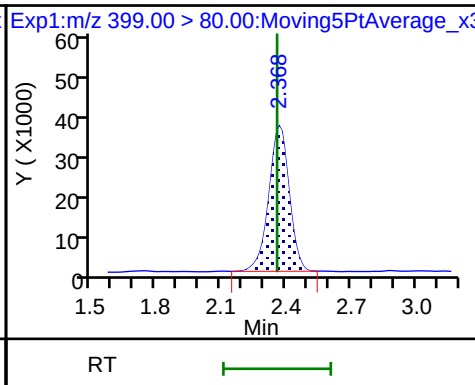
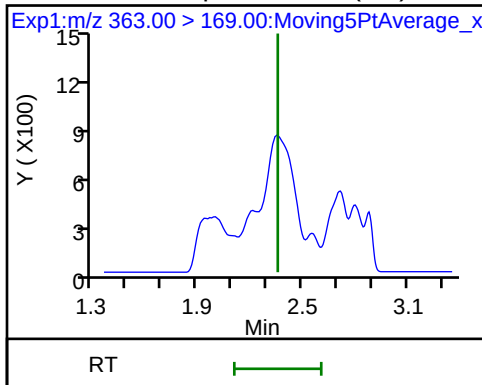
10 Perfluoroheptanoic acid (ND)



10 Perfluoroheptanoic acid (ND)

8 Perfluorohexanesulfonic acid

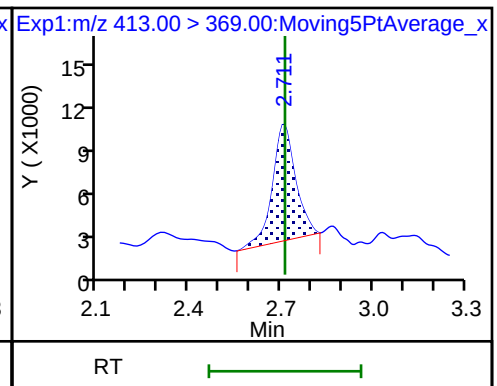
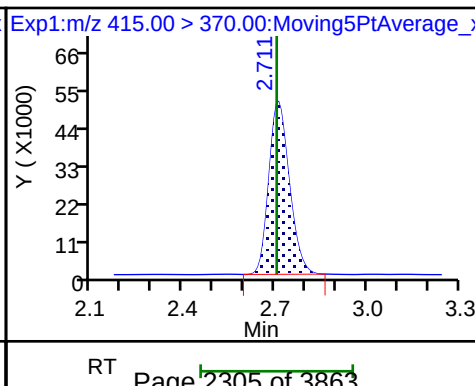
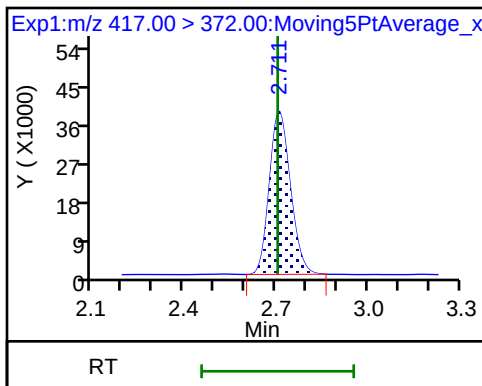
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

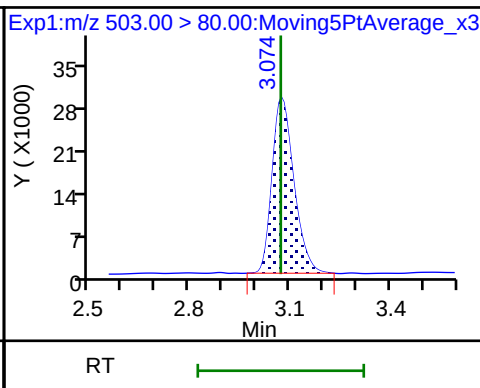
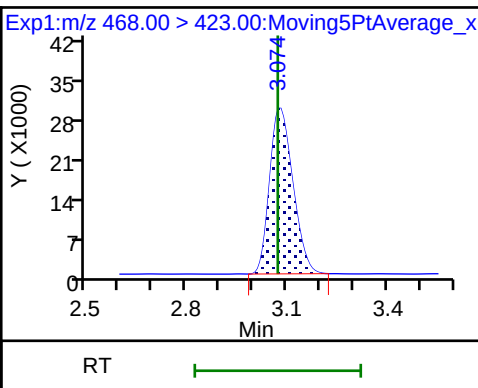
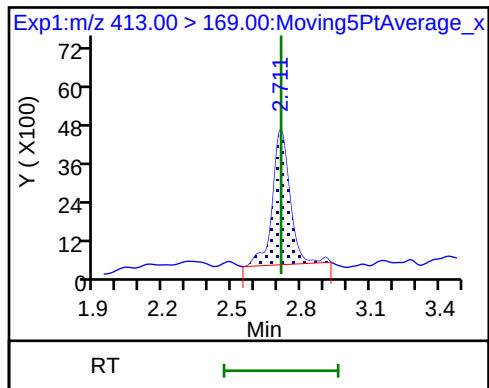
15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

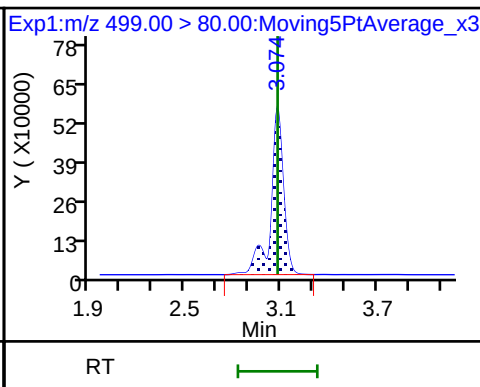
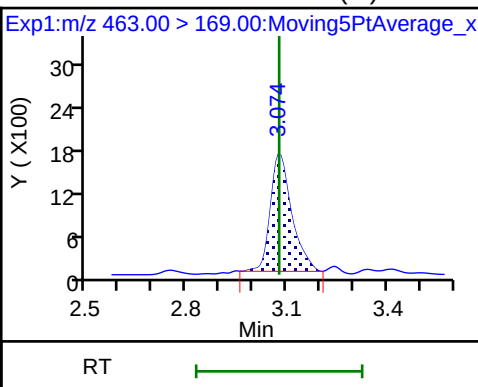
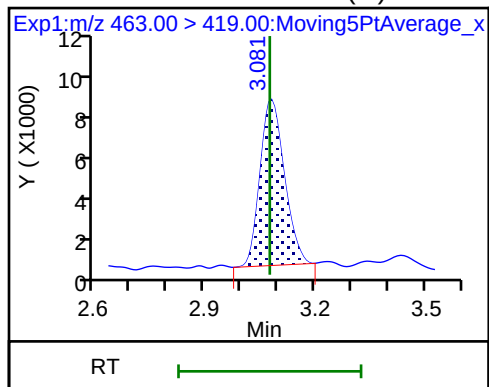
## D 18 13C4 PFOS



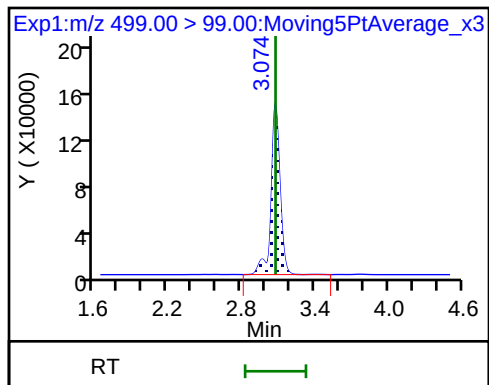
## 20 Perfluorononanoic acid (M)

## 20 Perfluorononanoic acid (M)

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

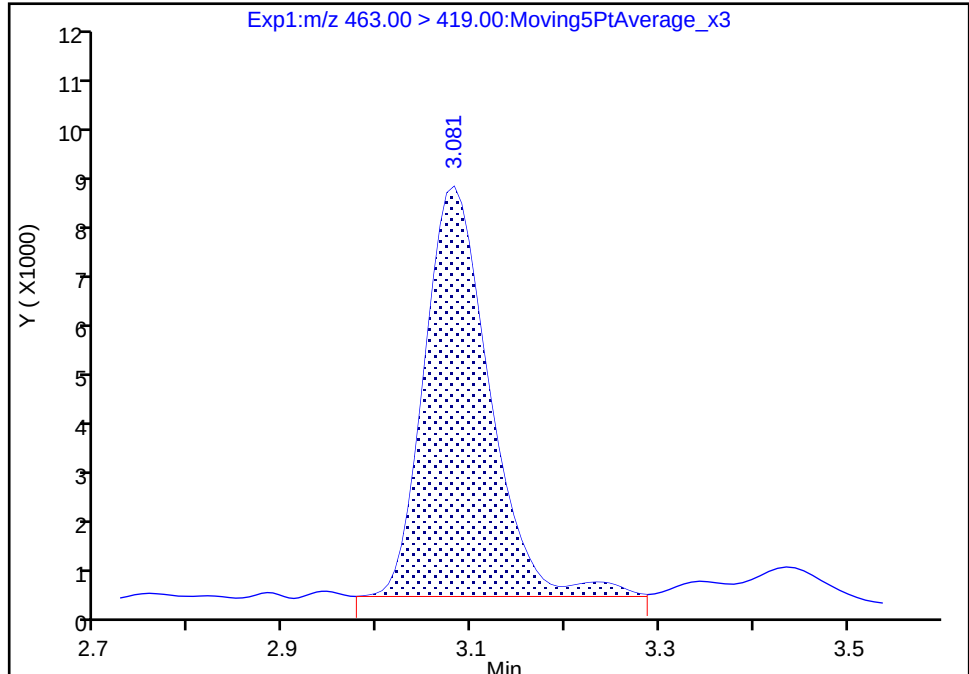
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_006.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:38:44                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-40-A                                                         | Lab Sample ID: | 320-39023-40       |                |   |
| Client ID:      | KLA06-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 5                  | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

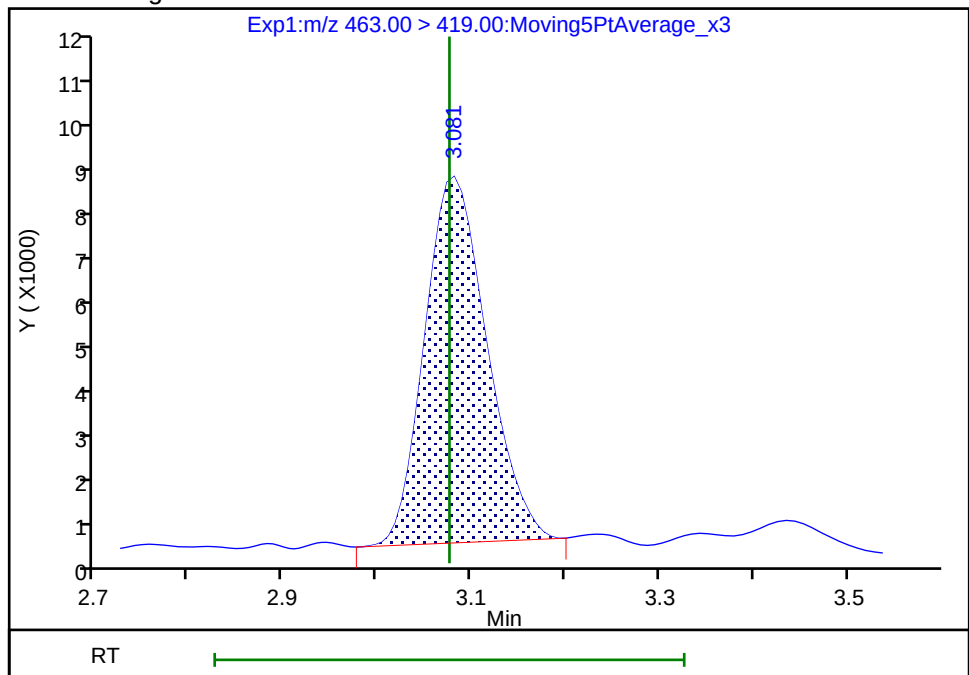
RT: 3.08  
Area: 39014  
Amount: 0.032089  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 36691  
Amount: 0.030179  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:07:55

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

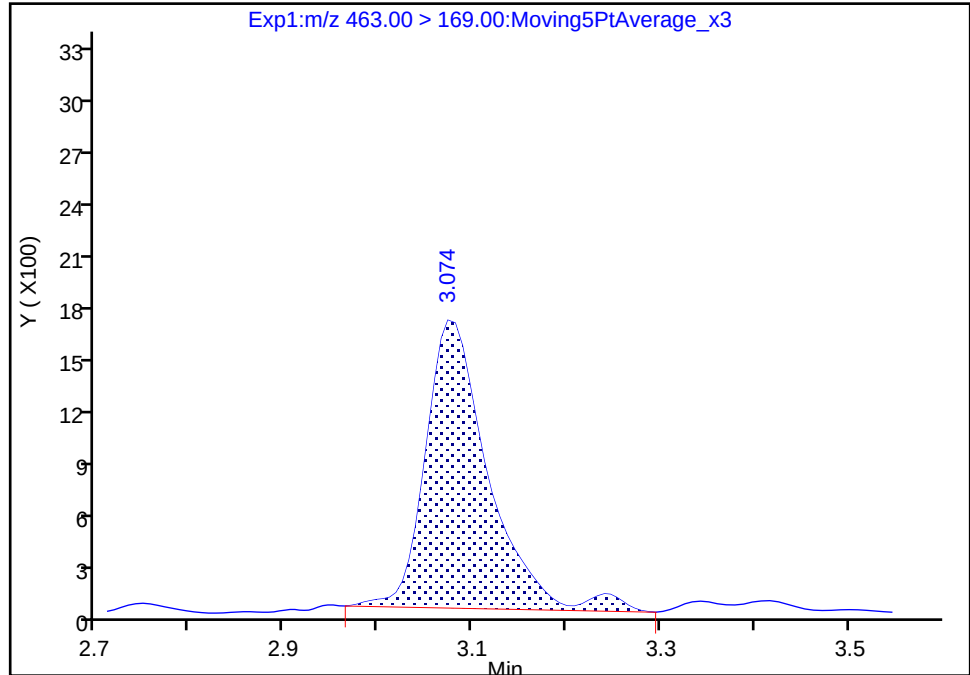
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_006.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:38:44                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-40-A                                                         | Lab Sample ID: | 320-39023-40       |                |   |
| Client ID:      | KLA06-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 5                  | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

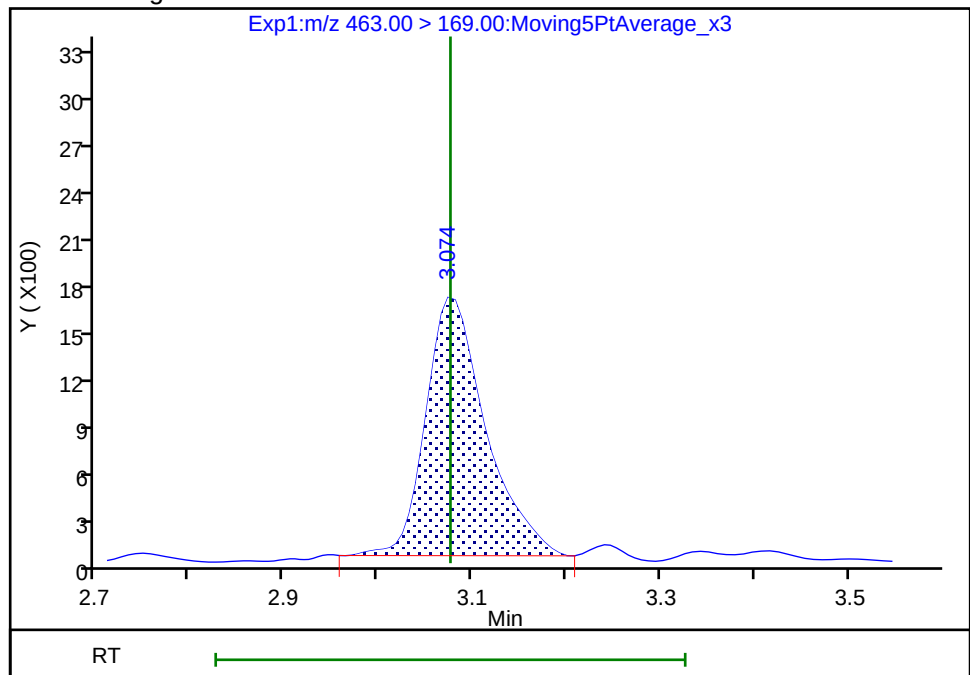
RT: 3.07  
Area: 7774  
Amount: 0.032089  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 7323  
Amount: 0.030179  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:08:00

Audit Action: Manually Integrated

Audit Reason: Baseline

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## TestAmerica Sacramento

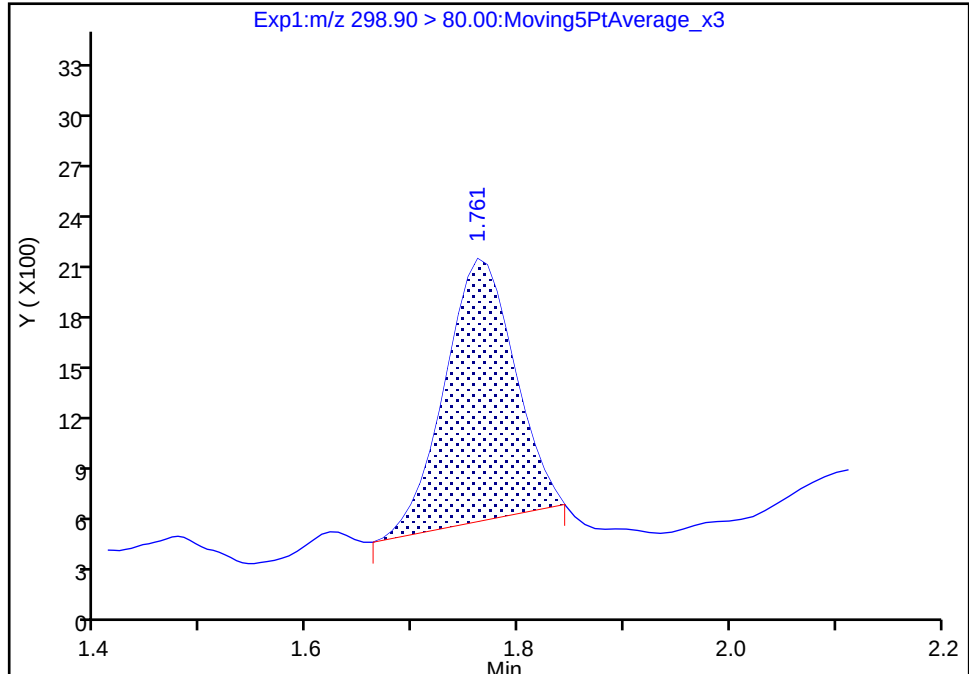
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_006.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:38:44                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-40-A                                                         | Lab Sample ID: | 320-39023-40       |                |   |
| Client ID:      | KLA06-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 5                  | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector:      | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

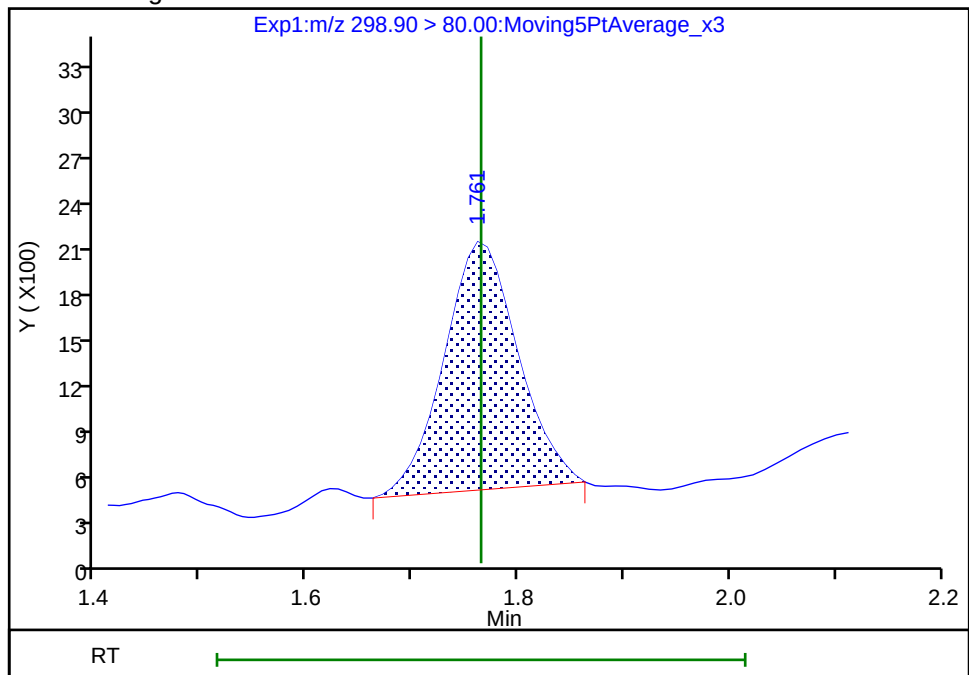
RT: 1.76  
Area: 7035  
Amount: 0.003129  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 7792  
Amount: 0.003466  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:07:36

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

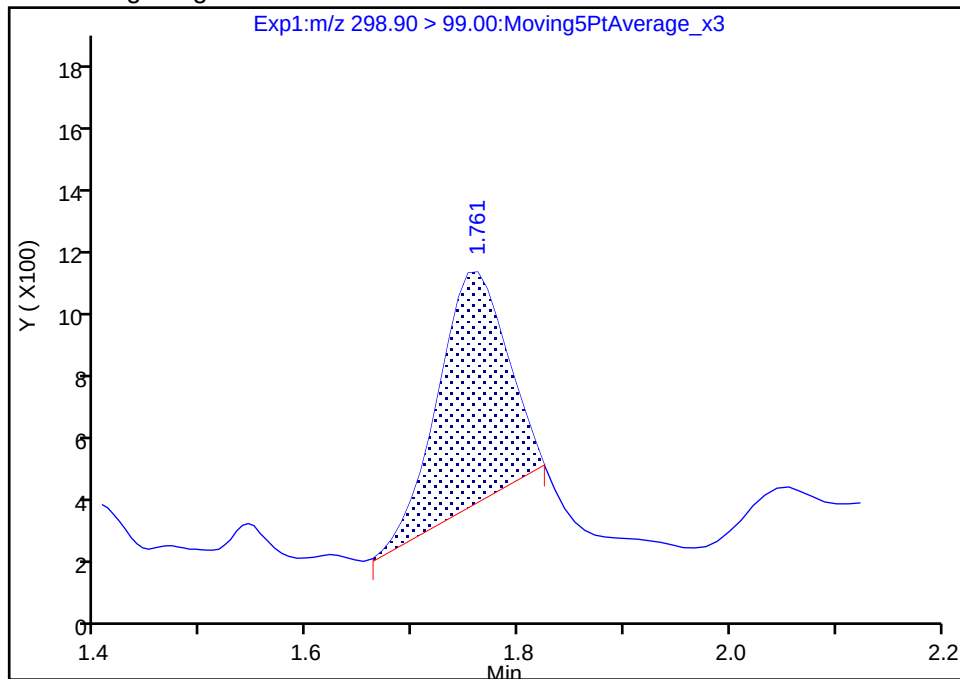
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_006.d |                |                    |                |   |
| Injection Date: | 29-May-2018 11:38:44                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-40-A                                                         | Lab Sample ID: | 320-39023-40       |                |   |
| Client ID:      | KLA06-SB1-02                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 5                  | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

## 5 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

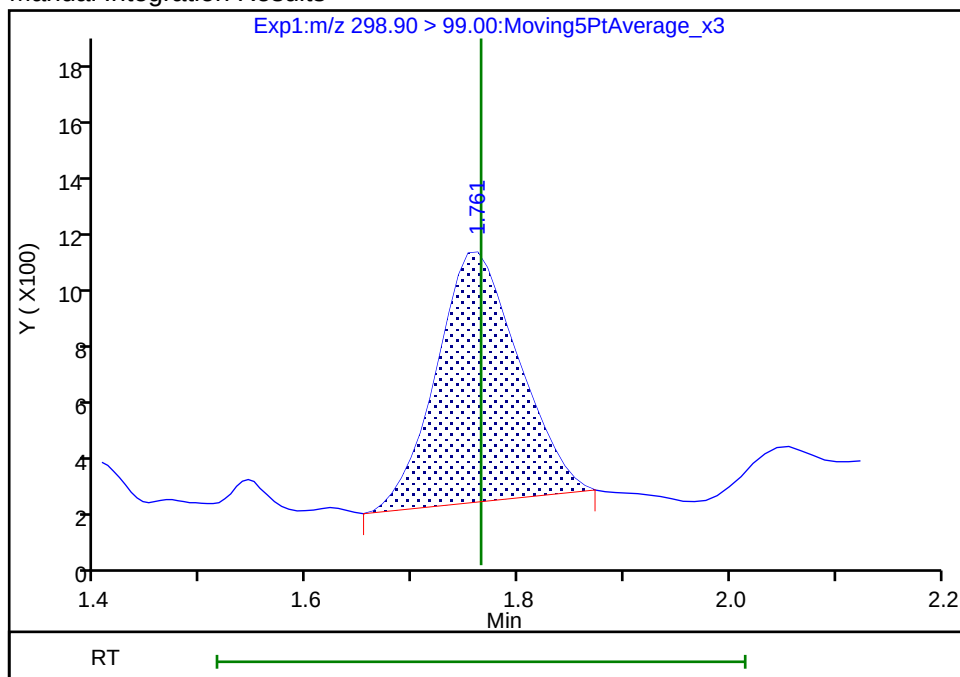
RT: 1.76  
Area: 3369  
Amount: 0.003129  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 4791  
Amount: 0.003466  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:07:40

Audit Action: Manually Integrated

Audit Reason: Baseline



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA06-SB2-01</u>   | Lab Sample ID: <u>320-39023-41</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_065.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 13:45</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.94(g)</u>           | Date Analyzed: <u>06/06/2018 23:34</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>36.5</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q    | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|------|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.2    | J1   | 0.48 | 0.32 | 0.12  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 6.7    | J1   | 0.48 | 0.32 | 0.16  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.6    |      | 0.48 | 0.32 | 0.13  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.99   |      | 0.64 | 0.29 | 0.094 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 42     | E J1 | 0.48 | 0.32 | 0.099 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 580    | E J1 | 1.6  | 0.80 | 0.38  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 82   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 82   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 54   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 54   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_065.d  
 Lims ID: 320-39023-A-41-A  
 Client ID: KLA06-SB2-01  
 Sample Type: Client  
 Inject. Date: 06-Jun-2018 23:34:21 ALS Bottle#: 37 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-41-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 14:58:30 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 14:58:30

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       | M     |
| 212.90 > 169.00                       | 1.456 | 1.458  | -0.002 | 1.000  | 571241   | 0.2371       |                   |      | 83.7  | M     |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.456 | 1.458  | -0.002 | 0.540  | 5777099  | 2.28         |                   | 91.1 | 33626 |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.725 | 1.730  | -0.005 | 0.640  | 4076620  | 2.37         |                   | 95.0 | 43841 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.725 | 1.730  | -0.005 | 1.000  | 1700440  | 0.8583       |                   |      | 685   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.761 | 1.766  | -0.005 | 0.653  | 71988    | 1.90         |                   | 81.5 | 357   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.761 | 1.766  | -0.005 | 1.000  | 745968   | 0.3106       |                   |      | 1727  |       |
| 298.90 > 99.00                        | 1.761 | 1.766  | -0.005 | 1.000  | 315178   |              | 2.37(1.25-3.74)   |      | 409   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       | M     |
| 327.00 > 307.00                       | 1.977 | 1.982  | -0.005 | 1.123  | 255955   | 0.4301       |                   |      | 1057  | M     |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.011 | 2.015  | -0.004 | 0.746  | 4098873  | 2.24         |                   | 89.8 | 77511 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.011 | 2.016  | -0.005 | 1.000  | 2690236  | 1.51         |                   |      | 2183  |       |
| 313.00 > 119.00                       | 2.011 | 2.016  | -0.005 | 1.000  | 227017   |              | 11.85(5.03-15.10) |      | 2149  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.033 | 2.038  | -0.005 | 1.154  | 2019600  | 0.9347       |                   |      | 6171  |       |
| 349.00 > 99.00                        | 2.033 | 2.038  | -0.005 | 1.154  | 761443   |              | 2.65(1.36-4.07)   |      | 4821  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.112 | 2.117  | -0.005 | 0.784  | 176458   | NC           |                   |      | 5011  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                   |      |       |       |
| 367.00 > 322.00                       | 2.342 | 2.346  | -0.004 | 0.869  | 3597216  | 2.04         |                   | 81.7 | 57452 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|--------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |           |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.342 | 2.347  | -0.005 | 1.000  | 617653    | 0.3785       |                 |      | 536    |       |
| 363.00 > 169.00                       | 2.342 | 2.347  | -0.005 | 1.000  | 234396    |              | 2.64(1.13-3.40) |      | 1036   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |           |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.355 | 2.360  | -0.005 | 0.874  | 3792451   | 1.78         |                 | 75.1 | 43332  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |           |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.355 | 2.360  | -0.005 | 1.000  | 24003973  | 13.1         |                 |      | 31347  | E     |
| 399.00 > 99.00                        | 2.355 | 2.360  | -0.005 | 1.000  | 7990762   |              | 3.00(1.50-4.49) |      | 16725  | E     |
| D 12 M2-6:2FTS                        |       |        |        |        |           |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.673 | 2.676  | -0.003 | 0.992  | 1051386   | 2.40         |                 | 101  | 5703   |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |           |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.673 | 2.676  | -0.003 | 1.000  | 20504978  | 26.9         |                 |      | 187609 | E     |
| D 14 13C4 PFOA                        |       |        |        |        |           |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.696 | 2.698  | -0.002 | 1.000  | 3655063   | 2.09         |                 | 83.7 | 44148  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |           |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.696 | 2.698  | -0.002 | 1.000  | 3700819   | 2.11         |                 |      | 2244   |       |
| 413.00 > 169.00                       | 2.696 | 2.698  | -0.002 | 1.000  | 2066689   |              | 1.79(0.84-2.52) |      | 3868   |       |
| * 62 13C2-PFOA                        |       |        |        |        |           |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.696 | 2.698  | -0.002 |        | 4530950   | 2.50         |                 |      | 67033  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |           |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.703 | 2.713  | -0.010 | 0.881  | 1711357   | 1.58         |                 |      | 292    |       |
| 449.00 > 99.00                        | 2.703 | 2.713  | -0.010 | 0.881  | 470209    |              | 3.64(1.94-5.82) |      | 785    |       |
| 20 Perfluorononanoic acid             |       |        |        |        |           |              |                 |      |        |       |
| 463.00 > 419.00                       | 3.067 | 3.067  | 0.0    | 1.000  | 423527    | 0.4898       |                 |      | 625    |       |
| 463.00 > 169.00                       | 3.067 | 3.067  | 0.0    | 1.000  | 102126    |              | 4.15(1.90-5.69) |      | 884    |       |
| D 19 13C5 PFNA                        |       |        |        |        |           |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.067 | 3.067  | 0.0    | 1.138  | 2009094   | 1.36         |                 | 54.5 | 38756  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |           |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.067 | 3.074  | -0.007 | 1.000  | 170115453 | 182.2        |                 |      | 5550   | E     |
| 499.00 > 99.00                        | 3.067 | 3.074  | -0.007 | 1.000  | 55241222  |              | 3.08(2.31-6.93) |      | 487575 | E     |
| D 18 13C4 PFOS                        |       |        |        |        |           |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.067 | 3.074  | -0.007 | 1.138  | 1879779   | 1.30         |                 | 54.3 | 7178   |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |           |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.407 | 3.407  | 0.0    | 1.000  | 44255947  | 30.1         |                 |      | 204    | E     |
| D 21 13C8 FOSA                        |       |        |        |        |           |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.407 | 3.408  | -0.001 | 1.264  | 3538365   | 1.94         |                 | 77.5 | 765    |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |           |              |                 |      |        |       |
| 527.00 > 507.00                       | 3.417 | 3.417  | 0.0    | 1.000  | 34614595  | 37.8         |                 |      | 327373 | E     |
| D 26 M2-8:2FTS                        |       |        |        |        |           |              |                 |      |        |       |
| 529.00 > 81.00                        | 3.417 | 3.417  | 0.0    | 1.267  | 1600106   | 3.51         |                 | 147  | 8134   |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |           |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.407 | 3.426  | -0.019 | 1.111  | 1732006   | 2.82         |                 |      | 17.1   |       |
| 549.00 > 99.00                        | 3.417 | 3.426  | -0.009 | 1.114  | 675726    |              | 2.56(1.33-3.97) |      | 57.7   |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |           |              |                 |      |        |       |
| 513.00 > 469.00                       | 3.426 | 3.426  | 0.0    | 1.000  | 669989    | 0.5558       |                 |      | 1039   |       |
| 513.00 > 169.00                       | 3.426 | 3.426  | 0.0    | 1.000  | 121375    |              | 5.52(2.36-7.09) |      | 403    |       |
| D 23 13C2 PFDA                        |       |        |        |        |           |              |                 |      |        |       |
| 515.00 > 470.00                       | 3.426 | 3.426  | 0.0    | 1.271  | 2819741   | 2.37         |                 | 94.8 | 41894  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                 |      |       |       |
| 570.00 > 419.00                       | 3.575 | 3.586     | -0.011    | 1.000     | 201809   | 0.3105          |                 |      | 1042  |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 573.00 > 419.00                       | 3.575 | 3.586     | -0.011    | 1.326     | 1629496  | 2.31            |                 | 92.6 | 21836 |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 589.00 > 419.00                       | 3.751 | 3.751     | 0.0       | 1.391     | 1904159  | 2.53            |                 | 101  | 16846 |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 599.00 > 80.00                        | 3.740 | 3.751     | -0.011    | 1.220     | 1334995  | 2.46            |                 |      | 19.6  |       |
| 599.00 > 99.00                        | 3.740 | 3.751     | -0.011    | 1.220     | 491073   |                 | 2.72(1.39-4.16) |      | 103   |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 563.00 > 519.00                       | 3.751 | 3.751     | 0.0       | 1.000     | 220208   | 0.2641          |                 |      | 665   |       |
| 563.00 > 169.00                       | 3.761 | 3.751     | 0.010     | 1.003     | 59330    |                 | 3.71(2.12-6.36) |      | 748   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |      |       |       |
| 584.00 > 419.00                       | 3.751 | 3.751     | 0.0       | 1.000     | 454423   | 0.6823          |                 |      | 994   |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |      |       |       |
| 565.00 > 520.00                       | 3.751 | 3.761     | -0.010    | 1.391     | 2466887  | 2.49            |                 | 99.8 | 45511 |       |
| 35 MeFOSA                             |       |           |           |           |          |                 |                 |      |       |       |
| 512.00 > 169.00                       | 3.898 | 3.875     | 0.023     |           | 90653    | NC              |                 |      | 99.6  |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                 |      |       |       |
| 615.00 > 570.00                       | 4.043 | 4.051     | -0.008    | 1.500     | 2368010  | 2.24            |                 | 89.5 | 27380 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 613.00 > 569.00                       | 4.043 | 4.051     | -0.008    | 1.000     | 134991   | 0.1297          |                 |      | 89.6  |       |
| 613.00 > 169.00                       | 4.043 | 4.051     | -0.008    | 1.000     | 31592    |                 | 4.27(2.13-6.40) |      | 56.6  |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                 |      |       |       |
| 663.00 > 619.00                       | 4.302 | 4.308     | -0.006    | 1.064     | 15928    | 0.0144          |                 |      | 14.8  |       |
| 663.00 > 169.00                       | 4.302 | 4.308     | -0.006    | 1.064     | 6527     |                 | 2.44(1.25-3.76) |      | 16.8  |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 713.00 > 169.00                       | 4.546 | 4.544     | 0.002     | 1.000     | 8056     | 0.0254          |                 |      | 45.8  |       |
| 713.00 > 219.00                       | 4.546 | 4.544     | 0.002     | 1.000     | 4166     |                 | 1.93(0.71-2.13) |      | 26.7  |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 715.00 > 670.00                       | 4.546 | 4.552     | -0.006    | 1.686     | 2950933  | 2.15            |                 | 85.9 | 21654 |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 815.00 > 770.00                       | 4.961 | 4.965     | -0.004    | 1.840     | 4960718  | 1.89            |                 | 75.7 | 18115 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                 |      |       |       |
| 813.00 > 769.00                       | 4.961 | 4.968     | -0.007    | 1.000     | 52114    | NC              |                 |      | 30.3  |       |
| 813.00 > 169.00                       | 4.961 | 4.968     | -0.007    | 1.000     | 8774     |                 | 5.94(2.86-8.58) |      | 53.7  |       |

**QC Flag Legend**

## Processing Flags

NC - Not Calibrated

E - Exceeded Maximum Amount

## Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_065.d

Injection Date: 06-Jun-2018 23:34:21

Instrument ID: A8\_N

Lims ID: 320-39023-A-41-A

Lab Sample ID: 320-39023-41

Client ID: KLA06-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

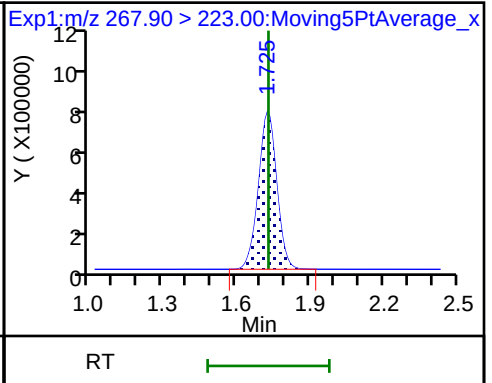
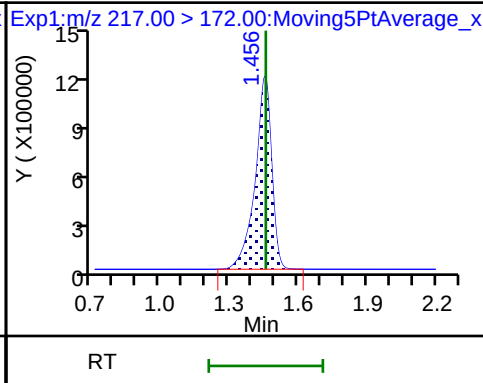
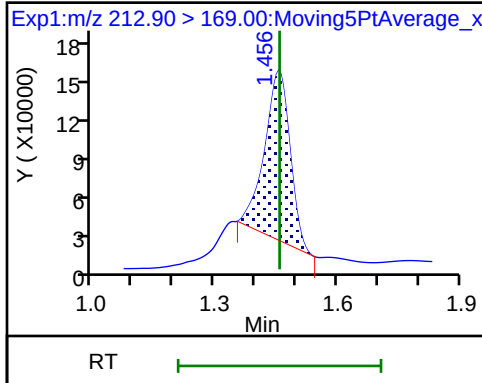
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid (M)

## D 1 13C4 PFBA

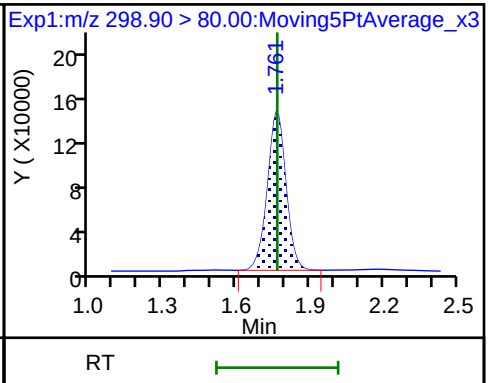
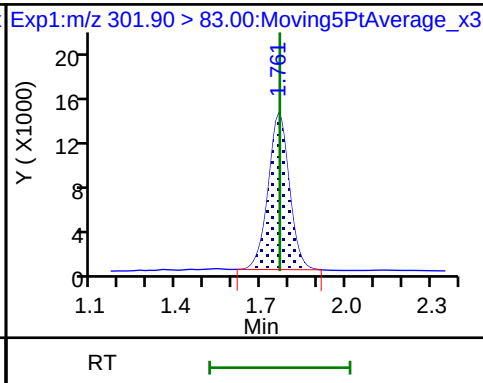
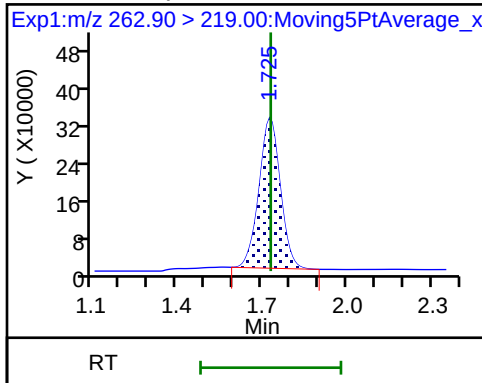
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

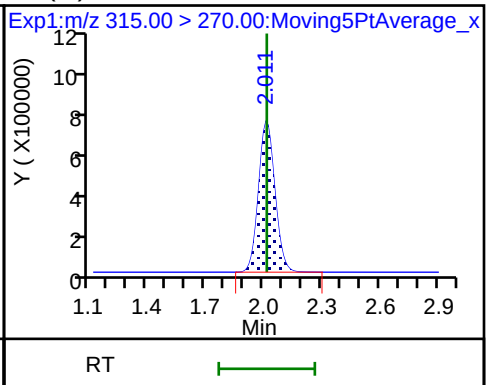
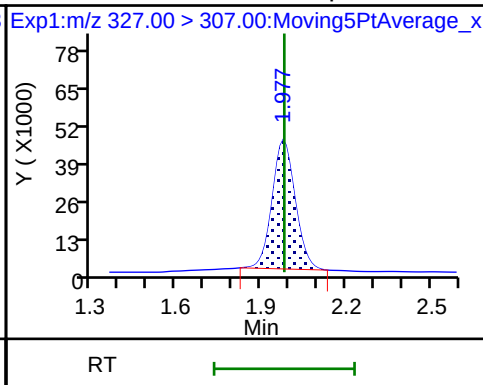
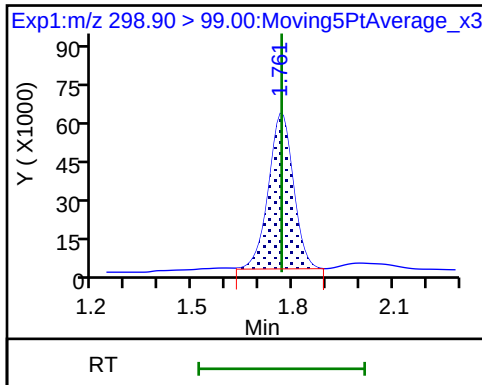
## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

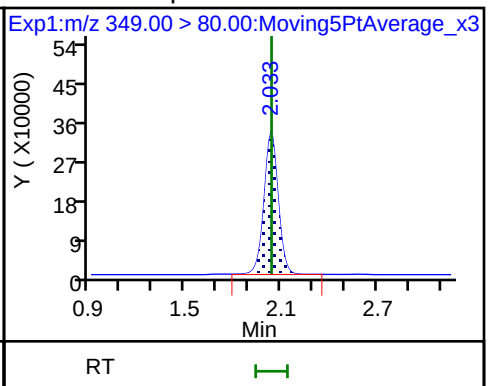
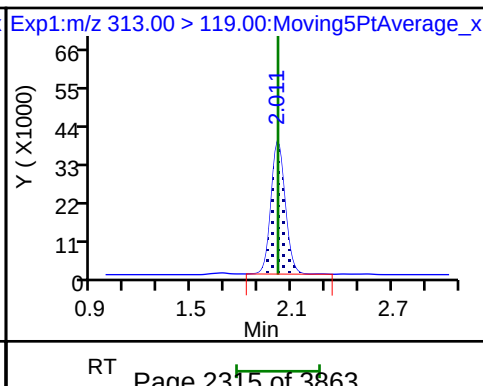
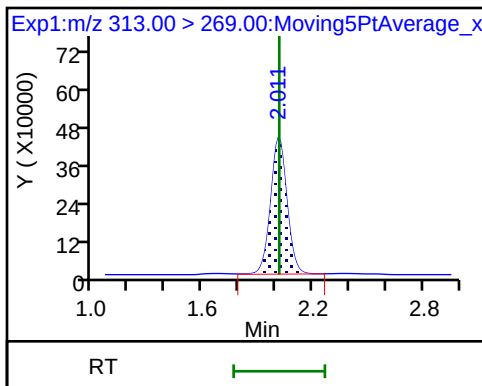
## 61 Sodium 1H,1H,2H,2H-perfluorohexa-De (M)BC2 PFHxA



## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

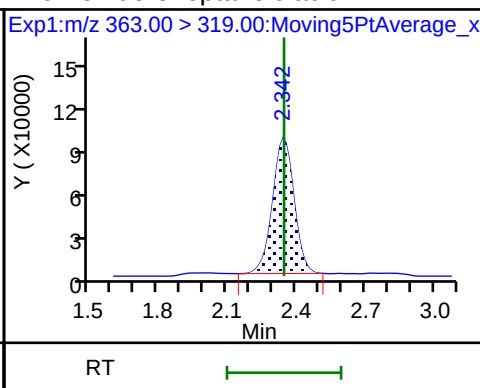
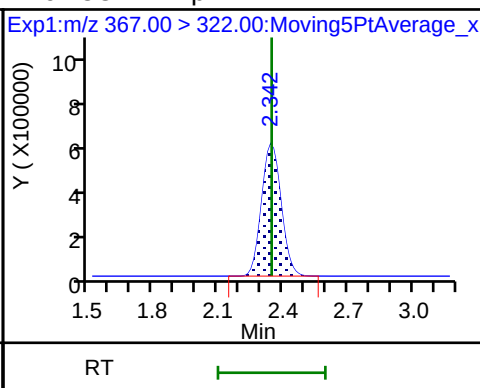
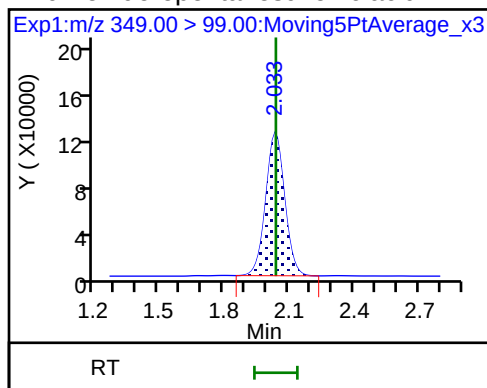
## 70 Perfluoropentanesulfonic acid



70 Perfluoropentanesulfonic acid

D 9 13C4-PFHpA

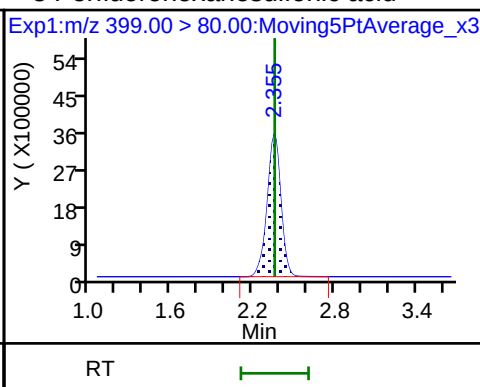
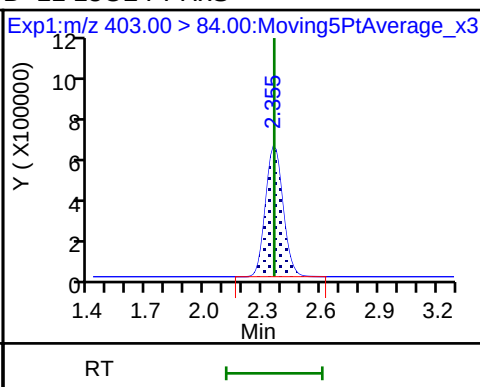
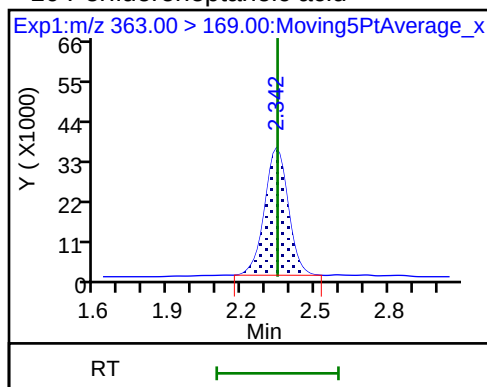
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

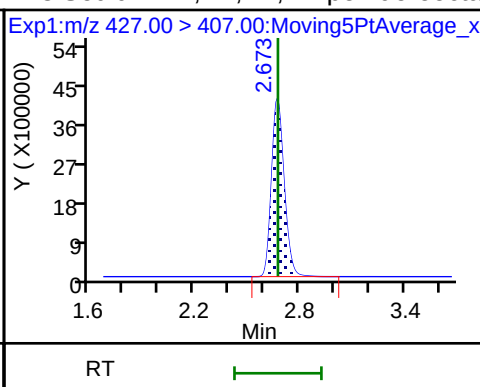
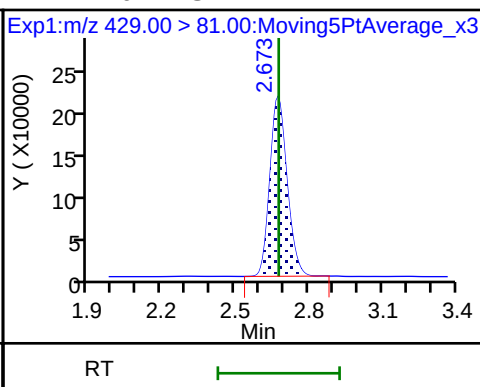
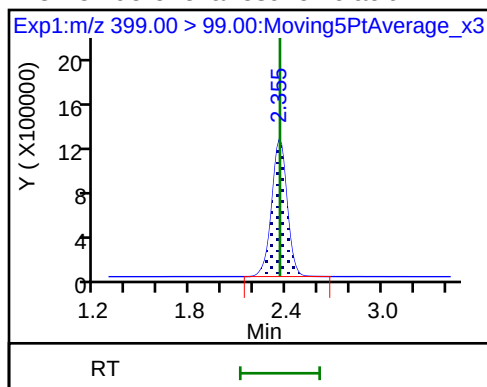
8 Perfluorohexanesulfonic acid



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

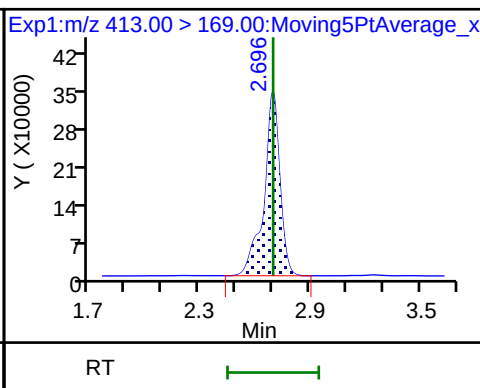
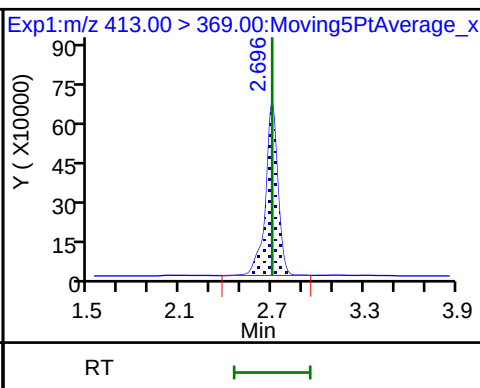
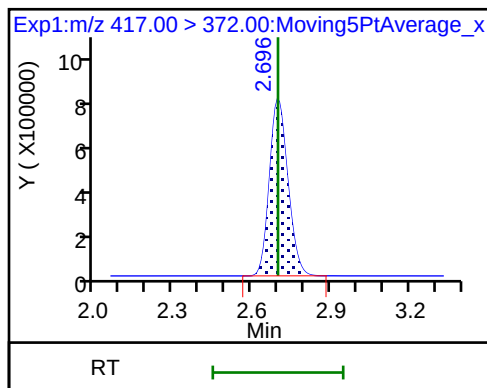
13 Sodium 1H,1H,2H,2H-perfluorooctane



D 14 13C4 PFOA

15 Perfluorooctanoic acid

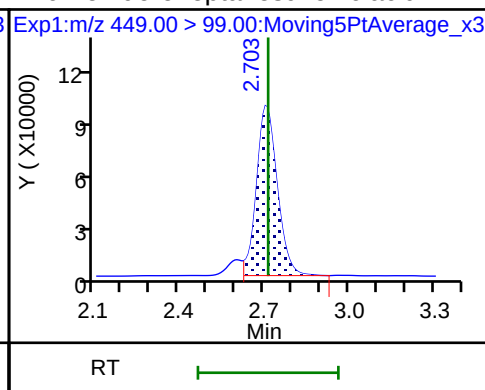
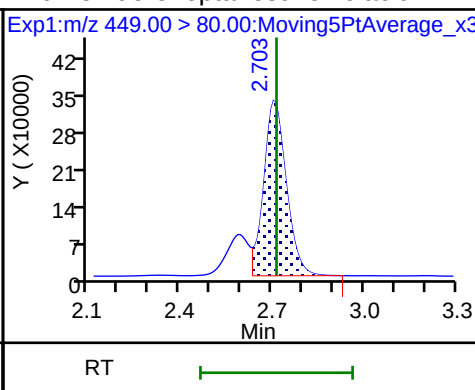
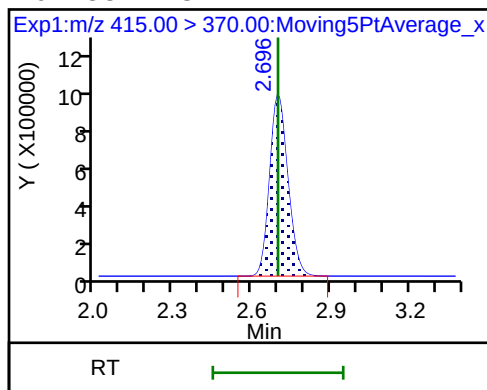
15 Perfluorooctanoic acid



## \* 62 13C2-PFOA

## 16 Perfluoroheptanesulfonic acid

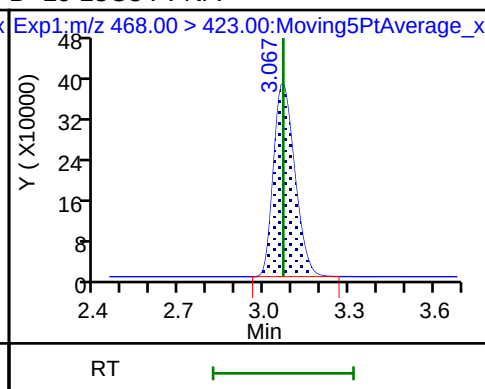
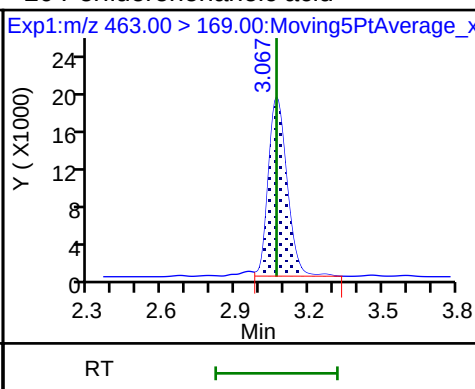
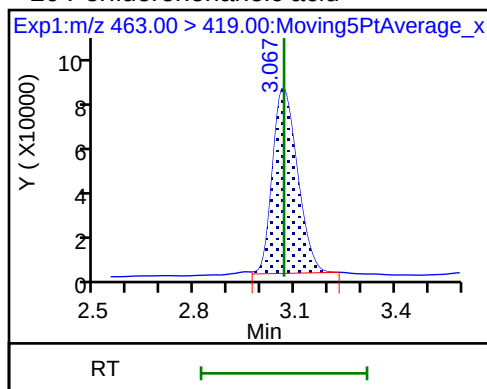
## 16 Perfluoroheptanesulfonic acid



## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

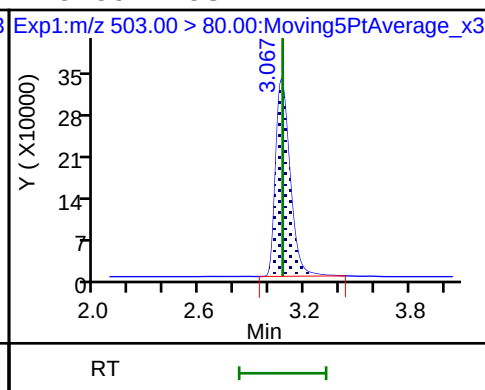
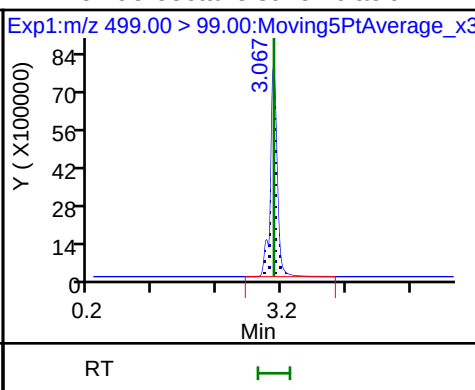
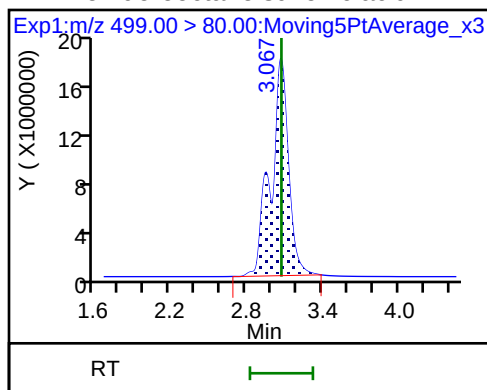
## D 19 13C5 PFNA



## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

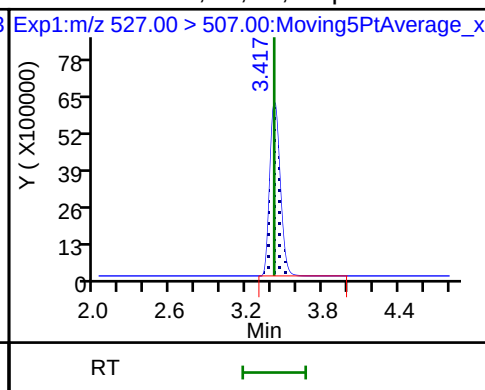
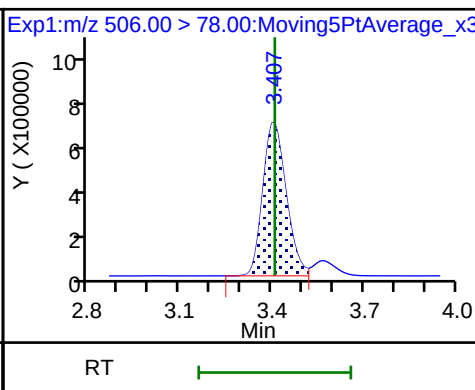
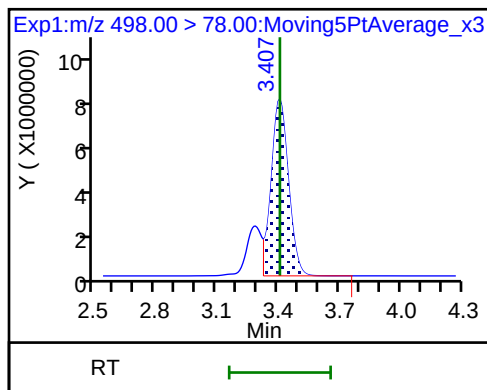
## D 18 13C4 PFOS



## 22 Perfluorooctane Sulfonamide

## D 21 13C8 FOSA

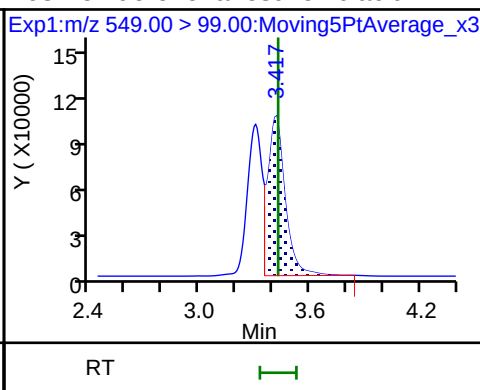
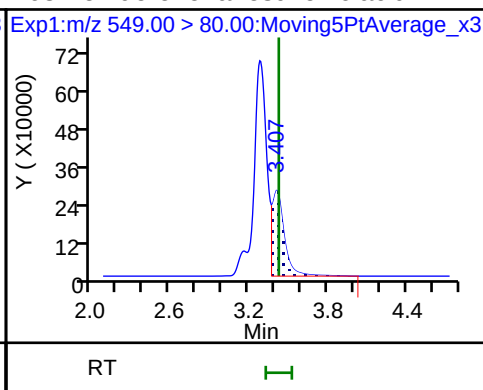
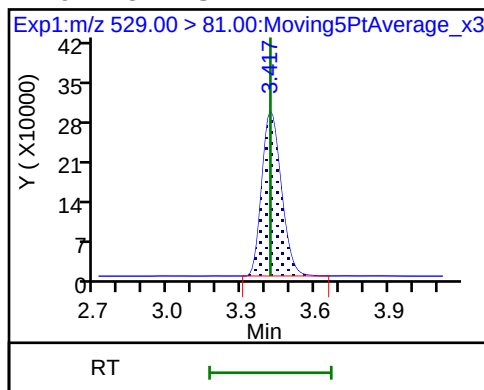
## 25 Sodium 1H,1H,2H,2H-perfluorodecane



D 26 M2-8:2FTS

68 Perfluorononanesulfonic acid

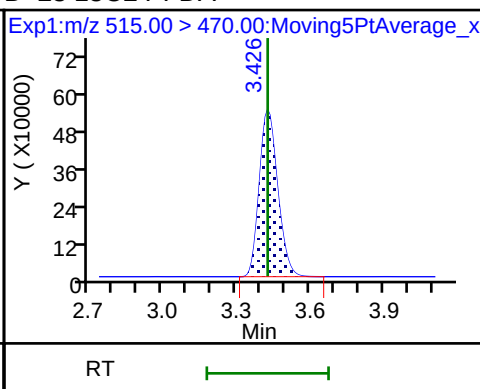
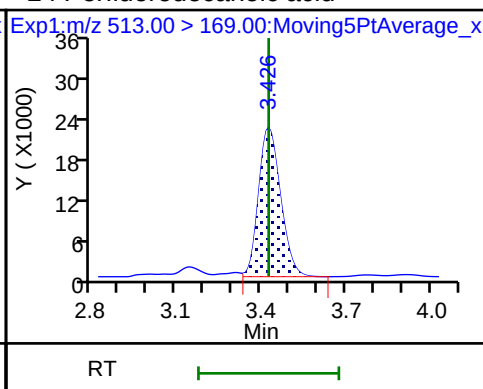
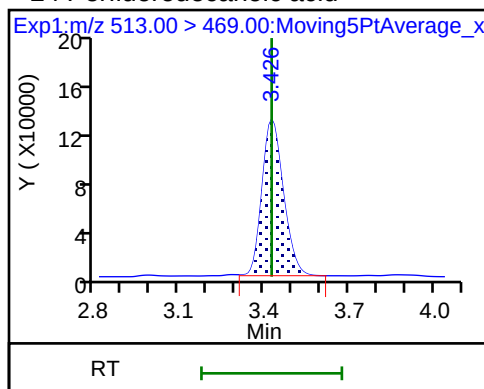
68 Perfluorononanesulfonic acid



24 Perfluorodecanoic acid

24 Perfluorodecanoic acid

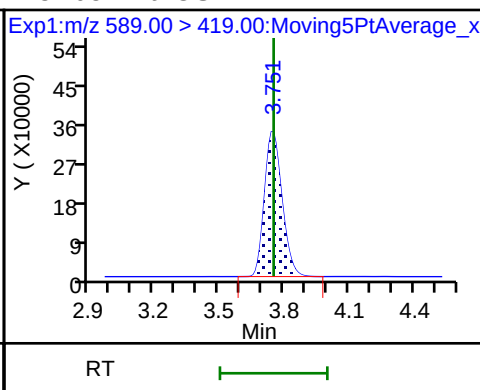
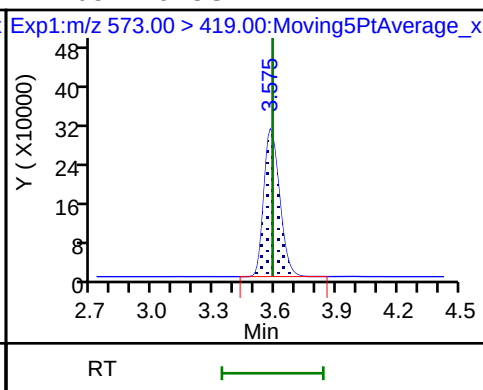
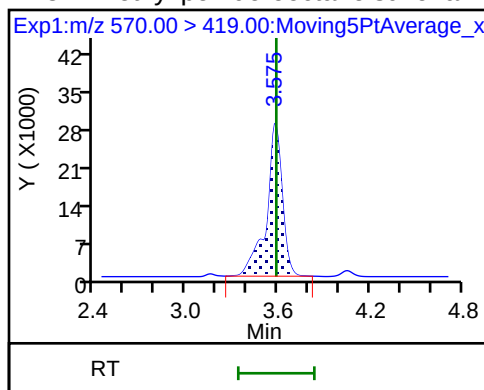
D 23 13C2 PFDA



28 N-methyl perfluorooctane sulfonamid

D 27 d3-NMeFOSAA

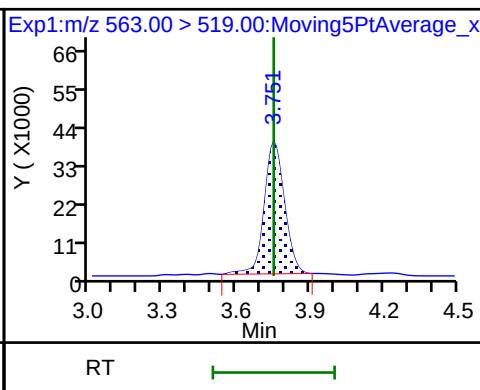
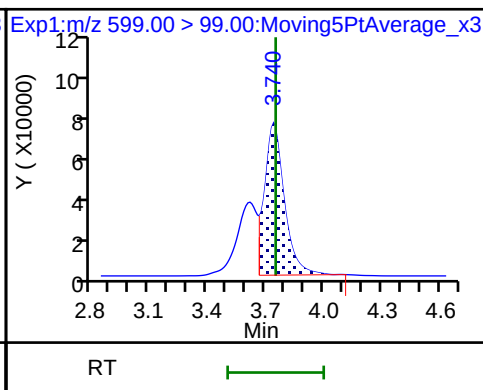
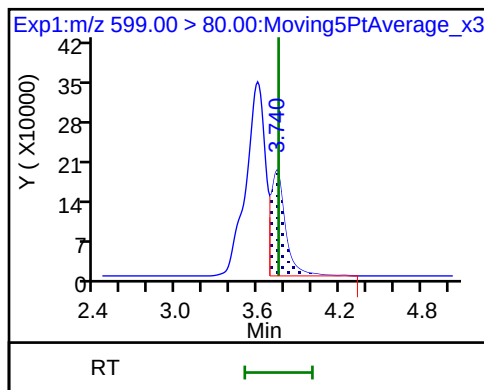
D 32 d5-NEtFOSAA



29 Perfluorodecane Sulfonic acid

29 Perfluorodecane Sulfonic acid

31 Perfluoroundecanoic acid



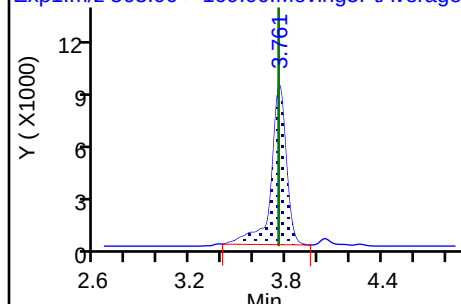


## 31 Perfluoroundecanoic acid

## 33 N-ethyl perfluorooctane sulfonamid D

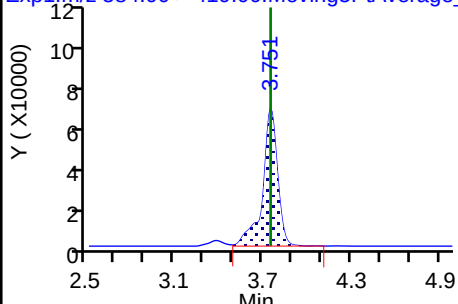
## 30 13C2 PFUnA

Exp1:m/z 563.00 &gt; 169.00:Moving5PtAverage\_x



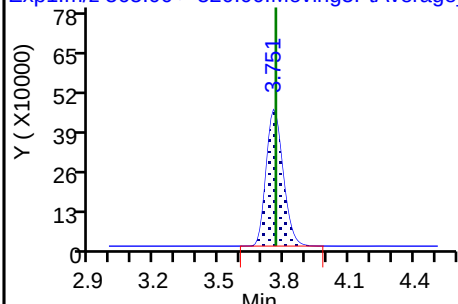
RT

Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x



RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x



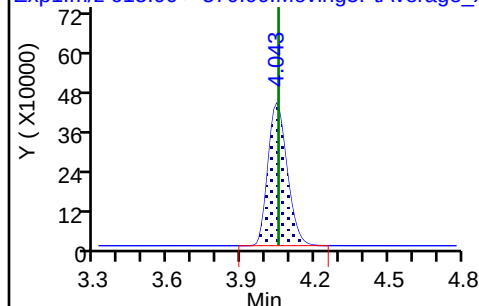
RT

## D 36 13C2 PFDaA

## 37 Perfluorododecanoic acid

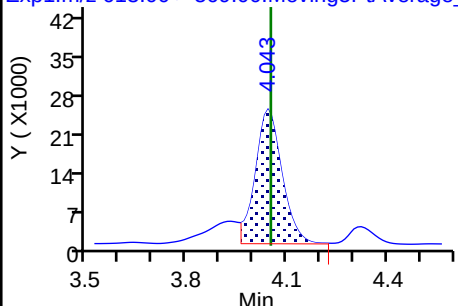
## 37 Perfluorododecanoic acid

Exp1:m/z 615.00 &gt; 570.00:Moving5PtAverage\_x



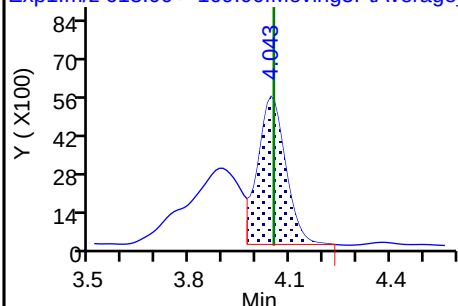
RT

Exp1:m/z 613.00 &gt; 569.00:Moving5PtAverage\_x



RT

Exp1:m/z 613.00 &gt; 169.00:Moving5PtAverage\_x



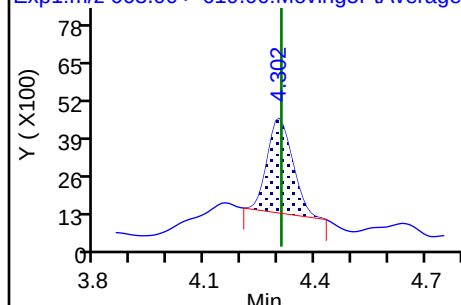
RT

## 41 Perfluorotridecanoic acid

## 41 Perfluorotridecanoic acid

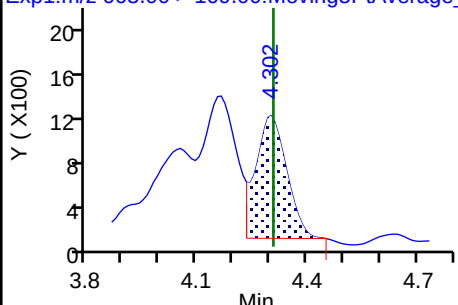
## 42 Perfluorotetradecanoic acid

Exp1:m/z 663.00 &gt; 619.00:Moving5PtAverage\_x



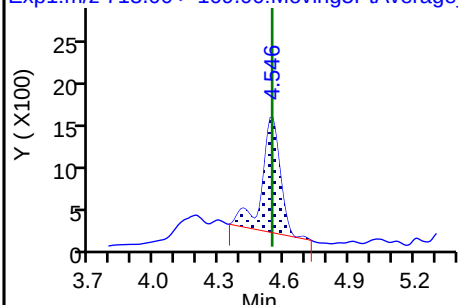
RT

Exp1:m/z 663.00 &gt; 169.00:Moving5PtAverage\_x



RT

Exp1:m/z 713.00 &gt; 169.00:Moving5PtAverage\_x



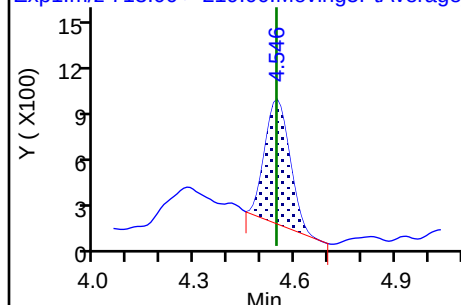
RT

## 42 Perfluorotetradecanoic acid

## D 43 13C2-PFTeDA

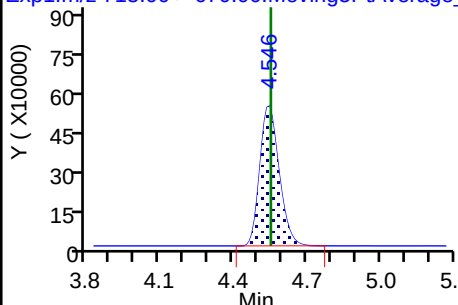
## D 44 13C2-PFHxDA

Exp1:m/z 713.00 &gt; 219.00:Moving5PtAverage\_x



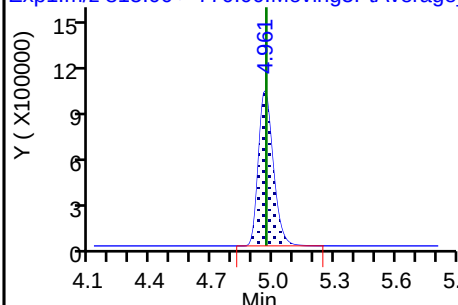
RT

Exp1:m/z 715.00 &gt; 670.00:Moving5PtAverage\_x



RT

Exp1:m/z 815.00 &gt; 770.00:Moving5PtAverage\_x



RT



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA06-SB2-01 DL</u> | Lab Sample ID: <u>320-39023-41 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_015.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/01/2018 13:45</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.94(g)</u>            | Date Analyzed: <u>05/29/2018 12:49</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>36.5</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q           | LOQ | LOD | DL   |
|-----------|--------------------------------------|--------|-------------|-----|-----|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.2    | J D<br>J1   | 4.8 | 3.2 | 1.2  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 6.7    | D J1        | 4.8 | 3.2 | 1.6  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.6    | J D         | 4.8 | 3.2 | 1.3  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1.0    | J D<br>J1   | 6.4 | 2.9 | 0.94 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 44     | D J1        | 4.8 | 3.2 | 0.99 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 860    | E D M<br>J1 | 16  | 8.0 | 3.8  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 67   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 80   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 85   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 77   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 74   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 64   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_015.d  
 Lims ID: 320-39023-A-41-A  
 Client ID: KLA06-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 12:49:14 ALS Bottle#: 13 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-a-41-a 10X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:20:50 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:20:50

| Signal                                | RT              | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-----------------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         | 217.00 > 172.00 | 1.458  | 1.457  | 0.001  | 1.000    | 553682       | 0.1808            | 72.3 | 3243  |       |
| 2 Perfluorobutyric acid               | 212.90 > 169.00 | 1.458  | 1.463  | -0.005 | 1.000    | 88008        | 0.0427            |      | 25.6  | M     |
| D 3 13C5-PFPeA                        | 267.90 > 223.00 | 1.729  | 1.728  | 0.001  | 0.561    | 373287       | 0.1902            | 76.1 | 5562  |       |
| 4 Perfluoropentanoic acid             | 262.90 > 219.00 | 1.729  | 1.729  | 0.0    | 1.000    | 172522       | 0.0979            |      | 106   |       |
| D 47 13C3-PFBS                        | 301.90 > 83.00  | 1.765  | 1.764  | 0.001  | 1.000    | 6920         | 0.1560            | 67.1 | 64.9  |       |
| 5 Perfluorobutanesulfonic acid        | 298.90 > 80.00  | 1.765  | 1.774  | -0.009 | 1.000    | 74280        | 0.0320            |      | 263   |       |
|                                       | 298.90 > 99.00  | 1.765  | 1.774  | -0.009 | 1.000    | 30701        | 2.42(1.25-3.74)   |      | 191   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane | 327.00 > 307.00 | 1.991  | 1.980  | 0.011  | 1.000    | 12757        | 0.0259            |      | 354   |       |
| D 7 13C2 PFHxA                        | 315.00 > 270.00 | 2.025  | 2.014  | 0.011  | 1.000    | 415546       | 0.1986            | 79.4 | 11970 |       |
| 6 Perfluorohexanoic acid              | 313.00 > 269.00 | 2.014  | 2.025  | -0.011 | 0.994    | 264275       | 0.1546            |      | 286   | M     |
|                                       | 313.00 > 119.00 | 2.025  | 2.025  | 0.0    | 1.000    | 22022        | 12.00(5.03-15.10) |      | 236   | M     |
| 70 Perfluoropentanesulfonic acid      | 349.00 > 80.00  | 2.037  | 2.048  | -0.011 | 1.000    | 202489       | 0.0978            |      | 1772  |       |
|                                       | 349.00 > 99.00  | 2.037  | 2.048  | -0.011 | 1.000    | 70146        | 2.89(1.36-4.07)   |      | 1155  |       |
| D 64 13C3 HFPO-DA                     | 332.10 > 287.00 | 2.127  | 2.115  | 0.012  | 1.000    | 20687        | NC                |      | 468   |       |
| D 9 13C4-PFHpA                        | 367.00 > 322.00 | 2.358  | 2.345  | 0.013  | 1.000    | 399073       | 0.1990            | 79.6 | 8151  |       |
| D 11 18O2 PFHxS                       | 403.00 > 84.00  | 2.372  | 2.358  | 0.014  | 1.000    | 432546       | 0.1746            | 73.8 | 11925 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 62231    | 0.0369       |                 |      | 68.4  |       |
| 363.00 > 169.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 23726    |              | 2.62(1.13-3.40) |      | 87.2  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.372 | 2.372  | 0.0    | 1.000  | 2812186  | 1.36         |                 |      | 7959  |       |
| 399.00 > 99.00                        | 2.372 | 2.372  | 0.0    | 1.000  | 876693   |              | 3.21(1.50-4.49) |      | 4282  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.689 | 2.682  | 0.007  | 1.000  | 84156    | 0.1901       |                 | 80.1 | 1116  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.682 | 2.689  | -0.007 | 0.997  | 1713843  | 2.75         |                 |      | 18611 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.712 | 2.704  | 0.008  | 1.000  | 401236   | 0.2116       |                 | 84.6 | 12136 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.712 | 2.712  | 0.0    |        | 500756   | 0.2500       |                 |      | 8843  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.712 | 2.712  | 0.0    | 1.000  | 396806   | 0.2101       |                 |      | 155   |       |
| 413.00 > 169.00                       | 2.712 | 2.712  | 0.0    | 1.000  | 231215   |              | 1.72(0.84-2.52) |      | 750   |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.719 | 2.719  | 0.0    | 1.000  | 190584   | 0.1312       |                 |      | 314   | M     |
| 449.00 > 99.00                        | 2.719 | 2.719  | 0.0    | 1.000  | 49145    |              | 3.88(1.94-5.82) |      | 516   | M     |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.084 | 3.072  | 0.012  | 1.000  | 297717   | 0.1919       |                 | 76.8 | 7758  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.076 | 3.072  | 0.004  | 1.000  | 260699   | 0.1531       |                 | 64.0 | 1763  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.084 | 3.081  | 0.003  | 1.000  | 62215    | 0.0493       |                 |      | 185   |       |
| 463.00 > 169.00                       | 3.084 | 3.081  | 0.003  | 1.000  | 13982    |              | 4.45(1.90-5.69) |      | 285   |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.084 | 3.081  | 0.003  | 1.003  | 34516842 | 26.9         |                 |      | 54238 | EM    |
| 499.00 > 99.00                        | 3.076 | 3.081  | -0.005 | 1.000  | 8723370  |              | 3.96(2.31-6.93) |      | 48133 | EM    |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.411 | 3.407  | 0.004  | 1.000  | 360350   | 0.1617       |                 | 64.7 | 688   |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.411 | 3.417  | -0.006 | 1.000  | 5949740  | 4.24         |                 |      | 333   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.430 | 3.426  | 0.004  | 1.000  | 97832    | 0.1942       |                 | 81.1 | 1362  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.430 | 3.426  | 0.004  | 1.000  | 155530   | 0.1882       |                 |      | 22.2  |       |
| 549.00 > 99.00                        | 3.421 | 3.426  | -0.005 | 0.997  | 71823    |              | 2.17(1.33-3.97) |      | 69.4  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.439 | 3.435  | 0.004  | 1.000  | 298398   | 0.2262       |                 | 90.5 | 8290  |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.430 | 3.436  | -0.006 | 1.000  | 2300687  | 4.17         |                 |      | 55625 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.439 | 3.445  | -0.006 | 1.000  | 66774    | 0.0575       |                 |      | 253   |       |
| 513.00 > 169.00                       | 3.449 | 3.445  | 0.004  | 1.003  | 15380    |              | 4.34(2.36-7.09) |      | 225   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.590 | 3.586  | 0.004  | 1.000  | 151068   | 0.2076       |                 | 83.0 | 2812  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                 |      |      | M     |
| 570.00 > 419.00                       | 3.600 | 3.608     | -0.008    | 1.003     | 17561    | 0.0286          |                 |      | 185  | M     |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                 |      |      |       |
| 599.00 > 80.00                        | 3.753 | 3.751     | 0.002     | 1.000     | 99461    | 0.1358          |                 |      | 18.8 |       |
| 599.00 > 99.00                        | 3.743 | 3.751     | -0.008    | 0.997     | 52670    |                 | 1.89(1.39-4.16) |      | 128  |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |      |      |       |
| 589.00 > 419.00                       | 3.764 | 3.761     | 0.003     | 1.000     | 161242   | 0.2159          |                 | 86.3 | 2719 |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |      |      |       |
| 565.00 > 520.00                       | 3.774 | 3.761     | 0.013     | 1.000     | 225318   | 0.2156          |                 | 86.3 | 8397 |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |      |      |       |
| 563.00 > 519.00                       | 3.764 | 3.772     | -0.008    | 0.997     | 16361    | 0.0217          |                 |      | 71.3 |       |
| 563.00 > 169.00                       | 3.764 | 3.772     | -0.008    | 0.997     | 4421     |                 | 3.70(2.12-6.36) |      | 100  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |      |      |       |
| 584.00 > 419.00                       | 3.764 | 3.772     | -0.008    | 1.000     | 35867    | 0.0592          |                 |      | 407  |       |
| 35 MeFOSA                             |       |           |           |           |          |                 |                 |      |      |       |
| 512.00 > 169.00                       | 3.910 | 3.875     | 0.035     |           | 8149     | NC              |                 |      | 64.9 |       |
| D 36 13C2 PFDoA                       |       |           |           |           |          |                 |                 |      |      |       |
| 615.00 > 570.00                       | 4.062 | 4.061     | 0.001     | 1.000     | 228324   | 0.2031          |                 | 81.2 | 3329 |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |      |      |       |
| 715.00 > 670.00                       | 4.563 | 4.553     | 0.010     | 1.000     | 303501   | 0.2199          |                 | 88.0 | 3856 |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |      |      |       |
| 815.00 > 770.00                       | 4.975 | 4.966     | 0.009     | 1.000     | 555387   | 0.2371          |                 | 94.8 | 3845 |       |

**QC Flag Legend**

## Processing Flags

NC - Not Calibrated

E - Exceeded Maximum Amount

## Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_015.d

Injection Date: 29-May-2018 12:49:14

Instrument ID: A8\_N

Lims ID: 320-39023-A-41-A

Lab Sample ID:

Client ID: KLA06-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

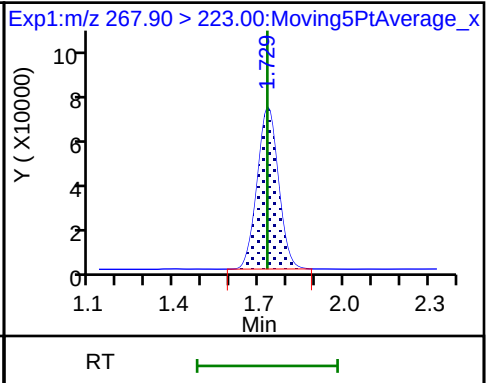
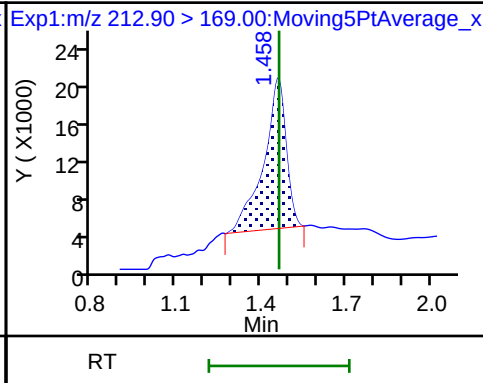
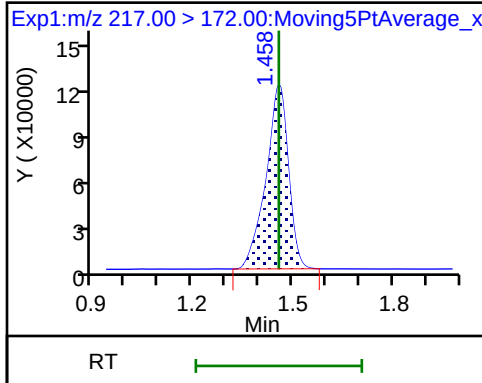
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

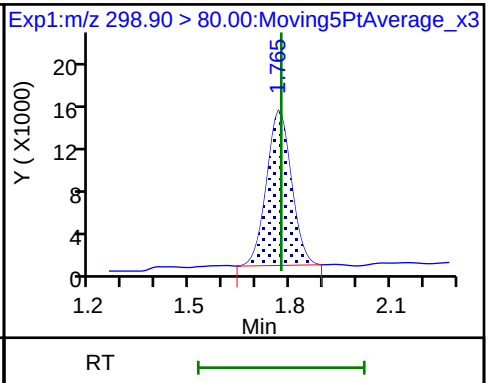
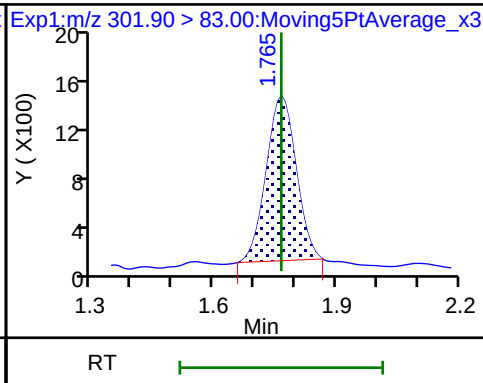
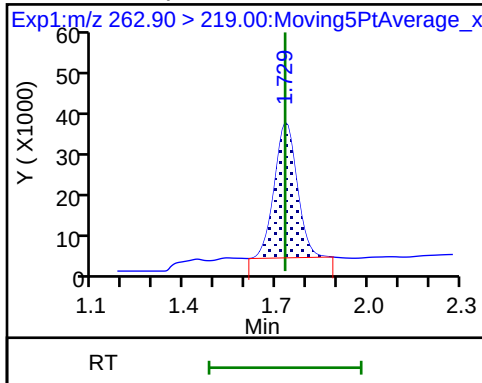
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

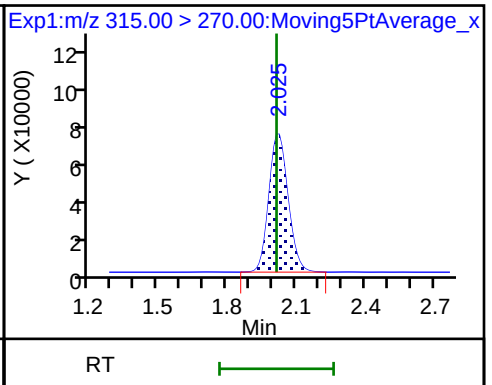
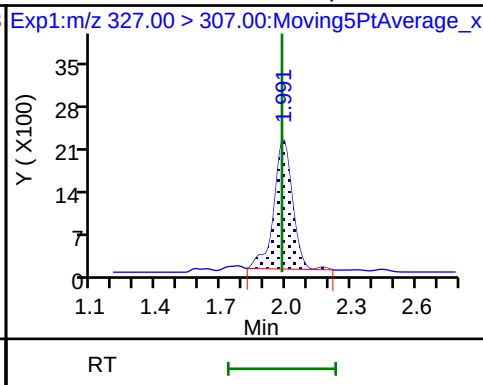
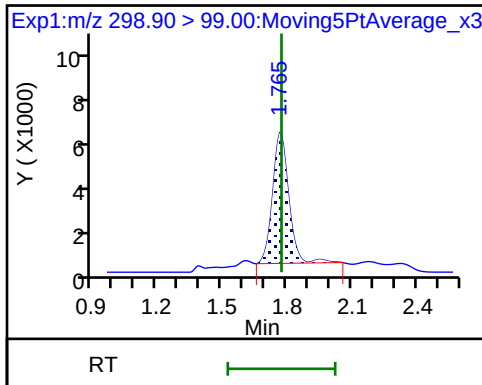
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

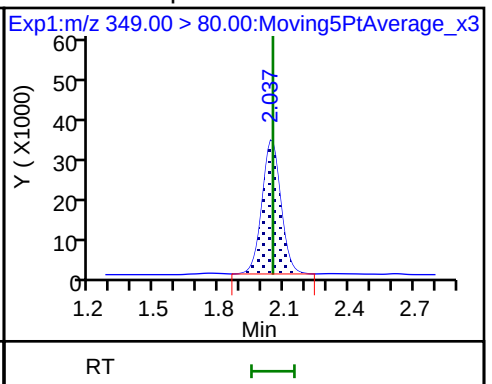
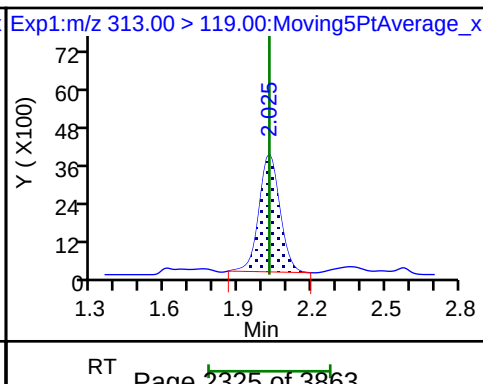
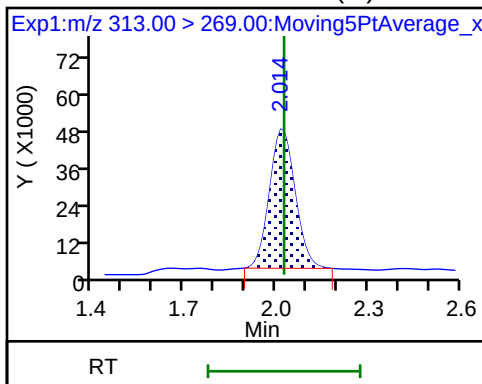
De 7 13C2 PFHxA



6 Perfluorohexanoic acid (M)

6 Perfluorohexanoic acid

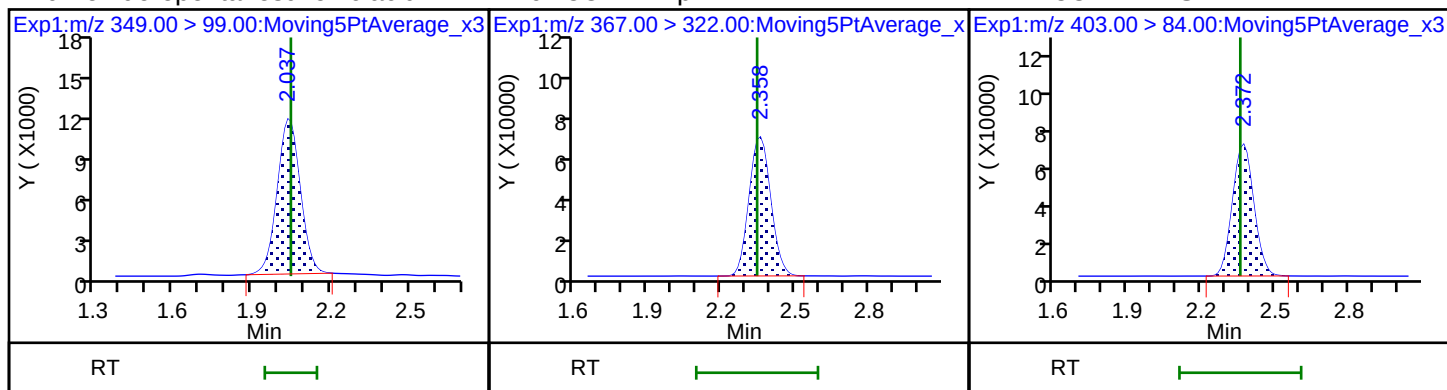
70 Perfluoropentanesulfonic acid



70 Perfluoropentanesulfonic acid

D 9 13C4-PFHpA

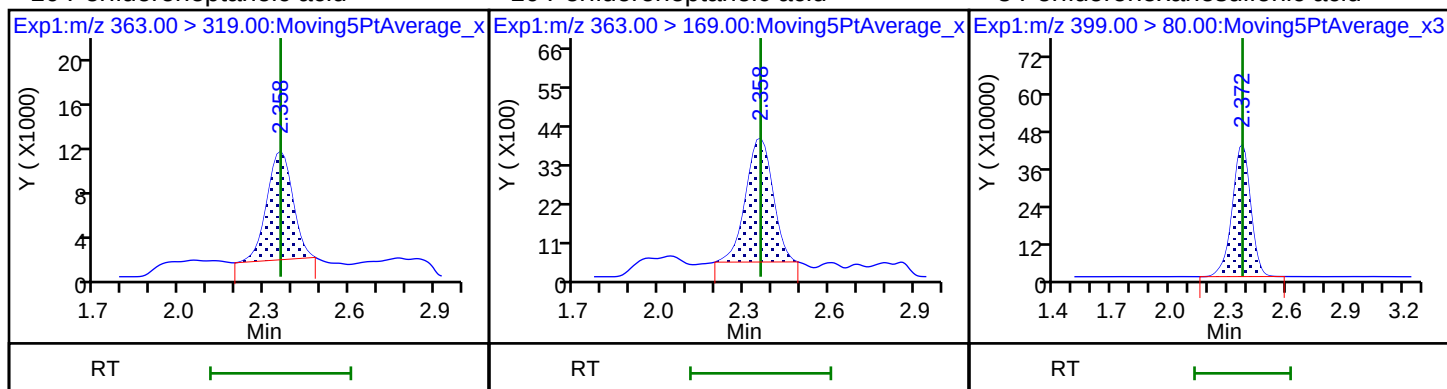
D 11 18O2 PFHxS



10 Perfluoroheptanoic acid

10 Perfluoroheptanoic acid

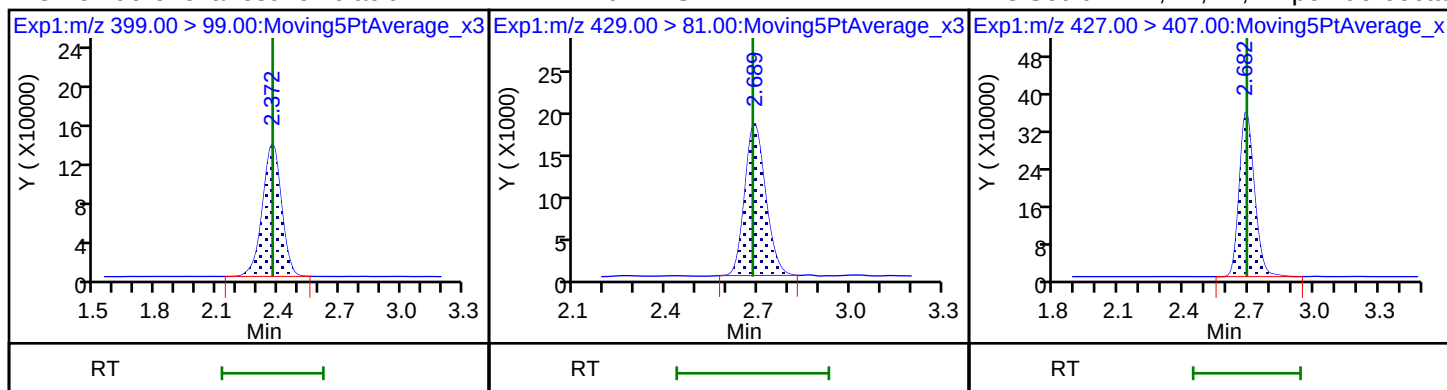
8 Perfluorohexanesulfonic acid



8 Perfluorohexanesulfonic acid

D 12 M2-6:2FTS

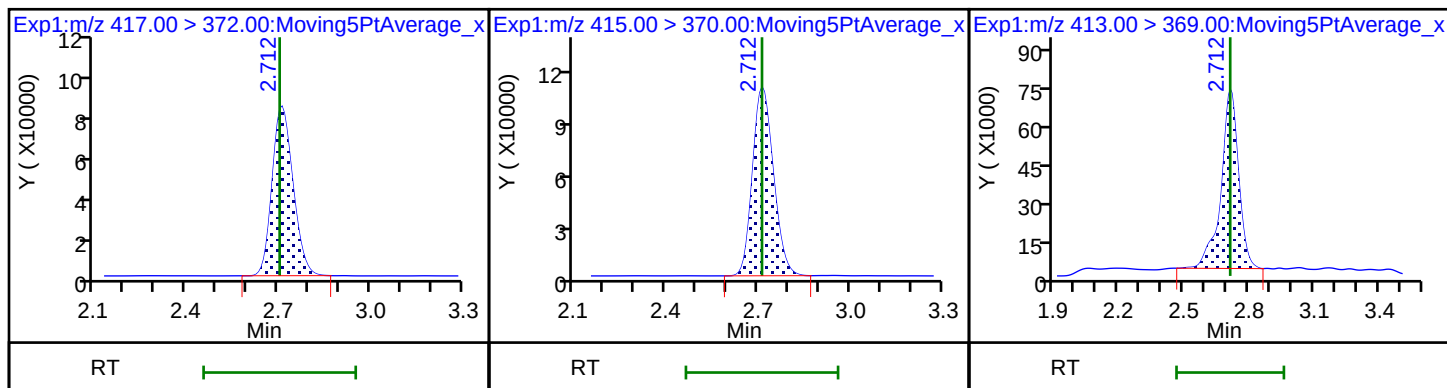
13 Sodium 1H,1H,2H,2H-perfluorooctane



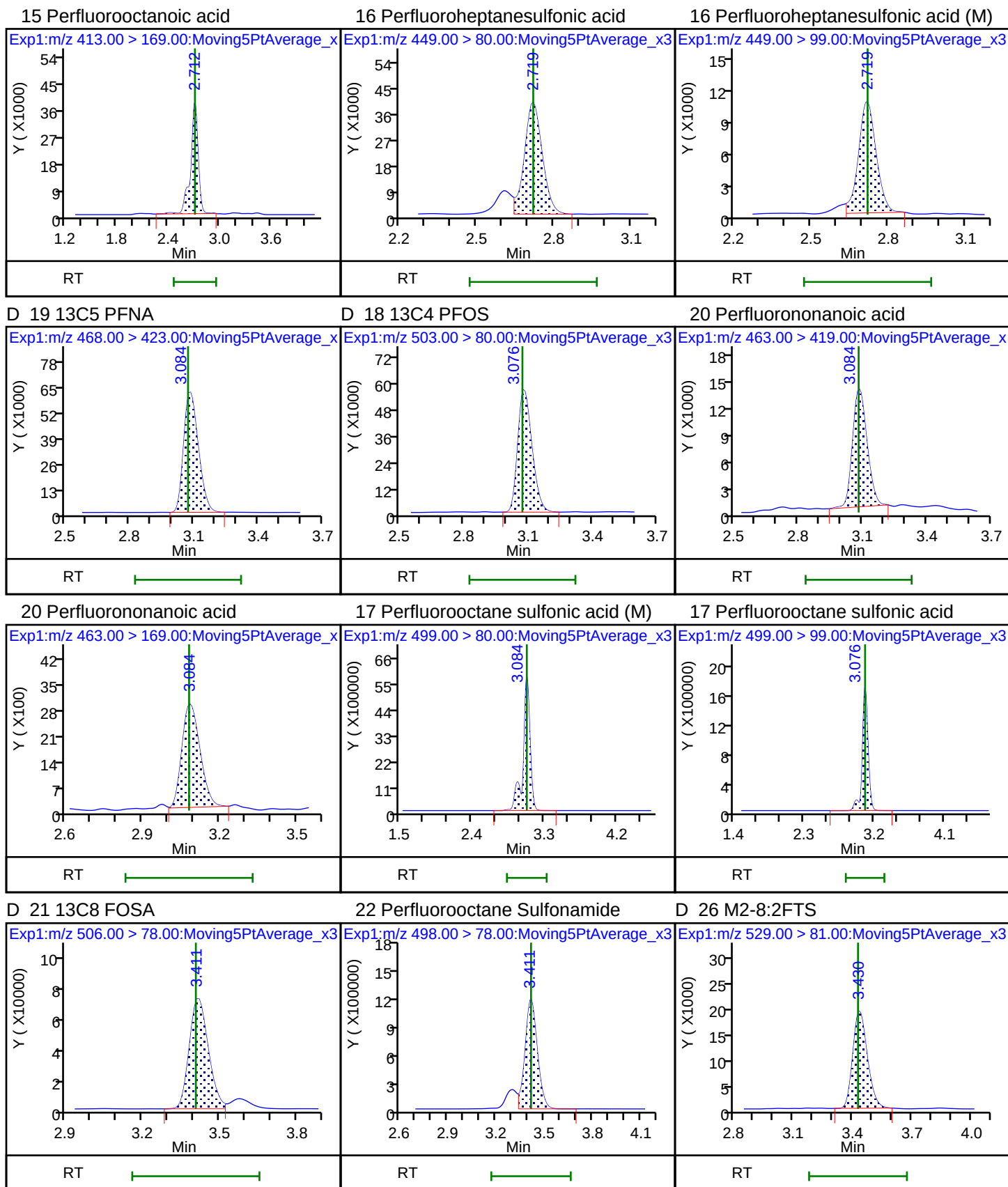
D 14 13C4 PFOA

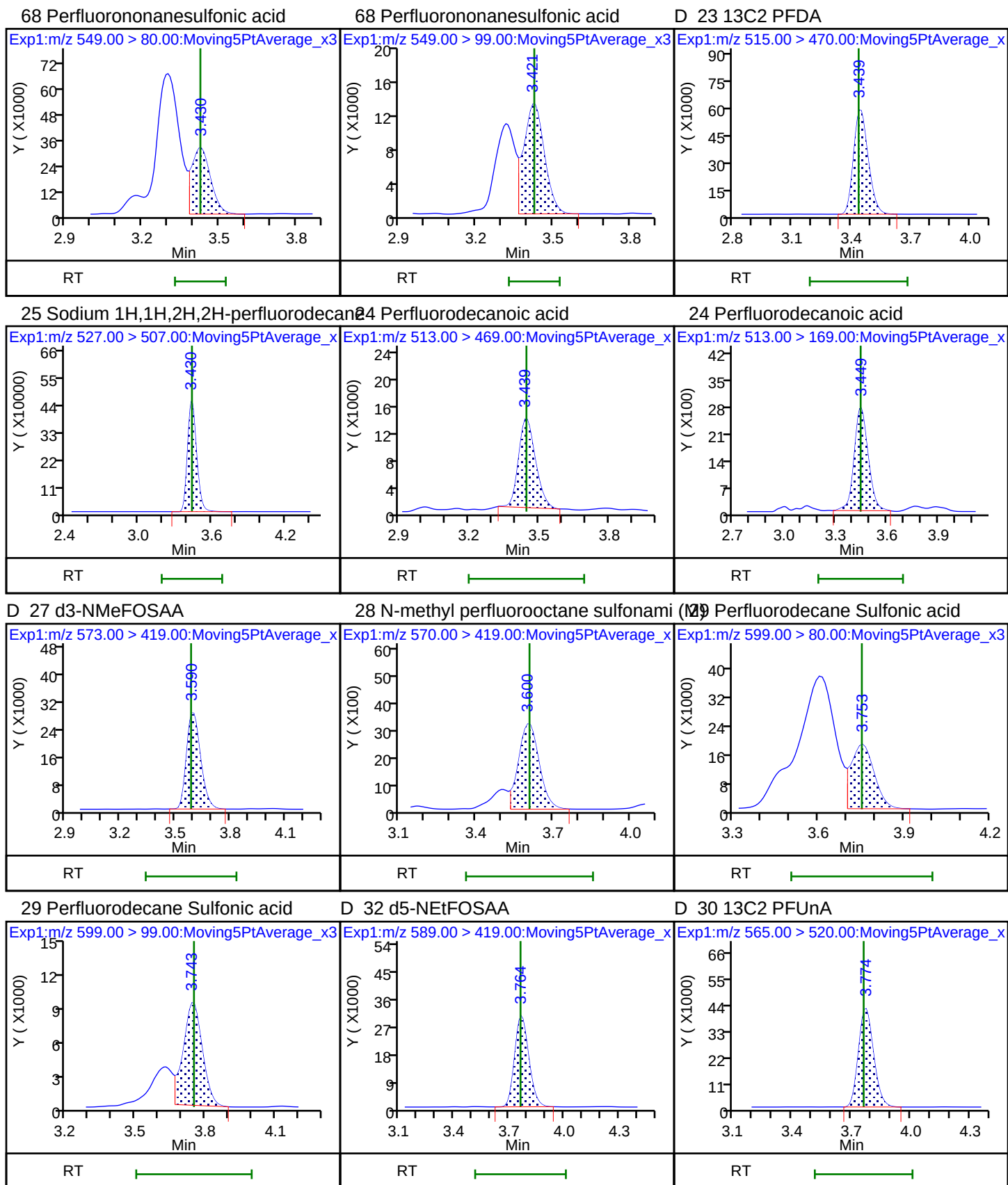
\* 62 13C2-PFOA

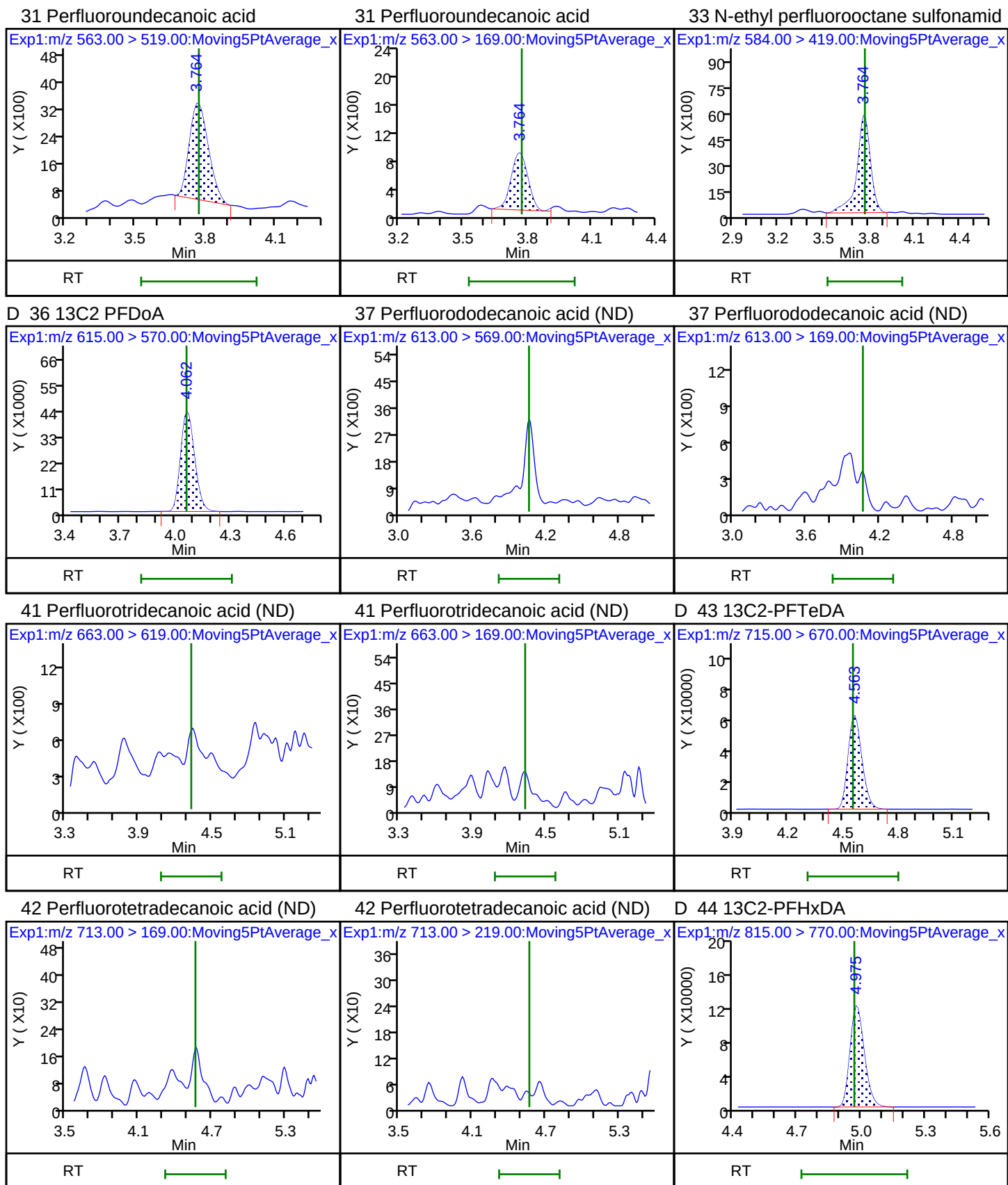
15 Perfluorooctanoic acid













## TestAmerica Sacramento

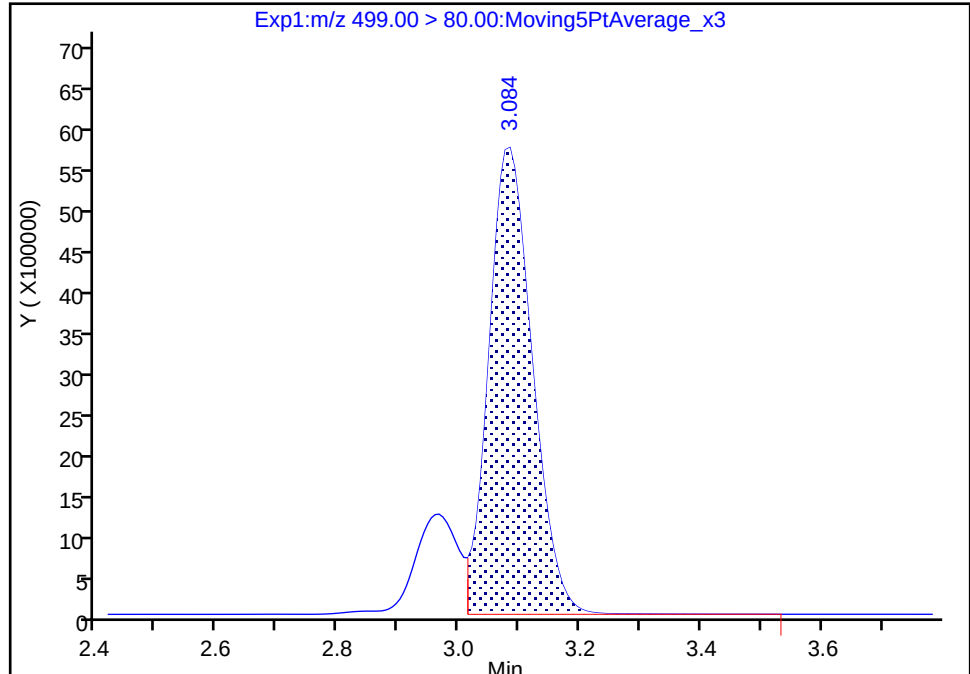
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_015.d |                |                    |
| Injection Date: | 29-May-2018 12:49:14                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-41-A                                                         | Lab Sample ID: |                    |
| Client ID:      | KLA06-SB2-01                                                             |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 13                 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 10.0000            |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 15                 |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

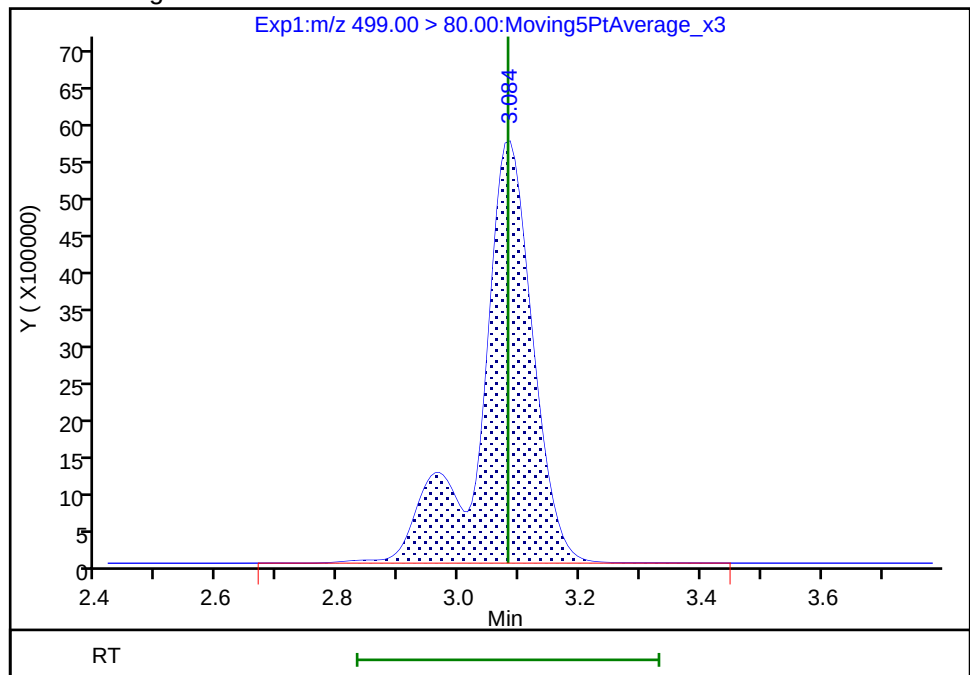
RT: 3.08  
Area: 28445993  
Amount: 22.179318  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 34516842  
Amount: 26.912754  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:20:04

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA06-SB2-01 DL2</u> | Lab Sample ID: <u>320-39023-41 DL2</u>       |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_009.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/01/2018 13:45</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.94(g)</u>             | Date Analyzed: <u>05/29/2018 12:02</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>36.5</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q         | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----------|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 32     | U         | 48  | 32  | 12  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 32     | U         | 48  | 32  | 16  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 32     | U         | 48  | 32  | 13  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 29     | U         | 64  | 29  | 9.4 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 39     | J D<br>J1 | 48  | 32  | 9.9 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 960    | D M<br>J1 | 160 | 80  | 38  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 66   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 81   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 74   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 60   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_009.d  
 Lims ID: 320-39023-A-41-A  
 Client ID: KLA06-SB2-01  
 Sample Type: Client  
 Inject. Date: 29-May-2018 12:02:12 ALS Bottle#: 7 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-41-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:11:38 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:11:38

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

D 1 13C4 PFBA

217.00 > 172.00 1.458 1.457 0.001 1.000 49602 0.0155 62.0 302

2 Perfluorobutyric acid

212.90 > 169.00 1.464 1.463 0.001 1.004 11361 0.006158 4.0

D 3 13C5-PFPeA

267.90 > 223.00 1.730 1.728 0.002 0.562 38359 0.0187 74.8 564

4 Perfluoropentanoic acid

262.90 > 219.00 1.730 1.729 0.001 1.000 18389 0.0102 11.9

D 47 13C3-PFBS

301.90 > 83.00 1.766 1.764 0.002 1.000 737 0.0159 68.4 6.6 M

D 7 13C2 PFHxA

315.00 > 270.00 2.016 2.014 0.002 1.000 32833 0.0150 60.0 512

70 Perfluoropentanesulfonic acid

349.00 > 80.00 2.038 2.048 -0.010 1.000 18872 0.008561 153

349.00 > 99.00 2.038 2.048 -0.010 1.000 7176 2.63(1.36-4.07) 90.2

D 9 13C4-PFHpA

367.00 > 322.00 2.360 2.345 0.015 1.000 34399 0.0164 65.6 695

D 11 18O2 PFHxS

403.00 > 84.00 2.373 2.358 0.015 1.000 43578 0.0168 71.1 1803

8 Perfluorohexanesulfonic acid

399.00 > 80.00 2.373 2.372 0.001 1.000 254382 0.1225 1011

399.00 > 99.00 2.373 2.372 0.001 1.000 86339 2.95(1.50-4.49) 453

D 12 M2-6:2FTS

429.00 > 81.00 2.706 2.682 0.024 1.000 18451 0.0399 168 276

13 Sodium 1H,1H,2H,2H-perfluorooctane

427.00 > 407.00 2.706 2.689 0.017 1.000 328397 0.2306 6157

D 14 13C4 PFOA

417.00 > 372.00 2.713 2.704 0.009 1.000 39943 0.0201 80.6 1054

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.713 | 2.712  | 0.001  |        | 52350    | 0.0250       |                 |      | 1551  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.713 | 2.712  | 0.001  | 1.000  | 50362    | 0.0268       |                 |      | 16.2  |       |
| 413.00 > 169.00                       | 2.713 | 2.712  | 0.001  | 1.000  | 24639    |              | 2.04(0.84-2.52) |      | 71.8  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.721 | 2.719  | 0.002  | 1.000  | 18969    | 0.0134       |                 |      | 138   |       |
| 449.00 > 99.00                        | 2.721 | 2.719  | 0.002  | 1.000  | 5171     |              | 3.67(1.94-5.82) |      | 76.1  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.079 | 3.072  | 0.007  | 1.000  | 30133    | 0.0186       |                 | 74.3 | 1122  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.079 | 3.072  | 0.007  | 1.000  | 25458    | 0.0143       |                 | 59.8 | 170   |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.079 | 3.081  | -0.002 | 1.000  | 8515     | 0.006670     |                 |      | 29.4  |       |
| 463.00 > 169.00                       | 3.071 | 3.081  | -0.010 | 0.997  | 2060     |              | 4.13(1.90-5.69) |      | 44.9  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.079 | 3.081  | -0.002 | 1.000  | 3765631  | 3.01         |                 |      | 12275 | M     |
| 499.00 > 99.00                        | 3.079 | 3.081  | -0.002 | 1.000  | 879097   |              | 4.28(2.31-6.93) |      | 9224  | M     |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.424 | 3.407  | 0.017  | 1.000  | 38293    | 0.0164       |                 | 65.7 | 338   |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.415 | 3.417  | -0.002 | 0.997  | 541607   | 0.3632       |                 |      | 303   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.433 | 3.426  | 0.007  | 1.000  | 6977     | 0.0133       |                 | 55.3 | 129   |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.433 | 3.426  | 0.007  | 1.000  | 16572    | 0.0205       |                 |      | 21.0  | M     |
| 549.00 > 99.00                        | 3.424 | 3.426  | -0.002 | 0.997  | 6535     |              | 2.54(1.33-3.97) |      | 38.8  | M     |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.443 | 3.435  | 0.008  | 1.000  | 27741    | 0.0201       |                 | 80.4 | 802   |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.433 | 3.436  | -0.003 | 1.000  | 180109   | 0.4582       |                 |      | 5084  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.443 | 3.445  | -0.002 | 1.000  | 7358     | 0.006820     |                 |      | 33.5  |       |
| 513.00 > 169.00                       | 3.452 | 3.445  | 0.007  | 1.003  | 1750     |              | 4.20(2.36-7.09) |      | 53.6  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.594 | 3.586  | 0.008  | 1.000  | 15123    | 0.0199       |                 | 79.5 | 192   |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.605 | 3.608  | -0.003 | 1.003  | 3306     | 0.005386     |                 |      | 140   |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.749 | 3.751  | -0.002 | 1.000  | 9203     | 0.0129       |                 |      | 16.2  |       |
| 599.00 > 99.00                        | 3.738 | 3.751  | -0.013 | 0.997  | 2224     |              | 4.14(1.39-4.16) |      | 34.4  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.759 | 3.761  | -0.002 | 1.000  | 16917    | 0.0217       |                 | 86.7 | 260   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.769 | 3.761  | 0.008  | 1.000  | 19157    | 0.0175       |                 | 70.2 | 532   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.769 | 3.772  | -0.003 | 1.003  | 7048     | 0.0111       |                 |      | 134   | M     |



| Signal                               | RT              | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|--------------------------------------|-----------------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| 66 11-Chloroeicosafuoro-3-oxaundecan | 631.00 > 451.00 | 3.936     | 3.930     | 0.006     | 1.000    | 3303            | NC            |      | 54.6 |       |
| D 36 13C2 PFDaA                      | 615.00 > 570.00 | 4.059     | 4.061     | -0.002    | 1.000    | 21867           | 0.0186        | 74.4 | 260  |       |
| D 43 13C2-PFTeDA                     | 715.00 > 670.00 | 4.561     | 4.553     | 0.008     | 1.000    | 28135           | 0.0195        | 78.0 | 328  |       |
| D 44 13C2-PFHxDA                     | 815.00 > 770.00 | 4.982     | 4.966     | 0.016     | 1.000    | 52076           | 0.0213        | 85.1 | 285  |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_009.d

Injection Date: 29-May-2018 12:02:12

Instrument ID: A8\_N

Lims ID: 320-39023-A-41-A

Lab Sample ID: 320-39023-41

Client ID: KLA06-SB2-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

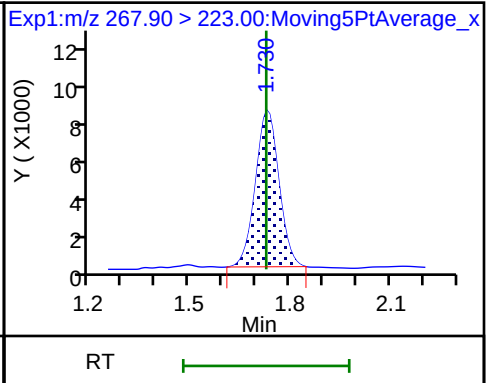
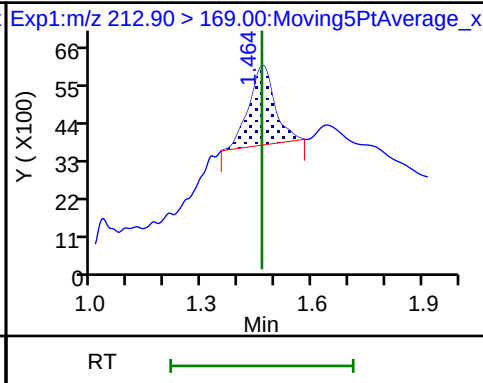
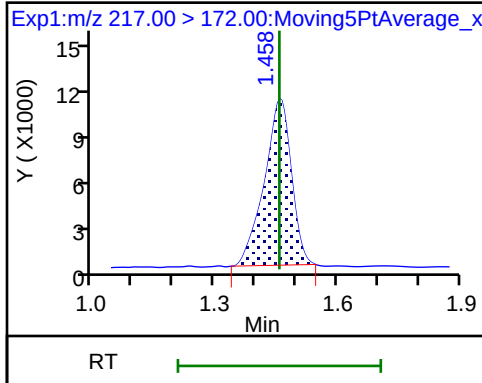
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

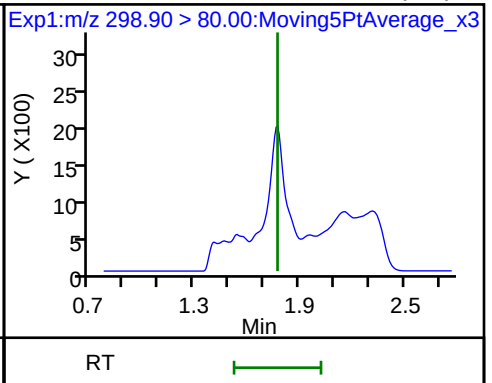
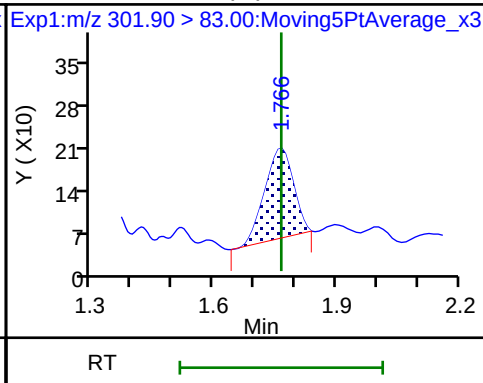
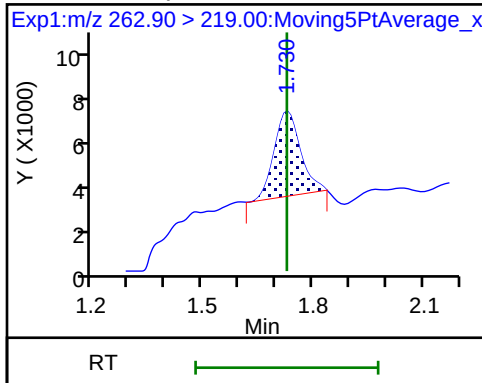
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS (M)

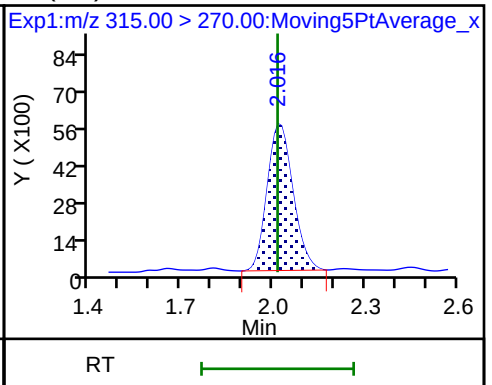
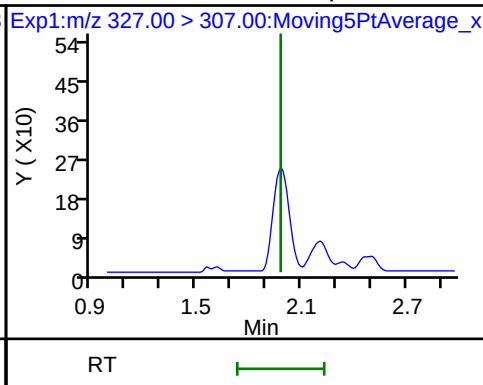
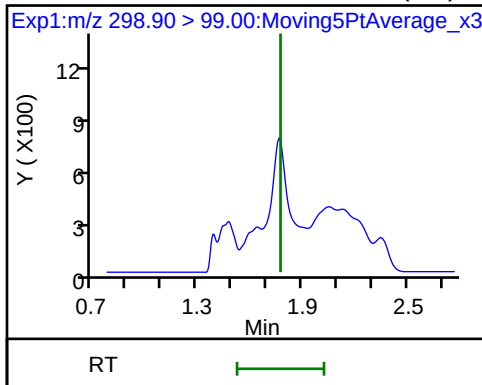
5 Perfluorobutanesulfonic acid (ND)



5 Perfluorobutanesulfonic acid (ND)

61 Sodium 1H,1H,2H,2H-perfluorohexanoate (ND)

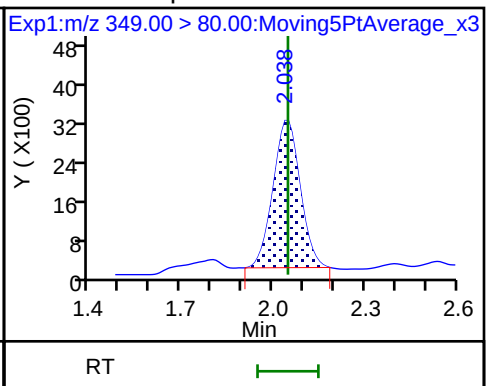
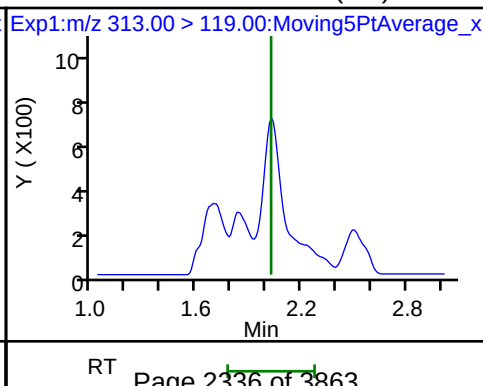
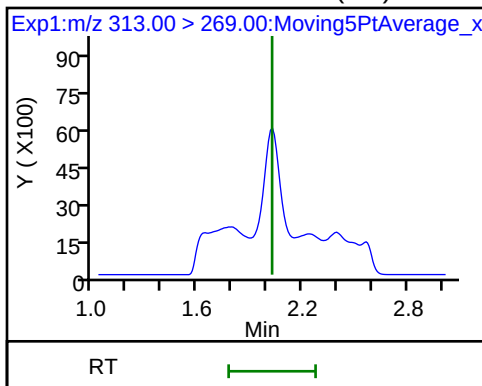
De 713C2 PFHxA



6 Perfluorohexanoic acid (ND)

6 Perfluorohexanoic acid (ND)

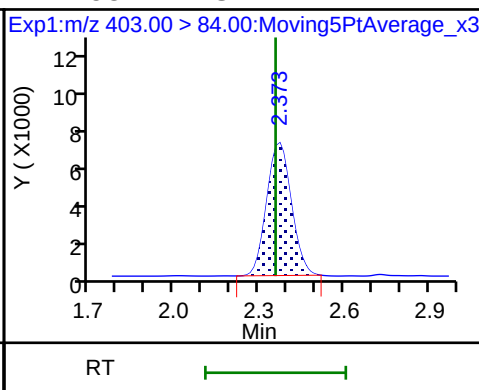
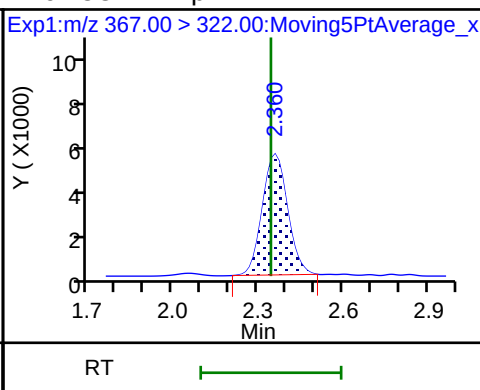
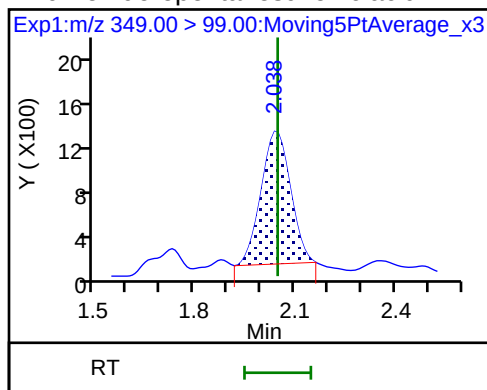
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

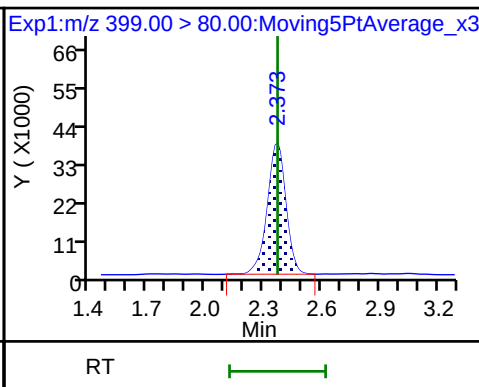
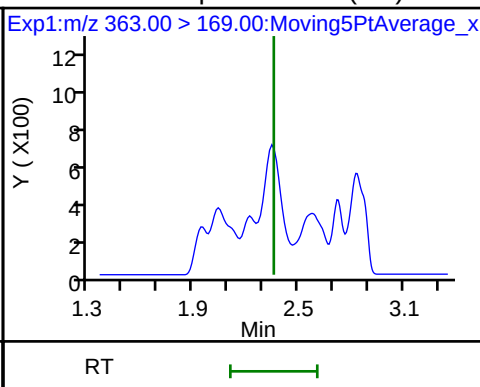
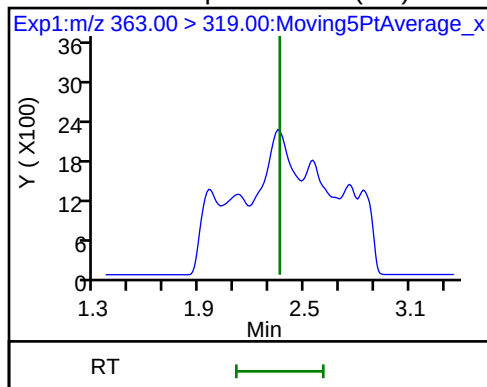
## D 11 18O2 PFHxS



## 10 Perfluoroheptanoic acid (ND)

## 10 Perfluoroheptanoic acid (ND)

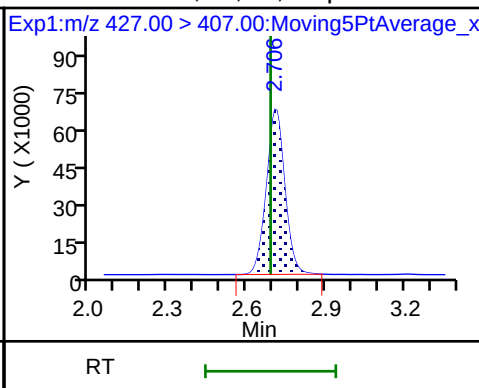
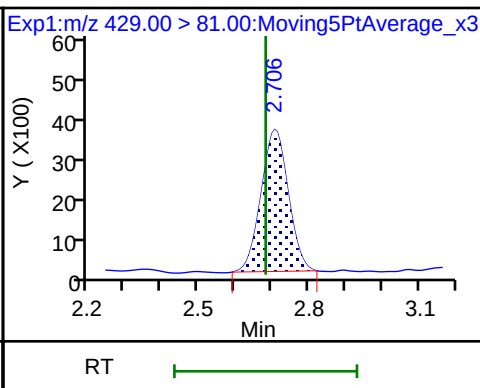
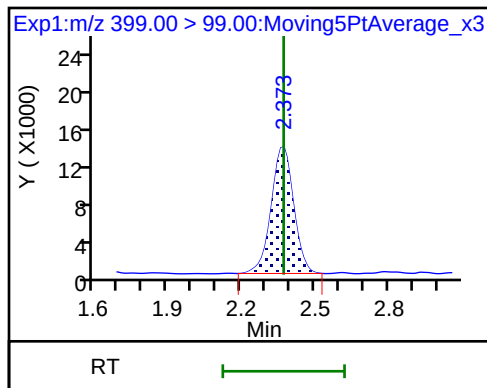
## 8 Perfluorohexanesulfonic acid



## 8 Perfluorohexanesulfonic acid

## D 12 M2-6:2FTS

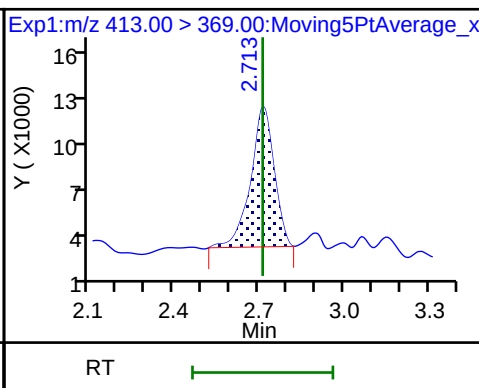
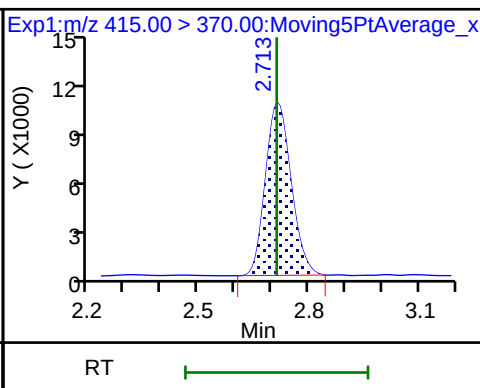
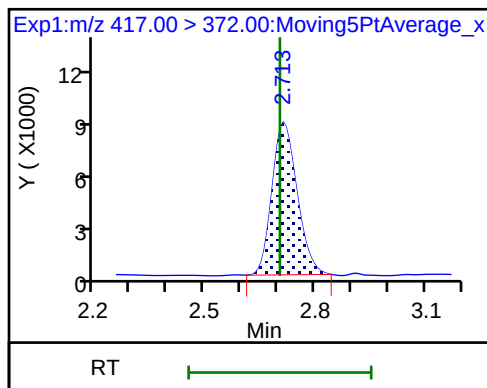
## 13 Sodium 1H,1H,2H,2H-perfluorooctane

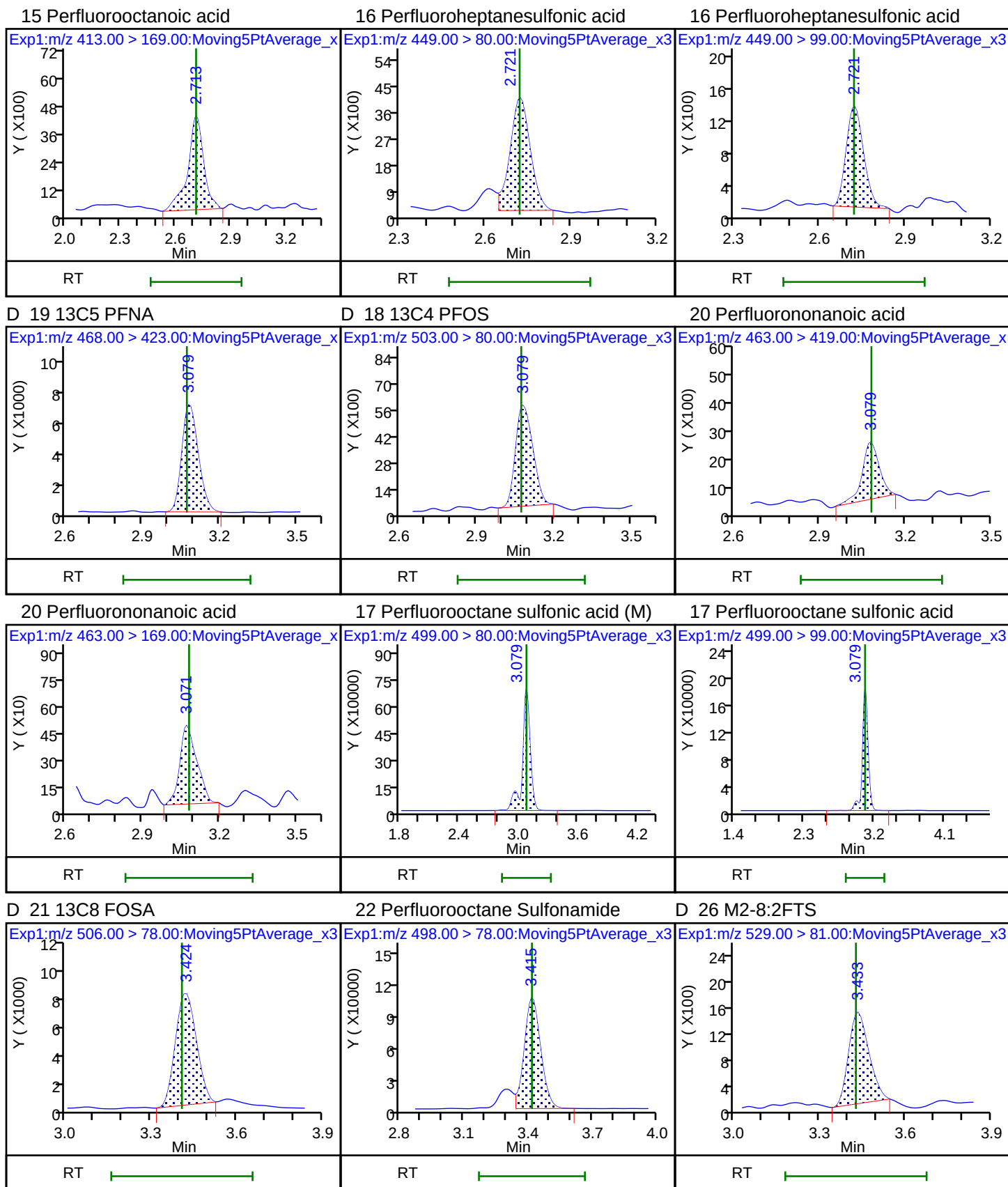


## D 14 13C4 PFOA

## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

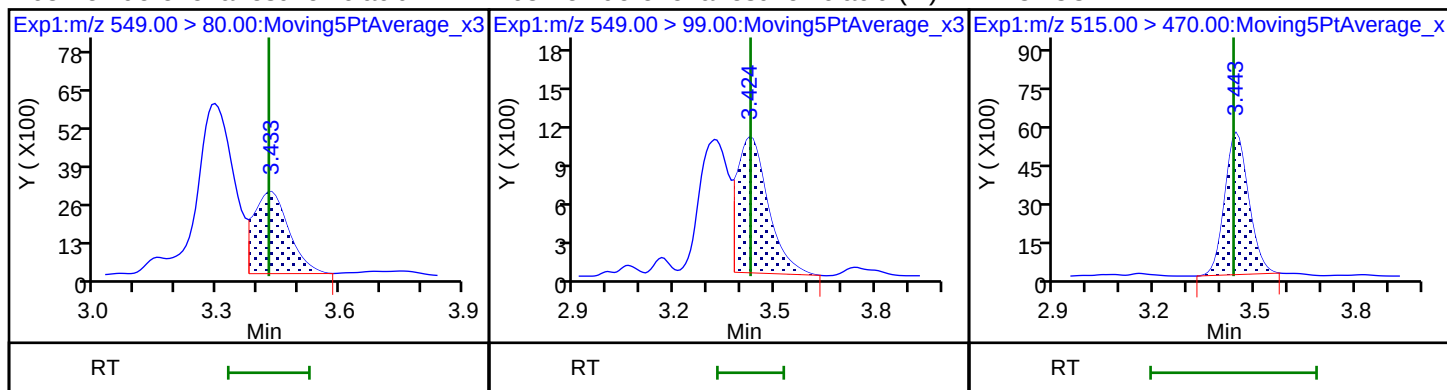




## 68 Perfluorononanesulfonic acid

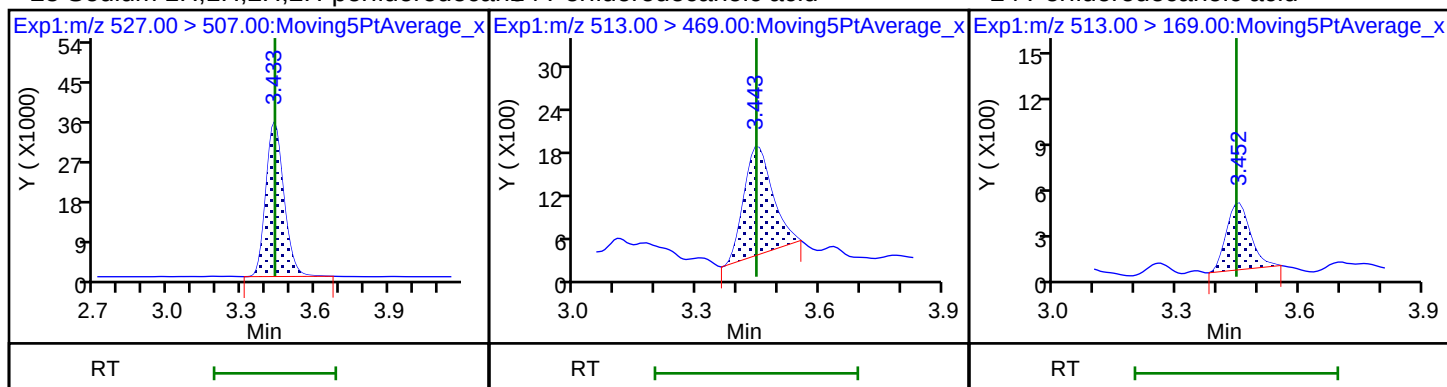
## 68 Perfluorononanesulfonic acid (M)

## D 23 13C2 PFDA



## 25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl Perfluorodecanoic acid

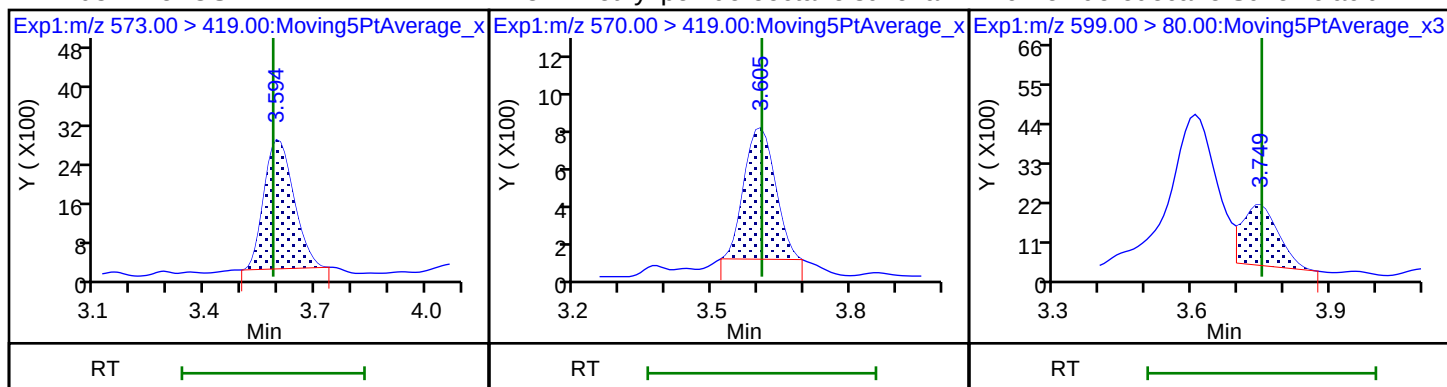
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

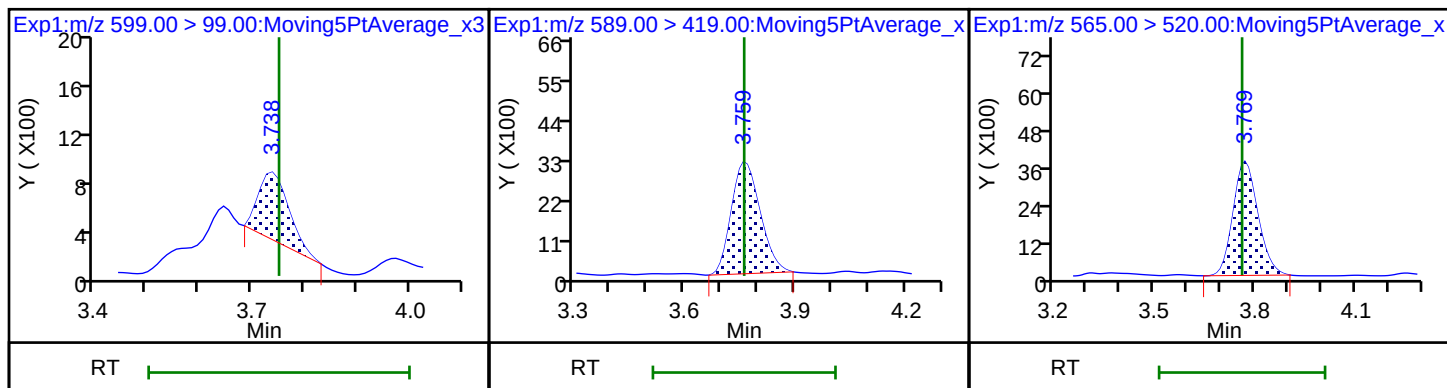
## 29 Perfluorodecane Sulfonic acid



## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

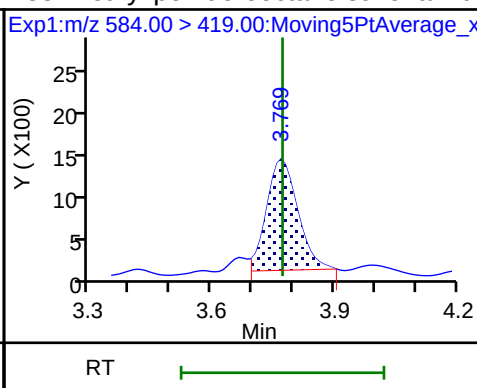
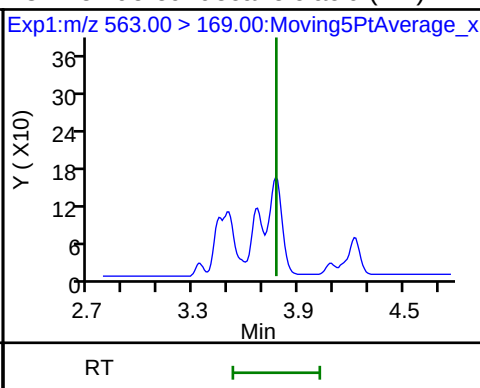
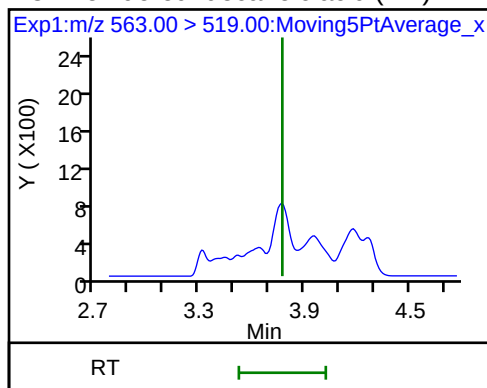
## D 30 13C2 PFUnA



## 31 Perfluoroundecanoic acid (ND)

## 31 Perfluoroundecanoic acid (ND)

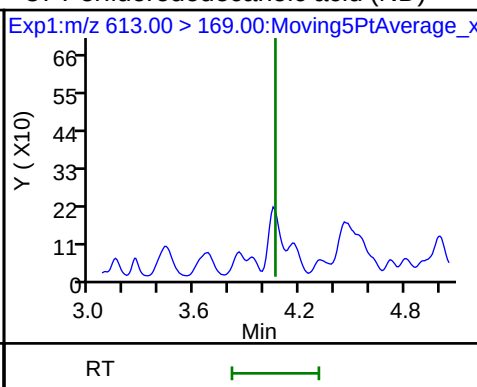
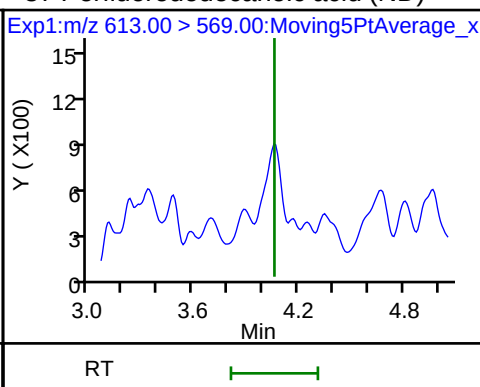
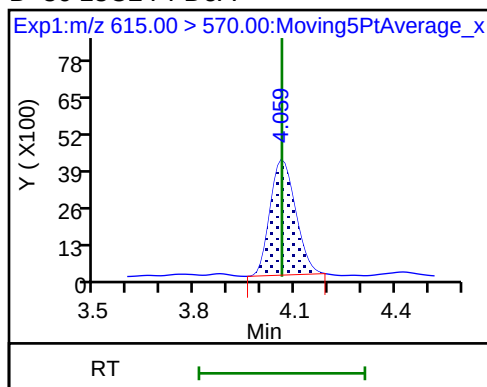
## 33 N-ethyl perfluorooctane sulfonamid (M)



## D 36 13C2 PFDaA

## 37 Perfluorododecanoic acid (ND)

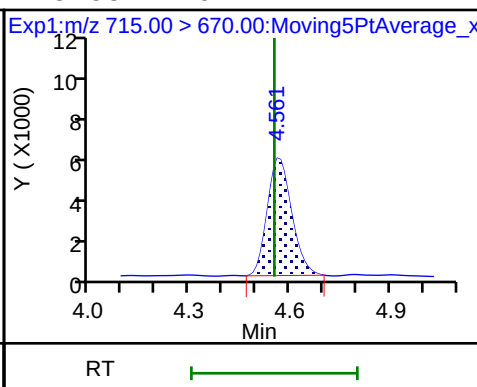
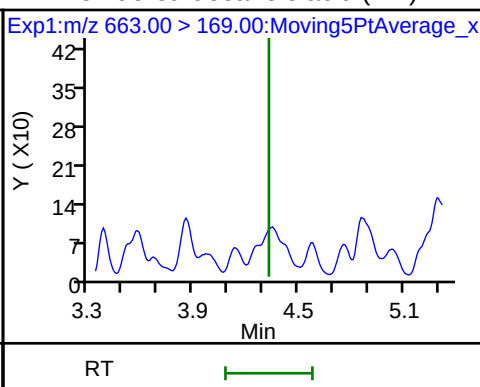
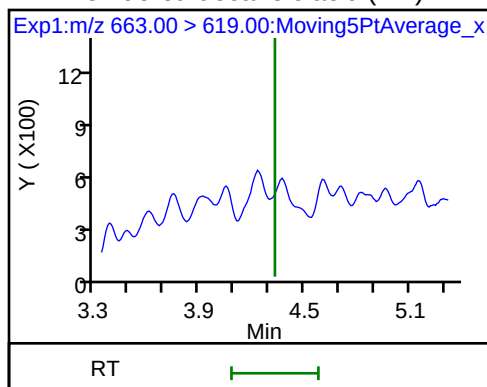
## 37 Perfluorododecanoic acid (ND)



## 41 Perfluorotridecanoic acid (ND)

## 41 Perfluorotridecanoic acid (ND)

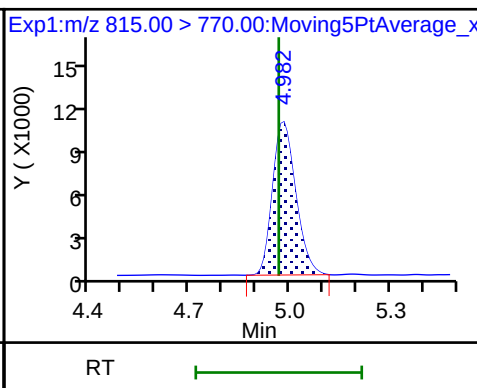
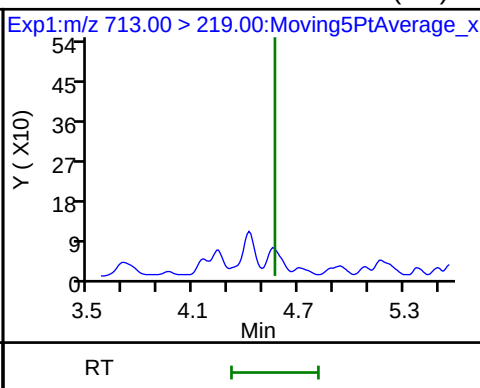
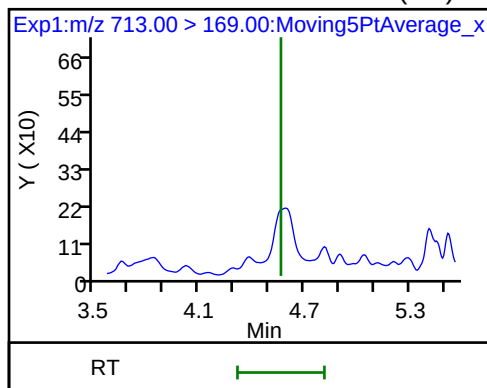
## D 43 13C2-PFTeDA



## 42 Perfluorotetradecanoic acid (ND)

## 42 Perfluorotetradecanoic acid (ND)

## D 44 13C2-PFHxDA





## TestAmerica Sacramento

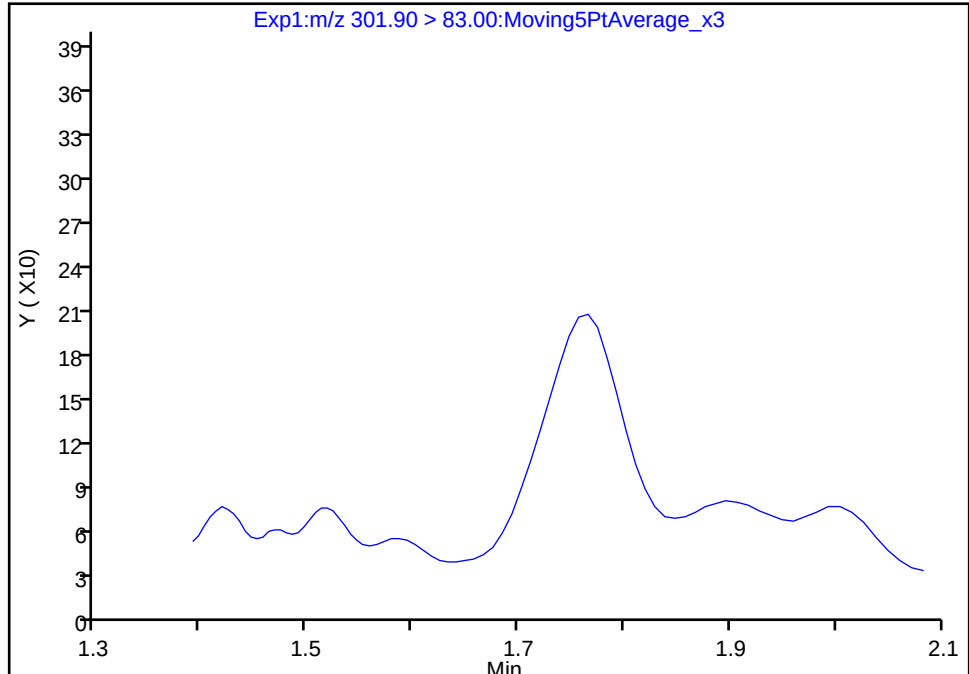
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_009.d |                |                    |                |   |
| Injection Date: | 29-May-2018 12:02:12                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-41-A                                                         | Lab Sample ID: | 320-39023-41       |                |   |
| Client ID:      | KLA06-SB2-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 7                  | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**D 47 13C3-PFBS, CAS: STL02337**

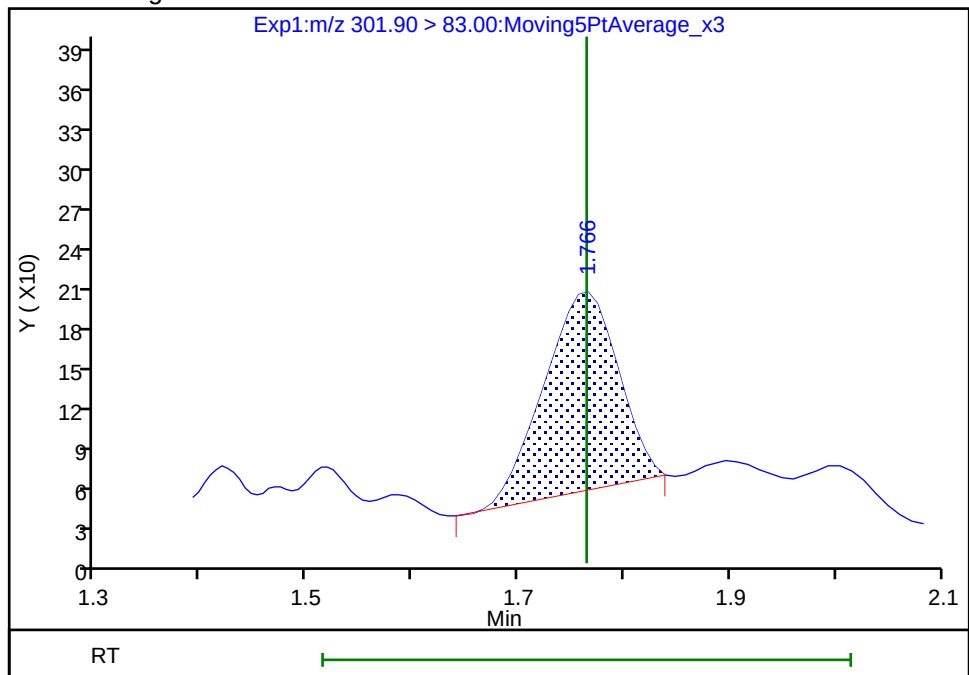
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 737  
Amount: 0.015895  
Amount Units: ng/ml

## Manual Integration Results

Reviewer: mongkols, 30-May-2018 17:10:14  
Audit Action: Manually IntegratedAudit Reason: Assign Peak  
Page 2342 of 3863



## TestAmerica Sacramento

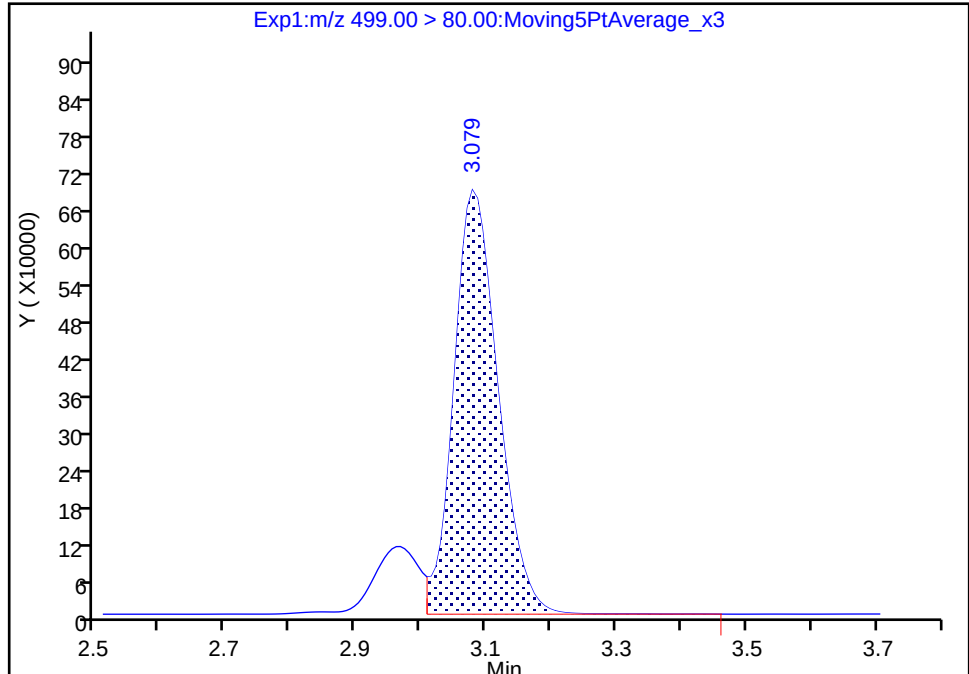
|                 |                                                                          |                |                    |                |   |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_009.d |                |                    |                |   |
| Injection Date: | 29-May-2018 12:02:12                                                     | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-41-A                                                         | Lab Sample ID: | 320-39023-41       |                |   |
| Client ID:      | KLA06-SB2-01                                                             |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 7                  | Worklist Smp#: | 9 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |   |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                          | Detector       | EXP1               |                |   |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

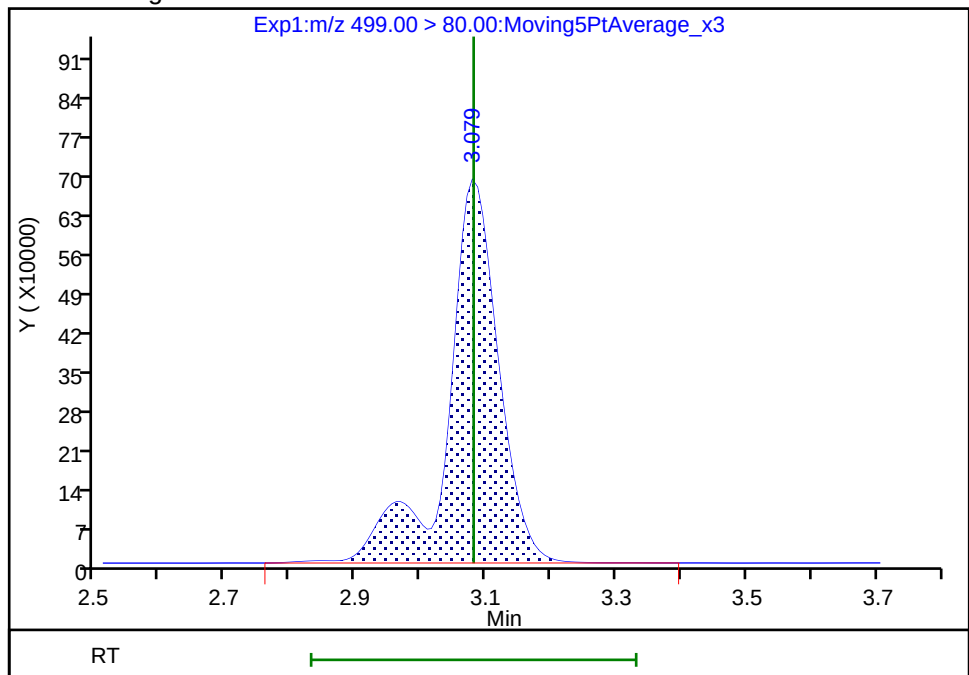
RT: 3.08  
Area: 3244602  
Amount: 2.590619  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 3765631  
Amount: 3.006630  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:10:49

Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA06-SB2-02</u>   | Lab Sample ID: <u>320-39023-42</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_070.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 13:50</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.97(g)</u>           | Date Analyzed: <u>06/07/2018 00:13</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>29.7</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.6    |   | 0.43 | 0.29 | 0.11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 6.4    |   | 0.43 | 0.29 | 0.14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.7    |   | 0.43 | 0.29 | 0.12  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 2.1    |   | 0.57 | 0.26 | 0.084 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 40     | E | 0.43 | 0.29 | 0.089 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 920    | E | 1.4  | 0.72 | 0.34  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 81   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 83   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 44   | Q | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 40   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_070.d  
 Lims ID: 320-39023-A-42-A  
 Client ID: KLA06-SB2-02  
 Sample Type: Client  
 Inject. Date: 07-Jun-2018 00:13:27 ALS Bottle#: 40 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-42-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 15:02:02 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 15:02:25

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.770 | 1.766 | 0.004 | 0.655 | 70435 | 1.89 |  | 81.4 | 383 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |     |       |         |        |  |  |      |  |
|----------------|-------|-------|-----|-------|---------|--------|--|--|------|--|
| 298.90 > 80.00 | 1.770 | 1.770 | 0.0 | 1.000 | 1754811 | 0.7467 |  |  | 3774 |  |
|----------------|-------|-------|-----|-------|---------|--------|--|--|------|--|

|                |       |       |     |       |        |  |                 |  |      |  |
|----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.770 | 1.770 | 0.0 | 1.000 | 752169 |  | 2.33(1.25-3.74) |  | 1075 |  |
|----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.342 | 2.346 | -0.004 | 0.866 | 3601932 | 2.09 |  | 83.5 | 64276 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.342 | 2.354 | -0.012 | 1.000 | 907353 | 0.5553 |  |  | 865 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.342 | 2.354 | -0.012 | 1.000 | 364293 |  | 2.49(1.13-3.40) |  | 2052 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.368 | 2.360 | 0.008 | 0.876 | 3705213 | 1.77 |  | 74.9 | 45900 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |     |       |          |      |  |  |       |   |
|----------------|-------|-------|-----|-------|----------|------|--|--|-------|---|
| 399.00 > 80.00 | 2.368 | 2.368 | 0.0 | 1.000 | 25354258 | 14.1 |  |  | 20158 | E |
|----------------|-------|-------|-----|-------|----------|------|--|--|-------|---|

|                |       |       |     |       |         |  |                 |  |       |   |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|-------|---|
| 399.00 > 99.00 | 2.368 | 2.368 | 0.0 | 1.000 | 8581495 |  | 2.95(1.50-4.49) |  | 21740 | E |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|-------|---|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.703 | 2.698 | 0.005 | 1.000 | 3557947 | 2.08 |  | 83.1 | 73882 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |     |       |         |      |  |  |      |  |
|-----------------|-------|-------|-----|-------|---------|------|--|--|------|--|
| 413.00 > 369.00 | 2.703 | 2.703 | 0.0 | 1.000 | 3810805 | 2.23 |  |  | 1981 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|--|------|--|

|                 |       |       |     |       |         |  |                 |  |      |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|
| 413.00 > 169.00 | 2.703 | 2.703 | 0.0 | 1.000 | 2167666 |  | 1.76(0.84-2.52) |  | 4121 |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|

## \* 62 13C2-PFOA

|                 |       |       |     |  |         |      |  |  |       |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.703 | 2.703 | 0.0 |  | 4441292 | 2.50 |  |  | 92226 |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |     |       |         |      |  |      |       |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.067 | 3.067 | 0.0 | 1.135 | 1584624 | 1.10 |  | 43.8 | 29862 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |        |        |  |  |     |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|
| 463.00 > 419.00 | 3.074 | 3.071 | 0.003 | 1.002 | 405771 | 0.5949 |  |  | 829 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 463.00 > 169.00 | 3.067 | 3.071 | -0.004 | 1.000 | 101292 |  | 4.01(1.90-5.69) |  | 1759 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## D 18 13C4 PFOS

|                |       |       |     |       |         |        |  |      |      |  |
|----------------|-------|-------|-----|-------|---------|--------|--|------|------|--|
| 503.00 > 80.00 | 3.074 | 3.074 | 0.0 | 1.137 | 1341783 | 0.9455 |  | 39.6 | 2225 |  |
|----------------|-------|-------|-----|-------|---------|--------|--|------|------|--|

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response  | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|-----------|-----------------|-----------------|------|--------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |           |                 |                 |      |        | E     |
| 499.00 > 80.00                   | 3.074 | 3.079     | -0.005    | 1.000     | 213975272 | 321.0           |                 |      | 4229   | E     |
| 499.00 > 99.00                   | 3.074 | 3.079     | -0.005    | 1.000     | 72704462  |                 | 2.94(2.31-6.93) |      | 935795 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_070.d

Injection Date: 07-Jun-2018 00:13:27

Instrument ID: A8\_N

Lims ID: 320-39023-A-42-A

Lab Sample ID: 320-39023-42

Client ID: KLA06-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

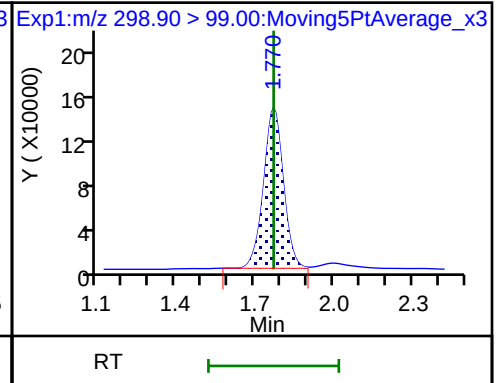
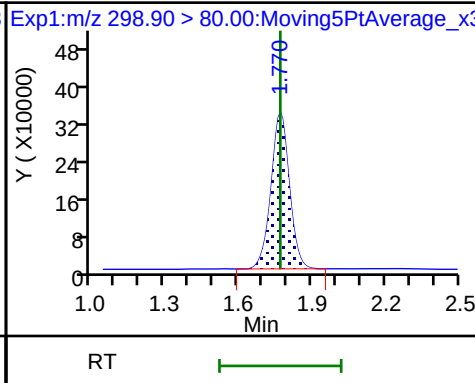
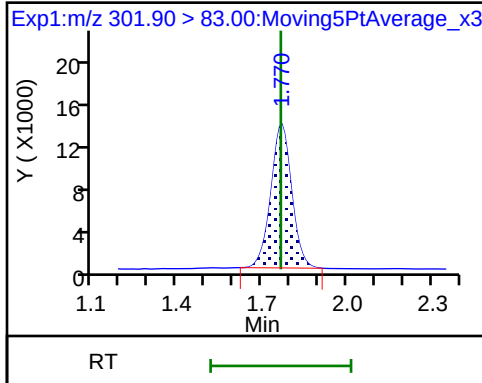
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

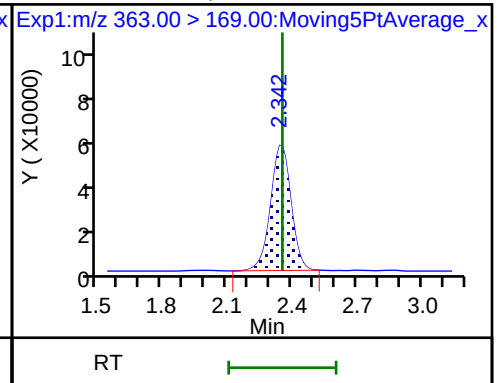
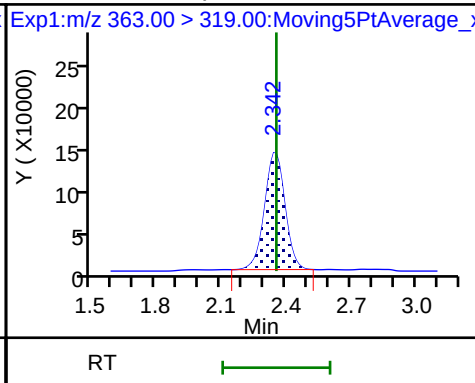
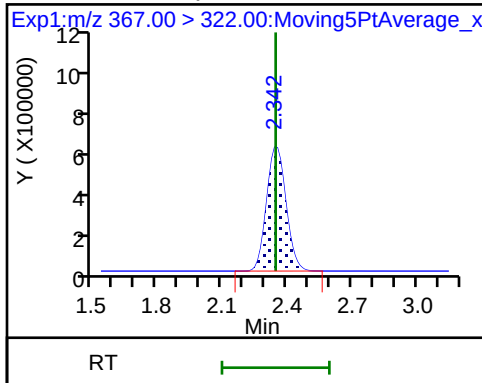
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

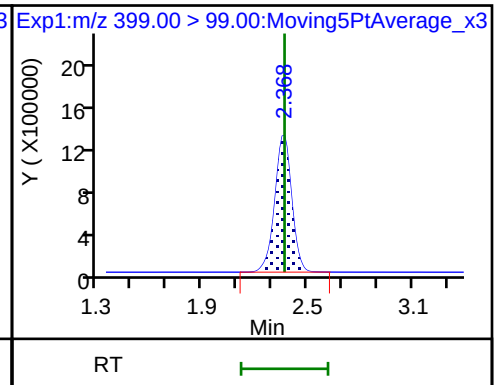
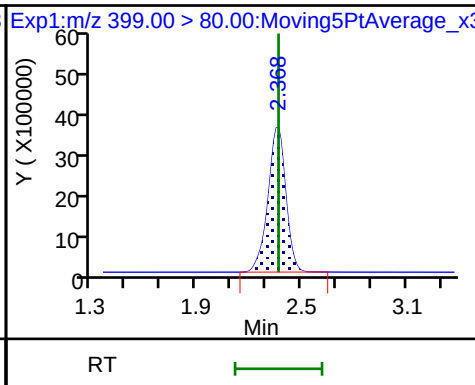
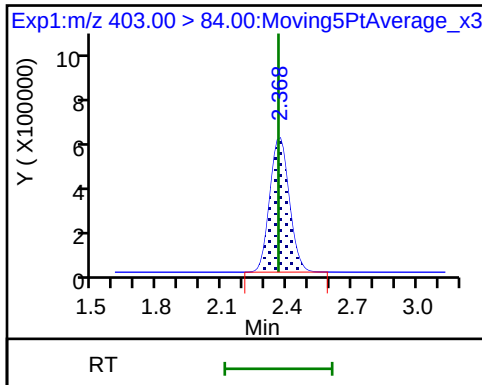
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

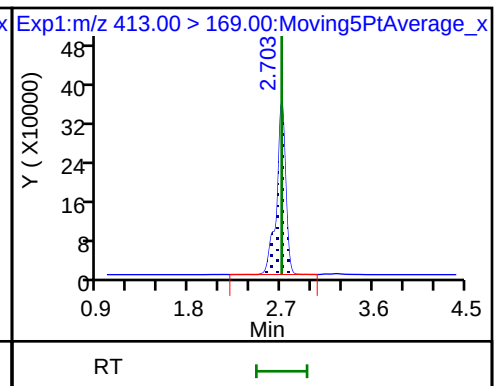
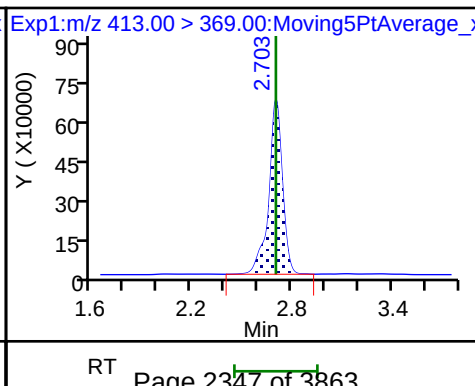
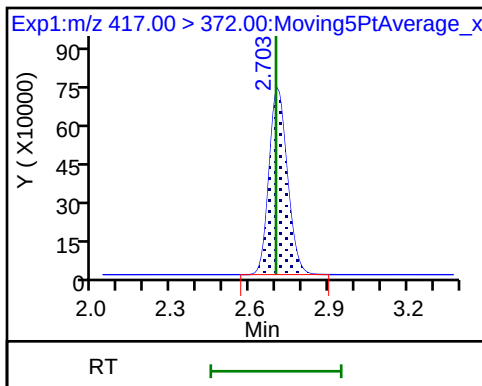
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

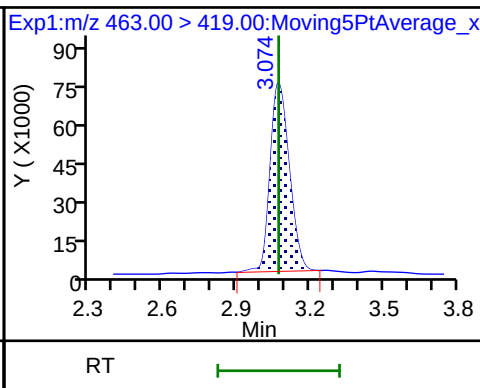
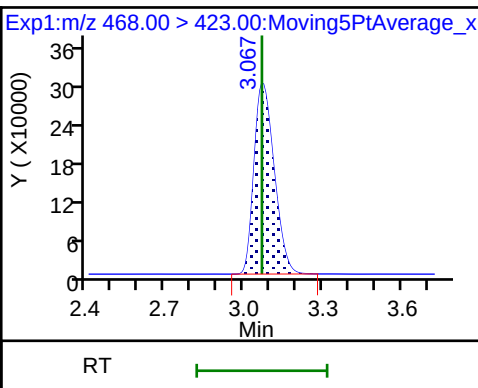
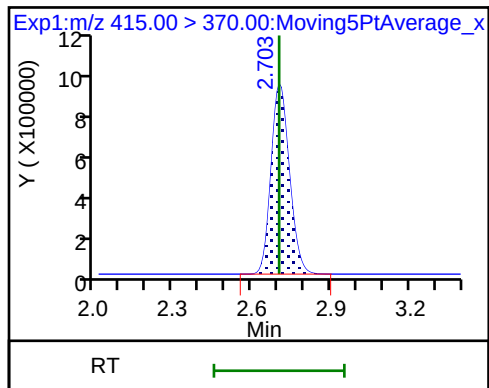
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

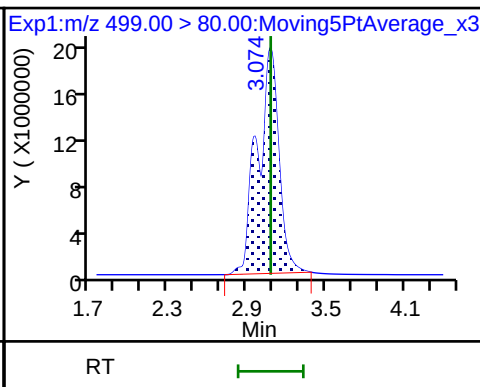
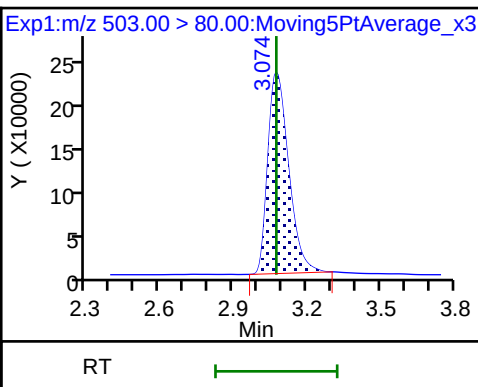
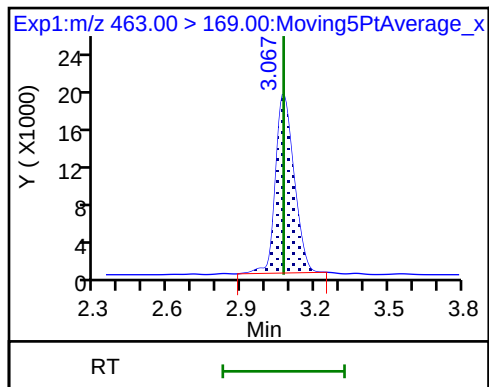
20 Perfluorononanoic acid



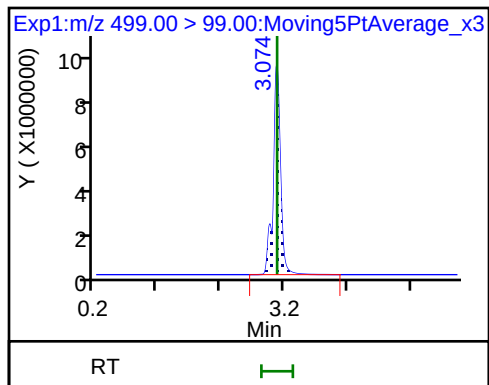
20 Perfluorononanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                          |                                              |
|------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>  | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                           |                                              |
| Client Sample ID: <u>KLA06-SB2-02 DL</u> | Lab Sample ID: <u>320-39023-42 DL</u>        |
| Matrix: <u>Solid</u>                     | Lab File ID: <u>2018.05.29LLA_020.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>    | Date Collected: <u>05/01/2018 13:50</u>      |
| Extraction Method: <u>SHAKE</u>          | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.97(g)</u>            | Date Analyzed: <u>05/29/2018 13:28</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>     | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>29.7</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>        | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL   |
|-----------|--------------------------------------|--------|-----|-----|-----|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.8    | J D | 4.3 | 2.9 | 1.1  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 6.2    | D   | 4.3 | 2.9 | 1.4  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.8    | J D | 4.3 | 2.9 | 1.2  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 2.1    | J D | 5.7 | 2.6 | 0.84 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 45     | D   | 4.3 | 2.9 | 0.89 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1300   | E D | 14  | 7.2 | 3.4  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 73   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 78   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 90   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 75   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 72   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 61   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_020.d  
 Lims ID: 320-39023-A-42-A  
 Client ID: KLA06-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 13:28:18 ALS Bottle#: 16 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-a-42-a 10X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:23:22 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:23:40

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                 | 1.770 | 1.764  | 0.006  | 1.000  | 7222     | 0.1694       |                 | 72.8 | 57.8  |       |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.770 | 1.774  | -0.004 | 1.000  | 179017   | 0.0738       |                 |      | 677   |       |
| 298.90 > 99.00                 | 1.770 | 1.774  | -0.004 | 1.000  | 70909    |              | 2.52(1.25-3.74) |      | 282   |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.355 | 2.345  | 0.010  | 1.000  | 375872   | 0.1950       |                 | 78.0 | 10177 |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.380 | 2.358  | 0.022  | 1.000  | 404526   | 0.1698       |                 | 71.8 | 9543  |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.355 | 2.358  | -0.003 | 1.000  | 98293    | 0.0619       |                 |      | 113   |       |
| 363.00 > 169.00                | 2.355 | 2.358  | -0.003 | 1.000  | 37135    |              | 2.65(1.13-3.40) |      | 181   |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.368 | 2.372  | -0.004 | 0.995  | 3059565  | 1.59         |                 |      | 8830  |       |
| 399.00 > 99.00                 | 2.368 | 2.372  | -0.004 | 0.995  | 954042   |              | 3.21(1.50-4.49) |      | 4087  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.718 | 2.704  | 0.014  | 1.000  | 410888   | 0.2253       |                 | 90.1 | 9696  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.718 | 2.712  | 0.006  |        | 481468   | 0.2500       |                 |      | 12650 |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.718 | 2.712  | 0.006  | 1.000  | 421350   | 0.2178       |                 |      | 177   |       |
| 413.00 > 169.00                | 2.718 | 2.712  | 0.006  | 1.000  | 236724   |              | 1.78(0.84-2.52) |      | 681   |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                | 3.084 | 3.072  | 0.012  | 1.000  | 279093   | 0.1871       |                 | 74.8 | 7110  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.084 | 3.072  | 0.012  | 1.000  | 238921   | 0.1459       |                 | 61.0 | 1563  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                | 3.084 | 3.082  | 0.002  | 1.000  | 76181    | 0.0644       |                 |      | 252   |       |
| 463.00 > 169.00                | 3.091 | 3.082  | 0.009  | 1.003  | 19635    |              | 3.88(1.90-5.69) |      | 511   |       |



| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |        | E     |
| 499.00 > 80.00                   | 3.084 | 3.082     | 0.002     | 1.000     | 53491872 | 45.5            |                 |      | 102427 | E     |
| 499.00 > 99.00                   | 3.084 | 3.082     | 0.002     | 1.000     | 14216606 |                 | 3.76(2.31-6.93) |      | 65601  |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_020.d

Injection Date: 29-May-2018 13:28:18

Instrument ID: A8\_N

Lims ID: 320-39023-A-42-A

Lab Sample ID:

Client ID: KLA06-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

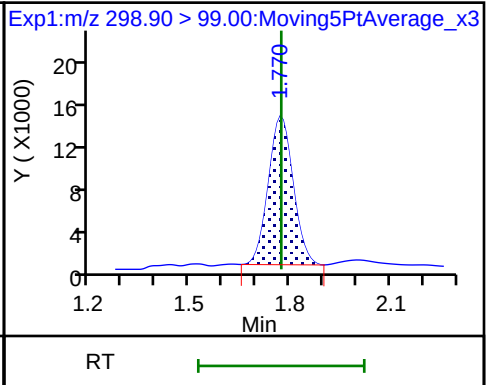
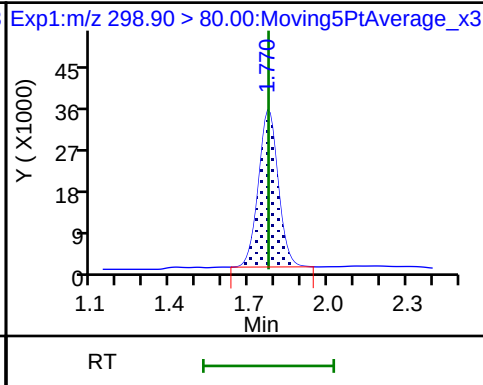
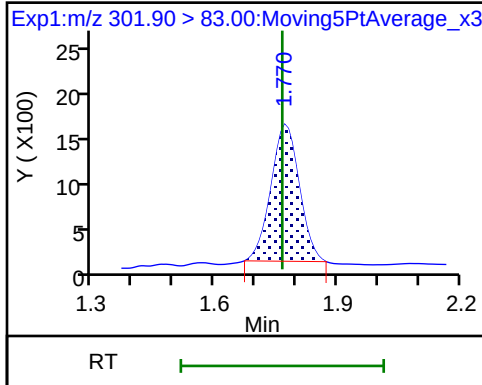
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

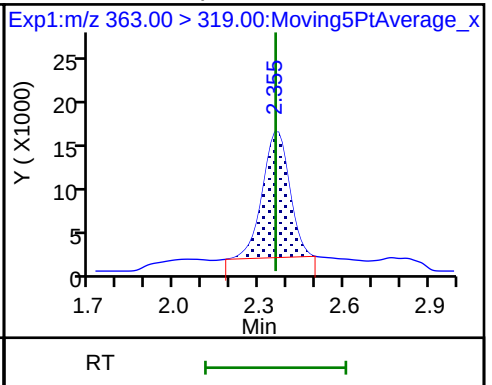
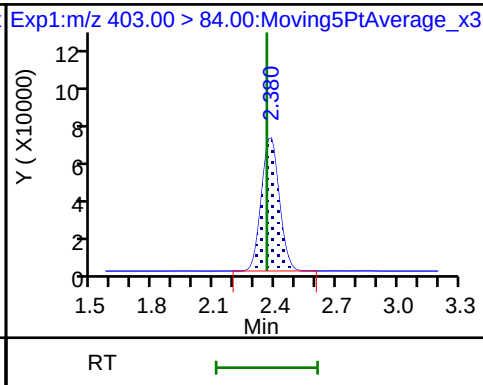
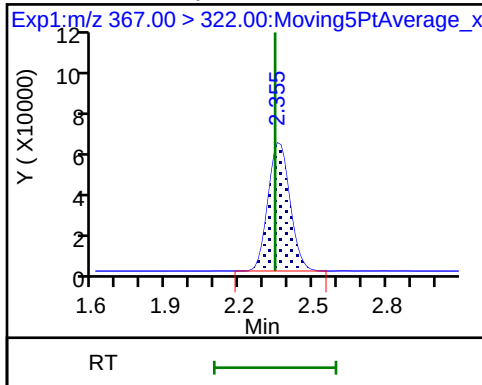
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

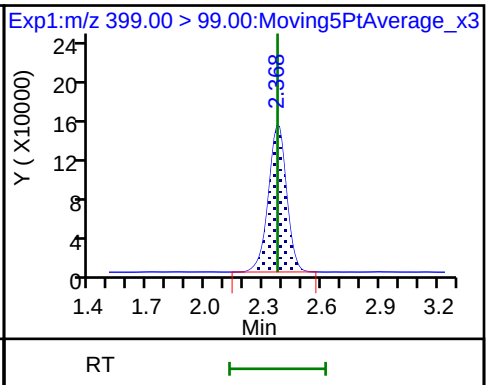
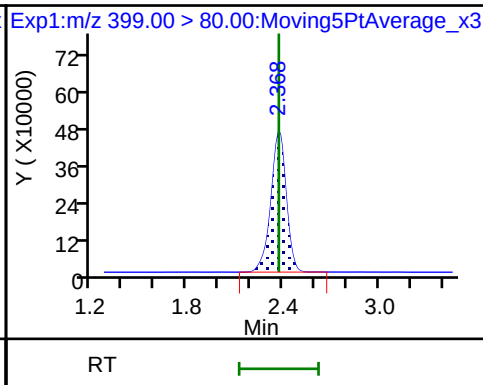
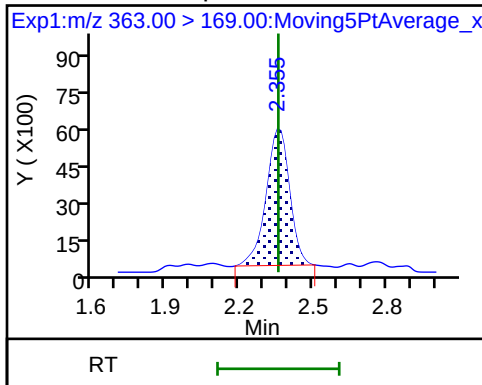
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

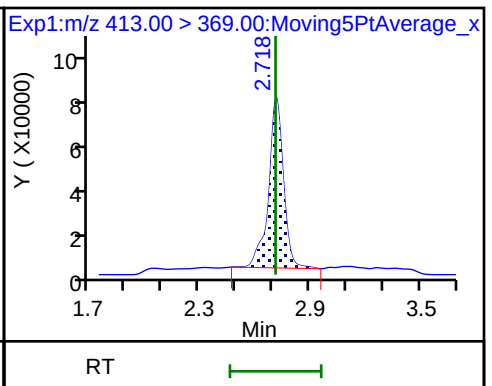
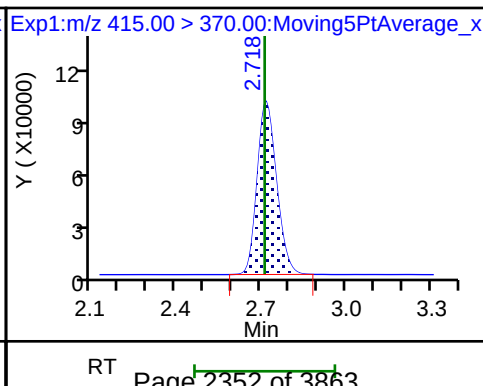
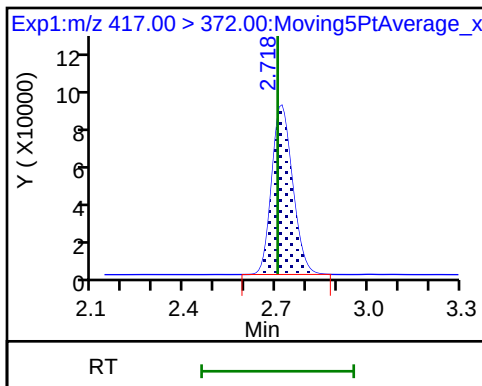
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

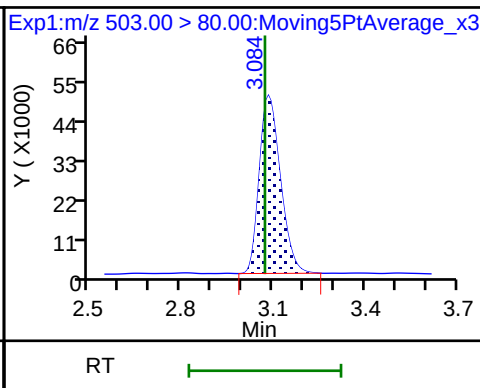
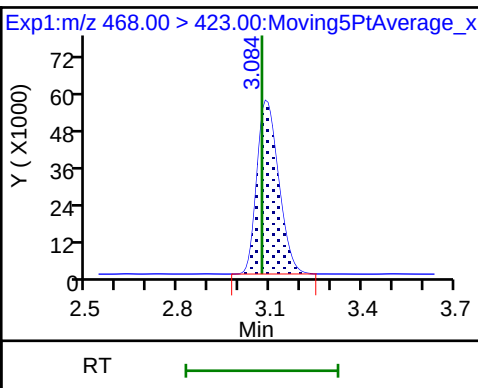
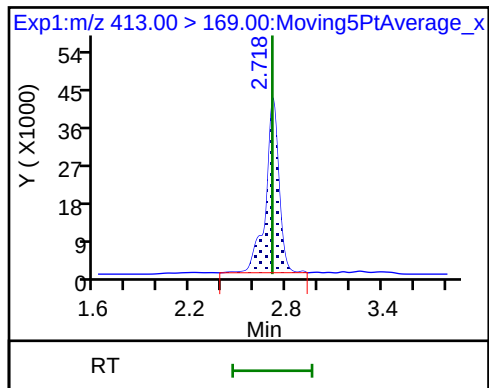
15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

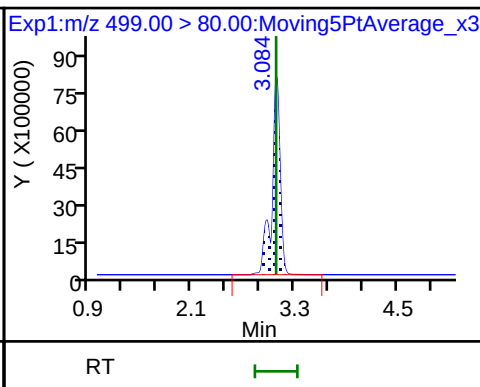
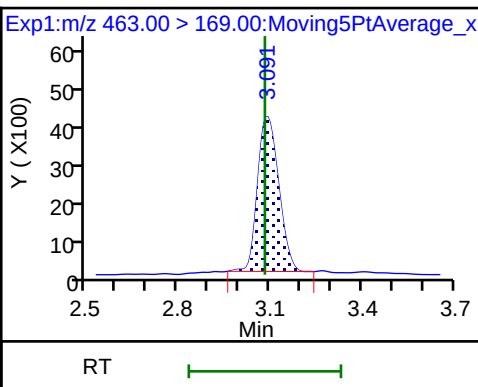
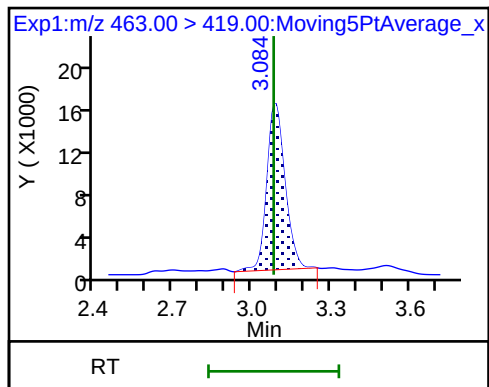
## D 18 13C4 PFOS



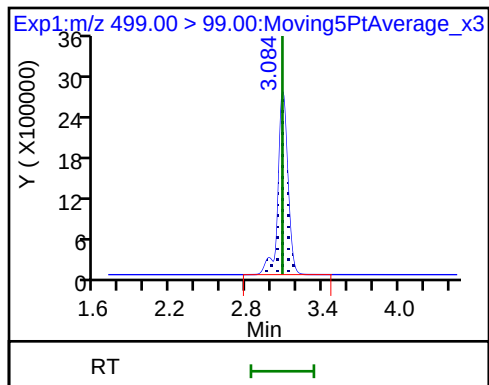
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA06-SB2-02 DL2</u> | Lab Sample ID: <u>320-39023-42 DL2</u>       |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_012.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/01/2018 13:50</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.97(g)</u>             | Date Analyzed: <u>05/29/2018 12:25</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>29.7</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 29     | U   | 43  | 29  | 11  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 29     | U M | 43  | 29  | 14  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 29     | U   | 43  | 29  | 12  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 26     | U   | 57  | 26  | 8.4 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 42     | J D | 43  | 29  | 8.9 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1600   | D   | 140 | 72  | 34  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 61   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 72   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 78   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 64   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 59   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_012.d  
 Lims ID: 320-39023-A-42-A  
 Client ID: KLA06-SB2-02  
 Sample Type: Client  
 Inject. Date: 29-May-2018 12:25:44 ALS Bottle#: 10 Worklist Smp#: 12  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-42-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:17:24 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:17:24

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |      | M     |
| 301.90 > 83.00                 | 1.774 | 1.764  | 0.010  | 1.000  | 671      | 0.0142       |                 | 61.2 | 6.5  | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 298.90 > 80.00                 | 1.765 | 1.774  | -0.009 | 0.995  | 16475    | 0.007310     |                 |      | 59.2 |       |
| 298.90 > 99.00                 | 1.765 | 1.774  | -0.009 | 0.995  | 7453     |              | 2.21(1.25-3.74) |      | 50.0 |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |      |       |
| 367.00 > 322.00                | 2.358 | 2.345  | 0.013  | 1.000  | 38465    | 0.0181       |                 | 72.2 | 1037 |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |      |       |
| 403.00 > 84.00                 | 2.371 | 2.358  | 0.013  | 1.000  | 39999    | 0.0152       |                 | 64.2 | 1345 |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |      |       |
| 363.00 > 319.00                | 2.358 | 2.358  | 0.0    | 1.000  | 9377     | 0.005770     |                 |      | 11.8 |       |
| 363.00 > 169.00                | 2.345 | 2.358  | -0.013 | 0.994  | 3852     |              | 2.43(1.13-3.40) |      | 18.5 |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 399.00 > 80.00                 | 2.371 | 2.372  | -0.001 | 1.000  | 282340   | 0.1482       |                 |      | 895  |       |
| 399.00 > 99.00                 | 2.371 | 2.372  | -0.001 | 1.000  | 95216    |              | 2.97(1.50-4.49) |      | 541  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 417.00 > 372.00                | 2.712 | 2.704  | 0.008  | 1.000  | 39294    | 0.0195       |                 | 78.0 | 1239 |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 415.00 > 370.00                | 2.712 | 2.712  | 0.0    |        | 53215    | 0.0250       |                 |      | 1266 |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |      | M     |
| 413.00 > 369.00                | 2.712 | 2.712  | 0.0    | 1.000  | 46720    | 0.0253       |                 |      | 15.2 | M     |
| 413.00 > 169.00                | 2.704 | 2.712  | -0.008 | 0.997  | 28773    |              | 1.62(0.84-2.52) |      | 73.0 | M     |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |      |       |
| 468.00 > 423.00                | 3.084 | 3.072  | 0.012  | 1.000  | 32180    | 0.0195       |                 | 78.1 | 1312 |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |      |       |
| 503.00 > 80.00                 | 3.076 | 3.072  | 0.004  | 1.000  | 25438    | 0.0141       |                 | 58.8 | 175  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |      |       |
| 463.00 > 419.00                | 3.084 | 3.081  | 0.003  | 1.000  | 8182     | 0.006001     |                 |      | 23.4 |       |
| 463.00 > 169.00                | 3.092 | 3.081  | 0.011  | 1.003  | 3053     |              | 2.68(1.90-5.69) |      | 85.3 |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.076 | 3.081     | -0.005    | 1.000     | 7171793  | 5.73            |                 |      | 24022 |       |
| 499.00 > 99.00                   | 3.076 | 3.081     | -0.005    | 1.000     | 1626573  |                 | 4.41(2.31-6.93) |      | 21741 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_012.d

Injection Date: 29-May-2018 12:25:44

Instrument ID: A8\_N

Lims ID: 320-39023-A-42-A

Lab Sample ID: 320-39023-42

Client ID: KLA06-SB2-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

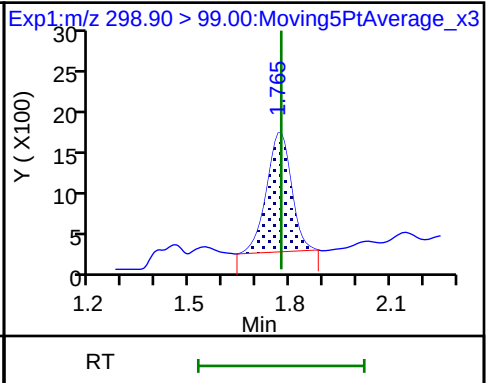
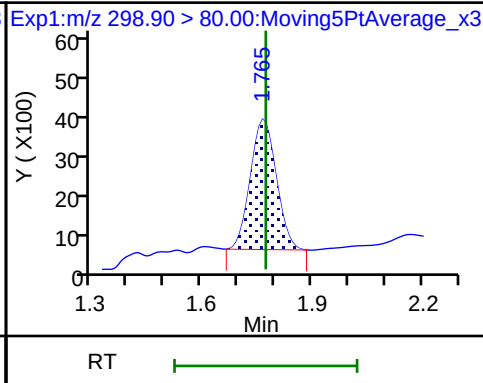
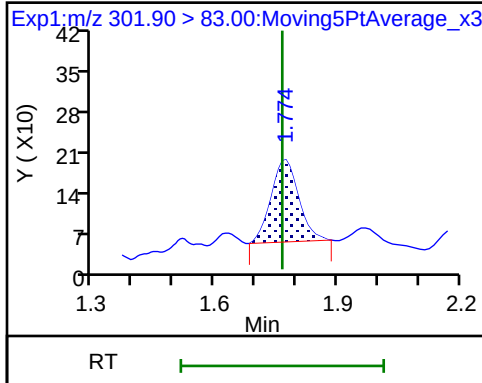
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

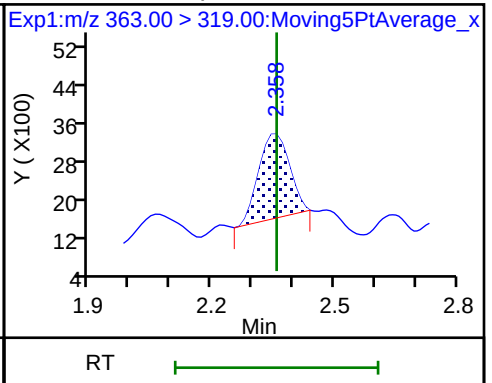
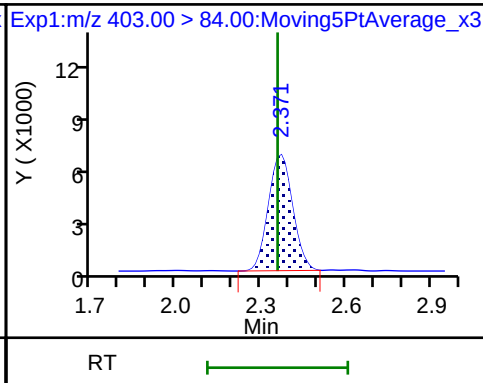
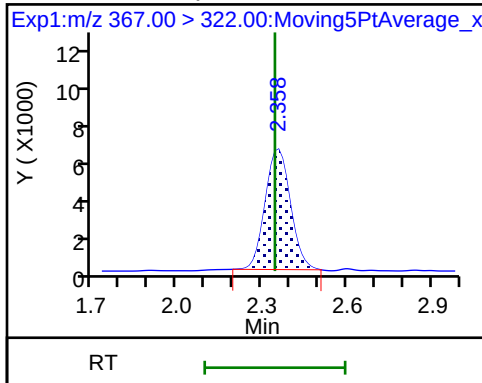
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

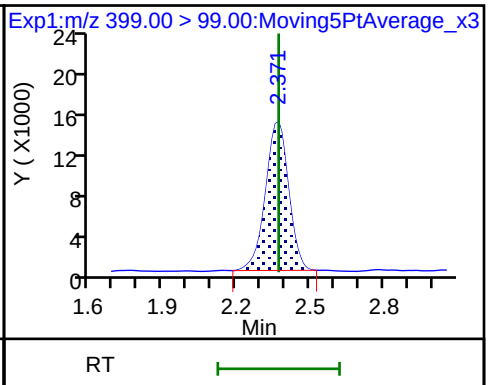
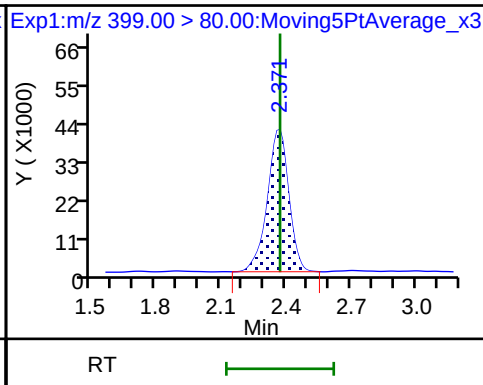
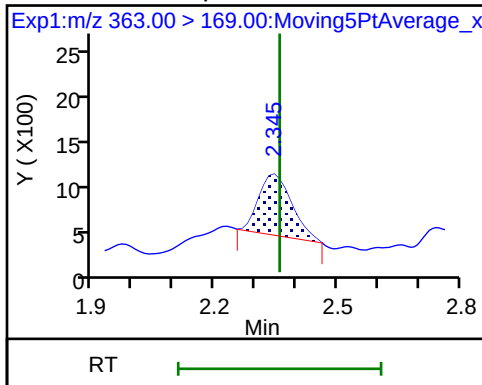
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

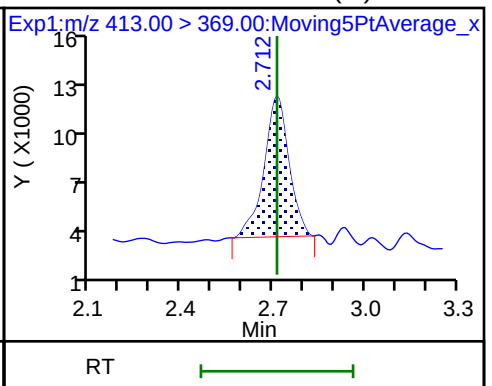
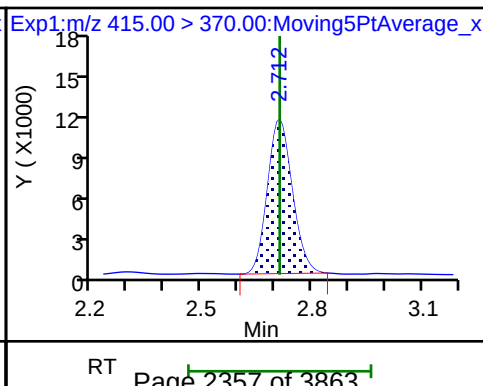
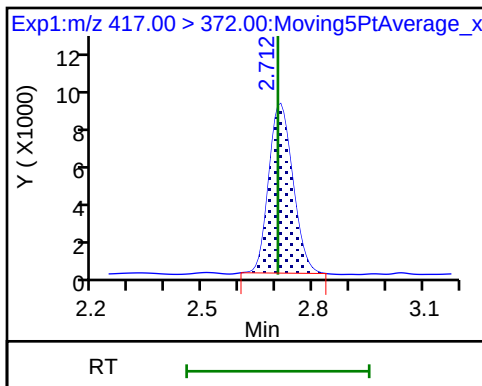
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

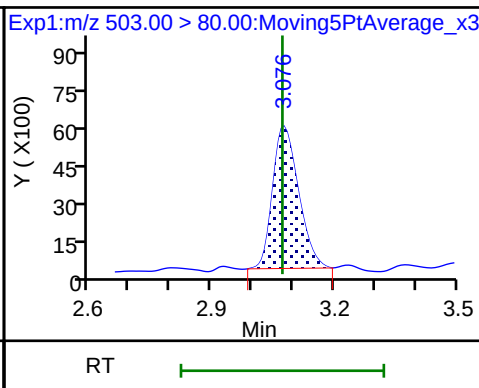
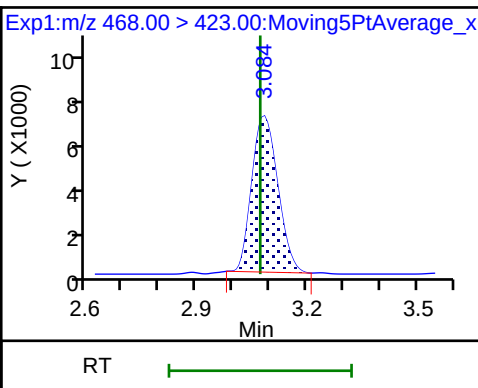
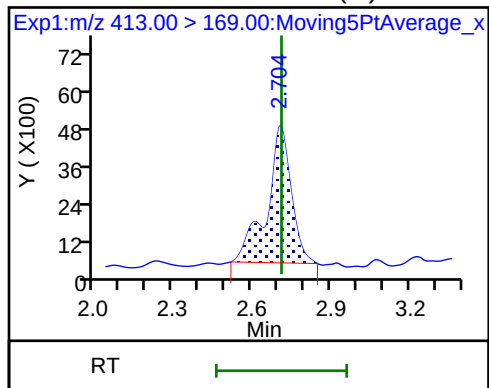
15 Perfluorooctanoic acid (M)



## 15 Perfluorooctanoic acid (M)

## D 19 13C5 PFNA

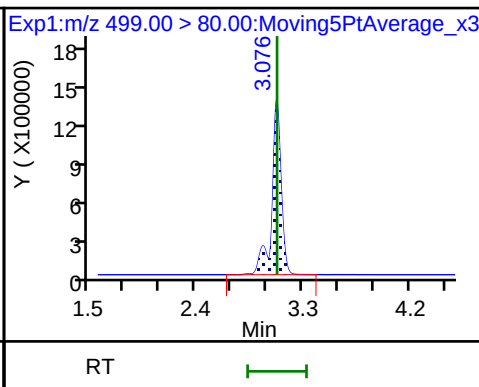
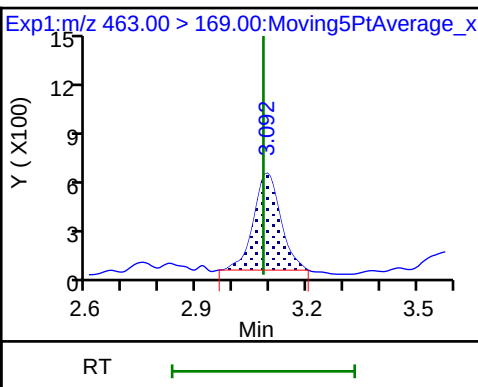
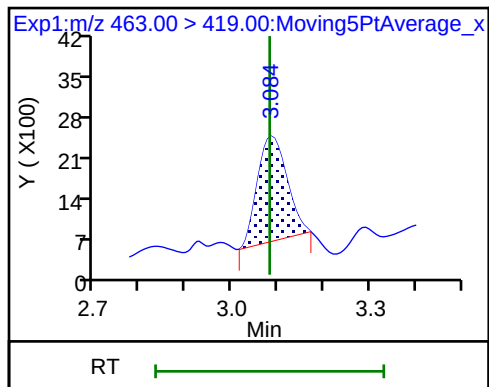
## D 18 13C4 PFOS



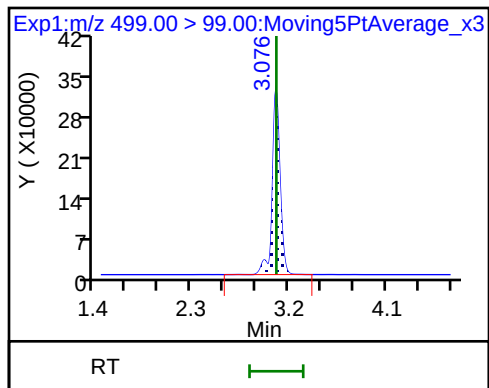
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid





## TestAmerica Sacramento

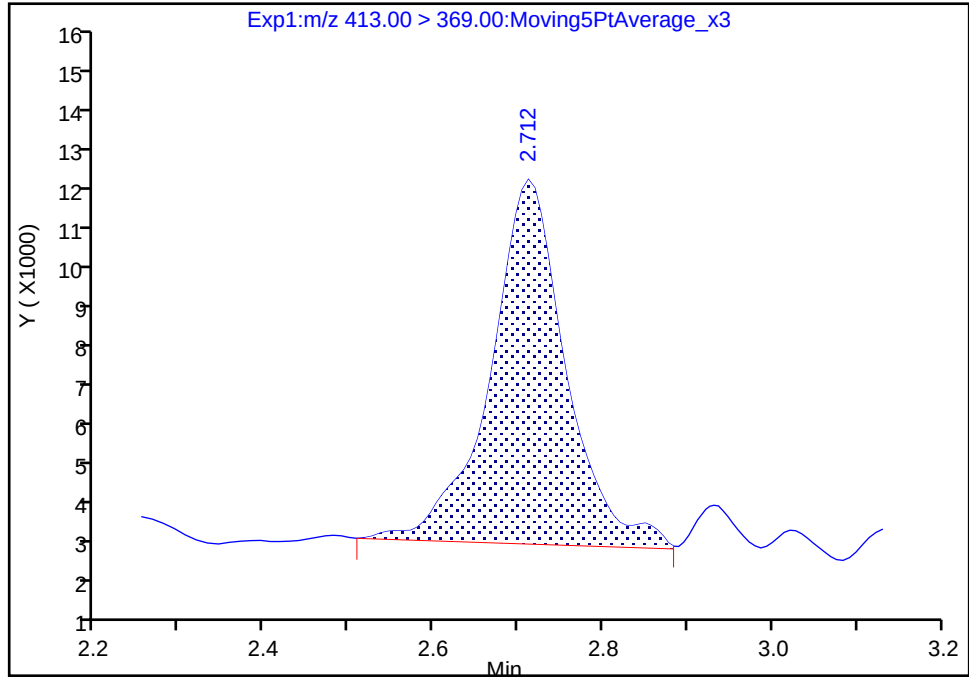
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_012.d |                |                    |                |    |
| Injection Date: | 29-May-2018 12:25:44                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-42-A                                                         | Lab Sample ID: | 320-39023-42       |                |    |
| Client ID:      | KLA06-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 10                 | Worklist Smp#: | 12 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

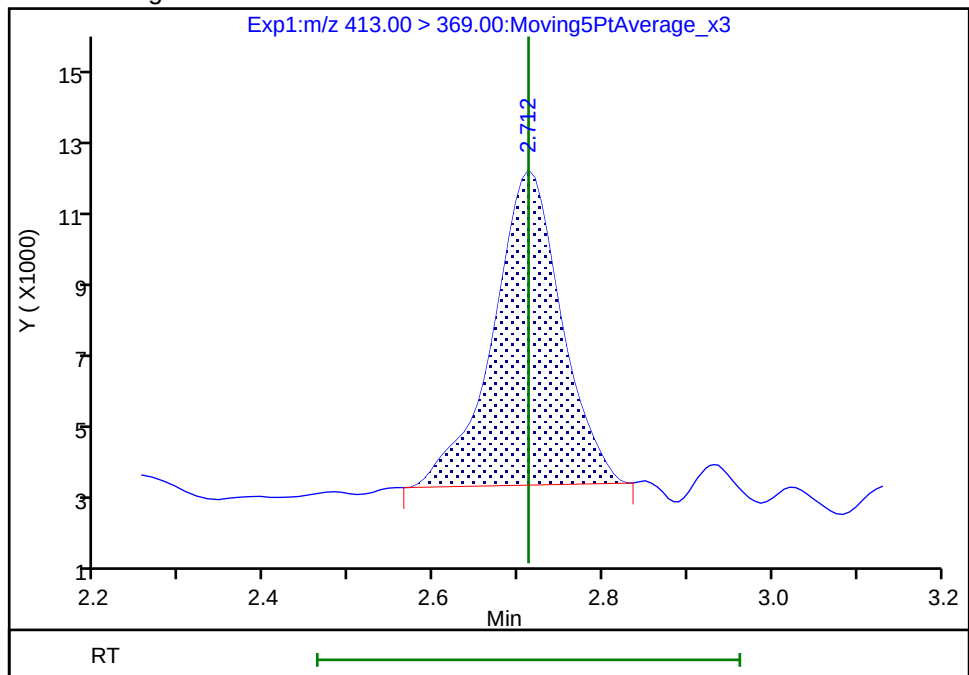
RT: 2.71  
Area: 54412  
Amount: 0.029412  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 46720  
Amount: 0.025254  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:17:11  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2359 of 3863

## TestAmerica Sacramento

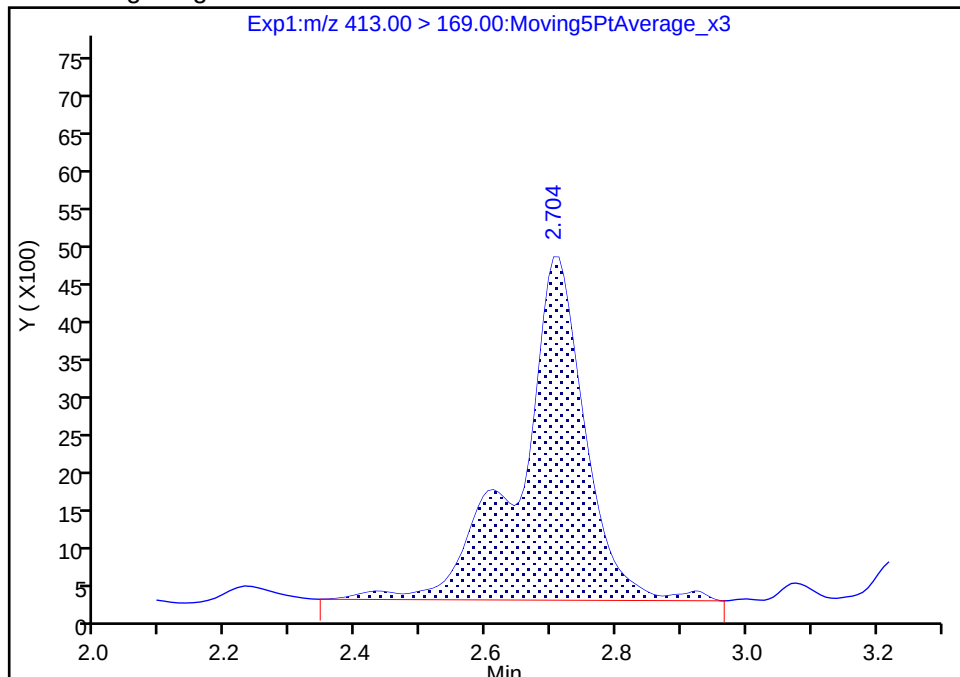
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_012.d |                |                    |                |    |
| Injection Date: | 29-May-2018 12:25:44                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-42-A                                                         | Lab Sample ID: | 320-39023-42       |                |    |
| Client ID:      | KLA06-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 10                 | Worklist Smp#: | 12 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

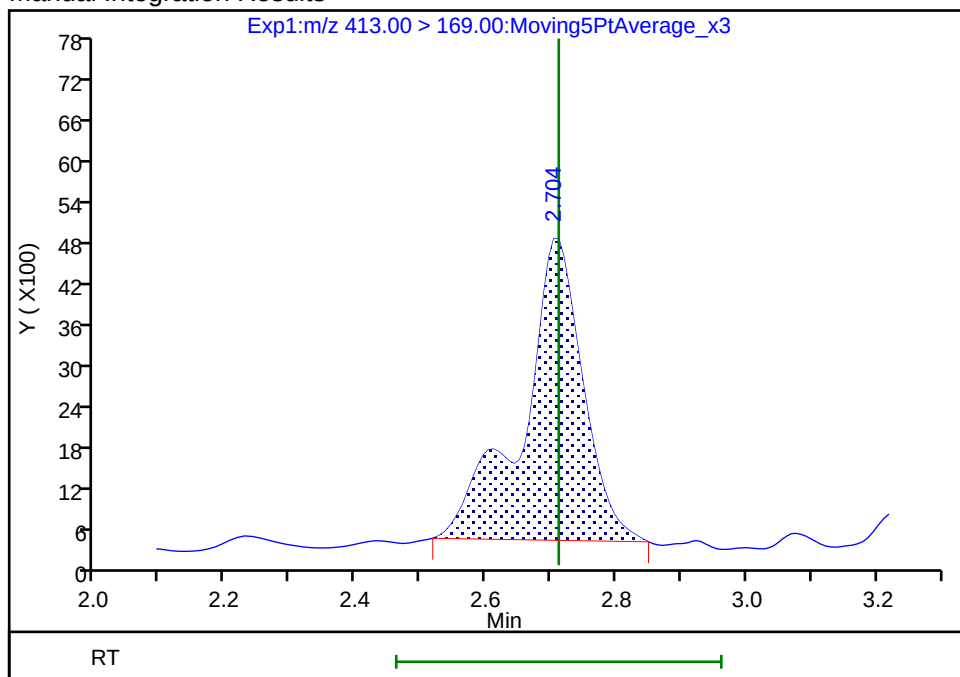
RT: 2.70  
Area: 32583  
Amount: 0.029412  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 28773  
Amount: 0.025254  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:17:14

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

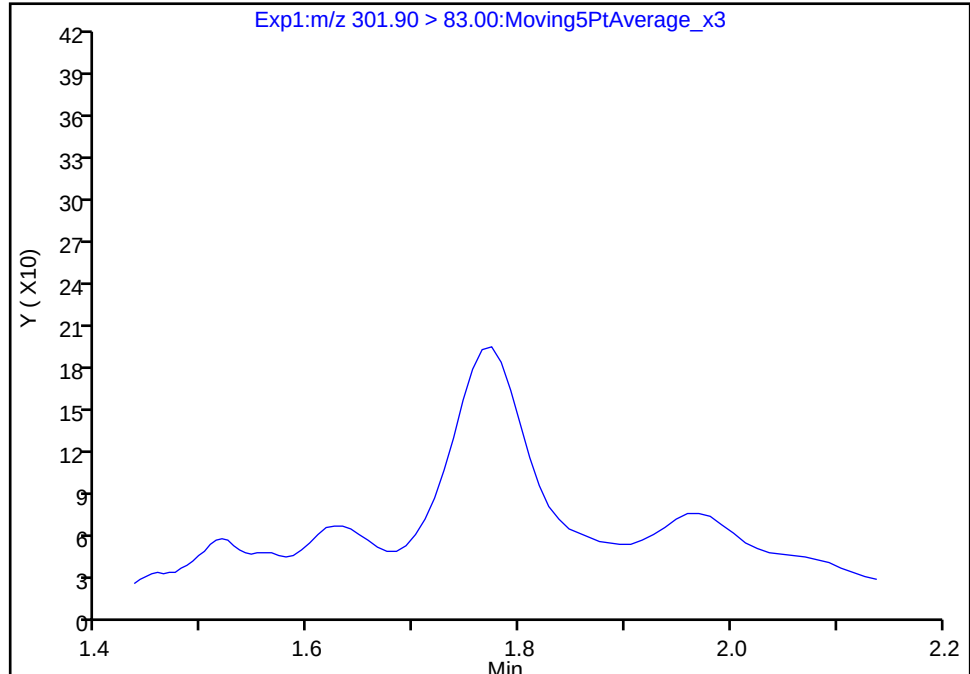
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_012.d |                |                    |                |    |
| Injection Date: | 29-May-2018 12:25:44                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-42-A                                                         | Lab Sample ID: | 320-39023-42       |                |    |
| Client ID:      | KLA06-SB2-02                                                             |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 10                 | Worklist Smp#: | 12 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

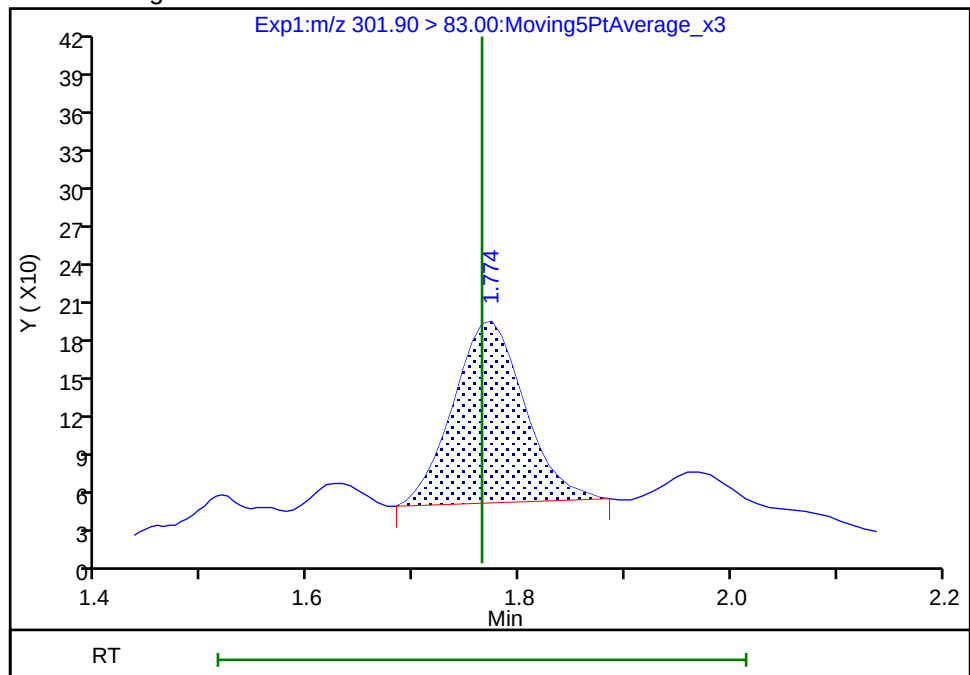
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.77  
Area: 671  
Amount: 0.014236  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:16:53

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA07-SD1-01</u>   | Lab Sample ID: <u>320-39023-43</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_075.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 11:30</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.98(g)</u>           | Date Analyzed: <u>06/07/2018 00:52</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>7.1</u>                  | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.22   | U | 0.32 | 0.22 | 0.084 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.22   | U | 0.32 | 0.22 | 0.11  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.22   | U | 0.32 | 0.22 | 0.088 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.19   | U | 0.43 | 0.19 | 0.064 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.22   | U | 0.32 | 0.22 | 0.067 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1.5    |   | 1.1  | 0.54 | 0.26  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 68   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 80   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 82   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 75   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_075.d  
 Lims ID: 320-39023-A-43-A  
 Client ID: KLA07-SD1-01  
 Sample Type: Client  
 Inject. Date: 07-Jun-2018 00:52:29 ALS Bottle#: 43 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-43-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 15:20:12 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 15:20:32

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.764 | 1.766  | -0.002 | 0.654  | 74147    | 1.58         |                 | 68.1 | 271   |       |
| D 9 13C4-PFHpa                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.345 | 2.346  | -0.001 | 0.869  | 4319912  | 1.99         |                 | 79.5 | 64729 |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.358 | 2.360  | -0.002 | 0.874  | 4571697  | 1.74         |                 | 73.4 | 41132 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.358 | 2.368  | -0.010 | 1.000  | 61085    | 0.0276       |                 |      | 57.5  |       |
| 399.00 > 99.00                   | 2.358 | 2.368  | -0.010 | 1.000  | 23045    |              | 2.65(1.50-4.49) |      | 42.0  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.697 | 2.698  | -0.001 | 1.000  | 4510762  | 2.09         |                 | 83.7 | 70350 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.697 | 2.703  | -0.006 | 1.000  | 39390    | 0.0182       |                 |      | 21.5  |       |
| 413.00 > 169.00                  | 2.689 | 2.703  | -0.014 | 0.997  | 18072    |              | 2.18(0.84-2.52) |      | 52.9  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.697 | 2.703  | -0.006 |        | 5588518  | 2.50         |                 |      | 67692 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.069 | 3.067  | 0.002  | 1.138  | 3718732  | 2.04         |                 | 81.8 | 72257 |       |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.062 | 3.071  | -0.009 | 0.998  | 46624    | 0.0291       |                 |      | 98.0  |       |
| 463.00 > 169.00                  | 3.069 | 3.071  | -0.002 | 1.000  | 10528    |              | 4.43(1.90-5.69) |      | 173   |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.069 | 3.074  | -0.005 | 1.138  | 3194577  | 1.79         |                 | 74.9 | 24214 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.069 | 3.079  | -0.010 | 1.000  | 1069295  | 0.6738       |                 |      | 2915  |       |
| 499.00 > 99.00                   | 3.069 | 3.079  | -0.010 | 1.000  | 252752   |              | 4.23(2.31-6.93) |      | 1059  |       |

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_075.d

Injection Date: 07-Jun-2018 00:52:29

Instrument ID: A8\_N

Lims ID: 320-39023-A-43-A

Lab Sample ID: 320-39023-43

Client ID: KLA07-SD1-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 43

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

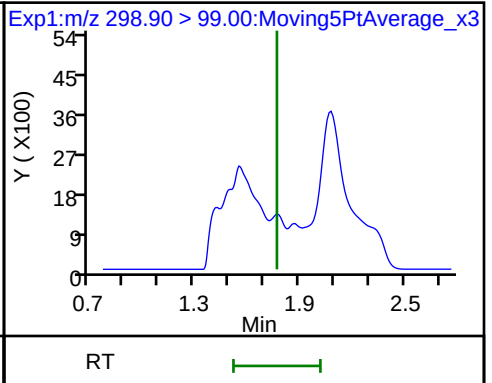
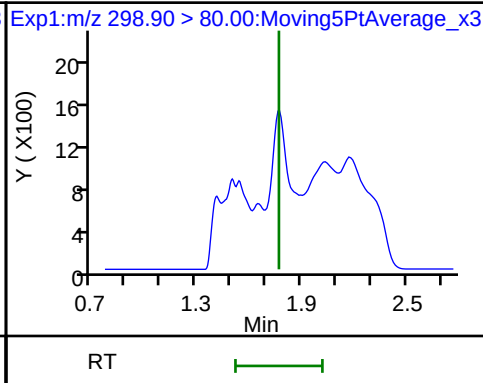
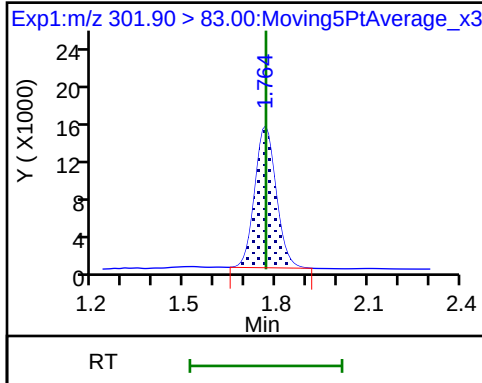
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (ND)

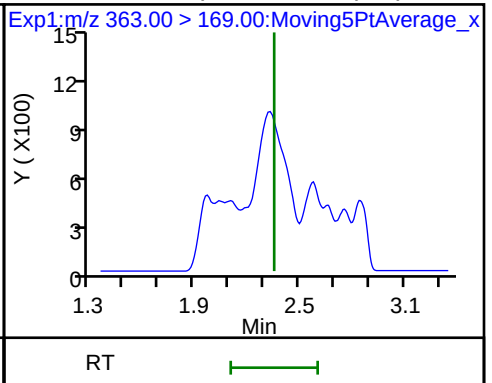
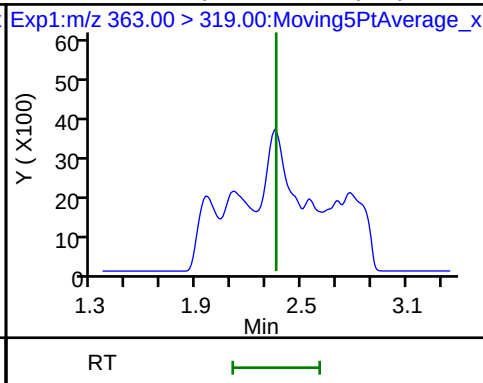
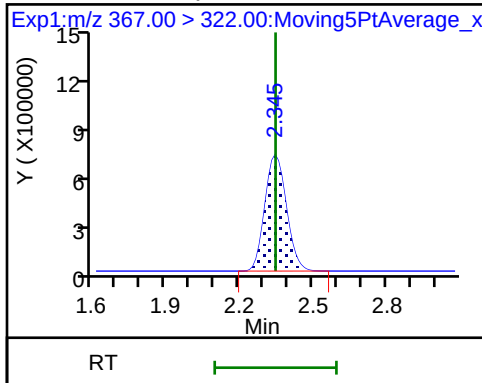
5 Perfluorobutanesulfonic acid (ND)



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid (ND)

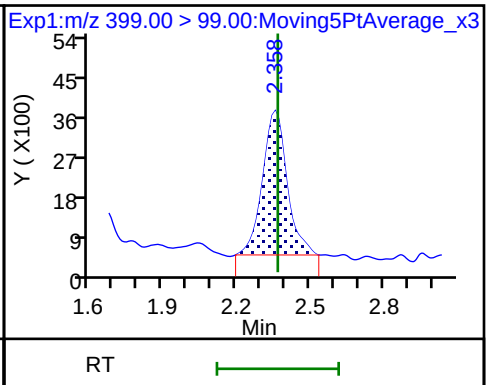
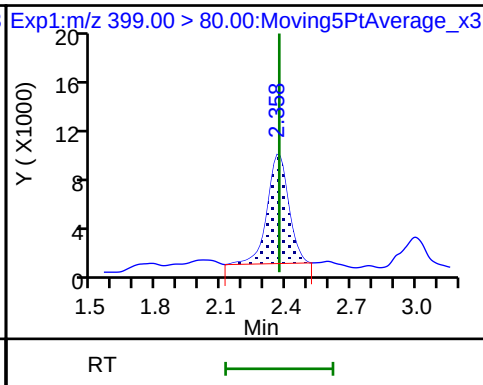
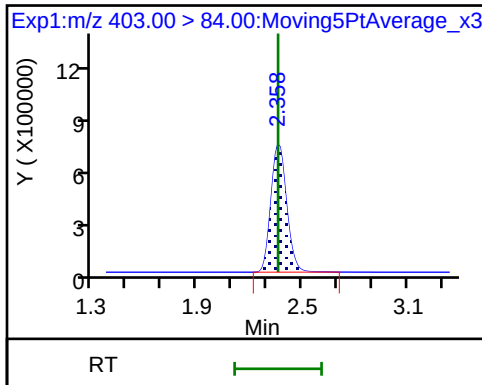
10 Perfluoroheptanoic acid (ND)



D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

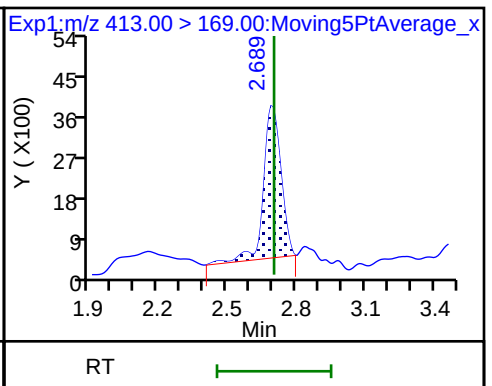
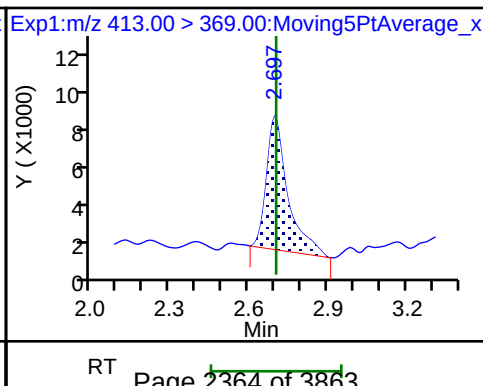
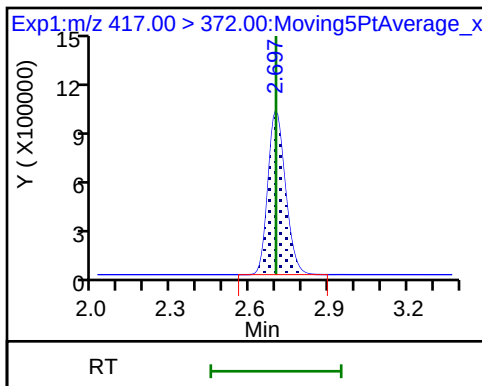
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

15 Perfluorooctanoic acid

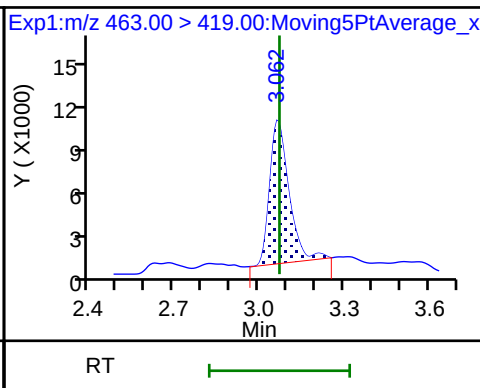
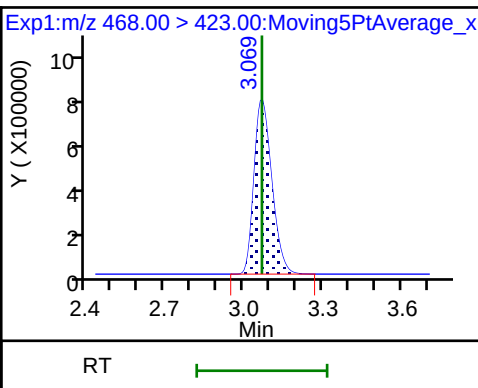
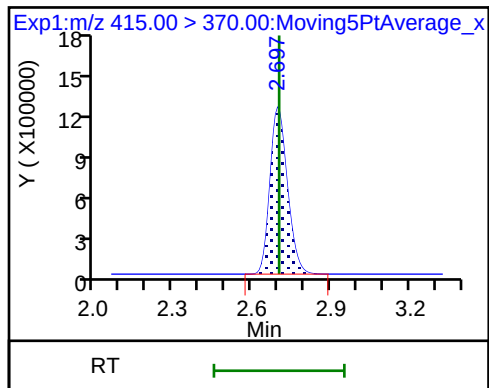
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

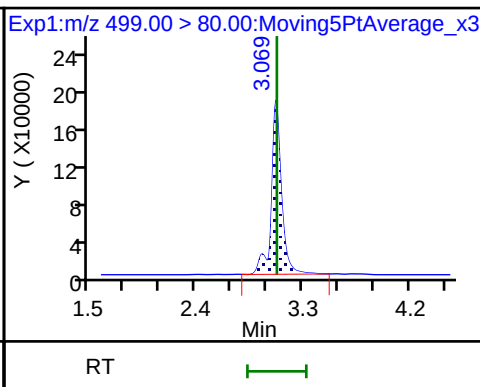
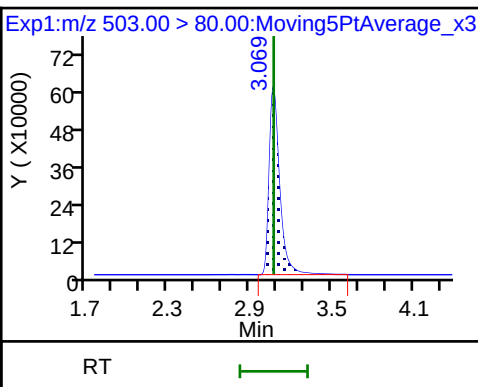
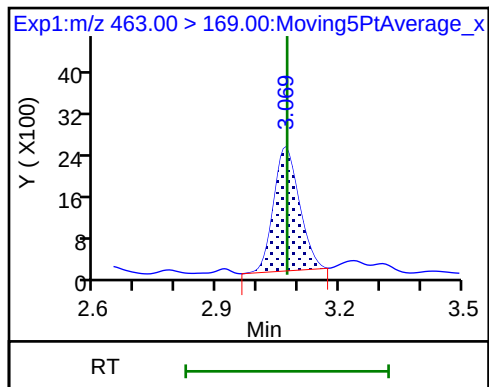
20 Perfluorononanoic acid



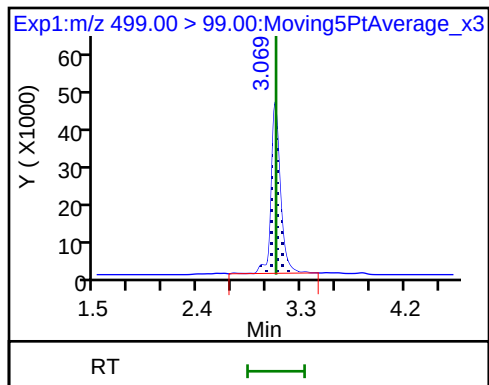
20 Perfluorononanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: ER-01 Lab Sample ID: 320-39023-44  
 Matrix: Water Lab File ID: 2018.05.21LLCX\_005.d  
 Analysis Method: EPA 537 (Mod) Date Collected: 05/01/2018 15:30  
 Extraction Method: 3535 Date Extracted: 05/15/2018 12:48  
 Sample wt/vol: 296.5 (mL) Date Analyzed: 05/21/2018 14:03  
 Con. Extract Vol.: 10.00 (mL) Dilution Factor: 1  
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)  
 % Moisture: \_\_\_\_\_ GPC Cleanup: (Y/N) N  
 Analysis Batch No.: 224542 Units: ng/L

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.88   | J   | 1.7 | 1.3  | 0.51 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.7    |     | 1.7 | 1.3  | 0.46 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.3    | U   | 1.7 | 1.3  | 0.44 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.40   | J M | 1.7 | 0.84 | 0.39 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.9    |     | 1.7 | 0.84 | 0.32 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 8.7    |     | 3.4 | 2.5  | 0.93 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 88   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 88   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 90   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 92   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 88   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 82   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\2018.05.21LLCX\_005.d  
 Lims ID: 320-39023-A-44-A  
 Client ID: ER-01  
 Sample Type: Client  
 Inject. Date: 21-May-2018 14:03:36 ALS Bottle#: 4 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-44-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 15:28:41 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK027

First Level Reviewer: barnettj

Date: 21-May-2018 15:24:09

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       | M     |
| 298.90 > 80.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 34521    | 0.0120       |                 |      | 0.5   | M     |
| 298.90 > 99.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 15009    |              | 2.30(1.25-3.74) |      | 75.3  |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.766 | 1.765  | 0.001  | 1.000  | 85931    | 2.05         |                 | 88.1 | 267   |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.347 | 2.345  | 0.002  | 1.000  | 46007    | 0.0260       |                 |      | 53.6  |       |
| 363.00 > 169.00                  | 2.347 | 2.345  | 0.002  | 1.000  | 14369    |              | 3.20(1.13-3.40) |      | 65.5  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.347 | 2.345  | 0.002  | 1.000  | 4191758  | 2.21         |                 | 88.4 | 69402 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.360 | 2.358  | 0.002  | 1.000  | 132641   | 0.0572       |                 |      | 394   |       |
| 399.00 > 99.00                   | 2.360 | 2.358  | 0.002  | 1.000  | 46541    |              | 2.85(1.50-4.49) |      | 217   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.360 | 2.358  | 0.002  | 1.000  | 4867147  | 2.08         |                 | 87.8 | 67539 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.705 | 2.697  | 0.008  |        | 4736459  | 2.50         |                 |      | 60406 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.705 | 2.704  | 0.001  | 1.000  | 96748    | 0.0508       |                 |      | 38.2  |       |
| 413.00 > 169.00                  | 2.705 | 2.704  | 0.001  | 1.000  | 53582    |              | 1.81(0.84-2.52) |      | 193   |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.705 | 2.705  | 0.0    | 1.000  | 4042060  | 2.25         |                 | 90.1 | 61555 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.070 | 3.066  | 0.004  | 1.000  | 402126   | 0.2590       |                 |      | 1464  |       |
| 499.00 > 99.00                   | 3.070 | 3.066  | 0.004  | 1.000  | 91727    |              | 4.38(2.31-6.93) |      | 1437  |       |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.077 | 3.066  | 0.011  | 1.002  | 9006     | 0.006281     |                 |      | 14.5  |       |
| 463.00 > 169.00                  | 3.070 | 3.066  | 0.004  | 1.000  | 1653     |              | 5.45(1.90-5.69) |      | 72.2  |       |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.070 | 3.068     | 0.002     | 1.000     | 3155959  | 1.96            |               | 82.0 | 21594 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.070 | 3.074     | -0.004    | 1.000     | 3384415  | 2.31            |               | 92.3 | 60620 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\2018.05.21LLCX\_005.d

Injection Date: 21-May-2018 14:03:36

Instrument ID: A8\_N

Lims ID: 320-39023-A-44-A

Lab Sample ID: 320-39023-44

Client ID: ER-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

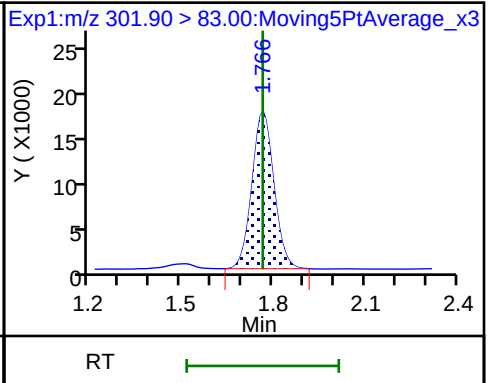
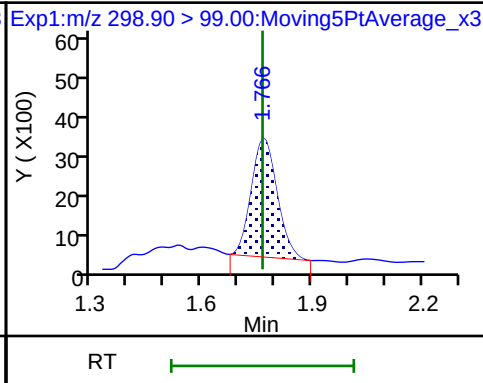
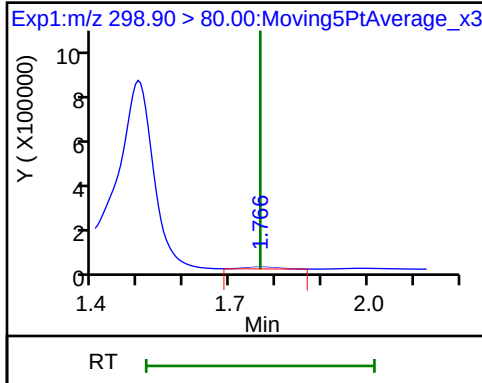
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid (M)

## 5 Perfluorobutanesulfonic acid

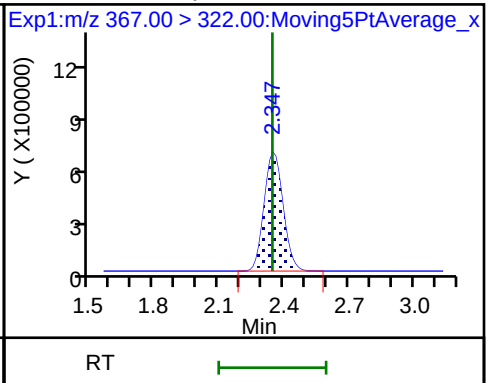
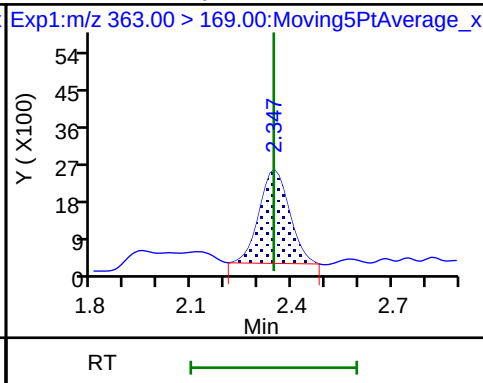
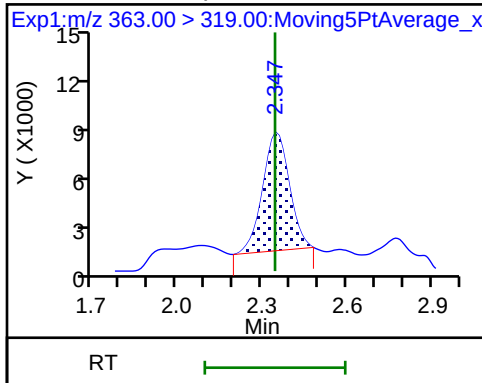
## D 47 13C3-PFBS



## 10 Perfluoroheptanoic acid

## 10 Perfluoroheptanoic acid

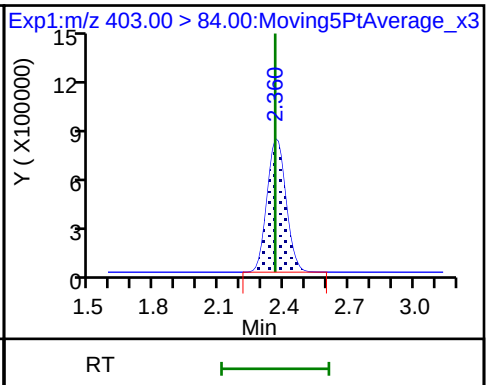
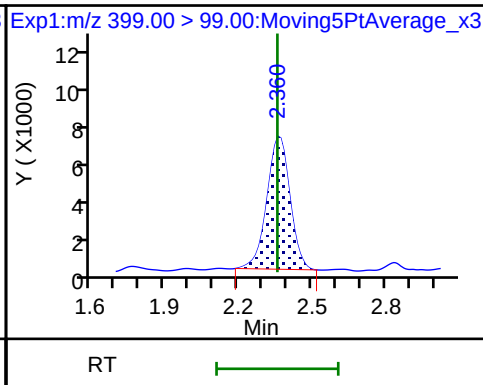
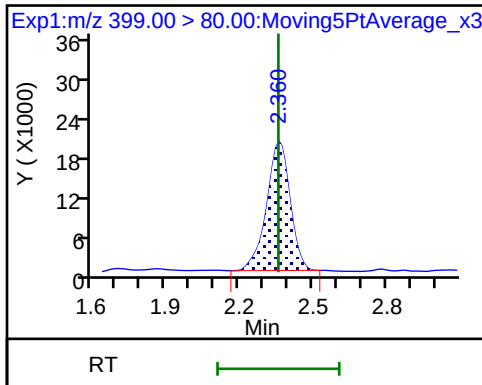
## D 9 13C4-PFHpA



## 8 Perfluorohexanesulfonic acid

## 8 Perfluorohexanesulfonic acid

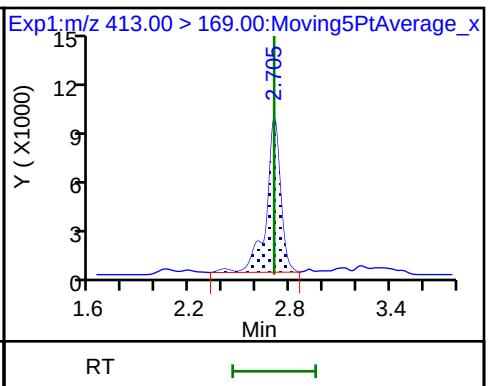
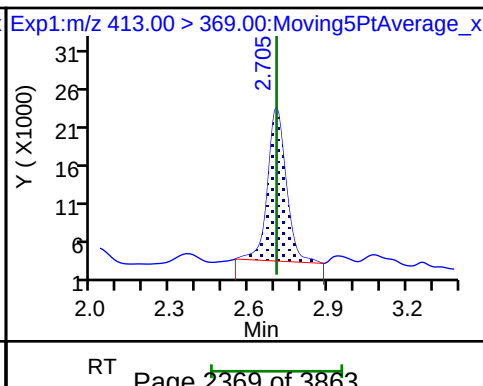
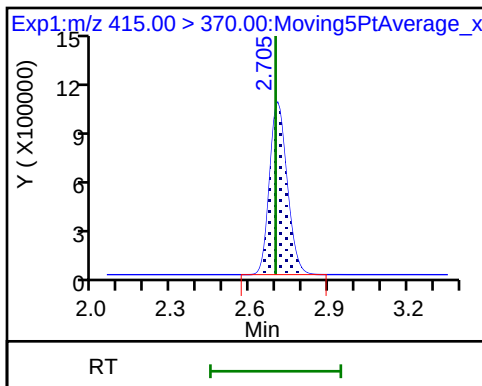
## D 11 18O2 PFHxS



## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid

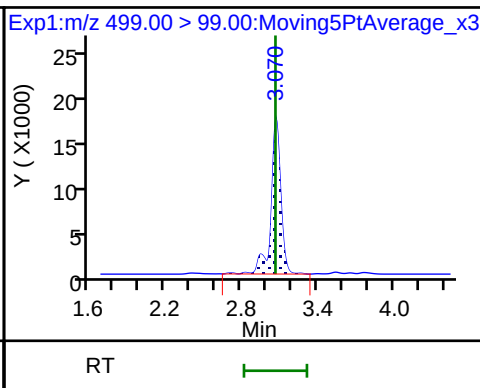
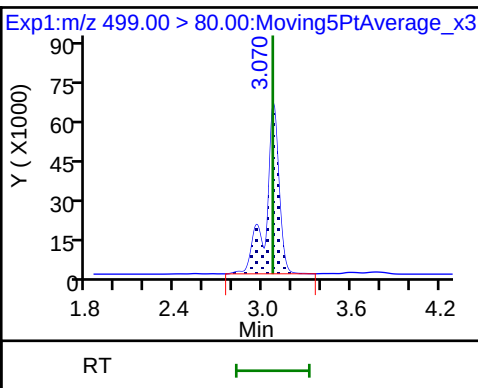
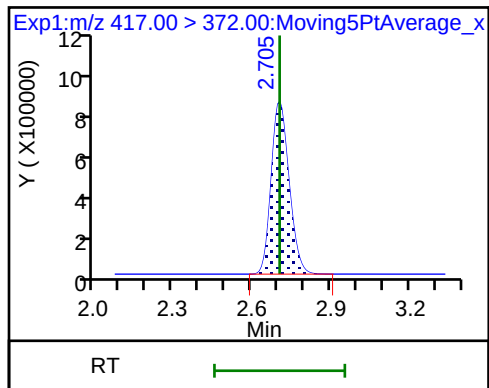
## 15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

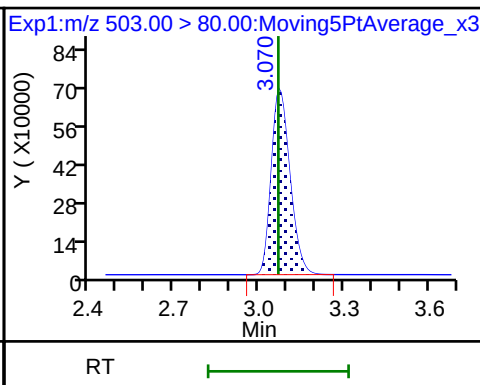
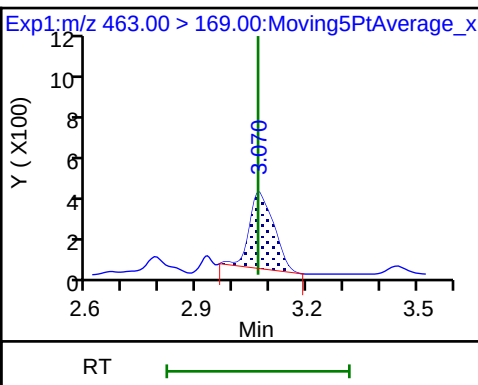
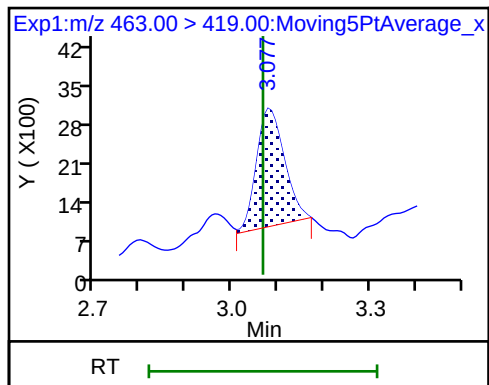
## 17 Perfluorooctane sulfonic acid



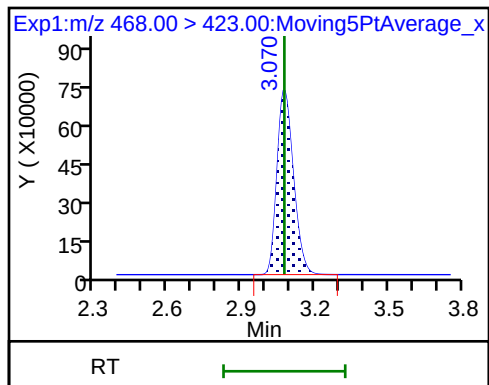
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

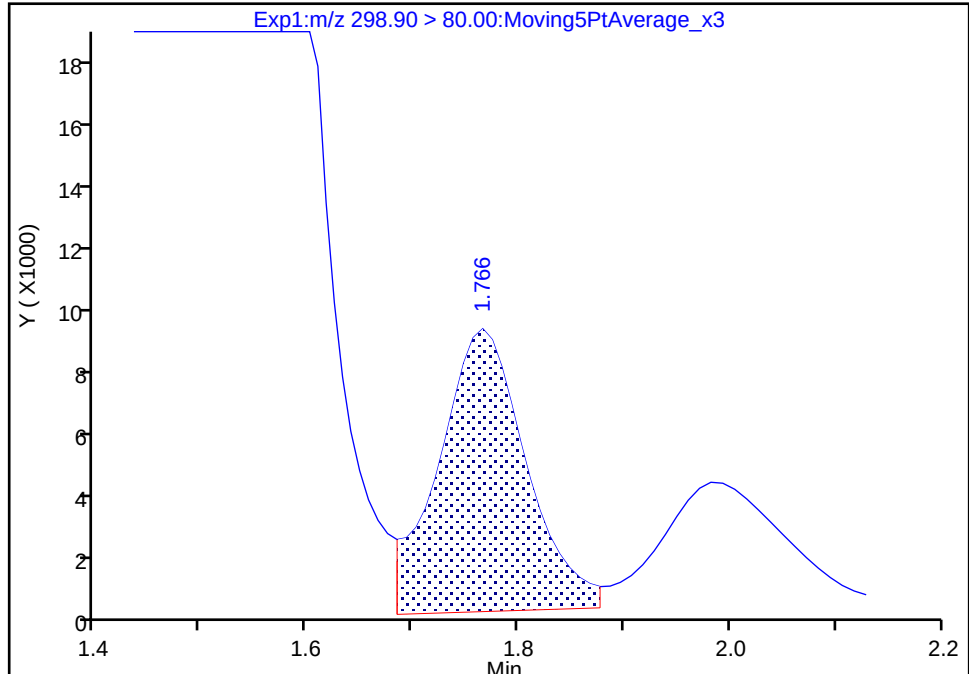
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|-----------------|---------------------------------------------------------------------------|----------------|--------------------|----------------|---|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180521-58511.b\2018.05.21LLCX_005.d |                |                    |                |   |
| Injection Date: | 21-May-2018 14:03:36                                                      | Instrument ID: | A8_N               |                |   |
| Lims ID:        | 320-39023-A-44-A                                                          | Lab Sample ID: | 320-39023-44       |                |   |
| Client ID:      | ER-01                                                                     |                |                    |                |   |
| Operator ID:    | SACINSTLCMS01                                                             | ALS Bottle#:   | 4                  | Worklist Smp#: | 6 |
| Injection Vol:  | 2.0 ul                                                                    | Dil. Factor:   | 1.0000             |                |   |
| Method:         | A8_N                                                                      | Limit Group:   | LC PFC_QSM5-1 ICAL |                |   |
| Column:         |                                                                           | Detector       | EXP1               |                |   |

**5 Perfluorobutanesulfonic acid, CAS: 375-73-5**

Signal: 1

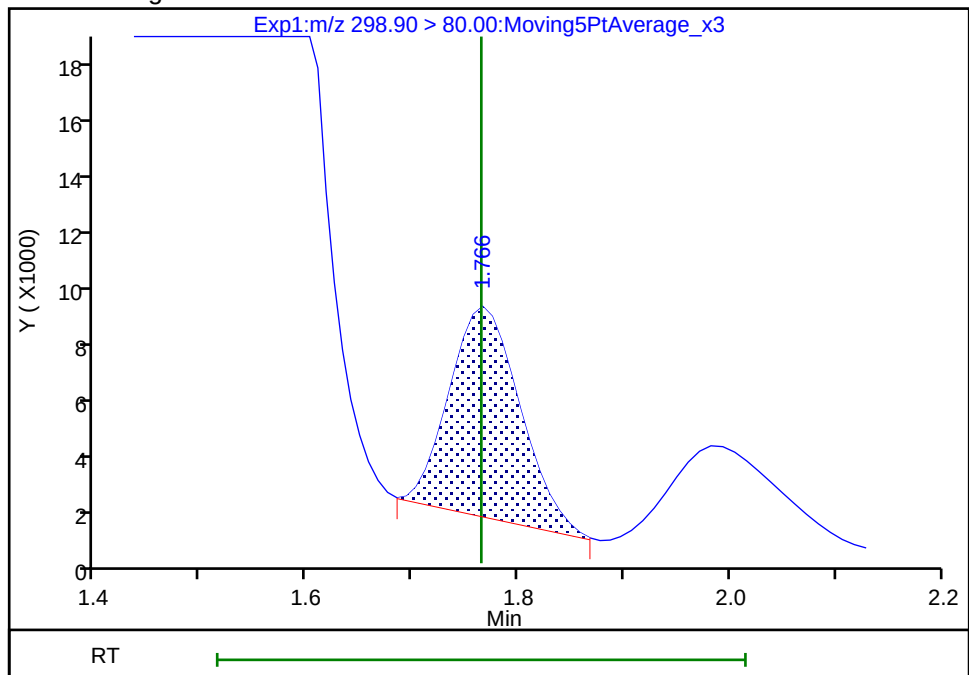
RT: 1.77  
Area: 51782  
Amount: 0.017941  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.77  
Area: 34521  
Amount: 0.011961  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 21-May-2018 15:23:40  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2371 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>FB-01</u>          | Lab Sample ID: <u>320-39023-45</u>           |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.18LLC_043.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 15:50</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/15/2018 12:48</u>      |
| Sample wt/vol: <u>301.3 (mL)</u>        | Date Analyzed: <u>05/19/2018 06:46</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>224205</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|---|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.2    | U | 1.7 | 1.2  | 0.51 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.2    | U | 1.7 | 1.2  | 0.45 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.2    | U | 1.7 | 1.2  | 0.43 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.83   | U | 1.7 | 0.83 | 0.38 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.61   | J | 1.7 | 0.83 | 0.32 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1.7    | J | 3.3 | 2.5  | 0.91 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 91   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 101  |   | 50-150 |
| STL00990 | 13C4 PFOA        | 94   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 105  |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 93   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 95   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_043.d  
 Lims ID: 320-39023-A-45-A  
 Client ID: FB-01  
 Sample Type: Client  
 Inject. Date: 19-May-2018 06:46:26 ALS Bottle#: 33 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-45-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 11:15:58 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK027

First Level Reviewer: barnettj

Date: 21-May-2018 11:09:54

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.757 | 1.756  | 0.001  | 1.000  | 84822    | 2.12         |                 | 91.0 | 892   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.335 | 2.345  | -0.010 | 1.000  | 4560260  | 2.52         |                 | 101  | 61067 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.348 | 2.347  | 0.001  | 0.994  | 43583    | 0.0185       |                 |      | 275   |       |
| 399.00 > 99.00                   | 2.348 | 2.347  | 0.001  | 0.994  | 15894    |              | 2.74(1.50-4.49) |      | 116   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.361 | 2.358  | 0.003  | 1.000  | 4948914  | 2.21         |                 | 93.4 | 67151 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.698 | 2.690  | 0.008  |        | 4525434  | 2.50         |                 |      | 61279 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.690 | 2.690  | 0.0    | 0.997  | 11174    | 0.005912     |                 |      | 3.7   |       |
| 413.00 > 169.00                  | 2.698 | 2.690  | 0.008  | 1.000  | 0        |              | 0.00(0.84-2.52) |      |       |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.698 | 2.697  | 0.001  | 1.000  | 4014156  | 2.34         |                 | 93.7 | 58852 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.063 | 3.059  | 0.004  | 1.000  | 3480955  | 2.26         |                 | 94.6 | 27972 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.070 | 3.059  | 0.011  | 1.000  | 3692867  | 2.63         |                 | 105  | 55699 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.070 | 3.064  | 0.006  | 1.002  | 86000    | 0.0502       |                 |      | 734   |       |
| 499.00 > 99.00                   | 3.063 | 3.064  | -0.001 | 1.000  | 24084    |              | 3.57(2.31-6.93) |      | 336   |       |

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_043.d

Injection Date: 19-May-2018 06:46:26

Instrument ID: A8\_N

Lims ID: 320-39023-A-45-A

Lab Sample ID: 320-39023-45

Client ID: FB-01

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

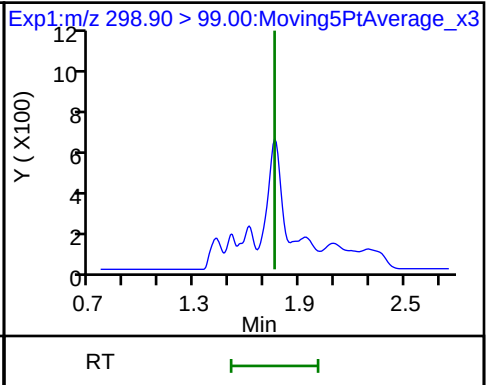
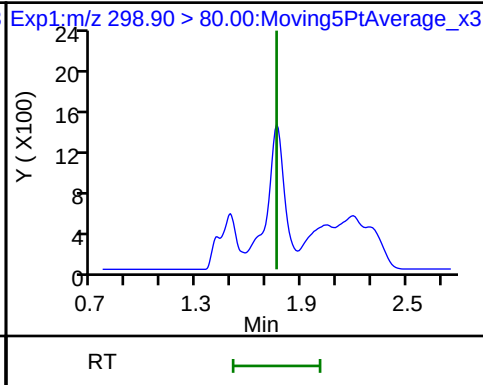
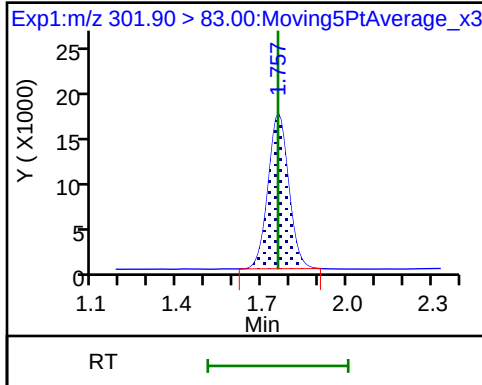
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (ND)

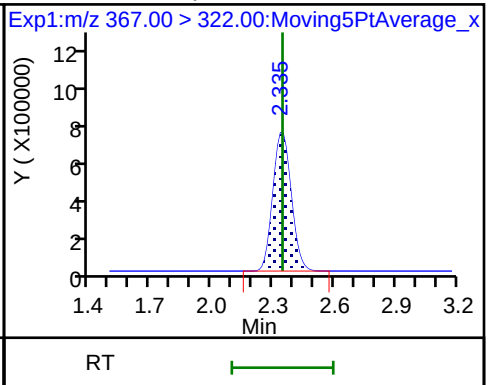
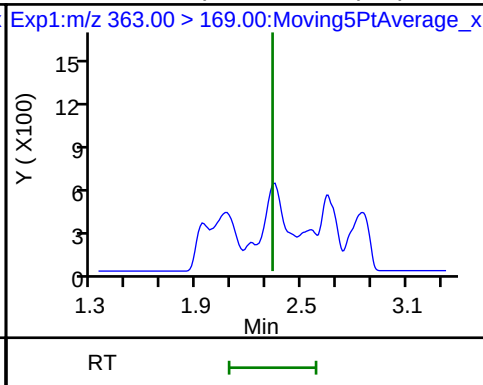
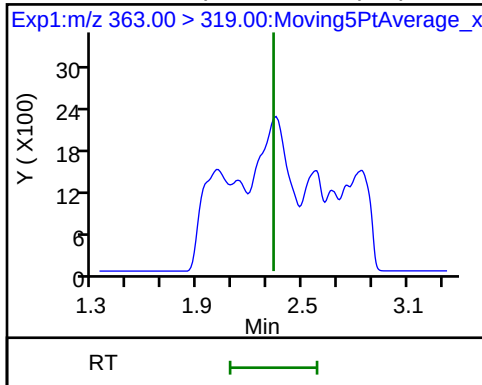
5 Perfluorobutanesulfonic acid (ND)



10 Perfluoroheptanoic acid (ND)

10 Perfluoroheptanoic acid (ND)

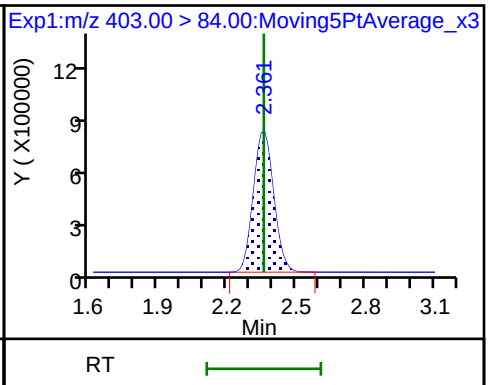
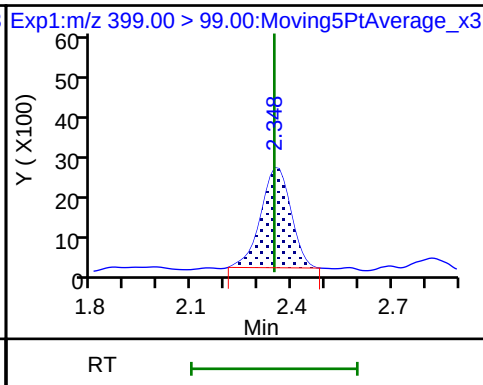
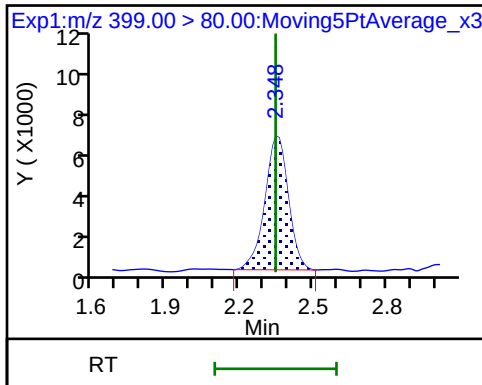
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

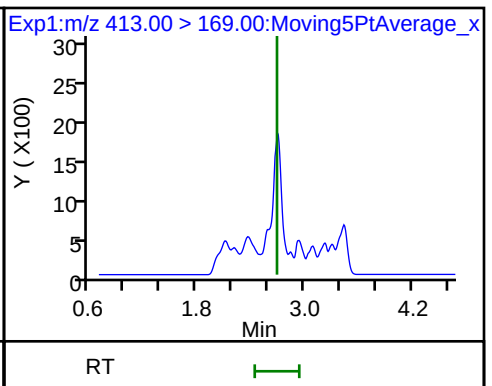
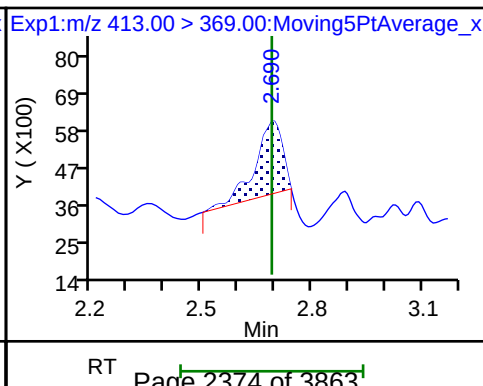
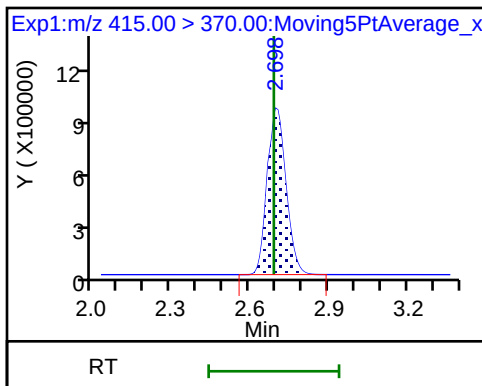
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

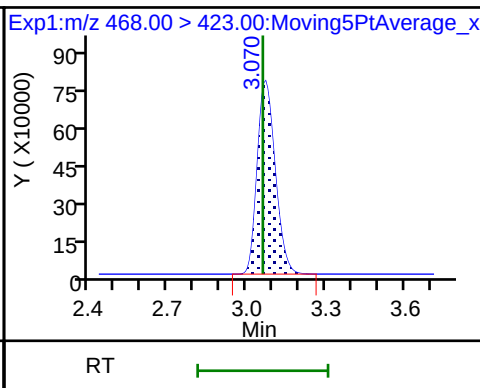
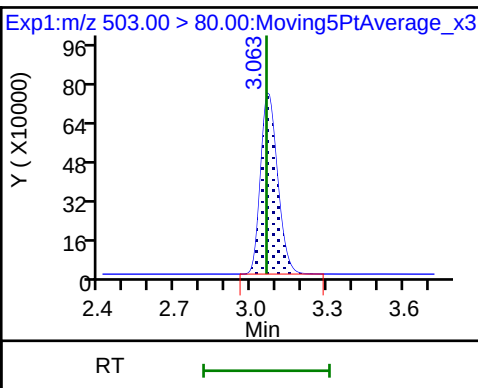
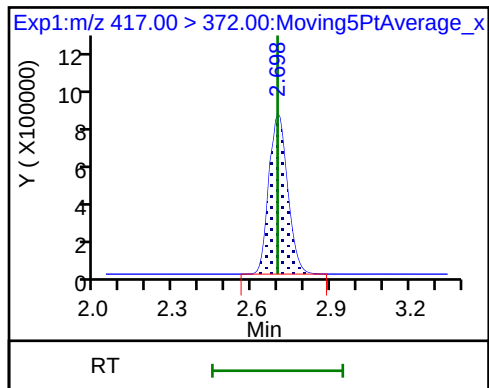




## D 14 13C4 PFOA

## D 18 13C4 PFOS

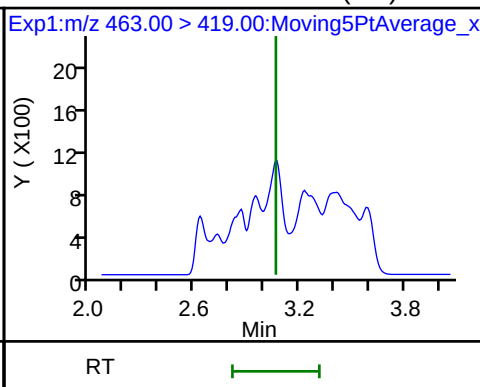
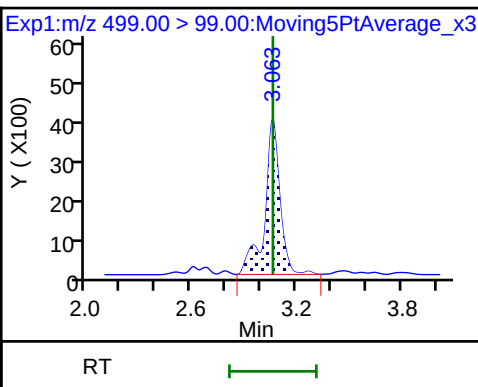
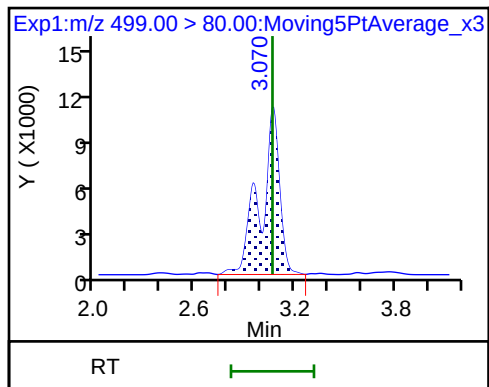
## D 19 13C5 PFNA



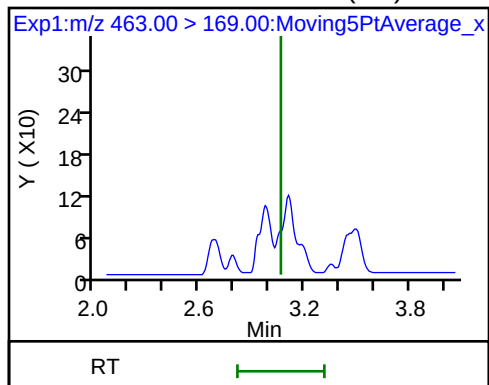
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (ND)



## 20 Perfluorononanoic acid (ND)



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>ER-02</u>          | Lab Sample ID: <u>320-39023-46</u>           |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.27LLADX_020.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 09:40</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/16/2018 14:51</u>      |
| Sample wt/vol: <u>287.4 (mL)</u>        | Date Analyzed: <u>05/28/2018 09:29</u>       |
| Con. Extract Vol.: <u>10 (mL)</u>       | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225818</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.3    | U   | 1.7 | 1.3  | 0.53 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.52   | J M | 1.7 | 1.3  | 0.47 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.3    | U   | 1.7 | 1.3  | 0.45 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.87   | U   | 1.7 | 0.87 | 0.40 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.0    | J   | 1.7 | 0.87 | 0.33 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 4.4    | M   | 3.5 | 2.6  | 0.96 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 75   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 71   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 80   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 84   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 75   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 77   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_020.d  
 Lims ID: 320-39023-B-46-A  
 Client ID: ER-02  
 Sample Type: Client  
 Inject. Date: 28-May-2018 09:29:18 ALS Bottle#: 16 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-b-46-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 11:24:05 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK030

First Level Reviewer: ruangyotsakuld

Date: 30-May-2018 11:24:05

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| D 47 13C3-PFBS                   |       |           |           |           |          |                 |                 |      |        |       |
| 301.90 > 83.00                   | 1.760 | 1.761     | -0.001    | 1.000     | 85060    | 1.74            |                 | 75.0 | 605    |       |
| 5 Perfluorobutanesulfonic acid   |       |           |           |           |          |                 |                 |      |        |       |
| 298.90 > 80.00                   | 1.769 | 1.765     | 0.004     | 1.005     | 12958    | 0.004536        |                 |      | 31.9   |       |
| 298.90 > 99.00                   | 1.769 | 1.765     | 0.004     | 1.005     | 5480     |                 | 2.36(1.25-3.74) |      | 28.3   |       |
| D 9 13C4-PFHpA                   |       |           |           |           |          |                 |                 |      |        |       |
| 367.00 > 322.00                  | 2.352 | 2.342     | 0.010     | 1.000     | 3937483  | 1.78            |                 | 71.4 | 63171  |       |
| D 11 18O2 PFHxS                  |       |           |           |           |          |                 |                 |      |        |       |
| 403.00 > 84.00                   | 2.365 | 2.355     | 0.010     | 1.000     | 4866945  | 1.79            |                 | 75.5 | 100111 |       |
| 8 Perfluorohexanesulfonic acid   |       |           |           |           |          |                 |                 |      |        |       |
| 399.00 > 80.00                   | 2.365 | 2.358     | 0.007     | 1.000     | 67274    | 0.0290          |                 |      | 171    |       |
| 399.00 > 99.00                   | 2.365 | 2.358     | 0.007     | 1.000     | 23408    |                 | 2.87(1.50-4.49) |      | 68.5   |       |
| D 14 13C4 PFOA                   |       |           |           |           |          |                 |                 |      |        |       |
| 417.00 > 372.00                  | 2.708 | 2.695     | 0.013     | 1.000     | 4158190  | 1.99            |                 | 79.7 | 67716  |       |
| 15 Perfluorooctanoic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 413.00 > 369.00                  | 2.708 | 2.697     | 0.011     | 1.000     | 29130    | 0.0149          |                 |      | 9.7    | M     |
| 413.00 > 169.00                  | 2.700 | 2.697     | 0.003     | 0.997     | 13080    |                 | 2.23(0.84-2.52) |      | 41.3   | M     |
| * 62 13C2-PFOA                   |       |           |           |           |          |                 |                 |      |        |       |
| 415.00 > 370.00                  | 2.708 | 2.697     | 0.011     |           | 5509965  | 2.50            |                 |      | 78166  |       |
| D 19 13C5 PFNA                   |       |           |           |           |          |                 |                 |      |        |       |
| 468.00 > 423.00                  | 3.073 | 3.063     | 0.010     | 1.000     | 3576945  | 2.10            |                 | 83.8 | 63739  |       |
| D 18 13C4 PFOS                   |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                   | 3.073 | 3.063     | 0.010     | 1.000     | 3458845  | 1.85            |                 | 77.2 | 21753  |       |
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |        |       |
| 499.00 > 80.00                   | 3.073 | 3.064     | 0.009     | 1.000     | 213122   | 0.1252          |                 |      | 380    | M     |
| 499.00 > 99.00                   | 3.073 | 3.064     | 0.009     | 1.000     | 49129    |                 | 4.34(2.31-6.93) |      | 479    | M     |
| 20 Perfluorononanoic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 463.00 > 419.00                  | 3.073 | 3.064     | 0.009     | 1.000     | 7342     | 0.004845        |                 |      | 7.0    |       |
| 463.00 > 169.00                  | 3.081 | 3.064     | 0.017     | 1.003     | 1945     |                 | 3.77(1.90-5.69) |      | 54.2   |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_020.d

Injection Date: 28-May-2018 09:29:18

Instrument ID: A8\_N

Lims ID: 320-39023-B-46-A

Lab Sample ID: 320-39023-46

Client ID: ER-02

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

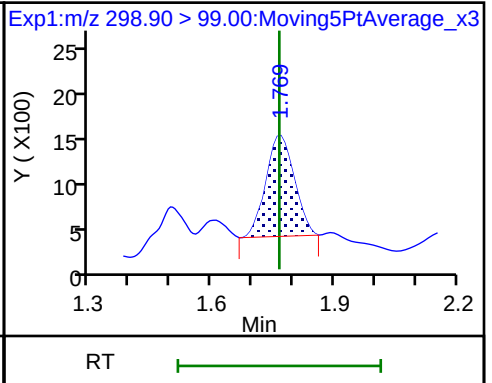
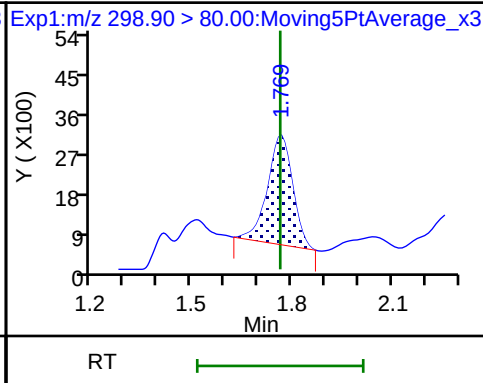
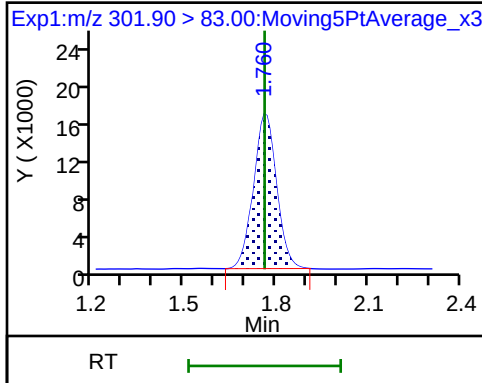
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

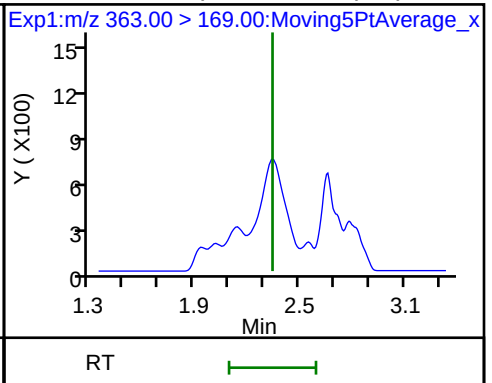
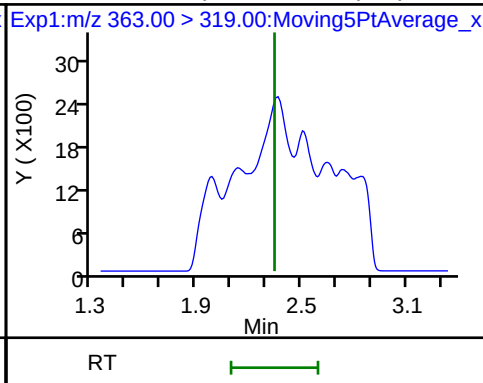
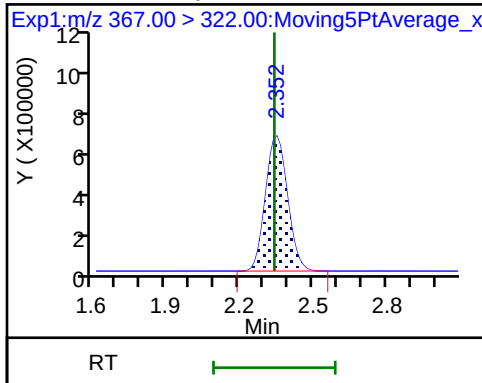
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid (ND)

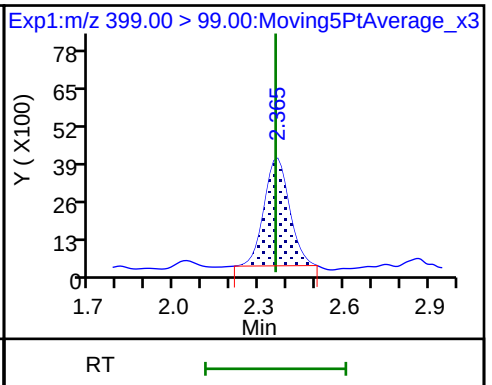
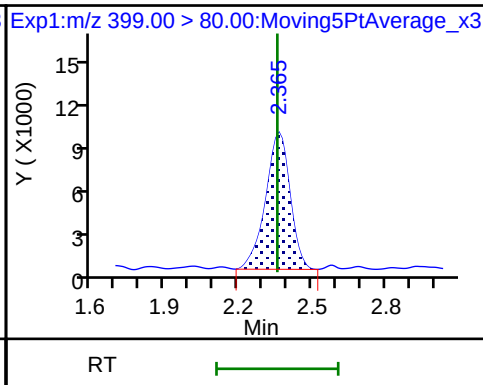
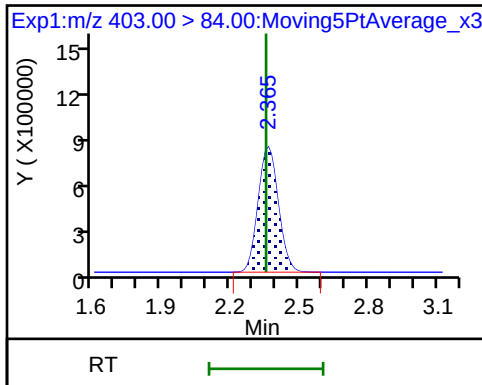
## 10 Perfluoroheptanoic acid (ND)



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

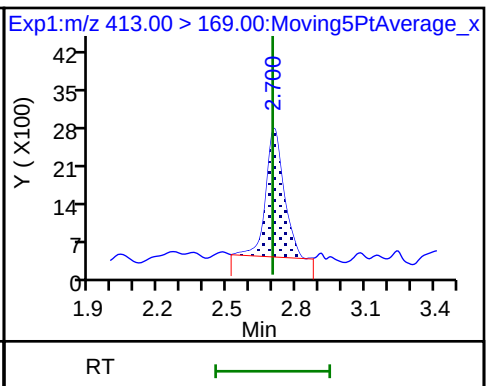
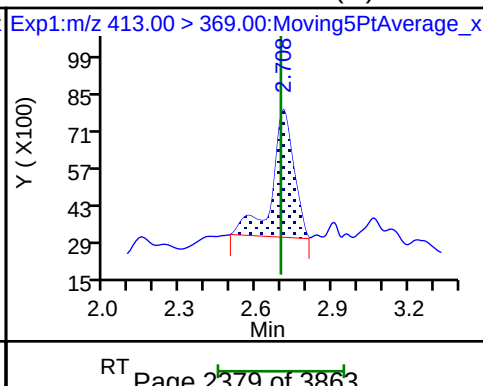
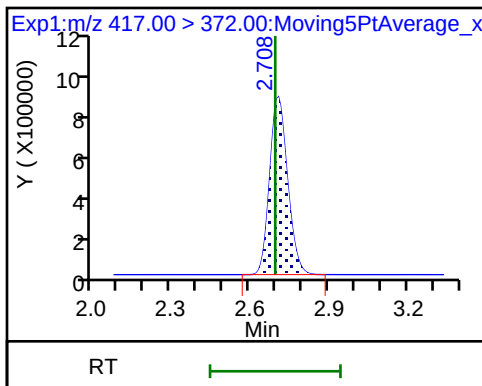
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid (M)

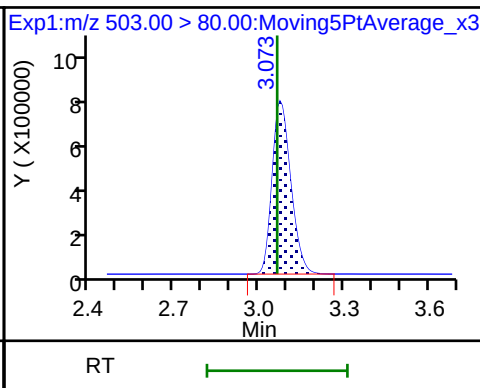
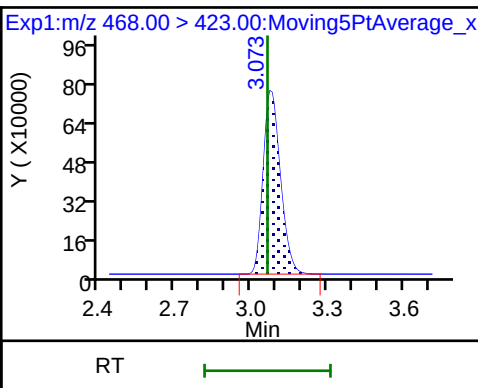
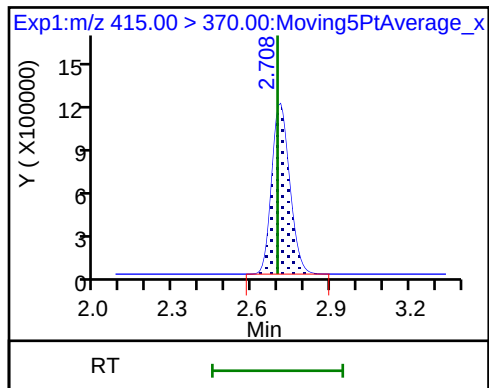
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

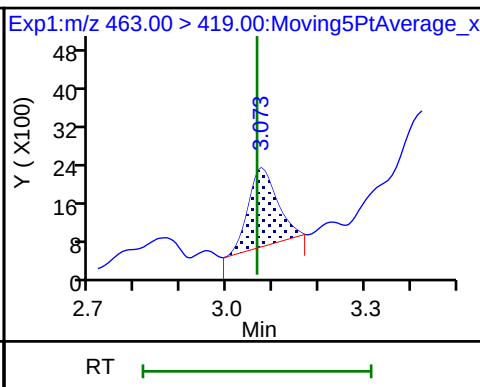
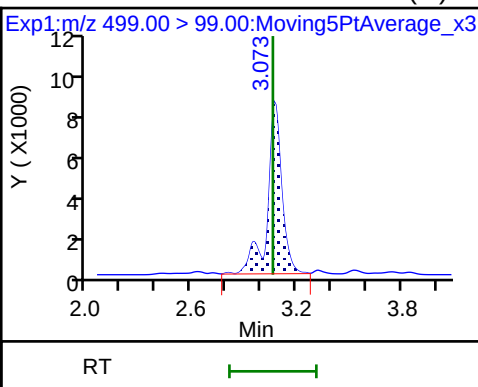
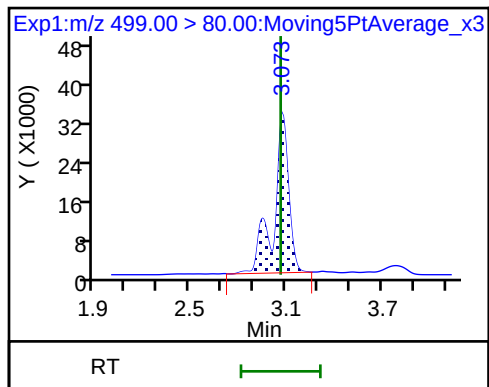
D 18 13C4 PFOS



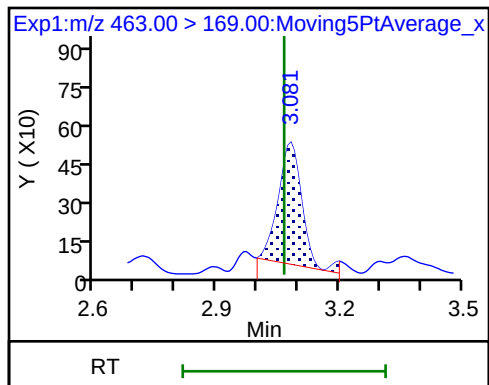
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid (M)

20 Perfluorononanoic acid



20 Perfluorononanoic acid



## TestAmerica Sacramento

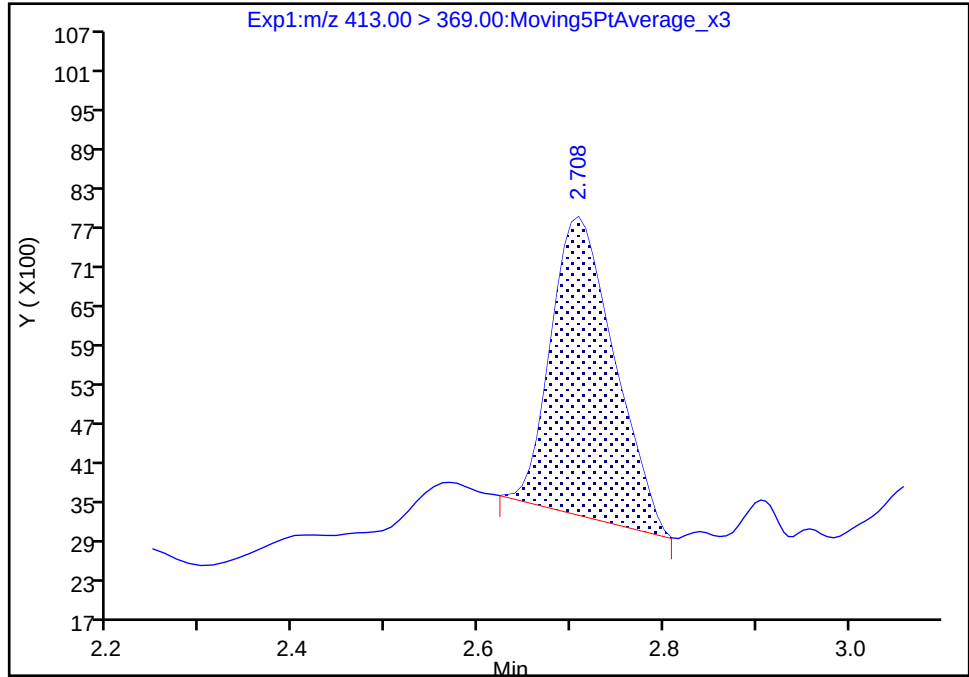
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_020.d  
Injection Date: 28-May-2018 09:29:18 Instrument ID: A8\_N  
Lims ID: 320-39023-B-46-A Lab Sample ID: 320-39023-46  
Client ID: ER-02  
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 20  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

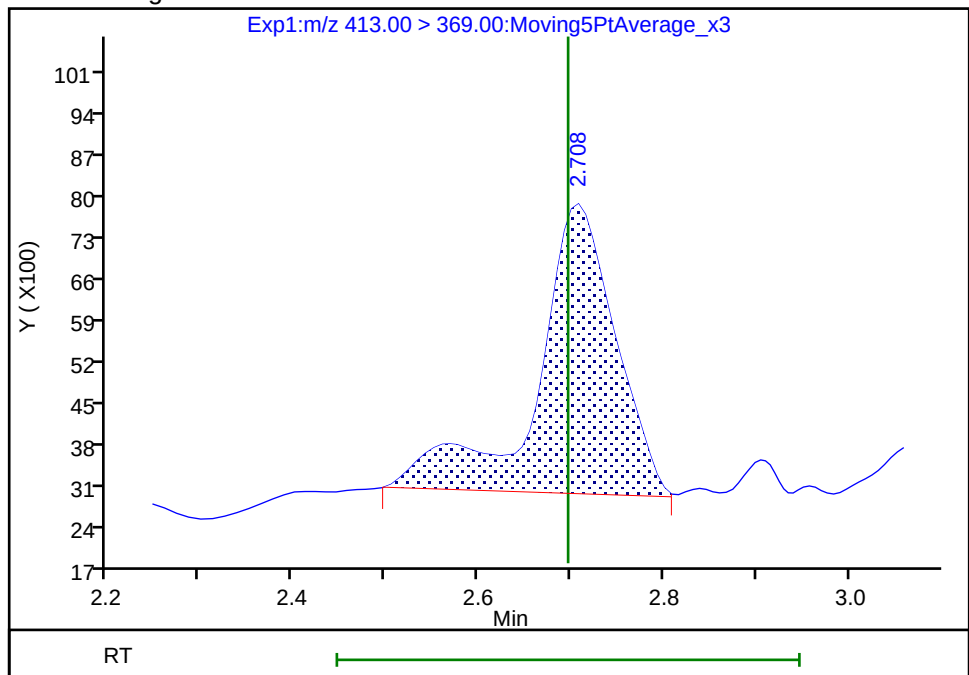
RT: 2.71  
Area: 21617  
Amount: 0.011042  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 29130  
Amount: 0.014880  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 30-May-2018 11:23:16

Audit Action: Manually Integrated

Audit Reason: Isomers

## TestAmerica Sacramento

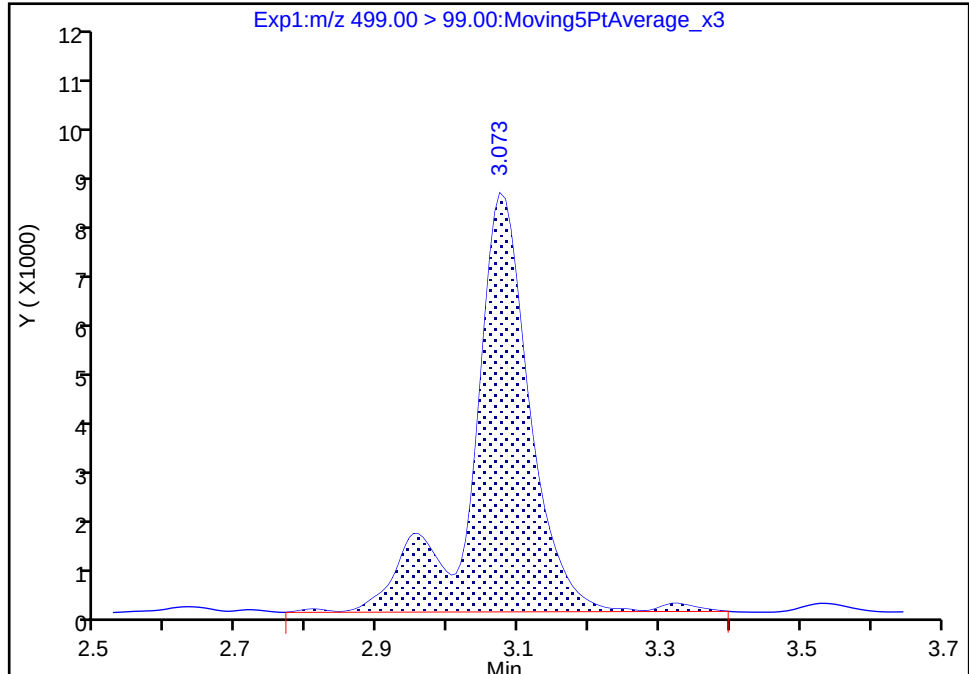
|                 |                                                                            |                |                    |                |    |
|-----------------|----------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180527-58835.b\2018.05.27LLADX_020.d |                |                    |                |    |
| Injection Date: | 28-May-2018 09:29:18                                                       | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-B-46-A                                                           | Lab Sample ID: | 320-39023-46       |                |    |
| Client ID:      | ER-02                                                                      |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                              | ALS Bottle#:   | 16                 | Worklist Smp#: | 20 |
| Injection Vol:  | 2.0 ul                                                                     | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                       | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                            | Detector       | EXP1               |                |    |

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 2

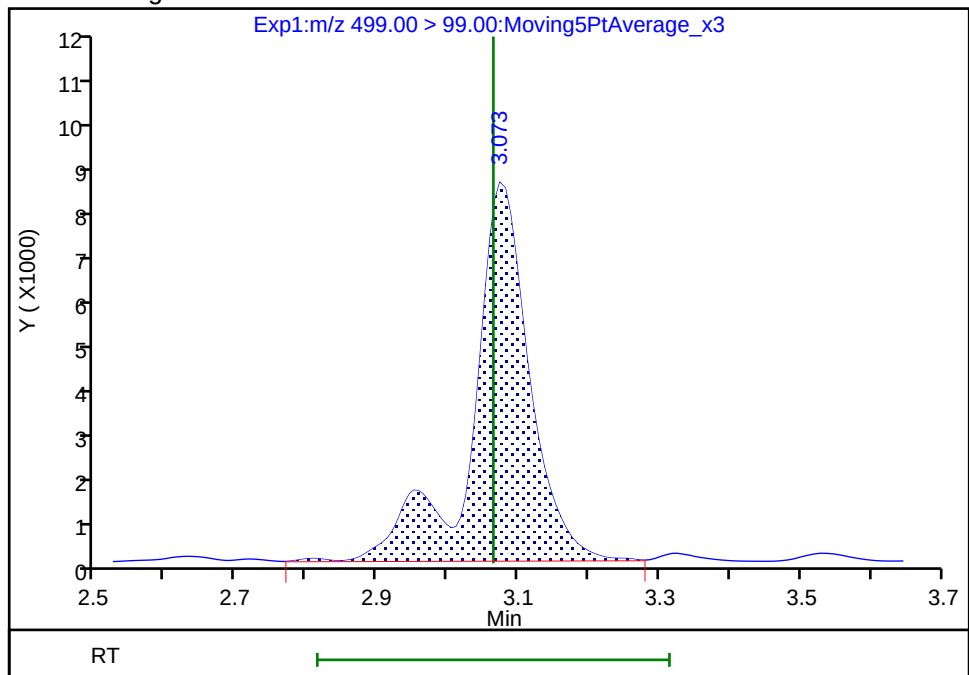
RT: 3.07  
Area: 49555  
Amount: 0.125246  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 49129  
Amount: 0.125246  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 30-May-2018 11:23:43

Audit Action: Manually Integrated

Audit Reason: Baseline



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>ER-03</u>          | Lab Sample ID: <u>320-39023-47</u>           |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.25LLAAXX_040.d</u>   |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/03/2018 10:30</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/17/2018 14:42</u>      |
| Sample wt/vol: <u>278.3 (mL)</u>        | Date Analyzed: <u>05/25/2018 23:59</u>       |
| Con. Extract Vol.: <u>10 (mL)</u>       | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225690</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|---|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.3    | U | 1.8 | 1.3  | 0.55 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.3    | U | 1.8 | 1.3  | 0.49 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.3    | U | 1.8 | 1.3  | 0.47 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.90   | U | 1.8 | 0.90 | 0.41 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.90   | U | 1.8 | 0.90 | 0.34 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 2.7    | U | 3.6 | 2.7  | 0.99 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 65   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 66   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 69   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 71   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 63   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 64   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_040.d  
 Lims ID: 320-39023-A-47-A  
 Client ID: ER-03  
 Sample Type: Client  
 Inject. Date: 25-May-2018 23:59:26 ALS Bottle#: 31 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-47-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 26-May-2018 13:21:46 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK022

First Level Reviewer: barnettj

Date: 26-May-2018 13:10:02

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |        |       |       |      |  |      |     |  |
|----------------|-------|-------|--------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.757 | 1.760 | -0.003 | 1.000 | 72712 | 1.50 |  | 64.7 | 718 |  |
|----------------|-------|-------|--------|-------|-------|------|--|------|-----|--|

## D 9 13C4-PFHpa

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.334 | 2.339 | -0.005 | 1.000 | 3628712 | 1.66 |  | 66.4 | 63356 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |       |       |       |          |                 |      |   |  |
|----------------|-------|-------|-------|-------|-------|----------|-----------------|------|---|--|
| 399.00 > 80.00 | 2.347 | 2.346 | 0.001 | 1.000 | 14881 | 0.007804 |                 | 93.6 | R |  |
| 399.00 > 99.00 | 2.347 | 2.346 | 0.001 | 1.000 | 2581  |          | 5.77(1.50-4.49) | 22.7 | R |  |

## D 11 18O2 PFHxS

|                |       |       |        |       |         |      |  |      |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.347 | 2.366 | -0.019 | 1.000 | 4002252 | 1.48 |  | 62.7 | 79303 |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |     |  |         |      |  |  |       |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.683 | 2.683 | 0.0 |  | 5456699 | 2.50 |  |  | 66189 |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |        |       |       |        |                 |  |     |  |
|-----------------|-------|-------|--------|-------|-------|--------|-----------------|--|-----|--|
| 413.00 > 369.00 | 2.675 | 2.683 | -0.008 | 0.997 | 18627 | 0.0111 |                 |  | 6.5 |  |
| 413.00 > 169.00 | 2.683 | 2.683 | 0.0    | 1.000 | 0     |        | 0.00(0.84-2.52) |  |     |  |

## D 14 13C4 PFOA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.683 | 2.698 | -0.015 | 1.000 | 3570915 | 1.73 |  | 69.1 | 57051 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## D 18 13C4 PFOS

|                |       |       |        |       |         |      |  |      |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 503.00 > 80.00 | 3.043 | 3.065 | -0.022 | 1.000 | 2819360 | 1.52 |  | 63.6 | 22008 |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## D 19 13C5 PFNA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.043 | 3.065 | -0.022 | 1.000 | 2993362 | 1.77 |  | 70.8 | 59290 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## QC Flag Legend

Processing Flags

R - Failed Signal Ratio Test

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_040.d

Injection Date: 25-May-2018 23:59:26

Instrument ID: A8\_N

Lims ID: 320-39023-A-47-A

Lab Sample ID: 320-39023-47

Client ID: ER-03

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

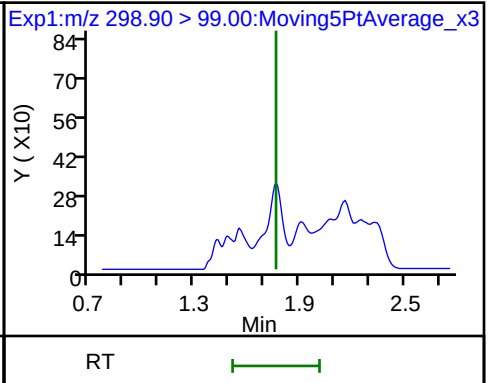
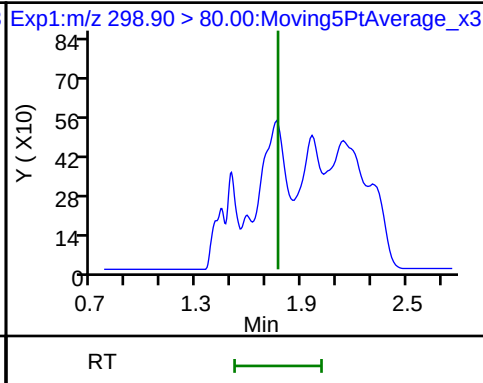
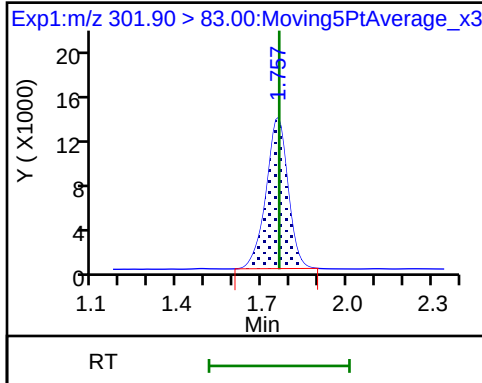
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (ND)

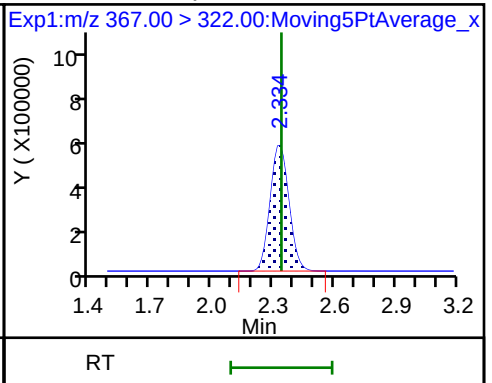
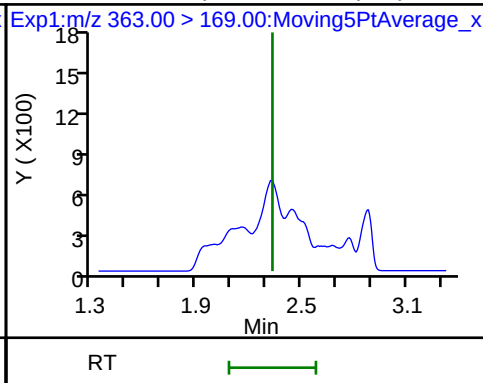
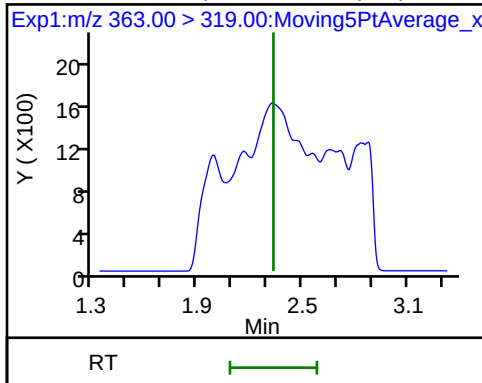
5 Perfluorobutanesulfonic acid (ND)



10 Perfluoroheptanoic acid (ND)

10 Perfluoroheptanoic acid (ND)

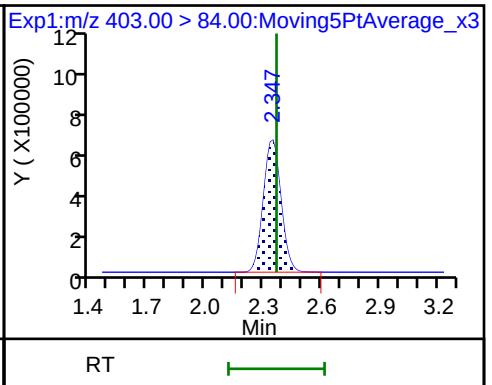
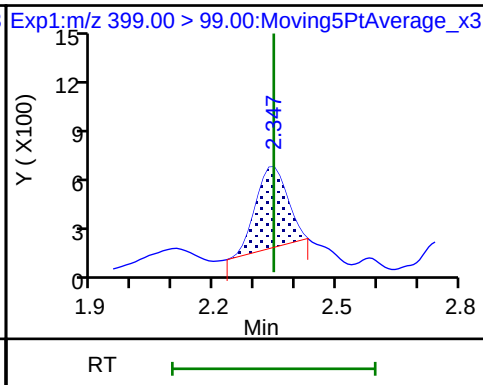
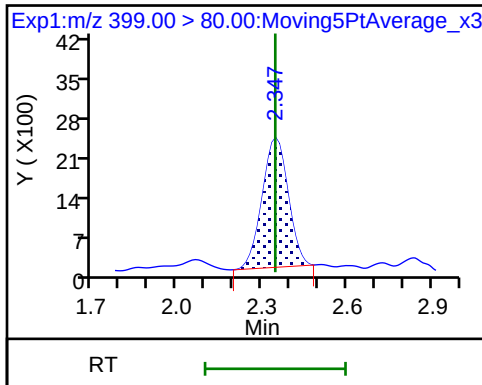
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

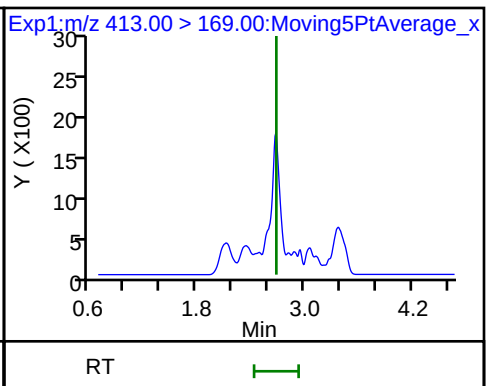
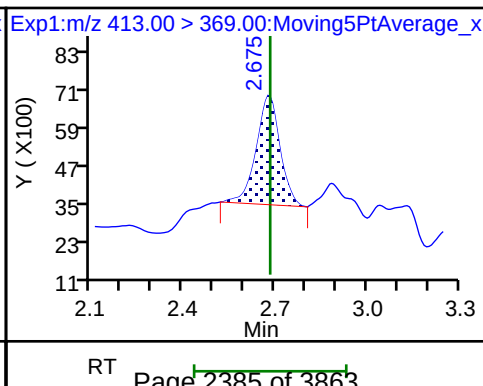
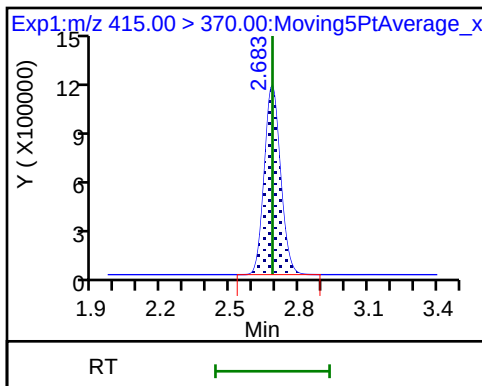
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

15 Perfluorooctanoic acid

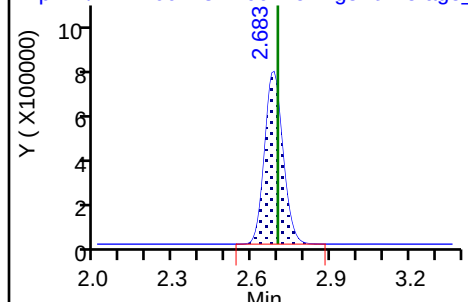


## D 14 13C4 PFOA

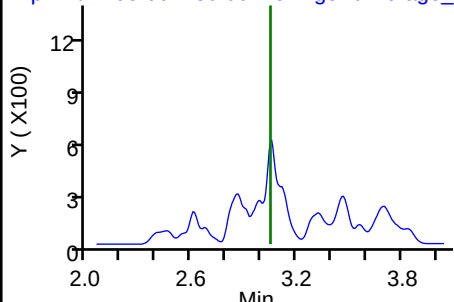
## 17 Perfluorooctane sulfonic acid (ND)

## 17 Perfluorooctane sulfonic acid (ND)

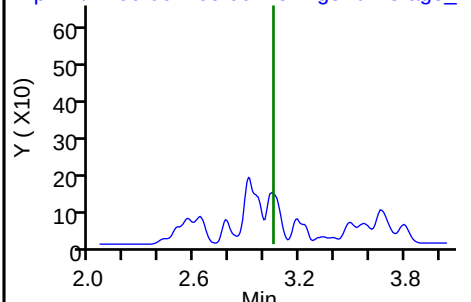
Exp1:m/z 417.00 &gt; 372.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

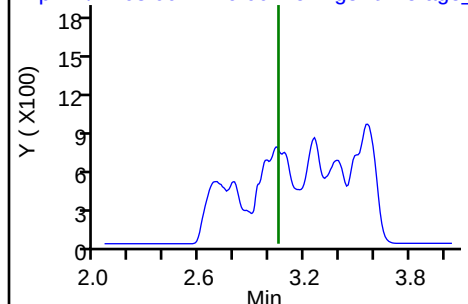


## 20 Perfluorononanoic acid (ND)

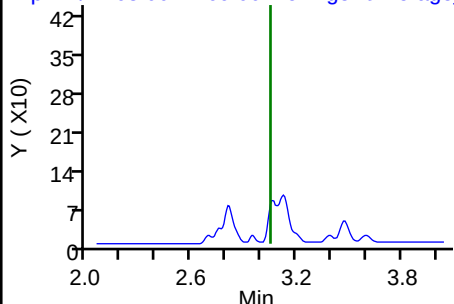
## 20 Perfluorononanoic acid (ND)

## D 18 13C4 PFOS

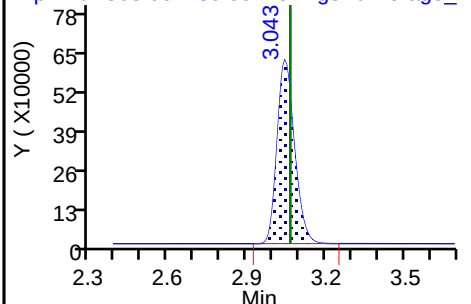
Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

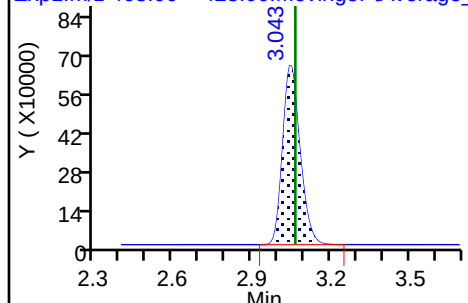


Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



## D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                             |
|-----------------------------------------|---------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                 |
| SDG No.: _____                          |                                             |
| Client Sample ID: <u>ER-04</u>          | Lab Sample ID: <u>320-39023-48</u>          |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.25LLAAXX_042.d</u>  |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 11:00</u>     |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/17/2018 14:42</u>     |
| Sample wt/vol: <u>269.9(mL)</u>         | Date Analyzed: <u>05/26/2018 00:15</u>      |
| Con. Extract Vol.: <u>10(mL)</u>        | Dilution Factor: <u>1</u>                   |
| Injection Volume: <u>2(uL)</u>          | GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                 |
| Analysis Batch No.: <u>225690</u>       | Units: <u>ng/L</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.4    | U   | 1.9 | 1.4  | 0.57 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 1.4    | U M | 1.9 | 1.4  | 0.50 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.4    | U   | 1.9 | 1.4  | 0.48 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.93   | U   | 1.9 | 0.93 | 0.43 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.46   | J   | 1.9 | 0.93 | 0.35 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1.3    | J   | 3.7 | 2.8  | 1.0  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 70   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 70   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 73   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 78   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 69   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 69   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_042.d  
 Lims ID: 320-39023-B-48-A  
 Client ID: ER-04  
 Sample Type: Client  
 Inject. Date: 26-May-2018 00:15:03 ALS Bottle#: 32 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-b-48-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 26-May-2018 13:22:13 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK022

First Level Reviewer: barnettj

Date: 26-May-2018 13:10:51

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.756 | 1.760  | -0.004 | 1.000  | 80886    | 1.63         |                 | 70.2 | 645   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.332 | 2.339  | -0.007 | 1.000  | 3904343  | 1.74         |                 | 69.7 | 61924 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.345 | 2.345  | 0.0    | 1.000  | 26602    | 0.0123       |                 |      | 183   |       |
| 399.00 > 99.00                   | 2.345 | 2.345  | 0.0    | 1.000  | 9234     |              | 2.88(1.50-4.49) |      | 70.3  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.345 | 2.366  | -0.021 | 1.000  | 4539196  | 1.64         |                 | 69.3 | 66071 |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.682 | 2.690  | -0.008 |        | 5597718  | 2.50         |                 |      | 65522 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       | M     |
| 413.00 > 369.00                  | 2.690 | 2.690  | 0.0    | 1.003  | 16581    | 0.009138     |                 |      | 5.8   | M     |
| 413.00 > 169.00                  | 2.683 | 2.690  | -0.007 | 1.000  | 0        |              | 0.00(0.84-2.52) |      |       |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.682 | 2.698  | -0.016 | 1.000  | 3854016  | 1.82         |                 | 72.7 | 53618 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.056 | 3.055  | 0.001  | 1.002  | 53053    | 0.0345       |                 |      | 293   |       |
| 499.00 > 99.00                   | 3.049 | 3.055  | -0.006 | 1.000  | 11780    |              | 4.50(2.31-6.93) |      | 320   |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.049 | 3.065  | -0.016 | 1.000  | 3124205  | 1.64         |                 | 68.7 | 23856 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.049 | 3.065  | -0.016 | 1.000  | 3377594  | 1.95         |                 | 77.9 | 91797 |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_042.d

Injection Date: 26-May-2018 00:15:03

Instrument ID: A8\_N

Lims ID: 320-39023-B-48-A

Lab Sample ID: 320-39023-48

Client ID: ER-04

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

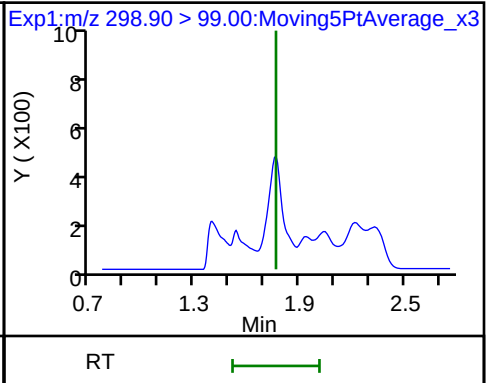
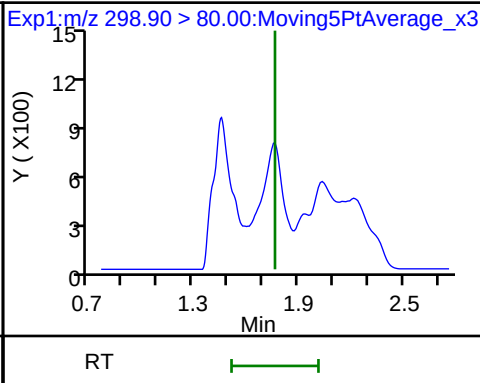
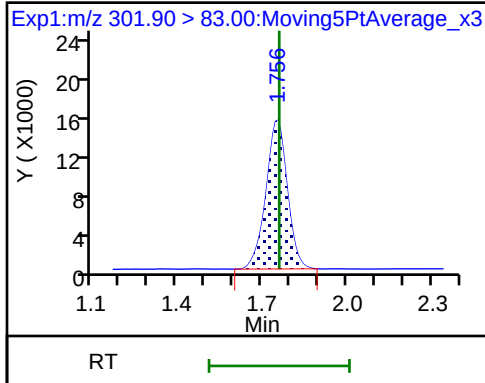
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid (ND)

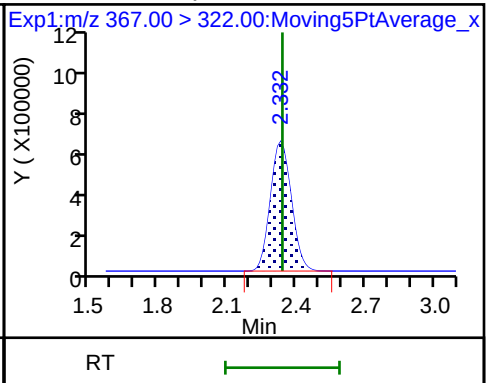
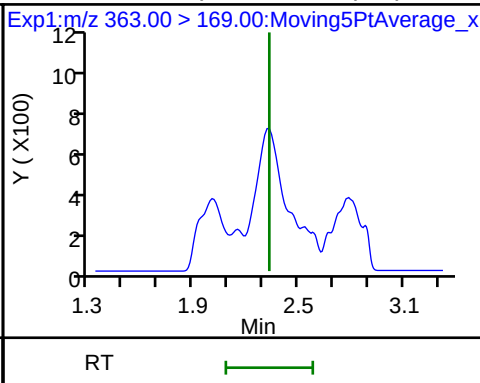
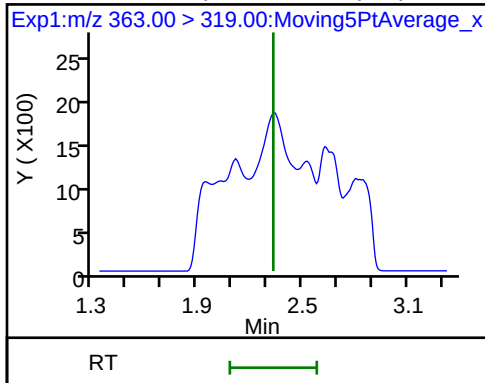
5 Perfluorobutanesulfonic acid (ND)



10 Perfluoroheptanoic acid (ND)

10 Perfluoroheptanoic acid (ND)

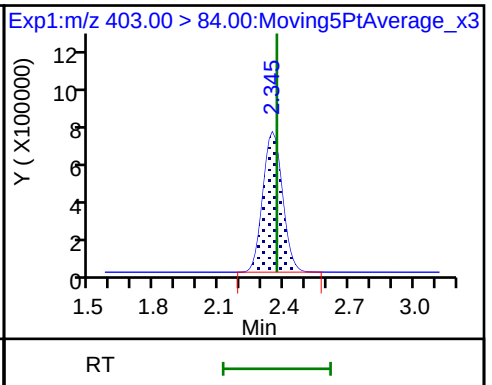
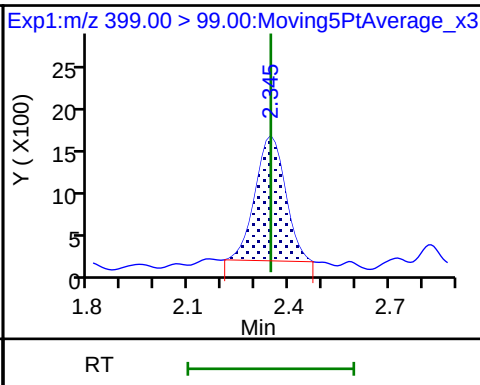
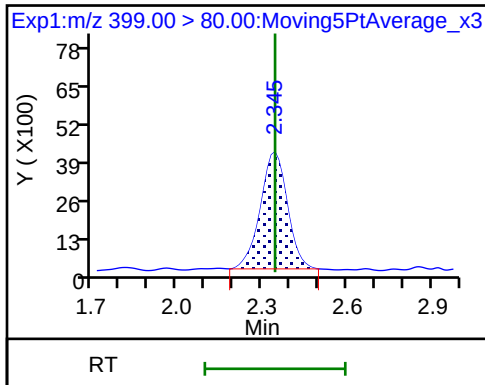
D 9 13C4-PFHpA



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

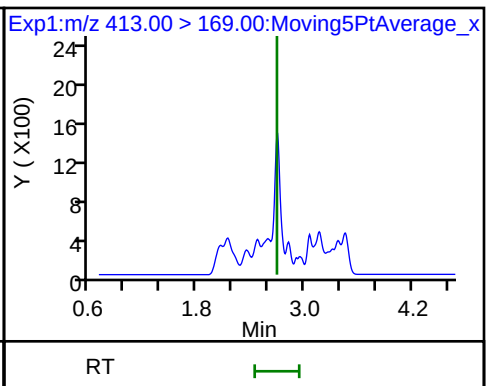
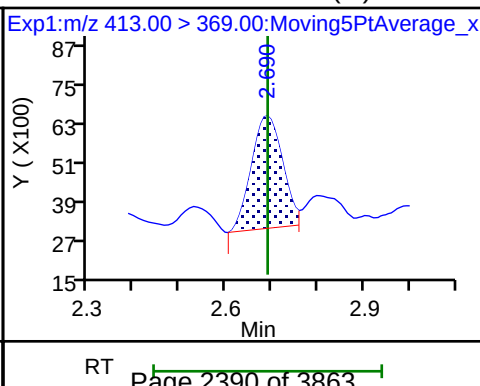
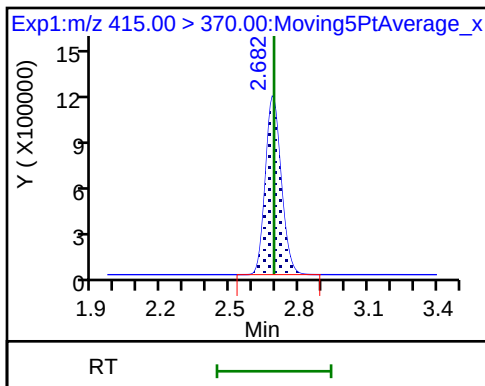
D 11 18O2 PFHxS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid (M)

15 Perfluorooctanoic acid

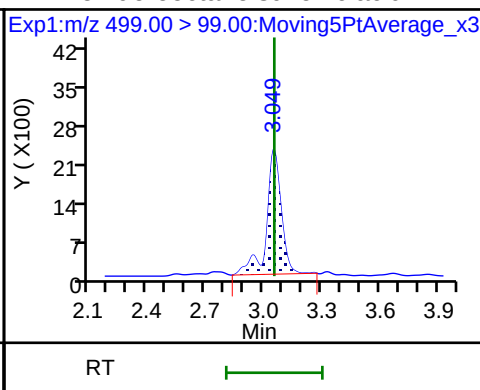
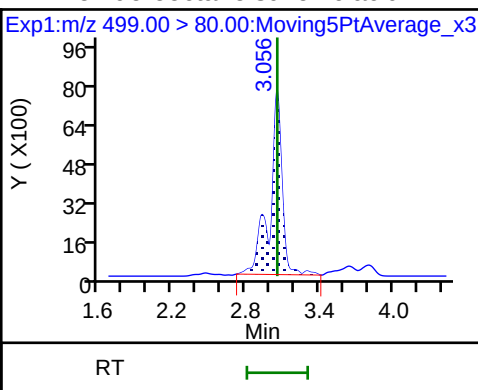
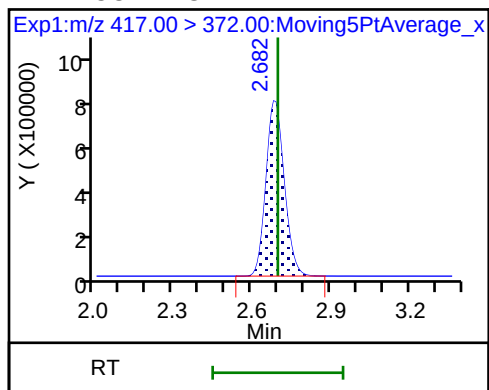




## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

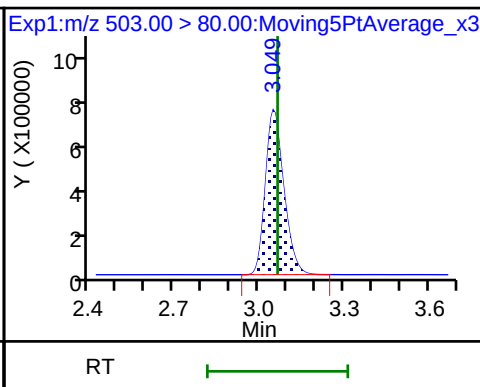
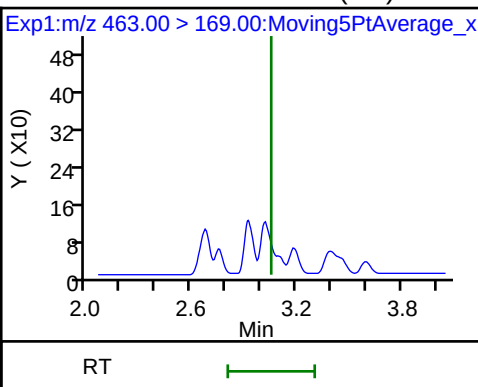
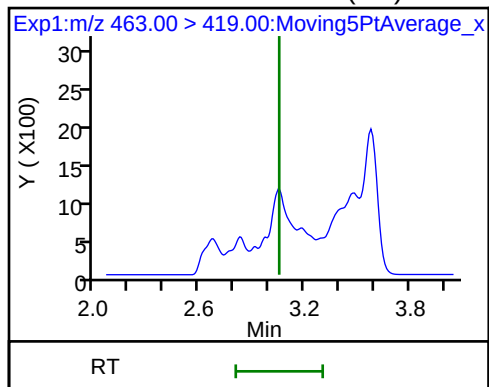
## 17 Perfluorooctane sulfonic acid



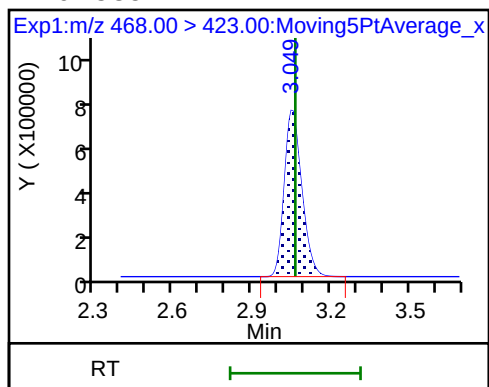
## 20 Perfluorononanoic acid (ND)

## 20 Perfluorononanoic acid (ND)

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

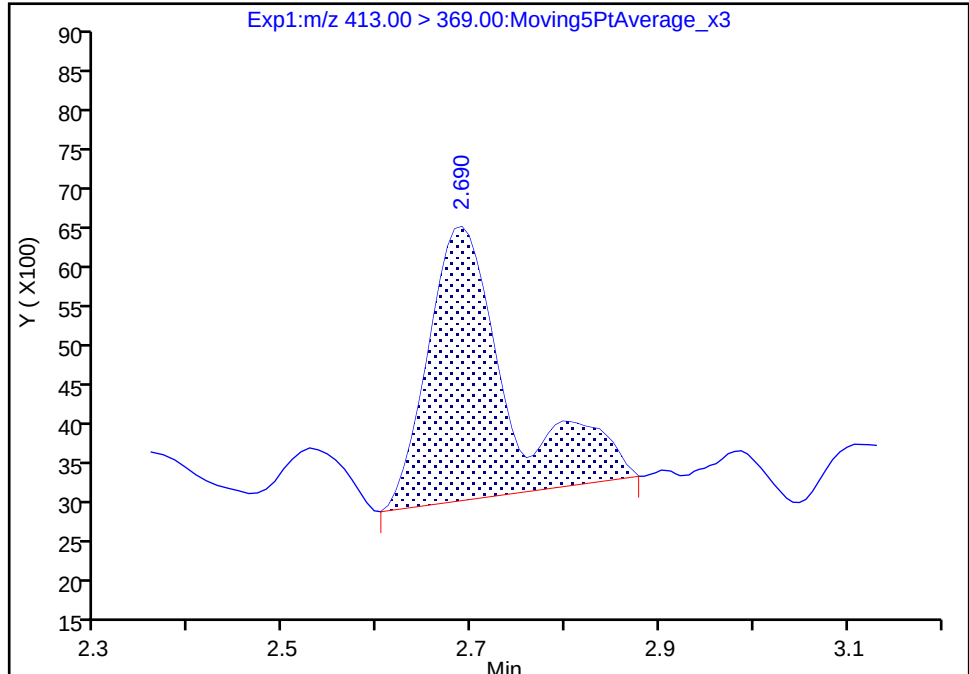
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_042.d  
Injection Date: 26-May-2018 00:15:03 Instrument ID: A8\_N  
Lims ID: 320-39023-B-48-A Lab Sample ID: 320-39023-48  
Client ID: ER-04  
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 15  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

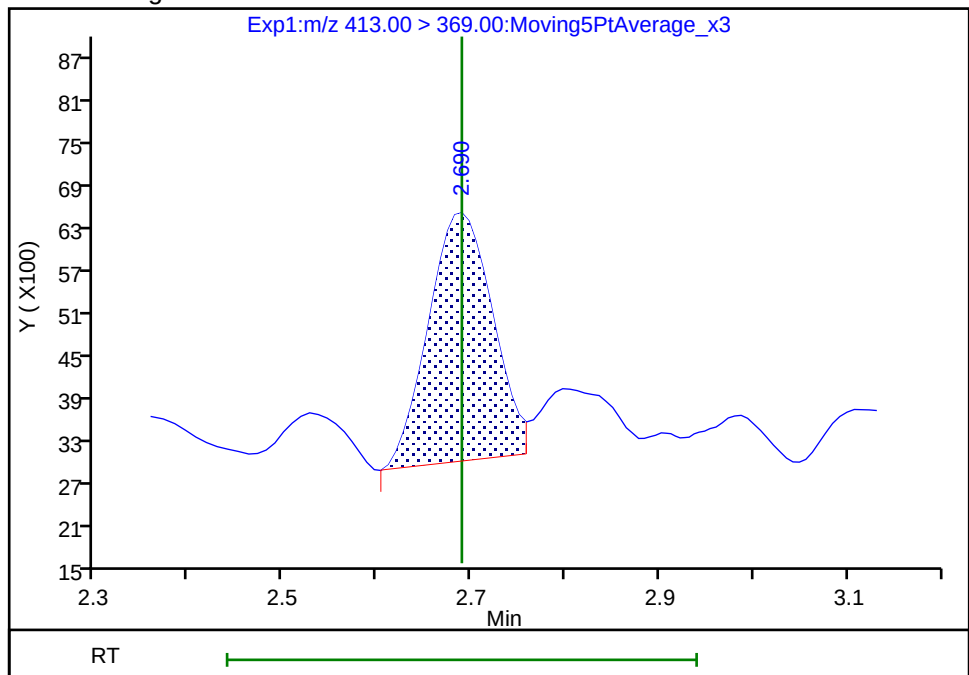
RT: 2.69  
Area: 20601  
Amount: 0.011353  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.69  
Area: 16581  
Amount: 0.009138  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 26-May-2018 13:10:24  
Audit Action: Manually Integrated

Audit Reason: Split Peak  
Page 2392 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>      | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                               |                                              |
| Client Sample ID: <u>MW-572-02-PRL05-01D</u> | Lab Sample ID: <u>320-39023-49</u>           |
| Matrix: <u>Water</u>                         | Lab File ID: <u>2018.05.27LLADX_044.d</u>    |
| Analysis Method: <u>EPA 537 (Mod)</u>        | Date Collected: <u>05/06/2018 10:30</u>      |
| Extraction Method: <u>3535</u>               | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>262.2 (mL)</u>             | Date Analyzed: <u>05/28/2018 12:37</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>         | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>              | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                            | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225820</u>            | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|---|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 24     |   | 1.9 | 1.4  | 0.58 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 57     |   | 1.9 | 1.4  | 0.51 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 3.9    |   | 1.9 | 1.4  | 0.50 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 28     |   | 1.9 | 0.95 | 0.44 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 370    | E | 1.9 | 0.95 | 0.36 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1200   | E | 3.8 | 2.9  | 1.0  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 59   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 60   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 65   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 61   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 58   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 55   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_044.d  
 Lims ID: 320-39023-B-49-A  
 Client ID: MW-572-02-PRL05-01D  
 Sample Type: Client  
 Inject. Date: 28-May-2018 12:37:05 ALS Bottle#: 36 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-b-49-a  
 Misc. Info.: Plate: 1 Rack: 6  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:35:18 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:35:18

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.757 | 1.761  | -0.004 | 1.000  | 76088    | 1.37         |                 | 58.8 | 428   |       |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.766 | 1.774  | -0.008 | 1.005  | 1863932  | 0.7293       |                 |      | 1713  |       |
| 298.90 > 99.00                   | 1.766 | 1.774  | -0.008 | 1.005  | 804211   |              | 2.32(1.25-3.74) |      | 2522  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.347 | 2.342  | 0.004  | 1.000  | 3795933  | 1.51         |                 | 60.3 | 56645 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.347 | 2.358  | -0.012 | 1.000  | 1016805  | 0.6340       |                 |      | 692   |       |
| 363.00 > 169.00                  | 2.347 | 2.358  | -0.012 | 1.000  | 398816   |              | 2.55(1.13-3.40) |      | 1873  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.360 | 2.368  | -0.008 | 1.000  | 4269440  | 1.37         |                 | 58.0 | 64168 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.360 | 2.372  | -0.012 | 1.000  | 19539193 | 9.61         |                 |      | 9319  | E     |
| 399.00 > 99.00                   | 2.360 | 2.372  | -0.012 | 1.000  | 6297311  |              | 3.10(1.50-4.49) |      | 9241  | E     |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.706 | 2.703  | 0.003  | 1.000  | 3865742  | 1.62         |                 | 64.9 | 55822 |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.706 | 2.712  | -0.006 | 1.000  | 2713616  | 1.49         |                 |      | 943   |       |
| 413.00 > 169.00                  | 2.706 | 2.712  | -0.006 | 1.000  | 1442566  |              | 1.88(0.84-2.52) |      | 4634  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.706 | 2.712  | -0.006 |        | 6287034  | 2.50         |                 |      | 72374 |       |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.071 | 3.072  | -0.001 | 1.000  | 2948195  | 1.51         |                 | 60.5 | 44955 |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.071 | 3.072  | -0.001 | 1.000  | 2793606  | 1.31         |                 | 54.7 | 17746 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.071 | 3.081  | -0.010 | 1.000  | 41830982 | 30.4         |                 |      | 15022 | E     |
| 499.00 > 99.00                   | 3.071 | 3.081  | -0.010 | 1.000  | 10118998 |              | 4.13(2.31-6.93) |      | 16426 | E     |

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-----|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |     |       |
| 463.00 > 419.00           | 3.071 | 3.081     | -0.010    | 1.000     | 127356   | 0.1020          |                 |      | 197 |       |
| 463.00 > 169.00           | 3.071 | 3.081     | -0.010    | 1.000     | 29923    |                 | 4.26(1.90-5.69) |      | 324 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_044.d

Injection Date: 28-May-2018 12:37:05

Instrument ID: A8\_N

Lims ID: 320-39023-B-49-A

Lab Sample ID: 320-39023-49

Client ID: MW-572-02-PRL05-01D

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

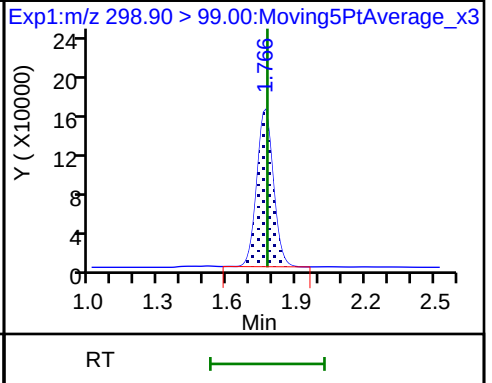
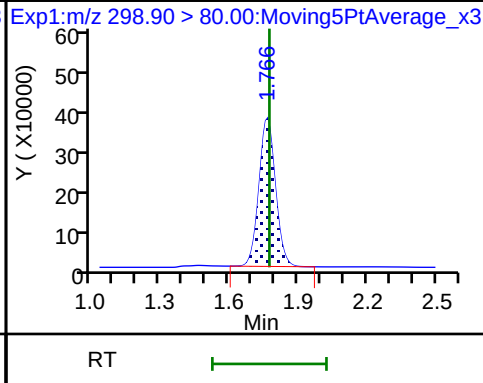
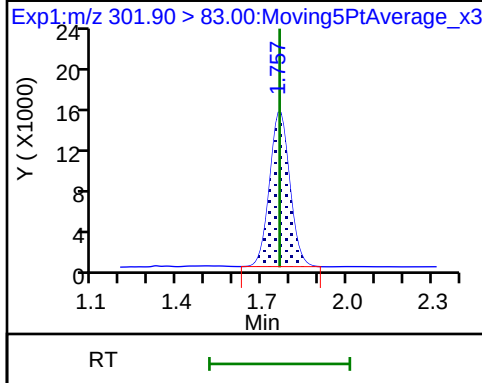
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

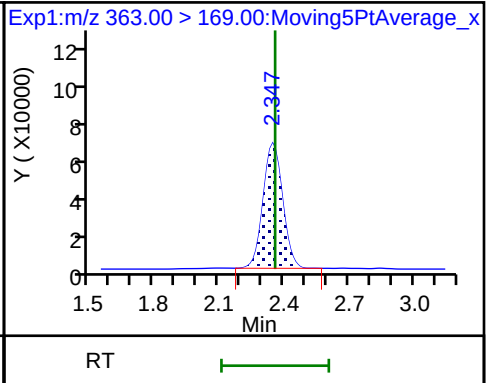
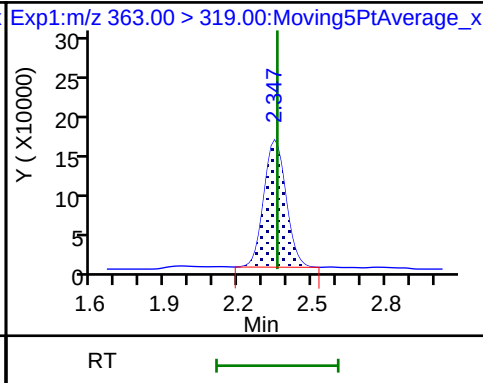
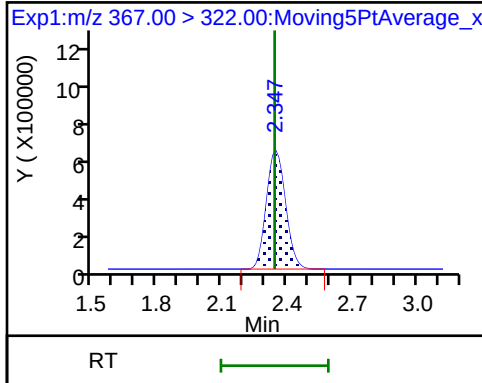
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

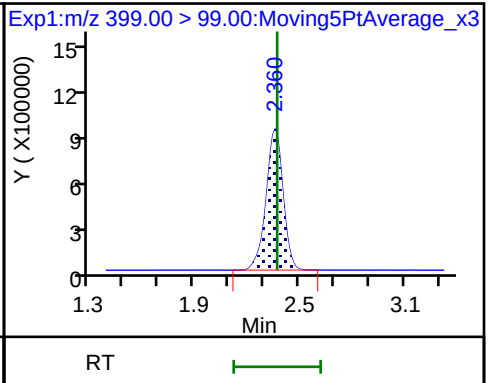
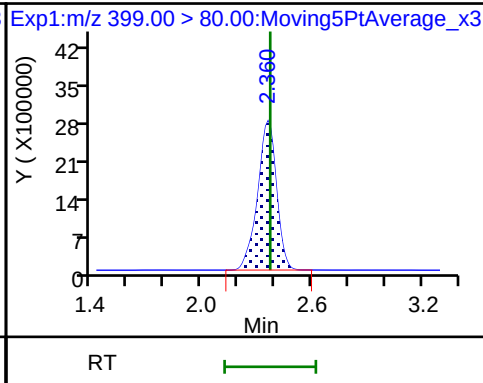
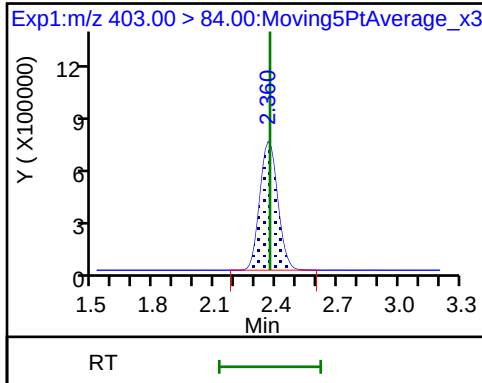
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

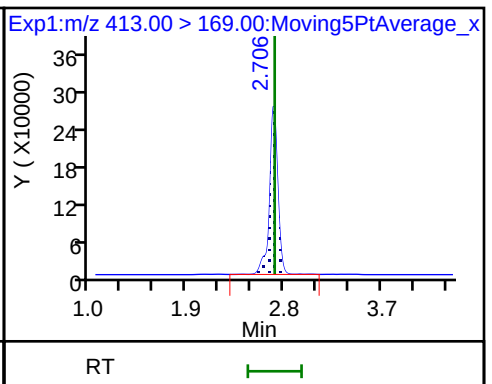
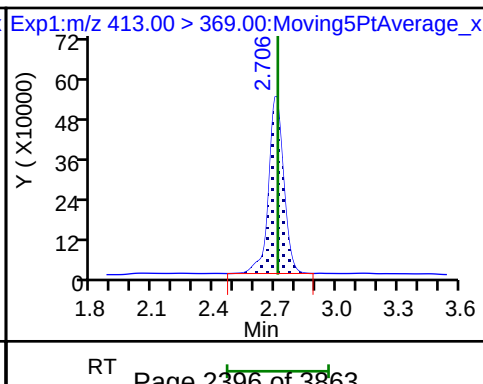
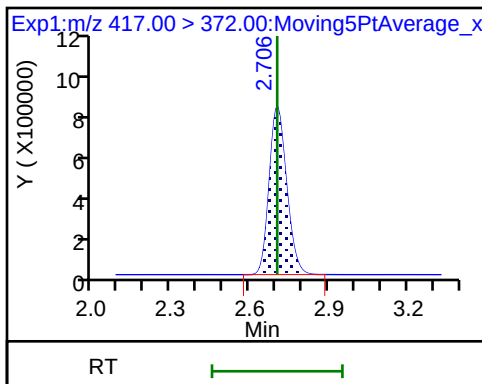
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

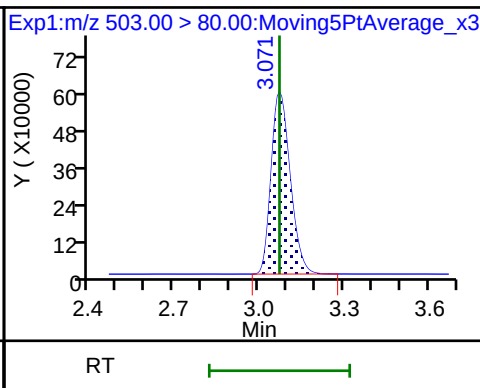
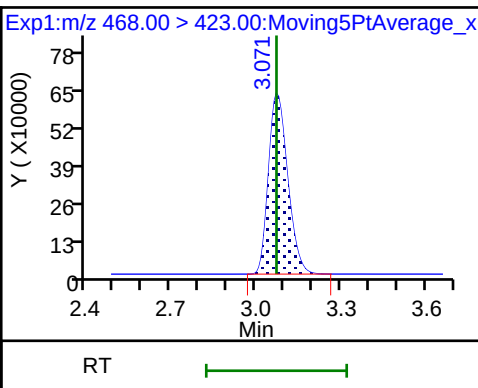
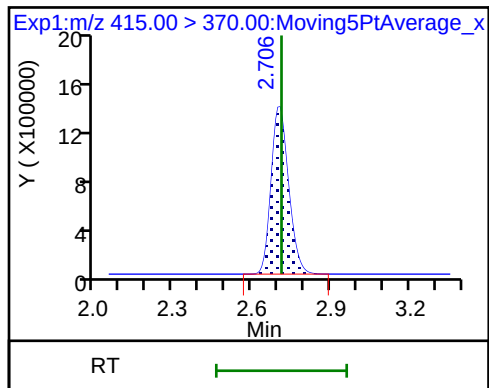
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

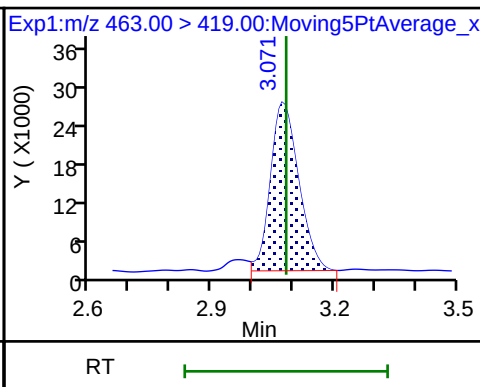
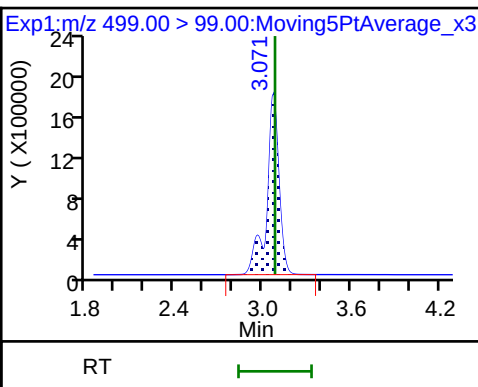
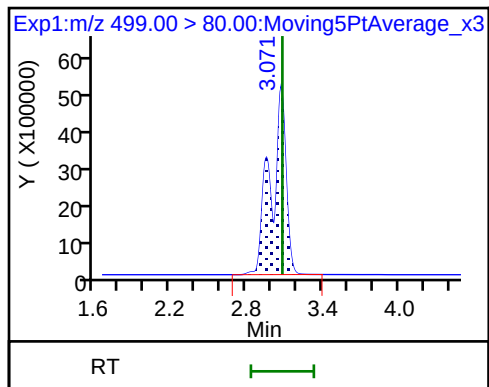
D 18 13C4 PFOS



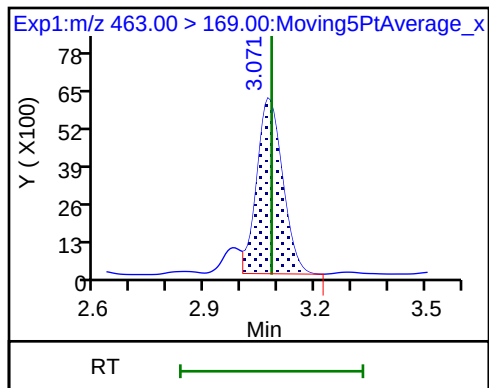
17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid



20 Perfluorononanoic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                                 |                                              |
|-------------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>         | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                                  |                                              |
| Client Sample ID: <u>MW-572-02-PRL05-01D DL</u> | Lab Sample ID: <u>320-39023-49 DL</u>        |
| Matrix: <u>Water</u>                            | Lab File ID: <u>2018.05.29LLB_022.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>           | Date Collected: <u>05/06/2018 10:30</u>      |
| Extraction Method: <u>3535</u>                  | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>262.2 (mL)</u>                | Date Analyzed: <u>05/29/2018 20:54</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>            | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>                 | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                               | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>               | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 24     | D   | 19  | 14  | 5.8 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 62     | D   | 19  | 14  | 5.1 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 14     | U M | 19  | 14  | 5.0 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 28     | D   | 19  | 9.5 | 4.4 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 390    | D   | 19  | 9.5 | 3.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1200   | D   | 38  | 29  | 10  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 53   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 56   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 63   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 60   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 52   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 53   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_022.d  
 Lims ID: 320-39023-B-49-A  
 Client ID: MW-572-02-PRL05-01D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 20:54:31 ALS Bottle#: 13 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-b-49-a 10X  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:22:35 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:22:35

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |       |       |      |        |  |      |      |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|
| 301.90 > 83.00 | 1.765 | 1.764 | 0.001 | 1.000 | 7466 | 0.1222 |  | 52.6 | 74.4 |  |
|----------------|-------|-------|-------|-------|------|--------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |        |       |        |        |  |  |     |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.765 | 1.779 | -0.014 | 1.000 | 185327 | 0.0739 |  |  | 747 |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                |       |       |        |       |       |  |                 |  |     |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.765 | 1.779 | -0.014 | 1.000 | 72994 |  | 2.54(1.25-3.74) |  | 630 |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |     |       |        |        |  |      |      |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|
| 367.00 > 322.00 | 2.358 | 2.358 | 0.0 | 1.000 | 387750 | 0.1404 |  | 56.2 | 7912 |  |
|-----------------|-------|-------|-----|-------|--------|--------|--|------|------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.358 | 2.368 | -0.010 | 1.000 | 102904 | 0.0628 |  |  | 121 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |       |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 363.00 > 169.00 | 2.345 | 2.368 | -0.023 | 0.994 | 38169 |  | 2.70(1.13-3.40) |  | 232 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |        |        |  |      |       |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 403.00 > 84.00 | 2.372 | 2.371 | 0.001 | 1.000 | 422770 | 0.1239 |  | 52.4 | 14078 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |        |       |         |      |  |  |      |  |
|----------------|-------|-------|--------|-------|---------|------|--|--|------|--|
| 399.00 > 80.00 | 2.372 | 2.381 | -0.009 | 1.000 | 2075003 | 1.03 |  |  | 6302 |  |
|----------------|-------|-------|--------|-------|---------|------|--|--|------|--|

|                |       |       |        |       |        |  |                 |  |      |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 399.00 > 99.00 | 2.372 | 2.381 | -0.009 | 1.000 | 627222 |  | 3.31(1.50-4.49) |  | 3029 |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |        |        |  |      |       |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|
| 417.00 > 372.00 | 2.712 | 2.711 | 0.001 | 1.000 | 410348 | 0.1571 |  | 62.8 | 12616 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |        |  |        |        |  |  |       |  |
|-----------------|-------|-------|--------|--|--------|--------|--|--|-------|--|
| 415.00 > 370.00 | 2.712 | 2.718 | -0.006 |  | 689713 | 0.2500 |  |  | 16691 |  |
|-----------------|-------|-------|--------|--|--------|--------|--|--|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 413.00 > 369.00 | 2.712 | 2.718 | -0.006 | 1.000 | 313175 | 0.1621 |  |  | 120 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.712 | 2.718 | -0.006 | 1.000 | 161882 |  | 1.93(0.84-2.52) |  | 607 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|

## D 19 13C5 PFNA

|                 |       |       |       |       |        |        |  |      |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 468.00 > 423.00 | 3.084 | 3.081 | 0.003 | 1.000 | 319861 | 0.1497 |  | 59.9 | 9807 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## D 18 13C4 PFOS

|                |       |       |       |       |        |        |  |      |      |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|
| 503.00 > 80.00 | 3.084 | 3.081 | 0.003 | 1.000 | 295307 | 0.1259 |  | 52.7 | 3751 |  |
|----------------|-------|-------|-------|-------|--------|--------|--|------|------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |        |       |         |      |  |  |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|--|-------|--|
| 499.00 > 80.00 | 3.084 | 3.089 | -0.005 | 1.000 | 4464563 | 3.07 |  |  | 16753 |  |
|----------------|-------|-------|--------|-------|---------|------|--|--|-------|--|

|                |       |       |        |       |        |  |                 |  |       |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-------|--|
| 499.00 > 99.00 | 3.084 | 3.089 | -0.005 | 1.000 | 996635 |  | 4.48(2.31-6.93) |  | 15710 |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-------|--|

| Signal                    | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|---------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 20 Perfluorononanoic acid |       |           |           |           |          |                 |                 |      |      | M     |
| 463.00 > 419.00           | 3.084 | 3.089     | -0.005    | 1.000     | 14365    | 0.0106          |                 |      | 32.4 |       |
| 463.00 > 169.00           | 3.069 | 3.089     | -0.020    | 0.995     | 3747     |                 | 3.83(1.90-5.69) |      | 89.2 | M     |

### QC Flag Legend

#### Processing Flags

s - Failed ISTD Recovery Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_022.d

Injection Date: 29-May-2018 20:54:31

Instrument ID: A8\_N

Lims ID: 320-39023-B-49-A

Lab Sample ID: 320-39023-49

Client ID: MW-572-02-PRL05-01D

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

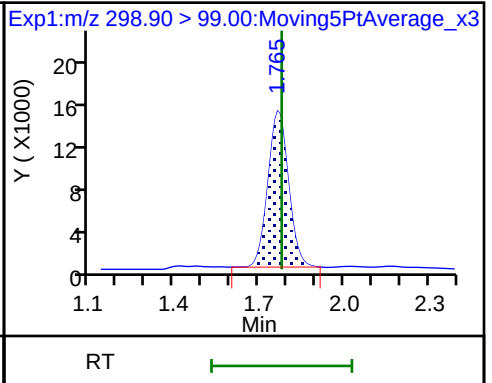
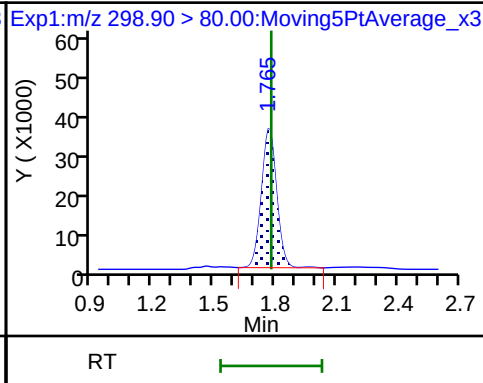
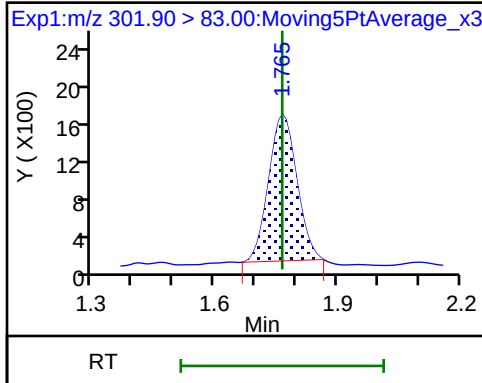
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

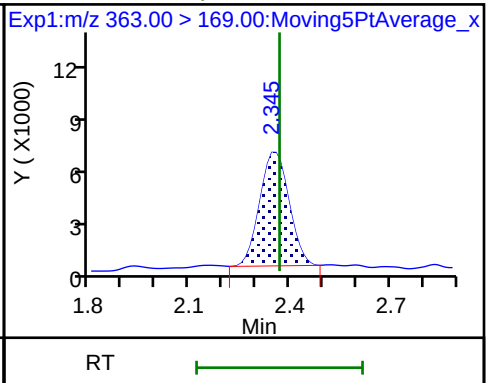
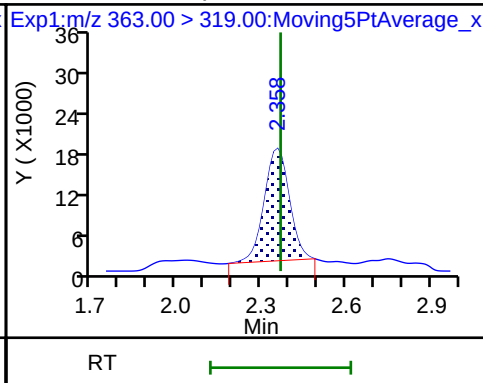
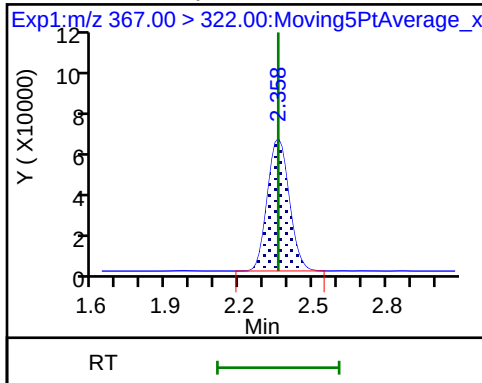
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

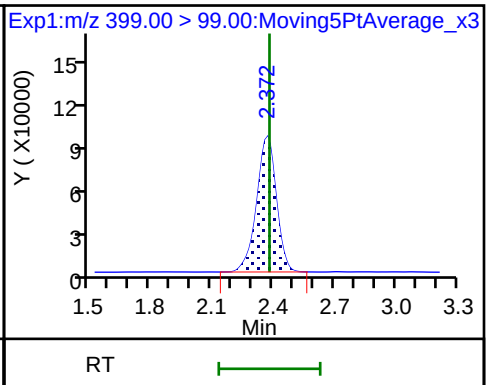
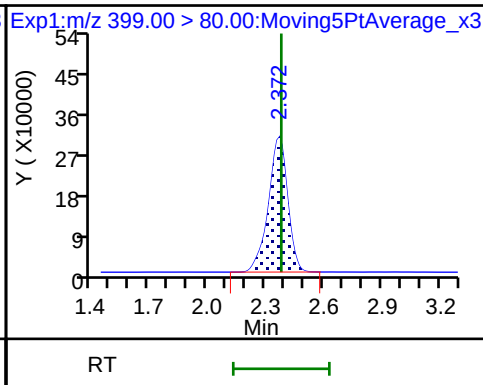
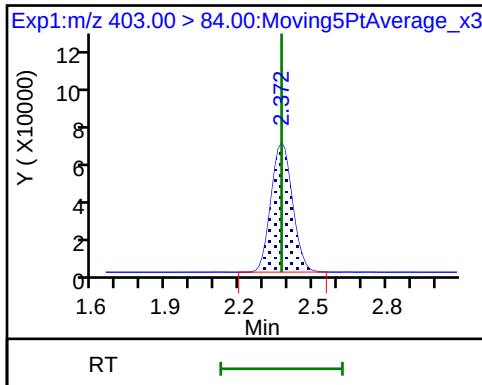
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

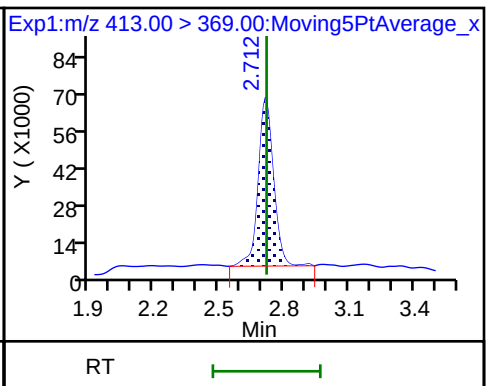
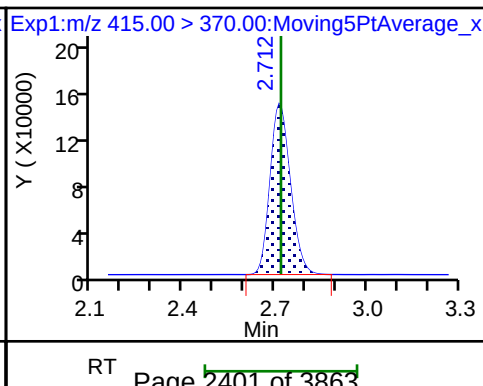
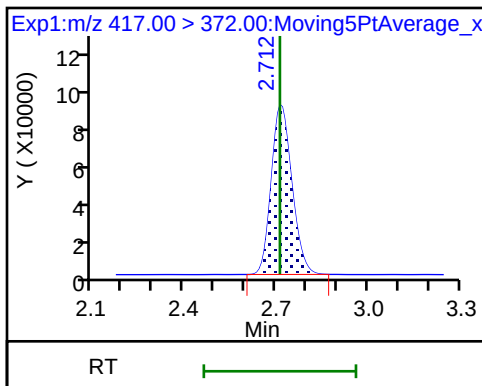
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

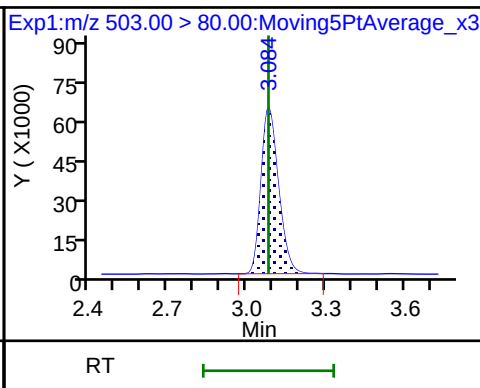
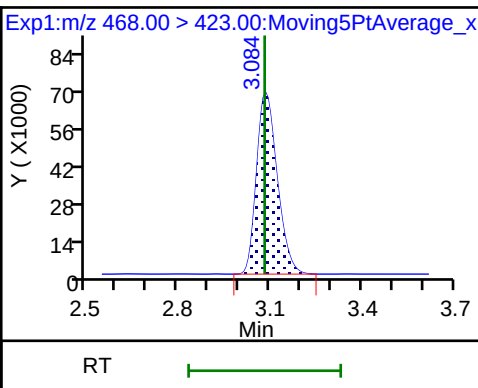
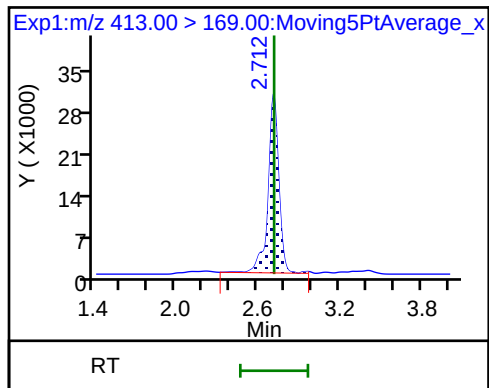
## 15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

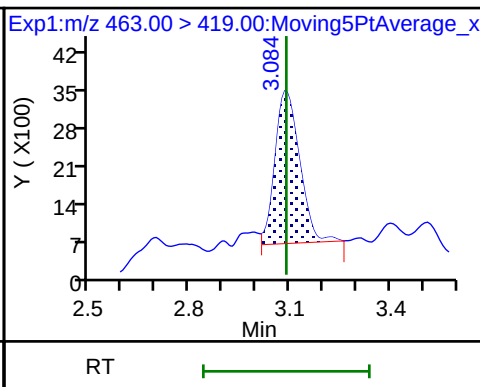
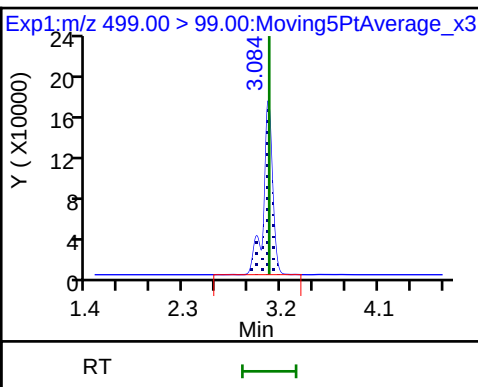
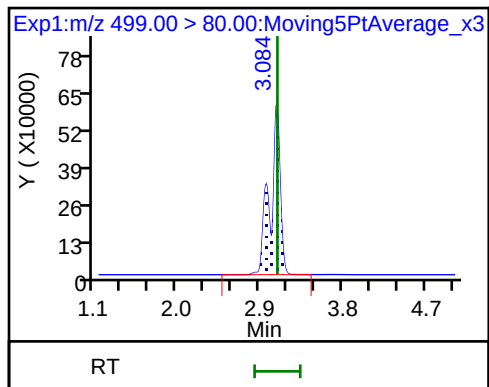
## D 18 13C4 PFOS



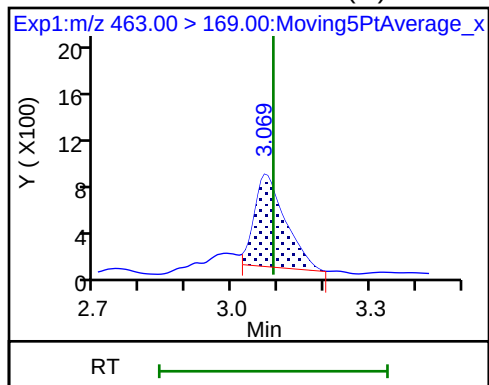
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid (M)



## TestAmerica Sacramento

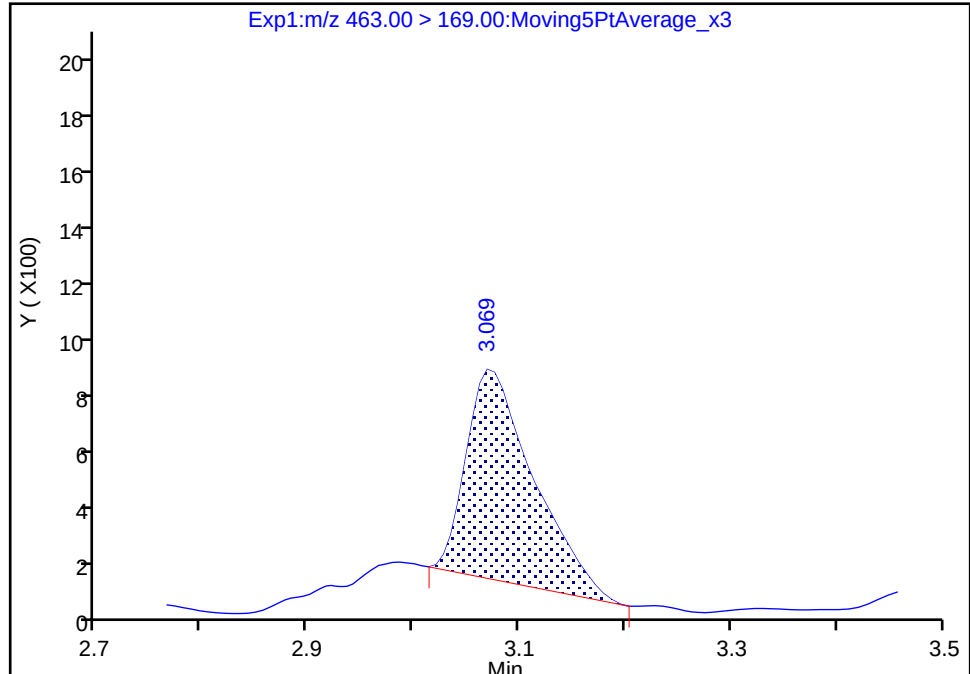
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_022.d |                |                    |                |    |
| Injection Date: | 29-May-2018 20:54:31                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-B-49-A                                                         | Lab Sample ID: | 320-39023-49       |                |    |
| Client ID:      | MW-572-02-PRL05-01D                                                      |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 13                 | Worklist Smp#: | 21 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 10.0000            |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

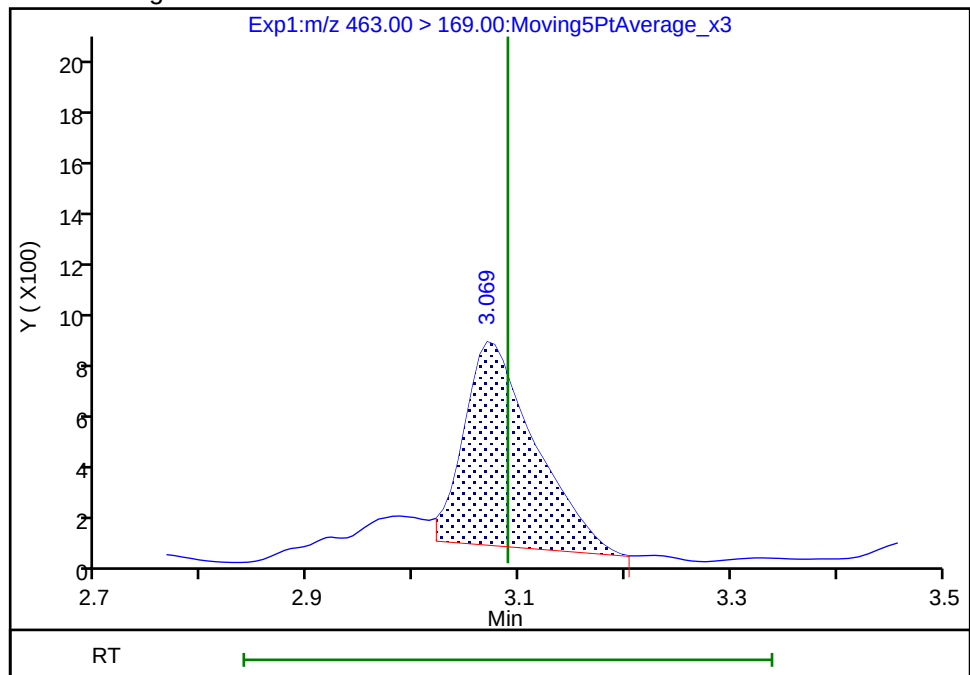
RT: 3.07  
Area: 3318  
Amount: 0.010600  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 3747  
Amount: 0.010600  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:22:27

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA03-SB-2-01D</u> | Lab Sample ID: <u>320-39023-51</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_076.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/02/2018 12:15</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.96(g)</u>           | Date Analyzed: <u>06/07/2018 01:00</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>21.4</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.26   | U | 0.38 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.16   | J | 0.38 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U | 0.38 | 0.26 | 0.10  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.098  | J | 0.51 | 0.23 | 0.076 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 0.71   |   | 0.38 | 0.26 | 0.080 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 2.7    |   | 1.3  | 0.64 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 79   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 90   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 89   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 93   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 84   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 82   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_076.d  
 Lims ID: 320-39023-A-51-A  
 Client ID: KLA03-SB-2-01D  
 Sample Type: Client  
 Inject. Date: 07-Jun-2018 01:00:20 ALS Bottle#: 44 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-51-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 15:20:12 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 15:20:51

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

## D 47 13C3-PFBS

|                |       |       |        |       |       |      |  |      |     |  |
|----------------|-------|-------|--------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.761 | 1.766 | -0.005 | 0.653 | 75352 | 1.83 |  | 78.5 | 453 |  |
|----------------|-------|-------|--------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |     |       |       |        |  |  |     |  |
|----------------|-------|-------|-----|-------|-------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.770 | 1.770 | 0.0 | 1.005 | 96366 | 0.0383 |  |  | 290 |  |
|----------------|-------|-------|-----|-------|-------|--------|--|--|-----|--|

|                |       |       |        |       |       |  |                 |  |     |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.761 | 1.770 | -0.009 | 1.000 | 43142 |  | 2.23(1.25-3.74) |  | 182 |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.341 | 2.346 | -0.005 | 0.869 | 4316063 | 2.26 |  | 90.2 | 68989 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |       |        |  |  |      |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|
| 363.00 > 319.00 | 2.341 | 2.354 | -0.013 | 1.000 | 71629 | 0.0366 |  |  | 73.6 |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|

|                 |       |       |        |       |       |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 363.00 > 169.00 | 2.341 | 2.354 | -0.013 | 1.000 | 26880 |  | 2.66(1.13-3.40) |  | 132 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## D 11 18O2 PFHxS

|                |       |       |        |       |         |      |  |      |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.354 | 2.360 | -0.006 | 0.874 | 4596259 | 1.98 |  | 83.8 | 30977 |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |        |       |        |        |  |  |      |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.354 | 2.368 | -0.014 | 1.000 | 619033 | 0.2778 |  |  | 1653 |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|

|                |       |       |        |       |        |  |                 |  |     |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|
| 399.00 > 99.00 | 2.354 | 2.368 | -0.014 | 1.000 | 207573 |  | 2.98(1.50-4.49) |  | 974 |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|

## D 14 13C4 PFOA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.695 | 2.698 | -0.003 | 1.000 | 4224604 | 2.22 |  | 89.0 | 68042 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |        |       |        |        |  |  |      |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|
| 413.00 > 369.00 | 2.695 | 2.703 | -0.008 | 1.000 | 129957 | 0.0640 |  |  | 48.3 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|

|                 |       |       |        |       |       |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 413.00 > 169.00 | 2.695 | 2.703 | -0.008 | 1.000 | 67271 |  | 1.93(0.84-2.52) |  | 285 |  |
|-----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## \* 62 13C2-PFOA

|                 |       |       |        |  |         |      |  |  |       |  |
|-----------------|-------|-------|--------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.695 | 2.703 | -0.008 |  | 4924223 | 2.50 |  |  | 74057 |  |
|-----------------|-------|-------|--------|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.069 | 3.067 | 0.002 | 1.139 | 3731472 | 2.33 |  | 93.1 | 72827 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |        |       |       |        |  |  |      |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|
| 463.00 > 419.00 | 3.069 | 3.071 | -0.002 | 1.000 | 25784 | 0.0161 |  |  | 72.1 |  |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|--|

|                 |       |       |        |       |      |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|------|--|-----------------|--|-----|--|
| 463.00 > 169.00 | 3.069 | 3.071 | -0.002 | 1.000 | 5164 |  | 4.99(1.90-5.69) |  | 125 |  |
|-----------------|-------|-------|--------|-------|------|--|-----------------|--|-----|--|

## D 18 13C4 PFOS

|                |       |       |        |       |         |      |  |      |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 503.00 > 80.00 | 3.069 | 3.074 | -0.005 | 1.139 | 3078935 | 1.96 |  | 81.9 | 23597 |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |      |       |
| 499.00 > 80.00                   | 3.069 | 3.079     | -0.010    | 1.000     | 1612066  | 1.05            |                 |      | 3322 |       |
| 499.00 > 99.00                   | 3.069 | 3.079     | -0.010    | 1.000     | 379497   |                 | 4.25(2.31-6.93) |      | 3383 |       |



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_076.d

Injection Date: 07-Jun-2018 01:00:20

Instrument ID: A8\_N

Lims ID: 320-39023-A-51-A

Lab Sample ID: 320-39023-51

Client ID: KLA03-SB-2-01D

Operator ID: SACINSTLCMS01

ALS Bottle#: 44

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

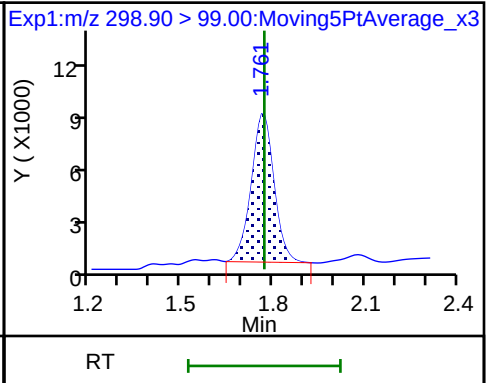
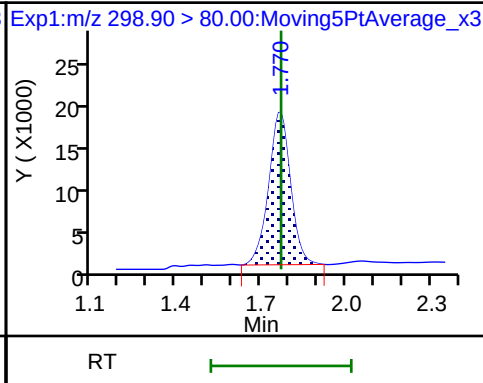
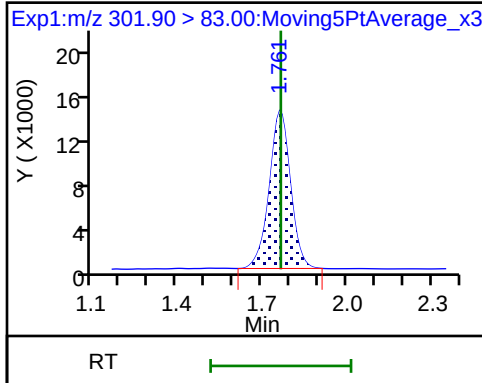
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

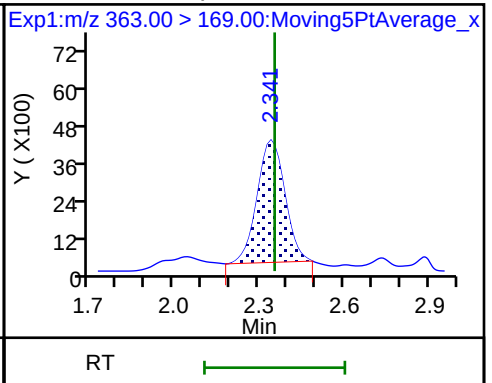
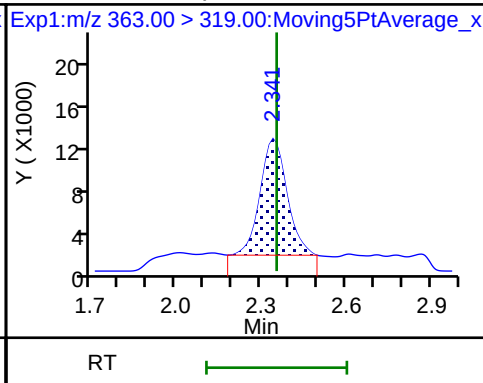
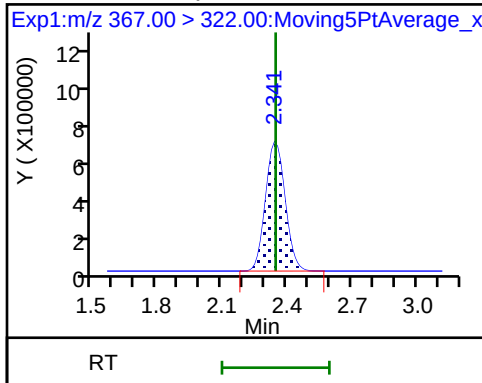
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

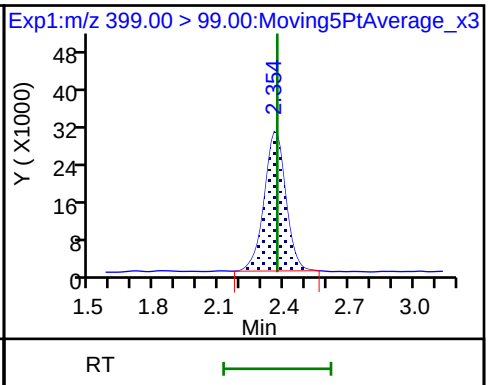
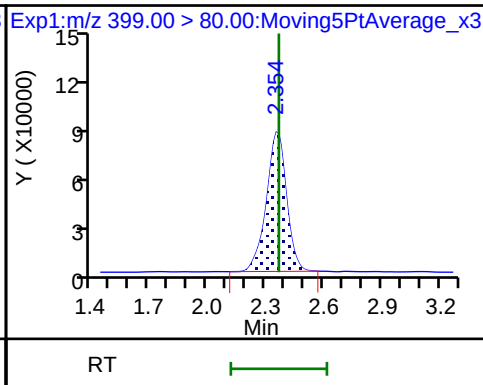
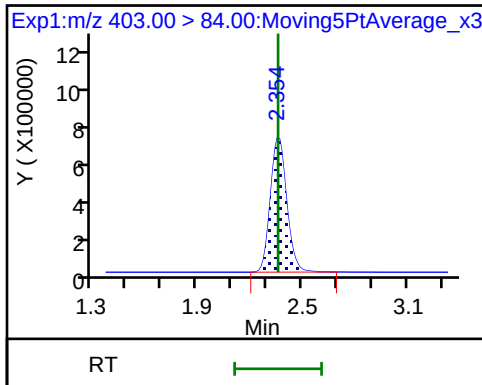
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

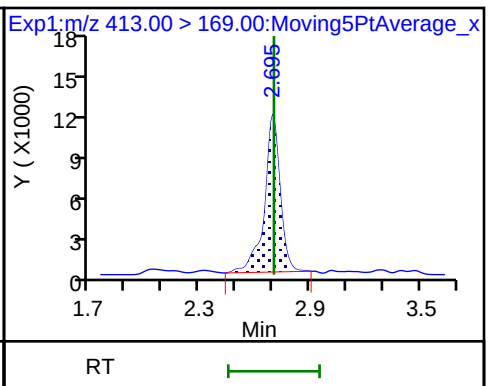
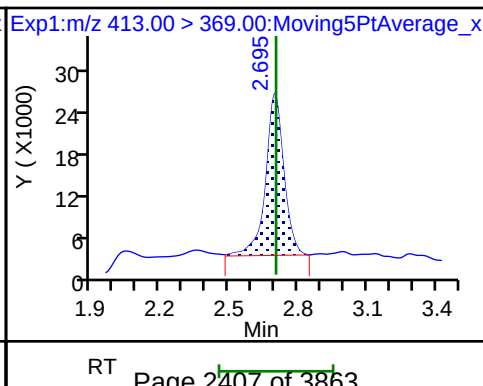
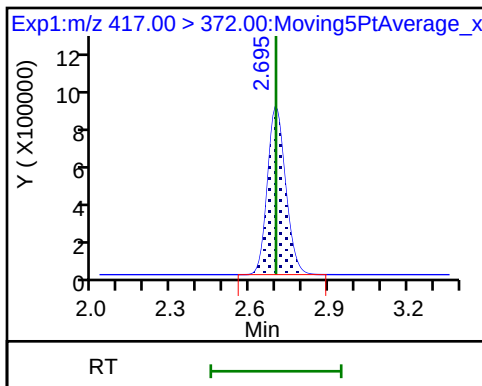
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

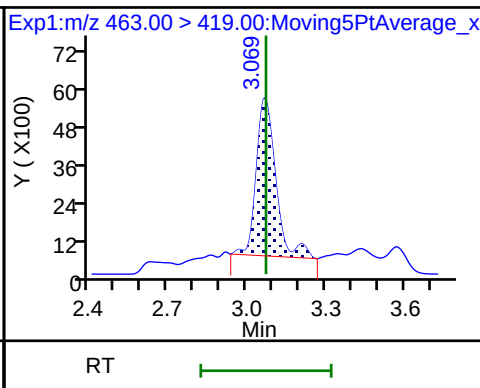
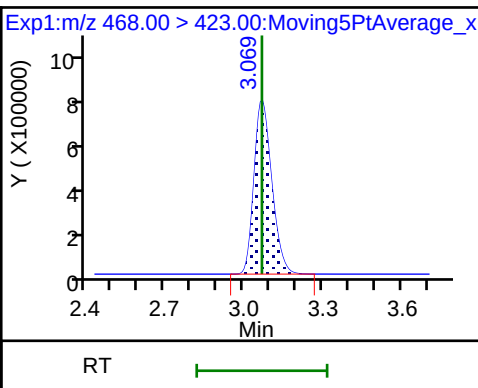
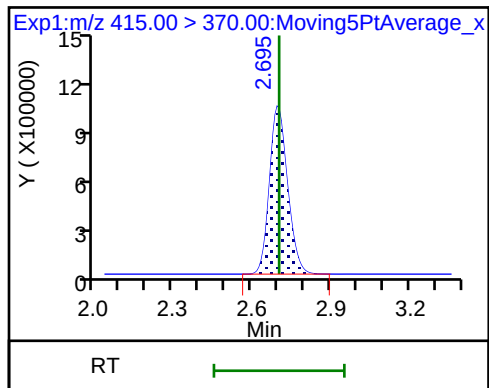
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

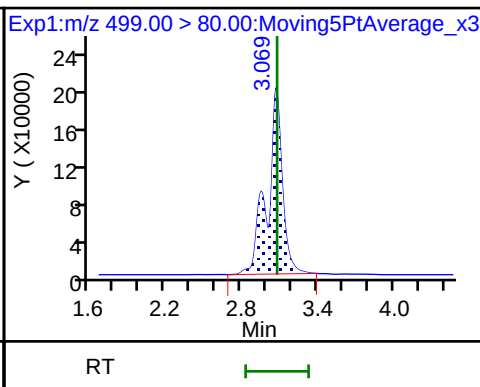
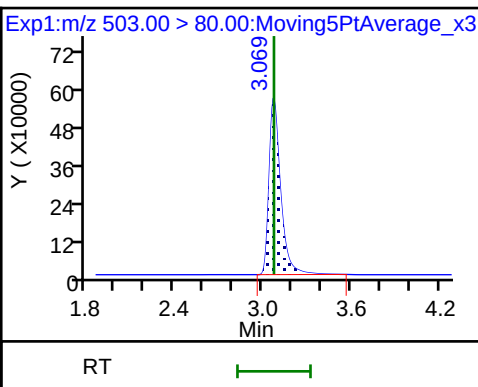
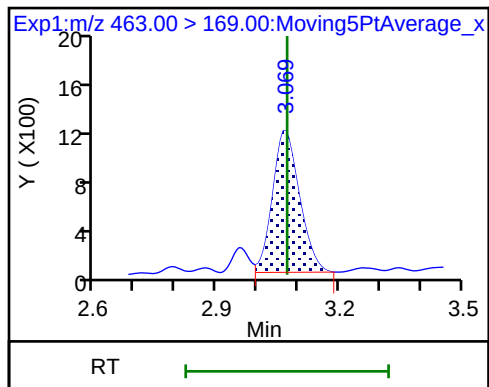
20 Perfluorononanoic acid



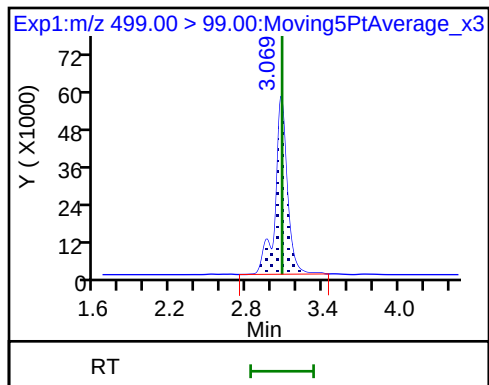
20 Perfluorononanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA06-SB-2-02D</u> | Lab Sample ID: <u>320-39023-52</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_071.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/01/2018 13:50</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.00 (g)</u>          | Date Analyzed: <u>06/07/2018 00:21</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>32.2</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.0    |   | 0.44 | 0.29 | 0.12  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 4.1    |   | 0.44 | 0.29 | 0.15  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.8    |   | 0.44 | 0.29 | 0.12  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1.4    |   | 0.59 | 0.27 | 0.087 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 41     | E | 0.44 | 0.29 | 0.091 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 690    | E | 1.5  | 0.74 | 0.35  |

| CAS NO.  | ISOTOPE DILUTION        | %REC | Q | LIMITS |
|----------|-------------------------|------|---|--------|
| STL02337 | 13C3-PFBS               | 76   |   | 50-150 |
| STL01892 | 13C4-PFH <sub>p</sub> A | 86   |   | 50-150 |
| STL00990 | 13C4 PFOA               | 83   |   | 50-150 |
| STL00995 | 13C5 PFNA               | 47   | Q | 50-150 |
| STL00994 | 18O2 PFH <sub>x</sub> S | 76   |   | 50-150 |
| STL00991 | 13C4 PFOS               | 44   | Q | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_071.d  
 Lims ID: 320-39023-A-52-A  
 Client ID: KLA06-SB-2-02D  
 Sample Type: Client  
 Inject. Date: 07-Jun-2018 00:21:16 ALS Bottle#: 41 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-52-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 15:02:02 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 15:02:43

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

## D 47 13C3-PFBS

|                |       |       |       |       |       |      |  |      |     |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.770 | 1.766 | 0.004 | 0.655 | 70324 | 1.77 |  | 76.0 | 542 |  |
|----------------|-------|-------|-------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |     |       |         |        |  |  |      |  |
|----------------|-------|-------|-----|-------|---------|--------|--|--|------|--|
| 298.90 > 80.00 | 1.770 | 1.770 | 0.0 | 1.000 | 1095779 | 0.4670 |  |  | 3207 |  |
|----------------|-------|-------|-----|-------|---------|--------|--|--|------|--|

|                |       |       |     |       |        |  |                 |  |      |  |
|----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.770 | 1.770 | 0.0 | 1.000 | 484931 |  | 2.26(1.25-3.74) |  | 1077 |  |
|----------------|-------|-------|-----|-------|--------|--|-----------------|--|------|--|

## D 9 13C4-PFHpa

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.342 | 2.346 | -0.004 | 0.866 | 3960340 | 2.14 |  | 85.8 | 70344 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.342 | 2.354 | -0.012 | 1.000 | 638526 | 0.3554 |  |  | 809 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.342 | 2.354 | -0.012 | 1.000 | 248412 |  | 2.57(1.13-3.40) |  | 1359 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.368 | 2.360 | 0.008 | 0.876 | 3998326 | 1.79 |  | 75.5 | 35732 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |     |       |          |      |  |  |       |   |
|----------------|-------|-------|-----|-------|----------|------|--|--|-------|---|
| 399.00 > 80.00 | 2.368 | 2.368 | 0.0 | 1.000 | 27262150 | 14.1 |  |  | 32911 | E |
|----------------|-------|-------|-----|-------|----------|------|--|--|-------|---|

|                |       |       |     |       |         |  |                 |  |       |   |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|-------|---|
| 399.00 > 99.00 | 2.368 | 2.368 | 0.0 | 1.000 | 9330927 |  | 2.92(1.50-4.49) |  | 20492 | E |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|-------|---|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.703 | 2.698 | 0.005 | 1.000 | 3818635 | 2.08 |  | 83.4 | 73212 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |     |       |         |      |  |  |      |  |
|-----------------|-------|-------|-----|-------|---------|------|--|--|------|--|
| 413.00 > 369.00 | 2.703 | 2.703 | 0.0 | 1.000 | 2524245 | 1.37 |  |  | 1397 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|--|------|--|

|                 |       |       |     |       |         |  |                 |  |      |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|
| 413.00 > 169.00 | 2.703 | 2.703 | 0.0 | 1.000 | 1346713 |  | 1.87(0.84-2.52) |  | 3641 |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|

## \* 62 13C2-PFOA

|                 |       |       |     |  |         |      |  |  |       |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.703 | 2.703 | 0.0 |  | 4750694 | 2.50 |  |  | 66185 |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |     |       |         |      |  |      |       |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.067 | 3.067 | 0.0 | 1.135 | 1823202 | 1.18 |  | 47.2 | 34825 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |       |       |        |        |  |  |      |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|
| 463.00 > 419.00 | 3.074 | 3.071 | 0.003 | 1.002 | 485682 | 0.6189 |  |  | 1372 |  |
|-----------------|-------|-------|-------|-------|--------|--------|--|--|------|--|

|                 |       |       |        |       |        |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 463.00 > 169.00 | 3.067 | 3.071 | -0.004 | 1.000 | 115428 |  | 4.21(1.90-5.69) |  | 3557 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## D 18 13C4 PFOS

|                |       |       |     |       |         |      |  |      |      |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|------|--|
| 503.00 > 80.00 | 3.074 | 3.074 | 0.0 | 1.137 | 1596265 | 1.05 |  | 44.0 | 5315 |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|------|--|

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response  | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N     | Flags |
|----------------------------------|-------|-----------|-----------|-----------|-----------|-----------------|-----------------|------|---------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |           |                 |                 |      |         | E     |
| 499.00 > 80.00                   | 3.074 | 3.079     | -0.005    | 1.000     | 186573505 | 235.3           |                 |      | 4236    | E     |
| 499.00 > 99.00                   | 3.074 | 3.079     | -0.005    | 1.000     | 60376573  |                 | 3.09(2.31-6.93) |      | 1317493 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_071.d

Injection Date: 07-Jun-2018 00:21:16

Instrument ID: A8\_N

Lims ID: 320-39023-A-52-A

Lab Sample ID: 320-39023-52

Client ID: KLA06-SB-2-02D

Operator ID: SACINSTLCMS01

ALS Bottle#: 41

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

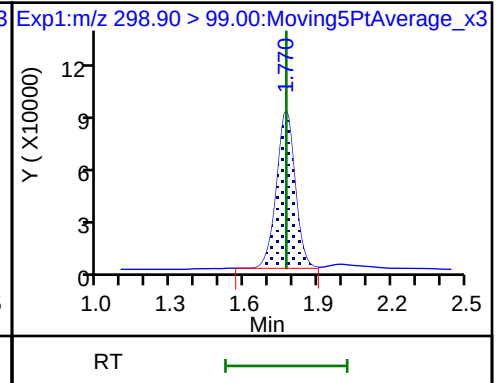
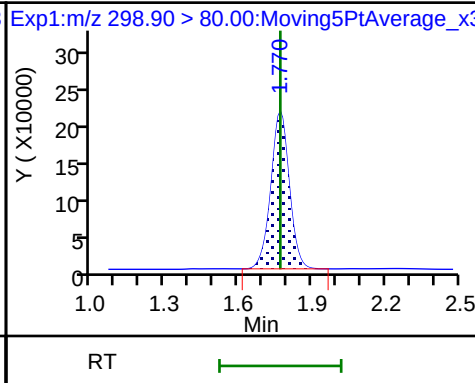
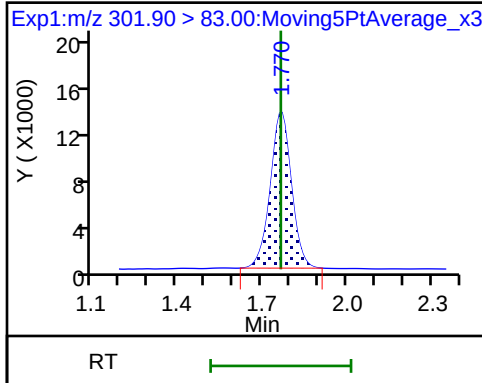
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

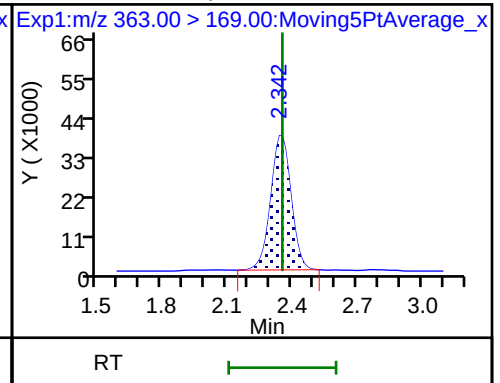
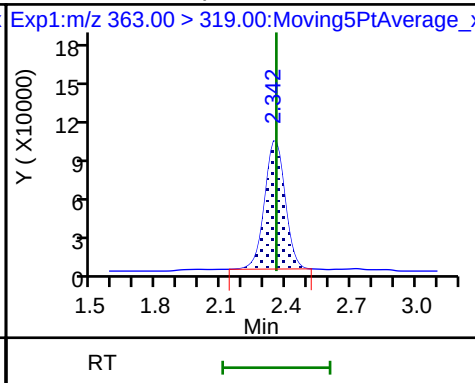
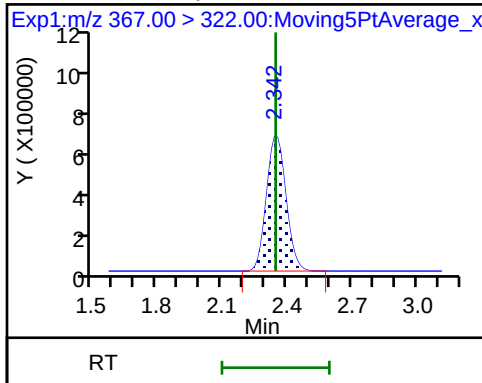
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

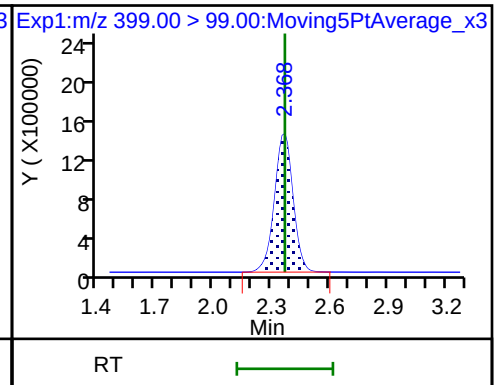
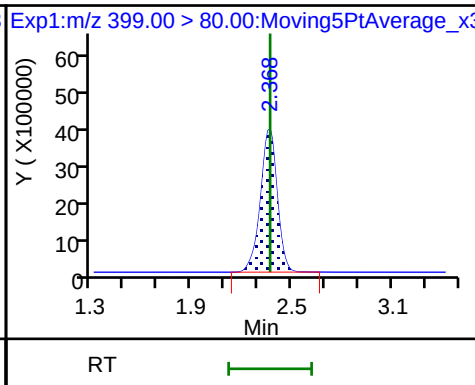
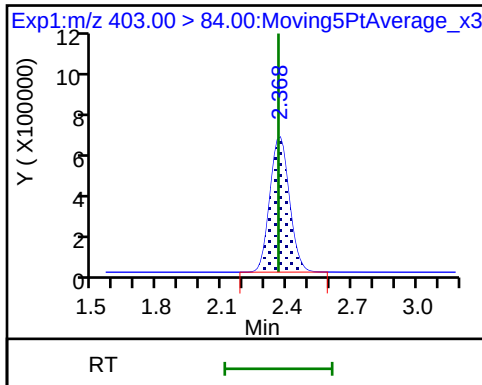
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

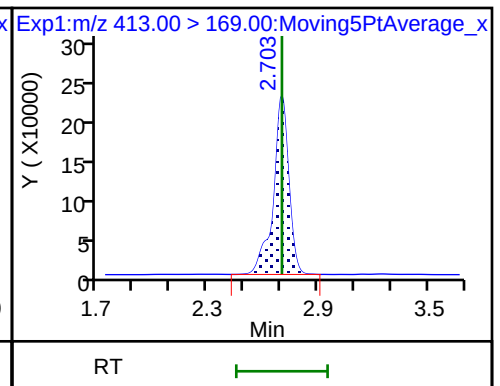
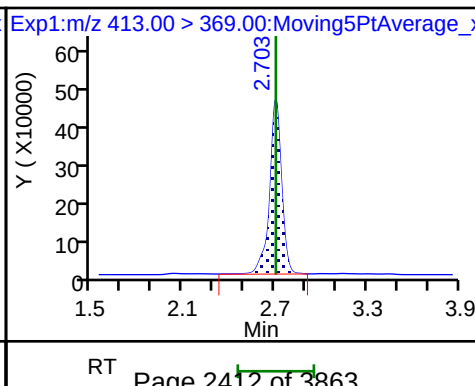
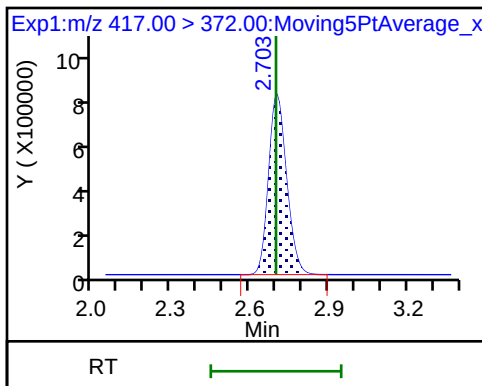
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

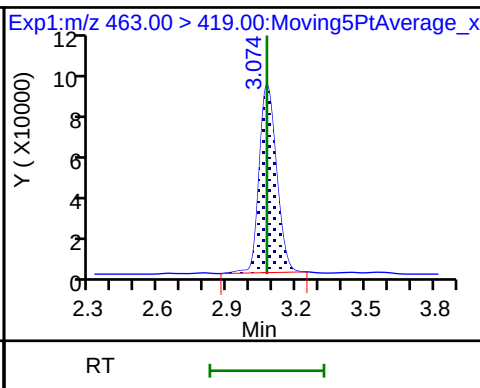
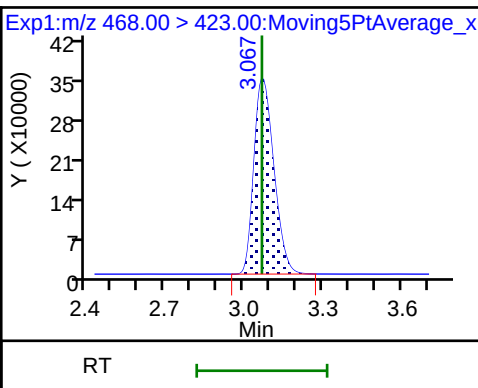
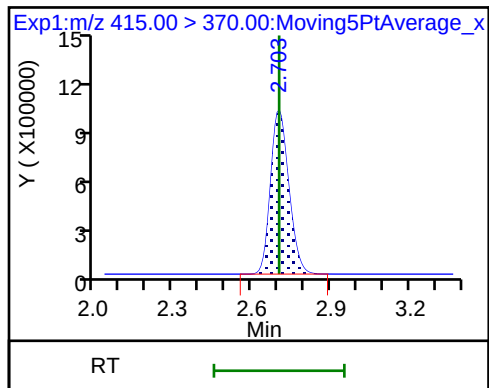
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

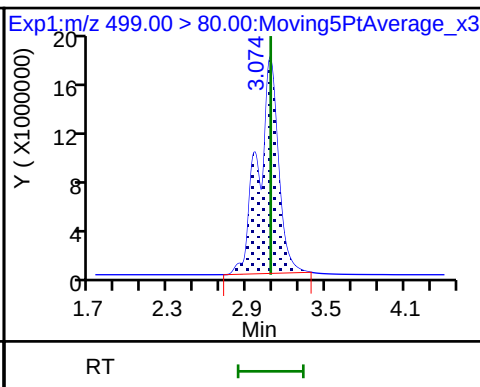
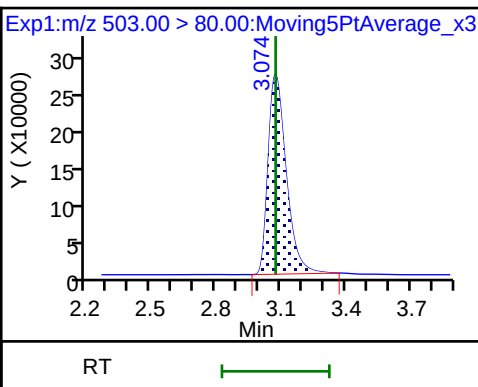
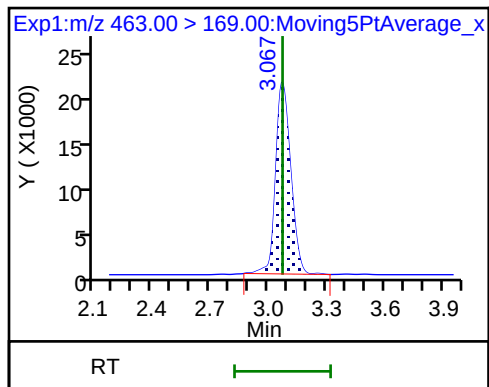
20 Perfluorononanoic acid



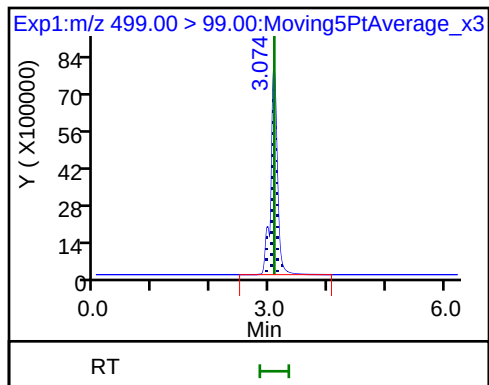
20 Perfluorononanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                            |                                              |
|--------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>    | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                             |                                              |
| Client Sample ID: <u>KLA06-SB-2-02D DL</u> | Lab Sample ID: <u>320-39023-52 DL</u>        |
| Matrix: <u>Solid</u>                       | Lab File ID: <u>2018.05.29LLA_021.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>      | Date Collected: <u>05/01/2018 13:50</u>      |
| Extraction Method: <u>SHAKE</u>            | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.00 (g)</u>             | Date Analyzed: <u>05/29/2018 13:36</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>       | Dilution Factor: <u>10</u>                   |
| Injection Volume: <u>2 (uL)</u>            | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>32.2</u>                    | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>          | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL   |
|-----------|--------------------------------------|--------|-----|-----|-----|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.4    | J D | 4.4 | 2.9 | 1.2  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 4.4    | D   | 4.4 | 2.9 | 1.5  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.8    | J D | 4.4 | 2.9 | 1.2  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 1.3    | J D | 5.9 | 2.7 | 0.87 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 45     | D   | 4.4 | 2.9 | 0.91 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1000   | E D | 15  | 7.4 | 3.5  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 66   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 75   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 79   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 71   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 62   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_021.d  
 Lims ID: 320-39023-A-52-A  
 Client ID: KLA06-SB-2-02D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 13:36:06 ALS Bottle#: 17 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 10.0000  
 Sample Info: 320-39023-a-52-a 10X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:23:22 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:23:59

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                 | 1.766 | 1.764  | 0.002  | 1.000  | 6233     | 0.1544       |                 | 66.4 | 63.7  |       |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                 | 1.775 | 1.774  | 0.001  | 1.005  | 95010    | 0.0454       |                 |      | 344   |       |
| 298.90 > 99.00                 | 1.775 | 1.774  | 0.001  | 1.005  | 43447    |              | 2.19(1.25-3.74) |      | 268   |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                | 2.360 | 2.345  | 0.015  | 1.000  | 343435   | 0.1882       |                 | 75.3 | 9198  |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                 | 2.373 | 2.358  | 0.015  | 1.000  | 380950   | 0.1689       |                 | 71.4 | 15632 |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                | 2.360 | 2.358  | 0.002  | 1.000  | 68259    | 0.0470       |                 |      | 84.6  |       |
| 363.00 > 169.00                | 2.360 | 2.358  | 0.002  | 1.000  | 21108    |              | 3.23(1.13-3.40) |      | 85.9  |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                 | 2.373 | 2.372  | 0.001  | 1.000  | 2790162  | 1.54         |                 |      | 10403 |       |
| 399.00 > 99.00                 | 2.373 | 2.372  | 0.001  | 1.000  | 875783   |              | 3.19(1.50-4.49) |      | 4429  |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                | 2.714 | 2.704  | 0.010  | 1.000  | 361276   | 0.2093       |                 | 83.7 | 8409  |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                | 2.714 | 2.712  | 0.002  |        | 455759   | 0.2500       |                 |      | 9607  |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                | 2.714 | 2.712  | 0.002  | 1.000  | 251482   | 0.1478       |                 |      | 98.7  |       |
| 413.00 > 169.00                | 2.714 | 2.712  | 0.002  | 1.000  | 137599   |              | 1.83(0.84-2.52) |      | 417   |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                | 3.087 | 3.072  | 0.015  | 1.000  | 278045   | 0.1969       |                 | 78.8 | 9781  |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                 | 3.087 | 3.072  | 0.015  | 1.000  | 228653   | 0.1475       |                 | 61.7 | 1652  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                | 3.087 | 3.082  | 0.005  | 1.000  | 72282    | 0.0614       |                 |      | 201   |       |
| 463.00 > 169.00                | 3.087 | 3.082  | 0.005  | 1.000  | 16922    |              | 4.27(1.90-5.69) |      | 367   |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       | E     |
| 499.00 > 80.00                   | 3.087 | 3.082     | 0.005     | 1.000     | 38802651 | 34.5            |                 |      | 74865 | E     |
| 499.00 > 99.00                   | 3.087 | 3.082     | 0.005     | 1.000     | 9428247  |                 | 4.12(2.31-6.93) |      | 53626 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_021.d

Injection Date: 29-May-2018 13:36:06

Instrument ID: A8\_N

Lims ID: 320-39023-A-52-A

Lab Sample ID:

Client ID: KLA06-SB-2-02D

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 10.0000

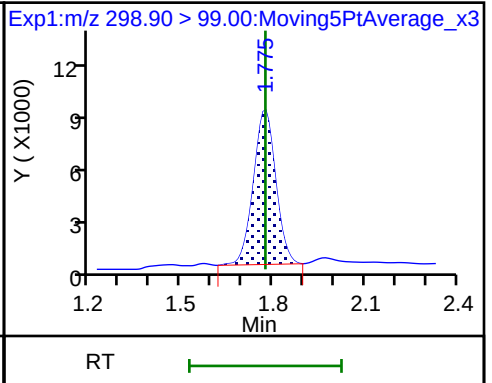
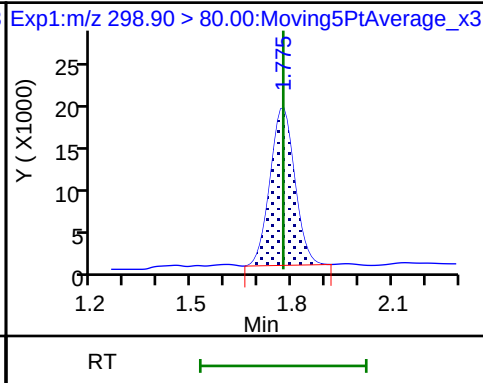
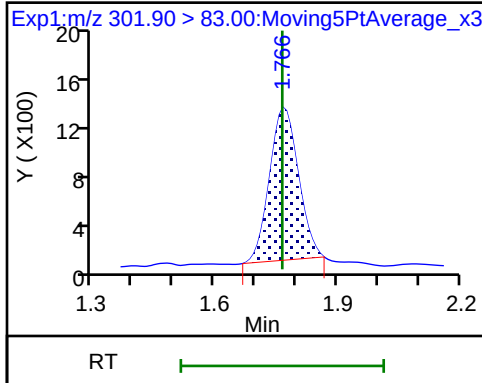
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

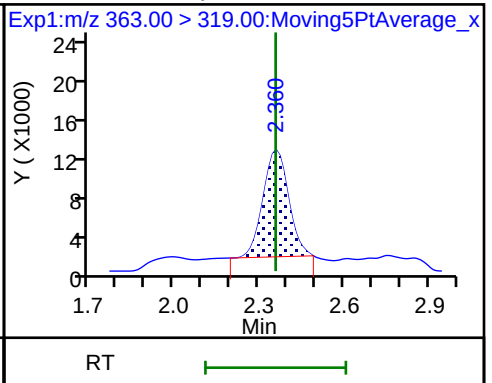
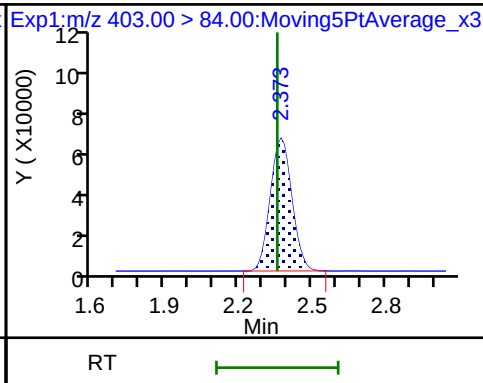
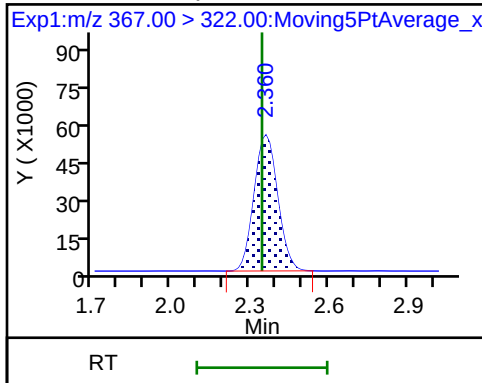
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

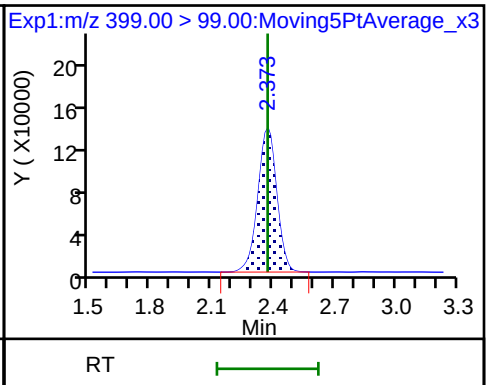
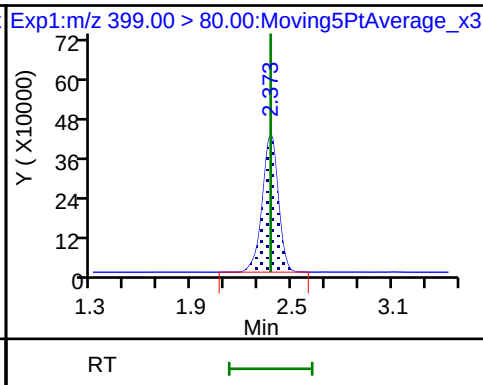
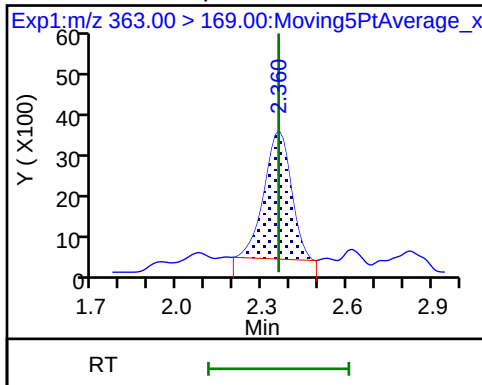
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

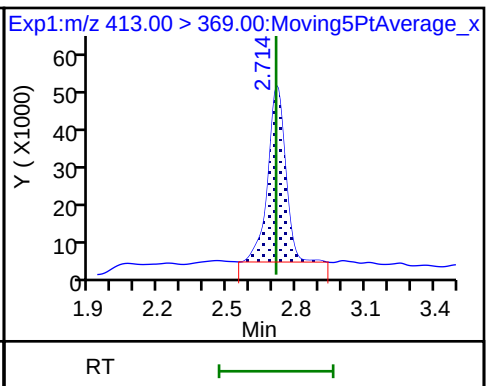
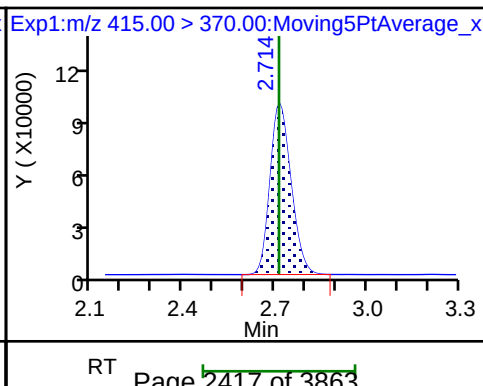
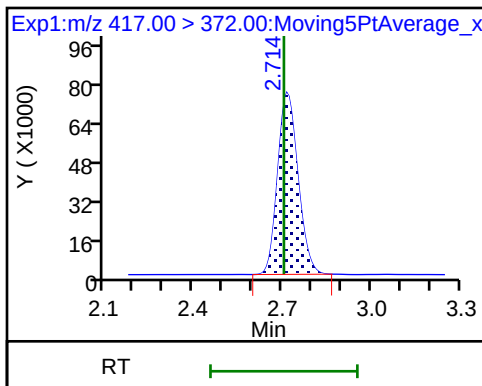
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

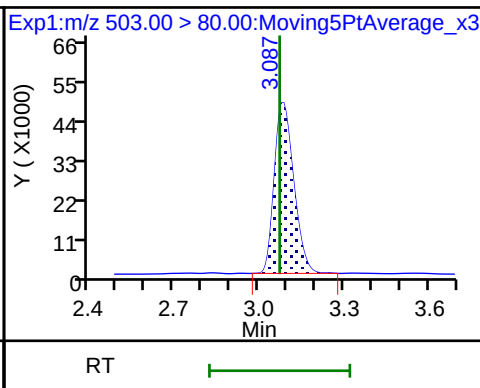
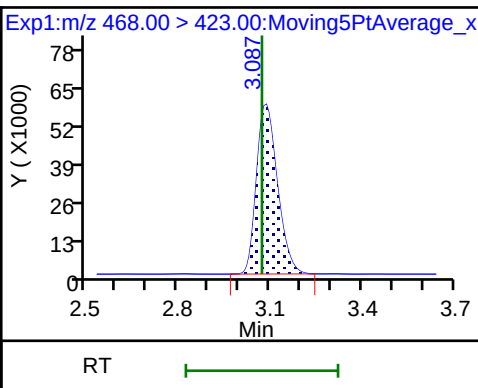
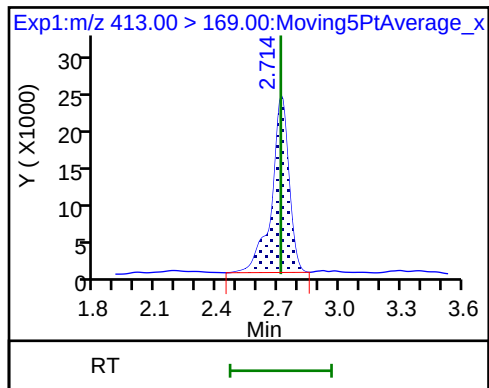
15 Perfluorooctanoic acid



## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

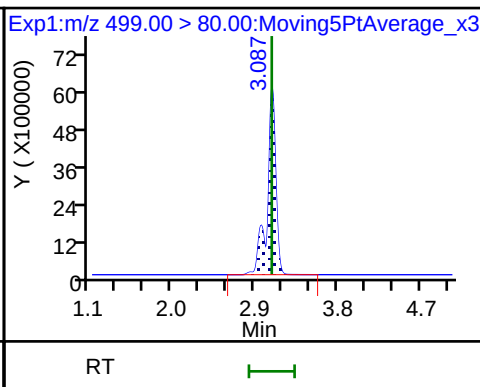
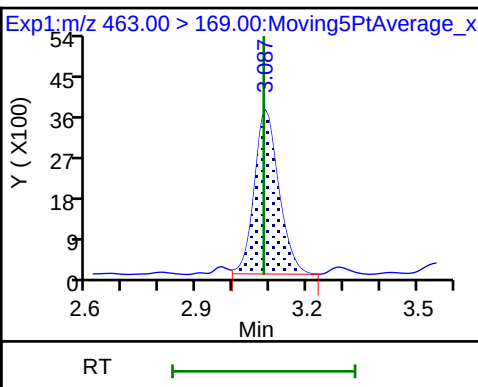
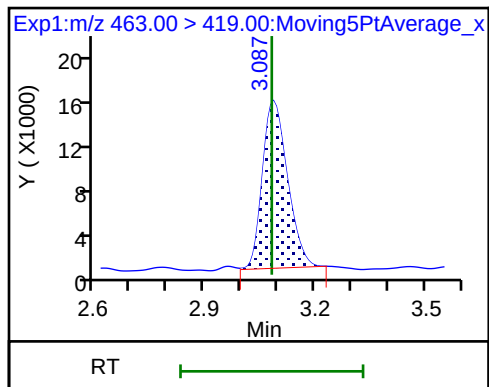
## D 18 13C4 PFOS



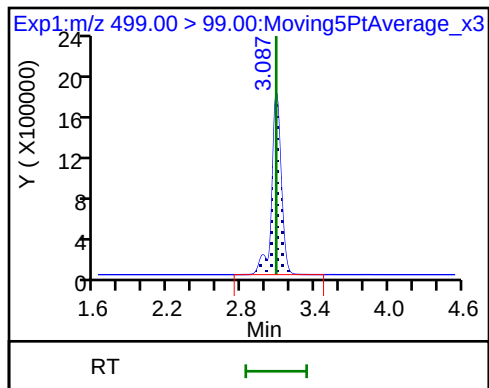
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                             |                                              |
|---------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>     | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                              |                                              |
| Client Sample ID: <u>KLA06-SB-2-02D DL2</u> | Lab Sample ID: <u>320-39023-52 DL2</u>       |
| Matrix: <u>Solid</u>                        | Lab File ID: <u>2018.05.29LLA_013.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>       | Date Collected: <u>05/01/2018 13:50</u>      |
| Extraction Method: <u>SHAKE</u>             | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>5.00(g)</u>               | Date Analyzed: <u>05/29/2018 12:33</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>        | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>             | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>32.2</u>                     | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>           | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 29     | U   | 44  | 29  | 12  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 29     | U M | 44  | 29  | 15  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 29     | U   | 44  | 29  | 12  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 27     | U   | 59  | 27  | 8.7 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 46     | D   | 44  | 29  | 9.1 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 1100   | D   | 150 | 74  | 35  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 51   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 64   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 74   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 59   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 57   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_013.d  
 Lims ID: 320-39023-A-52-A  
 Client ID: KLA06-SB-2-02D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 12:33:36 ALS Bottle#: 11 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-52-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 04-Jun-2018 16:58:06 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK042

First Level Reviewer: mongkols

Date: 30-May-2018 17:18:27

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       | M     |
| 301.90 > 83.00                   | 1.780 | 1.764  | 0.016  | 1.000  | 591      | 0.0119       |                 | 51.1 | 6.0   | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.780 | 1.771  | 0.009  | 1.000  | 11799    | 0.005944     |                 |      | 41.6  |       |
| 298.90 > 99.00                   | 1.762 | 1.771  | -0.009 | 0.990  | 5137     |              | 2.30(1.25-3.74) |      | 37.5  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.355 | 2.345  | 0.010  | 1.000  | 35765    | 0.0159       |                 | 63.6 | 726   |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.381 | 2.358  | 0.023  | 1.000  | 39071    | 0.0141       |                 | 59.4 | 1599  |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.381 | 2.368  | 0.013  | 1.000  | 288203   | 0.1548       |                 |      | 1010  |       |
| 399.00 > 99.00                   | 2.381 | 2.368  | 0.013  | 1.000  | 92888    |              | 3.10(1.50-4.49) |      | 425   |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.718 | 2.704  | 0.014  | 1.000  | 44573    | 0.0210       |                 | 83.8 | 1299  |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.711 | 2.711  | 0.0    |        | 56168    | 0.0250       |                 |      | 1536  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       | M     |
| 413.00 > 369.00                  | 2.718 | 2.711  | 0.007  | 1.000  | 27767    | 0.0132       |                 |      | 9.9   |       |
| 413.00 > 169.00                  | 2.711 | 2.711  | 0.0    | 0.997  | 12945    |              | 2.14(0.84-2.52) |      | 39.5  | M     |
| D 19 13C5 PFNA                   |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                  | 3.089 | 3.072  | 0.017  | 1.000  | 32071    | 0.0184       |                 | 73.7 | 933   |       |
| D 18 13C4 PFOS                   |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                   | 3.082 | 3.072  | 0.010  | 1.000  | 26233    | 0.0137       |                 | 57.5 | 206   |       |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.089 | 3.079  | 0.010  | 1.000  | 8283     | 0.006096     |                 |      | 23.1  |       |
| 463.00 > 169.00                  | 3.082 | 3.079  | 0.003  | 0.998  | 1815     |              | 4.56(1.90-5.69) |      | 40.0  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.082 | 3.079  | 0.003  | 1.000  | 4789221  | 3.71         |                 |      | 17942 |       |
| 499.00 > 99.00                   | 3.082 | 3.079  | 0.003  | 1.000  | 1098120  |              | 4.36(2.31-6.93) |      | 8581  |       |

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_013.d

Injection Date: 29-May-2018 12:33:36

Instrument ID: A8\_N

Lims ID: 320-39023-A-52-A

Lab Sample ID: 320-39023-52

Client ID: KLA06-SB-2-02D

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

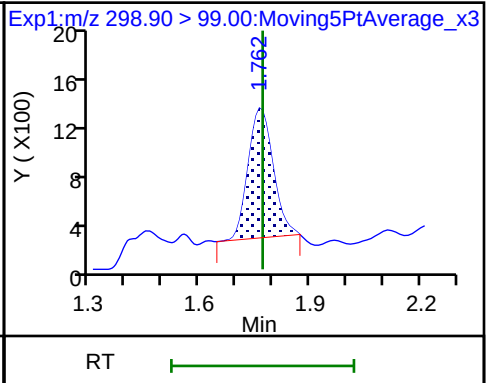
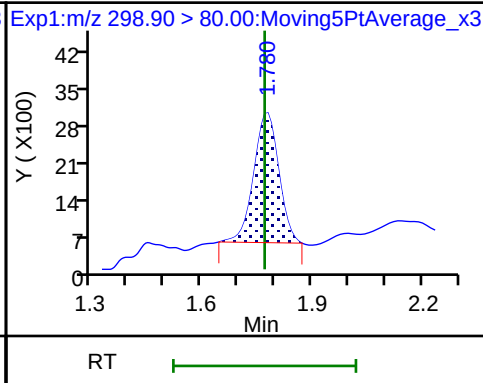
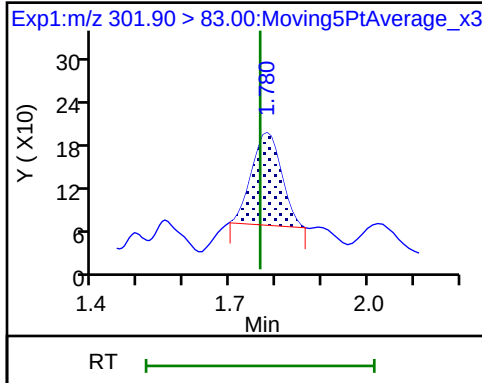
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS (M)

## 5 Perfluorobutanesulfonic acid

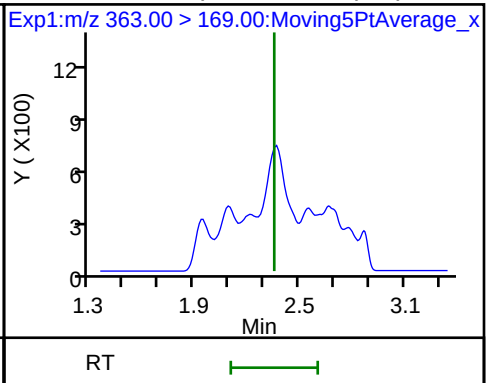
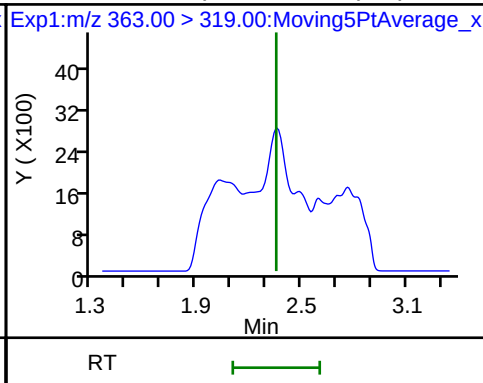
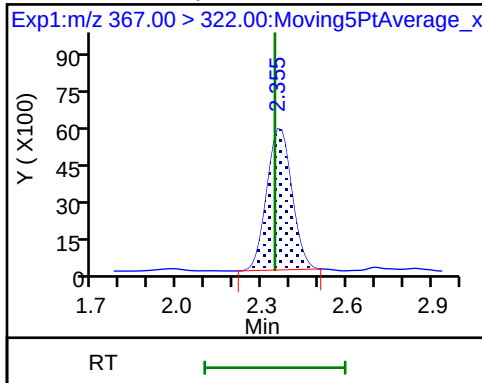
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid (ND)

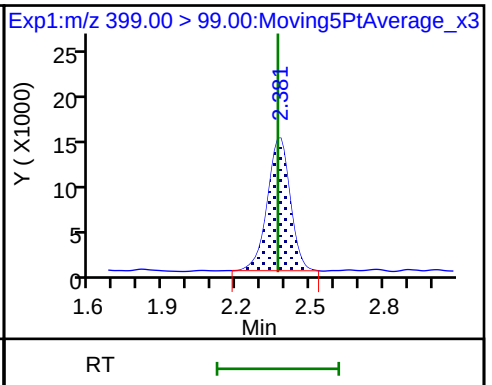
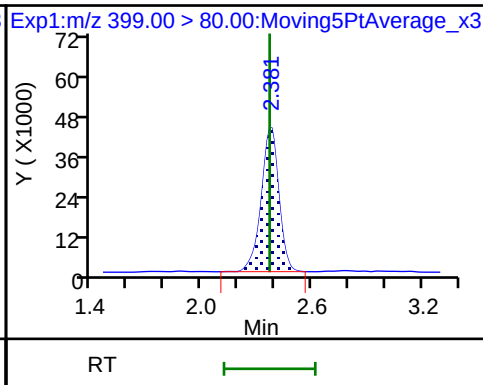
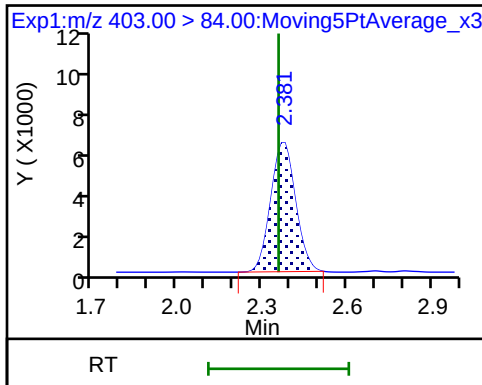
## 10 Perfluoroheptanoic acid (ND)



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

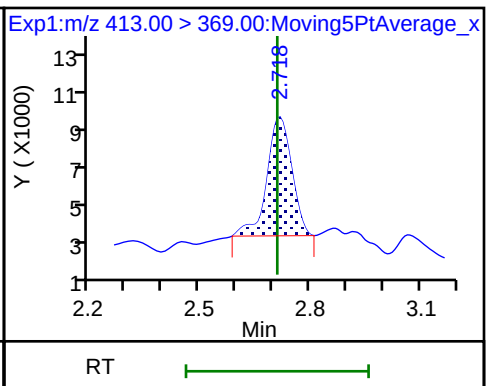
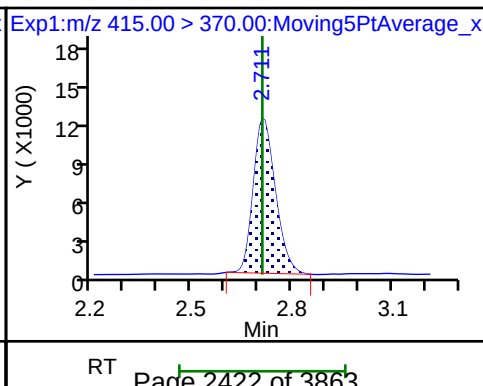
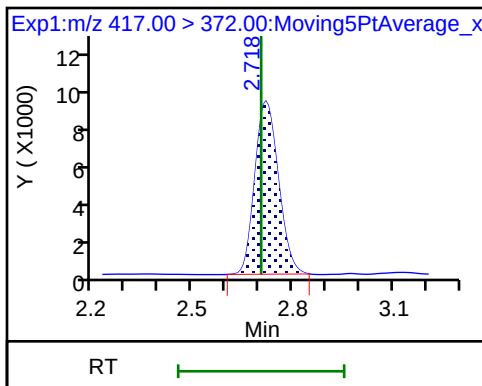
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid



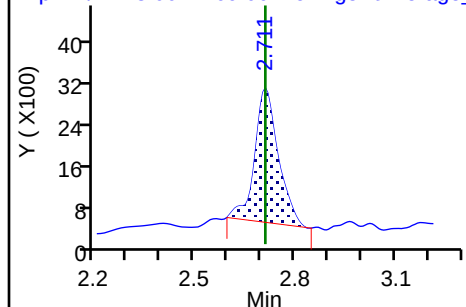


## 15 Perfluorooctanoic acid (M)

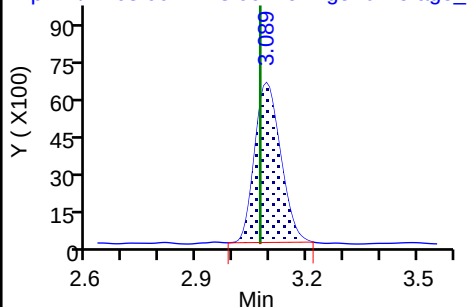
## D 19 13C5 PFNA

## D 18 13C4 PFOS

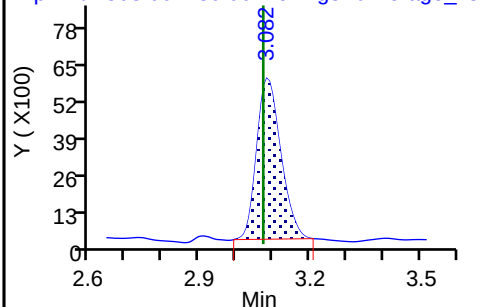
Exp1:m/z 413.00 &gt; 169.00:Moving5PtAverage\_x



Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x



Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3

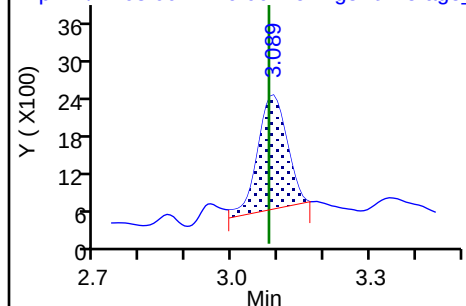


## 20 Perfluorononanoic acid

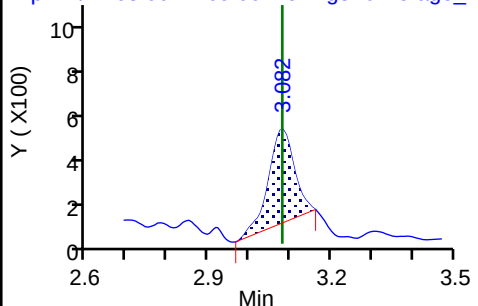
## 20 Perfluorononanoic acid

## 17 Perfluorooctane sulfonic acid

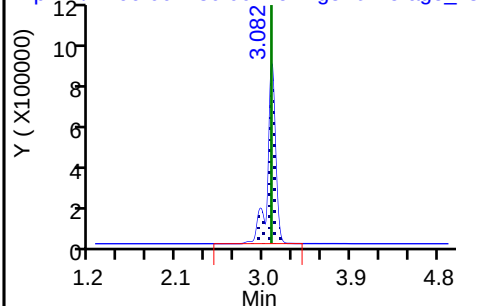
Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

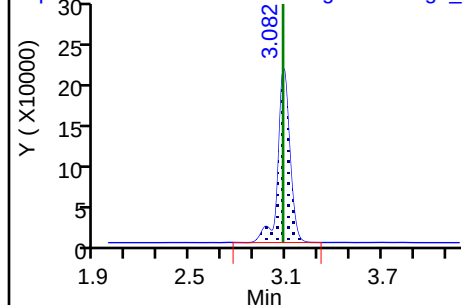


Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



## 17 Perfluorooctane sulfonic acid

Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3



## TestAmerica Sacramento

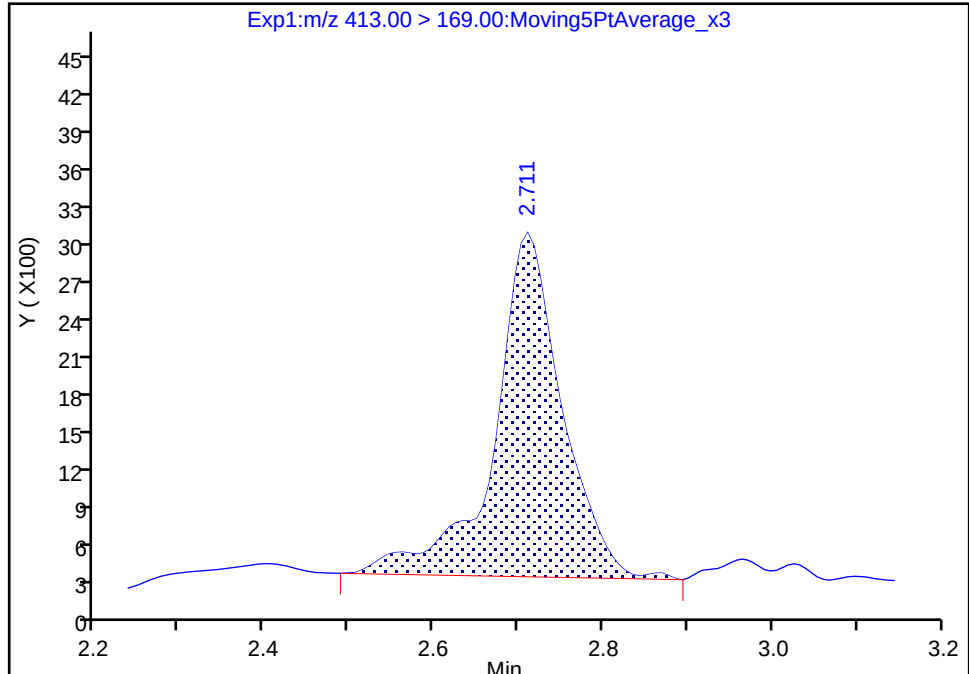
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_013.d |                |                    |                |    |
| Injection Date: | 29-May-2018 12:33:36                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-52-A                                                         | Lab Sample ID: | 320-39023-52       |                |    |
| Client ID:      | KLA06-SB-2-02D                                                           |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 11                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

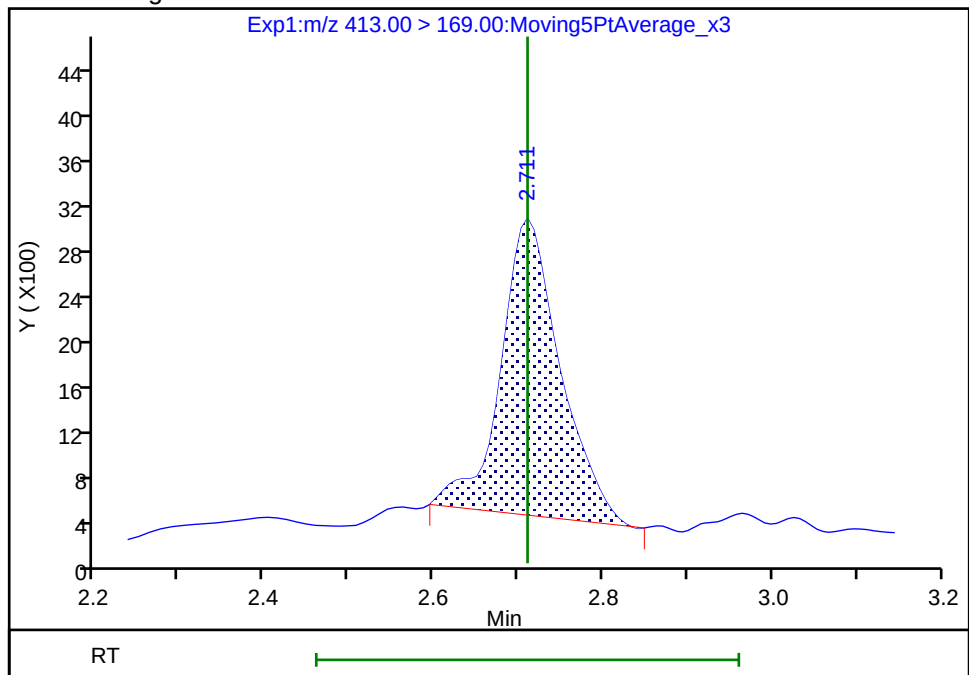
RT: 2.71  
Area: 15537  
Amount: 0.013232  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 12945  
Amount: 0.013232  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 17:18:01  
Audit Action: Manually Integrated

Audit Reason: Assign Peak  
Page 2424 of 3863

## TestAmerica Sacramento

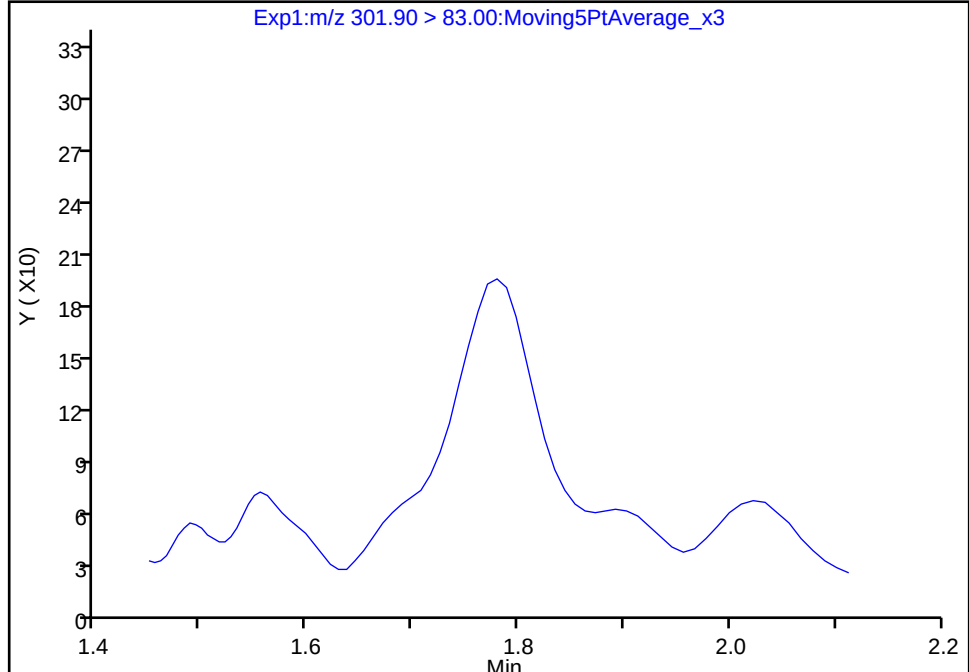
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_013.d |                |                    |                |    |
| Injection Date: | 29-May-2018 12:33:36                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-52-A                                                         | Lab Sample ID: | 320-39023-52       |                |    |
| Client ID:      | KLA06-SB-2-02D                                                           |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 11                 | Worklist Smp#: | 13 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

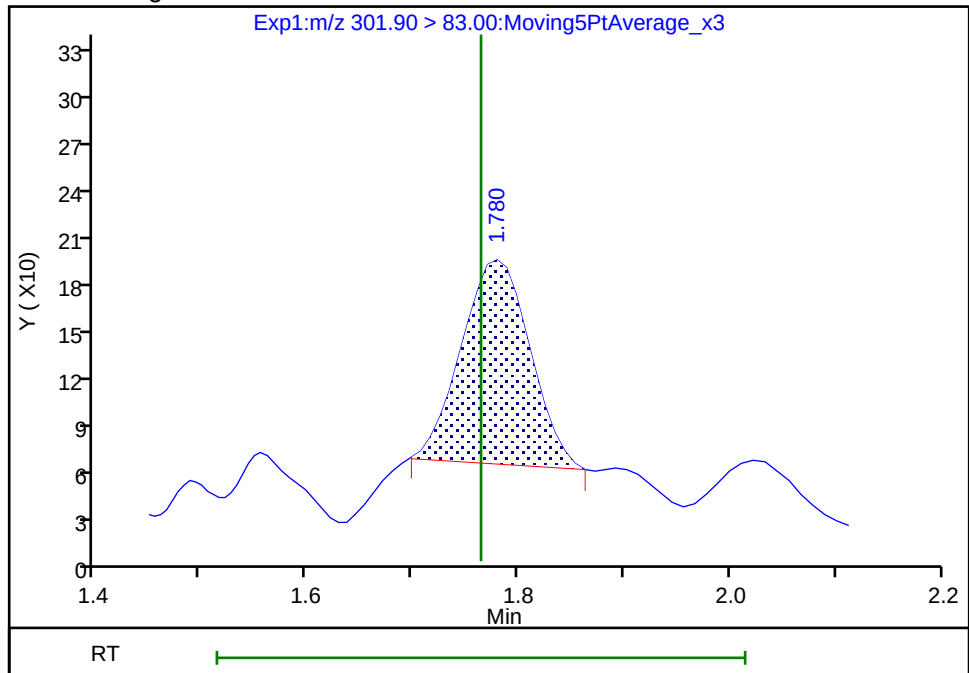
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.78  
Area: 591  
Amount: 0.011880  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: hannigana, 04-Jun-2018 16:57:57

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB2-02D</u>  | Lab Sample ID: <u>320-39023-53</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_058.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:25</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.05(g)</u>           | Date Analyzed: <u>05/29/2018 10:36</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>40.9</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.6    |     | 0.50 | 0.33 | 0.13  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 15     |     | 0.50 | 0.33 | 0.17  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.34   | J M | 0.50 | 0.33 | 0.14  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 24     |     | 0.67 | 0.30 | 0.099 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 95     | E   | 0.50 | 0.33 | 0.10  |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 380    | E   | 1.7  | 0.84 | 0.40  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 78   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 78   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 71   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 73   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 60   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_058.d  
 Lims ID: 320-39023-A-53-A  
 Client ID: KLA02-SB2-02D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 10:36:05 ALS Bottle#: 47 Worklist Smp#: 28  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-53-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:09:40 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:09:40

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response  | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|-----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |           |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.764 | 1.761  | 0.003  | 1.005  | 17932691  | 7.16         |                 |      | 69350 |       |
| 298.90 > 99.00                   | 1.764 | 1.761  | 0.003  | 1.005  | 7846888   |              | 2.29(1.25-3.74) |      | 41996 |       |
| D 47 13C3-PFBS                   |       |        |        |        |           |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.755 | 1.766  | -0.011 | 1.000  | 74518     | 1.81         |                 | 77.9 | 525   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |           |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 3619660   | 1.94         |                 | 77.8 | 71742 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |           |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 2563959   | 1.68         |                 |      | 3457  |       |
| 363.00 > 169.00                  | 2.345 | 2.347  | -0.002 | 1.000  | 1019005   |              | 2.52(1.13-3.40) |      | 5021  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |           |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 3980773   | 1.73         |                 | 73.2 | 57258 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |           |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 53787204  | 28.4         |                 |      | 48074 | E     |
| 399.00 > 99.00                   | 2.358 | 2.360  | -0.002 | 1.000  | 22258770  |              | 2.42(1.50-4.49) |      | 41419 | E     |
| 15 Perfluorooctanoic acid        |       |        |        |        |           |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.704 | 2.705  | -0.001 | 1.000  | 7667147   | 4.42         |                 |      | 3174  |       |
| 413.00 > 169.00                  | 2.704 | 2.705  | -0.001 | 1.000  | 4379404   |              | 1.75(0.84-2.52) |      | 11094 |       |
| * 62 13C2-PFOA                   |       |        |        |        |           |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.704 | 2.705  | -0.001 |        | 4648067   | 2.50         |                 |      | 75440 |       |
| D 14 13C4 PFOA                   |       |        |        |        |           |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.704 | 2.706  | -0.002 | 1.000  | 3686102   | 2.09         |                 | 83.8 | 68335 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |           |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.076 | 3.072  | 0.004  | 1.000  | 125793236 | 112.6        |                 |      | 30558 | E     |
| 499.00 > 99.00                   | 3.076 | 3.072  | 0.004  | 1.000  | 35504550  |              | 3.54(2.31-6.93) |      | 45736 |       |
| 20 Perfluorononanoic acid        |       |        |        |        |           |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.076 | 3.072  | 0.004  | 1.000  | 109012    | 0.1001       |                 |      | 263   | M     |
| 463.00 > 169.00                  | 3.083 | 3.072  | 0.011  | 1.003  | 26422     |              | 4.13(1.90-5.69) |      | 357   | M     |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.076 | 3.076     | 0.0       | 1.000     | 2271126  | 1.44            |               | 60.1 | 15623 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.076 | 3.076     | 0.0       | 1.000     | 2570150  | 1.78            |               | 71.4 | 65236 |       |

### QC Flag Legend

#### Processing Flags

E - Exceeded Maximum Amount

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_058.d

Injection Date: 29-May-2018 10:36:05

Instrument ID: A8\_N

Lims ID: 320-39023-A-53-A

Lab Sample ID: 320-39023-53

Client ID: KLA02-SB2-02D

Operator ID: SACINSTLCMS01

ALS Bottle#: 47

Worklist Smp#: 28

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

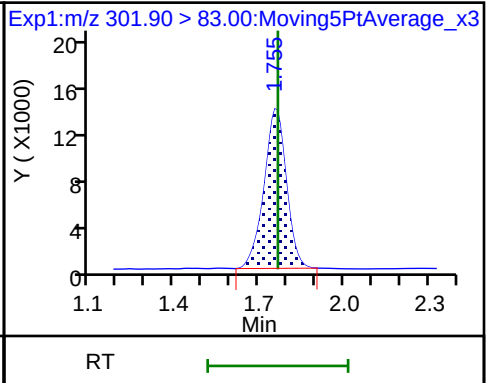
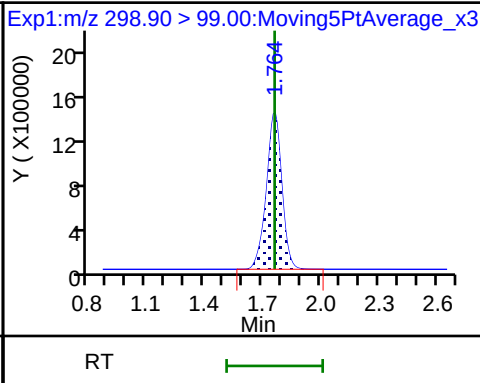
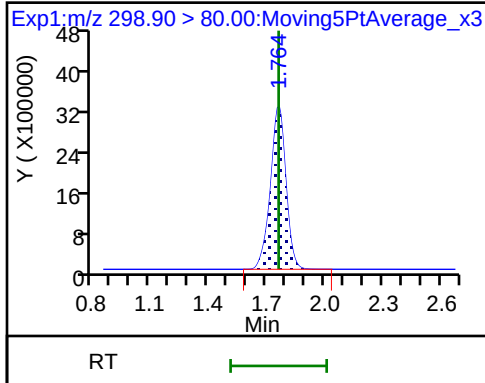
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

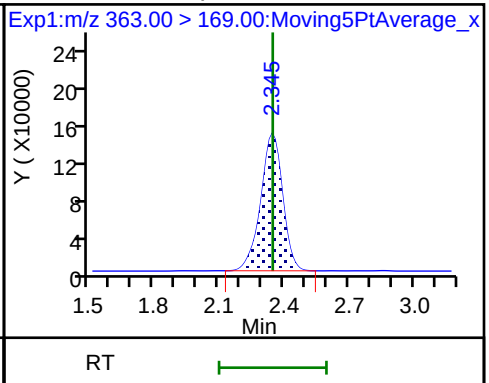
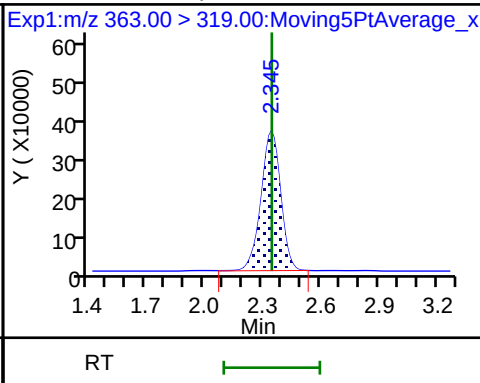
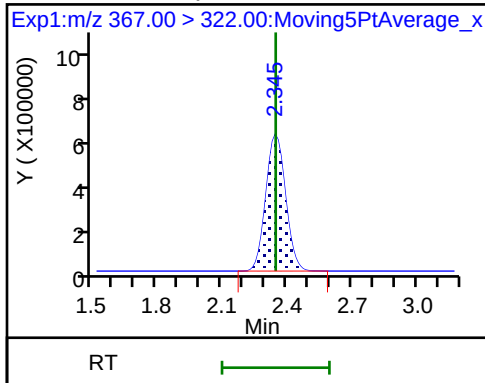
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

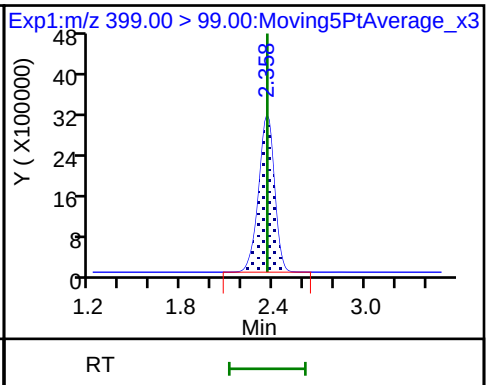
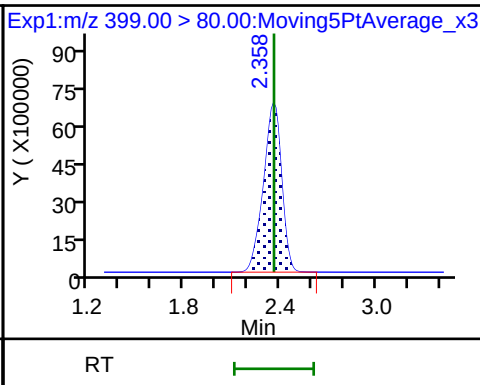
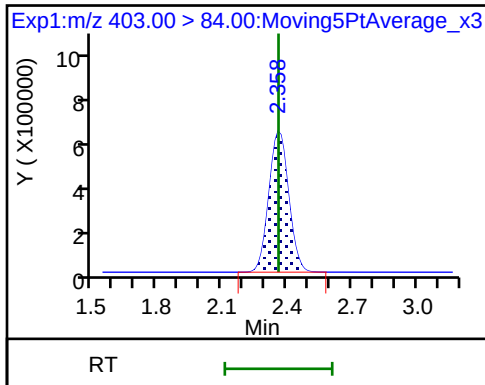
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

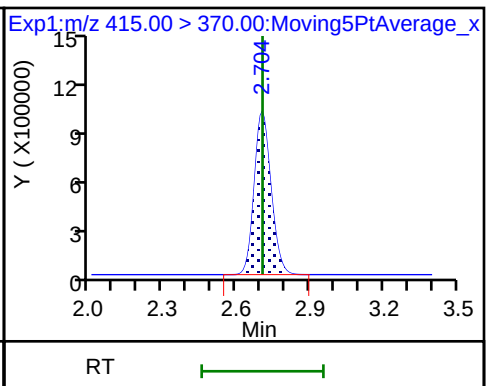
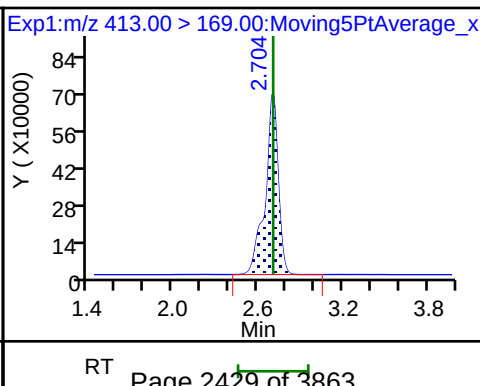
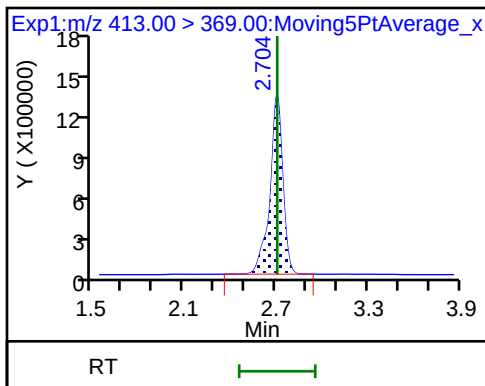
## 8 Perfluorohexanesulfonic acid



## 15 Perfluorooctanoic acid

## 15 Perfluorooctanoic acid

## \* 62 13C2-PFOA

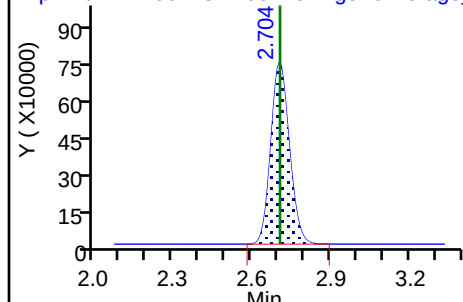


## D 14 13C4 PFOA

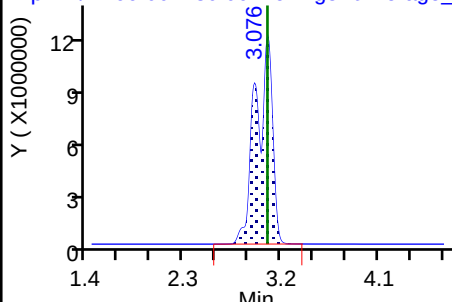
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

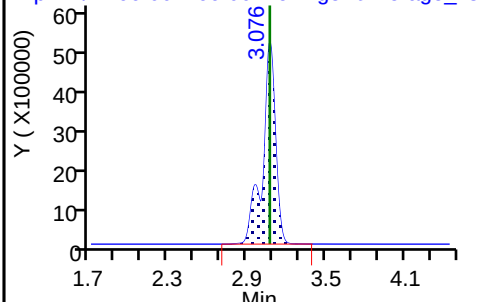
Exp1:m/z 417.00 &gt; 372.00:Moving5PtAverage\_x



Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

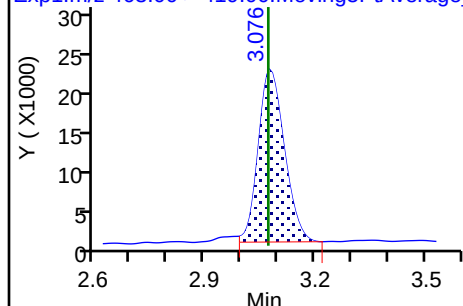


## 20 Perfluorononanoic acid (M)

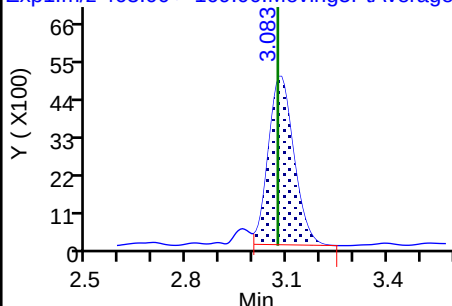
## 20 Perfluorononanoic acid

## D 18 13C4 PFOS

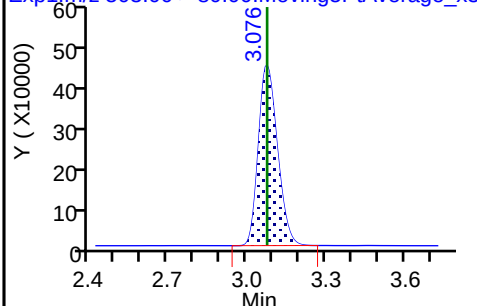
Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x

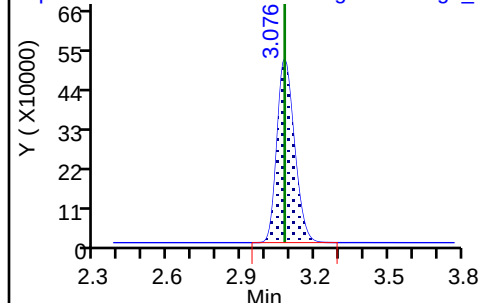


Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3



## D 19 13C5 PFNA

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x





## TestAmerica Sacramento

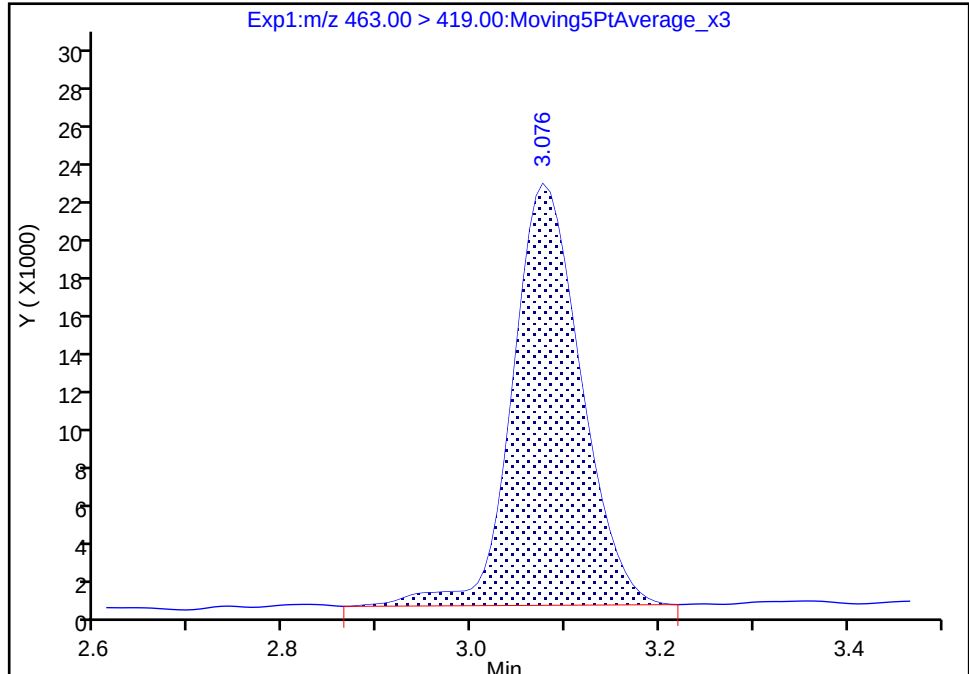
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_058.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:36:05                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-53-A                                                         | Lab Sample ID: | 320-39023-53       |                |    |
| Client ID:      | KLA02-SB2-02D                                                            |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 47                 | Worklist Smp#: | 28 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

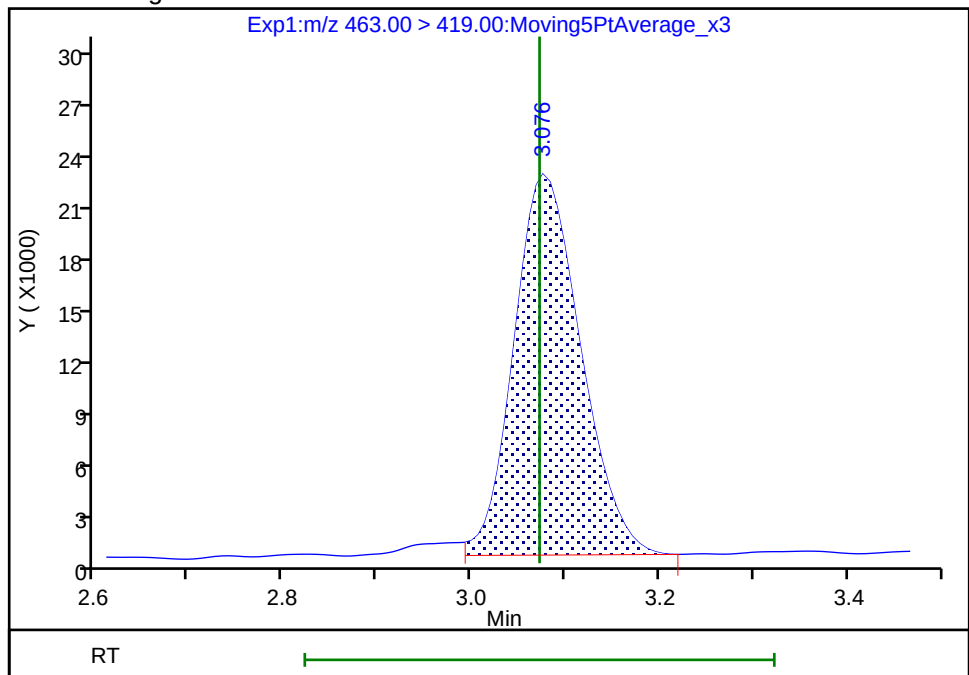
RT: 3.08  
Area: 112145  
Amount: 0.102988  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 109012  
Amount: 0.100111  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:09:30

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA02-SB2-02D DL</u> | Lab Sample ID: <u>320-39023-53 DL</u>        |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_052.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/04/2018 13:25</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.05(g)</u>             | Date Analyzed: <u>05/29/2018 17:38</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>20</u>                   |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>40.9</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226051</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 5.5    | J D | 10  | 6.7 | 2.6 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 14     | D   | 10  | 6.7 | 3.3 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 6.7    | U M | 10  | 6.7 | 2.7 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 23     | D   | 13  | 6.0 | 2.0 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 110    | D   | 10  | 6.7 | 2.1 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 490    | D   | 33  | 17  | 8.0 |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 74   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 72   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 86   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 81   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 70   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 67   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_052.d  
 Lims ID: 320-39023-A-53-A  
 Client ID: KLA02-SB2-02D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 17:38:58 ALS Bottle#: 40 Worklist Smp#: 29  
 Injection Vol: 2.0 ul Dil. Factor: 20.0000  
 Sample Info: 320-39023-a-53-a 20X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 11:05:11 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK009

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 11:05:11

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.765 | 1.762  | 0.003  | 1.000  | 4308     | 0.0863       |                 | 74.2 | 57.5  | M     |
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.765 | 1.765  | 0.001  | 1.000  | 992836   | 0.3431       |                 |      | 5055  |       |
| 298.90 > 99.00                   | 1.765 | 1.765  | 0.001  | 1.000  | 422694   |              | 2.35(1.25-3.74) |      | 3965  |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.358 | 2.355  | 0.003  | 1.000  | 203322   | 0.0901       |                 | 72.1 | 6632  |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.345 | 2.358  | -0.013 | 0.994  | 142078   | 0.0827       |                 |      | 169   |       |
| 363.00 > 169.00                  | 2.358 | 2.358  | 0.0    | 1.000  | 56825    |              | 2.50(1.13-3.40) |      | 234   |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.358 | 2.358  | 0.0    | 0.994  | 3798159  | 1.72         |                 |      | 13084 |       |
| 399.00 > 99.00                   | 2.372 | 2.358  | 0.014  | 1.000  | 1295936  |              | 2.93(1.50-4.49) |      | 6686  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.372 | 2.368  | 0.004  | 1.000  | 232384   | 0.0833       |                 | 70.5 | 7678  |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.704 | 2.711  | -0.007 | 1.000  | 230274   | 0.1079       |                 | 86.3 | 7004  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.704 | 2.712  | -0.008 | 1.000  | 466591   | 0.2152       |                 |      | 150   |       |
| 413.00 > 169.00                  | 2.704 | 2.712  | -0.008 | 1.000  | 253843   |              | 1.84(0.84-2.52) |      | 795   |       |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.704 | 2.712  | -0.008 |        | 281812   | 0.1250       |                 |      | 7555  |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.076 | 3.079  | -0.003 | 1.000  | 10989450 | 7.25         |                 |      | 33785 |       |
| 499.00 > 99.00                   | 3.070 | 3.079  | -0.009 | 0.998  | 2457100  |              | 4.47(2.31-6.93) |      | 22413 |       |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.084 | 3.079  | 0.005  | 1.003  | 3860     | 0.002580     |                 |      | 10.6  | RM    |
| 463.00 > 169.00                  | 3.076 | 3.079  | -0.003 | 1.000  | 2339     |              | 1.65(1.90-5.69) |      | 60.6  | M     |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N  | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |      |       |
| 503.00 > 80.00  | 3.076 | 3.079     | -0.003    | 1.000     | 153999   | 0.0803          |               | 67.2 | 1829 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |      |       |
| 468.00 > 423.00 | 3.076 | 3.079     | -0.003    | 1.000     | 176587   | 0.1011          |               | 80.9 | 5417 |       |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58897.b\2018.05.29LLA\_052.d

Injection Date: 29-May-2018 17:38:58

Instrument ID: A8\_N

Lims ID: 320-39023-A-53-A

Lab Sample ID:

Client ID: KLA02-SB2-02D

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 20.0000

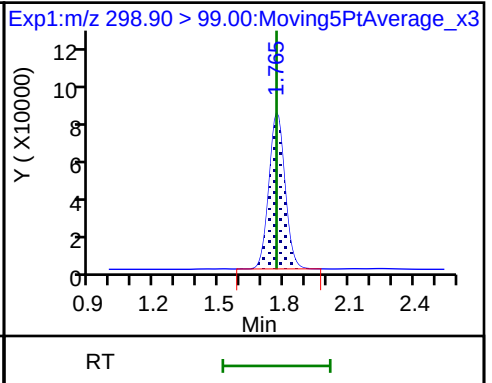
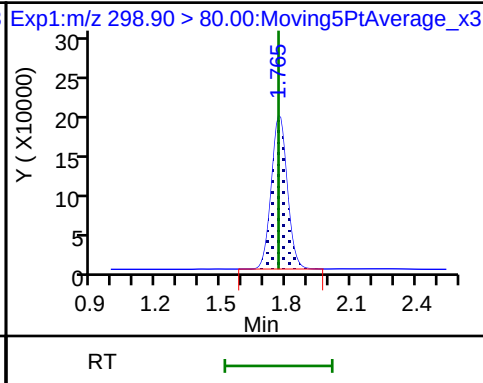
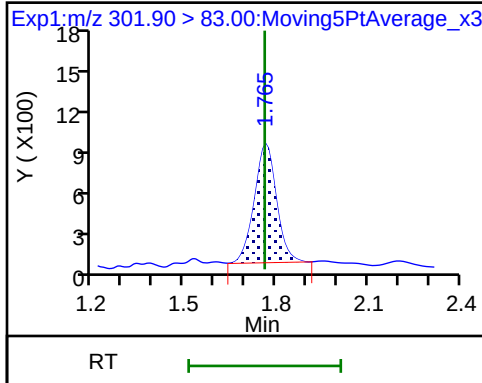
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

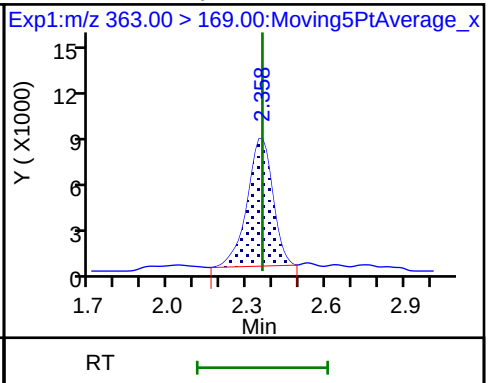
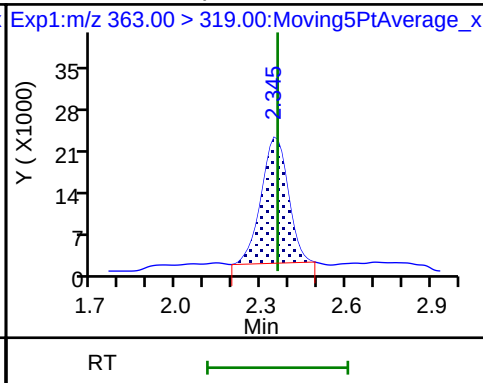
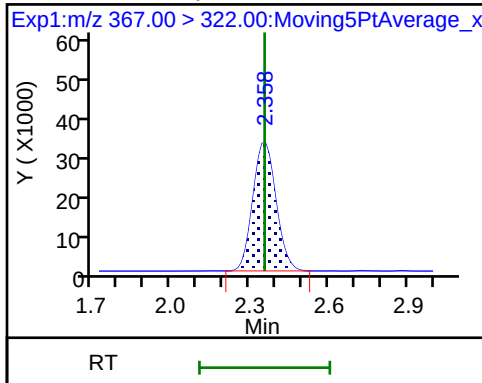
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

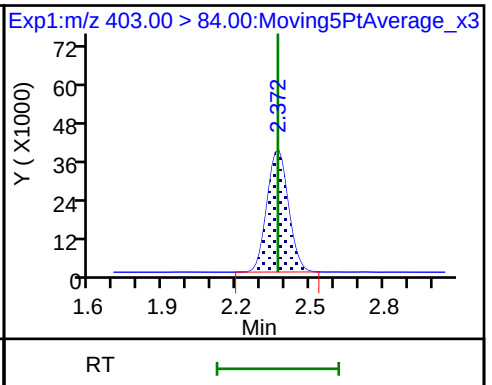
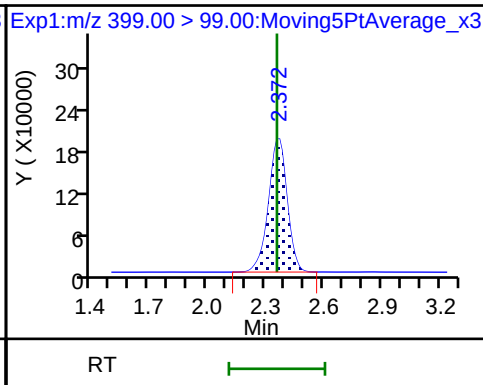
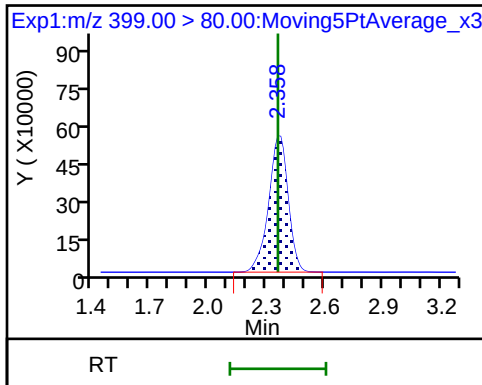
10 Perfluoroheptanoic acid



8 Perfluorohexanesulfonic acid

8 Perfluorohexanesulfonic acid

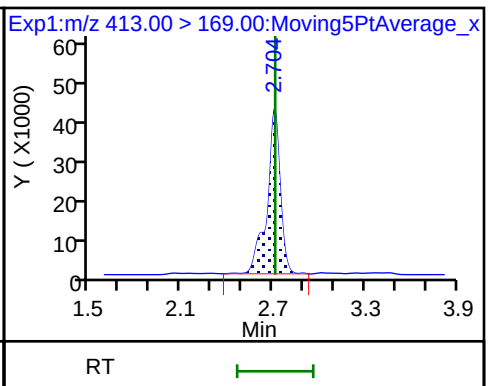
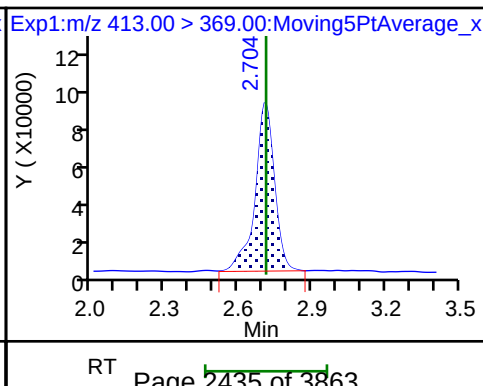
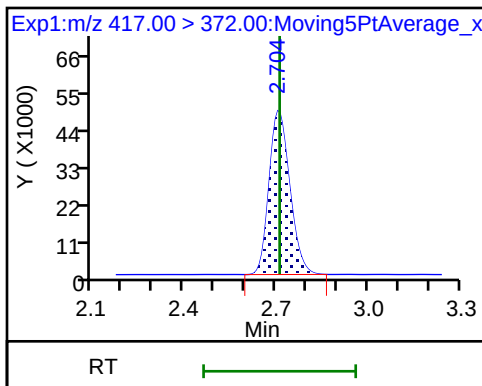
D 11 18O2 PFHxS



D 14 13C4 PFOA

15 Perfluorooctanoic acid

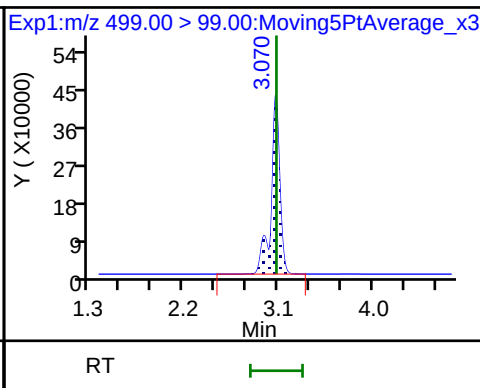
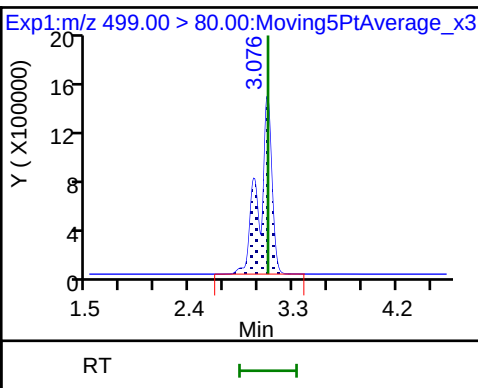
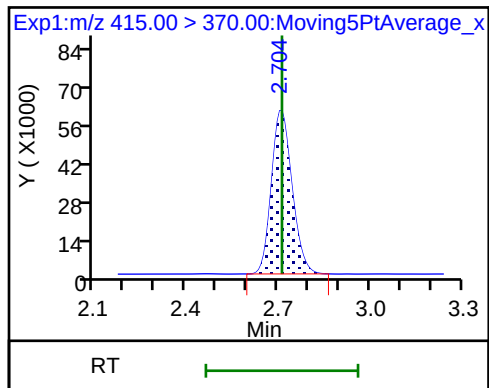
15 Perfluorooctanoic acid



\* 62 13C2-PFOA

17 Perfluorooctane sulfonic acid

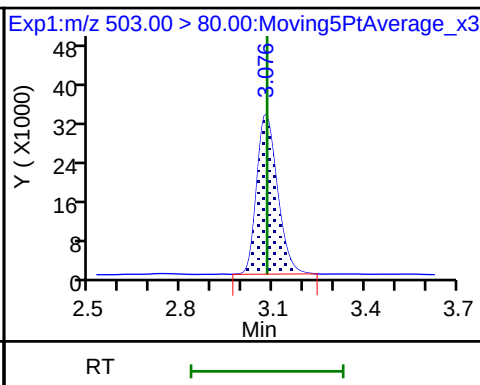
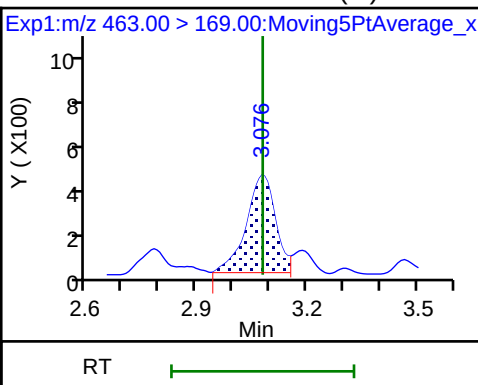
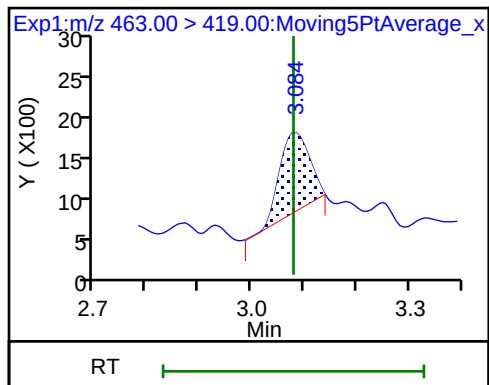
17 Perfluorooctane sulfonic acid



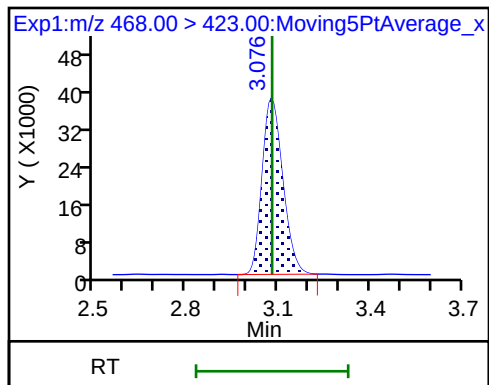
20 Perfluorononanoic acid

20 Perfluorononanoic acid (M)

D 18 13C4 PFOS



D 19 13C5 PFNA



## TestAmerica Sacramento

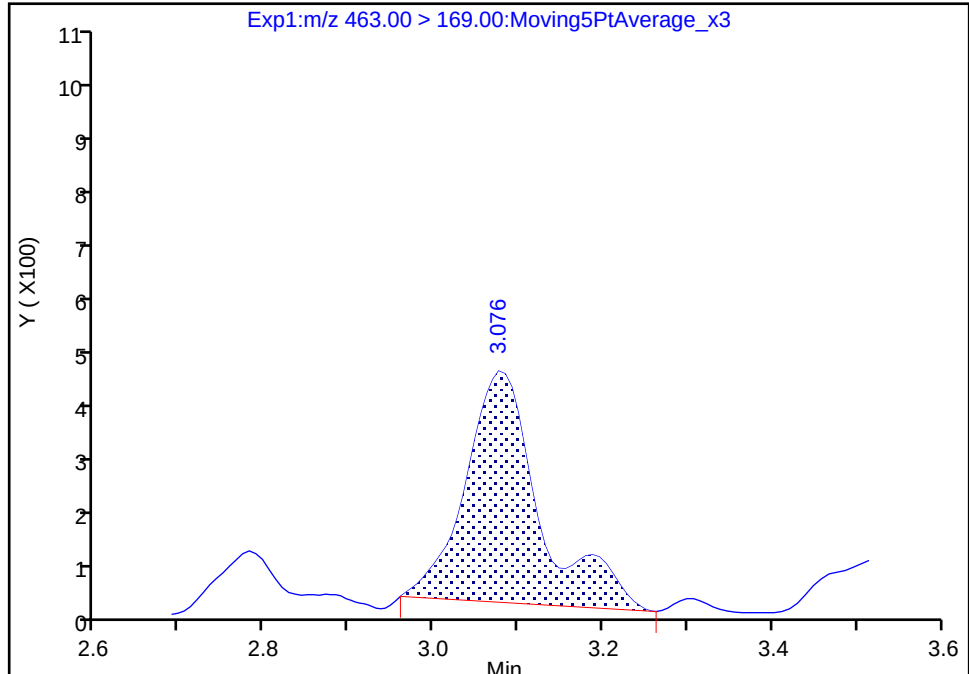
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_052.d |                |                    |
| Injection Date: | 29-May-2018 17:38:58                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-53-A                                                         | Lab Sample ID: |                    |
| Client ID:      | KLA02-SB2-02D                                                            |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 40                 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 29                 |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

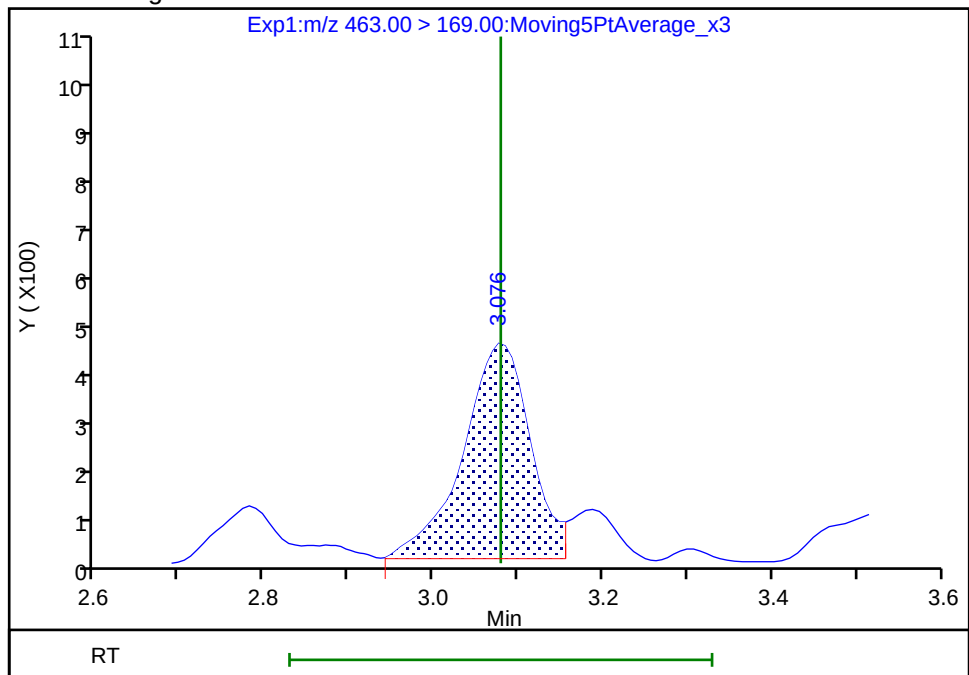
RT: 3.08  
Area: 2499  
Amount: 0.002580  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.08  
Area: 2339  
Amount: 0.002580  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 11:05:03

Audit Action: Manually Integrated

Audit Reason: Split Peak

## TestAmerica Sacramento

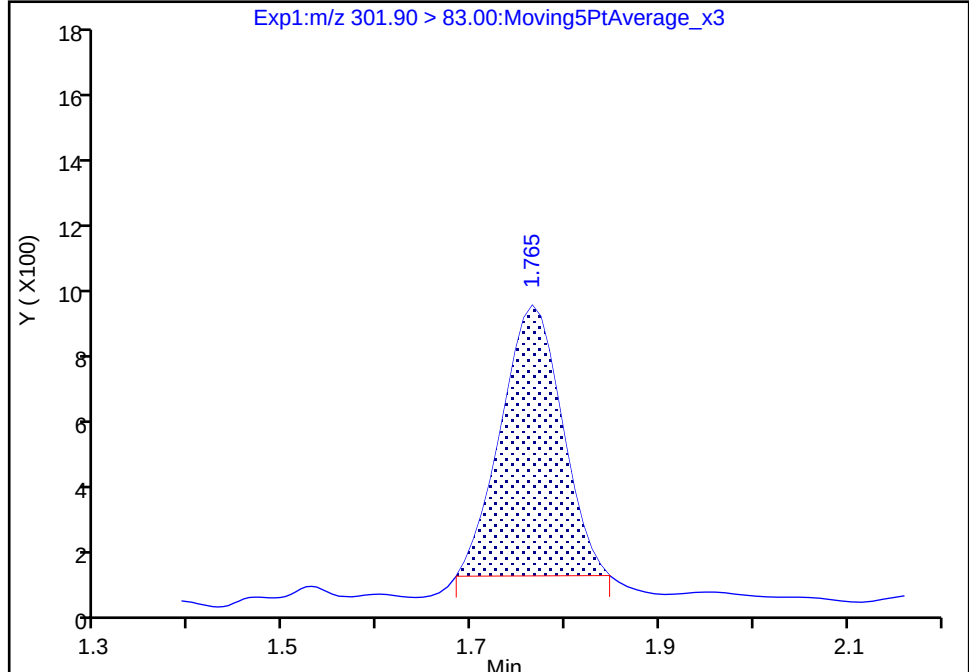
|                 |                                                                          |                |                    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58897.b\2018.05.29LLA_052.d |                |                    |
| Injection Date: | 29-May-2018 17:38:58                                                     | Instrument ID: | A8_N               |
| Lims ID:        | 320-39023-A-53-A                                                         | Lab Sample ID: |                    |
| Client ID:      | KLA02-SB2-02D                                                            |                |                    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 40                 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 20.0000            |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |
| Column:         |                                                                          | Detector:      | EXP1               |
|                 |                                                                          | Worklist Smp#: | 29                 |

**D 47 13C3-PFBS, CAS: STL02337**

Signal: 1

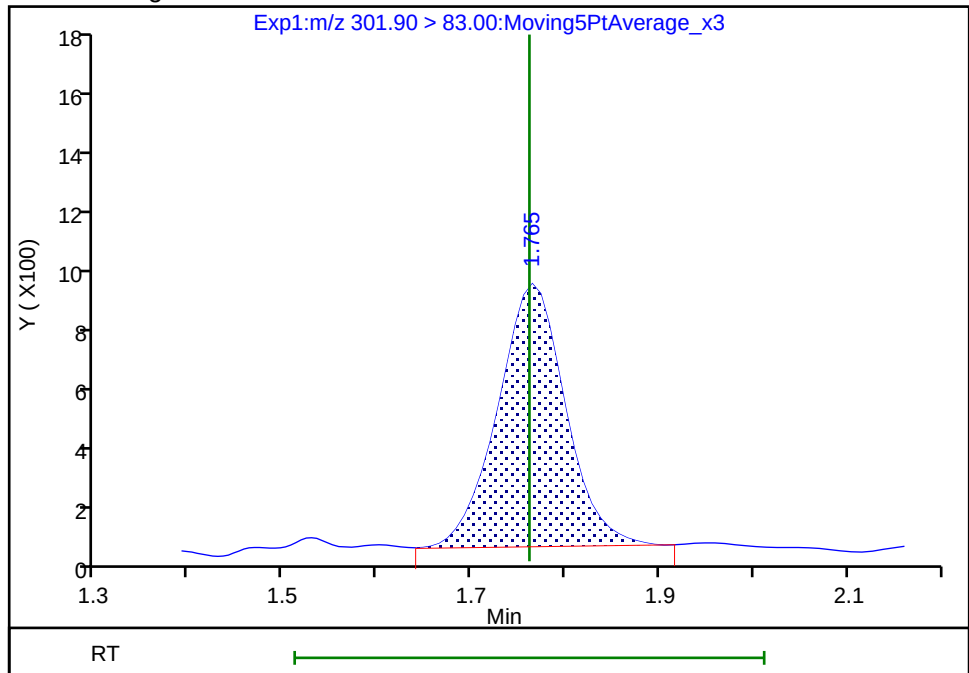
RT: 1.76  
Area: 3601  
Amount: 0.072134  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.76  
Area: 4308  
Amount: 0.086296  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 11:04:31

Audit Action: Manually Integrated

Audit Reason: Baseline



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA02-SB1-02D</u>  | Lab Sample ID: <u>320-39023-54</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.28LLB_059.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/04/2018 13:45</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 14:03</u>      |
| Sample wt/vol: <u>5.03(g)</u>           | Date Analyzed: <u>05/29/2018 10:43</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>24.1</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>225899</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|-----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.11   | J   | 0.39 | 0.26 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.25   | J M | 0.39 | 0.26 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.26   | U M | 0.39 | 0.26 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.21   | J   | 0.52 | 0.24 | 0.077 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 1.7    |     | 0.39 | 0.26 | 0.081 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 12     |     | 1.3  | 0.66 | 0.31  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 73   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 83   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 91   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 96   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 81   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 80   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_059.d  
 Lims ID: 320-39023-A-54-A  
 Client ID: KLA02-SB1-02D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 10:43:53 ALS Bottle#: 48 Worklist Smp#: 29  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-54-a  
 Misc. Info.: Plate: 1 Rack: 4  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:11:32 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK010

First Level Reviewer: ruangyotsakuld

Date: 31-May-2018 10:11:32

| Signal                           | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 5 Perfluorobutanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 298.90 > 80.00                   | 1.762 | 1.761  | 0.001  | 1.000  | 194481   | 0.0820       |                 |      | 723   |       |
| 298.90 > 99.00                   | 1.762 | 1.761  | 0.001  | 1.000  | 89321    |              | 2.18(1.25-3.74) |      | 257   |       |
| D 47 13C3-PFBS                   |       |        |        |        |          |              |                 |      |       |       |
| 301.90 > 83.00                   | 1.762 | 1.766  | -0.004 | 1.000  | 70628    | 1.69         |                 | 72.7 | 485   |       |
| D 9 13C4-PFHpA                   |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 3922401  | 2.08         |                 | 83.1 | 47444 |       |
| 10 Perfluoroheptanoic acid       |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 67702    | 0.0409       |                 |      | 82.8  |       |
| 363.00 > 169.00                  | 2.342 | 2.347  | -0.005 | 1.000  | 23403    |              | 2.89(1.13-3.40) |      | 97.9  |       |
| D 11 18O2 PFHxS                  |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                   | 2.368 | 2.360  | 0.008  | 1.000  | 4482454  | 1.92         |                 | 81.2 | 71183 |       |
| 8 Perfluorohexanesulfonic acid   |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                   | 2.355 | 2.360  | -0.005 | 0.994  | 1350762  | 0.6325       |                 |      | 3825  |       |
| 399.00 > 99.00                   | 2.355 | 2.360  | -0.005 | 0.994  | 463791   |              | 2.91(1.50-4.49) |      | 1497  |       |
| 15 Perfluorooctanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                  | 2.703 | 2.705  | -0.002 | 1.000  | 181872   | 0.0949       |                 |      | 84.5  | M     |
| 413.00 > 169.00                  | 2.703 | 2.705  | -0.002 | 1.000  | 106283   |              | 1.71(0.84-2.52) |      | 309   | M     |
| * 62 13C2-PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                  | 2.703 | 2.705  | -0.002 |        | 4718223  | 2.50         |                 |      | 81642 |       |
| D 14 13C4 PFOA                   |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                  | 2.703 | 2.706  | -0.003 | 1.000  | 4072413  | 2.28         |                 | 91.2 | 75883 |       |
| 17 Perfluorooctane sulfonic acid |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                   | 3.074 | 3.072  | 0.002  | 1.000  | 6858122  | 4.57         |                 |      | 10898 |       |
| 499.00 > 99.00                   | 3.074 | 3.072  | 0.002  | 1.000  | 1559817  |              | 4.40(2.31-6.93) |      | 6717  |       |
| 20 Perfluorononanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                  | 3.074 | 3.072  | 0.002  | 1.000  | 39118    | 0.0262       |                 |      | 91.5  | M     |
| 463.00 > 169.00                  | 3.074 | 3.072  | 0.002  | 1.000  | 9314     |              | 4.20(1.90-5.69) |      | 153   | M     |

| Signal          | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N   | Flags |
|-----------------|-------|-----------|-----------|-----------|----------|-----------------|---------------|------|-------|-------|
| D 18 13C4 PFOS  |       |           |           |           |          |                 |               |      |       |       |
| 503.00 > 80.00  | 3.074 | 3.076     | -0.002    | 1.000     | 3053704  | 1.90            |               | 79.6 | 31180 |       |
| D 19 13C5 PFNA  |       |           |           |           |          |                 |               |      |       |       |
| 468.00 > 423.00 | 3.074 | 3.076     | -0.002    | 1.000     | 3524060  | 2.41            |               | 96.4 | 63408 |       |

### QC Flag Legend

Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_059.d

Injection Date: 29-May-2018 10:43:53

Instrument ID: A8\_N

Lims ID: 320-39023-A-54-A

Lab Sample ID: 320-39023-54

Client ID: KLA02-SB1-02D

Operator ID: SACINSTLCMS01

ALS Bottle#: 48

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

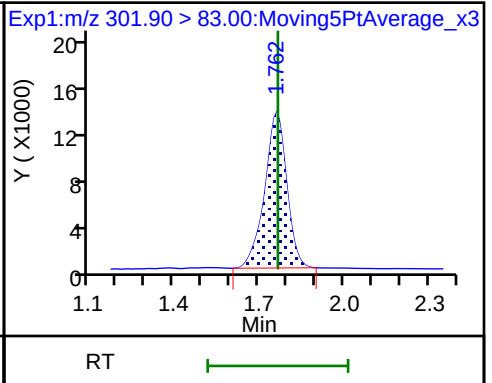
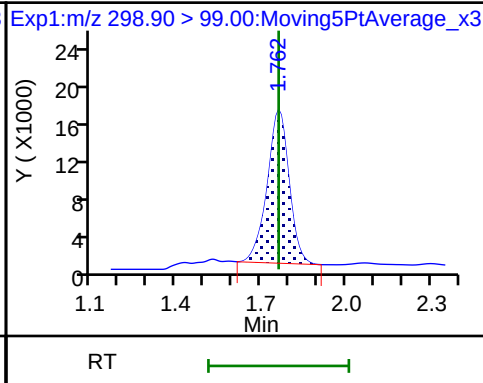
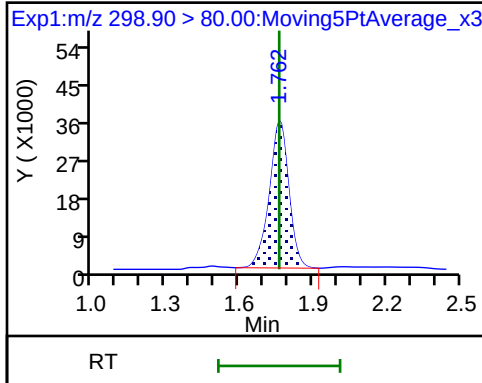
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 5 Perfluorobutanesulfonic acid

## 5 Perfluorobutanesulfonic acid

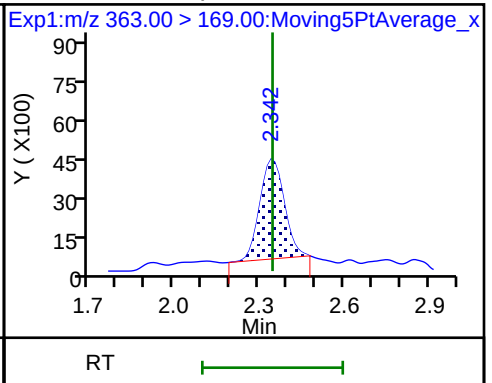
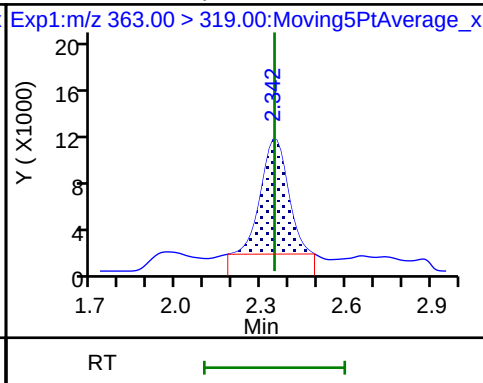
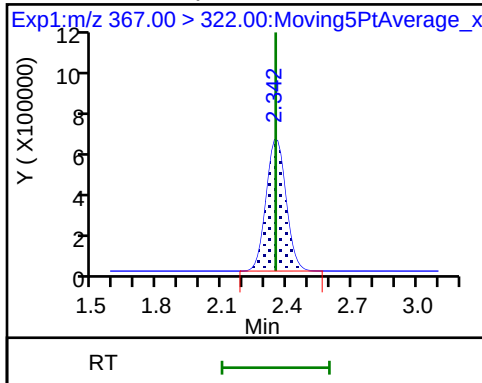
## D 47 13C3-PFBS



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

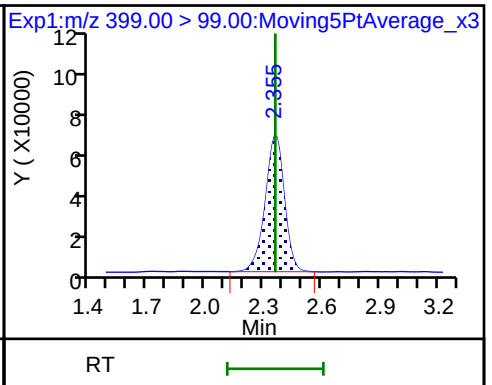
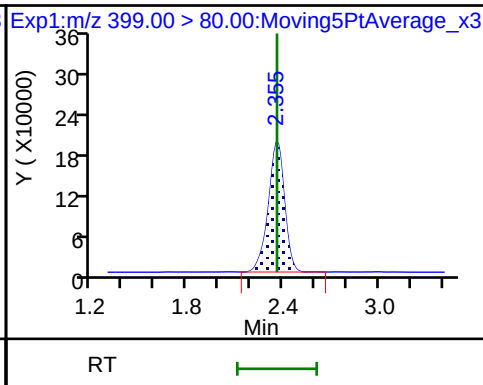
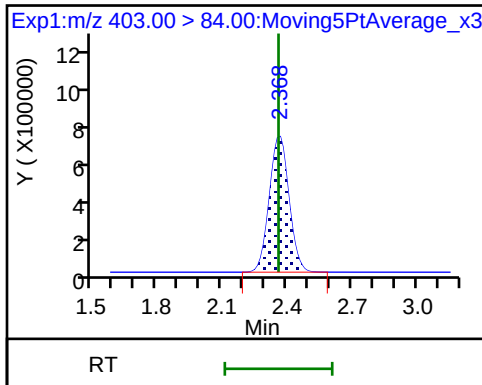
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

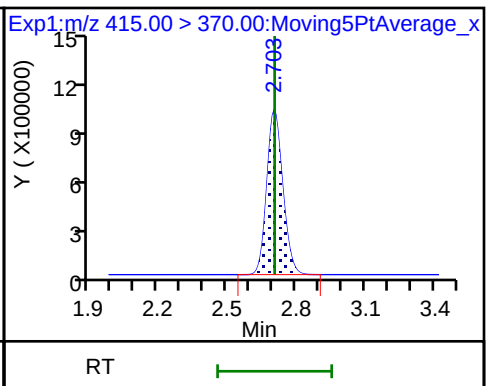
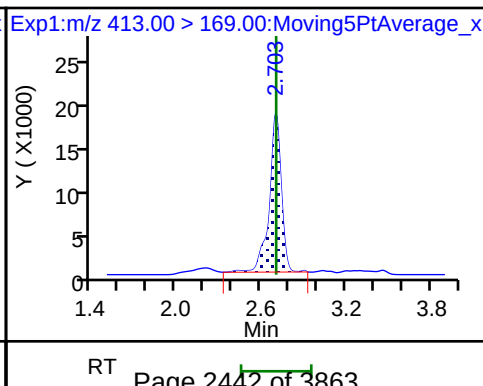
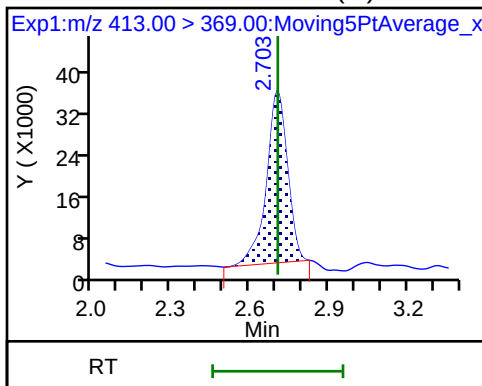
## 8 Perfluorohexanesulfonic acid



## 15 Perfluorooctanoic acid (M)

## 15 Perfluorooctanoic acid

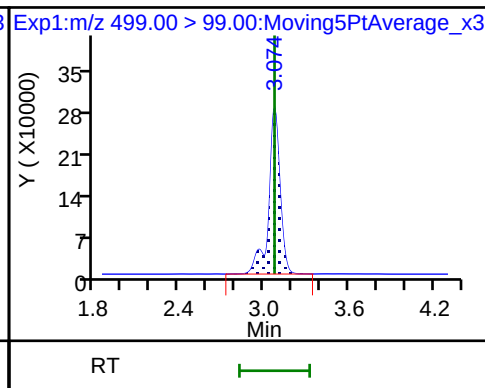
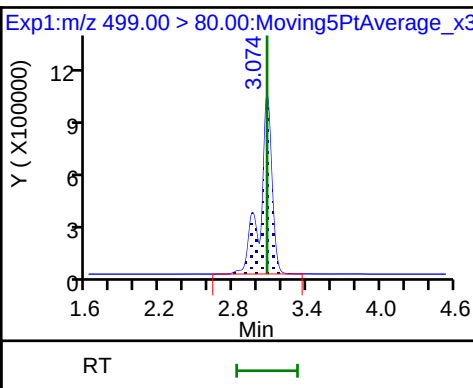
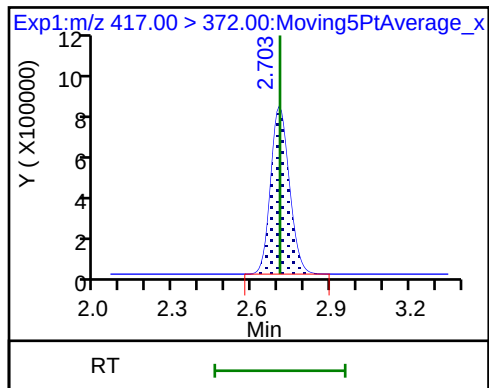
## \* 62 13C2-PFOA



## D 14 13C4 PFOA

## 17 Perfluorooctane sulfonic acid

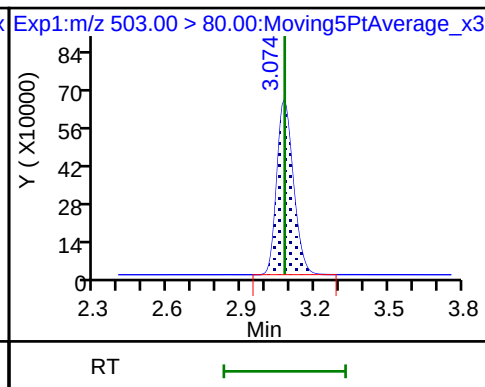
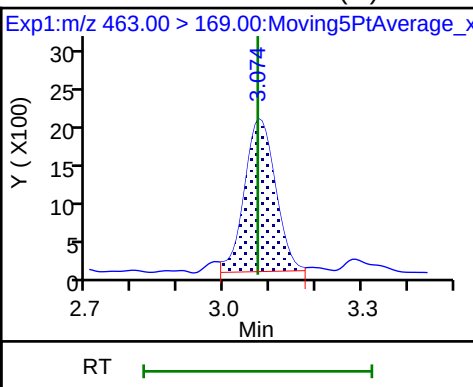
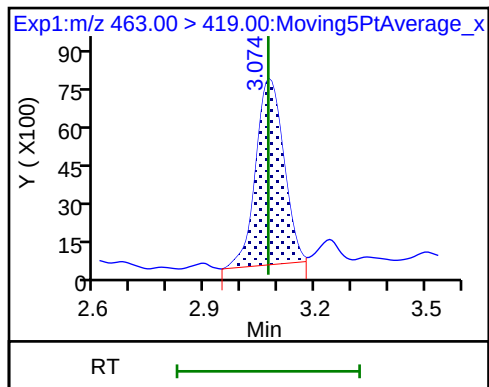
## 17 Perfluorooctane sulfonic acid



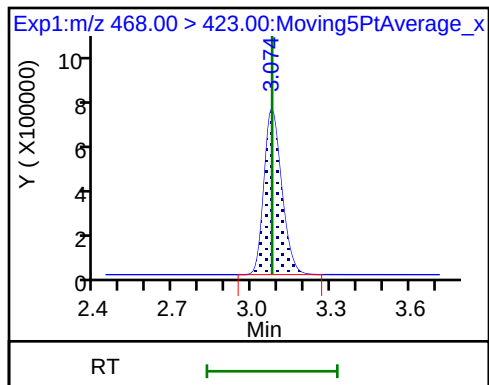
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid (M)

## D 18 13C4 PFOS



## D 19 13C5 PFNA



## TestAmerica Sacramento

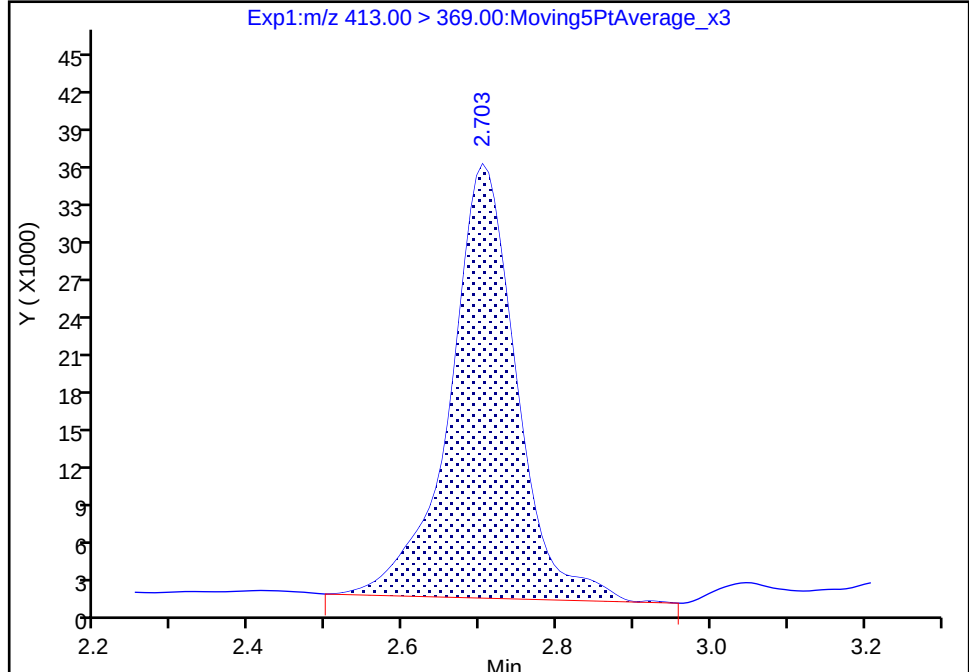
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_059.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:43:53                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-54-A                                                         | Lab Sample ID: | 320-39023-54       |                |    |
| Client ID:      | KLA02-SB1-02D                                                            |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 48                 | Worklist Smp#: | 29 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

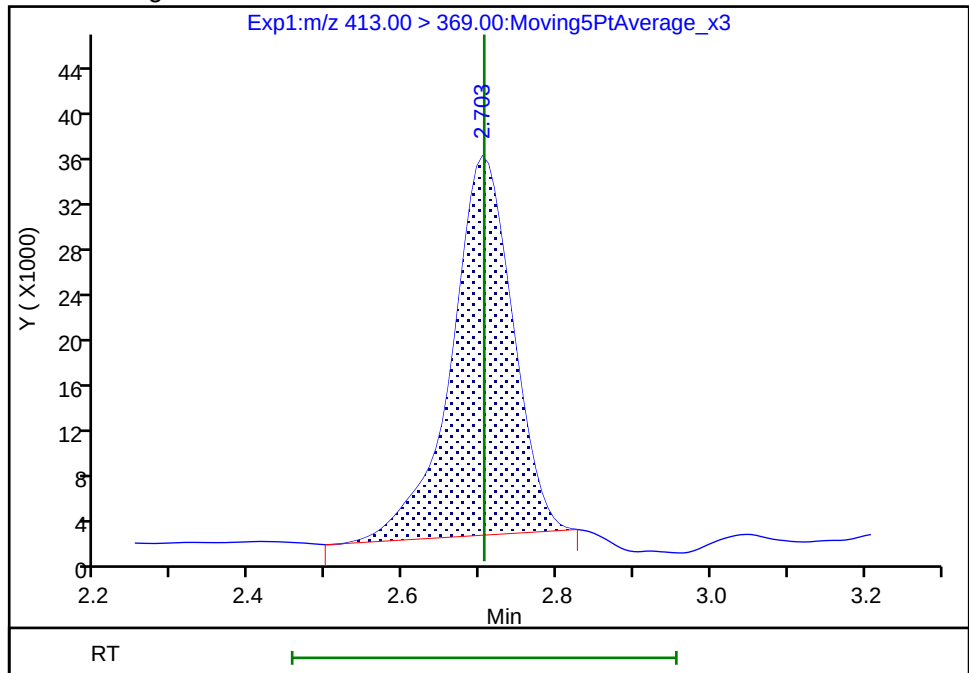
RT: 2.70  
Area: 204331  
Amount: 0.106570  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 181872  
Amount: 0.094856  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakul, 31-May-2018 10:10:06

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

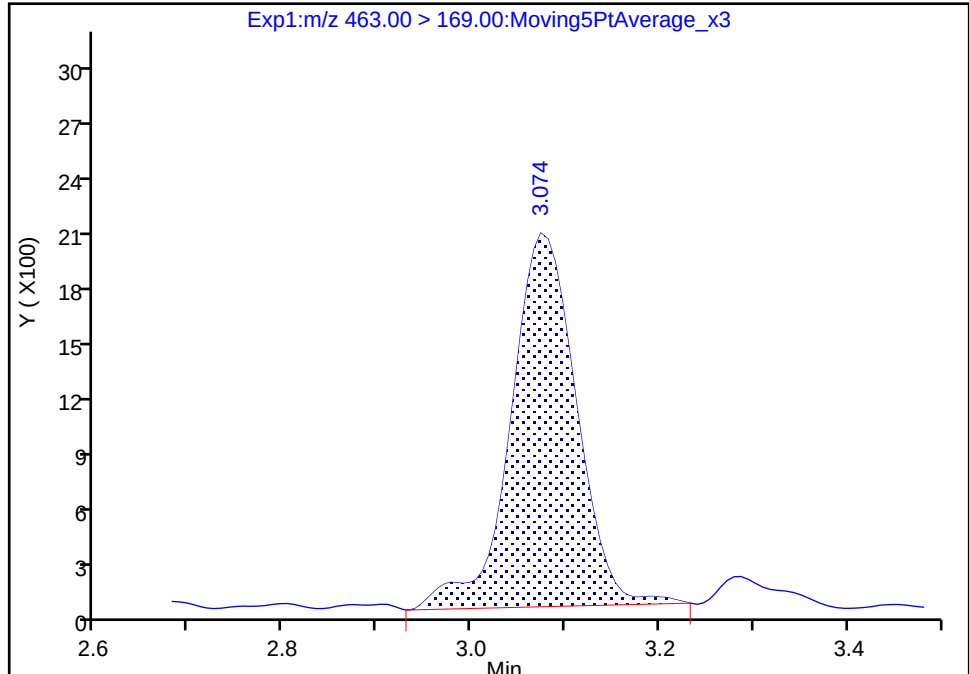
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58853.b\2018.05.28LLB_059.d |                |                    |                |    |
| Injection Date: | 29-May-2018 10:43:53                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-54-A                                                         | Lab Sample ID: | 320-39023-54       |                |    |
| Client ID:      | KLA02-SB1-02D                                                            |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 48                 | Worklist Smp#: | 29 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

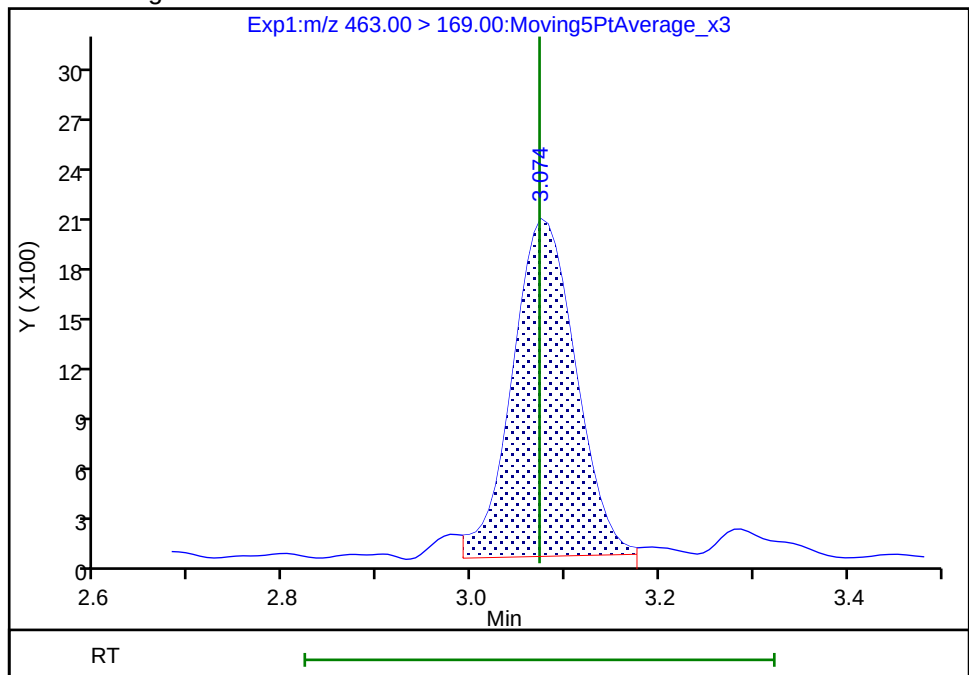
RT: 3.07  
Area: 9707  
Amount: 0.026200  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.07  
Area: 9314  
Amount: 0.026200  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: ruangyotsakuld, 31-May-2018 10:11:17

Audit Action: Manually Integrated

Audit Reason: Split Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA05-SB1-01D</u>  | Lab Sample ID: <u>320-39023-55</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.06.06LLC_072.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/05/2018 09:00</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.99(g)</u>           | Date Analyzed: <u>06/07/2018 00:29</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>17.7</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>227681</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|---|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.8    |   | 0.37 | 0.24 | 0.095 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 12     |   | 0.37 | 0.24 | 0.12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 2.8    |   | 0.37 | 0.24 | 0.099 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 3.1    |   | 0.49 | 0.22 | 0.072 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 170    | E | 0.37 | 0.24 | 0.076 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 390    | E | 1.2  | 0.61 | 0.29  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 77   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 64   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 84   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 56   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 64   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 57   |   | 50-150 |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_072.d  
 Lims ID: 320-39023-A-55-A  
 Client ID: KLA05-SB1-01D  
 Sample Type: Client  
 Inject. Date: 07-Jun-2018 00:29:05 ALS Bottle#: 42 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-55-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 07-Jun-2018 15:03:51 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK006

First Level Reviewer: mongkols

Date: 07-Jun-2018 15:05:46

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

## D 47 13C3-PFBS

|                |       |       |        |       |       |      |  |      |     |  |
|----------------|-------|-------|--------|-------|-------|------|--|------|-----|--|
| 301.90 > 83.00 | 1.761 | 1.766 | -0.005 | 0.652 | 68914 | 1.80 |  | 77.4 | 202 |  |
|----------------|-------|-------|--------|-------|-------|------|--|------|-----|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |     |       |         |      |  |  |      |  |
|----------------|-------|-------|-----|-------|---------|------|--|--|------|--|
| 298.90 > 80.00 | 1.770 | 1.770 | 0.0 | 1.005 | 2892532 | 1.26 |  |  | 3047 |  |
|----------------|-------|-------|-----|-------|---------|------|--|--|------|--|

|                |       |       |     |       |         |  |                 |  |      |  |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|
| 298.90 > 99.00 | 1.770 | 1.770 | 0.0 | 1.005 | 1264799 |  | 2.29(1.25-3.74) |  | 1254 |  |
|----------------|-------|-------|-----|-------|---------|--|-----------------|--|------|--|

## D 9 13C4-PFHpA

|                 |       |       |        |       |         |      |  |      |       |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.341 | 2.346 | -0.005 | 0.866 | 2855581 | 1.61 |  | 64.3 | 40654 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |        |        |  |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|
| 363.00 > 319.00 | 2.341 | 2.354 | -0.013 | 1.000 | 983322 | 0.7591 |  |  | 278 |  |
|-----------------|-------|-------|--------|-------|--------|--------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.341 | 2.354 | -0.013 | 1.000 | 404932 |  | 2.43(1.13-3.40) |  | 1558 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |       |       |         |      |  |      |       |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.368 | 2.360 | 0.008 | 0.876 | 3279962 | 1.52 |  | 64.4 | 46662 |  |
|----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |     |       |           |      |  |  |       |   |
|----------------|-------|-------|-----|-------|-----------|------|--|--|-------|---|
| 399.00 > 80.00 | 2.368 | 2.368 | 0.0 | 1.000 | 109240584 | 68.7 |  |  | 37393 | E |
|----------------|-------|-------|-----|-------|-----------|------|--|--|-------|---|

|                |       |       |     |       |          |  |                 |  |       |   |
|----------------|-------|-------|-----|-------|----------|--|-----------------|--|-------|---|
| 399.00 > 99.00 | 2.368 | 2.368 | 0.0 | 1.000 | 47905150 |  | 2.28(1.50-4.49) |  | 33245 | E |
|----------------|-------|-------|-----|-------|----------|--|-----------------|--|-------|---|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.703 | 2.698 | 0.005 | 1.000 | 3683419 | 2.09 |  | 83.6 | 58793 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |     |       |         |      |  |  |      |  |
|-----------------|-------|-------|-----|-------|---------|------|--|--|------|--|
| 413.00 > 369.00 | 2.703 | 2.703 | 0.0 | 1.000 | 9020238 | 5.09 |  |  | 2351 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|--|------|--|

|                 |       |       |     |       |         |  |                 |  |       |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|-------|--|
| 413.00 > 169.00 | 2.703 | 2.703 | 0.0 | 1.000 | 5071998 |  | 1.78(0.84-2.52) |  | 12763 |  |
|-----------------|-------|-------|-----|-------|---------|--|-----------------|--|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |     |  |         |      |  |  |       |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.703 | 2.703 | 0.0 |  | 4568570 | 2.50 |  |  | 67733 |  |
|-----------------|-------|-------|-----|--|---------|------|--|--|-------|--|

## D 19 13C5 PFNA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 468.00 > 423.00 | 3.069 | 3.067 | 0.002 | 1.136 | 2082156 | 1.40 |  | 56.0 | 28776 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## 20 Perfluorononanoic acid

|                 |       |       |        |       |         |      |  |  |     |  |
|-----------------|-------|-------|--------|-------|---------|------|--|--|-----|--|
| 463.00 > 419.00 | 3.069 | 3.071 | -0.002 | 1.000 | 1022355 | 1.14 |  |  | 305 |  |
|-----------------|-------|-------|--------|-------|---------|------|--|--|-----|--|

|                 |       |       |        |       |        |  |                 |  |     |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|
| 463.00 > 169.00 | 3.069 | 3.071 | -0.002 | 1.000 | 261070 |  | 3.92(1.90-5.69) |  | 277 |  |
|-----------------|-------|-------|--------|-------|--------|--|-----------------|--|-----|--|

## D 18 13C4 PFOS

|                |       |       |        |       |         |      |  |      |      |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|------|--|
| 503.00 > 80.00 | 3.069 | 3.074 | -0.005 | 1.136 | 1980133 | 1.36 |  | 56.8 | 2019 |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|------|--|

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response  | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|----------------------------------|-------|-----------|-----------|-----------|-----------|-----------------|-----------------|------|--------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |           |                 |                 |      |        | E     |
| 499.00 > 80.00                   | 3.076 | 3.079     | -0.003    | 1.002     | 159319340 | 162.0           |                 |      | 6797   | E     |
| 499.00 > 99.00                   | 3.069 | 3.079     | -0.010    | 1.000     | 51378523  |                 | 3.10(2.31-6.93) |      | 503480 |       |

### QC Flag Legend

Processing Flags

E - Exceeded Maximum Amount

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180606-59323.b\2018.06.06LLC\_072.d

Injection Date: 07-Jun-2018 00:29:05

Instrument ID: A8\_N

Lims ID: 320-39023-A-55-A

Lab Sample ID: 320-39023-55

Client ID: KLA05-SB1-01D

Operator ID: SACINSTLCMS01

ALS Bottle#: 42

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

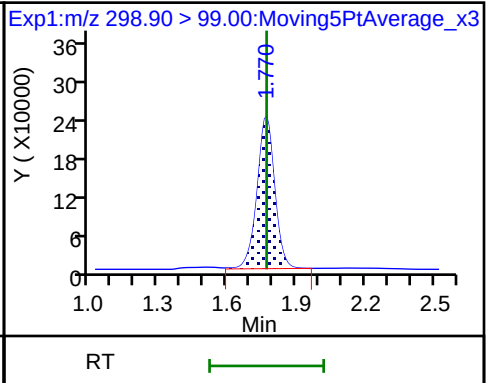
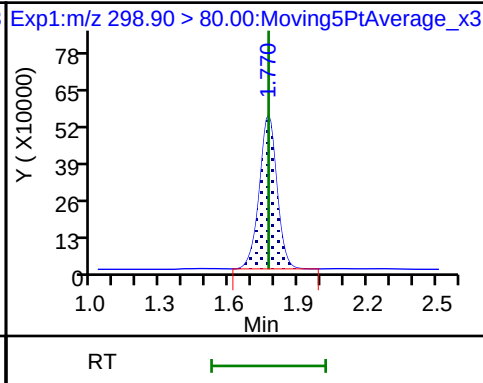
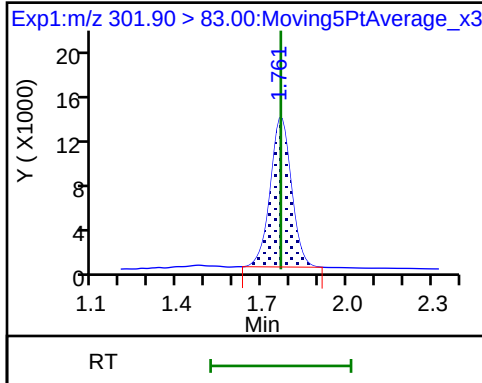
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## D 47 13C3-PFBS

## 5 Perfluorobutanesulfonic acid

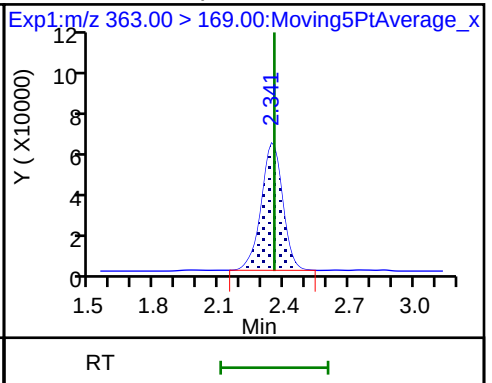
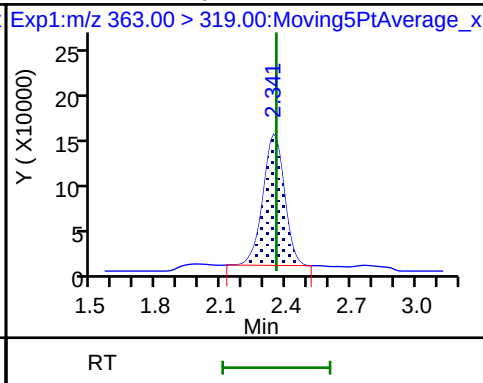
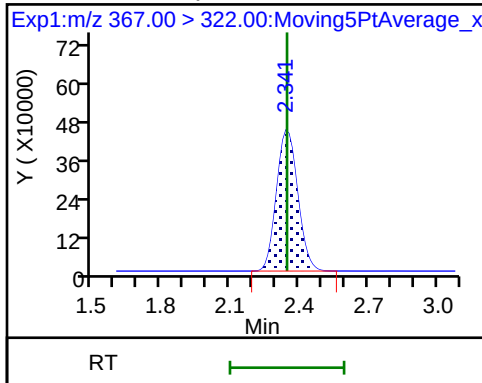
## 5 Perfluorobutanesulfonic acid



## D 9 13C4-PFHpA

## 10 Perfluoroheptanoic acid

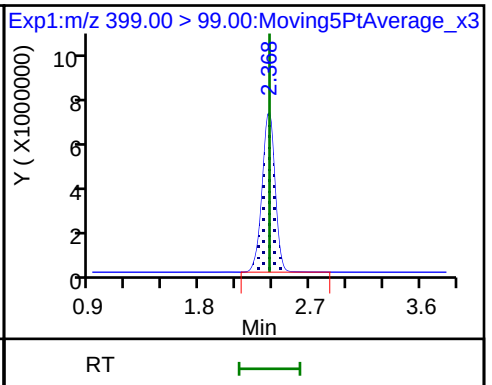
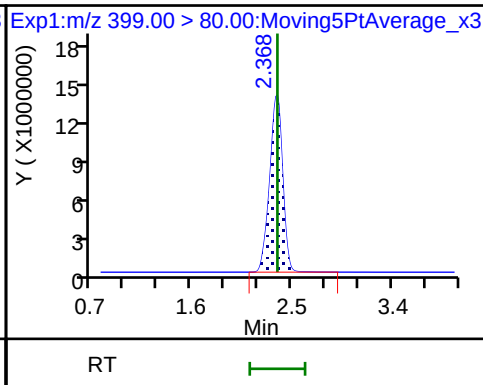
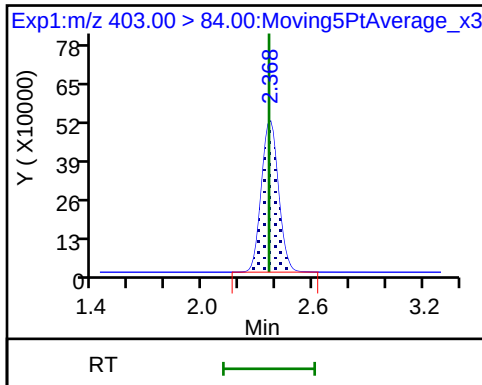
## 10 Perfluoroheptanoic acid



## D 11 18O2 PFHxS

## 8 Perfluorohexanesulfonic acid

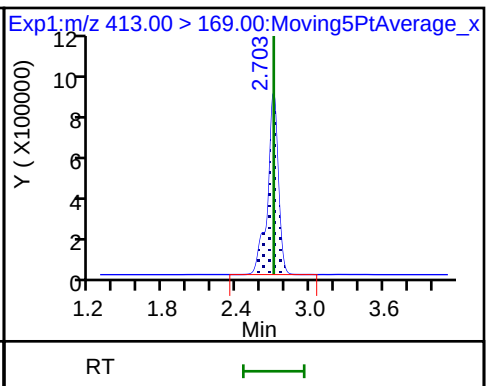
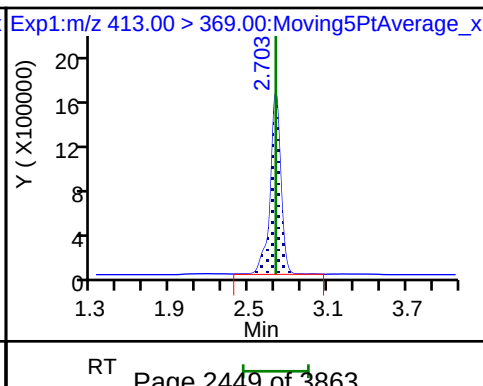
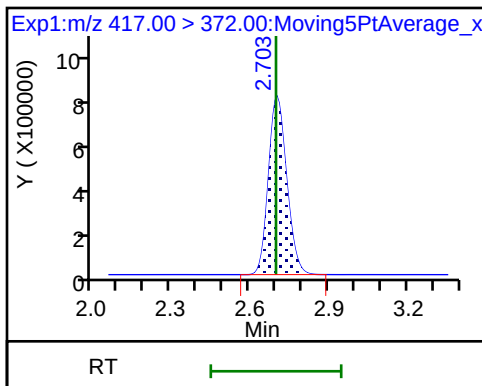
## 8 Perfluorohexanesulfonic acid



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

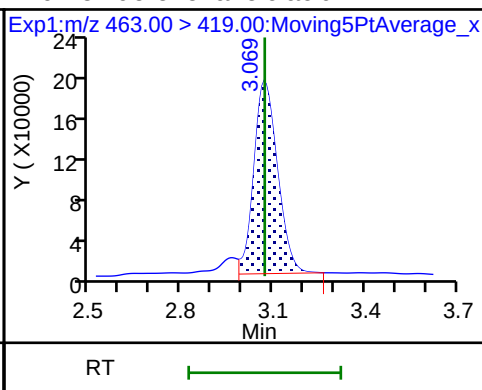
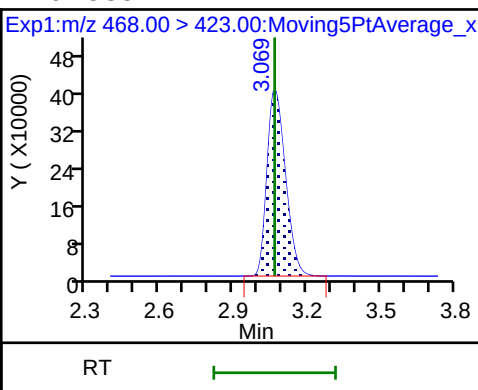
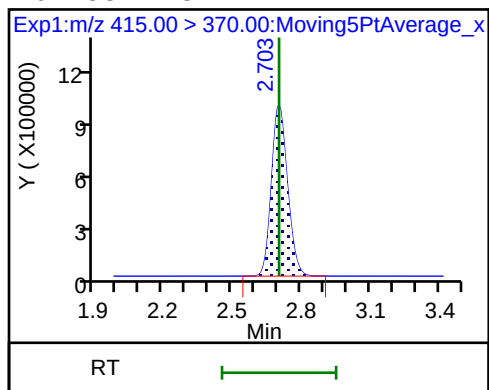
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

D 19 13C5 PFNA

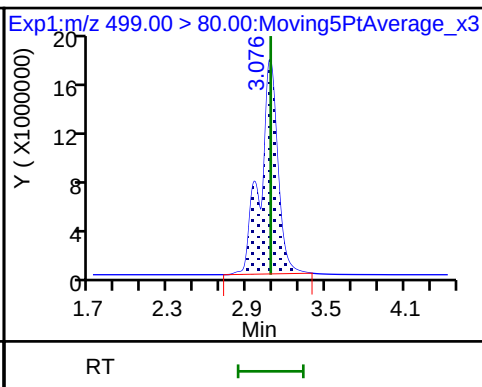
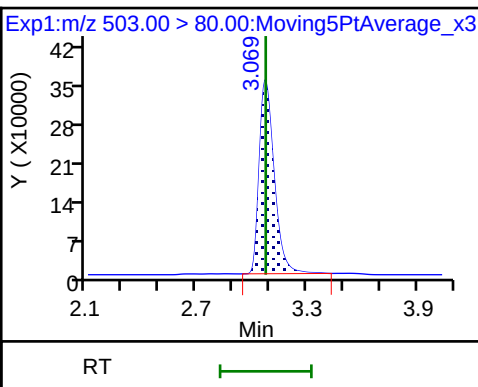
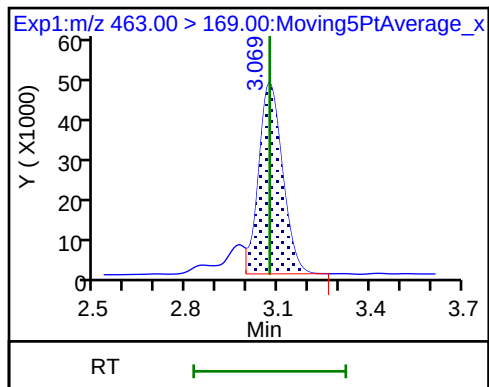
20 Perfluorononanoic acid



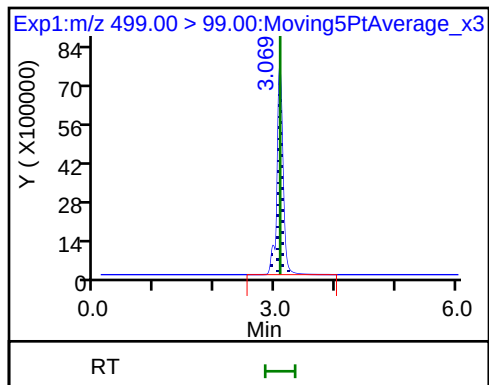
20 Perfluorononanoic acid

D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                           |                                              |
|-------------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u>   | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                            |                                              |
| Client Sample ID: <u>KLA05-SB1-01D DL</u> | Lab Sample ID: <u>320-39023-55 DL</u>        |
| Matrix: <u>Solid</u>                      | Lab File ID: <u>2018.05.29LLA_014.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>     | Date Collected: <u>05/05/2018 09:00</u>      |
| Extraction Method: <u>SHAKE</u>           | Date Extracted: <u>05/14/2018 13:10</u>      |
| Sample wt/vol: <u>4.99(g)</u>             | Date Analyzed: <u>05/29/2018 12:41</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>      | Dilution Factor: <u>100</u>                  |
| Injection Volume: <u>2 (uL)</u>           | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>17.7</u>                   | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226044</u>         | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD | DL  |
|-----------|--------------------------------------|--------|-----|-----|-----|-----|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 24     | U   | 37  | 24  | 9.5 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 13     | J D | 37  | 24  | 12  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 24     | U   | 37  | 24  | 9.9 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 22     | U   | 49  | 22  | 7.2 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 300    | D   | 37  | 24  | 7.6 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 650    | D   | 120 | 61  | 29  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 82   | M | 50-150 |
| STL01892 | 13C4-PFHpA       | 69   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 81   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 84   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 61   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 62   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_014.d  
 Lims ID: 320-39023-A-55-A  
 Client ID: KLA05-SB1-01D  
 Sample Type: Client  
 Inject. Date: 29-May-2018 12:41:25 ALS Bottle#: 12 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 100.0000  
 Sample Info: 320-39023-a-55-a 100X  
 Misc. Info.: Plate: 1 Rack: 5  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 17:18:54 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 17:18:54

| Signal                         | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N  | Flags |
|--------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|------|-------|
| D 47 13C3-PFBS                 |       |        |        |        |          |              |                 |      |      | M     |
| 301.90 > 83.00                 | 1.761 | 1.764  | -0.003 | 1.000  | 947      | 0.0191       |                 | 82.3 | 11.3 | M     |
| 5 Perfluorobutanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 298.90 > 80.00                 | 1.761 | 1.774  | -0.013 | 1.000  | 29972    | 0.009423     |                 |      | 98.4 |       |
| 298.90 > 99.00                 | 1.761 | 1.774  | -0.013 | 1.000  | 11661    |              | 2.57(1.25-3.74) |      | 77.9 |       |
| D 9 13C4-PFHpA                 |       |        |        |        |          |              |                 |      |      |       |
| 367.00 > 322.00                | 2.355 | 2.345  | 0.010  | 1.000  | 38617    | 0.0173       |                 | 69.0 | 678  |       |
| D 11 18O2 PFHxS                |       |        |        |        |          |              |                 |      |      |       |
| 403.00 > 84.00                 | 2.368 | 2.358  | 0.010  | 1.000  | 39838    | 0.0144       |                 | 60.9 | 1663 |       |
| 10 Perfluoroheptanoic acid     |       |        |        |        |          |              |                 |      |      | R     |
| 363.00 > 319.00                | 2.355 | 2.358  | -0.003 | 1.000  | 14583    | 0.008937     |                 |      | 16.2 | R     |
| 363.00 > 169.00                | 2.342 | 2.358  | -0.016 | 0.994  | 4046     |              | 3.60(1.13-3.40) |      | 19.3 |       |
| 8 Perfluorohexanesulfonic acid |       |        |        |        |          |              |                 |      |      |       |
| 399.00 > 80.00                 | 2.368 | 2.372  | -0.004 | 1.000  | 2348182  | 1.24         |                 |      | 7364 |       |
| 399.00 > 99.00                 | 2.368 | 2.372  | -0.004 | 1.000  | 738112   |              | 3.18(1.50-4.49) |      | 3347 |       |
| D 14 13C4 PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 417.00 > 372.00                | 2.711 | 2.704  | 0.007  | 1.000  | 42946    | 0.0203       |                 | 81.1 | 1596 |       |
| * 62 13C2-PFOA                 |       |        |        |        |          |              |                 |      |      |       |
| 415.00 > 370.00                | 2.711 | 2.712  | -0.001 |        | 55907    | 0.0250       |                 |      | 1224 |       |
| 15 Perfluorooctanoic acid      |       |        |        |        |          |              |                 |      |      |       |
| 413.00 > 369.00                | 2.711 | 2.712  | -0.001 | 1.000  | 109387   | 0.0541       |                 |      | 40.2 |       |
| 413.00 > 169.00                | 2.711 | 2.712  | -0.001 | 1.000  | 61388    |              | 1.78(0.84-2.52) |      | 148  |       |
| D 19 13C5 PFNA                 |       |        |        |        |          |              |                 |      |      |       |
| 468.00 > 423.00                | 3.074 | 3.072  | 0.002  | 1.000  | 36414    | 0.0210       |                 | 84.1 | 1347 |       |
| D 18 13C4 PFOS                 |       |        |        |        |          |              |                 |      |      |       |
| 503.00 > 80.00                 | 3.074 | 3.072  | 0.002  | 1.000  | 28359    | 0.0149       |                 | 62.4 | 204  |       |
| 20 Perfluorononanoic acid      |       |        |        |        |          |              |                 |      |      |       |
| 463.00 > 419.00                | 3.081 | 3.081  | 0.0    | 1.003  | 15745    | 0.0102       |                 |      | 43.0 |       |
| 463.00 > 169.00                | 3.074 | 3.081  | -0.007 | 1.000  | 4333     |              | 3.63(1.90-5.69) |      | 67.2 |       |

| Signal                           | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|----------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 17 Perfluorooctane sulfonic acid |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                   | 3.074 | 3.081     | -0.007    | 1.000     | 3724162  | 2.67            |                 |      | 16290 |       |
| 499.00 > 99.00                   | 3.074 | 3.081     | -0.007    | 1.000     | 791856   |                 | 4.70(2.31-6.93) |      | 7138  |       |

### QC Flag Legend

#### Processing Flags

R - Failed Signal Ratio Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58896.b\2018.05.29LLA\_014.d

Injection Date: 29-May-2018 12:41:25

Instrument ID: A8\_N

Lims ID: 320-39023-A-55-A

Lab Sample ID: 320-39023-55

Client ID: KLA05-SB1-01D

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 100.0000

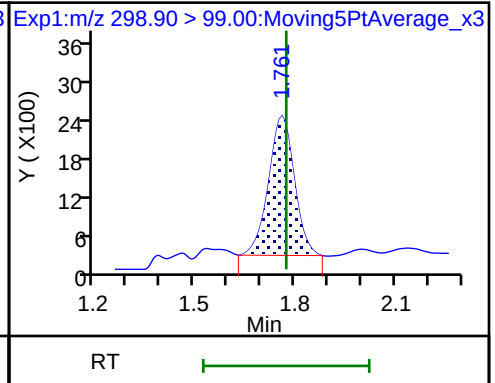
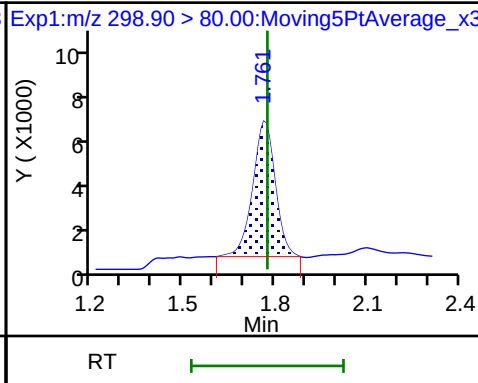
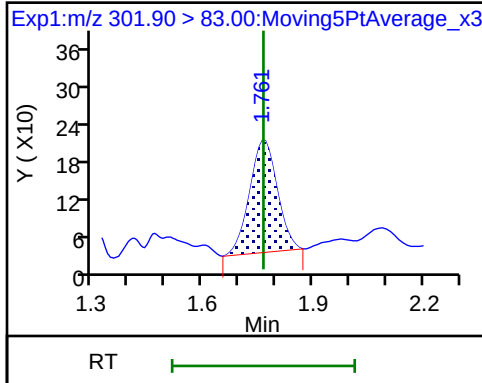
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS (M)

5 Perfluorobutanesulfonic acid

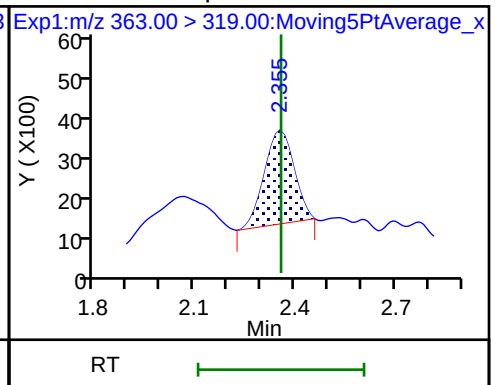
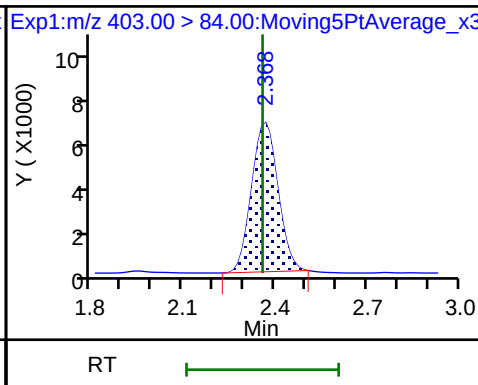
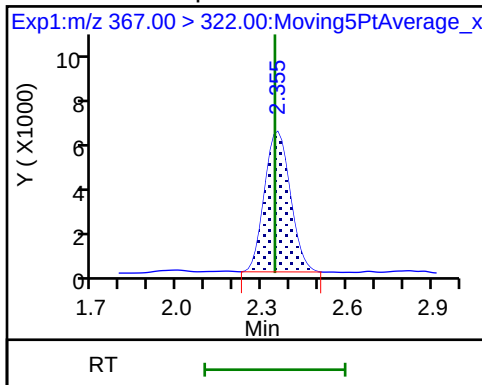
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

D 11 18O2 PFHxS

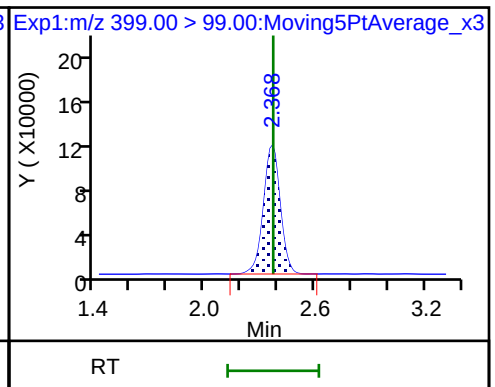
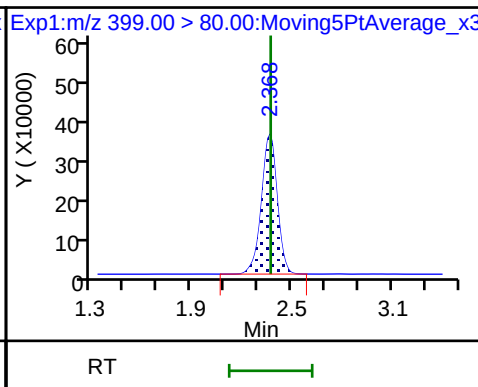
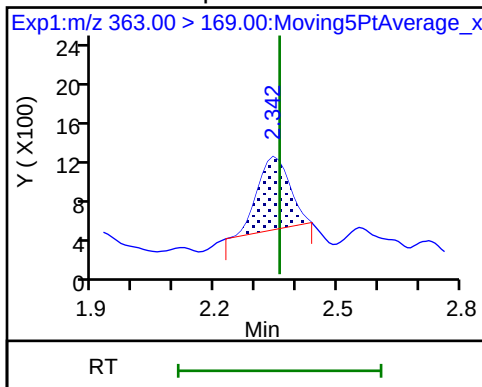
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

8 Perfluorohexanesulfonic acid

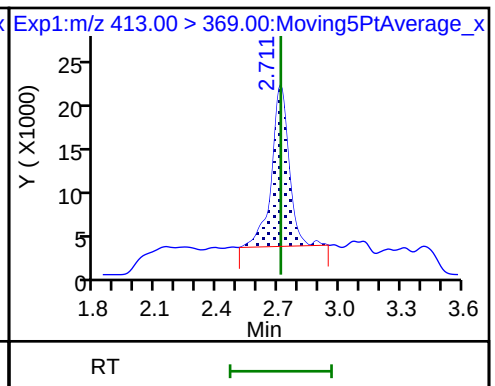
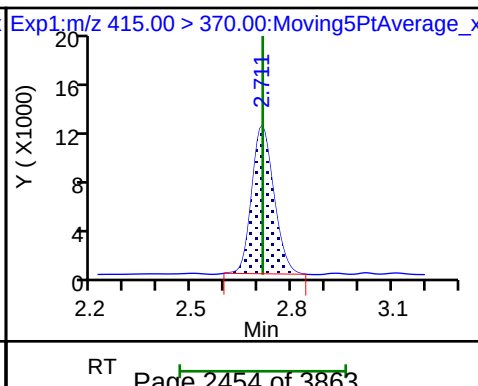
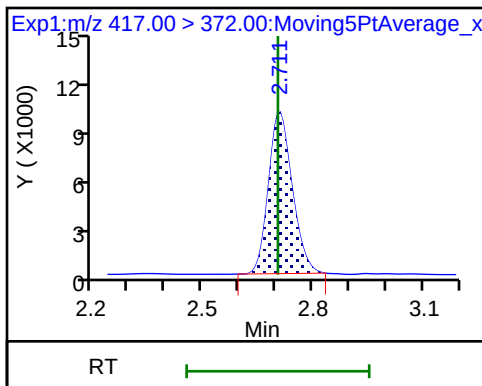
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

15 Perfluorooctanoic acid

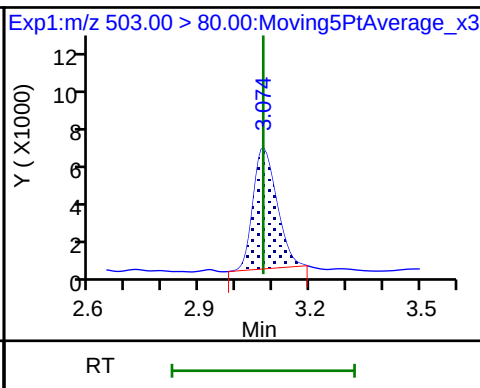
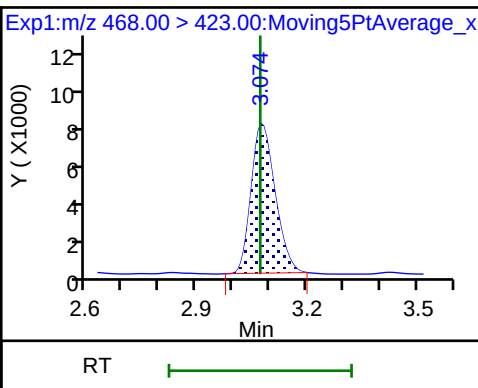
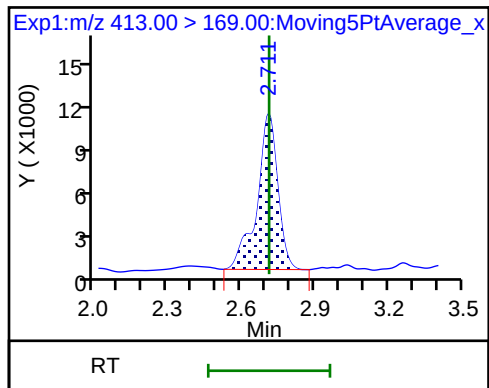




## 15 Perfluorooctanoic acid

## D 19 13C5 PFNA

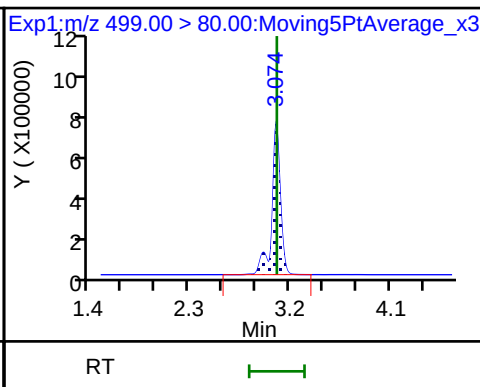
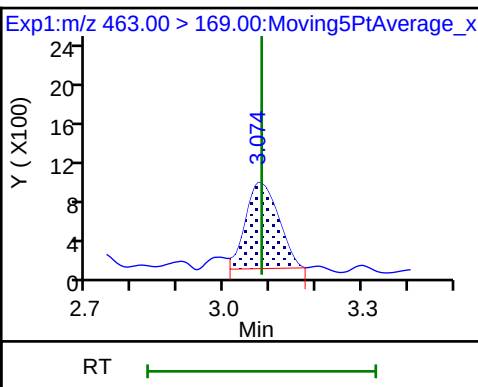
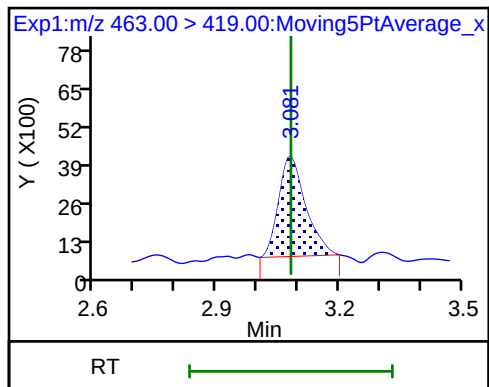
## D 18 13C4 PFOS



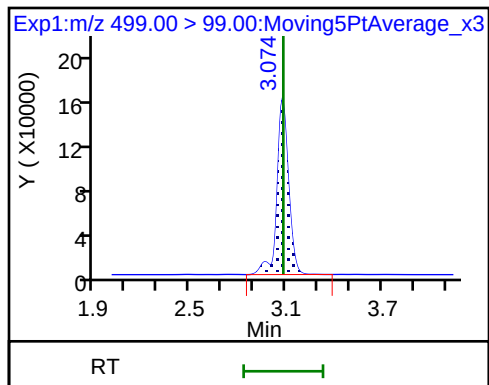
## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid



## TestAmerica Sacramento

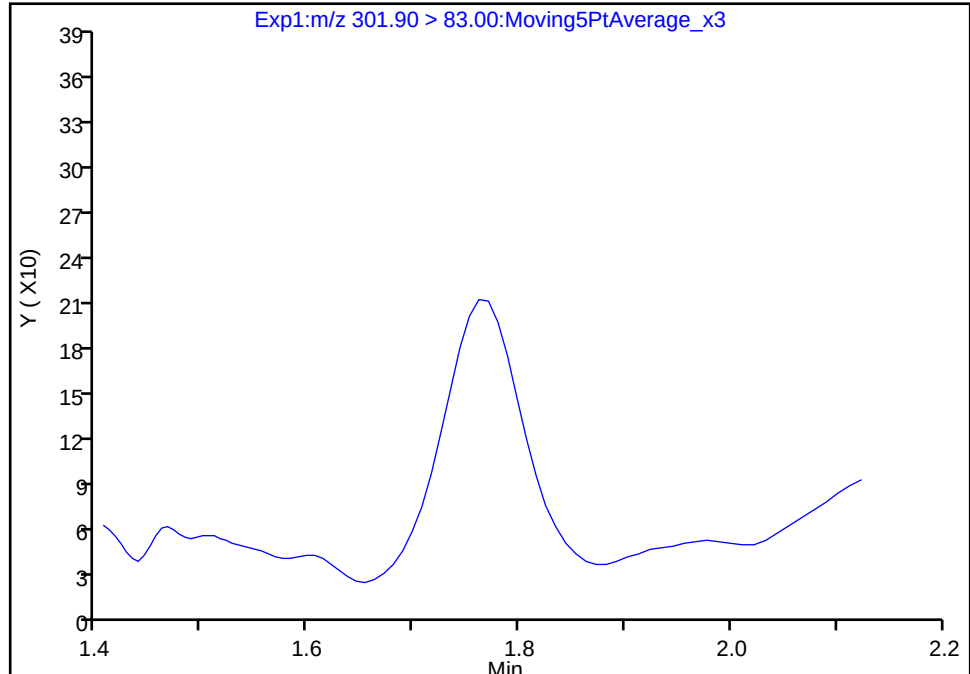
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58896.b\2018.05.29LLA_014.d |                |                    |                |    |
| Injection Date: | 29-May-2018 12:41:25                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-55-A                                                         | Lab Sample ID: | 320-39023-55       |                |    |
| Client ID:      | KLA05-SB1-01D                                                            |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 12                 | Worklist Smp#: | 14 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 100.0000           |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**D 47 13C3-PFBS, CAS: STL02337**

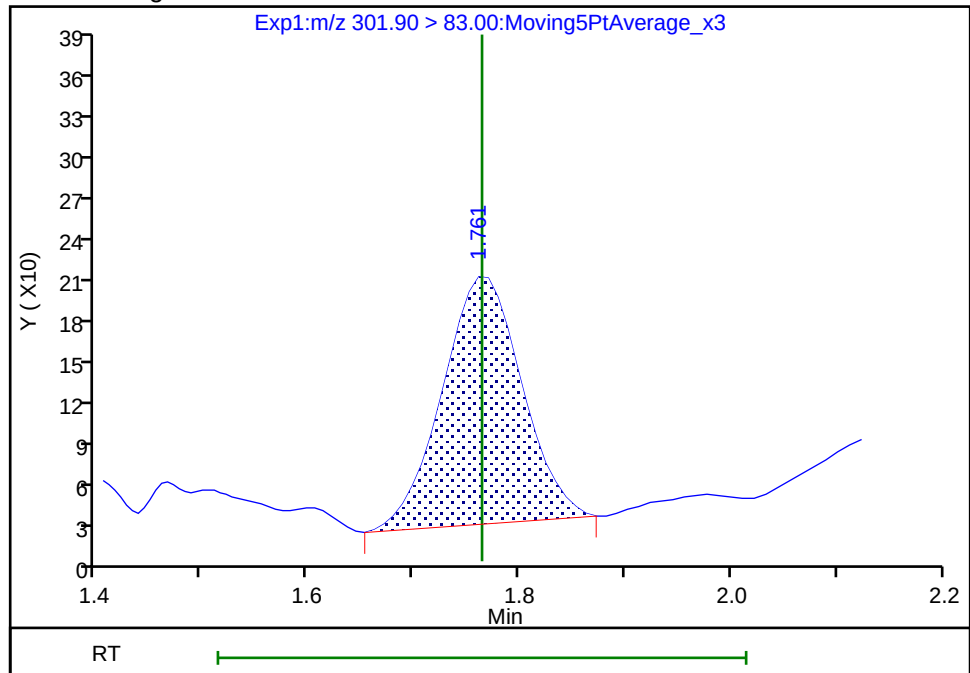
Signal: 1

Not Detected  
Expected RT: 1.76

## Processing Integration Results

RT: 1.76  
Area: 947  
Amount: 0.019124  
Amount Units: ng/ml

## Manual Integration Results

Reviewer: mongkols, 30-May-2018 17:18:41  
Audit Action: Manually IntegratedAudit Reason: Assign Peak  
Page 2456 of 3863

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>ER-05</u>          | Lab Sample ID: <u>320-39023-56</u>           |
| Matrix: <u>Water</u>                    | Lab File ID: <u>2018.05.29LLB_025.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 16:00</u>      |
| Extraction Method: <u>3535</u>          | Date Extracted: <u>05/18/2018 10:26</u>      |
| Sample wt/vol: <u>264.2 (mL)</u>        | Date Analyzed: <u>05/29/2018 21:18</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: _____                       | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226055</u>       | Units: <u>ng/L</u>                           |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q   | LOQ | LOD  | DL   |
|-----------|--------------------------------------|--------|-----|-----|------|------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 1.4    | U   | 1.9 | 1.4  | 0.58 |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.74   | J M | 1.9 | 1.4  | 0.51 |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 1.4    | U   | 1.9 | 1.4  | 0.49 |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.52   | J   | 1.9 | 0.95 | 0.44 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 3.4    |     | 1.9 | 0.95 | 0.36 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 13     |     | 3.8 | 2.8  | 1.0  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 84   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 93   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 98   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 104  |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 87   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 91   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_025.d  
 Lims ID: 320-39023-A-56-A  
 Client ID: ER-05  
 Sample Type: Client  
 Inject. Date: 29-May-2018 21:18:02 ALS Bottle#: 15 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-56-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 15:24:08 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 15:24:08

| Signal | RT | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits) | %Rec | S/N | Flags |
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|
|--------|----|-----------|-----------|-----------|----------|-----------------|---------------|------|-----|-------|

## D 47 13C3-PFBS

|                |       |       |     |       |       |      |  |      |      |  |
|----------------|-------|-------|-----|-------|-------|------|--|------|------|--|
| 301.90 > 83.00 | 1.764 | 1.764 | 0.0 | 1.000 | 79770 | 1.96 |  | 84.4 | 1037 |  |
|----------------|-------|-------|-----|-------|-------|------|--|------|------|--|

## 5 Perfluorobutanesulfonic acid

|                |       |       |        |       |       |        |  |  |     |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|
| 298.90 > 80.00 | 1.774 | 1.779 | -0.005 | 1.005 | 36760 | 0.0137 |  |  | 174 |  |
|----------------|-------|-------|--------|-------|-------|--------|--|--|-----|--|

|                |       |       |        |       |       |  |                 |  |     |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 298.90 > 99.00 | 1.764 | 1.779 | -0.015 | 1.000 | 15798 |  | 2.33(1.25-3.74) |  | 138 |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## D 9 13C4-PFHpA

|                 |       |       |     |       |         |      |  |      |       |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 367.00 > 322.00 | 2.358 | 2.358 | 0.0 | 1.000 | 4253995 | 2.32 |  | 92.6 | 70788 |  |
|-----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## 10 Perfluoroheptanoic acid

|                 |       |       |        |       |       |          |  |  |      |  |
|-----------------|-------|-------|--------|-------|-------|----------|--|--|------|--|
| 363.00 > 319.00 | 2.358 | 2.368 | -0.010 | 1.000 | 17459 | 0.009713 |  |  | 21.9 |  |
|-----------------|-------|-------|--------|-------|-------|----------|--|--|------|--|

|                 |       |       |        |       |      |  |                 |  |      |  |
|-----------------|-------|-------|--------|-------|------|--|-----------------|--|------|--|
| 363.00 > 169.00 | 2.358 | 2.368 | -0.010 | 1.000 | 7137 |  | 2.45(1.13-3.40) |  | 38.6 |  |
|-----------------|-------|-------|--------|-------|------|--|-----------------|--|------|--|

## D 11 18O2 PFHxS

|                |       |       |     |       |         |      |  |      |       |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|
| 403.00 > 84.00 | 2.371 | 2.371 | 0.0 | 1.000 | 4689951 | 2.07 |  | 87.4 | 87869 |  |
|----------------|-------|-------|-----|-------|---------|------|--|------|-------|--|

## 8 Perfluorohexanesulfonic acid

|                |       |       |        |       |        |        |  |  |      |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|
| 399.00 > 80.00 | 2.371 | 2.381 | -0.010 | 1.000 | 197952 | 0.0886 |  |  | 1074 |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|

|                |       |       |        |       |       |  |                 |  |     |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|
| 399.00 > 99.00 | 2.371 | 2.381 | -0.010 | 1.000 | 61372 |  | 3.23(1.50-4.49) |  | 356 |  |
|----------------|-------|-------|--------|-------|-------|--|-----------------|--|-----|--|

## D 14 13C4 PFOA

|                 |       |       |       |       |         |      |  |      |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|
| 417.00 > 372.00 | 2.712 | 2.711 | 0.001 | 1.000 | 4246748 | 2.44 |  | 97.8 | 66001 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|------|-------|--|

## \* 62 13C2-PFOA

|                 |       |       |        |  |         |      |  |  |       |  |
|-----------------|-------|-------|--------|--|---------|------|--|--|-------|--|
| 415.00 > 370.00 | 2.712 | 2.718 | -0.006 |  | 4587675 | 2.50 |  |  | 55396 |  |
|-----------------|-------|-------|--------|--|---------|------|--|--|-------|--|

## 15 Perfluorooctanoic acid

|                 |       |       |        |       |       |        |  |  |      |   |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|---|
| 413.00 > 369.00 | 2.712 | 2.718 | -0.006 | 1.000 | 39296 | 0.0197 |  |  | 11.4 | M |
|-----------------|-------|-------|--------|-------|-------|--------|--|--|------|---|

|                 |       |       |       |       |       |  |                 |  |      |   |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|---|
| 413.00 > 169.00 | 2.719 | 2.718 | 0.001 | 1.003 | 19404 |  | 2.03(0.84-2.52) |  | 59.7 | M |
|-----------------|-------|-------|-------|-------|-------|--|-----------------|--|------|---|

## D 19 13C5 PFNA

|                 |       |       |       |       |         |      |  |     |       |  |
|-----------------|-------|-------|-------|-------|---------|------|--|-----|-------|--|
| 468.00 > 423.00 | 3.084 | 3.081 | 0.003 | 1.000 | 3679725 | 2.59 |  | 104 | 57508 |  |
|-----------------|-------|-------|-------|-------|---------|------|--|-----|-------|--|

## D 18 13C4 PFOS

|                |       |       |        |       |         |      |  |      |       |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|
| 503.00 > 80.00 | 3.076 | 3.081 | -0.005 | 1.000 | 3398113 | 2.18 |  | 91.1 | 33855 |  |
|----------------|-------|-------|--------|-------|---------|------|--|------|-------|--|

## 17 Perfluorooctane sulfonic acid

|                |       |       |        |       |        |        |  |  |      |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|
| 499.00 > 80.00 | 3.076 | 3.089 | -0.013 | 1.000 | 594846 | 0.3558 |  |  | 2088 |  |
|----------------|-------|-------|--------|-------|--------|--------|--|--|------|--|

|                |       |       |        |       |        |  |                 |  |      |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|
| 499.00 > 99.00 | 3.084 | 3.089 | -0.005 | 1.003 | 137982 |  | 4.31(2.31-6.93) |  | 1877 |  |
|----------------|-------|-------|--------|-------|--------|--|-----------------|--|------|--|

## QC Flag Legend

### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58901.b\2018.05.29LLB\_025.d

Injection Date: 29-May-2018 21:18:02

Instrument ID: A8\_N

Lims ID: 320-39023-A-56-A

Lab Sample ID: 320-39023-56

Client ID: ER-05

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

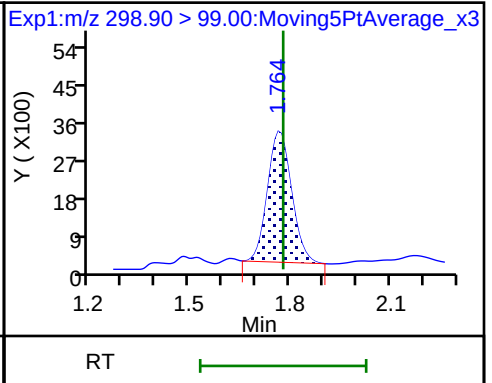
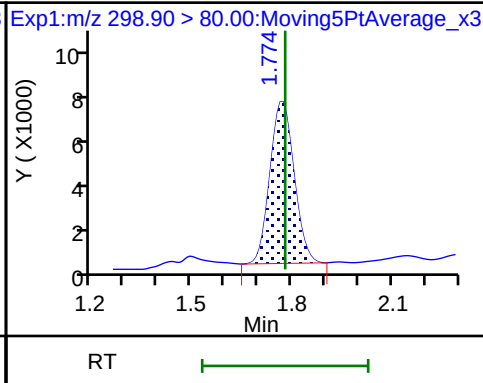
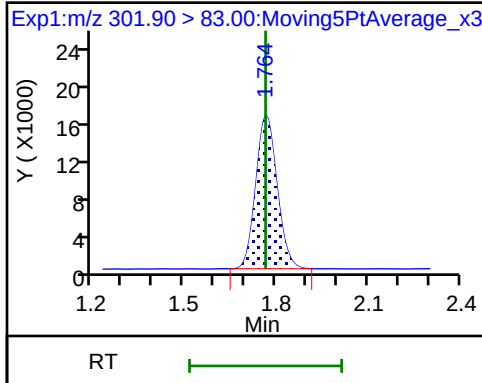
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 47 13C3-PFBS

5 Perfluorobutanesulfonic acid

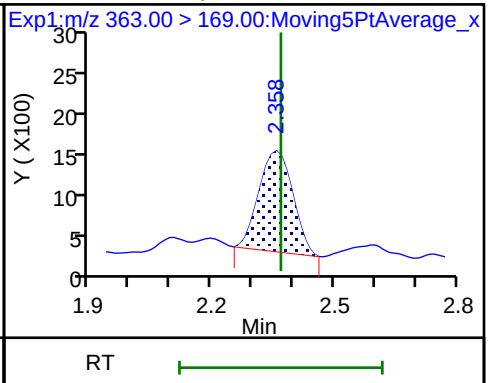
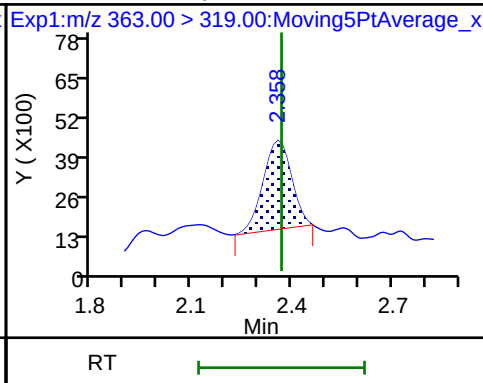
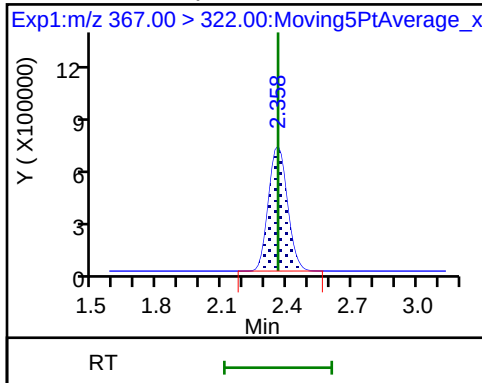
5 Perfluorobutanesulfonic acid



D 9 13C4-PFHpA

10 Perfluoroheptanoic acid

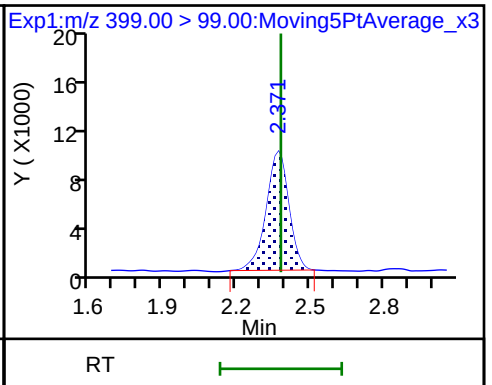
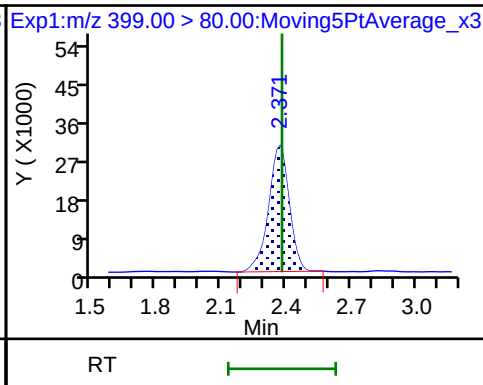
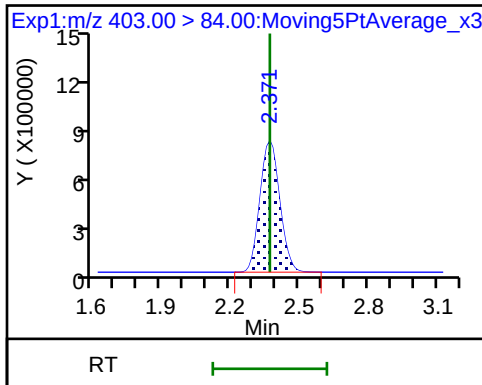
10 Perfluoroheptanoic acid



D 11 18O2 PFHxS

8 Perfluorohexanesulfonic acid

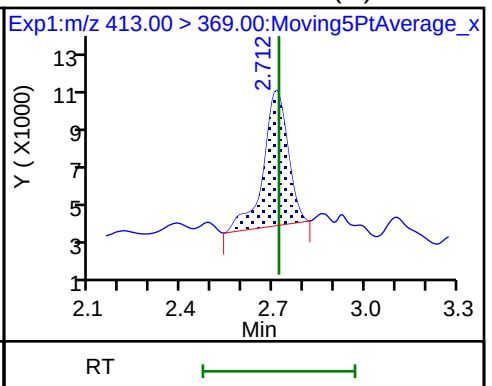
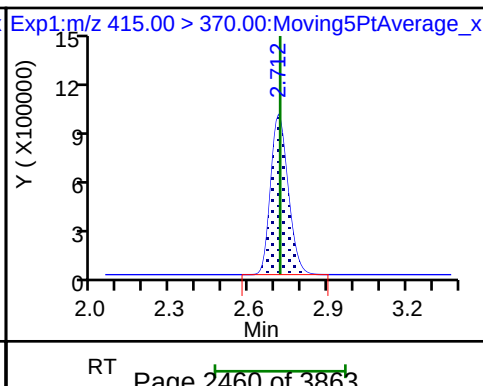
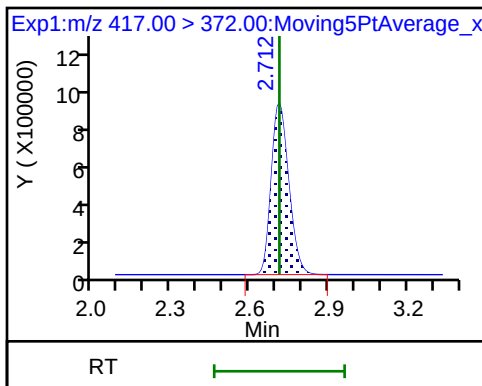
8 Perfluorohexanesulfonic acid



D 14 13C4 PFOA

\* 62 13C2-PFOA

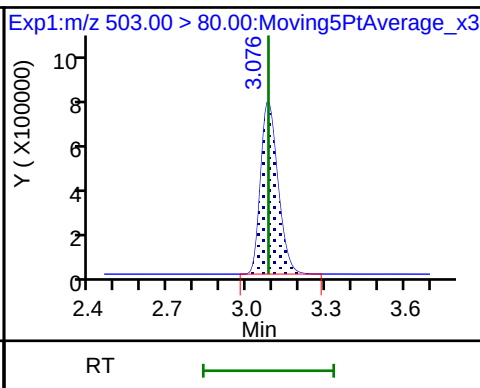
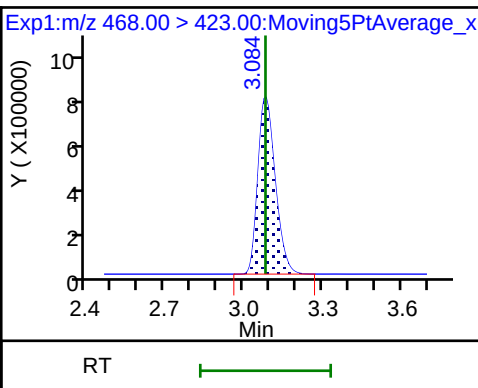
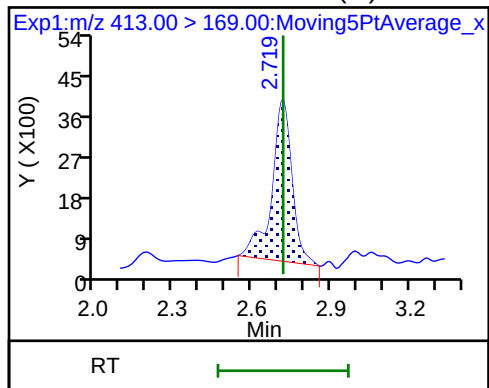
15 Perfluorooctanoic acid (M)



## 15 Perfluorooctanoic acid (M)

## D 19 13C5 PFNA

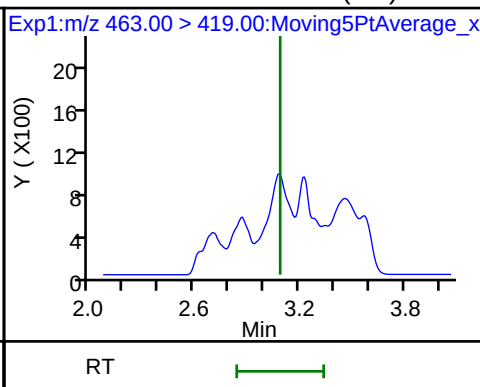
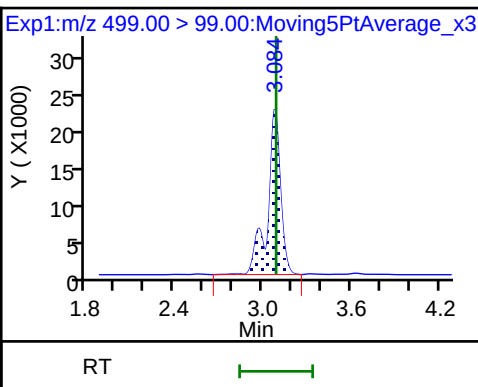
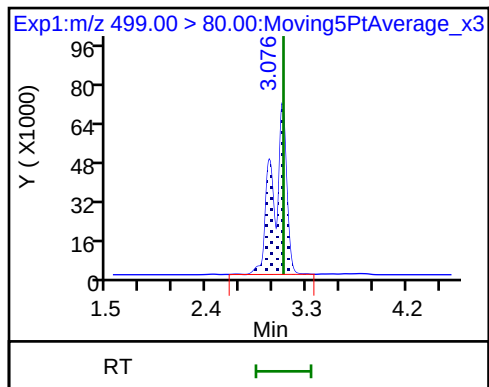
## D 18 13C4 PFOS



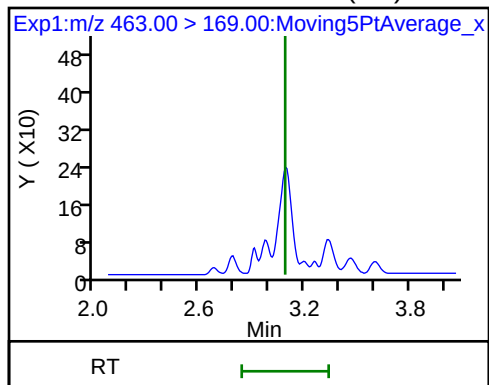
## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid (ND)



## 20 Perfluorononanoic acid (ND)



## TestAmerica Sacramento

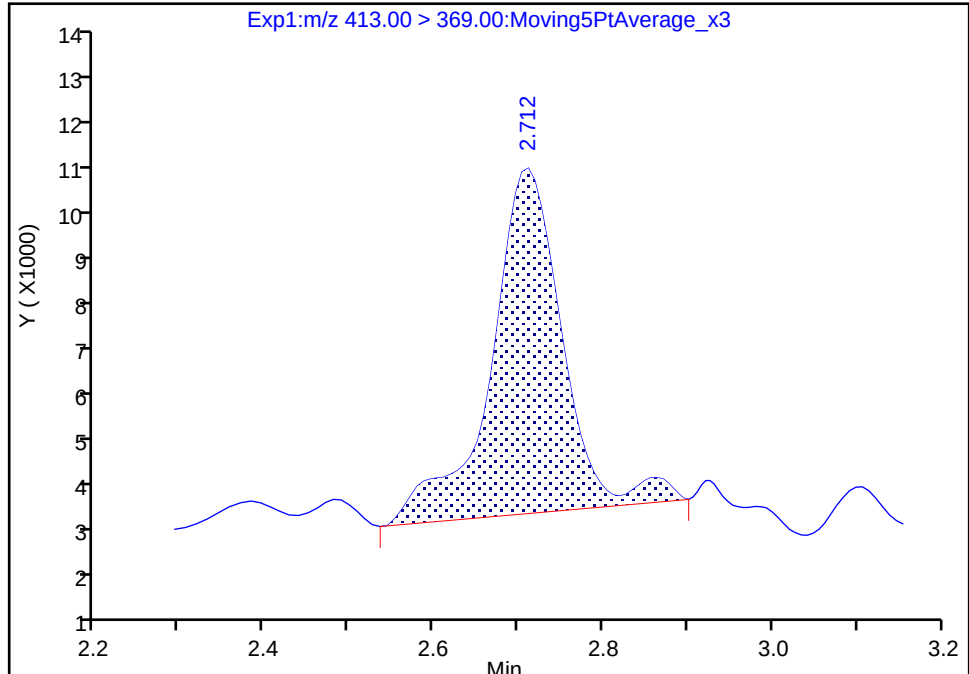
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_025.d |                |                    |                |    |
| Injection Date: | 29-May-2018 21:18:02                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-56-A                                                         | Lab Sample ID: | 320-39023-56       |                |    |
| Client ID:      | ER-05                                                                    |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 15                 | Worklist Smp#: | 24 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector:      | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 1

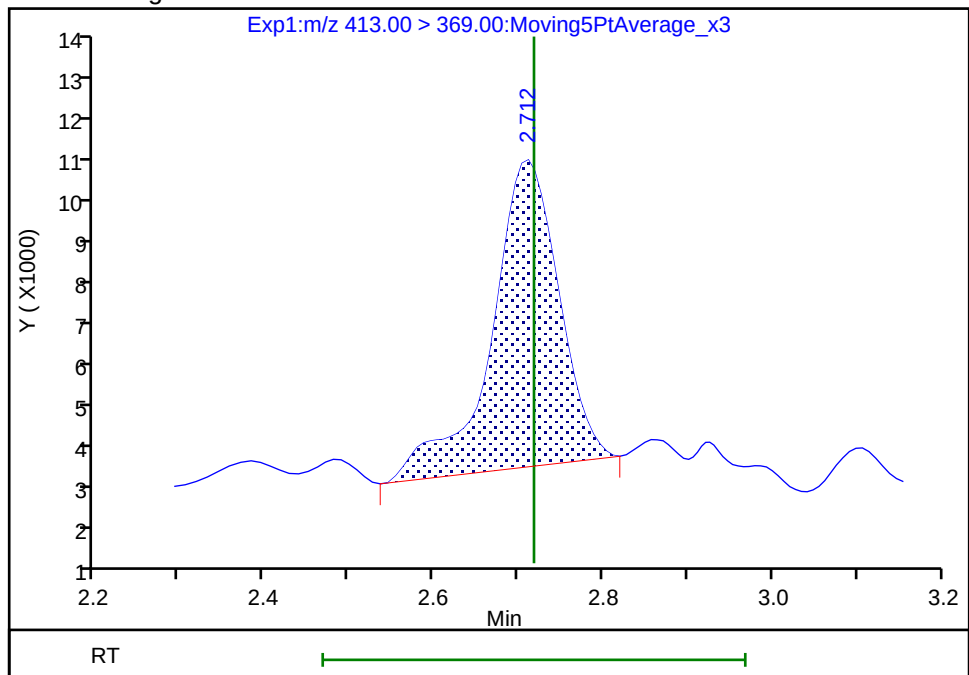
RT: 2.71  
Area: 42554  
Amount: 0.021283  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.71  
Area: 39296  
Amount: 0.019654  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:23:57

Audit Action: Manually Integrated

Audit Reason: Baseline



## TestAmerica Sacramento

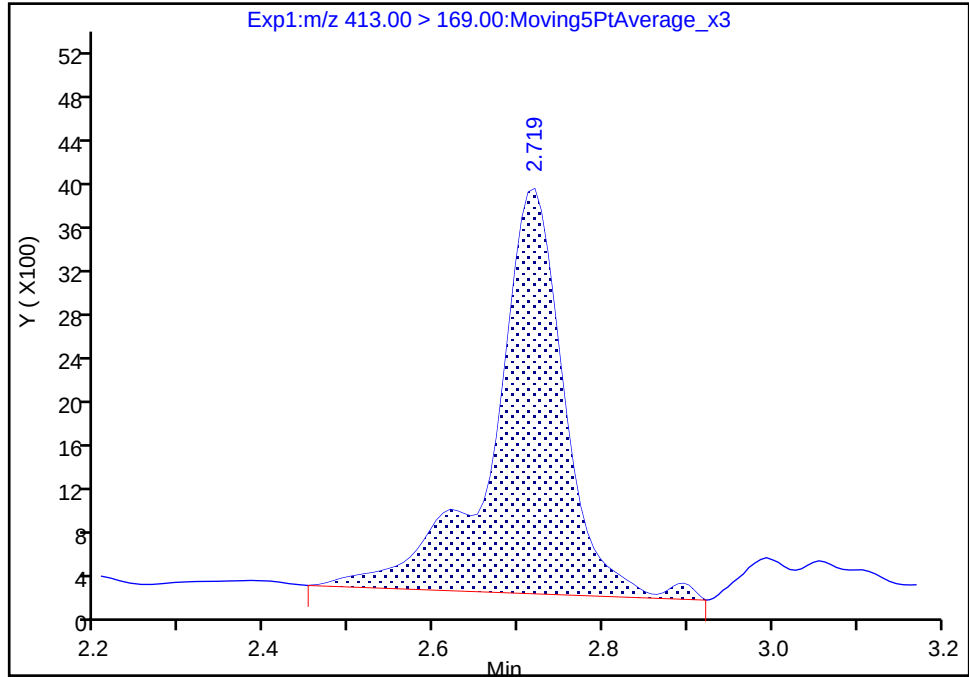
|                 |                                                                          |                |                    |                |    |
|-----------------|--------------------------------------------------------------------------|----------------|--------------------|----------------|----|
| Data File:      | \\ChromNa\Sacramento\ChromData\A8_N\20180529-58901.b\2018.05.29LLB_025.d |                |                    |                |    |
| Injection Date: | 29-May-2018 21:18:02                                                     | Instrument ID: | A8_N               |                |    |
| Lims ID:        | 320-39023-A-56-A                                                         | Lab Sample ID: | 320-39023-56       |                |    |
| Client ID:      | ER-05                                                                    |                |                    |                |    |
| Operator ID:    | SACINSTLCMS01                                                            | ALS Bottle#:   | 15                 | Worklist Smp#: | 24 |
| Injection Vol:  | 2.0 ul                                                                   | Dil. Factor:   | 1.0000             |                |    |
| Method:         | A8_N                                                                     | Limit Group:   | LC PFC_QSM5-1 ICAL |                |    |
| Column:         |                                                                          | Detector       | EXP1               |                |    |

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

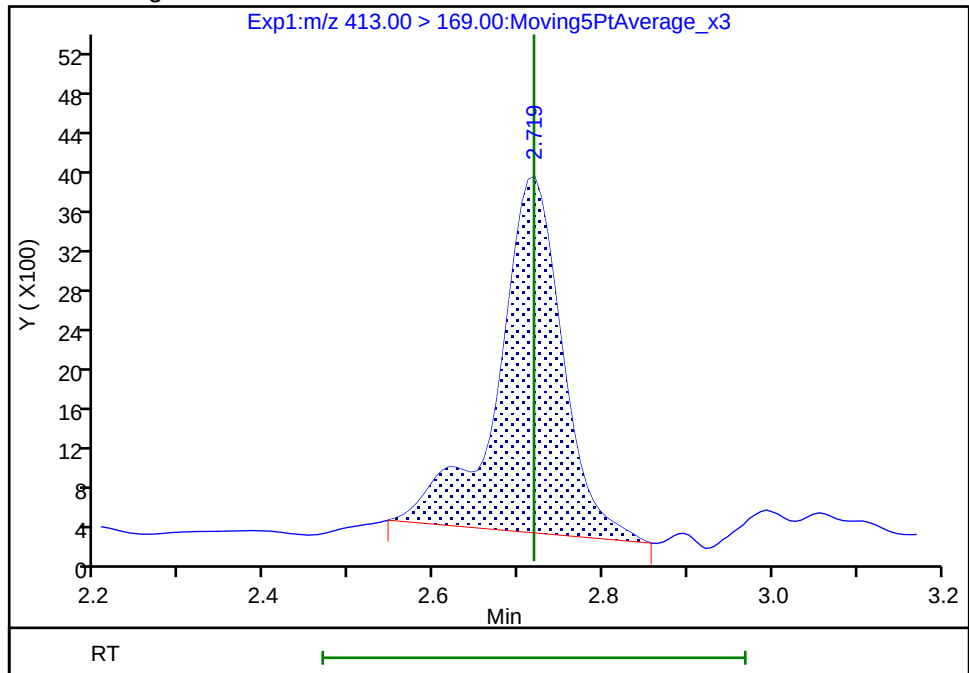
RT: 2.72  
Area: 22220  
Amount: 0.021283  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.72  
Area: 19404  
Amount: 0.019654  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 15:24:02

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

|                                         |                                              |
|-----------------------------------------|----------------------------------------------|
| Lab Name: <u>TestAmerica Sacramento</u> | Job No.: <u>320-39023-1</u>                  |
| SDG No.: _____                          |                                              |
| Client Sample ID: <u>KLA07-SD1-01D</u>  | Lab Sample ID: <u>320-39023-59</u>           |
| Matrix: <u>Solid</u>                    | Lab File ID: <u>2018.05.30LLC_026.d</u>      |
| Analysis Method: <u>EPA 537 (Mod)</u>   | Date Collected: <u>05/06/2018 11:30</u>      |
| Extraction Method: <u>SHAKE</u>         | Date Extracted: <u>05/19/2018 09:21</u>      |
| Sample wt/vol: <u>5.06(g)</u>           | Date Analyzed: <u>05/31/2018 02:30</u>       |
| Con. Extract Vol.: <u>10.00 (mL)</u>    | Dilution Factor: <u>1</u>                    |
| Injection Volume: <u>2 (uL)</u>         | GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u> |
| % Moisture: <u>26.3</u>                 | GPC Cleanup: (Y/N) <u>N</u>                  |
| Analysis Batch No.: <u>226343</u>       | Units: <u>ug/Kg</u>                          |

| CAS NO.   | COMPOUND NAME                        | RESULT | Q  | LOQ  | LOD  | DL    |
|-----------|--------------------------------------|--------|----|------|------|-------|
| 375-85-9  | Perfluoroheptanoic acid (PFHpA)      | 0.12   | J  | 0.40 | 0.27 | 0.10  |
| 335-67-1  | Perfluorooctanoic acid (PFOA)        | 0.48   |    | 0.40 | 0.27 | 0.13  |
| 375-95-1  | Perfluorononanoic acid (PFNA)        | 0.27   | U  | 0.40 | 0.27 | 0.11  |
| 375-73-5  | Perfluorobutanesulfonic acid (PFBS)  | 0.20   | J  | 0.54 | 0.24 | 0.079 |
| 355-46-4  | Perfluorohexanesulfonic acid (PFHxS) | 2.1    |    | 0.40 | 0.27 | 0.083 |
| 1763-23-1 | Perfluorooctanesulfonic acid (PFOS)  | 15     | J1 | 1.3  | 0.67 | 0.32  |

| CAS NO.  | ISOTOPE DILUTION | %REC | Q | LIMITS |
|----------|------------------|------|---|--------|
| STL02337 | 13C3-PFBS        | 73   |   | 50-150 |
| STL01892 | 13C4-PFHpA       | 81   |   | 50-150 |
| STL00990 | 13C4 PFOA        | 88   |   | 50-150 |
| STL00995 | 13C5 PFNA        | 94   |   | 50-150 |
| STL00994 | 18O2 PFHxS       | 79   |   | 50-150 |
| STL00991 | 13C4 PFOS        | 78   |   | 50-150 |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58974.b\2018.05.30LLC\_026.d  
 Lims ID: 320-39023-A-59-A  
 Client ID: KLA07-SD1-01D  
 Sample Type: Client  
 Inject. Date: 31-May-2018 02:30:20 ALS Bottle#: 18 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-39023-a-59-a  
 Misc. Info.: Plate: 1 Rack: 3  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58974.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 14:19:32 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 31-May-2018 14:08:56

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.452  | 0.0    | 1.000  | 5632801  | 1.84         |                   | 73.5 | 30591 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       | M     |
| 212.90 > 169.00                       | 1.452 | 1.457  | -0.005 | 1.000  | 43094    | 0.0206       |                   |      | 4.6   | M     |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.728 | 1.719  | 0.009  | 0.564  | 4031391  | 2.05         |                   | 82.0 | 32733 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       | M     |
| 262.90 > 219.00                       | 1.719 | 1.728  | -0.009 | 0.995  | 129133   | 0.0678       |                   |      | 38.8  | M     |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.755 | 1.756  | -0.001 | 1.000  | 75020    | 1.69         |                   | 72.6 | 209   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.764 | 1.764  | 0.0    | 1.005  | 186521   | 0.0740       |                   |      | 586   |       |
| 298.90 > 99.00                        | 1.764 | 1.764  | 0.0    | 1.005  | 76425    |              | 2.44(1.25-3.74)   |      | 93.0  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 2.014 | 1.970  | 0.044  | 1.000  | 8014     | NC           |                   |      | 11.8  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.866 | 1.980  | -0.114 | 1.000  | 77782    | 0.1454       |                   |      | 672   |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 342451   | 0.1958       |                   |      | 237   |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 25579    |              | 13.39(5.03-15.10) |      | 187   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 4253677  | 2.03         |                   | 81.2 | 65382 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 215465   | 0.0960       |                   |      | 420   |       |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 79511    |              | 2.71(1.36-4.07)   |      | 380   |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.115 | 2.104  | 0.011  | 1.000  | 156043   | NC           |                   |      | 5269  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                   |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 4067257  | 2.02         |                   | 81.0 | 58342 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 77342    | 0.0450       |                 |      | 71.7  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 27518    |              | 2.81(1.13-3.40) |      | 121   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 4623616  | 1.86         |                 | 78.7 | 62063 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 1727044  | 0.7840       |                 |      | 2214  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 585658   |              | 2.95(1.50-4.49) |      | 980   |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.674 | 2.674  | 0.0    | 1.000  | 202545   | 0.1607       |                 |      | 1462  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.674 | 2.674  | 0.0    | 1.000  | 1603862  | 3.62         |                 | 152  | 7718  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 4196969  | 2.21         |                 | 88.4 | 58254 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.697 | 2.697  | 0.0    |        | 5016915  | 2.50         |                 |      | 70298 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 355868   | 0.1801       |                 |      | 204   |       |
| 413.00 > 169.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 208559   |              | 1.71(0.84-2.52) |      | 613   |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 158057   | 0.0891       |                 |      | 210   |       |
| 449.00 > 99.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 48571    |              | 3.25(1.94-5.82) |      | 168   |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.069 | 3.064  | 0.005  | 1.002  | 48339    | 0.0312       |                 |      | 105   |       |
| 463.00 > 169.00                       | 3.069 | 3.064  | 0.005  | 1.002  | 11769    |              | 4.11(1.90-5.69) |      | 141   |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.062 | 3.064  | -0.002 | 1.000  | 8987241  | 5.74         |                 |      | 27308 |       |
| 499.00 > 99.00                        | 3.062 | 3.064  | -0.002 | 1.000  | 1941619  |              | 4.63(2.31-6.93) |      | 7039  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.062 | 3.064  | -0.002 | 1.000  | 3659418  | 2.35         |                 | 94.2 | 78642 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.062 | 3.064  | -0.002 | 1.000  | 3183950  | 1.87         |                 | 78.1 | 14072 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.402 | 3.396  | 0.006  | 1.000  | 4249279  | 1.90         |                 | 76.1 | 37653 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.402 | 3.396  | 0.006  | 1.000  | 38608    | 0.0233       |                 |      | 41.6  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.411 | 3.415  | -0.004 | 1.000  | 2034632  | 4.03         |                 | 168  | 14172 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.411 | 3.415  | -0.004 | 1.000  | 65525    | 0.0572       |                 |      | 2536  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.421 | 3.424  | -0.004 | 1.000  | 3135456  | 2.37         |                 | 94.9 | 55500 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.421 | 3.424  | -0.004 | 1.000  | 24740    | 0.0203       |                 |      | 21.6  | RM    |
| 513.00 > 169.00                       | 3.421 | 3.424  | -0.004 | 1.000  | 3284     |              | 7.53(2.36-7.09) |      | 50.2  | RM    |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.569 | 3.573  | -0.004 | 1.000  | 2230618  | 3.06         |                 | 122  | 35470 | M     |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 589.00 > 419.00                       | 3.743 | 3.738     | 0.005     | 1.000     | 1946176  | 2.60            |                 | 104  | 29051 |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |      |       |       |
| 565.00 > 520.00                       | 3.743 | 3.749     | -0.006    | 1.000     | 2576478  | 2.46            |                 | 98.5 | 78062 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |      |       |       |
| 584.00 > 419.00                       | 3.732 | 3.749     | -0.017    | 0.997     | 1462     | 0.001998        |                 |      | 34.7  |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 563.00 > 519.00                       | 3.753 | 3.749     | 0.004     | 1.003     | 9509     | 0.0110          |                 |      | 31.2  |       |
| 563.00 > 169.00                       | 3.753 | 3.749     | 0.004     | 1.003     | 2829     |                 | 3.36(2.12-6.36) |      | 64.9  |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                 |      |       |       |
| 615.00 > 570.00                       | 4.041 | 4.039     | 0.002     | 1.000     | 2788095  | 2.48            |                 | 99.0 | 37362 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 613.00 > 569.00                       | 4.051 | 4.050     | 0.001     | 1.003     | 3398     | 0.002919        |                 |      | 2.6   | M     |
| 613.00 > 169.00                       | 4.030 | 4.050     | -0.020    | 0.997     | 1599     |                 | 2.13(2.13-6.40) |      | 15.1  | M     |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 715.00 > 670.00                       | 4.542 | 4.542     | 0.0       | 1.000     | 3226425  | 2.33            |                 | 93.3 | 28996 |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 815.00 > 770.00                       | 4.957 | 4.957     | 0.0       | 1.000     | 5314250  | 2.26            |                 | 90.6 | 15433 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                 |      |       |       |
| 813.00 > 769.00                       | 4.957 | 4.966     | -0.009    | 1.000     | 49449    | NC              |                 |      | 26.0  |       |
| 813.00 > 169.00                       | 4.957 | 4.966     | -0.009    | 1.000     | 6649     |                 | 7.44(2.86-8.58) |      | 65.9  |       |

### QC Flag Legend

#### Processing Flags

NC - Not Calibrated

R - Failed Signal Ratio Test

#### Review Flags

M - Manually Integrated

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180531-58974.b\2018.05.30LLC\_026.d

Injection Date: 31-May-2018 02:30:20

Instrument ID: A8\_N

Lims ID: 320-39023-A-59-A

Lab Sample ID: 320-39023-59

Client ID: KLA07-SD1-01D

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

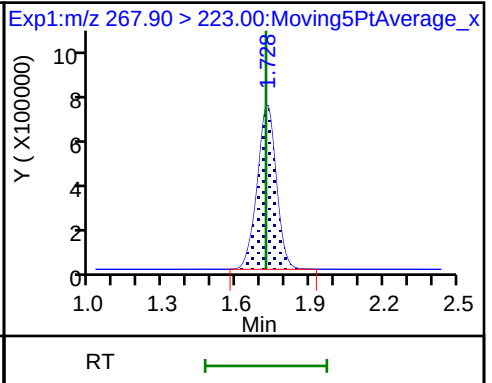
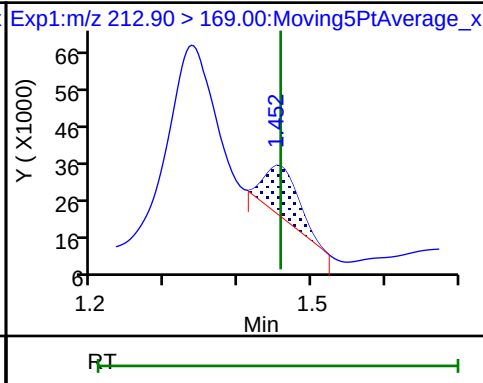
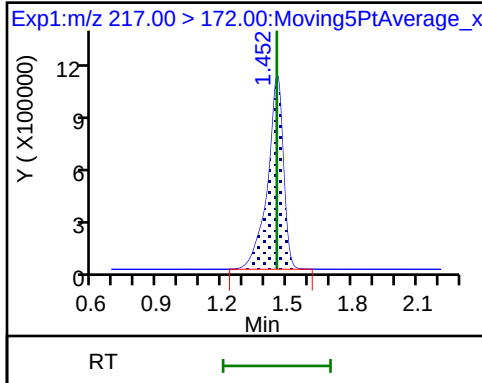
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

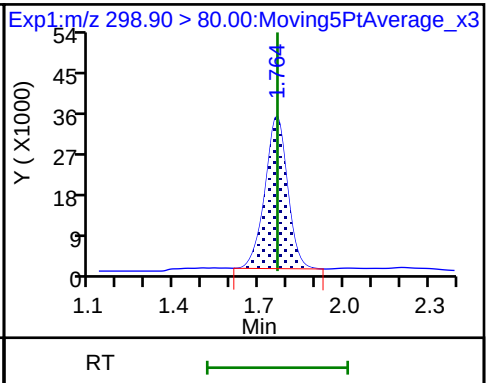
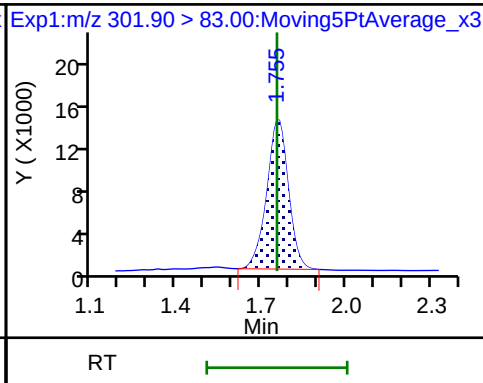
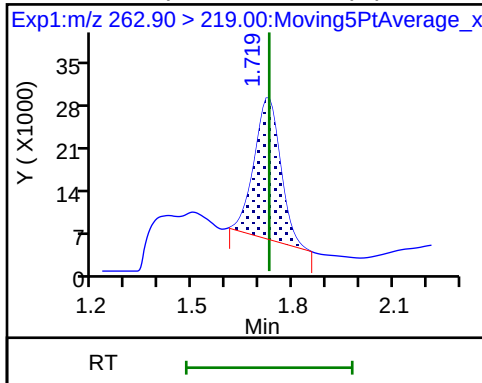
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (M)

D 47 13C3-PFBS

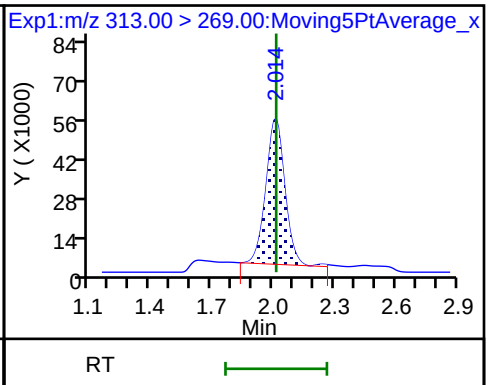
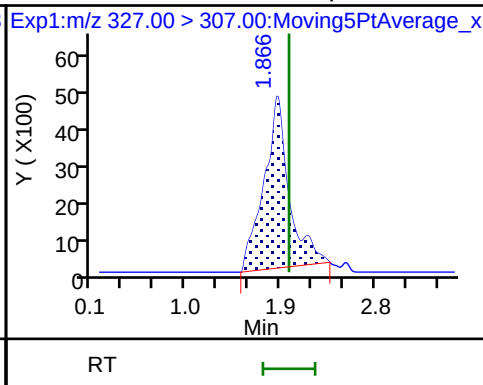
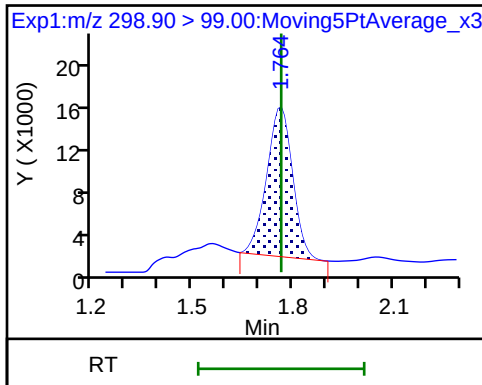
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

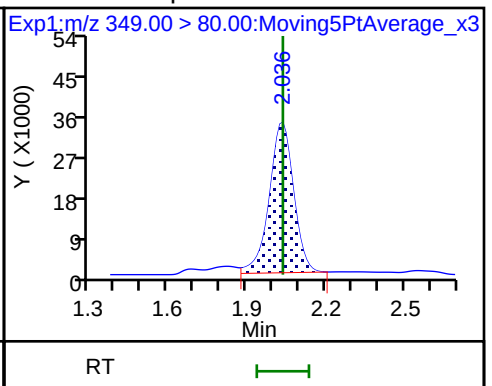
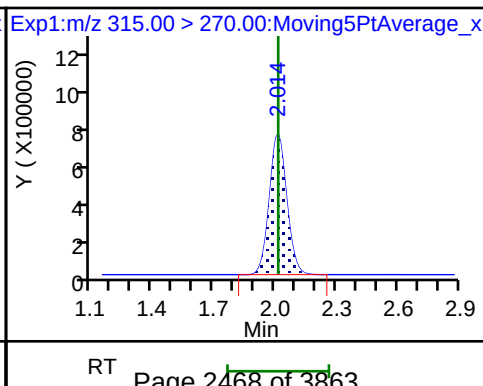
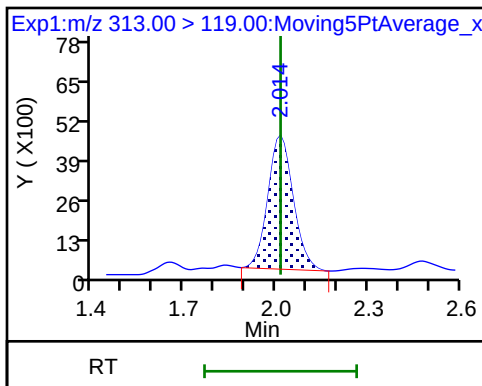
6 Perfluorohexanoic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

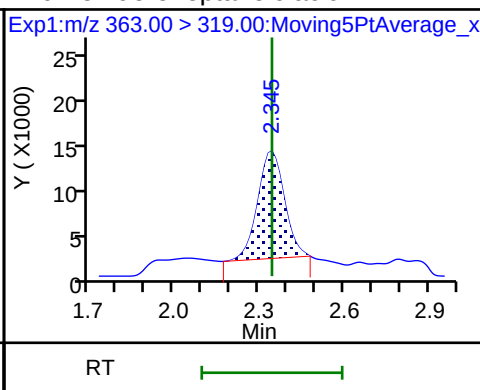
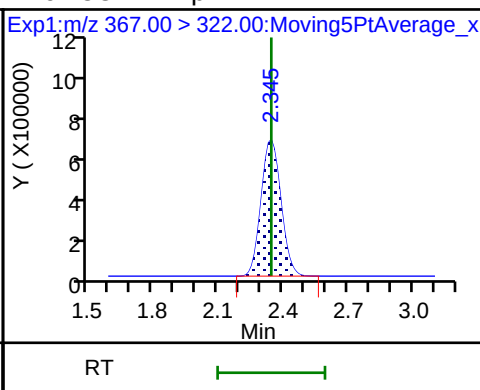
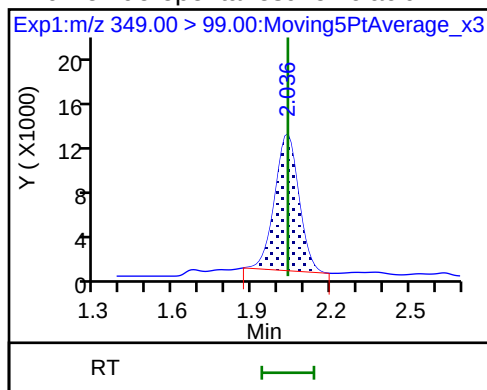
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

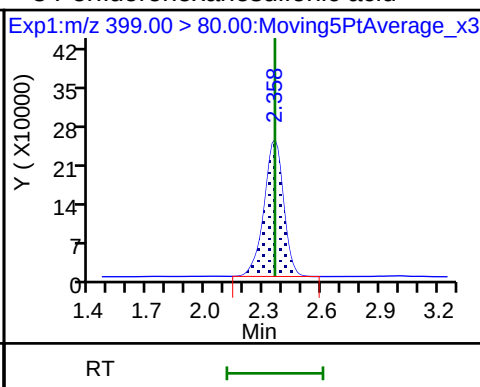
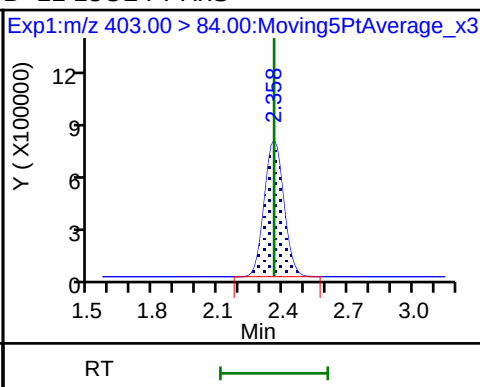
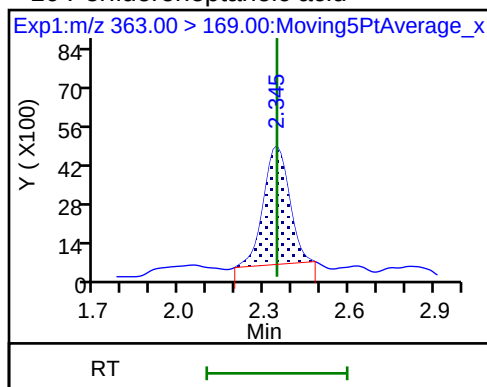
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## D 11 18O2 PFHxS

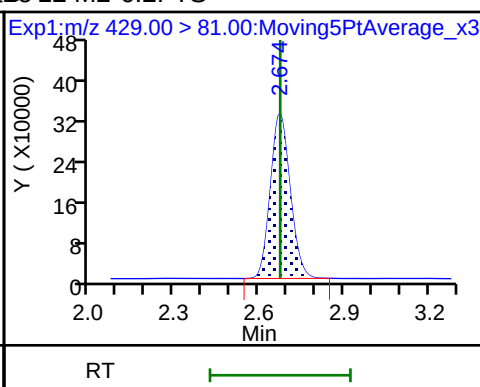
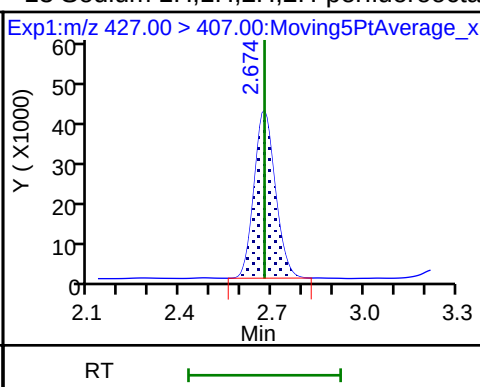
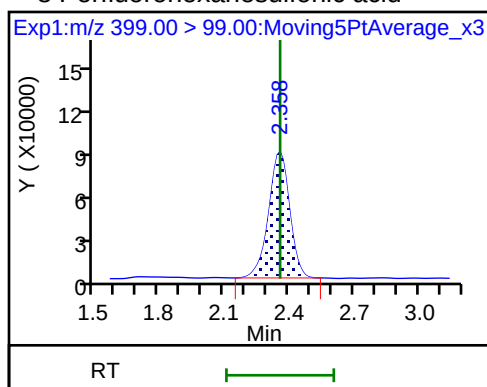
## 8 Perfluorohexanesulfonic acid



## 8 Perfluorohexanesulfonic acid

## 13 Sodium 1H,1H,2H,2H-perfluorooctadec-12-ynoate

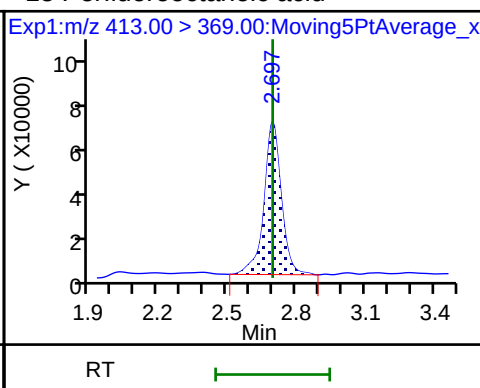
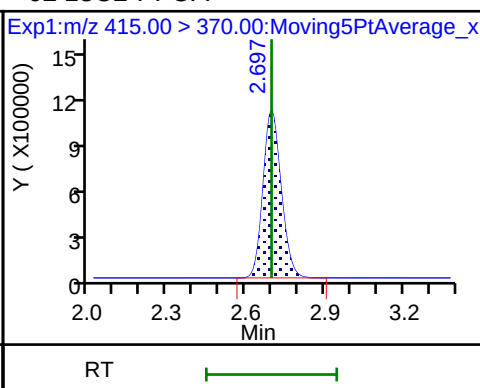
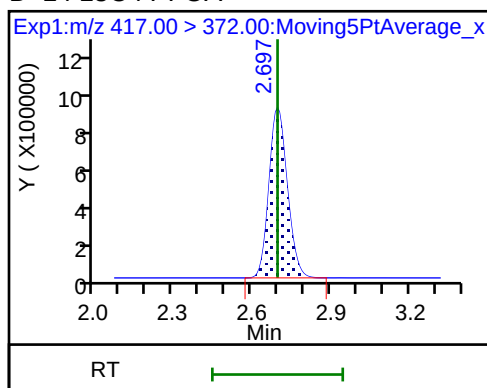
## D 12 M2-6:2FTS

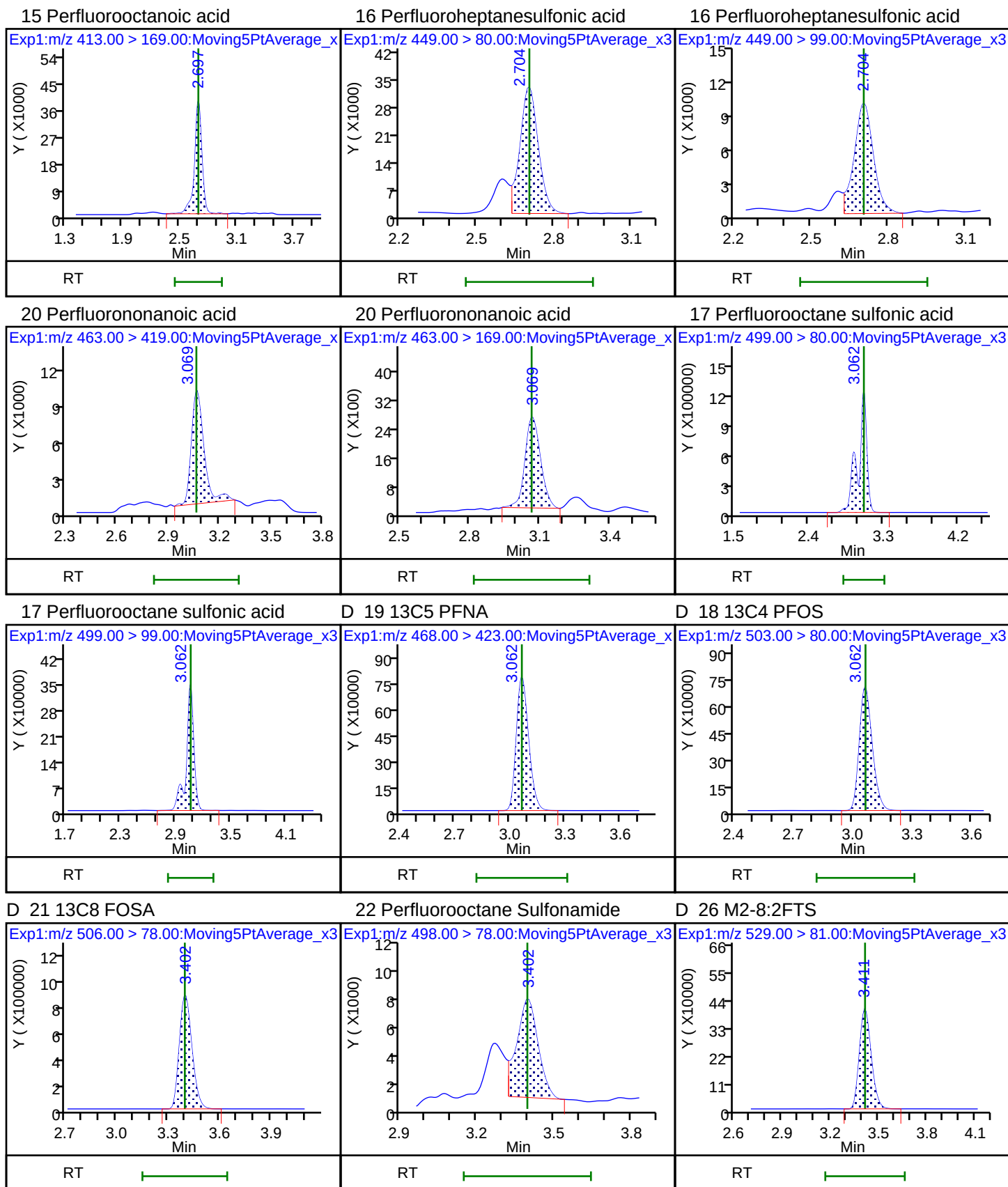


## D 14 13C4 PFOA

## \* 62 13C2-PFOA

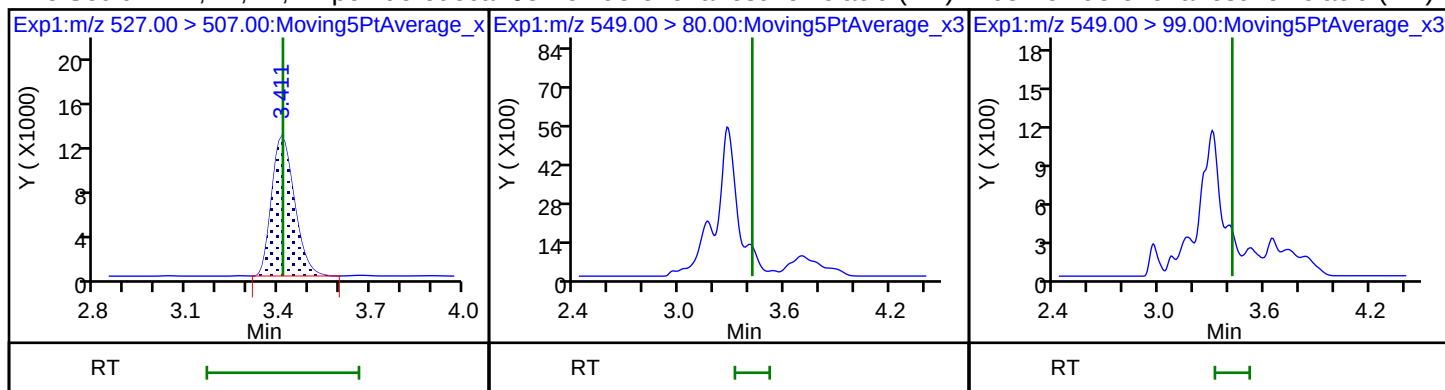
## 15 Perfluorooctanoic acid







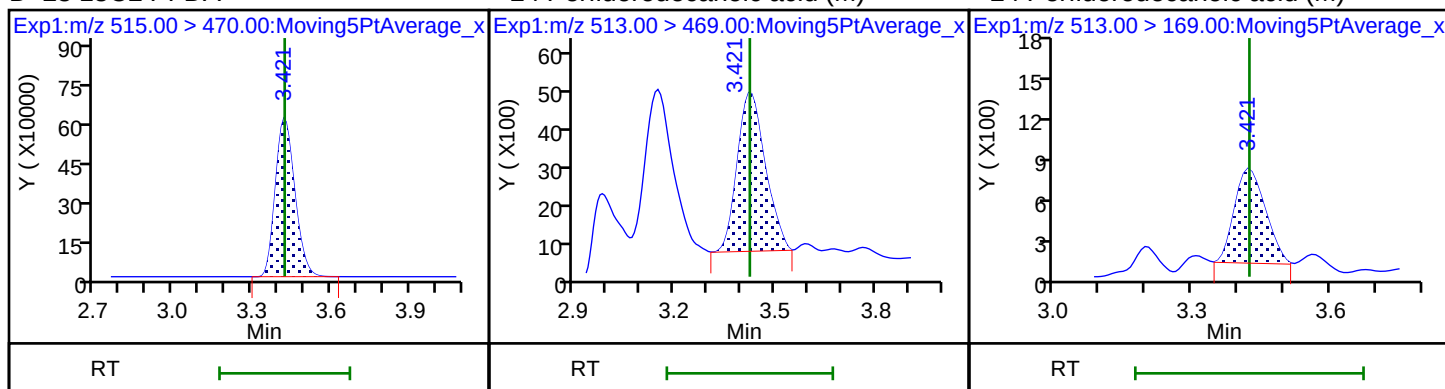
25 Sodium 1H,1H,2H,2H-perfluorodecanesulfonic acid (ND) 68 Perfluorononanesulfonic acid (ND) 68 Perfluorononanesulfonic acid (ND)



D 23 13C2 PFDA

24 Perfluorodecanoic acid (M)

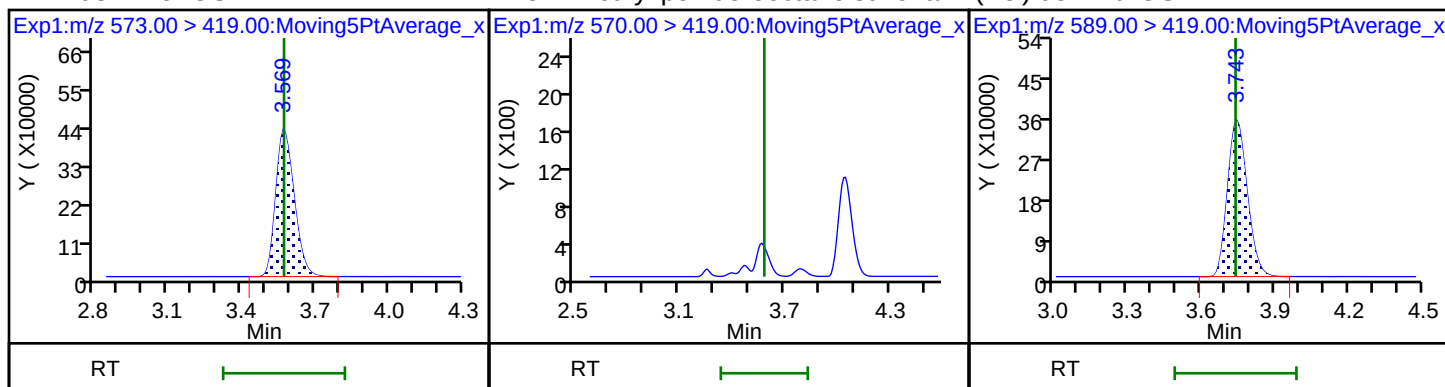
24 Perfluorodecanoic acid (M)



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonamide (ND)

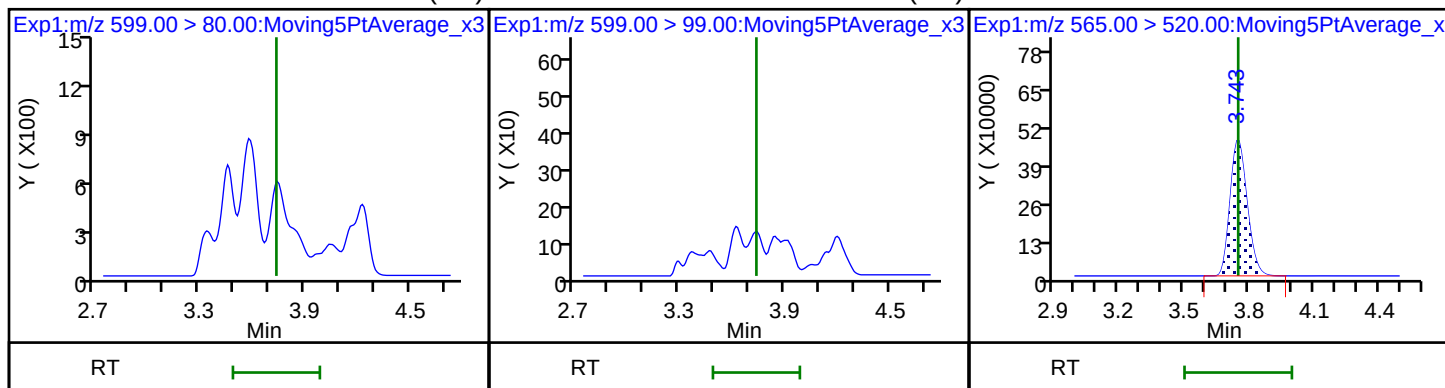
D 29 d5-NEtFOSAA



29 Perfluorodecane Sulfonic acid (ND)

29 Perfluorodecane Sulfonic acid (ND)

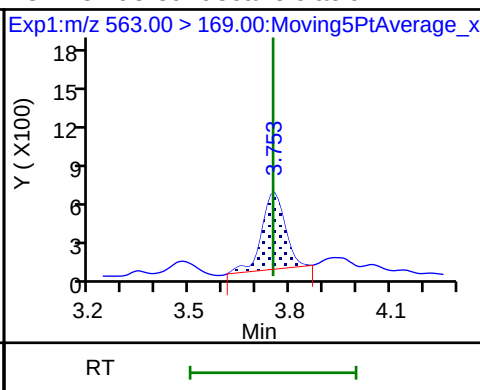
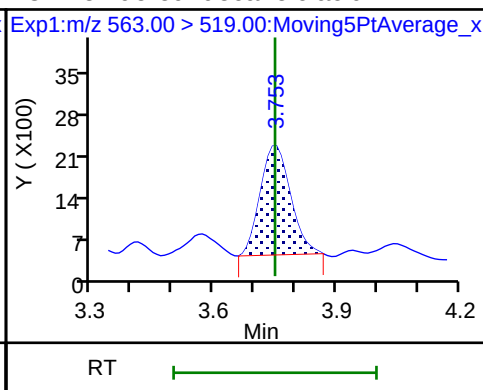
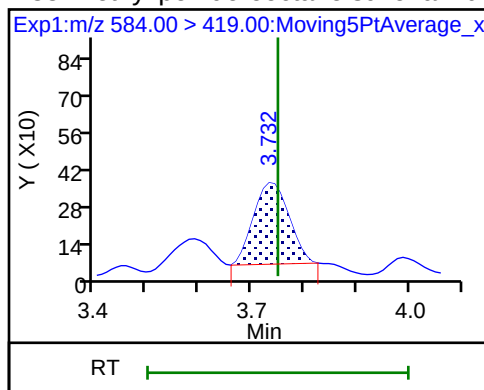
D 30 13C2 PFUnA



33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

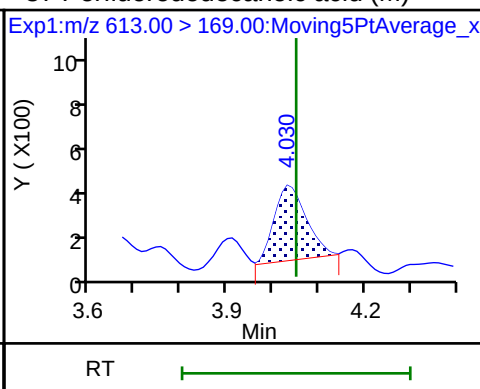
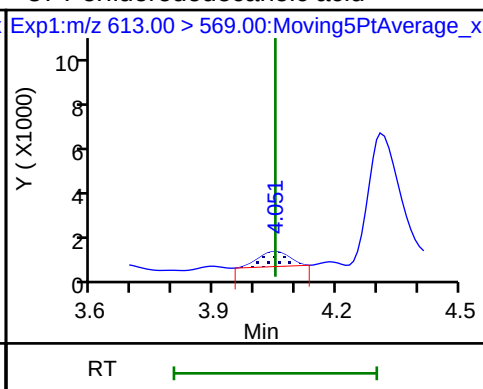
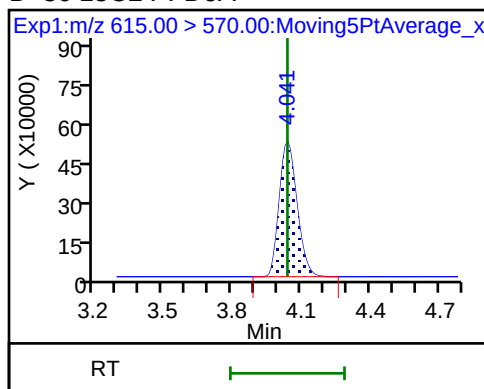
31 Perfluoroundecanoic acid



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

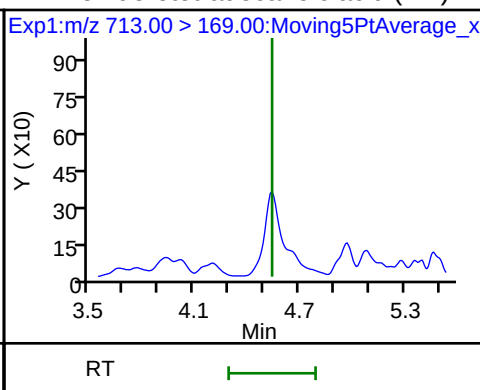
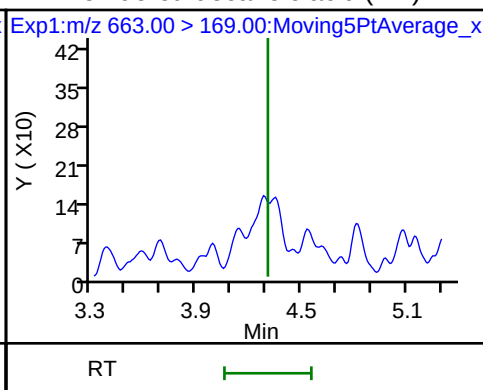
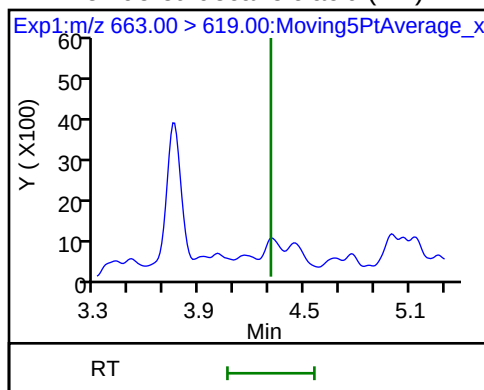
37 Perfluorododecanoic acid (M)



41 Perfluorotridecanoic acid (ND)

41 Perfluorotridecanoic acid (ND)

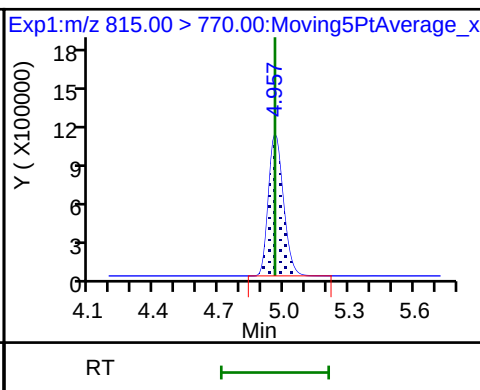
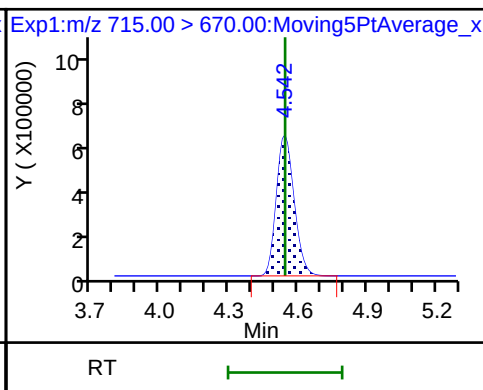
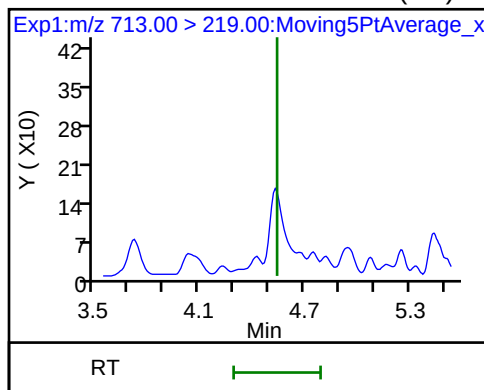
42 Perfluorotetradecanoic acid (ND)



42 Perfluorotetradecanoic acid (ND)

D 43 13C2-PFTeDA

D 44 13C2-PFHxDA





FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

Calibration Files:

|         |                  |                          |
|---------|------------------|--------------------------|
| LEVEL:  | LAB SAMPLE ID:   | LAB FILE ID:             |
| Level 1 | IC 320-223413/2  | 2017.05.15LLB_ICAL_002.d |
| Level 2 | IC 320-223413/3  | 2017.05.15LLB_ICAL_003.d |
| Level 3 | IC 320-223413/4  | 2017.05.15LLB_ICAL_004.d |
| Level 4 | IC 320-223413/5  | 2017.05.15LLB_ICAL_005.d |
| Level 5 | IC 320-223413/7  | 2017.05.15LLB_ICAL_007.d |
| Level 6 | IC 320-223413/8  | 2017.05.15LLB_ICAL_008.d |
| Level 7 | IC 320-223413/11 | 2018.05.15LLC_ICAL_006.d |

| ANALYTE                               | RRF              |                  |        |        |        | CURVE TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX %RSD | R^2 OR COD | # | MIN R^2 OR COD |
|---------------------------------------|------------------|------------------|--------|--------|--------|------------|-------------|--------|----|---|---------|------|---|----------|------------|---|----------------|
|                                       | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3  | LVL 4  | LVL 5  |            | B           | M1     | M2 |   |         |      |   |          |            |   |                |
| Perfluorobutanoic acid (PFBA)         | 0.9241<br>0.8957 | 0.9313<br>0.9561 | 0.9225 | 0.9212 | 0.9579 | AveID      |             | 0.9298 |    |   |         | 2.3  |   | 20.0     |            |   |                |
| Perfluoropentanoic acid (PFPeA)       | 1.2625<br>1.1540 | 1.2317<br>1.1953 | 1.1470 | 1.1005 | 1.1726 | AveID      |             | 1.1805 |    |   |         | 4.6  |   | 20.0     |            |   |                |
| Perfluorobutanesulfonic acid (PFBS)   | 73.379<br>74.326 | 78.361<br>80.657 | 79.854 | 76.421 | 83.642 | AveID      |             | 78.092 |    |   |         | 4.7  |   | 20.0     |            |   |                |
| 4:2 FTS                               | 16.107<br>15.923 | 17.745<br>16.756 | 15.595 | 16.119 | 17.773 | AveID      |             | 16.574 |    |   |         | 5.3  |   | 20.0     |            |   |                |
| Perfluorohexanoic acid (PFHxA)        | 1.0080<br>1.0775 | 1.1481<br>0.9470 | 0.9804 | 0.9949 | 1.0411 | AveID      |             | 1.0281 |    |   |         | 6.6  |   | 20.0     |            |   |                |
| Perfluoropentanesulfonic acid         | 70.536<br>63.954 | 69.604<br>69.356 | 70.709 | 68.100 | 74.560 | AveID      |             | 69.545 |    |   |         | 4.6  |   | 20.0     |            |   |                |
| Perfluoroheptanoic acid (PFHpA)       | 1.1170<br>1.0467 | 1.0612<br>1.0839 | 1.0572 | 0.9754 | 1.0529 | AveID      |             | 1.0563 |    |   |         | 4.1  |   | 20.0     |            |   |                |
| Perfluorohexanesulfonic acid (PFHxS)  | 1.2868<br>1.0806 | 1.1929<br>1.0961 | 1.1199 | 1.0451 | 1.0663 | AveID      |             | 1.1268 |    |   |         | 7.6  |   | 20.0     |            |   |                |
| 6:2FTS                                | 2.5480<br>1.8029 | 2.0146<br>1.7196 | 2.1352 | 1.5658 | 1.7441 | L2ID       | 0.0180      | 1.7550 |    |   |         |      |   |          | 0.9900     |   | 0.9900         |
| Perfluorooctanoic acid (PFOA)         | 1.2824<br>1.1018 | 1.3066<br>1.0898 | 1.1380 | 1.1380 | 1.1826 | AveID      |             | 1.1770 |    |   |         | 7.3  |   | 20.0     |            |   |                |
| Perfluoroheptanesulfonic Acid (PFHpS) | 1.1977<br>1.2900 | 1.4162<br>1.3580 | 1.3092 | 1.3585 | 1.3942 | AveID      |             | 1.3320 |    |   |         | 5.5  |   | 20.0     |            |   |                |
| Perfluorooctanesulfonic acid (PFOS)   | 1.3297<br>1.1063 | 1.2627<br>1.0707 | 1.2157 | 1.0803 | 1.1653 | AveID      |             | 1.1758 |    |   |         | 8.4  |   | 20.0     |            |   |                |
| Perfluorononanoic acid (PFNA)         | 1.1029<br>1.0898 | 1.0209<br>1.0772 | 1.0536 | 1.0094 | 1.0606 | AveID      |             | 1.0592 |    |   |         | 3.3  |   | 20.0     |            |   |                |
| Perfluorooctane Sulfonamide (PFOSA)   | 0.8770<br>0.9485 | 0.9364<br>1.0373 | 1.0064 | 0.9683 | 1.0413 | AveID      |             | 0.9736 |    |   |         | 6.1  |   | 20.0     |            |   |                |

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413  
SDG No.: \_\_\_\_\_  
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N  
Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

| ANALYTE                                                       | RRF              |                  |        |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|---------------------------------------------------------------|------------------|------------------|--------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|                                                               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3  | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| Perfluorononanesulfonic acid                                  | 0.7875<br>0.7778 | 0.6822<br>0.7530 | 0.7467 | 0.7538 | 0.8013 | AveID         |             | 0.7575 |    |   |         | 5.1  |   | 20.0        |               |   |                   |
| 8:2FTS                                                        | 1.3186<br>1.2726 | 1.3858<br>1.3389 | 1.3462 | 1.3265 | 1.4577 | AveID         |             | 1.3495 |    |   |         | 4.3  |   | 20.0        |               |   |                   |
| Perfluorodecanoic acid (PFDA)                                 | 0.8867<br>0.9744 | 0.9628<br>1.0102 | 0.9707 | 0.9794 | 1.0214 | AveID         |             | 0.9722 |    |   |         | 4.5  |   | 20.0        |               |   |                   |
| N-methyl perfluorooctane<br>sulfonamidoacetic acid (NMeFOSAA) | 0.9856<br>1.0154 | 0.9342<br>1.0822 | 0.9935 | 1.0424 | 1.0502 | AveID         |             | 1.0148 |    |   |         | 4.8  |   | 20.0        |               |   |                   |
| Perfluorodecanesulfonic acid (PFDS)                           | 0.6317<br>0.6583 | 0.7078<br>0.6826 | 0.6836 | 0.6304 | 0.7056 | AveID         |             | 0.6714 |    |   |         | 4.8  |   | 20.0        |               |   |                   |
| N-ethyl perfluorooctane<br>sulfonamidoacetic acid (NEtFOSAA)  | 1.0524<br>0.9642 | 0.7682<br>0.8944 | 0.9620 | 0.9003 | 1.0388 | AveID         |             | 0.9400 |    |   |         | 10.3 |   | 20.0        |               |   |                   |
| Perfluoroundecanoic acid (PFUnA)                              | 0.9516<br>0.9130 | 0.9138<br>0.7363 | 0.7790 | 0.7312 | 0.8215 | AveID         |             | 0.8352 |    |   |         | 10.9 |   | 20.0        |               |   |                   |
| Perfluorododecanoic acid (PFDoA)                              | 1.0219<br>1.0283 | 1.0040<br>1.0645 | 1.1136 | 1.0306 | 1.0427 | AveID         |             | 1.0436 |    |   |         | 3.4  |   | 20.0        |               |   |                   |
| Perfluorotridecanoic Acid (PFTriA)                            | 1.1692<br>1.0949 | 1.0844<br>1.1930 | 1.1780 | 1.1305 | 1.1573 | AveID         |             | 1.1439 |    |   |         | 3.7  |   | 20.0        |               |   |                   |
| Perfluorotetradecanoic acid (PFTeA)                           | 0.2622<br>0.2644 | 0.2565<br>0.2614 | 0.2270 | 0.2438 | 0.2525 | AveID         |             | 0.2525 |    |   |         | 5.3  |   | 20.0        |               |   |                   |
| 13C4 PFBA                                                     | 1.4654<br>1.5642 | 1.5722<br>1.4829 | 1.5804 | 1.4802 | 1.5540 | Ave           |             | 1.5285 |    |   |         | 3.3  |   | 20.0        |               |   |                   |
| 13C5-PFPeA                                                    | 0.9578<br>0.9717 | 0.9914<br>0.9536 | 0.9991 | 0.9890 | 0.9962 | Ave           |             | 0.9798 |    |   |         | 1.9  |   | 20.0        |               |   |                   |
| 13C3-PFBS                                                     | 0.0218<br>0.0222 | 0.0228<br>0.0217 | 0.0227 | 0.0222 | 0.0216 | Ave           |             | 0.0221 |    |   |         | 2.1  |   | 20.0        |               |   |                   |
| 13C2 PFHxA                                                    | 1.0307<br>0.9826 | 1.0663<br>1.0766 | 1.0830 | 1.0193 | 1.0550 | Ave           |             | 1.0448 |    |   |         | 3.4  |   | 20.0        |               |   |                   |
| 13C4-PFHpA                                                    | 1.0218<br>0.9433 | 1.0396<br>0.9531 | 1.0651 | 0.9899 | 0.9939 | Ave           |             | 1.0010 |    |   |         | 4.4  |   | 20.0        |               |   |                   |
| 18O2 PFHxS                                                    | 1.2582<br>1.1763 | 1.2526<br>1.2049 | 1.2691 | 1.2355 | 1.2631 | Ave           |             | 1.2371 |    |   |         | 2.8  |   | 20.0        |               |   |                   |
| M2-6:2FTS                                                     | 0.2275<br>0.2007 | 0.2278<br>0.2142 | 0.2391 | 0.2273 | 0.2103 | Ave           |             | 0.2210 |    |   |         | 5.9  |   | 20.0        |               |   |                   |
| 13C4 PFOA                                                     | 0.9457<br>0.9318 | 0.9493<br>0.9514 | 0.9743 | 0.9365 | 0.9390 | Ave           |             | 0.9468 |    |   |         | 1.5  |   | 20.0        |               |   |                   |
| 13C4 PFOS                                                     | 0.8656<br>0.8371 | 0.8315<br>0.8519 | 0.8880 | 0.8302 | 0.8476 | Ave           |             | 0.8503 |    |   |         | 2.4  |   | 20.0        |               |   |                   |
| 13C5 PFNA                                                     | 0.7820<br>0.7385 | 0.8107<br>0.7553 | 0.8055 | 0.7560 | 0.7732 | Ave           |             | 0.7745 |    |   |         | 3.5  |   | 20.0        |               |   |                   |

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413  
SDG No.: \_\_\_\_\_  
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N  
Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

| ANALYTE     | RRF              |                  |        |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|-------------|------------------|------------------|--------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|             | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3  | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| 13C8 FOSA   | 1.0913<br>1.1170 | 1.0548<br>1.1055 | 1.1529 | 1.1228 | 1.1455 | Ave           |             | 1.1128 |    |   |         | 3.0  |   | 20.0        |               |   |                   |
| M2-8:2FTS   | 0.2728<br>0.2412 | 0.2681<br>0.2427 | 0.2615 | 0.2403 | 0.2336 | Ave           |             | 0.2515 |    |   |         | 6.2  |   | 20.0        |               |   |                   |
| 13C2 PFDA   | 0.6586<br>0.6466 | 0.6755<br>0.6399 | 0.6955 | 0.6477 | 0.6472 | Ave           |             | 0.6587 |    |   |         | 3.0  |   | 20.0        |               |   |                   |
| d3-NMeFOSAA | 0.3554<br>0.3833 | 0.3709<br>0.3334 | 0.3911 | 0.3502 | 0.3593 | Ave           |             | 0.3634 |    |   |         | 5.5  |   | 20.0        |               |   |                   |
| d5-NEtFOSAA | 0.3882<br>0.3379 | 0.3862<br>0.3795 | 0.3918 | 0.3798 | 0.3469 | Ave           |             | 0.3729 |    |   |         | 5.8  |   | 20.0        |               |   |                   |
| 13C2 PFUnA  | 0.5204<br>0.4762 | 0.5248<br>0.5225 | 0.5435 | 0.5432 | 0.5208 | Ave           |             | 0.5216 |    |   |         | 4.3  |   | 20.0        |               |   |                   |
| 13C2 PFDoA  | 0.5424<br>0.5733 | 0.5507<br>0.5366 | 0.5780 | 0.5627 | 0.5857 | Ave           |             | 0.5613 |    |   |         | 3.3  |   | 20.0        |               |   |                   |
| 13C2-PFTeDA | 0.6921<br>0.6818 | 0.5915<br>0.6707 | 0.7584 | 0.7128 | 0.7166 | Ave           |             | 0.6891 |    |   |         | 7.5  |   | 20.0        |               |   |                   |
| 13C2-PFHxDA | 1.2461<br>1.2600 | 0.8066<br>1.2373 | 1.2363 | 1.2369 | 1.1633 | Ave           |             | 1.1695 |    |   |         | 13.9 |   | 20.0        |               |   |                   |

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

Calibration Files:

|         |                  |                          |
|---------|------------------|--------------------------|
| LEVEL:  | LAB SAMPLE ID:   | LAB FILE ID:             |
| Level 1 | IC 320-223413/2  | 2017.05.15LLB_ICAL_002.d |
| Level 2 | IC 320-223413/3  | 2017.05.15LLB_ICAL_003.d |
| Level 3 | IC 320-223413/4  | 2017.05.15LLB_ICAL_004.d |
| Level 4 | IC 320-223413/5  | 2017.05.15LLB_ICAL_005.d |
| Level 5 | IC 320-223413/7  | 2017.05.15LLB_ICAL_007.d |
| Level 6 | IC 320-223413/8  | 2017.05.15LLB_ICAL_008.d |
| Level 7 | IC 320-223413/11 | 2018.05.15LLC_ICAL_006.d |

| ANALYTE                               | IS<br>REF | CURVE<br>TYPE | RESPONSE          |                   |        |         |          | CONCENTRATION (NG/ML) |                |       |       |       |
|---------------------------------------|-----------|---------------|-------------------|-------------------|--------|---------|----------|-----------------------|----------------|-------|-------|-------|
|                                       |           |               | LVL 1<br>LVL 6    | LVL 2<br>LVL 7    | LVL 3  | LVL 4   | LVL 5    | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 |
| Perfluorobutanoic acid (PFBA)         |           | AveID         | 73922<br>26861072 | 162647<br>6642110 | 691256 | 2597444 | 12934647 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluoropentanoic acid (PFPeA)       |           | AveID         | 66005<br>21497034 | 135647<br>5339518 | 543378 | 2073422 | 10150448 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorobutanesulfonic acid (PFBS)   |           | AveID         | 77106<br>28014178 | 175383<br>7259728 | 758816 | 2858265 | 13863265 | 0.0221<br>8.84        | 0.0442<br>2.21 | 0.221 | 0.884 | 4.42  |
| 4:2 FTS                               |           | AveID         | 17882<br>6341030  | 41962<br>1593481  | 156576 | 636977  | 3112425  | 0.0234<br>9.34        | 0.0467<br>2.34 | 0.234 | 0.934 | 4.67  |
| Perfluorohexanoic acid (PFHxA)        |           | AveID         | 56711<br>20297289 | 135987<br>4776223 | 503450 | 1931731 | 9544553  | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluoropentanesulfonic acid         |           | AveID         | 78646<br>25577332 | 165299<br>6623884 | 712963 | 2702610 | 13112812 | 0.0235<br>9.38        | 0.0469<br>2.35 | 0.235 | 0.938 | 4.69  |
| Perfluoroheptanoic acid (PFHpA)       |           | AveID         | 62298<br>18928350 | 122556<br>4839723 | 533908 | 1839273 | 9093863  | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorohexanesulfonic acid (PFHxS)  |           | AveID         | 80424<br>22174743 | 151043<br>5630297 | 613254 | 2238132 | 10650638 | 0.0228<br>9.10        | 0.0455<br>2.28 | 0.228 | 0.910 | 4.55  |
| 6:2FTS                                |           | L2ID          | 29994<br>6574970  | 48326<br>1635620  | 229440 | 642687  | 3021313  | 0.0237<br>9.48        | 0.0474<br>2.37 | 0.237 | 0.948 | 4.74  |
| Perfluorooctanoic acid (PFOA)         |           | AveID         | 66199<br>19682065 | 137784<br>4857127 | 525683 | 2030259 | 9649258  | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluoroheptanesulfonic Acid (PFHpS) |           | AveID         | 53872<br>19707477 | 124538<br>5160059 | 524732 | 2045093 | 9775395  | 0.0238<br>9.52        | 0.0476<br>2.38 | 0.238 | 0.952 | 4.76  |
| Perfluorooctanesulfonic acid (PFOS)   |           | AveID         | 58301<br>16474463 | 108239<br>3965534 | 474971 | 1585297 | 7964833  | 0.0232<br>9.28        | 0.0464<br>2.32 | 0.232 | 0.928 | 4.64  |
| Perfluorononanoic acid (PFNA)         |           | AveID         | 47076<br>15430529 | 91933<br>3811509  | 402423 | 1453651 | 7125949  | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorooctane Sulfonamide (PFOSA)   |           | AveID         | 52238<br>20311842 | 109720<br>5372059 | 550166 | 2070950 | 10364812 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorononanesulfonic acid          |           | AveID         | 35719<br>11982938 | 60494<br>2885064  | 301811 | 1144412 | 5665707  | 0.0240<br>9.60        | 0.0480<br>2.40 | 0.240 | 0.960 | 4.80  |

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

| ANALYTE                                                       | IS<br>REF  | CURVE<br>TYPE | RESPONSE           |                    |         |         |         | CONCENTRATION (NG/ML) |                |       |       |       |
|---------------------------------------------------------------|------------|---------------|--------------------|--------------------|---------|---------|---------|-----------------------|----------------|-------|-------|-------|
|                                                               |            |               | LVL 1<br>LVL 6     | LVL 2<br>LVL 7     | LVL 3   | LVL 4   | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 |
| 8:2FTS                                                        |            | AveID         | 18812<br>5636776   | 39540<br>1458360   | 159889  | 581733  | 2834764 | 0.0240<br>9.58        | 0.0479<br>2.40 | 0.240 | 0.958 | 4.79  |
| Perfluorodecanoic acid (PFDA)                                 |            | AveID         | 31877<br>12079263  | 72253<br>3028523   | 320077  | 1208399 | 5744357 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| N-methyl perfluorooctane<br>sulfonamidoacetic acid (NMeFOSAA) |            | AveID         | 19122<br>7460336   | 38494<br>1690352   | 184250  | 695308  | 3278986 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorodecanesulfonic acid (PFDS)                           |            | AveID         | 28773<br>10184141  | 63027<br>2626191   | 277428  | 961059  | 5009746 | 0.0241<br>9.64        | 0.0482<br>2.41 | 0.241 | 0.964 | 4.82  |
| N-ethyl perfluorooctane<br>sulfonamidoacetic acid (NEtFOSAA)  |            | AveID         | 22302<br>6246594   | 32956<br>1590051   | 178736  | 651368  | 3130989 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluoroundecanoic acid (PFUnA)                              |            | AveID         | 27031<br>8334466   | 53273<br>1802433   | 200746  | 756677  | 3717634 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorododecanoic acid (PFDoA)                              |            | AveID         | 30254<br>11301274  | 61418<br>2676169   | 305166  | 1104651 | 5307128 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorotridecanoic Acid (PFTriA)                            |            | AveID         | 34616<br>12033356  | 66337<br>2999335   | 322826  | 1211735 | 5890114 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| Perfluorotetradecanoic acid (PFTeA)                           |            | AveID         | 9904<br>3455816    | 16854<br>821303    | 81619   | 331048  | 1571970 | 0.0250<br>10.0        | 0.0500<br>2.50 | 0.250 | 1.00  | 5.00  |
| 13C4 PFBA                                                     | 13PF<br>OA | Ave           | 7998943<br>7496989 | 8732721<br>6946962 | 7493234 | 7049149 | 6751655 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C5-PFPeA                                                    | 13PF<br>OA | Ave           | 5228218<br>4657025 | 5506602<br>4467248 | 4737268 | 4710025 | 4328345 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C3-PFBS                                                     | 13PF<br>OA | Ave           | 110547<br>99131    | 117730<br>94691    | 99970   | 98369   | 87185   | 2.33<br>2.33          | 2.33<br>2.33   | 2.33  | 2.33  | 2.33  |
| 13C2 PFHxA                                                    | 13PF<br>OA | Ave           | 5626147<br>4709249 | 5922451<br>5043564 | 5134906 | 4854075 | 4583820 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C4-PFHpA                                                    | 13PF<br>OA | Ave           | 5577473<br>4521122 | 5774309<br>4465208 | 5050240 | 4714171 | 4318388 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 18O2 PFHxS                                                    | 13PF<br>OA | Ave           | 6497213<br>5333305 | 6581524<br>5339851 | 5692452 | 5565884 | 5191664 | 2.37<br>2.37          | 2.37<br>2.37   | 2.37  | 2.37  | 2.37  |
| M2-6:2FTS                                                     | 13PF<br>OA | Ave           | 1179634<br>913641  | 1201925<br>953169  | 1076802 | 1028277 | 867962  | 2.38<br>2.38          | 2.38<br>2.38   | 2.38  | 2.38  | 2.38  |
| 13C4 PFOA                                                     | 13PF<br>OA | Ave           | 5162191<br>4465836 | 5272655<br>4456920 | 4619416 | 4460027 | 4079623 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C4 PFOS                                                     | 13PF<br>OA | Ave           | 4516956<br>3835347 | 4415247<br>3815593 | 4024927 | 3779459 | 3520558 | 2.39<br>2.39          | 2.39<br>2.39   | 2.39  | 2.39  | 2.39  |
| 13C5 PFNA                                                     | 13PF<br>OA | Ave           | 4268517<br>3539647 | 4502703<br>3538499 | 3819382 | 3600246 | 3359491 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C8 FOSA                                                     | 13PF<br>OA | Ave           | 5956672<br>5353791 | 5858621<br>5178962 | 5466463 | 5346931 | 4976852 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| M2-8:2FTS                                                     | 13PF<br>OA | Ave           | 1426703<br>1107332 | 1426640<br>1089191 | 1187676 | 1096366 | 972368  | 2.40<br>2.40          | 2.40<br>2.40   | 2.40  | 2.40  | 2.40  |



FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

| ANALYTE     | IS<br>REF  | CURVE<br>TYPE | RESPONSE           |                    |         |         |         | CONCENTRATION (NG/ML) |                |       |       |       |
|-------------|------------|---------------|--------------------|--------------------|---------|---------|---------|-----------------------|----------------|-------|-------|-------|
|             |            |               | LVL 1<br>LVL 6     | LVL 2<br>LVL 7     | LVL 3   | LVL 4   | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 |
| 13C2 PFDA   | 13PF<br>OA | Ave           | 3594922<br>3099083 | 3752181<br>2997952 | 3297462 | 3084670 | 2812041 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| d3-NMeFOSAA | 13PF<br>OA | Ave           | 1940146<br>1836867 | 2060337<br>1561957 | 1854527 | 1667566 | 1561125 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| d5-NEtFOSAA | 13PF<br>OA | Ave           | 2119254<br>1619647 | 2144987<br>1777821 | 1857905 | 1808821 | 1507014 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2 PFUnA  | 13PF<br>OA | Ave           | 2840675<br>2282286 | 2914989<br>2447962 | 2576940 | 2587053 | 2262574 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2 PFDoA  | 13PF<br>OA | Ave           | 2960567<br>2747572 | 3058640<br>2514089 | 2740425 | 2679695 | 2544838 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2-PFTeDA | 13PF<br>OA | Ave           | 3777870<br>3267831 | 3285420<br>3141974 | 3595983 | 3394312 | 3113223 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2-PFHxDA | 13PF<br>OA | Ave           | 6801656<br>6039184 | 4480419<br>5796576 | 5862077 | 5890266 | 5054291 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |

Curve Type Legend:

Ave = Average ISTD  
AveID = Average isotope dilution  
L2ID = Linear 1/conc^2 IsoDil

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

Calibration Files:

|         |                  |                          |
|---------|------------------|--------------------------|
| LEVEL:  | LAB SAMPLE ID:   | LAB FILE ID:             |
| Level 1 | IC 320-223413/2  | 2017.05.15LLB_ICAL_002.d |
| Level 2 | IC 320-223413/3  | 2017.05.15LLB_ICAL_003.d |
| Level 3 | IC 320-223413/4  | 2017.05.15LLB_ICAL_004.d |
| Level 4 | IC 320-223413/5  | 2017.05.15LLB_ICAL_005.d |
| Level 5 | IC 320-223413/7  | 2017.05.15LLB_ICAL_007.d |
| Level 6 | IC 320-223413/8  | 2017.05.15LLB_ICAL_008.d |
| Level 7 | IC 320-223413/11 | 2018.05.15LLC_ICAL_006.d |

| ANALYTE                               | PERCENT ERROR      |         |         |         |         |         | PERCENT ERROR LIMIT |       |       |       |       |       |
|---------------------------------------|--------------------|---------|---------|---------|---------|---------|---------------------|-------|-------|-------|-------|-------|
|                                       | LVL 1 #<br>LVL 7 # | LVL 2 # | LVL 3 # | LVL 4 # | LVL 5 # | LVL 6 # | LVL 1<br>LVL 7      | LVL 2 | LVL 3 | LVL 4 | LVL 5 | LVL 6 |
| Perfluorobutanoic acid (PFBA)         | -0.6<br>2.8        | 0.2     | -0.8    | -0.9    | 3.0     | -3.7    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoropentanoic acid (PFPeA)       | 6.9<br>1.2         | 4.3     | -2.8    | -6.8    | -0.7    | -2.2    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorobutanesulfonic acid (PFBS)   | -6.0<br>3.3        | 0.3     | 2.3     | -2.1    | 7.1     | -4.8    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| 4:2 FTS                               | -2.8<br>1.1        | 7.1     | -5.9    | -2.7    | 7.2     | -3.9    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorohexanoic acid (PFHxA)        | -2.0<br>-7.9       | 11.7    | -4.6    | -3.2    | 1.3     | 4.8     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoropentanesulfonic acid         | 1.4<br>-0.3        | 0.1     | 1.7     | -2.1    | 7.2     | -8.0    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoroheptanoic acid (PFHpA)       | 5.7<br>2.6         | 0.5     | 0.1     | -7.7    | -0.3    | -0.9    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorohexanesulfonic acid (PFHxS)  | 14.2<br>-2.7       | 5.9     | -0.6    | -7.3    | -5.4    | -4.1    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| 6:2FTS                                | 2.0<br>-2.5        | -6.8    | 17.3    | -11.9   | -0.8    | 2.6     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorooctanoic acid (PFOA)         | 9.0<br>-7.4        | 11.0    | -3.3    | -3.3    | 0.5     | -6.4    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoroheptanesulfonic Acid (PFHpS) | -10.1<br>2.0       | 6.3     | -1.7    | 2.0     | 4.7     | -3.2    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorooctanesulfonic acid (PFOS)   | 13.1<br>-8.9       | 7.4     | 3.4     | -8.1    | -0.9    | -5.9    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorononanoic acid (PFNA)         | 4.1<br>1.7         | -3.6    | -0.5    | -4.7    | 0.1     | 2.9     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorooctane Sulfonamide (PFOSA)   | -9.9<br>6.5        | -3.8    | 3.4     | -0.5    | 7.0     | -2.6    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorononanesulfonic acid          | 4.0<br>-0.6        | -9.9    | -1.4    | -0.5    | 5.8     | 2.7     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 223413

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 05/15/2018 15:13 Calibration End Date: 05/15/2018 16:39 Calibration ID: 39198

| ANALYTE                                                       | PERCENT ERROR      |         |         |         |         |         | PERCENT ERROR LIMIT |       |       |       |       |       |
|---------------------------------------------------------------|--------------------|---------|---------|---------|---------|---------|---------------------|-------|-------|-------|-------|-------|
|                                                               | LVL 1 #<br>LVL 7 # | LVL 2 # | LVL 3 # | LVL 4 # | LVL 5 # | LVL 6 # | LVL 1<br>LVL 7      | LVL 2 | LVL 3 | LVL 4 | LVL 5 | LVL 6 |
| 8:2FTS                                                        | -2.3<br>-0.8       | 2.7     | -0.2    | -1.7    | 8.0     | -5.7    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorodecanoic acid (PFDA)                                 | -8.8<br>3.9        | -1.0    | -0.2    | 0.7     | 5.1     | 0.2     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| N-methyl perfluorooctane<br>sulfonamidoacetic acid (NMeFOSAA) | -2.9<br>6.6        | -7.9    | -2.1    | 2.7     | 3.5     | 0.1     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorodecanesulfonic acid (PFDS)                           | -5.9<br>1.7        | 5.4     | 1.8     | -6.1    | 5.1     | -2.0    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| N-ethyl perfluorooctane<br>sulfonamidoacetic acid (NEtFOSAA)  | 11.9<br>-4.9       | -18.3   | 2.3     | -4.2    | 10.5    | 2.6     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoroundecanoic acid (PFUnA)                              | 13.9<br>-11.8      | 9.4     | -6.7    | -12.4   | -1.6    | 9.3     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorododecanoic acid (PFDoA)                              | -2.1<br>2.0        | -3.8    | 6.7     | -1.3    | -0.1    | -1.5    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorotridecanoic Acid (PFTriA)                            | 2.2<br>4.3         | -5.2    | 3.0     | -1.2    | 1.2     | -4.3    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorotetradecanoic acid (PFTeA)                           | 3.8<br>3.5         | 1.6     | -10.1   | -3.4    | 0.0     | 4.7     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_002.d  
 Lims ID: IC L1 Full  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 15-May-2018 15:13:31 ALS Bottle#: 10 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L1-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:19:50 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: hannigana

Date: 16-May-2018 08:31:58

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.461 | 1.462  | -0.001 | 1.000  | 73922    | 0.0248       |                   | 99.4 | 28.8   |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.461 | 1.462  | -0.001 | 1.000  | 7998943  | 2.40         |                   | 95.9 | 49727  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.743 | 1.744  | -0.001 | 0.560  | 5228218  | 2.44         |                   | 97.8 | 84850  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.743 | 1.745  | -0.002 | 1.000  | 66005    | 0.0267       |                   | 107  | 33.2   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.779 | 1.780  | -0.001 | 1.000  | 110547   | 2.29         |                   | 98.3 | 732    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.788 | 1.783  | 0.005  | 1.005  | 77106    | 0.0208       |                   | 94.0 | 369    |       |
| 298.90 > 99.00                        | 1.788 | 1.783  | 0.005  | 1.005  | 35336    |              | 2.18(1.25-3.74)   | 94.0 | 183    |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.999 | 1.999  | 0.0    | 1.000  | 858664   | NC           |                   |      | 9883   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.999 | 2.000  | -0.001 | 1.000  | 17882    | 0.0227       |                   | 97.2 | 804    |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.045 | 2.037  | 0.008  | 1.000  | 5626147  | 2.47         |                   | 98.7 | 120947 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        | M     |
| 313.00 > 269.00                       | 2.045 | 2.037  | 0.008  | 1.000  | 56711    | 0.0245       |                   | 98.0 | 74.3   |       |
| 313.00 > 119.00                       | 2.045 | 2.037  | 0.008  | 1.000  | 4387     |              | 12.93(5.03-15.10) | 98.0 | 58.7   | M     |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.067 | 2.059  | 0.008  | 1.000  | 78646    | 0.0238       |                   | 101  | 963    |       |
| 349.00 > 99.00                        | 2.067 | 2.059  | 0.008  | 1.000  | 30425    |              | 2.58(1.36-4.07)   | 101  | 298    |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |        |       |
| 332.10 > 287.00                       | 2.146 | 2.134  | 0.012  | 1.000  | 272111   | NC           |                   |      | 4220   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |        |       |
| 329.10 > 285.00                       | 2.146 | 2.134  | 0.012  | 1.000  | 6740     | NC           |                 |      | 44.3   |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.381 | 2.374  | 0.007  | 1.000  | 62298    | 0.0264       |                 | 106  | 88.9   |       |
| 363.00 > 169.00                       | 2.381 | 2.374  | 0.007  | 1.000  | 26606    |              | 2.34(1.13-3.40) | 106  | 147    |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                       | 2.381 | 2.374  | 0.007  | 1.000  | 5577473  | 2.55         |                 | 102  | 93695  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.392 | 2.386  | 0.006  | 1.000  | 6497213  | 2.41         |                 | 102  | 91954  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.392 | 2.386  | 0.006  | 1.000  | 80424    | 0.0260       |                 | 114  | 621    |       |
| 399.00 > 99.00                        | 2.392 | 2.386  | 0.006  | 1.000  | 26456    |              | 3.04(1.50-4.49) | 114  | 109    |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |        |       |
| 377.00 > 251.00                       | 2.426 | 2.418  | 0.008  | 1.000  | 151478   | NC           |                 |      | 3788   |       |
| 377.00 > 85.00                        | 2.426 | 2.418  | 0.008  | 1.000  | 90196    |              | 1.68(0.84-2.53) |      | 1217   |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.711 | 2.707  | 0.004  | 1.000  | 1179634  | 2.45         |                 | 103  | 15821  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.711 | 2.707  | 0.004  | 1.000  | 29994    | 0.0242       |                 | 102  | 323    |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.741 | 2.731  | 0.010  | 1.000  | 5162191  | 2.50         |                 | 99.9 | 49724  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.741 | 2.734  | 0.007  |        | 5458542  | 2.50         |                 |      | 68226  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.741 | 2.734  | 0.007  | 1.000  | 66199    | 0.0272       |                 | 109  | 24.6   |       |
| 413.00 > 169.00                       | 2.741 | 2.734  | 0.007  | 1.000  | 38085    |              | 1.74(0.84-2.52) | 109  | 123    |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.749 | 2.739  | 0.010  | 1.000  | 53872    | 0.0214       |                 | 89.9 | 1195   |       |
| 449.00 > 99.00                        | 2.749 | 2.739  | 0.010  | 1.000  | 16570    |              | 3.25(1.94-5.82) | 89.9 | 211    |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.114 | 3.104  | 0.010  | 1.000  | 4516956  | 2.43         |                 | 102  | 46480  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.114 | 3.105  | 0.009  | 1.000  | 58301    | 0.0262       |                 | 113  | 426    |       |
| 499.00 > 99.00                        | 3.114 | 3.105  | 0.009  | 1.000  | 13705    |              | 4.25(2.31-6.93) | 113  | 145    |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.114 | 3.107  | 0.007  | 1.000  | 4268517  | 2.52         |                 | 101  | 101008 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |        | M     |
| 463.00 > 419.00                       | 3.114 | 3.107  | 0.007  | 1.000  | 47076    | 0.0260       |                 | 104  | 62.4   | M     |
| 463.00 > 169.00                       | 3.114 | 3.107  | 0.007  | 1.000  | 10259    |              | 4.59(1.90-5.69) | 104  | 219    |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |        |       |
| 531.00 > 351.00                       | 3.325 | 3.316  | 0.009  | 1.000  | 71678    | NC           |                 |      | 897    |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.424 | 3.420  | 0.004  | 1.000  | 5956672  | 2.45         |                 | 98.1 | 62035  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.424 | 3.422  | 0.002  | 1.000  | 52238    | 0.0225       |                 | 90.1 | 1147   |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.461 | 3.455  | 0.006  | 1.000  | 35719    | 0.0250       |                 | 104  | 1022   |       |
| 549.00 > 99.00                        | 3.471 | 3.455  | 0.016  | 1.003  | 12559    |              | 2.84(1.33-3.97) | 104  | 198    |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec  | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|-------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |       |       |       |
| 527.00 > 507.00                       | 3.461 | 3.458  | 0.003  | 0.997  | 18812    | 0.0234       |                  | 97.7  | 268   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |       |       |       |
| 529.00 > 81.00                        | 3.471 | 3.459  | 0.012  | 1.000  | 1426703  | 2.60         |                  | 108   | 21876 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |       |       |       |
| 515.00 > 470.00                       | 3.480 | 3.468  | 0.012  | 1.000  | 3594922  | 2.50         |                  | 100.0 | 47114 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |       |       |       |
| 513.00 > 469.00                       | 3.480 | 3.468  | 0.012  | 1.000  | 31877    | 0.0228       |                  | 91.2  | 175   |       |
| 513.00 > 169.00                       | 3.471 | 3.468  | 0.003  | 0.997  | 5046     |              | 6.32(2.36-7.09)  | 91.2  | 103   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |       |       |       |
| 573.00 > 419.00                       | 3.637 | 3.624  | 0.013  | 1.000  | 1940146  | 2.45         |                  | 97.8  | 44718 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |       |       |       |
| 570.00 > 419.00                       | 3.637 | 3.631  | 0.006  | 1.000  | 19122    | 0.0243       |                  | 97.1  | 205   |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |       |       |       |
| 599.00 > 80.00                        | 3.791 | 3.781  | 0.010  | 1.000  | 28773    | 0.0227       |                  | 94.1  | 551   |       |
| 599.00 > 99.00                        | 3.791 | 3.781  | 0.010  | 1.000  | 9859     |              | 2.92(1.39-4.16)  | 94.1  | 266   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |       |       |       |
| 589.00 > 419.00                       | 3.802 | 3.794  | 0.008  | 1.000  | 2119254  | 2.60         |                  | 104   | 14171 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |       |       |       |
| 565.00 > 520.00                       | 3.812 | 3.800  | 0.012  | 1.000  | 2840675  | 2.49         |                  | 99.8  | 58088 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |       |       |       |
| 563.00 > 519.00                       | 3.812 | 3.800  | 0.012  | 1.000  | 27031    | 0.0285       |                  | 114   | 108   |       |
| 563.00 > 169.00                       | 3.802 | 3.800  | 0.002  | 0.997  | 5801     |              | 4.66(2.12-6.36)  | 114   | 153   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |       |       |       |
| 584.00 > 419.00                       | 3.812 | 3.800  | 0.012  | 1.003  | 22302    | 0.0280       |                  | 112   | 444   |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |       |       |       |
| 631.00 > 451.00                       | 3.968 | 3.958  | 0.010  | 1.000  | 111283   | NC           |                  |       | 1681  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |       |       |       |
| 615.00 > 570.00                       | 4.112 | 4.099  | 0.013  | 1.000  | 2960567  | 2.42         |                  | 96.6  | 20988 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |       |       |       |
| 613.00 > 569.00                       | 4.112 | 4.100  | 0.012  | 1.000  | 30254    | 0.0245       |                  | 97.9  | 24.6  |       |
| 613.00 > 169.00                       | 4.102 | 4.100  | 0.002  | 0.997  | 7125     |              | 4.25(2.13-6.40)  | 97.9  | 113   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |       |       |       |
| 663.00 > 619.00                       | 4.383 | 4.368  | 0.015  | 1.000  | 34616    | 0.0256       |                  | 102   | 19.2  |       |
| 663.00 > 169.00                       | 4.383 | 4.368  | 0.015  | 1.000  | 9792     |              | 3.54(1.25-3.76)  | 102   | 109   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |       |       |       |
| 715.00 > 670.00                       | 4.623 | 4.608  | 0.015  | 1.000  | 3777870  | 2.51         |                  | 100   | 19057 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |       |       |       |
| 713.00 > 169.00                       | 4.623 | 4.608  | 0.015  | 1.000  | 9904     | 0.0260       |                  | 104   | 117   |       |
| 713.00 > 219.00                       | 4.613 | 4.608  | 0.005  | 0.998  | 7478     |              | 1.32(0.71-2.13)  | 104   | 135   |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |       |       |       |
| 815.00 > 770.00                       | 5.043 | 5.030  | 0.013  | 1.000  | 6801656  | 2.66         |                  | 107   | 18783 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |       |       |       |
| 813.00 > 769.00                       | 5.043 | 5.031  | 0.012  | 1.000  | 121507   | NC           |                  |       | 29.9  |       |
| 813.00 > 169.00                       | 5.043 | 5.031  | 0.012  | 1.000  | 19020    |              | 6.39(2.86-8.58)  |       | 156   |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |       |       |       |
| 913.00 > 869.00                       | 5.429 | 5.408  | 0.021  | 1.000  | 69164    | NC           |                  |       | 12.6  |       |
| 913.00 > 169.00                       | 5.429 | 5.408  | 0.021  | 1.000  | 9204     |              | 7.51(3.83-11.48) |       | 107   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

[Reagents:](#)

LCPFC\_LL1\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_002.d

Injection Date: 15-May-2018 15:13:31

Instrument ID: A8\_N

Lims ID: IC L1 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

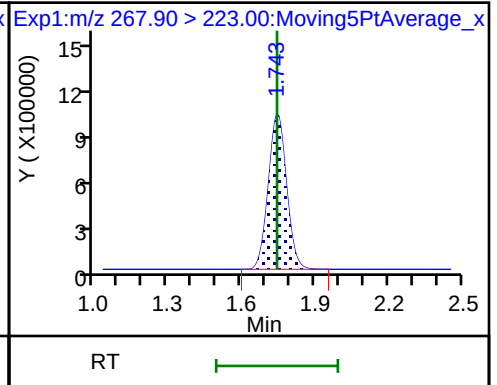
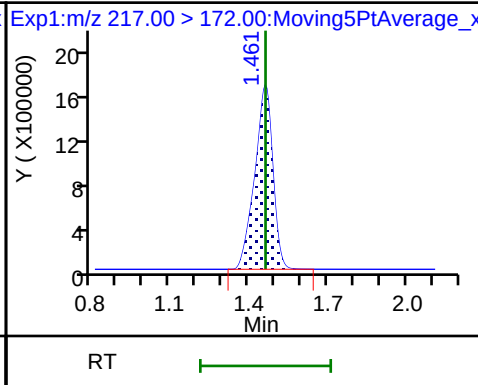
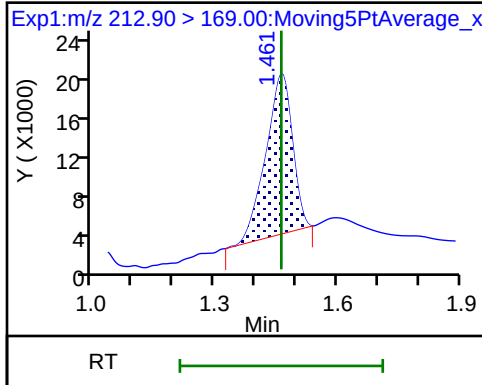
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

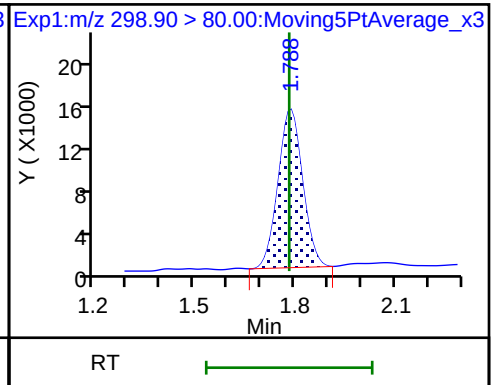
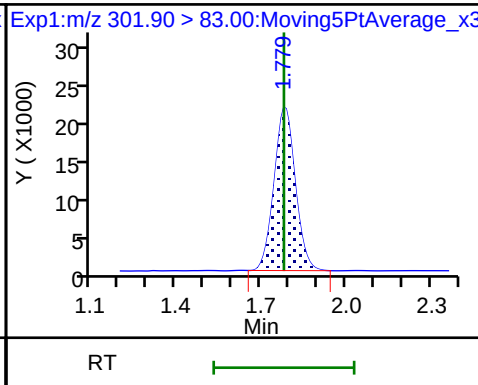
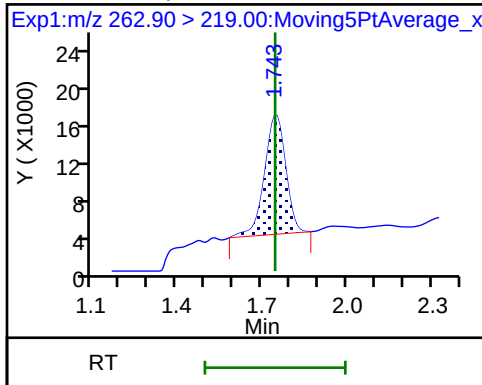
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

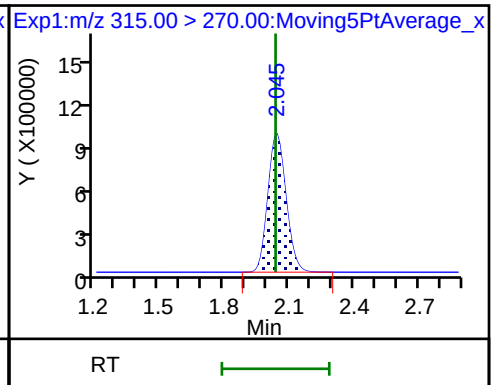
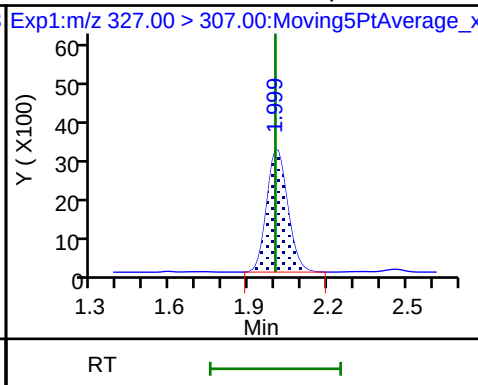
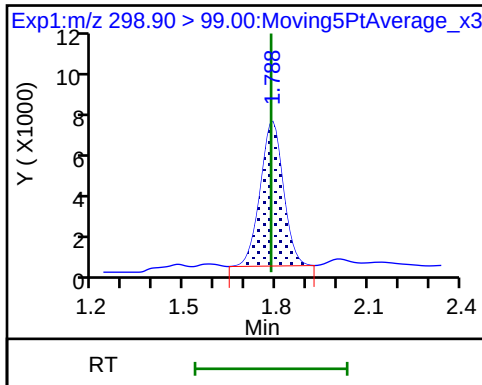
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

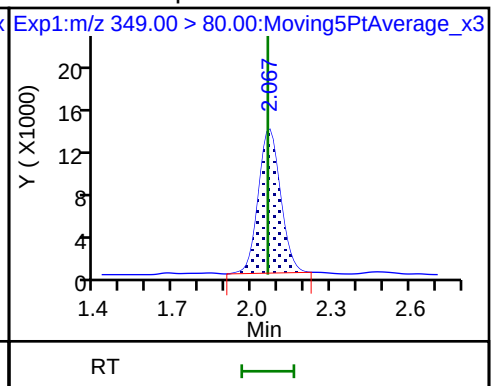
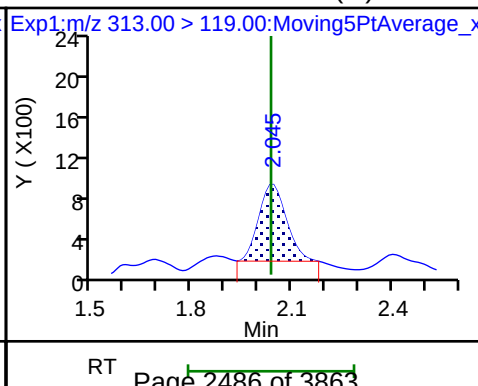
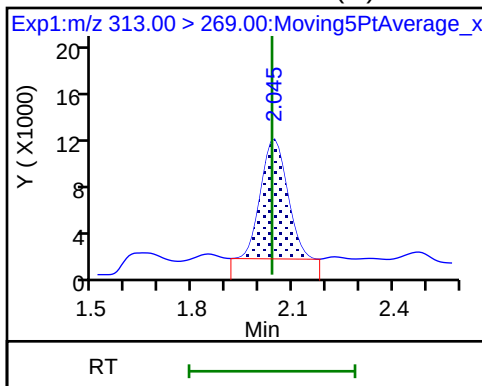
## De 7 13C2 PFHxA



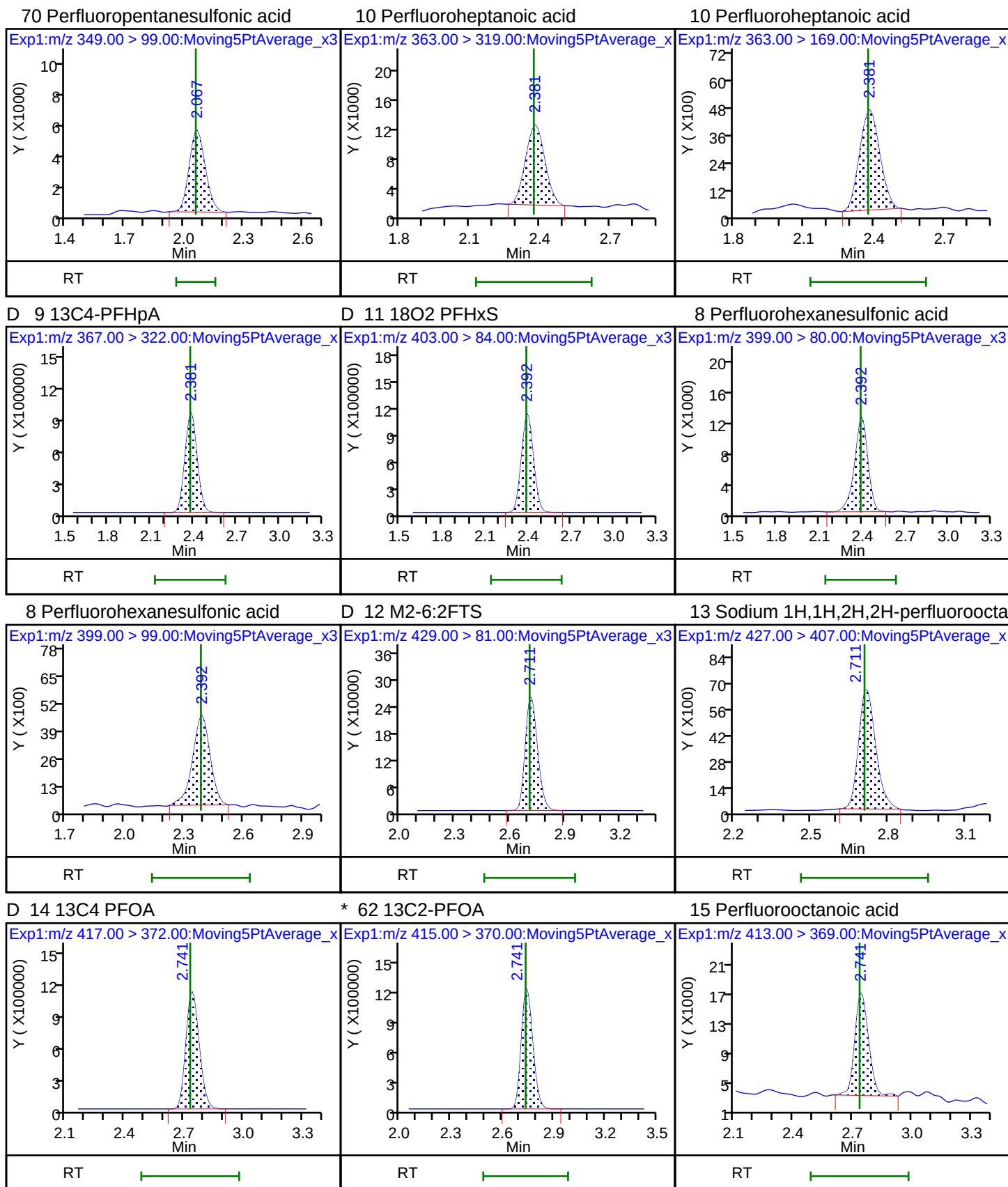
## 6 Perfluorohexanoic acid (M)

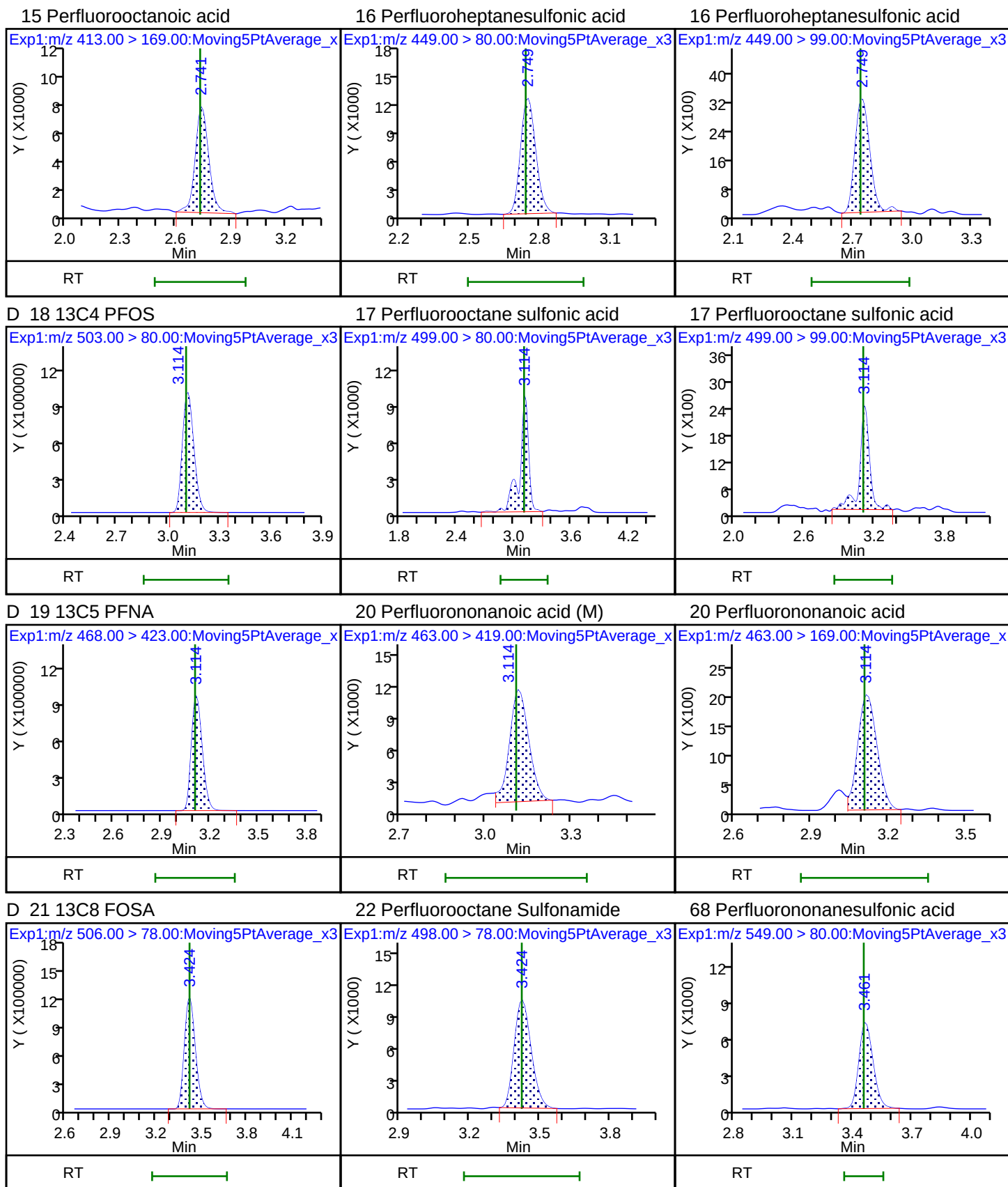
## 6 Perfluorohexanoic acid (M)

## 70 Perfluoropentanesulfonic acid







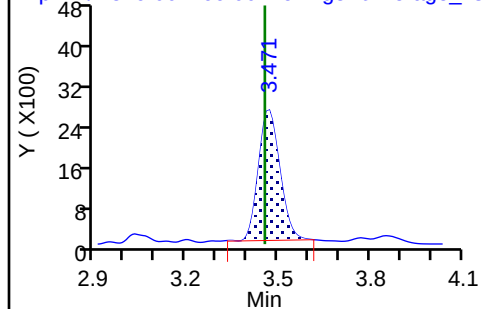


## 68 Perfluorononanesulfonic acid

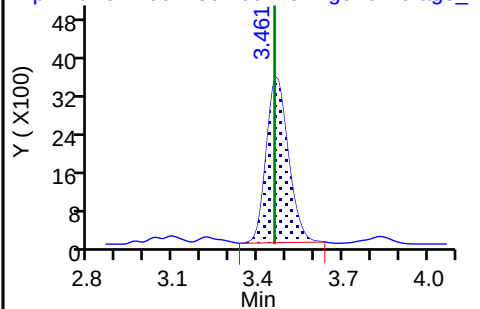
## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

## De26 M2-8:2FTS

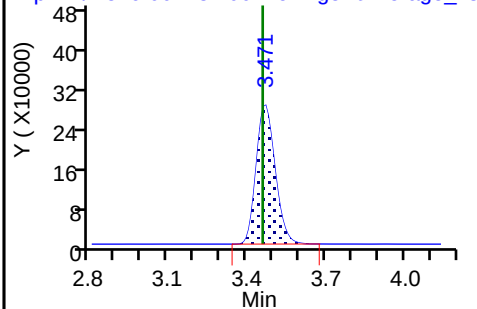
Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3

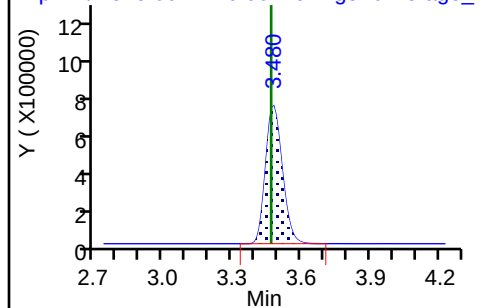


## D 23 13C2 PFDA

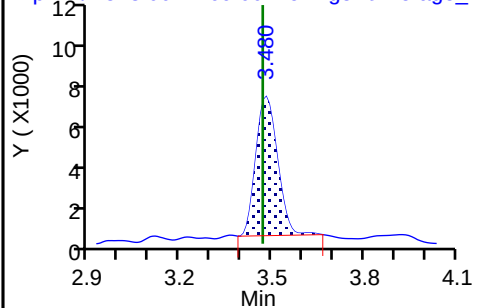
## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

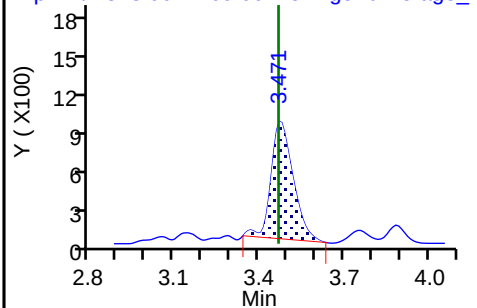
Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

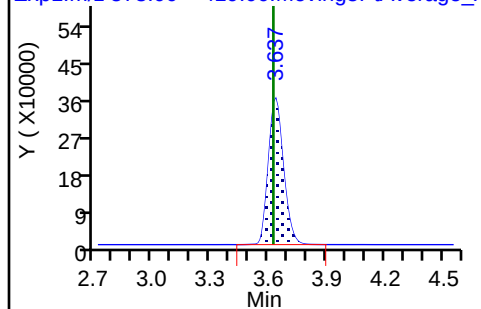


## D 27 d3-NMeFOSAA

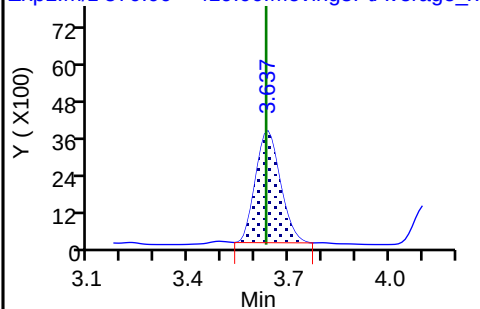
## 28 N-methyl perfluorooctane sulfonami

## 29 Perfluorodecane Sulfonic acid

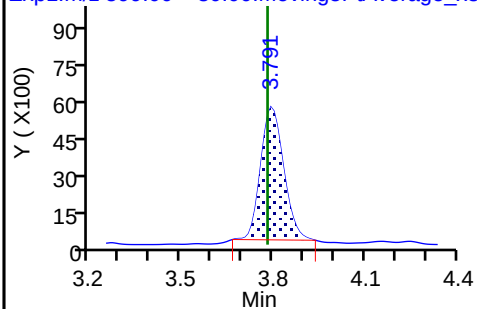
Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3

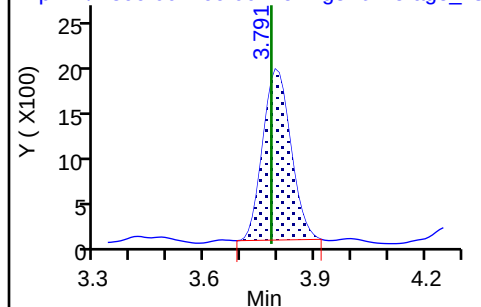


## 29 Perfluorodecane Sulfonic acid

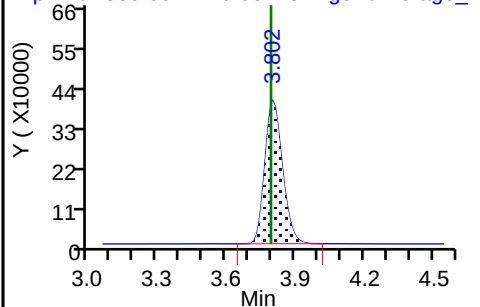
## D 32 d5-NEtFOSAA

## D 30 13C2 PFUnA

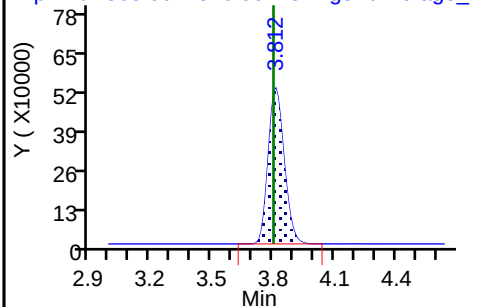
Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

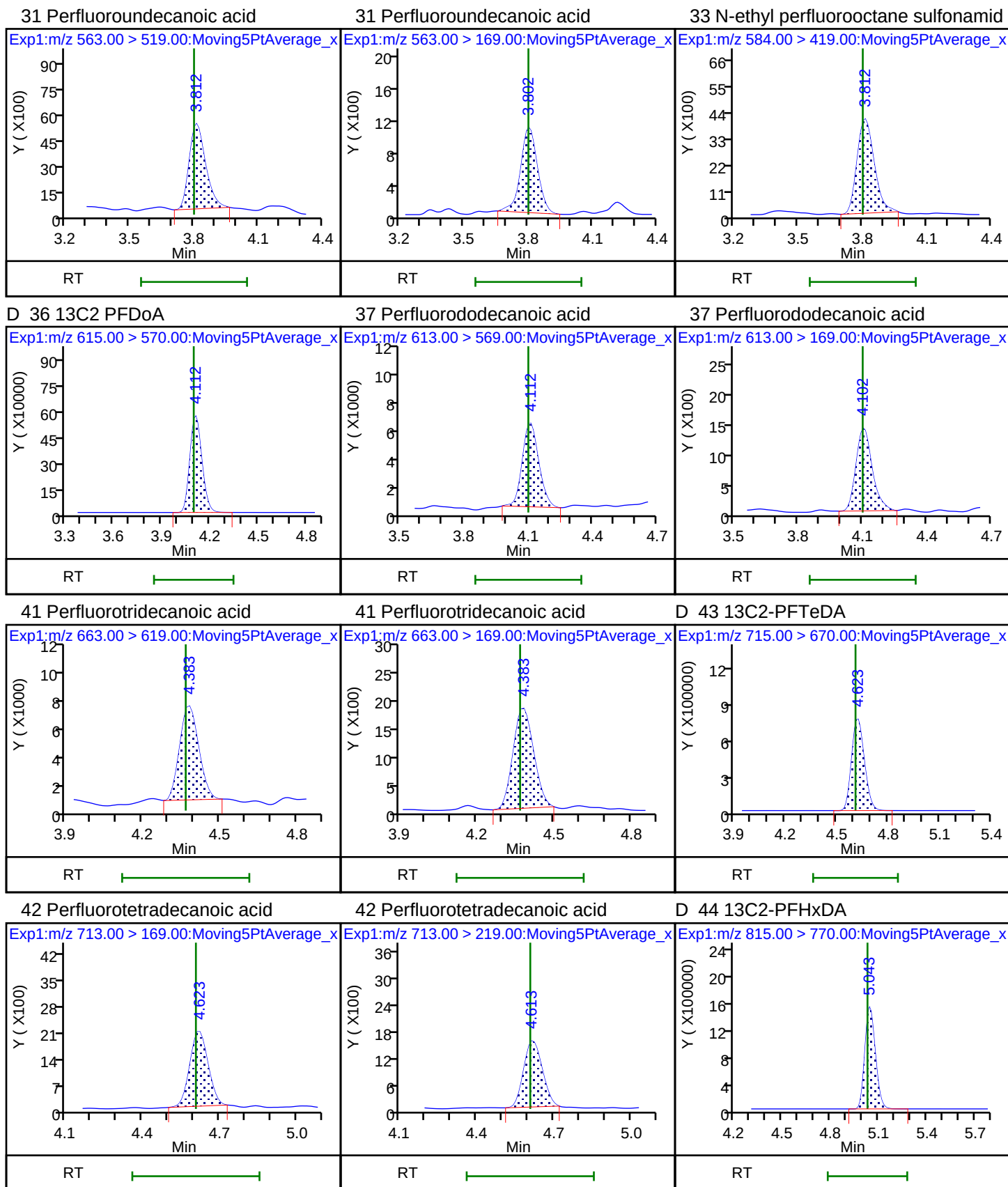


Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3







## TestAmerica Sacramento

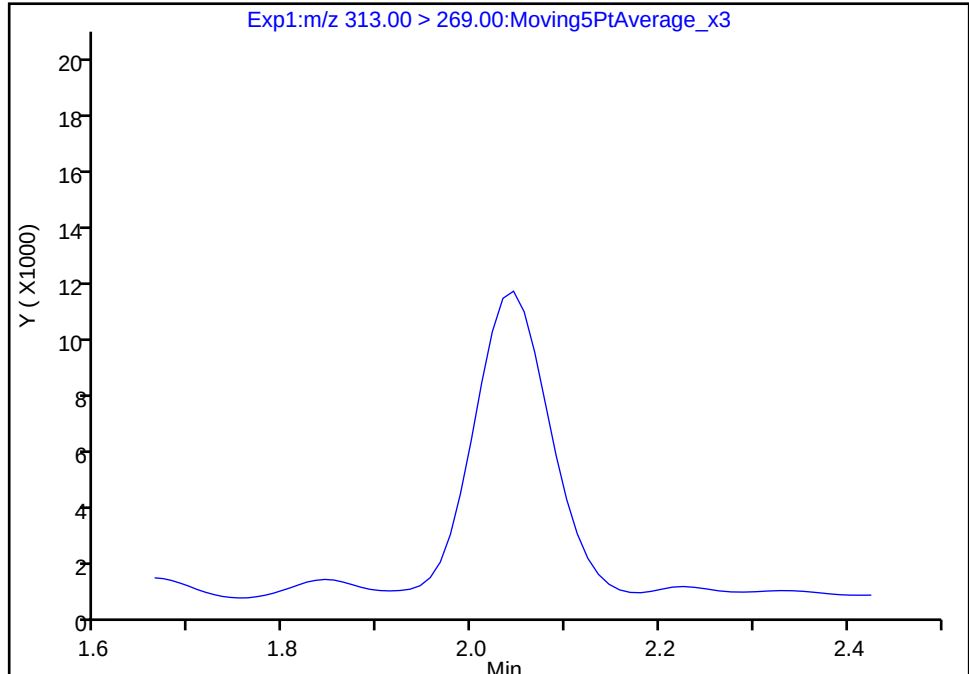
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_002.d  
Injection Date: 15-May-2018 15:13:31 Instrument ID: A8\_N  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**6 Perfluorohexanoic acid, CAS: 307-24-4**

Signal: 1

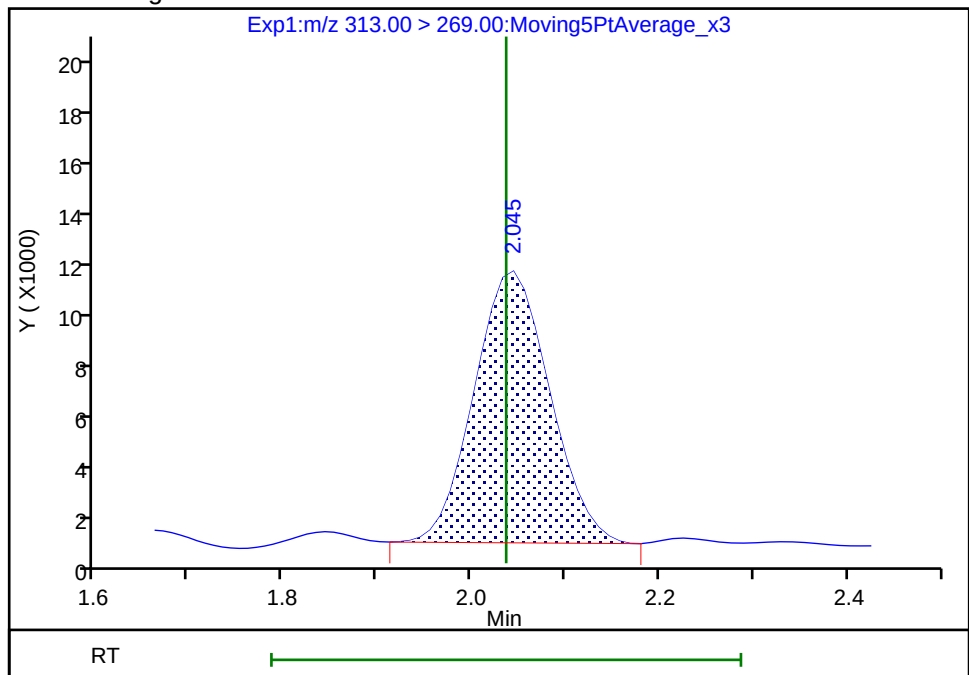
Not Detected  
Expected RT: 2.04

## Processing Integration Results



RT: 2.04  
Area: 56711  
Amount: 0.024510  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 15-May-2018 16:30:15

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

## TestAmerica Sacramento

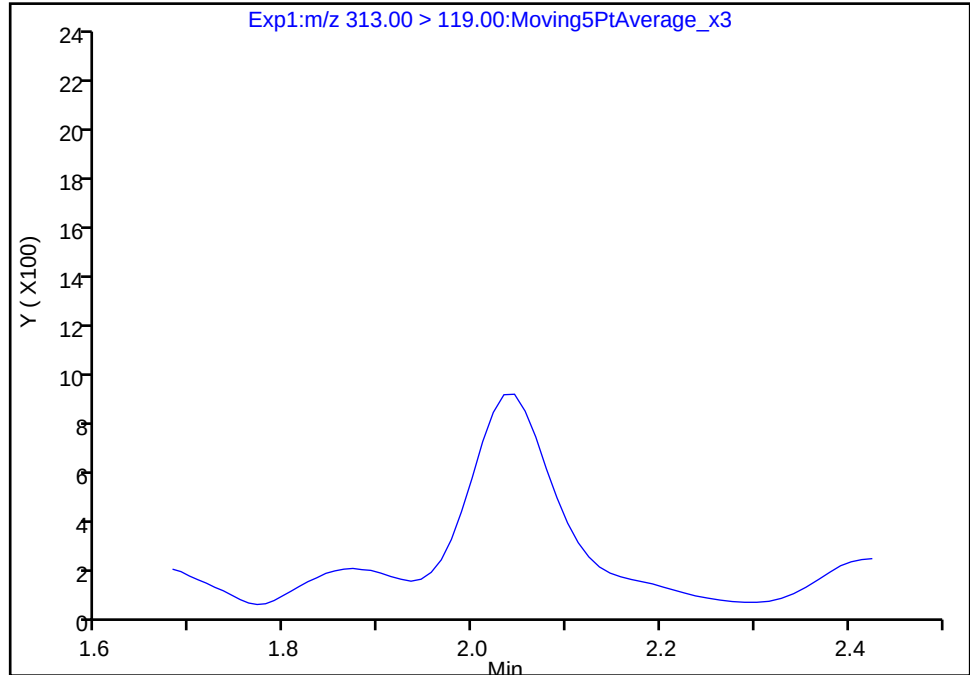
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_002.d  
Injection Date: 15-May-2018 15:13:31 Instrument ID: A8\_N  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**6 Perfluorohexanoic acid, CAS: 307-24-4**

Signal: 2

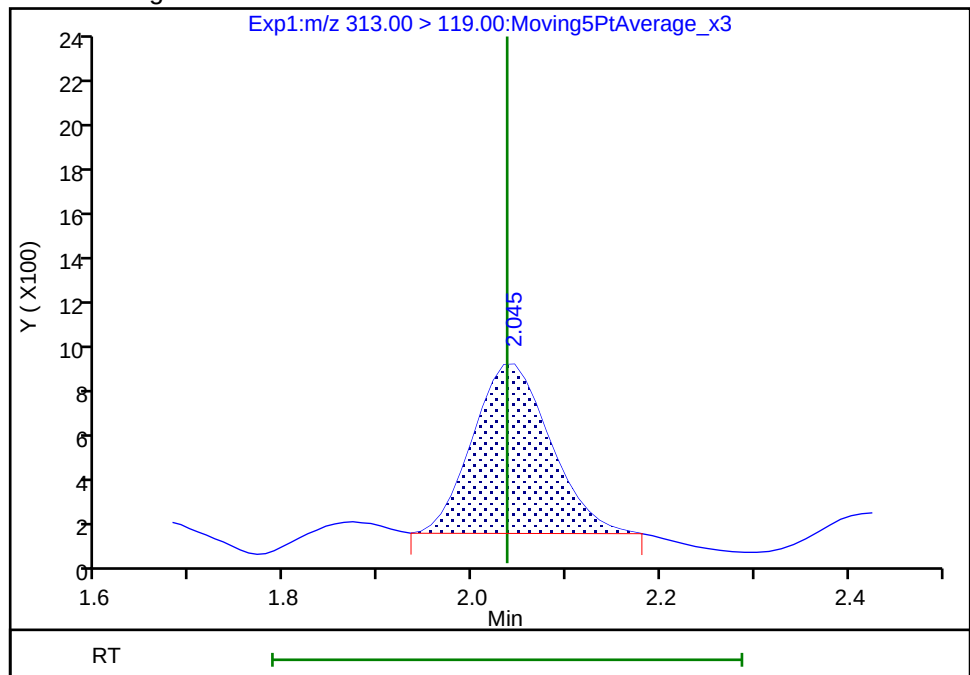
Not Detected  
Expected RT: 2.04

## Processing Integration Results



## Manual Integration Results

RT: 2.04  
Area: 4387  
Amount: 0.024510  
Amount Units: ng/ml



Reviewer: westendorfc, 15-May-2018 16:30:21

Audit Action: Manually Integrated

Audit Reason: Assign Peak

## TestAmerica Sacramento

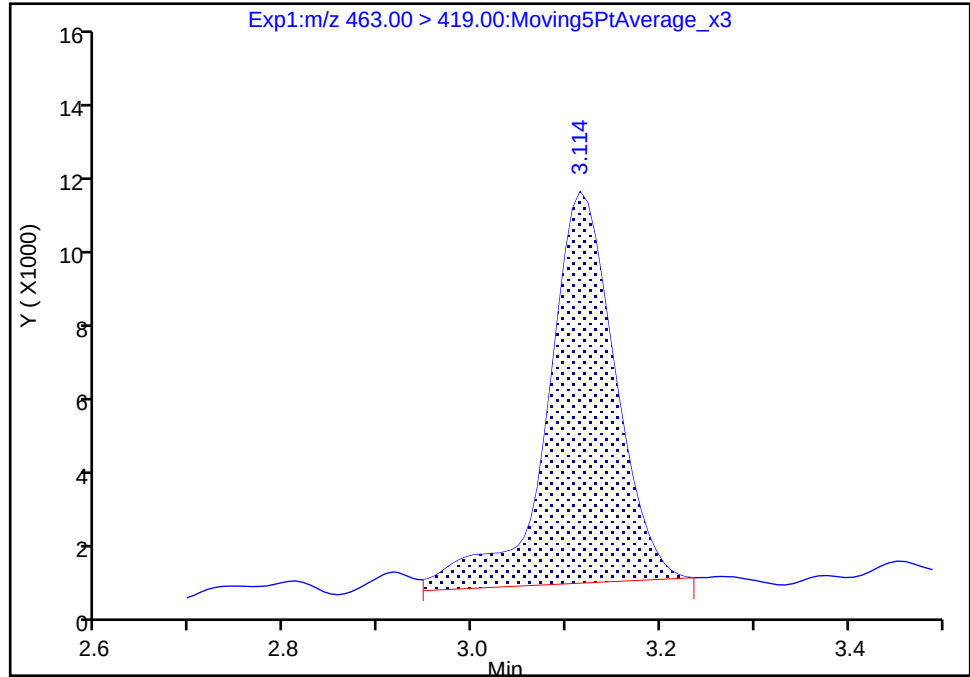
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_002.d  
Injection Date: 15-May-2018 15:13:31 Instrument ID: A8\_N  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

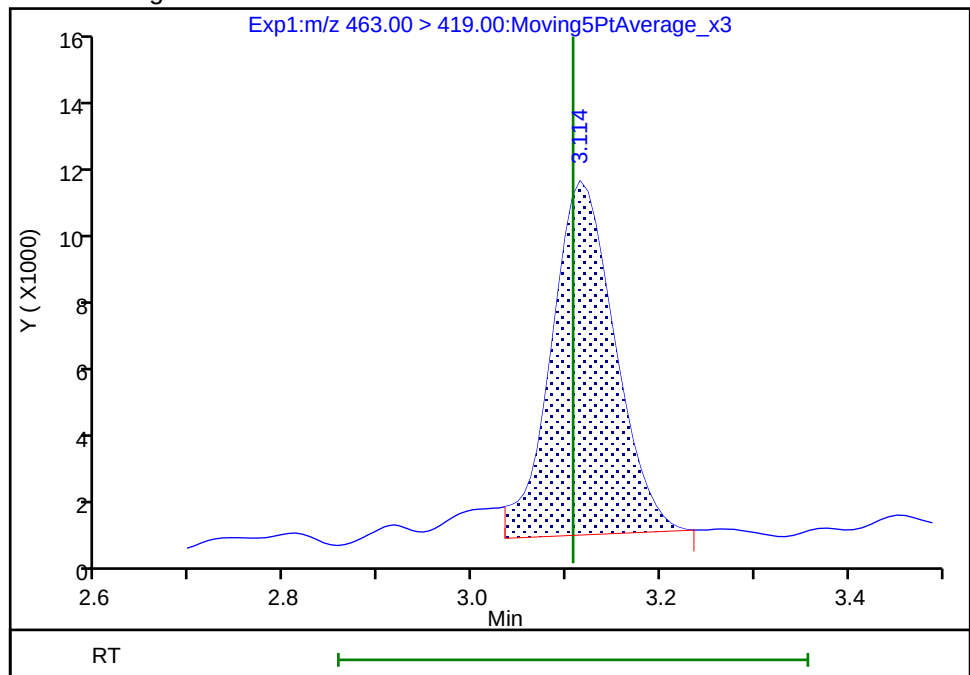
RT: 3.11  
Area: 50653  
Amount: 0.027722  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.11  
Area: 47076  
Amount: 0.026031  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 15-May-2018 16:30:34

Audit Action: Manually Integrated

Audit Reason: Split Peak



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_003.d  
 Lims ID: IC L2 Full  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 15-May-2018 15:21:19 ALS Bottle#: 11 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L2-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:19:54 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: westendorfc

Date: 15-May-2018 16:29:16

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 8732721  | 2.57         |                   | 103  | 57344  |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        | M     |
| 212.90 > 169.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 162647   | 0.0501       |                   | 100  | 65.4   | M     |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.746 | 1.744  | 0.002  | 0.561  | 5506602  | 2.53         |                   | 101  | 97404  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        | M     |
| 262.90 > 219.00                       | 1.746 | 1.745  | 0.001  | 1.000  | 135647   | 0.0522       |                   | 104  | 65.4   | M     |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.782 | 1.780  | 0.002  | 1.000  | 117730   | 2.39         |                   | 103  | 2547   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.782 | 1.783  | -0.001 | 1.000  | 175383   | 0.0444       |                   | 100  | 775    |       |
| 298.90 > 99.00                        | 1.782 | 1.783  | -0.001 | 1.000  | 76550    |              | 2.29(1.25-3.74)   | 100  | 467    |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 2.002 | 1.999  | 0.003  | 1.000  | 848063   | NC           |                   |      | 10296  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 2.002 | 2.000  | 0.002  | 1.000  | 41962    | 0.0500       |                   | 107  | 2461   |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        | M     |
| 313.00 > 269.00                       | 2.036 | 2.037  | -0.001 | 1.000  | 135987   | 0.0558       |                   | 112  | 199    | M     |
| 313.00 > 119.00                       | 2.036 | 2.037  | -0.001 | 1.000  | 11233    |              | 12.11(5.03-15.10) | 112  | 137    |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.036 | 2.037  | -0.001 | 1.000  | 5922451  | 2.55         |                   | 102  | 127595 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.059 | 2.059  | 0.0    | 1.000  | 165299   | 0.0469       |                   | 100  | 2551   |       |
| 349.00 > 99.00                        | 2.059 | 2.059  | 0.0    | 1.000  | 64244    |              | 2.57(1.36-4.07)   | 100  | 692    |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |        |       |
| 329.10 > 285.00                       | 2.138 | 2.134  | 0.004  | 0.995  | 18129    | NC           |                   |      | 131    |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                 |      |        |       |
| 332.10 > 287.00                       | 2.149 | 2.134     | 0.015     | 1.000     | 290745   | NC              |                 |      | 6092   |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |        |       |
| 367.00 > 322.00                       | 2.383 | 2.374     | 0.009     | 1.000     | 5774309  | 2.60            |                 | 104  | 73220  |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |        |       |
| 363.00 > 319.00                       | 2.383 | 2.374     | 0.009     | 1.000     | 122556   | 0.0502          |                 | 100  | 194    |       |
| 363.00 > 169.00                       | 2.383 | 2.374     | 0.009     | 1.000     | 52048    |                 | 2.35(1.13-3.40) | 100  | 301    |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 399.00 > 80.00                        | 2.395 | 2.386     | 0.009     | 1.000     | 151043   | 0.0482          |                 | 106  | 916    |       |
| 399.00 > 99.00                        | 2.395 | 2.386     | 0.009     | 1.000     | 49925    |                 | 3.03(1.50-4.49) | 106  | 207    |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |        |       |
| 403.00 > 84.00                        | 2.395 | 2.386     | 0.009     | 1.000     | 6581524  | 2.39            |                 | 101  | 55650  |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |        |       |
| 377.00 > 251.00                       | 2.417 | 2.418     | -0.001    | 1.000     | 351664   | NC              |                 |      | 8730   |       |
| 377.00 > 85.00                        | 2.417 | 2.418     | -0.001    | 1.000     | 188630   |                 | 1.86(0.84-2.53) |      | 2054   |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |        |       |
| 427.00 > 407.00                       | 2.712 | 2.707     | 0.005     | 1.000     | 48326    | 0.0442          |                 | 93.2 | 358    |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |        |       |
| 429.00 > 81.00                        | 2.712 | 2.707     | 0.005     | 1.000     | 1201925  | 2.45            |                 | 103  | 16809  |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 417.00 > 372.00                       | 2.734 | 2.731     | 0.003     | 1.000     | 5272655  | 2.51            |                 | 100  | 53605  |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 413.00 > 369.00                       | 2.742 | 2.734     | 0.008     | 1.003     | 137784   | 0.0555          |                 | 111  | 49.4   |       |
| 413.00 > 169.00                       | 2.742 | 2.734     | 0.008     | 1.003     | 70311    |                 | 1.96(0.84-2.52) | 111  | 252    |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 415.00 > 370.00                       | 2.742 | 2.734     | 0.008     |           | 5554381  | 2.50            |                 |      | 58494  |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 449.00 > 80.00                        | 2.742 | 2.739     | 0.003     | 1.000     | 124538   | 0.0506          |                 | 106  | 2139   |       |
| 449.00 > 99.00                        | 2.742 | 2.739     | 0.003     | 1.000     | 34411    |                 | 3.62(1.94-5.82) | 106  | 369    |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                        | 3.107 | 3.104     | 0.003     | 1.000     | 4415247  | 2.34            |                 | 97.8 | 28897  |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 499.00 > 80.00                        | 3.107 | 3.105     | 0.002     | 1.000     | 108239   | 0.0498          |                 | 107  | 943    | M     |
| 499.00 > 99.00                        | 3.115 | 3.105     | 0.010     | 1.002     | 22995    |                 | 4.71(2.31-6.93) | 107  | 171    | M     |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 463.00 > 419.00                       | 3.115 | 3.107     | 0.008     | 1.000     | 91933    | 0.0482          |                 | 96.4 | 143    |       |
| 463.00 > 169.00                       | 3.115 | 3.107     | 0.008     | 1.000     | 22431    |                 | 4.10(1.90-5.69) | 96.4 | 461    |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |        |       |
| 468.00 > 423.00                       | 3.115 | 3.107     | 0.008     | 1.000     | 4502703  | 2.62            |                 | 105  | 106819 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |        |       |
| 531.00 > 351.00                       | 3.325 | 3.316     | 0.009     | 1.000     | 153727   | NC              |                 |      | 2147   |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |        |       |
| 506.00 > 78.00                        | 3.415 | 3.420     | -0.005    | 1.000     | 5858621  | 2.37            |                 | 94.8 | 55649  |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |        |       |
| 498.00 > 78.00                        | 3.424 | 3.422     | 0.002     | 1.003     | 109720   | 0.0481          |                 | 96.2 | 2692   |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |        |       |
| 549.00 > 80.00                        | 3.462 | 3.455     | 0.007     | 1.000     | 60494    | 0.0432          |                 | 90.1 | 1653   |       |
| 549.00 > 99.00                        | 3.462 | 3.455     | 0.007     | 1.000     | 27746    |                 | 2.18(1.33-3.97) | 90.1 | 427    |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.462 | 3.458  | 0.004  | 1.000  | 39540    | 0.0492       |                  | 103  | 808   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.462 | 3.459  | 0.003  | 1.000  | 1426640  | 2.55         |                  | 107  | 16789 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.471 | 3.468  | 0.003  | 1.000  | 72253    | 0.0495       |                  | 99.0 | 348   |       |
| 513.00 > 169.00                       | 3.481 | 3.468  | 0.013  | 1.003  | 14509    |              | 4.98(2.36-7.09)  | 99.0 | 293   |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.471 | 3.468  | 0.003  | 1.000  | 3752181  | 2.56         |                  | 103  | 53196 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.627 | 3.624  | 0.003  | 1.000  | 2060337  | 2.55         |                  | 102  | 42793 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.636 | 3.631  | 0.005  | 1.003  | 38494    | 0.0460       |                  | 92.1 | 315   |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.791 | 3.781  | 0.010  | 1.000  | 63027    | 0.0508       |                  | 105  | 830   |       |
| 599.00 > 99.00                        | 3.791 | 3.781  | 0.010  | 1.000  | 17448    |              | 3.61(1.39-4.16)  | 105  | 404   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.802 | 3.794  | 0.008  | 1.000  | 2144987  | 2.59         |                  | 104  | 10654 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.812 | 3.800  | 0.012  | 1.003  | 32956    | 0.0409       |                  | 81.7 | 755   |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.812 | 3.800  | 0.012  | 1.000  | 53273    | 0.0547       |                  | 109  | 249   |       |
| 563.00 > 169.00                       | 3.802 | 3.800  | 0.002  | 0.997  | 11551    |              | 4.61(2.12-6.36)  | 109  | 528   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.812 | 3.800  | 0.012  | 1.000  | 2914989  | 2.52         |                  | 101  | 41631 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.967 | 3.958  | 0.009  | 1.000  | 235156   | NC           |                  |      | 4558  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.102 | 4.099  | 0.003  | 1.000  | 3058640  | 2.45         |                  | 98.1 | 25211 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.102 | 4.100  | 0.002  | 1.000  | 61418    | 0.0481       |                  | 96.2 | 48.0  |       |
| 613.00 > 169.00                       | 4.102 | 4.100  | 0.002  | 1.000  | 16003    |              | 3.84(2.13-6.40)  | 96.2 | 234   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.372 | 4.368  | 0.004  | 1.000  | 66337    | 0.0474       |                  | 94.8 | 33.3  |       |
| 663.00 > 169.00                       | 4.372 | 4.368  | 0.004  | 1.000  | 21987    |              | 3.02(1.25-3.76)  | 94.8 | 323   |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.613 | 4.608  | 0.005  | 1.000  | 16854    | 0.0508       |                  | 102  | 219   |       |
| 713.00 > 219.00                       | 4.613 | 4.608  | 0.005  | 1.000  | 13370    |              | 1.26(0.71-2.13)  | 102  | 243   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.613 | 4.608  | 0.005  | 1.000  | 3285420  | 2.15         |                  | 85.8 | 16076 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 5.043 | 5.030  | 0.013  | 1.000  | 4480419  | 1.72         |                  | 69.0 | 12223 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 5.043 | 5.031  | 0.012  | 1.000  | 125967   | NC           |                  |      | 34.8  |       |
| 813.00 > 169.00                       | 5.043 | 5.031  | 0.012  | 1.000  | 20431    |              | 6.17(2.86-8.58)  |      | 163   |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.416 | 5.408  | 0.008  | 1.000  | 84461    | NC           |                  |      | 21.5  |       |
| 913.00 > 169.00                       | 5.416 | 5.408  | 0.008  | 1.000  | 10263    |              | 8.23(3.83-11.48) |      | 114   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

[Reagents:](#)

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_003.d

Injection Date: 15-May-2018 15:21:19

Instrument ID: A8\_N

Lims ID: IC L2 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

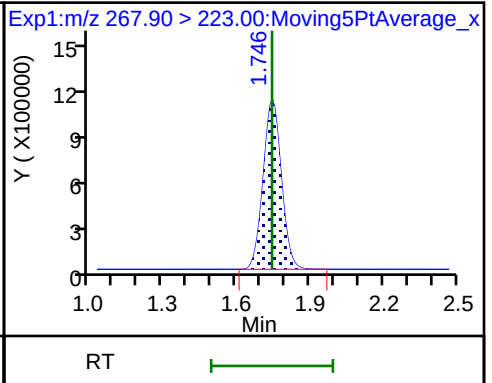
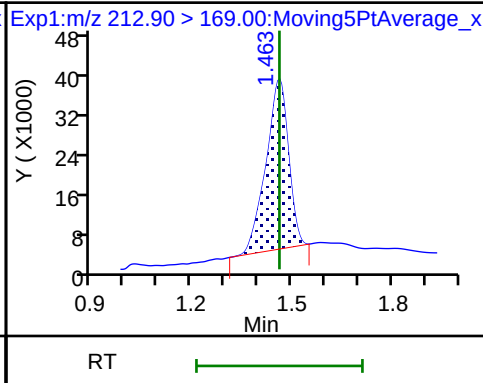
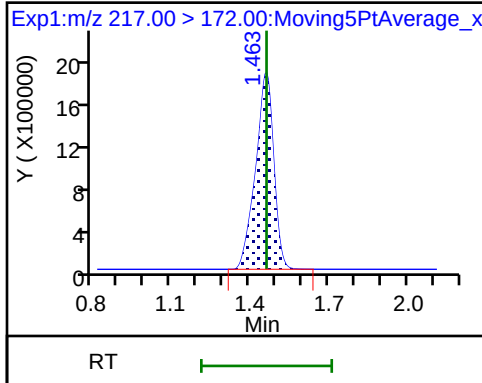
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

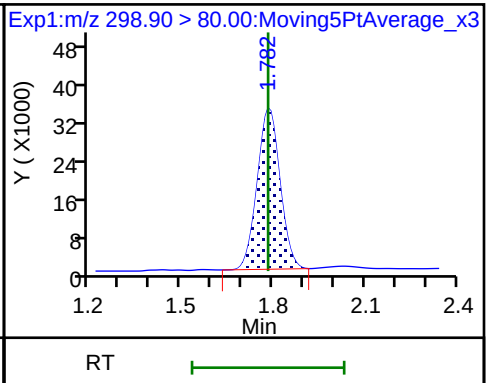
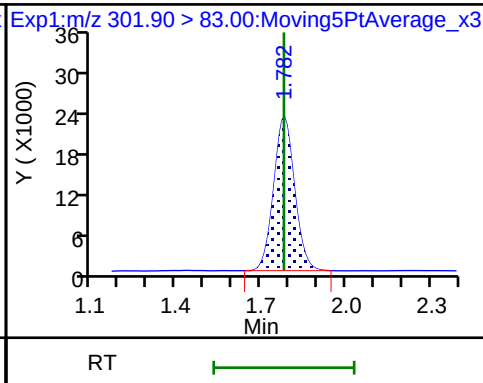
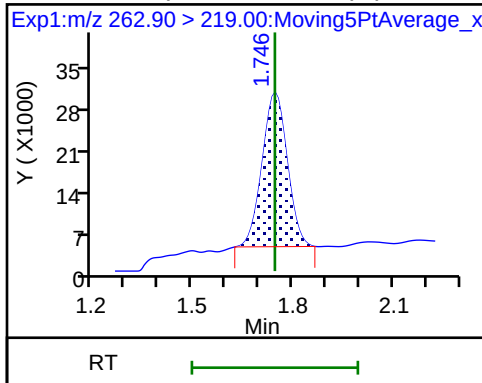
D 3 13C5-PFPeA



4 Perfluoropentanoic acid (M)

D 47 13C3-PFBS

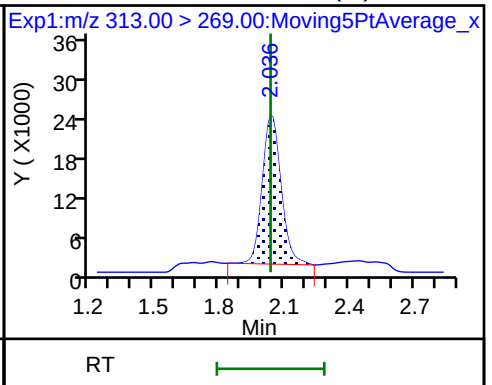
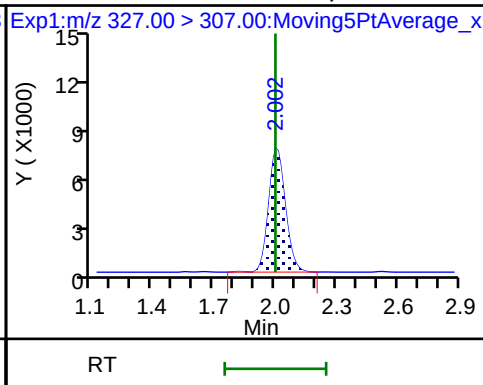
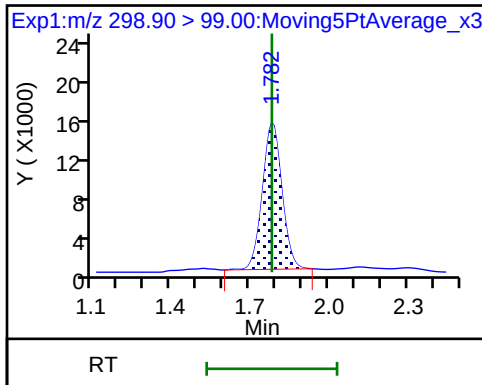
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

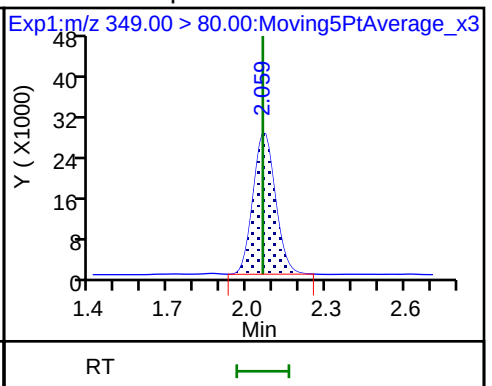
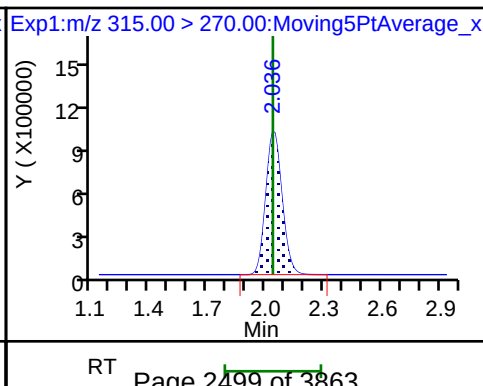
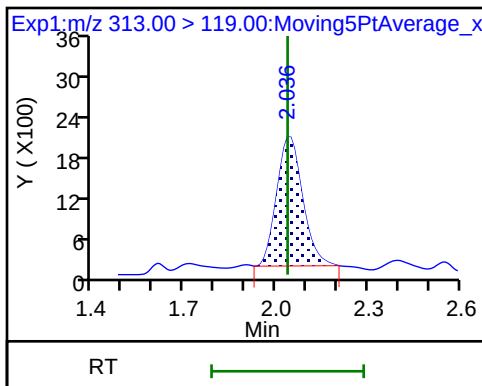
6 Perfluorohexanoic acid (M)



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

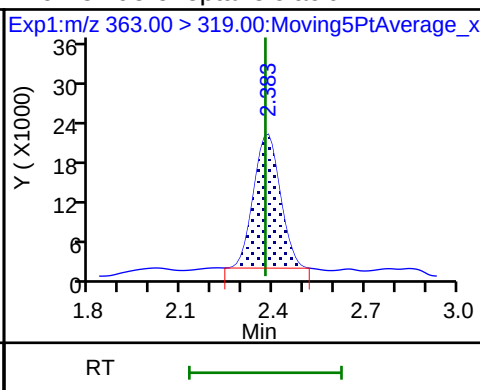
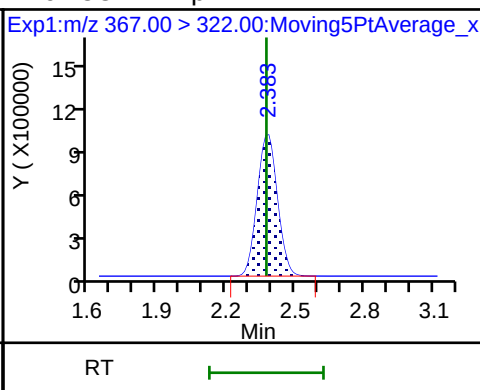
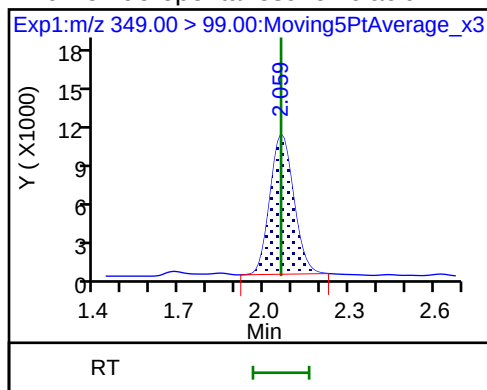
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

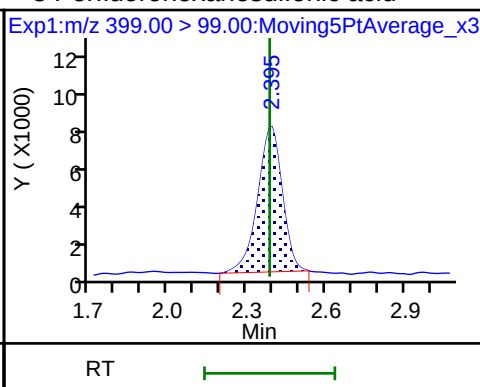
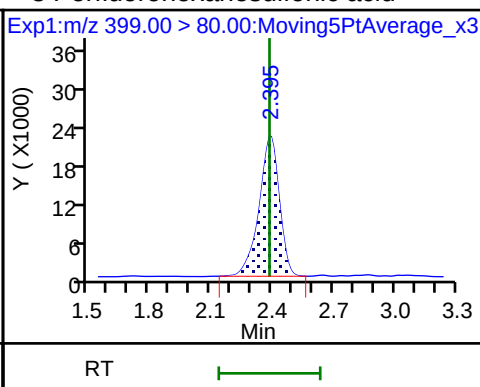
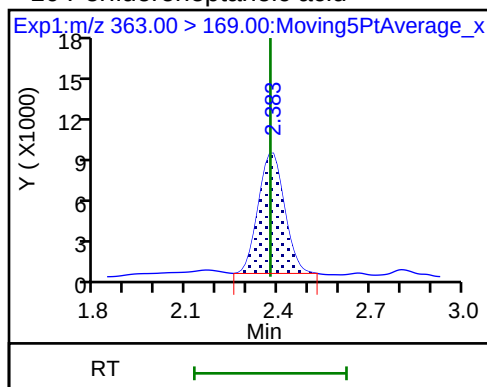
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

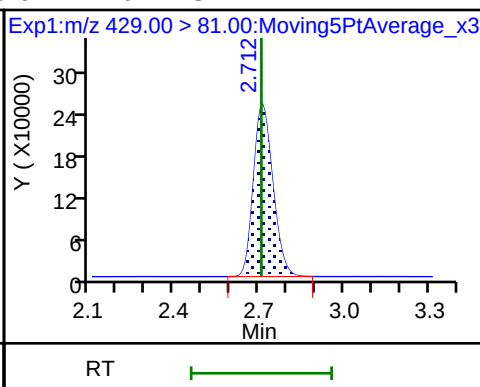
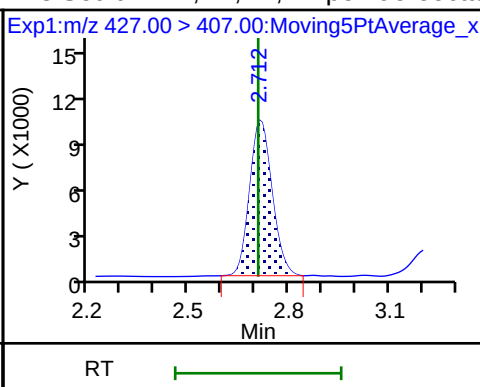
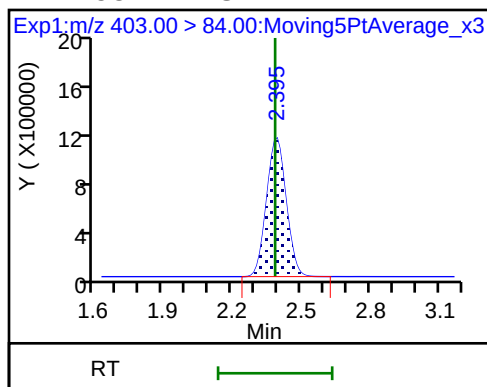
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## 13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

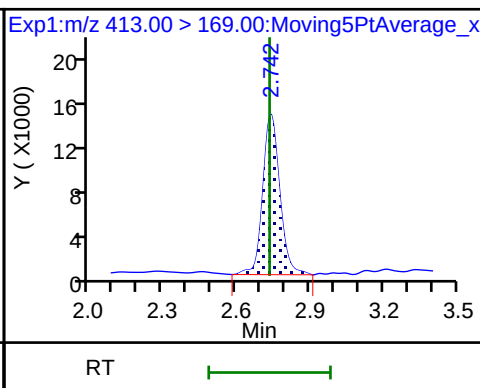
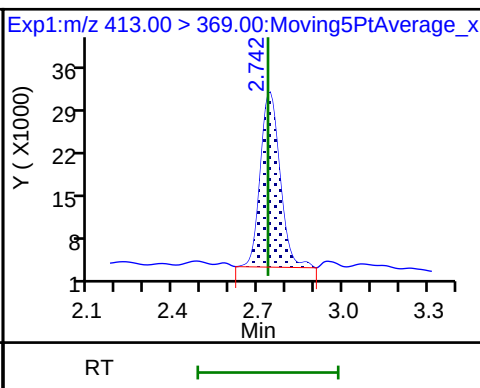
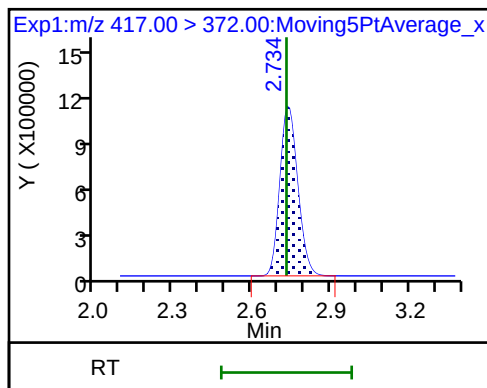
## D 12 M2-6:2FTS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

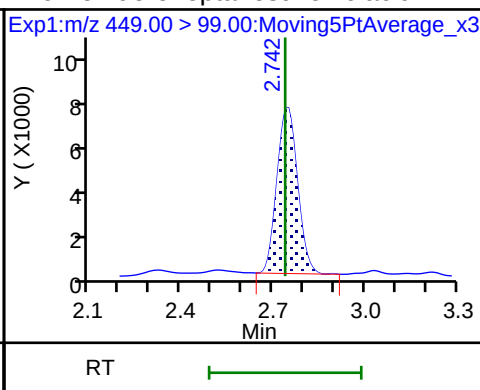
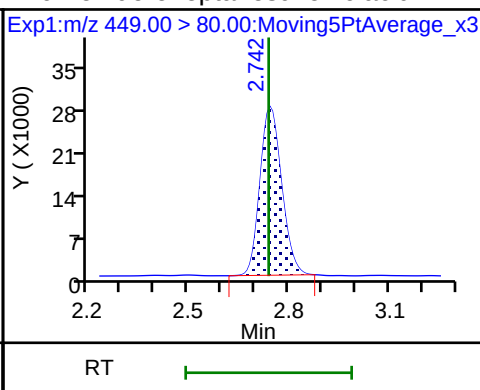
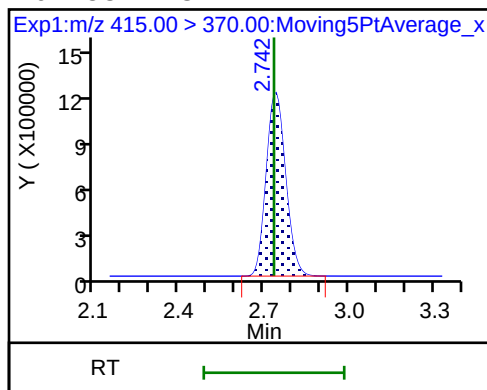
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

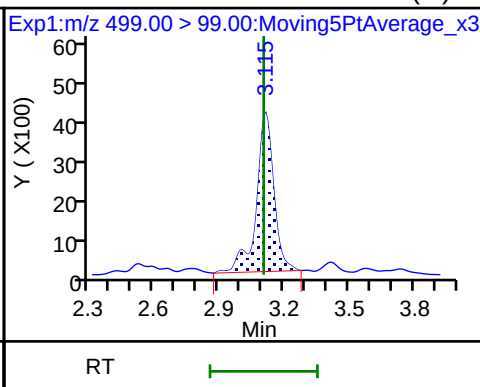
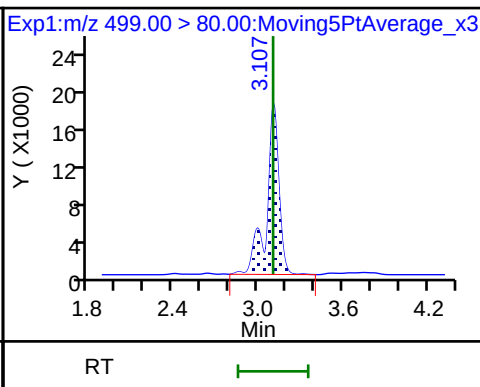
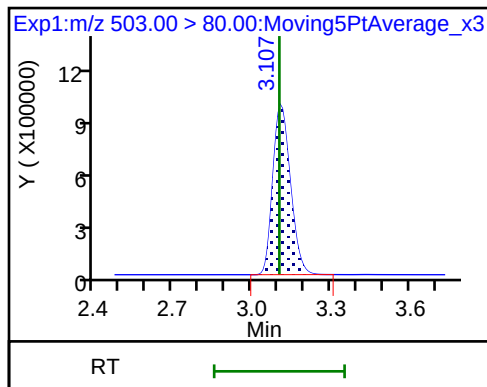
16 Perfluoroheptanesulfonic acid



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid

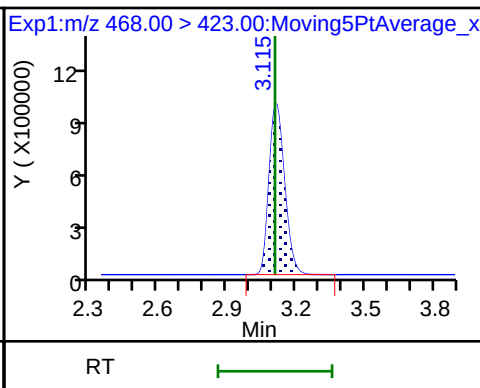
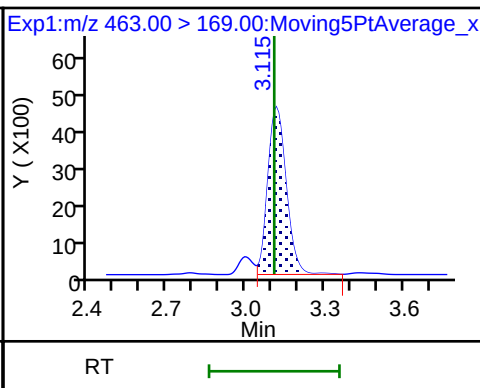
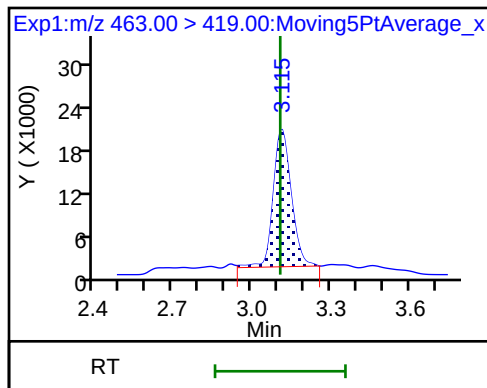
17 Perfluorooctane sulfonic acid (M)



20 Perfluorononanoic acid

20 Perfluorononanoic acid

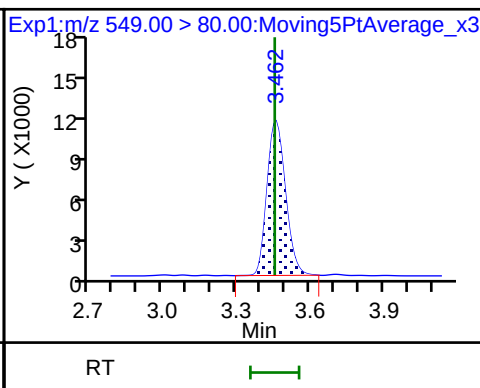
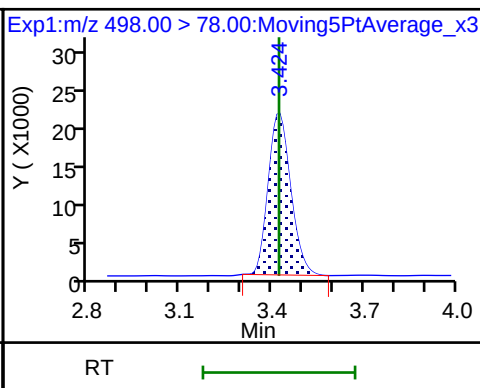
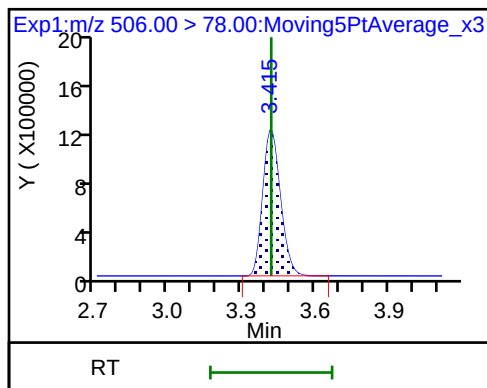
D 19 13C5 PFNA



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

68 Perfluorononanesulfonic acid



## 68 Perfluorononanesulfonic acid

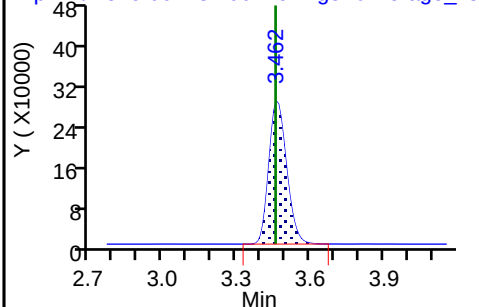
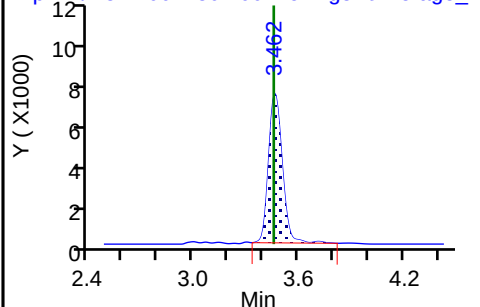
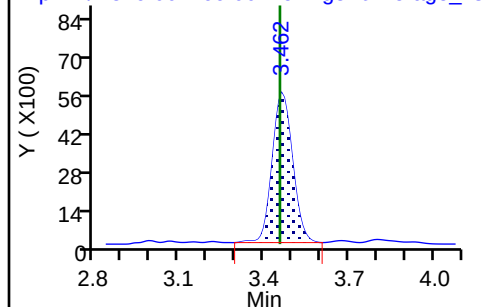
## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



## 24 Perfluorodecanoic acid

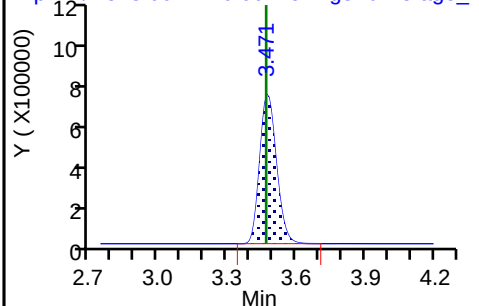
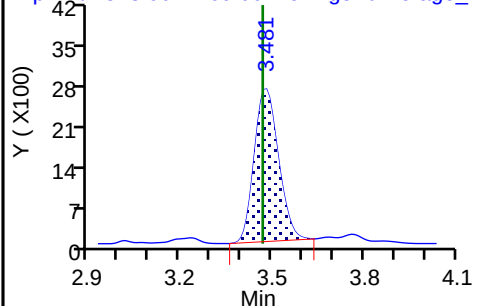
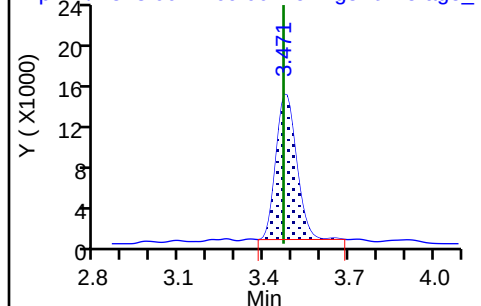
## 24 Perfluorodecanoic acid

## D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



## D 27 d3-NMeFOSAA

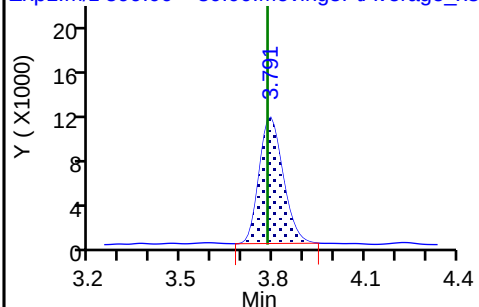
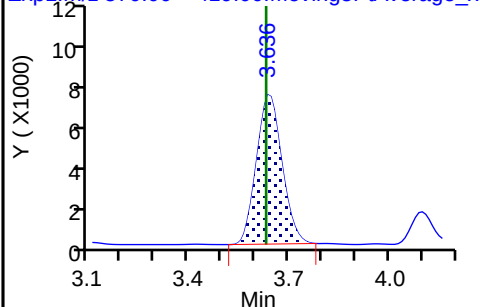
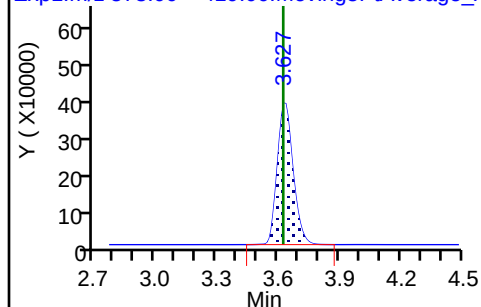
## 28 N-methyl perfluorooctane sulfonamide

## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



## 29 Perfluorodecane Sulfonic acid

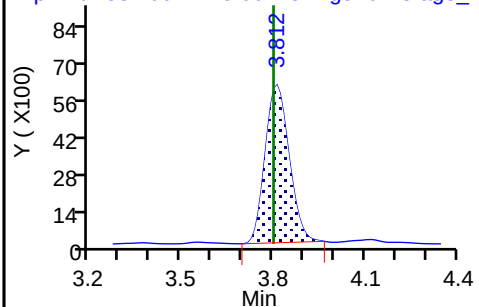
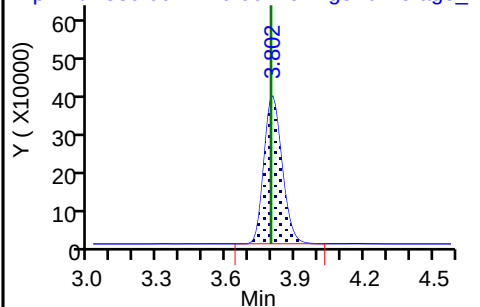
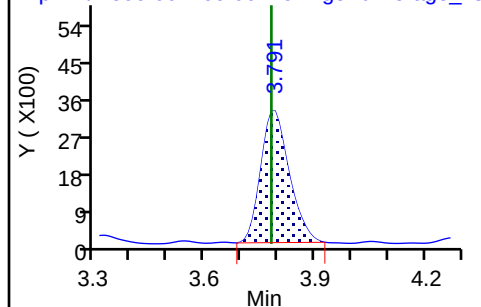
## D 32 d5-NEtFOSAA

## 33 N-ethyl perfluorooctane sulfonamide

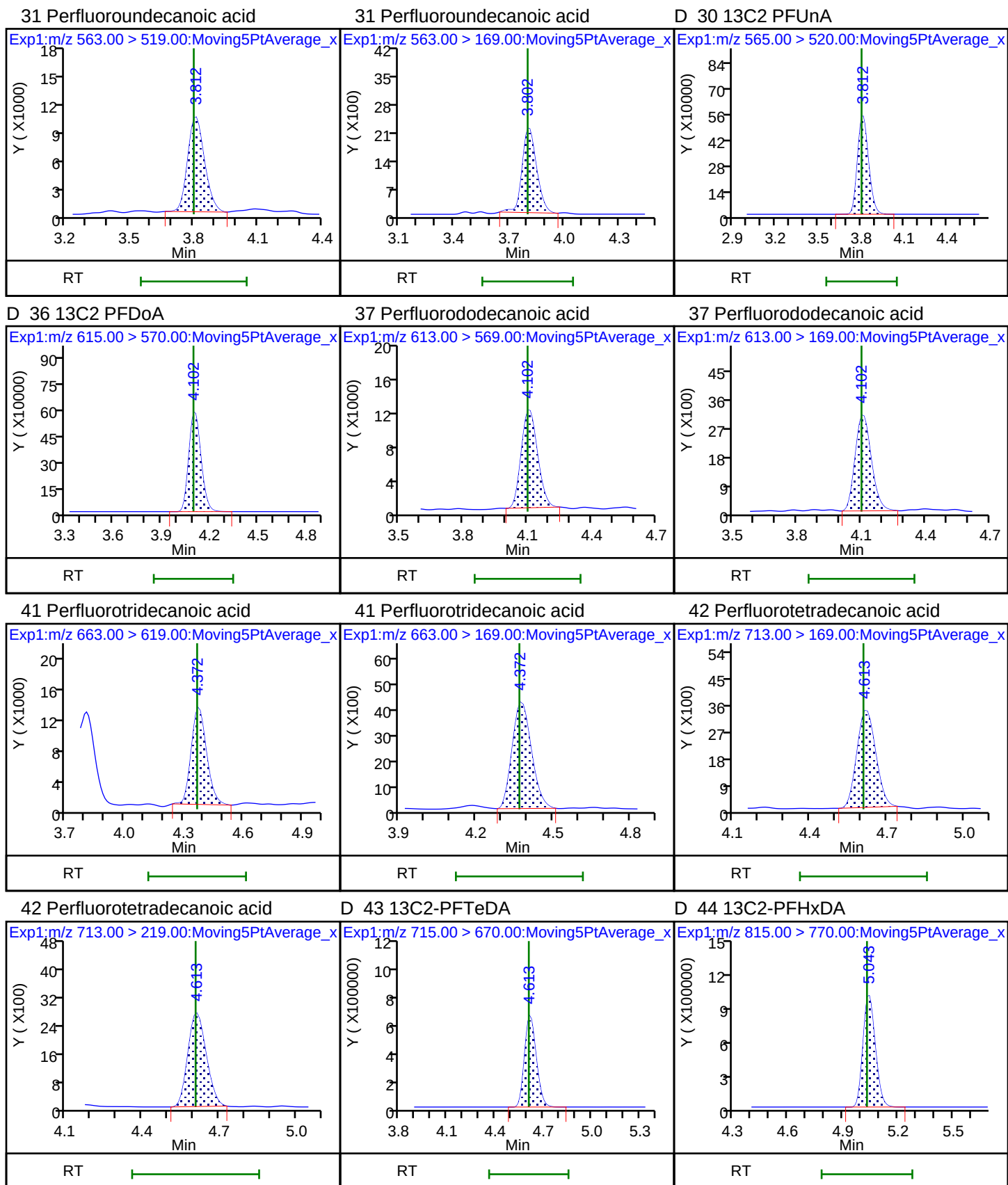
Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x3









## TestAmerica Sacramento

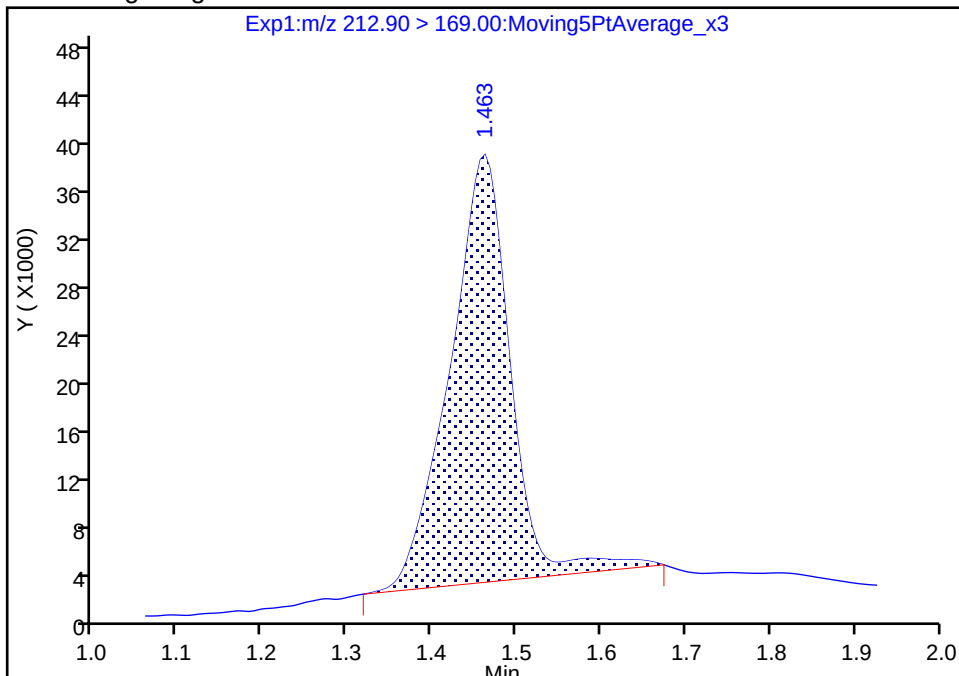
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_003.d  
Injection Date: 15-May-2018 15:21:19 Instrument ID: A8\_N  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**2 Perfluorobutyric acid, CAS: 375-22-4**

Signal: 1

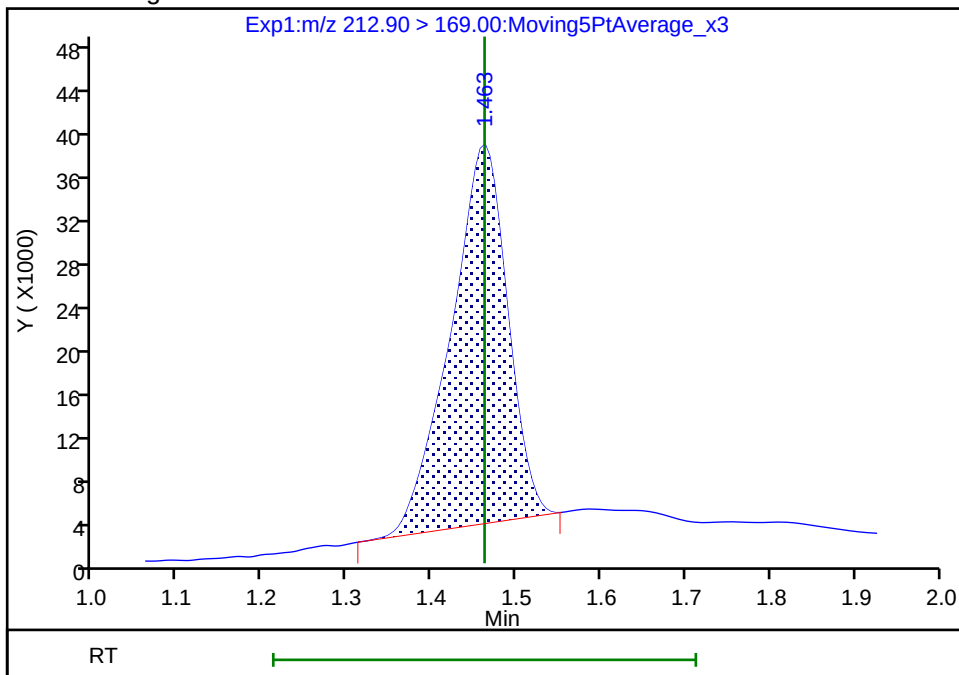
RT: 1.46  
Area: 175954  
Amount: 0.053585  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.46  
Area: 162647  
Amount: 0.050076  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 15-May-2018 16:30:59

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

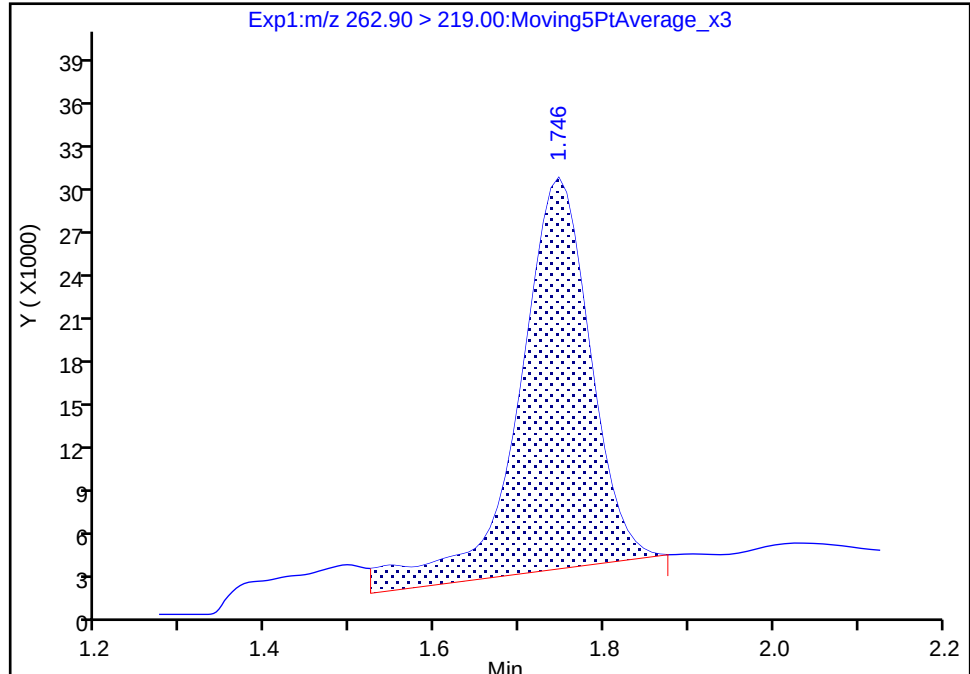
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_003.d  
Injection Date: 15-May-2018 15:21:19 Instrument ID: A8\_N  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**4 Perfluoropentanoic acid, CAS: 2706-90-3**

Signal: 1

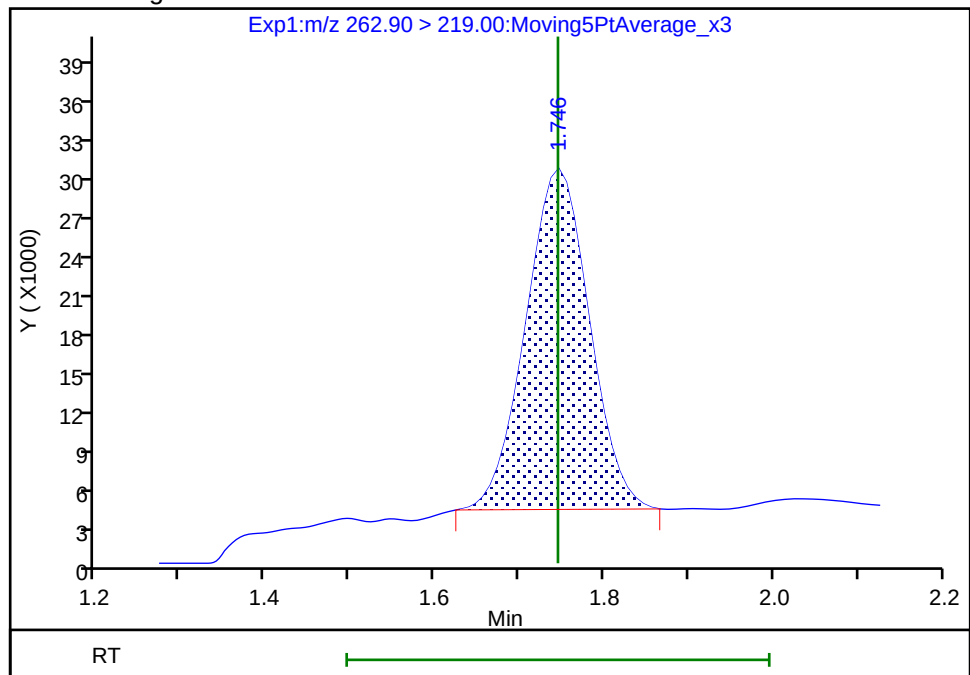
RT: 1.75  
Area: 159724  
Amount: 0.060141  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.75  
Area: 135647  
Amount: 0.052167  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 15-May-2018 16:31:05

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

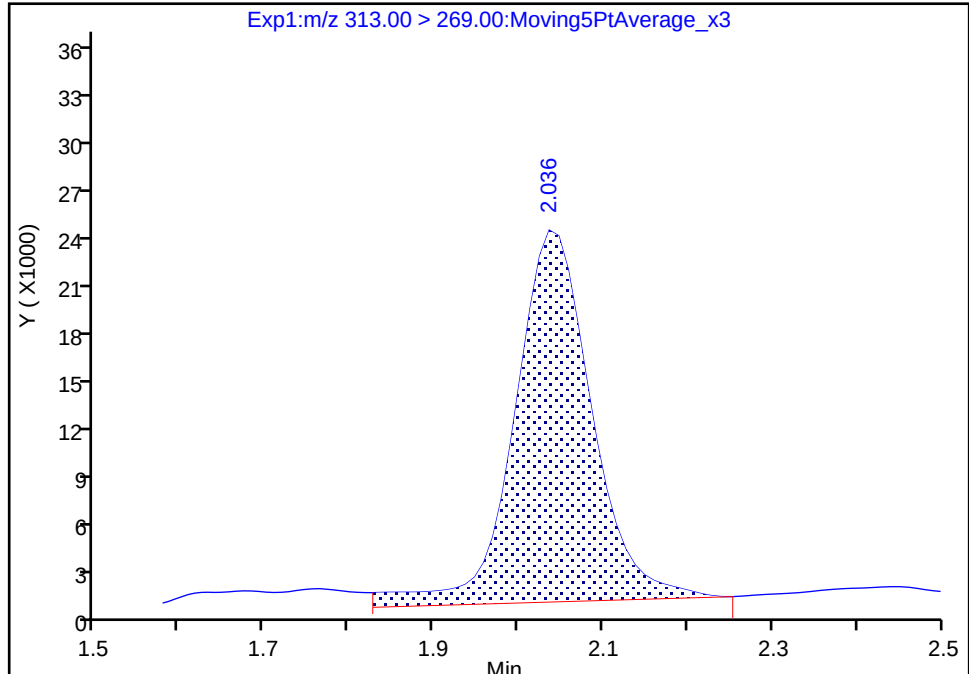
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_003.d  
Injection Date: 15-May-2018 15:21:19 Instrument ID: A8\_N  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**6 Perfluorohexanoic acid, CAS: 307-24-4**

Signal: 1

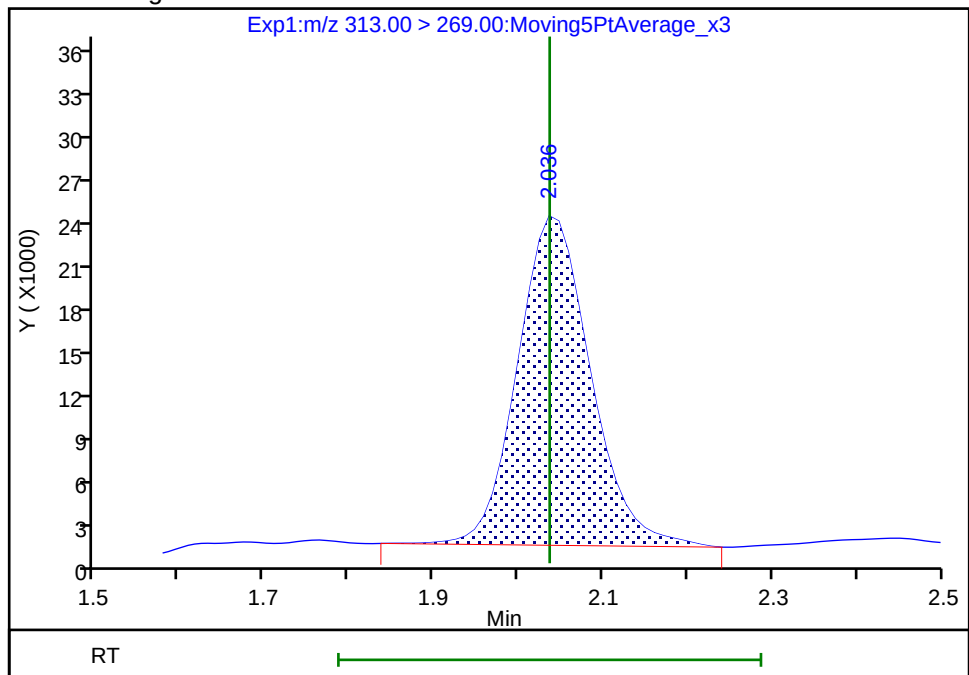
RT: 2.04  
Area: 147805  
Amount: 0.059147  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.04  
Area: 135987  
Amount: 0.055832  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 15-May-2018 16:31:10

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

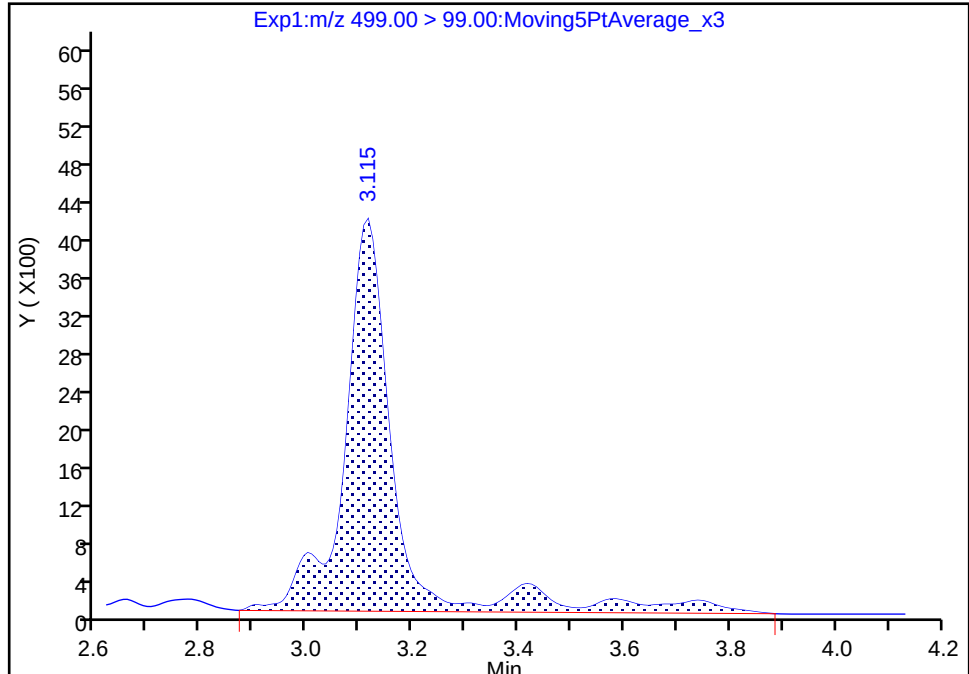
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_003.d  
Injection Date: 15-May-2018 15:21:19 Instrument ID: A8\_N  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 3  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 2

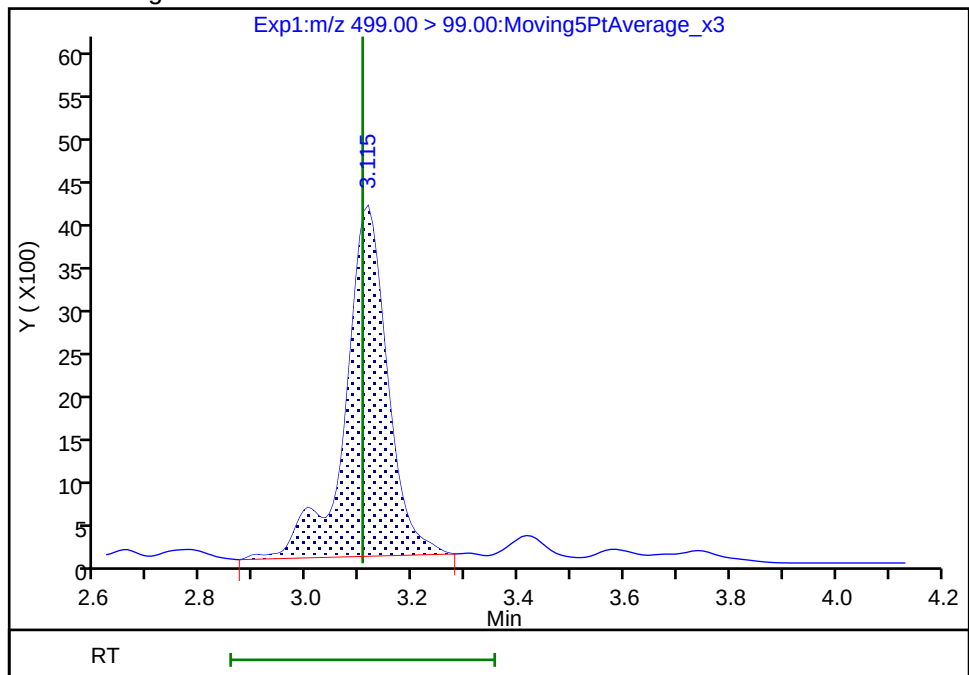
RT: 3.12  
Area: 27789  
Amount: 0.049099  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.12  
Area: 22995  
Amount: 0.049830  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 15-May-2018 16:31:21

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_004.d  
 Lims ID: IC L3 Full  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 15-May-2018 15:29:08 ALS Bottle#: 12 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L3-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:19:58 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: westendorfc

Date: 15-May-2018 16:31:49

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 691256   | 0.2480       |                   | 99.2 | 322    |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 7493234  | 2.58         |                   | 103  | 50123  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.748 | 1.744  | 0.004  | 0.562  | 4737268  | 2.55         |                   | 102  | 69659  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.748 | 1.745  | 0.003  | 1.000  | 543378   | 0.2429       |                   | 97.2 | 275    |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.784 | 1.780  | 0.004  | 1.000  | 99970    | 2.38         |                   | 102  | 619    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.784 | 1.783  | 0.001  | 1.000  | 758816   | 0.2260       |                   | 102  | 3639   |       |
| 298.90 > 99.00                        | 1.784 | 1.783  | 0.001  | 1.000  | 311895   |              | 2.43(1.25-3.74)   | 102  | 2331   |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 2.004 | 1.999  | 0.005  | 1.000  | 706801   | NC           |                   |      | 8517   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 2.004 | 2.000  | 0.004  | 1.000  | 156576   | 0.2197       |                   | 94.1 | 6561   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.038 | 2.037  | 0.001  | 1.000  | 5134906  | 2.59         |                   | 104  | 125259 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.038 | 2.037  | 0.001  | 1.000  | 503450   | 0.2384       |                   | 95.4 | 778    |       |
| 313.00 > 119.00                       | 2.038 | 2.037  | 0.001  | 1.000  | 47401    |              | 10.62(5.03-15.10) | 95.4 | 559    |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.061 | 2.059  | 0.002  | 1.000  | 712963   | 0.2384       |                   | 102  | 9397   |       |
| 349.00 > 99.00                        | 2.061 | 2.059  | 0.002  | 1.000  | 264857   |              | 2.69(1.36-4.07)   | 102  | 2639   |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |        |       |
| 332.10 > 287.00                       | 2.140 | 2.134  | 0.006  | 1.000  | 260002   | NC           |                   |      | 4919   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |        |       |
| 329.10 > 285.00                       | 2.140 | 2.134  | 0.006  | 1.000  | 75752    | NC           |                 |      | 658    |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.373 | 2.374  | -0.001 | 1.000  | 533908   | 0.2502       |                 | 100  | 871    |       |
| 363.00 > 169.00                       | 2.373 | 2.374  | -0.001 | 1.000  | 205760   |              | 2.59(1.13-3.40) | 100  | 1440   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                       | 2.373 | 2.374  | -0.001 | 1.000  | 5050240  | 2.66         |                 | 106  | 104242 |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.385 | 2.386  | -0.001 | 1.000  | 5692452  | 2.43         |                 | 103  | 49448  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.385 | 2.386  | -0.001 | 1.000  | 613254   | 0.2261       |                 | 99.4 | 3758   |       |
| 399.00 > 99.00                        | 2.385 | 2.386  | -0.001 | 1.000  | 206507   |              | 2.97(1.50-4.49) | 99.4 | 799    |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |        |       |
| 377.00 > 251.00                       | 2.419 | 2.418  | 0.001  | 1.000  | 1414956  | NC           |                 |      | 40535  |       |
| 377.00 > 85.00                        | 2.419 | 2.418  | 0.001  | 1.000  | 889140   |              | 1.59(0.84-2.53) |      | 9606   |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.714 | 2.707  | 0.007  | 1.000  | 1076802  | 2.57         |                 | 108  | 20482  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.714 | 2.707  | 0.007  | 1.000  | 229440   | 0.2781       |                 | 117  | 1932   |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.737 | 2.731  | 0.006  | 1.000  | 4619416  | 2.57         |                 | 103  | 75506  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.737 | 2.734  | 0.003  |        | 4741445  | 2.50         |                 |      | 54856  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.737 | 2.734  | 0.003  | 1.000  | 525683   | 0.2417       |                 | 96.7 | 189    |       |
| 413.00 > 169.00                       | 2.737 | 2.734  | 0.003  | 1.000  | 266346   |              | 1.97(0.84-2.52) | 96.7 | 902    |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.744 | 2.739  | 0.005  | 1.000  | 524732   | 0.2339       |                 | 98.3 | 7416   |       |
| 449.00 > 99.00                        | 2.744 | 2.739  | 0.005  | 1.000  | 144198   |              | 3.64(1.94-5.82) | 98.3 | 1659   |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.110 | 3.104  | 0.006  | 1.000  | 4024927  | 2.50         |                 | 104  | 31109  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.110 | 3.105  | 0.005  | 1.000  | 474971   | 0.2399       |                 | 103  | 4702   |       |
| 499.00 > 99.00                        | 3.110 | 3.105  | 0.005  | 1.000  | 113620   |              | 4.18(2.31-6.93) | 103  | 2518   |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.110 | 3.107  | 0.003  | 1.000  | 3819382  | 2.60         |                 | 104  | 57297  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                       | 3.110 | 3.107  | 0.003  | 1.000  | 402423   | 0.2487       |                 | 99.5 | 651    |       |
| 463.00 > 169.00                       | 3.110 | 3.107  | 0.003  | 1.000  | 98302    |              | 4.09(1.90-5.69) | 99.5 | 1897   |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |        |       |
| 531.00 > 351.00                       | 3.318 | 3.316  | 0.002  | 1.000  | 687137   | NC           |                 |      | 9753   |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.416 | 3.420  | -0.004 | 1.000  | 5466463  | 2.59         |                 | 104  | 44835  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.416 | 3.422  | -0.006 | 1.000  | 550166   | 0.2584       |                 | 103  | 15371  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.463 | 3.455  | 0.008  | 1.000  | 301811   | 0.2366       |                 | 98.6 | 5939   |       |
| 549.00 > 99.00                        | 3.463 | 3.455  | 0.008  | 1.000  | 113569   |              | 2.66(1.33-3.97) | 98.6 | 1592   |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.463 | 3.458  | 0.005  | 1.000  | 159889   | 0.2389       |                  | 99.8 | 2540  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.463 | 3.459  | 0.004  | 1.000  | 1187676  | 2.49         |                  | 104  | 17819 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.472 | 3.468  | 0.004  | 1.000  | 3297462  | 2.64         |                  | 106  | 36473 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.472 | 3.468  | 0.004  | 1.000  | 320077   | 0.2496       |                  | 99.8 | 1743  |       |
| 513.00 > 169.00                       | 3.472 | 3.468  | 0.004  | 1.000  | 65839    |              | 4.86(2.36-7.09)  | 99.8 | 1158  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.627 | 3.624  | 0.003  | 1.000  | 1854527  | 2.69         |                  | 108  | 58327 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.637 | 3.631  | 0.006  | 1.003  | 184250   | 0.2448       |                  | 97.9 | 1723  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.782 | 3.781  | 0.001  | 1.000  | 277428   | 0.2454       |                  | 102  | 4027  |       |
| 599.00 > 99.00                        | 3.792 | 3.781  | 0.011  | 1.003  | 86380    |              | 3.21(1.39-4.16)  | 102  | 2334  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.802 | 3.794  | 0.008  | 1.000  | 1857905  | 2.63         |                  | 105  | 12991 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.802 | 3.800  | 0.002  | 1.000  | 2576940  | 2.60         |                  | 104  | 59924 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.802 | 3.800  | 0.002  | 1.000  | 200746   | 0.2332       |                  | 93.3 | 918   |       |
| 563.00 > 169.00                       | 3.802 | 3.800  | 0.002  | 1.000  | 51912    |              | 3.87(2.12-6.36)  | 93.3 | 1560  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.802 | 3.800  | 0.002  | 1.000  | 178736   | 0.2558       |                  | 102  | 3652  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.959 | 3.958  | 0.001  | 1.000  | 1057887  | NC           |                  |      | 20496 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.102 | 4.099  | 0.003  | 1.000  | 2740425  | 2.57         |                  | 103  | 24900 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.102 | 4.100  | 0.002  | 1.000  | 305166   | 0.2667       |                  | 107  | 260   |       |
| 613.00 > 169.00                       | 4.102 | 4.100  | 0.002  | 1.000  | 69161    |              | 4.41(2.13-6.40)  | 107  | 929   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.372 | 4.368  | 0.004  | 1.000  | 322826   | 0.2575       |                  | 103  | 180   |       |
| 663.00 > 169.00                       | 4.372 | 4.368  | 0.004  | 1.000  | 114369   |              | 2.82(1.25-3.76)  | 103  | 1366  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.613 | 4.608  | 0.005  | 1.000  | 3595983  | 2.75         |                  | 110  | 17498 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.613 | 4.608  | 0.005  | 1.000  | 81619    | 0.2247       |                  | 89.9 | 939   |       |
| 713.00 > 219.00                       | 4.603 | 4.608  | -0.005 | 0.998  | 63777    |              | 1.28(0.71-2.13)  | 89.9 | 1518  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 5.035 | 5.030  | 0.005  | 1.000  | 5862077  | 2.64         |                  | 106  | 14450 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 5.035 | 5.031  | 0.004  | 1.000  | 592774   | NC           |                  |      | 150   |       |
| 813.00 > 169.00                       | 5.035 | 5.031  | 0.004  | 1.000  | 95796    |              | 6.19(2.86-8.58)  |      | 795   |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.417 | 5.408  | 0.009  | 1.000  | 647584   | NC           |                  |      | 124   |       |
| 913.00 > 169.00                       | 5.417 | 5.408  | 0.009  | 1.000  | 84829    |              | 7.63(3.83-11.48) |      | 912   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL3\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_004.d

Injection Date: 15-May-2018 15:29:08

Instrument ID: A8\_N

Lims ID: IC L3 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

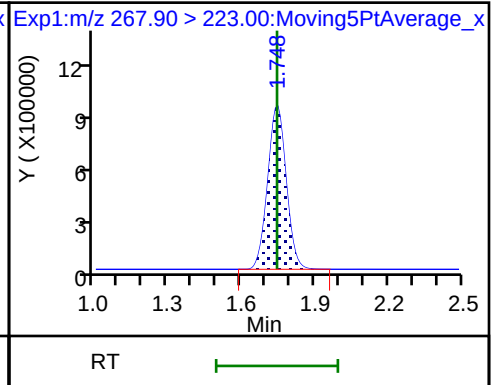
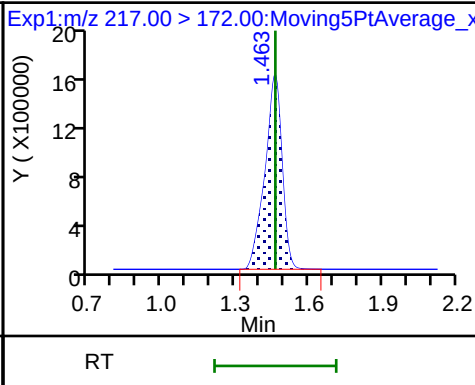
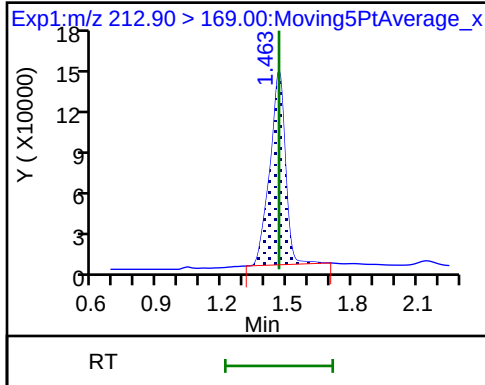
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

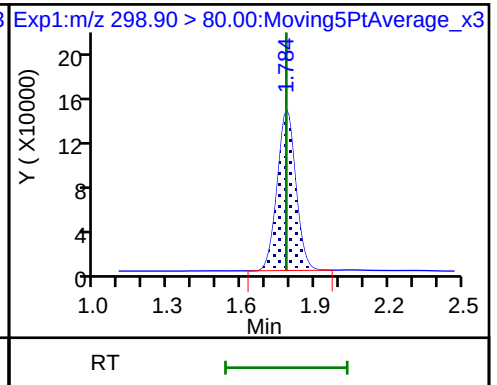
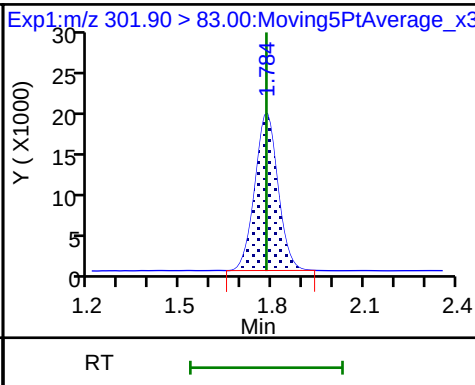
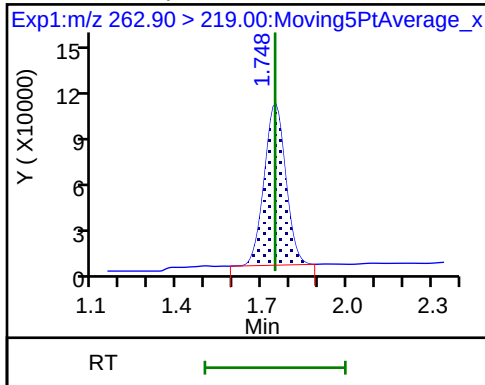
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

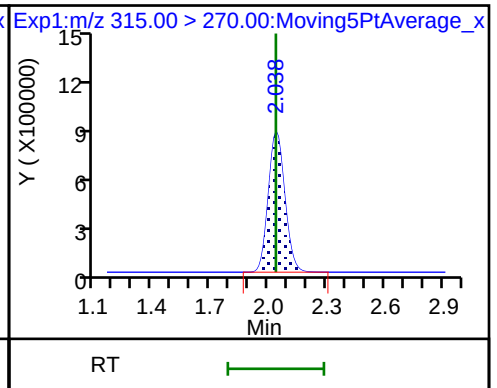
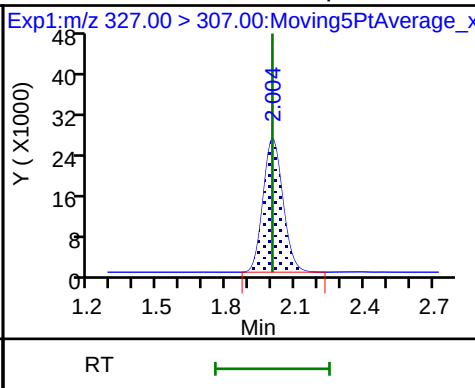
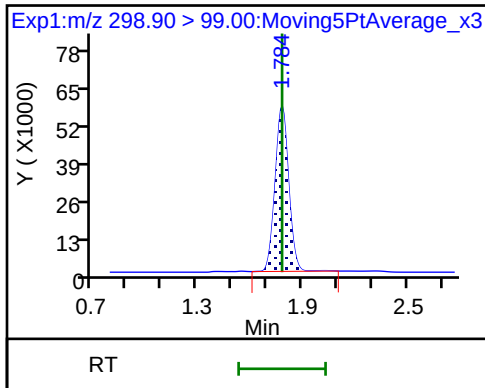
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

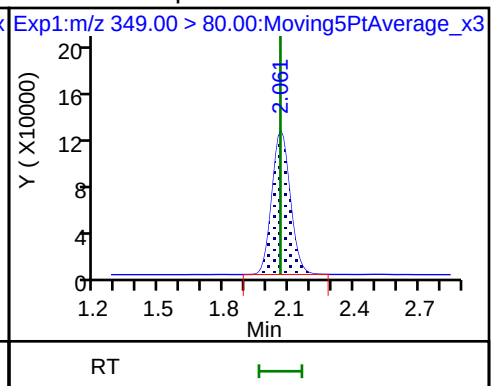
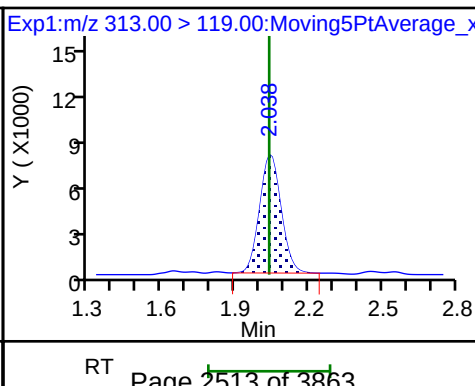
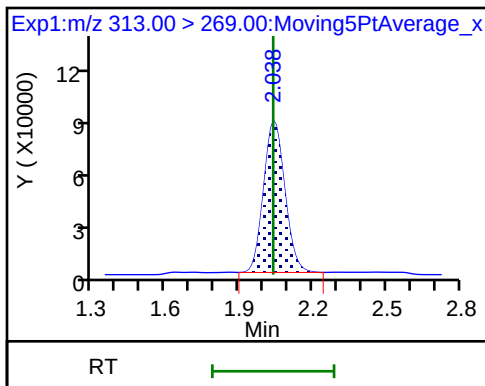
## De 7 13C2 PFHxA

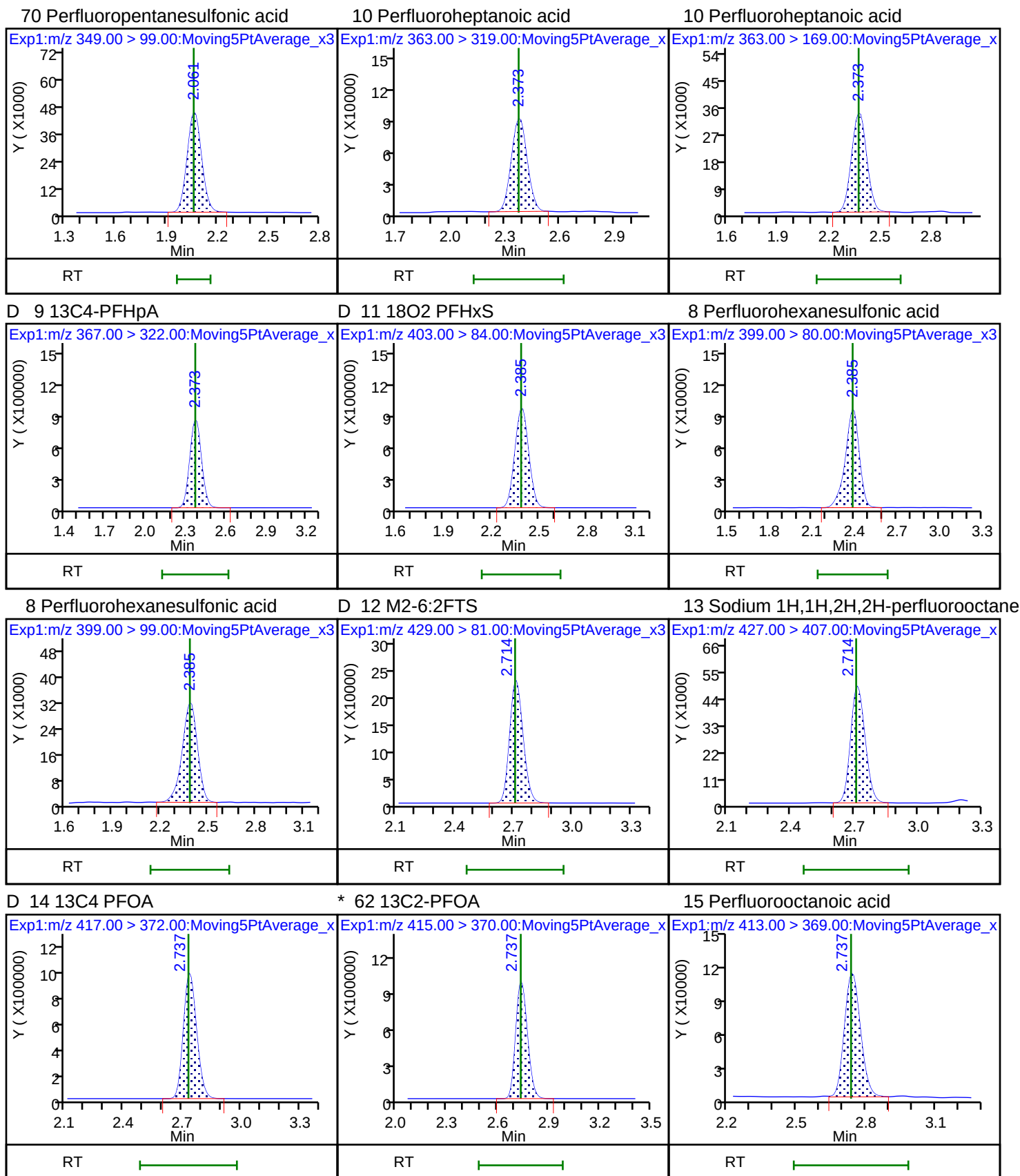


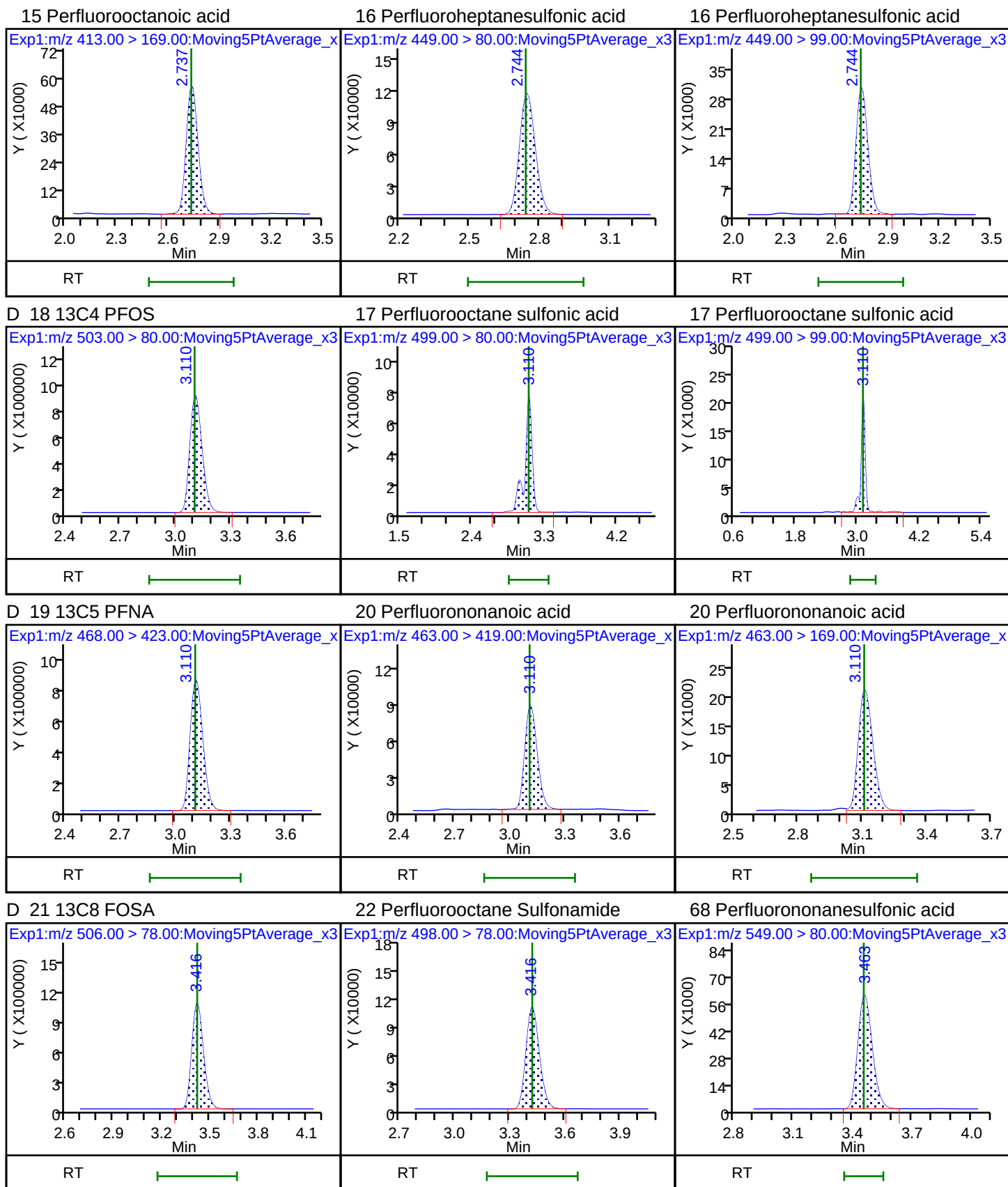
## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid





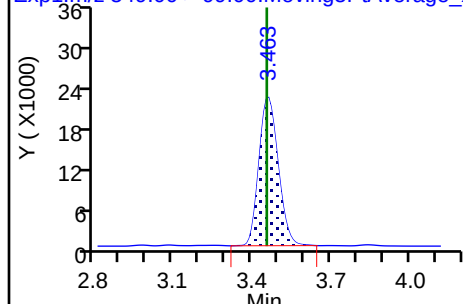


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

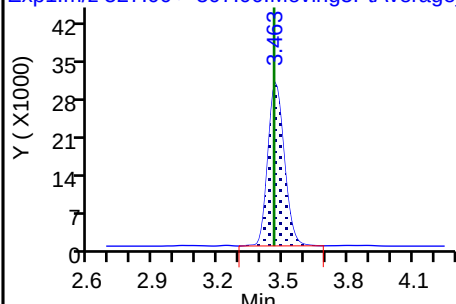
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



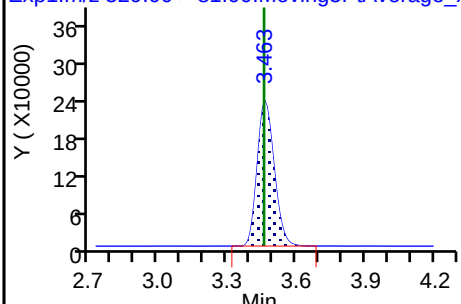
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



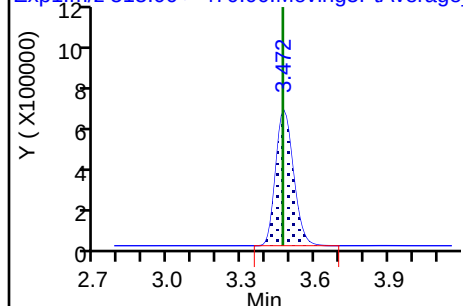
RT

## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

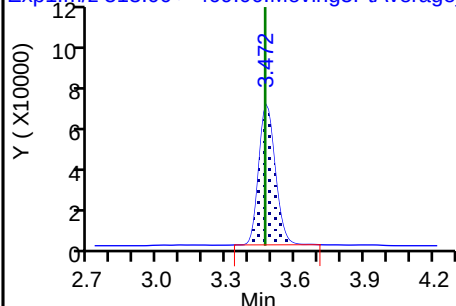
## 24 Perfluorodecanoic acid

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



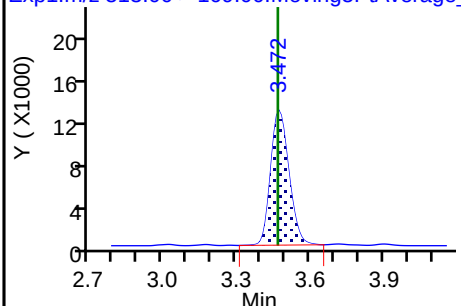
RT

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



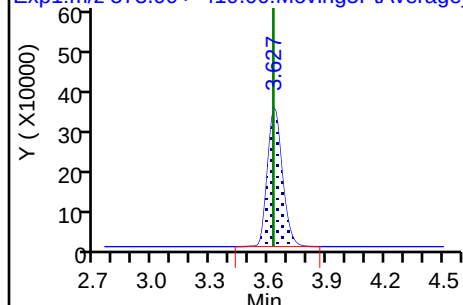
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

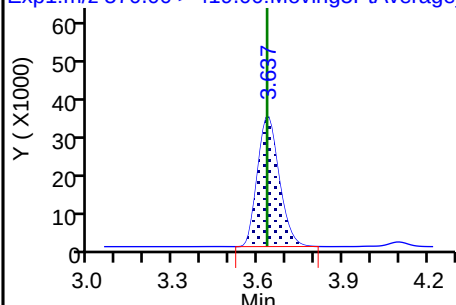
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



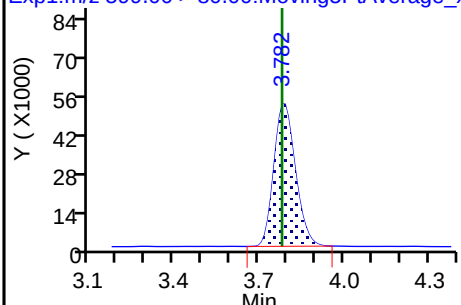
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



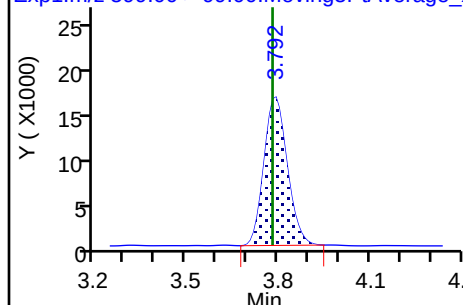
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

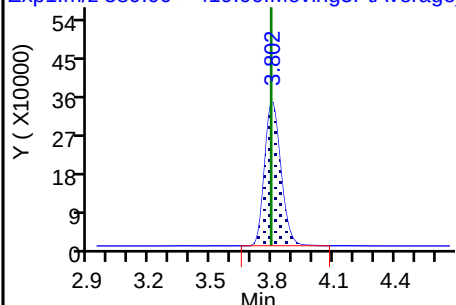
## D 30 13C2 PFUnA

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



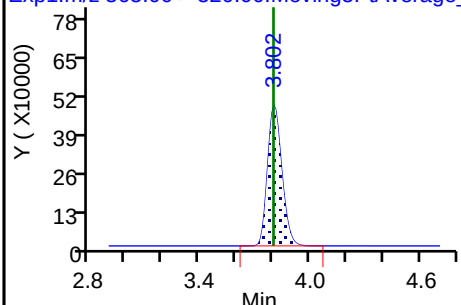
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

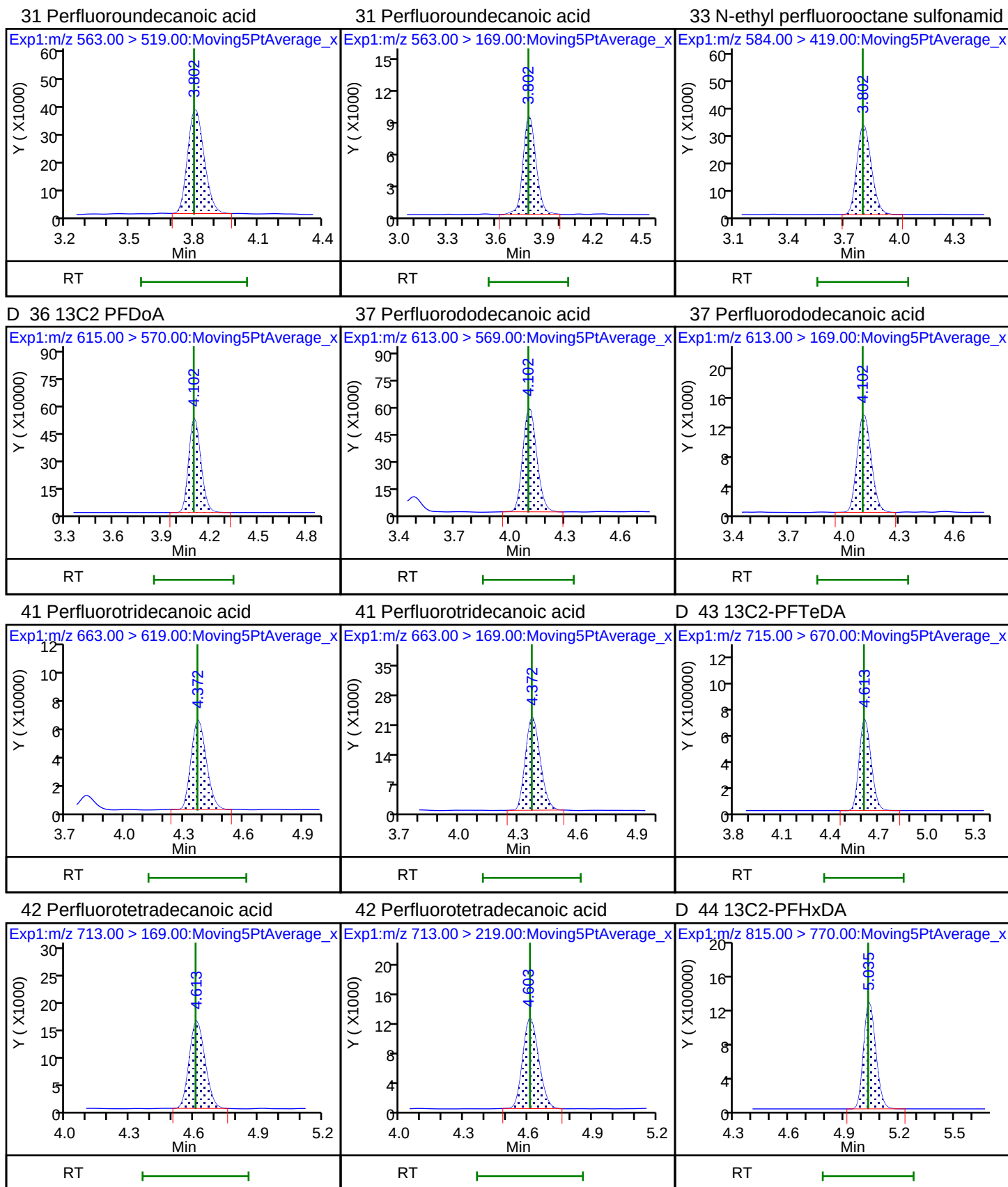


RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3



RT







TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_005.d  
 Lims ID: IC L4 Full  
 Client ID:  
 Sample Type: ICIS Calib Level: 4  
 Inject. Date: 15-May-2018 15:36:58 ALS Bottle#: 13 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L4-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:20:03 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: hannigana

Date: 16-May-2018 08:01:39

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.461 | 1.462  | -0.001 | 1.000  | 7049149  | 2.42         |                   | 96.8 | 46136 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.461 | 1.462  | -0.001 | 1.000  | 2597444  | 0.99         |                   | 99.1 | 1318  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.743 | 1.744  | -0.001 | 0.561  | 4710025  | 2.52         |                   | 101  | 87673 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.743 | 1.745  | -0.002 | 1.000  | 2073422  | 0.9323       |                   | 93.2 | 1140  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.779 | 1.780  | -0.001 | 1.000  | 98369    | 2.33         |                   | 100  | 653   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.779 | 1.783  | -0.004 | 1.000  | 2858265  | 0.8651       |                   | 97.9 | 14624 |       |
| 298.90 > 99.00                        | 1.779 | 1.783  | -0.004 | 1.000  | 1207235  |              | 2.37(1.25-3.74)   | 97.9 | 7612  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.999 | 1.999  | 0.0    | 1.000  | 757382   | NC           |                   |      | 9845  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.999 | 2.000  | -0.001 | 1.000  | 636977   | 0.9084       |                   | 97.3 | 35258 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.033 | 2.037  | -0.004 | 1.000  | 1931731  | 0.9677       |                   | 96.8 | 2942  |       |
| 313.00 > 119.00                       | 2.033 | 2.037  | -0.004 | 1.000  | 169446   |              | 11.40(5.03-15.10) | 96.8 | 2297  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.033 | 2.037  | -0.004 | 1.000  | 4854075  | 2.44         |                   | 97.6 | 80326 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.056 | 2.059  | -0.003 | 1.000  | 2702610  | 0.9185       |                   | 97.9 | 30039 |       |
| 349.00 > 99.00                        | 2.056 | 2.059  | -0.003 | 1.000  | 1001761  |              | 2.70(1.36-4.07)   | 97.9 | 9135  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.135 | 2.134  | 0.001  | 1.000  | 301290   | NC           |                   |      | 2693  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.135 | 2.134  | 0.001  | 1.000  | 238512   | NC           |                 |      | 4336  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.368 | 2.374  | -0.006 | 1.000  | 4714171  | 2.47         |                 | 98.9 | 75030 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.368 | 2.374  | -0.006 | 1.000  | 1839273  | 0.9234       |                 | 92.3 | 2776  |       |
| 363.00 > 169.00                       | 2.368 | 2.374  | -0.006 | 1.000  | 750283   |              | 2.45(1.13-3.40) | 92.3 | 4821  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.381 | 2.386  | -0.006 | 1.000  | 2238132  | 0.8440       |                 | 92.7 | 14277 |       |
| 399.00 > 99.00                        | 2.381 | 2.386  | -0.006 | 1.000  | 758974   |              | 2.95(1.50-4.49) | 92.7 | 2596  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.381 | 2.386  | -0.006 | 1.000  | 5565884  | 2.36         |                 | 99.9 | 50235 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.414 | 2.418  | -0.004 | 1.000  | 6019764  | NC           |                 |      | 85325 |       |
| 377.00 > 85.00                        | 2.414 | 2.418  | -0.004 | 1.000  | 3416928  |              | 1.76(0.84-2.53) |      | 41481 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.703 | 2.707  | -0.004 | 1.000  | 642687   | 0.8356       |                 | 88.1 | 4840  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.703 | 2.707  | -0.004 | 1.000  | 1028277  | 2.44         |                 | 103  | 17698 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.726 | 2.731  | -0.005 | 1.000  | 4460027  | 2.47         |                 | 98.9 | 53300 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.733 | 2.734  | -0.001 | 1.003  | 2030259  | 0.9669       |                 | 96.7 | 774   |       |
| 413.00 > 169.00                       | 2.733 | 2.734  | -0.001 | 1.003  | 1016402  |              | 2.00(0.84-2.52) | 96.7 | 3648  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.733 | 2.734  | -0.001 |        | 4762237  | 2.50         |                 |      | 57613 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.733 | 2.739  | -0.006 | 1.000  | 2045093  | 0.9709       |                 | 102  | 23753 |       |
| 449.00 > 99.00                        | 2.733 | 2.739  | -0.006 | 1.000  | 547456   |              | 3.74(1.94-5.82) | 102  | 6229  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.097 | 3.104  | -0.007 | 1.000  | 3779459  | 2.33         |                 | 97.6 | 24139 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.105 | 3.105  | 0.0    | 1.002  | 1585297  | 0.8526       |                 | 91.9 | 11307 |       |
| 499.00 > 99.00                        | 3.105 | 3.105  | 0.0    | 1.002  | 364451   |              | 4.35(2.31-6.93) | 91.9 | 4761  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.105 | 3.107  | -0.002 | 1.000  | 1453651  | 0.9530       |                 | 95.3 | 2199  |       |
| 463.00 > 169.00                       | 3.105 | 3.107  | -0.002 | 1.000  | 348207   |              | 4.17(1.90-5.69) | 95.3 | 7960  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.105 | 3.107  | -0.002 | 1.000  | 3600246  | 2.44         |                 | 97.6 | 50324 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.313 | 3.316  | -0.003 | 1.000  | 2728187  | NC           |                 |      | 29405 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.419 | 3.420  | -0.001 | 1.000  | 5346931  | 2.52         |                 | 101  | 38654 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.419 | 3.422  | -0.003 | 1.000  | 2070950  | 0.99         |                 | 99.5 | 25217 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.456 | 3.455  | 0.001  | 1.000  | 1144412  | 0.9554       |                 | 99.5 | 17278 |       |
| 549.00 > 99.00                        | 3.447 | 3.455  | -0.008 | 0.997  | 454699   |              | 2.52(1.33-3.97) | 99.5 | 8974  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.456 | 3.458  | -0.002 | 1.000  | 581733   | 0.9417       |                  | 98.3 | 11450 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.456 | 3.459  | -0.003 | 1.000  | 1096366  | 2.29         |                  | 95.6 | 13992 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.465 | 3.468  | -0.003 | 1.000  | 1208399  | 1.01         |                  | 101  | 5917  |       |
| 513.00 > 169.00                       | 3.465 | 3.468  | -0.003 | 1.000  | 230921   |              | 5.23(2.36-7.09)  | 101  | 5650  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.465 | 3.468  | -0.003 | 1.000  | 3084670  | 2.46         |                  | 98.3 | 75429 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.620 | 3.624  | -0.004 | 1.000  | 1667566  | 2.41         |                  | 96.4 | 23781 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.630 | 3.631  | -0.001 | 1.003  | 695308   | 1.03         |                  | 103  | 6776  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.784 | 3.781  | 0.003  | 1.000  | 961059   | 0.9051       |                  | 93.9 | 13697 |       |
| 599.00 > 99.00                        | 3.784 | 3.781  | 0.003  | 1.000  | 339652   |              | 2.83(1.39-4.16)  | 93.9 | 7908  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.794 | 3.794  | 0.0    | 1.000  | 1808821  | 2.55         |                  | 102  | 9758  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 651368   | 0.9577       |                  | 95.8 | 11982 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 756677   | 0.8755       |                  | 87.6 | 4657  |       |
| 563.00 > 169.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 202483   |              | 3.74(2.12-6.36)  | 87.6 | 7412  |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 2587053  | 2.60         |                  | 104  | 43529 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.960 | 3.958  | 0.002  | 1.000  | 4159140  | NC           |                  |      | 44374 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.092 | 4.099  | -0.007 | 1.000  | 2679695  | 2.51         |                  | 100  | 17510 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.102 | 4.100  | 0.002  | 1.003  | 1104651  | 0.9875       |                  | 98.7 | 918   |       |
| 613.00 > 169.00                       | 4.092 | 4.100  | -0.008 | 1.000  | 275338   |              | 4.01(2.13-6.40)  | 98.7 | 2899  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.362 | 4.368  | -0.006 | 1.000  | 1211735  | 0.9883       |                  | 98.8 | 636   |       |
| 663.00 > 169.00                       | 4.362 | 4.368  | -0.006 | 1.000  | 378967   |              | 3.20(1.25-3.76)  | 98.8 | 5472  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.605 | 4.608  | -0.003 | 1.000  | 331048   | 0.9655       |                  | 96.6 | 4238  |       |
| 713.00 > 219.00                       | 4.595 | 4.608  | -0.013 | 0.998  | 234322   |              | 1.41(0.71-2.13)  | 96.6 | 3434  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.605 | 4.608  | -0.003 | 1.000  | 3394312  | 2.59         |                  | 103  | 16978 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 5.028 | 5.030  | -0.002 | 1.000  | 5890266  | 2.64         |                  | 106  | 15198 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 5.028 | 5.031  | -0.003 | 1.000  | 2236578  | NC           |                  |      | 560   |       |
| 813.00 > 169.00                       | 5.028 | 5.031  | -0.003 | 1.000  | 371148   |              | 6.03(2.86-8.58)  |      | 2763  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.406 | 5.408  | -0.002 | 1.000  | 2576884  | NC           |                  |      | 454   |       |
| 913.00 > 169.00                       | 5.406 | 5.408  | -0.002 | 1.000  | 319419   |              | 8.07(3.83-11.48) |      | 2706  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_005.d

Injection Date: 15-May-2018 15:36:58

Instrument ID: A8\_N

Lims ID: IC L4 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

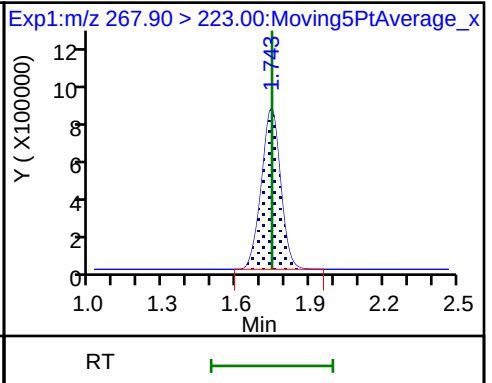
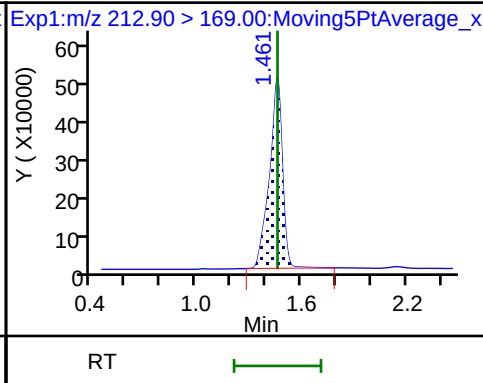
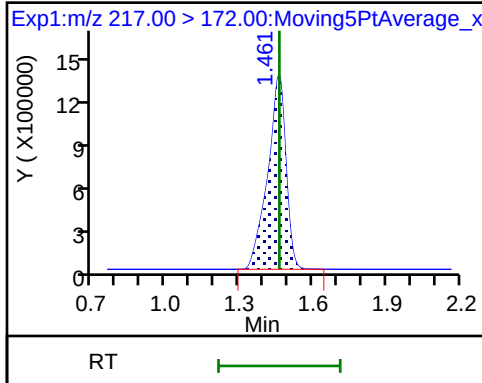
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

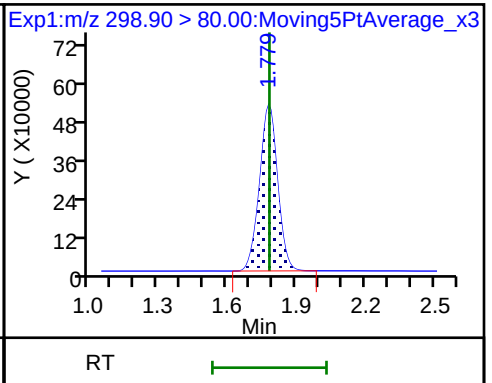
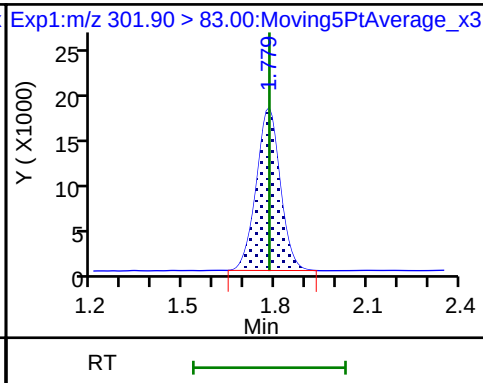
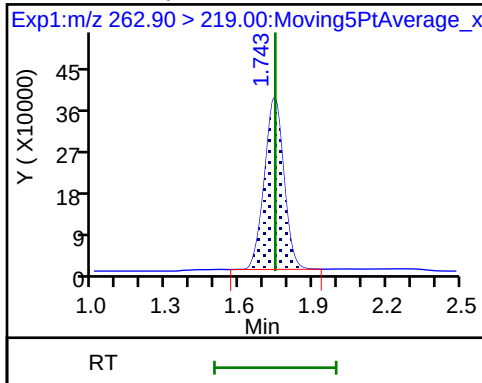
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

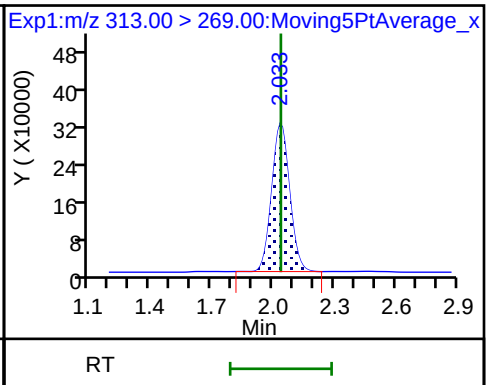
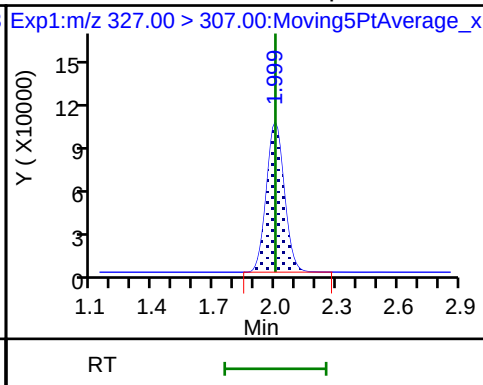
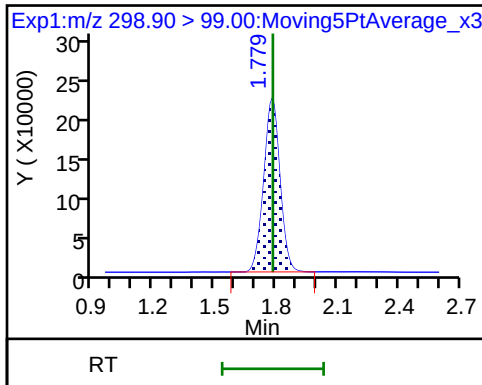
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

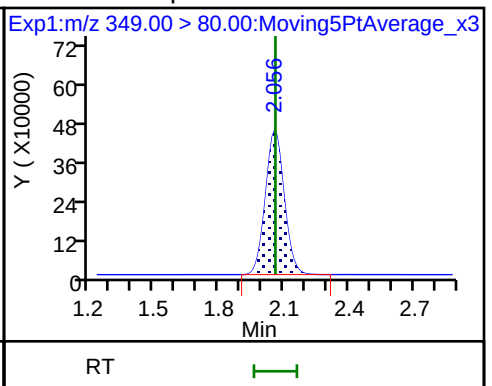
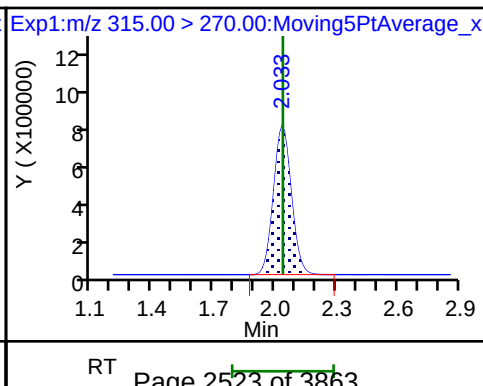
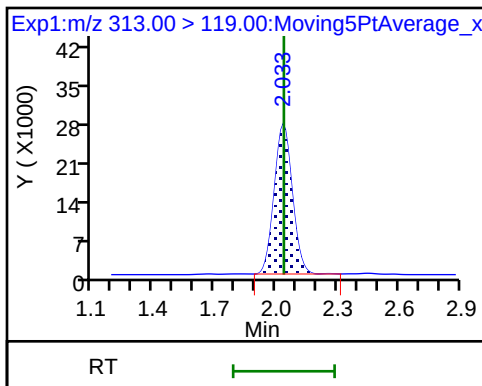
6 Perfluorohexanoic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

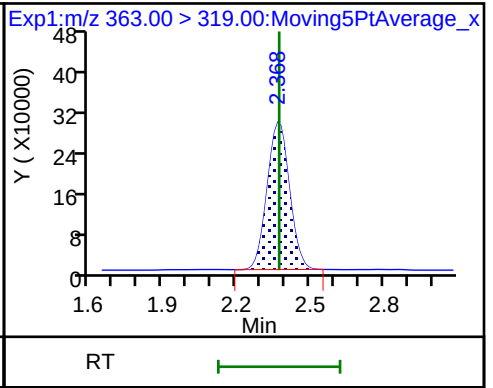
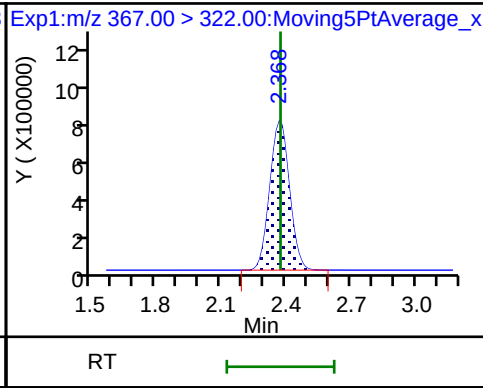
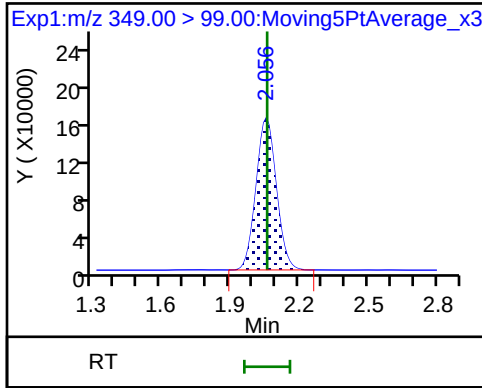
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

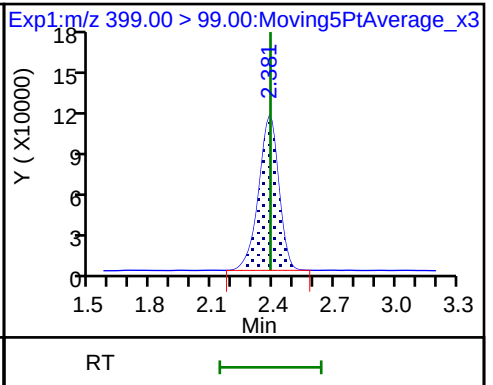
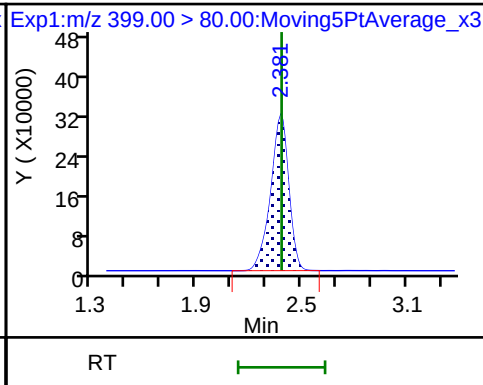
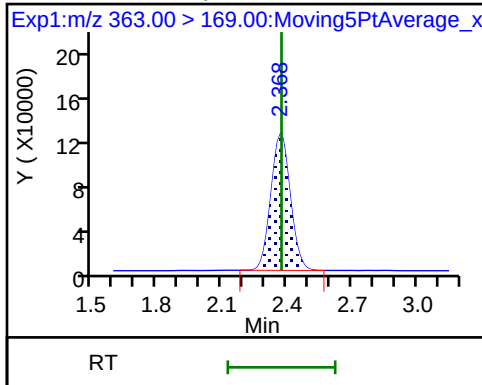
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

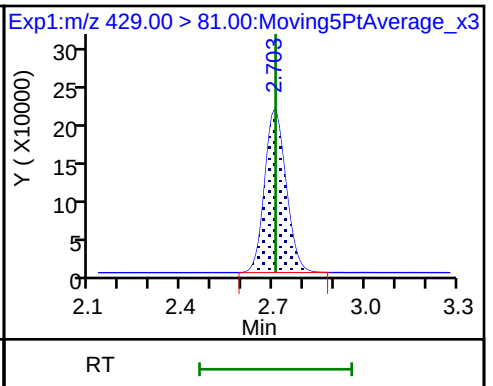
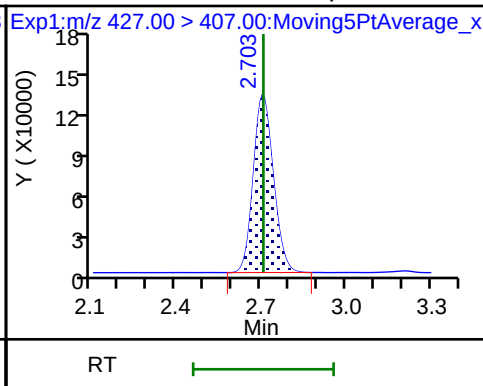
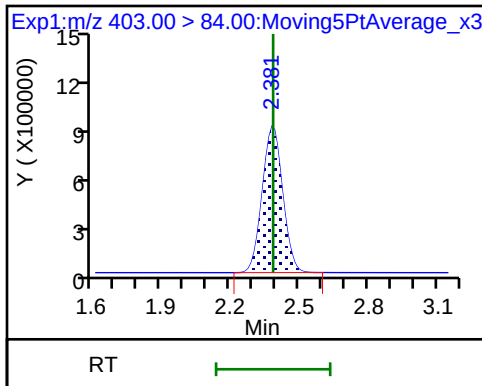
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## 13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

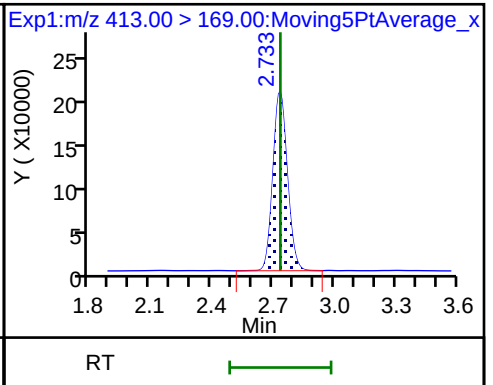
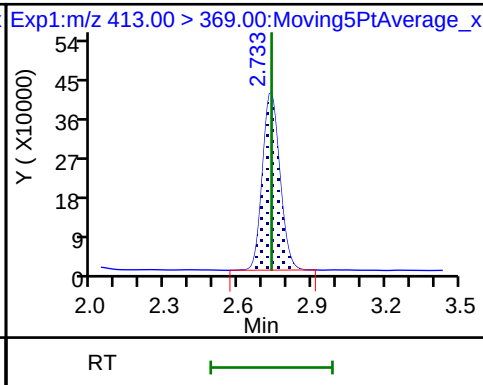
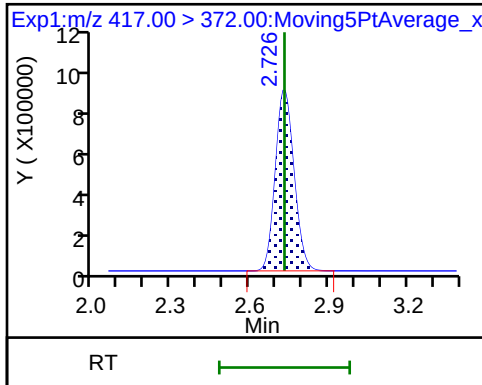
## D 12 M2-6:2FTS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

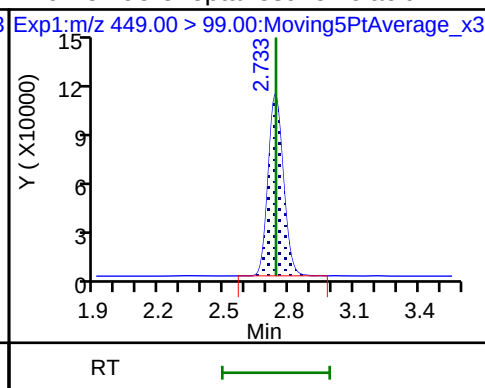
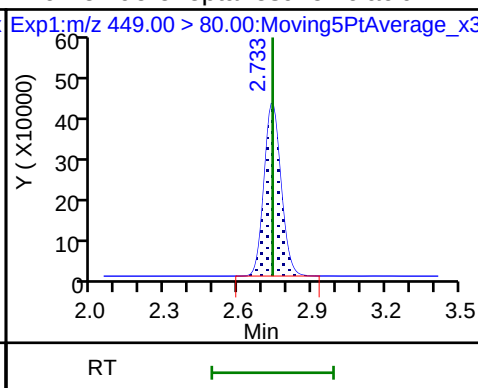
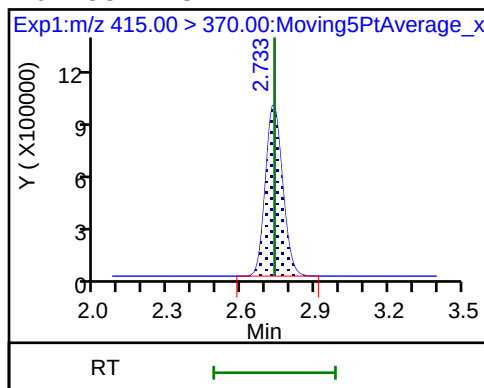
## 15 Perfluorooctanoic acid



## \* 62 13C2-PFOA

## 16 Perfluoroheptanesulfonic acid

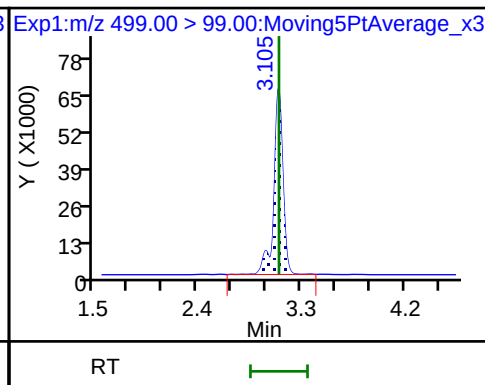
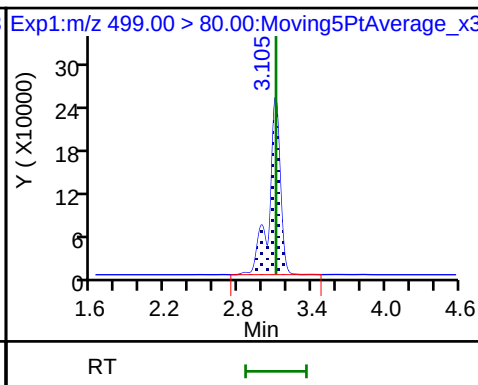
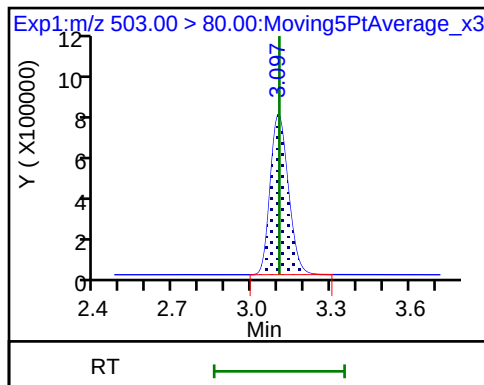
## 16 Perfluoroheptanesulfonic acid



## D 18 13C4 PFOS

## 17 Perfluorooctane sulfonic acid

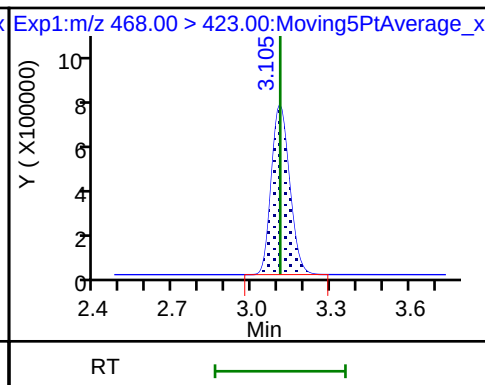
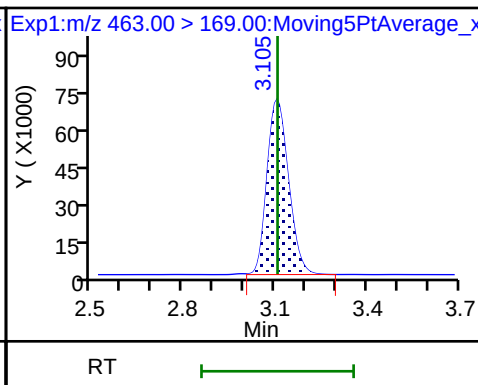
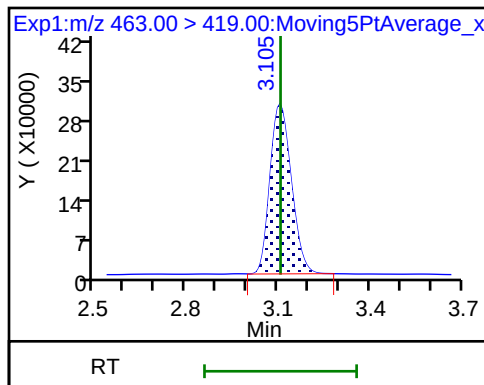
## 17 Perfluorooctane sulfonic acid



## 20 Perfluorononanoic acid

## 20 Perfluorononanoic acid

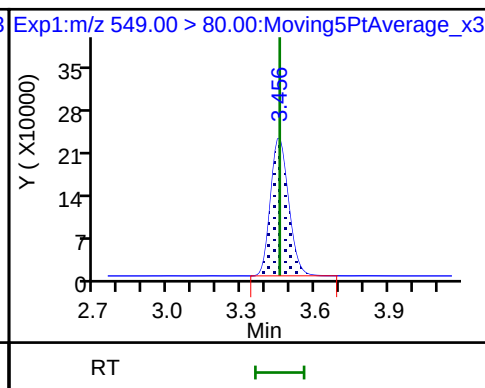
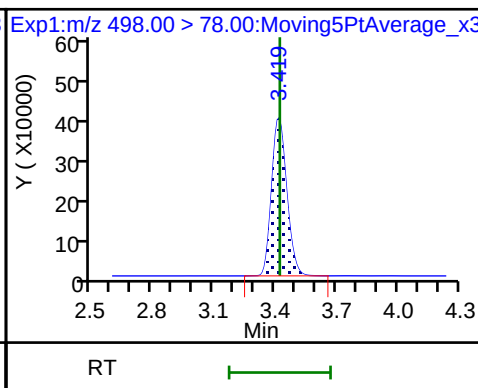
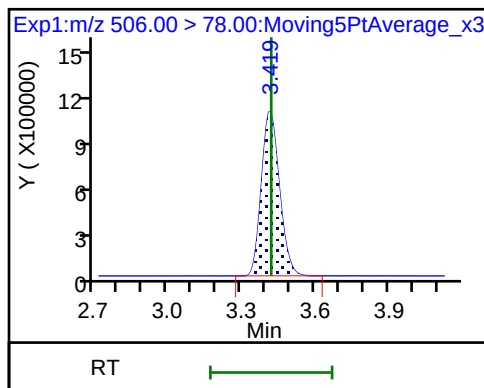
## D 19 13C5 PFNA



## D 21 13C8 FOSA

## 22 Perfluorooctane Sulfonamide

## 68 Perfluorononanesulfonic acid



68 Perfluorononanesulfonic acid

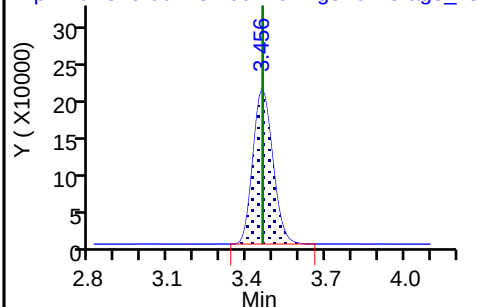
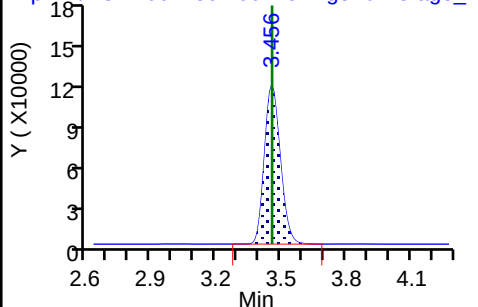
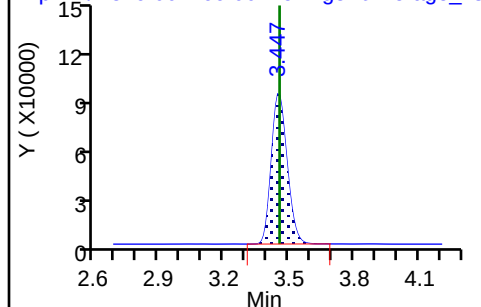
25 Sodium 1H,1H,2H,2H-perfluorodeca

De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



RT

RT

RT

24 Perfluorodecanoic acid

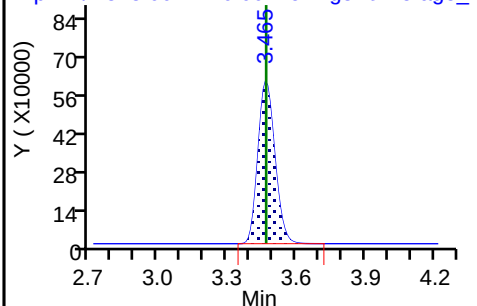
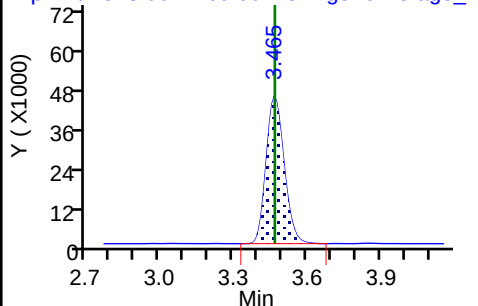
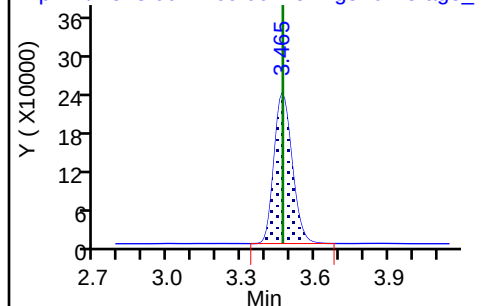
24 Perfluorodecanoic acid

D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



RT

RT

RT

D 27 d3-NMeFOSAA

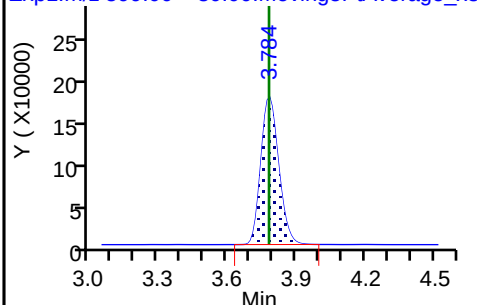
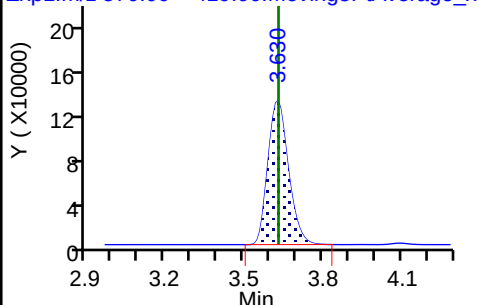
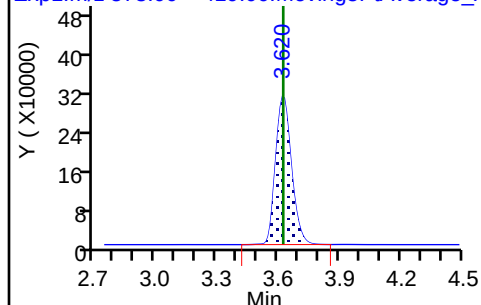
28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



RT

RT

RT

29 Perfluorodecane Sulfonic acid

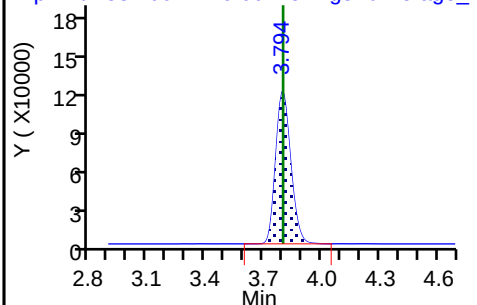
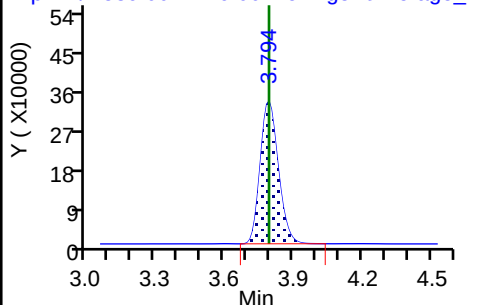
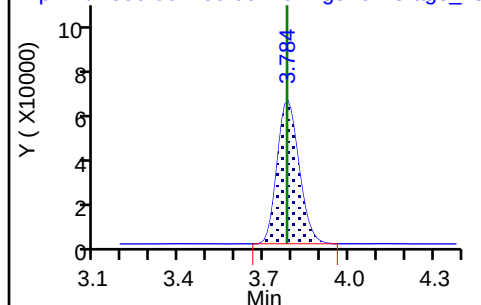
D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x3

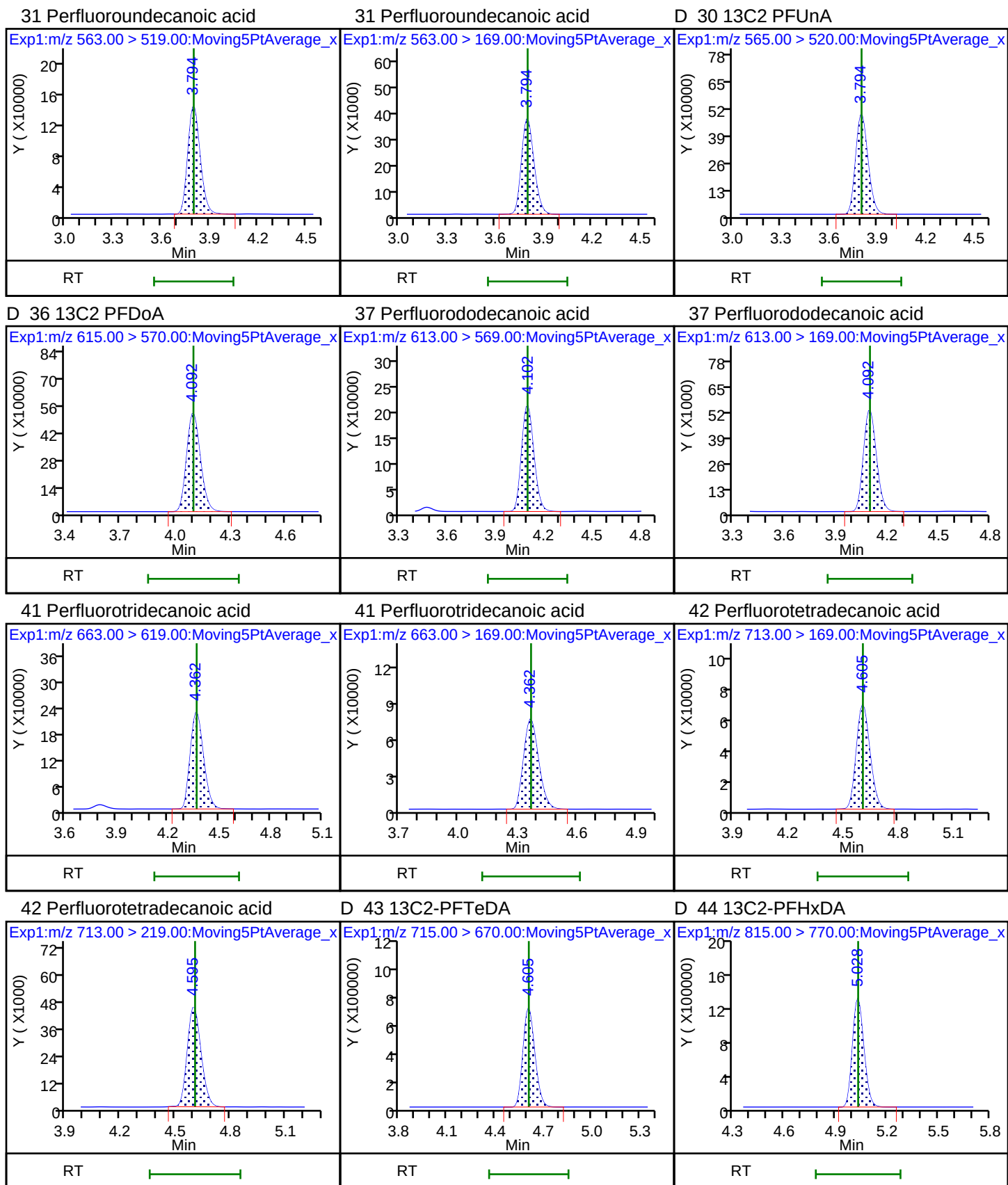


RT

RT

RT







TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_007.d  
 Lims ID: IC L6 Full  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 15-May-2018 15:52:36 ALS Bottle#: 15 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L6-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:20:14 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: hannigana

Date: 16-May-2018 08:02:38

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 12934647 | 5.15         |                   | 103  | 7697   |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 6751655  | 2.54         |                   | 102  | 43716  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.747 | 1.744  | 0.003  | 0.563  | 4328345  | 2.54         |                   | 102  | 61811  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.747 | 1.745  | 0.002  | 1.000  | 10150448 | 4.97         |                   | 99.3 | 5494   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.783 | 1.780  | 0.003  | 1.000  | 87185    | 2.27         |                   | 97.4 | 537    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.783 | 1.783  | 0.0    | 1.000  | 13863265 | 4.73         |                   | 107  | 62707  |       |
| 298.90 > 99.00                        | 1.783 | 1.783  | 0.0    | 1.000  | 5921678  |              | 2.34(1.25-3.74)   | 107  | 33570  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 2.003 | 1.999  | 0.004  | 1.000  | 667183   | NC           |                   |      | 8785   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 2.003 | 2.000  | 0.003  | 1.000  | 3112425  | 5.01         |                   | 107  | 179105 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.037 | 2.037  | 0.0    | 1.000  | 4583820  | 2.52         |                   | 101  | 77348  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.037 | 2.037  | 0.0    | 1.000  | 9544553  | 5.06         |                   | 101  | 17429  |       |
| 313.00 > 119.00                       | 2.037 | 2.037  | 0.0    | 1.000  | 864980   |              | 11.03(5.03-15.10) | 101  | 12137  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.060 | 2.059  | 0.001  | 1.000  | 13112812 | 5.03         |                   | 107  | 135793 |       |
| 349.00 > 99.00                        | 2.060 | 2.059  | 0.001  | 1.000  | 4899363  |              | 2.68(1.36-4.07)   | 107  | 39200  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |        |       |
| 332.10 > 287.00                       | 2.139 | 2.134  | 0.005  | 1.000  | 229197   | NC           |                   |      | 4744   |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |           |           |           |          |                 |                 |      |       |       |
| 329.10 > 285.00                       | 2.139 | 2.134     | 0.005     | 1.000     | 1471265  | NC              |                 |      | 11755 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                       | 2.372 | 2.374     | -0.002    | 1.000     | 9093863  | 4.98            |                 | 99.7 | 11594 |       |
| 363.00 > 169.00                       | 2.372 | 2.374     | -0.002    | 1.000     | 3608375  |                 | 2.52(1.13-3.40) | 99.7 | 18118 |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.372 | 2.374     | -0.002    | 1.000     | 4318388  | 2.48            |                 | 99.3 | 70096 |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.385 | 2.386     | -0.001    | 1.000     | 5191664  | 2.41            |                 | 102  | 44906 |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                        | 2.385 | 2.386     | -0.001    | 1.000     | 10650638 | 4.31            |                 | 94.6 | 33451 |       |
| 399.00 > 99.00                        | 2.385 | 2.386     | -0.001    | 1.000     | 3614555  |                 | 2.95(1.50-4.49) | 94.6 | 11846 |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |       |       |
| 377.00 > 251.00                       | 2.418 | 2.418     | 0.0       | 1.000     | 25273614 | NC              |                 |      | 98920 |       |
| 377.00 > 85.00                        | 2.418 | 2.418     | 0.0       | 1.000     | 15668730 |                 | 1.61(0.84-2.53) |      | 80776 |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.705 | 2.707     | -0.002    | 1.000     | 867962   | 2.26            |                 | 95.2 | 14854 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |       |       |
| 427.00 > 407.00                       | 2.705 | 2.707     | -0.002    | 1.000     | 3021313  | 4.70            |                 | 99.2 | 17776 |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.728 | 2.731     | -0.003    | 1.000     | 4079623  | 2.48            |                 | 99.2 | 69266 |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.736 | 2.734     | 0.002     |           | 4344720  | 2.50            |                 |      | 52764 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                       | 2.736 | 2.734     | 0.002     | 1.003     | 9649258  | 5.02            |                 | 100  | 3647  |       |
| 413.00 > 169.00                       | 2.728 | 2.734     | -0.006    | 1.000     | 4988335  |                 | 1.93(0.84-2.52) | 100  | 15918 |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 449.00 > 80.00                        | 2.736 | 2.739     | -0.003    | 1.000     | 9775395  | 4.98            |                 | 105  | 59538 |       |
| 449.00 > 99.00                        | 2.736 | 2.739     | -0.003    | 1.000     | 2650153  |                 | 3.69(1.94-5.82) | 105  | 23801 |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.100 | 3.104     | -0.004    | 1.000     | 3520558  | 2.38            |                 | 99.7 | 21492 |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                        | 3.100 | 3.105     | -0.005    | 1.000     | 7964833  | 4.60            |                 | 99.1 | 40574 |       |
| 499.00 > 99.00                        | 3.100 | 3.105     | -0.005    | 1.000     | 1714762  |                 | 4.64(2.31-6.93) | 99.1 | 16094 |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.100 | 3.107     | -0.007    | 1.000     | 3359491  | 2.50            |                 | 99.8 | 58281 |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 463.00 > 419.00                       | 3.100 | 3.107     | -0.007    | 1.000     | 7125949  | 5.01            |                 | 100  | 9626  |       |
| 463.00 > 169.00                       | 3.100 | 3.107     | -0.007    | 1.000     | 1697389  |                 | 4.20(1.90-5.69) | 100  | 38936 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |       |       |
| 531.00 > 351.00                       | 3.310 | 3.316     | -0.006    | 1.000     | 13260701 | NC              |                 |      | 75928 |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.415 | 3.420     | -0.005    | 1.000     | 4976852  | 2.57            |                 | 103  | 44899 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.415 | 3.422     | -0.007    | 1.000     | 10364812 | 5.35            |                 | 107  | 72768 |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 549.00 > 80.00                        | 3.452 | 3.455     | -0.003    | 1.000     | 5665707  | 5.08            |                 | 106  | 58348 |       |
| 549.00 > 99.00                        | 3.452 | 3.455     | -0.003    | 1.000     | 2073279  |                 | 2.73(1.33-3.97) | 106  | 26932 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec  | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|-------|--------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |       |        |       |
| 527.00 > 507.00                       | 3.452 | 3.458  | -0.006 | 1.000  | 2834764  | 5.17         |                  | 108   | 68462  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |       |        |       |
| 529.00 > 81.00                        | 3.452 | 3.459  | -0.007 | 1.000  | 972368   | 2.23         |                  | 92.9  | 15318  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |       |        |       |
| 515.00 > 470.00                       | 3.462 | 3.468  | -0.006 | 1.000  | 2812041  | 2.46         |                  | 98.3  | 45289  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |       |        |       |
| 513.00 > 469.00                       | 3.462 | 3.468  | -0.006 | 1.000  | 5744357  | 5.25         |                  | 105   | 23436  |       |
| 513.00 > 169.00                       | 3.462 | 3.468  | -0.006 | 1.000  | 1030600  |              | 5.57(2.36-7.09)  | 105   | 28166  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |       |        |       |
| 573.00 > 419.00                       | 3.618 | 3.624  | -0.006 | 1.000  | 1561125  | 2.47         |                  | 98.9  | 24281  |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |       |        |       |
| 570.00 > 419.00                       | 3.628 | 3.631  | -0.003 | 1.003  | 3278986  | 5.17         |                  | 103   | 22410  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |       |        |       |
| 599.00 > 80.00                        | 3.772 | 3.781  | -0.009 | 1.000  | 5009746  | 5.07         |                  | 105   | 48361  |       |
| 599.00 > 99.00                        | 3.772 | 3.781  | -0.009 | 1.000  | 1665176  |              | 3.01(1.39-4.16)  | 105   | 27808  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |       |        |       |
| 589.00 > 419.00                       | 3.783 | 3.794  | -0.011 | 1.000  | 1507014  | 2.33         |                  | 93.0  | 7190   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |       |        |       |
| 565.00 > 520.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 2262574  | 2.50         |                  | 99.8  | 34652  |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |       |        |       |
| 563.00 > 519.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 3717634  | 4.92         |                  | 98.4  | 15246  |       |
| 563.00 > 169.00                       | 3.794 | 3.800  | -0.006 | 1.000  | 938877   |              | 3.96(2.12-6.36)  | 98.4  | 21508  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |       |        |       |
| 584.00 > 419.00                       | 3.794 | 3.800  | -0.006 | 1.003  | 3130989  | 5.53         |                  | 111   | 62545  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |       |        |       |
| 631.00 > 451.00                       | 3.952 | 3.958  | -0.006 | 1.000  | 20326205 | NC           |                  |       | 133460 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |       |        |       |
| 615.00 > 570.00                       | 4.097 | 4.099  | -0.002 | 1.000  | 2544838  | 2.61         |                  | 104   | 17180  |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |       |        |       |
| 613.00 > 569.00                       | 4.097 | 4.100  | -0.003 | 1.000  | 5307128  | 5.00         |                  | 99.9  | 4236   |       |
| 613.00 > 169.00                       | 4.097 | 4.100  | -0.003 | 1.000  | 1355731  |              | 3.91(2.13-6.40)  | 99.9  | 14317  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |       |        |       |
| 663.00 > 619.00                       | 4.360 | 4.368  | -0.008 | 1.000  | 5890114  | 5.06         |                  | 101   | 3241   |       |
| 663.00 > 169.00                       | 4.360 | 4.368  | -0.008 | 1.000  | 1785642  |              | 3.30(1.25-3.76)  | 101   | 15812  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |       |        |       |
| 715.00 > 670.00                       | 4.604 | 4.608  | -0.004 | 1.000  | 3113223  | 2.60         |                  | 104   | 13682  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |       |        |       |
| 713.00 > 169.00                       | 4.604 | 4.608  | -0.004 | 1.000  | 1571970  | 5.00         |                  | 100.0 | 14331  |       |
| 713.00 > 219.00                       | 4.593 | 4.608  | -0.015 | 0.998  | 1080602  |              | 1.45(0.71-2.13)  | 100.0 | 15785  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |       |        |       |
| 815.00 > 770.00                       | 5.027 | 5.030  | -0.003 | 1.000  | 5054291  | 2.49         |                  | 99.5  | 12467  |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |       |        |       |
| 813.00 > 769.00                       | 5.027 | 5.031  | -0.004 | 1.000  | 9889936  | NC           |                  |       | 2174   |       |
| 813.00 > 169.00                       | 5.027 | 5.031  | -0.004 | 1.000  | 1647631  |              | 6.00(2.86-8.58)  |       | 8949   |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |       |        |       |
| 913.00 > 869.00                       | 5.402 | 5.408  | -0.006 | 1.000  | 10791279 | NC           |                  |       | 1744   |       |
| 913.00 > 169.00                       | 5.402 | 5.408  | -0.006 | 1.000  | 1312233  |              | 8.22(3.83-11.48) |       | 6453   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL6\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_007.d

Injection Date: 15-May-2018 15:52:36

Instrument ID: A8\_N

Lims ID: IC L6 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

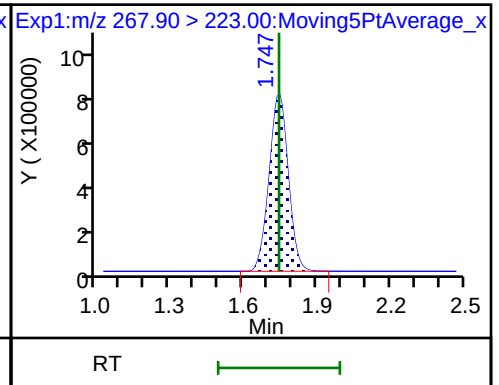
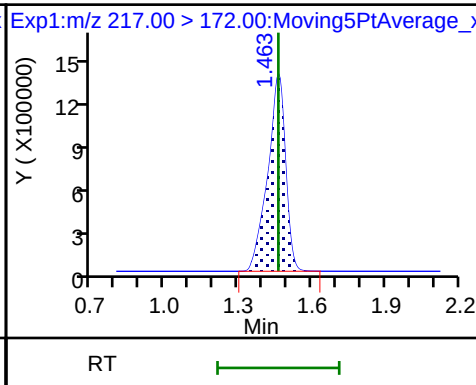
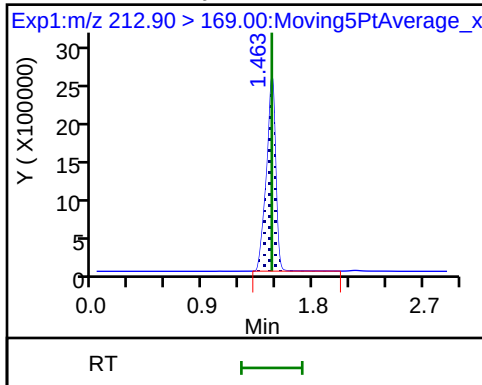
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

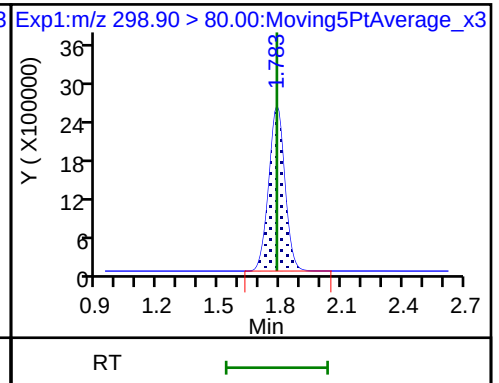
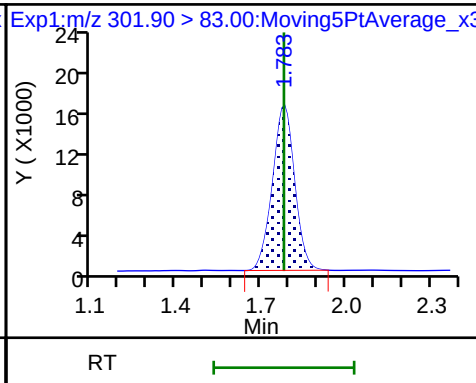
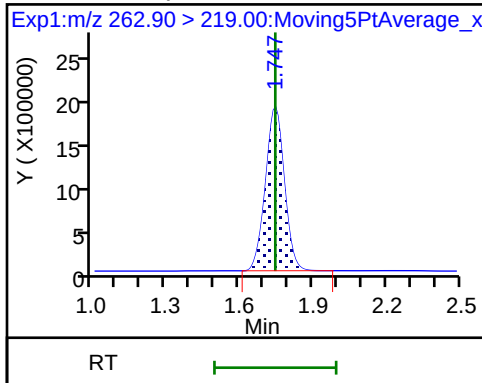
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

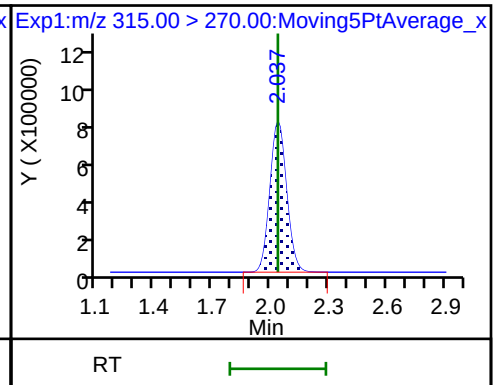
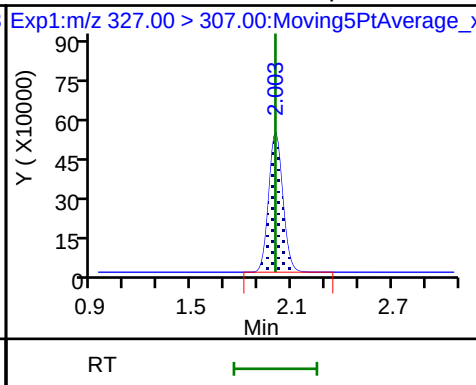
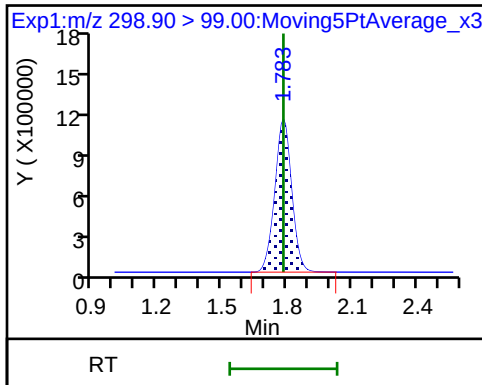
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

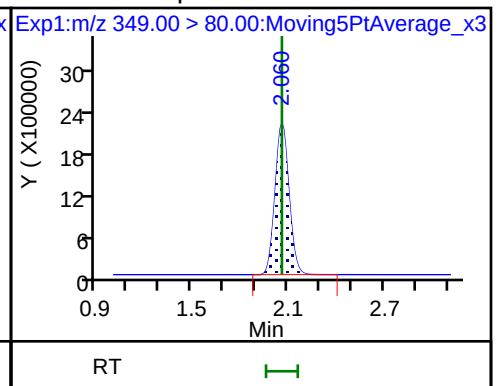
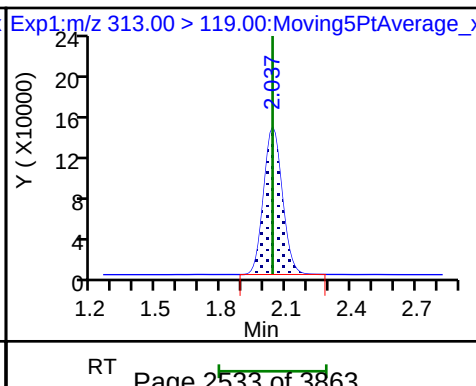
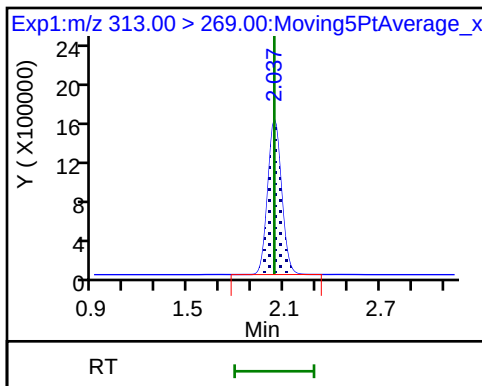
## De 7 13C2 PFHxA

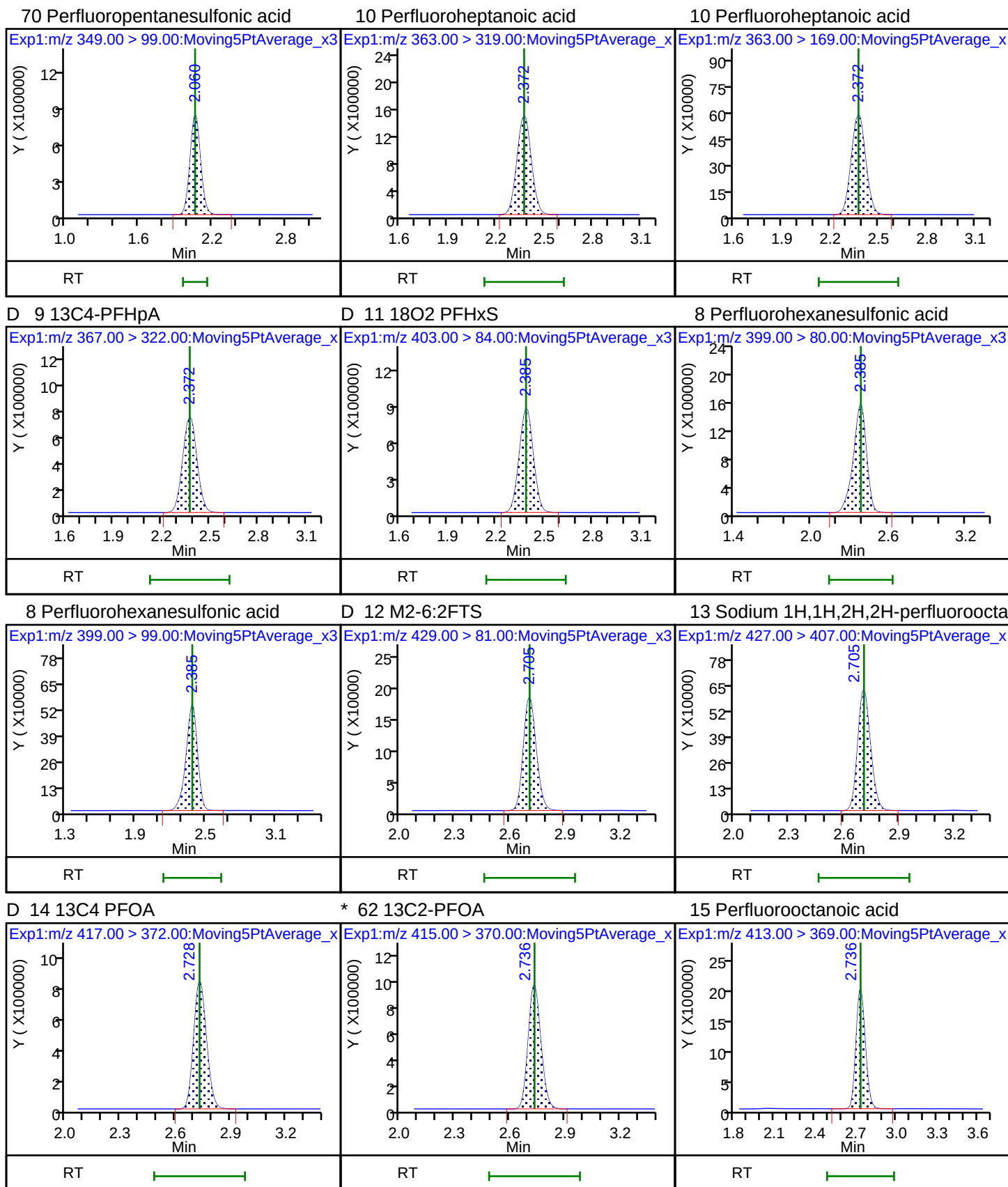


## 6 Perfluorohexanoic acid

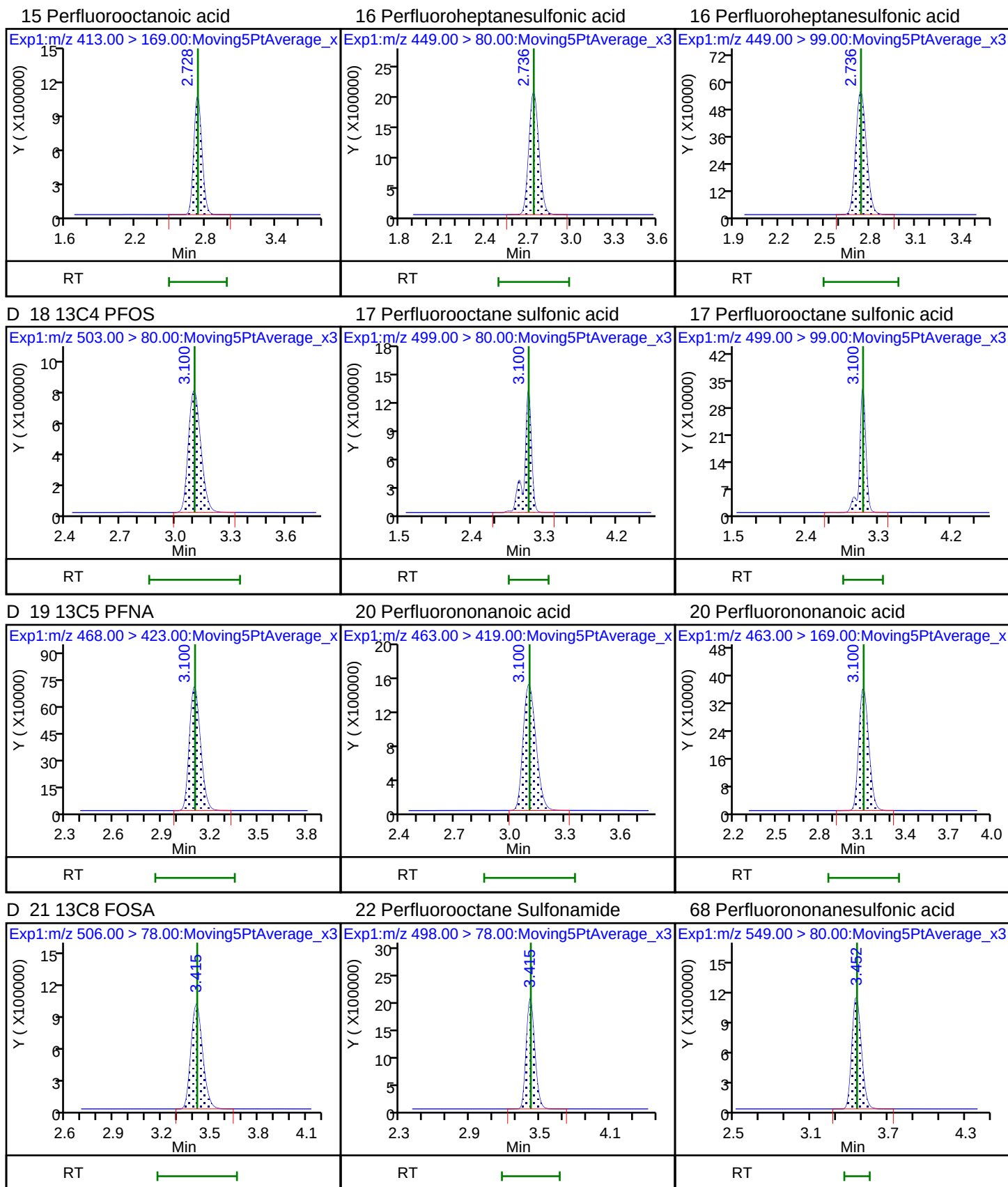
## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid







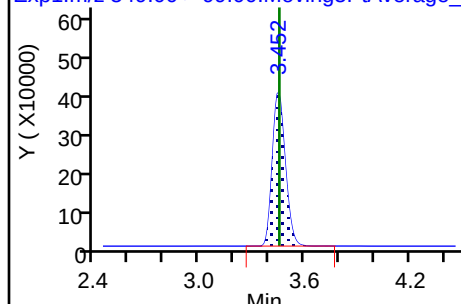


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

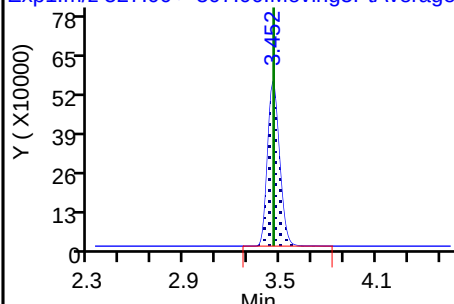
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



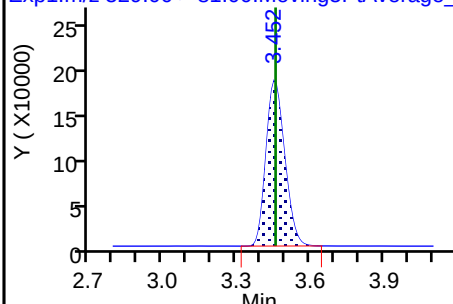
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



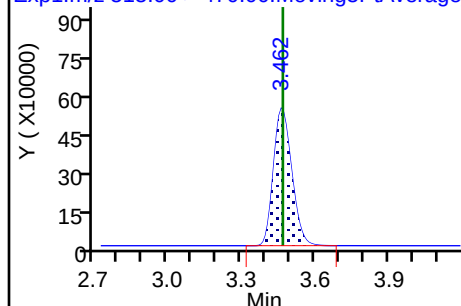
RT

## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

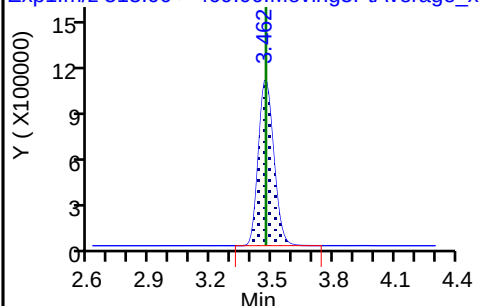
## 24 Perfluorodecanoic acid

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



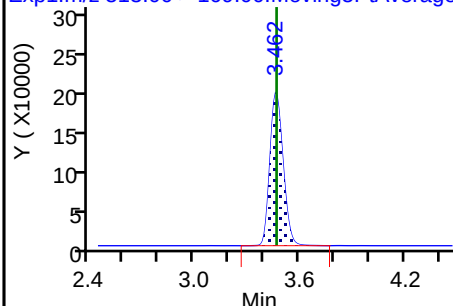
RT

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



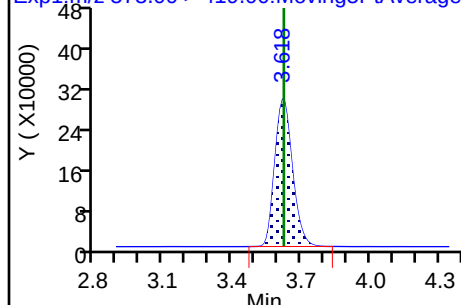
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

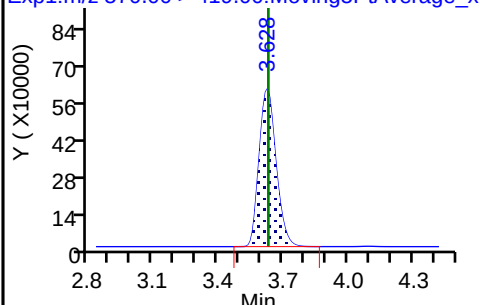
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



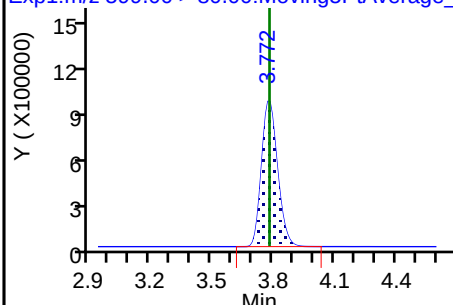
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



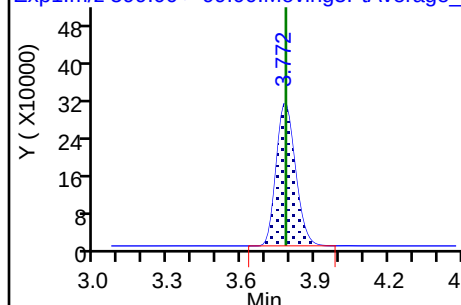
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

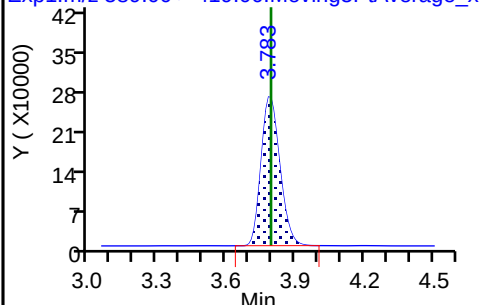
## D 30 13C2 PFUnA

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



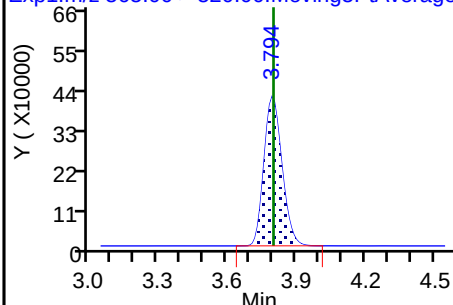
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

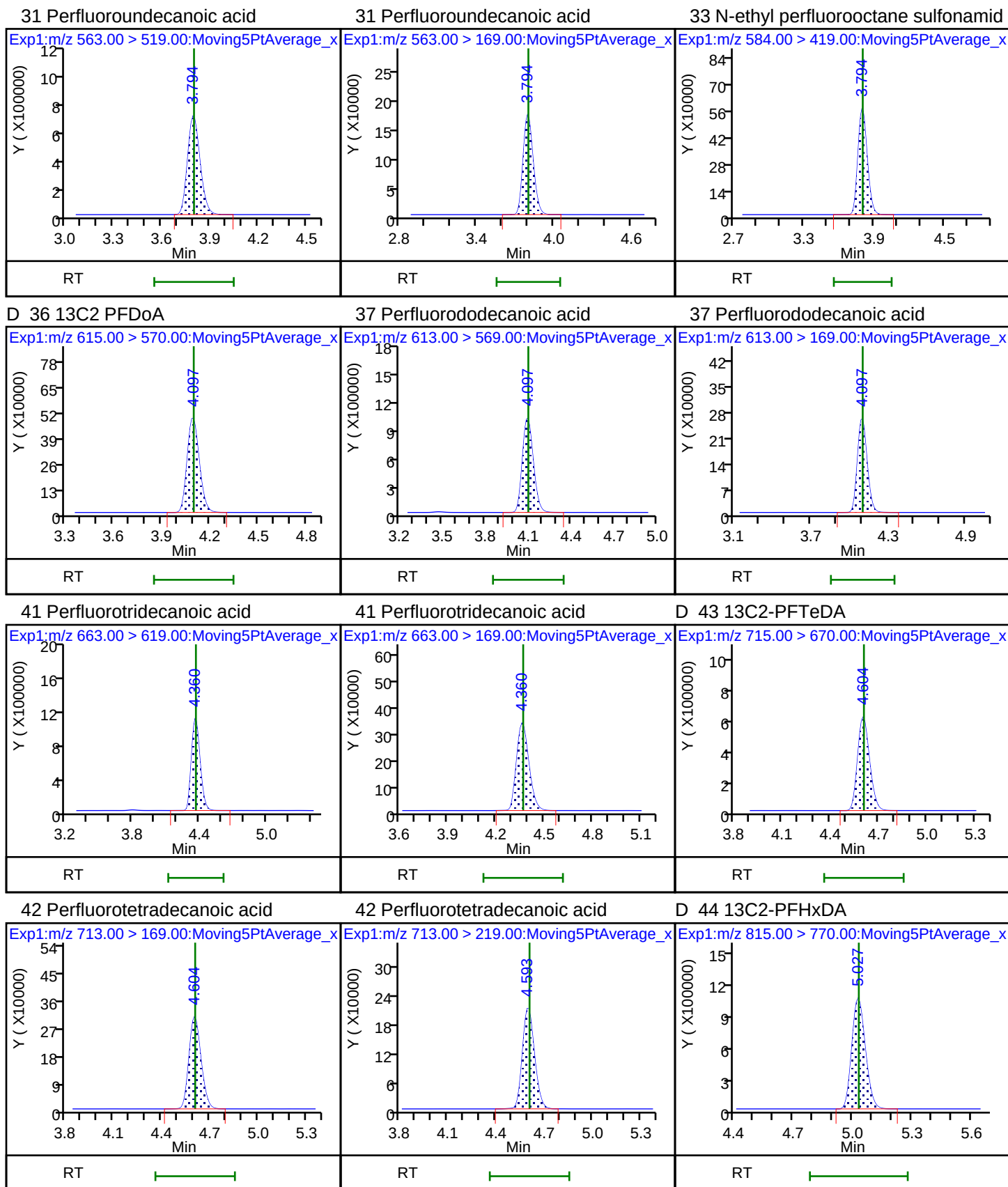


RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3



RT





TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_008.d  
 Lims ID: IC L7 Full  
 Client ID:  
 Sample Type: IC Calib Level: 7  
 Inject. Date: 15-May-2018 16:00:25 ALS Bottle#: 16 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L7-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:20:17 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: hannigana

Date: 16-May-2018 08:03:15

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 7496989  | 2.56         |                   | 102  | 45156  |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.463 | 1.462  | 0.001  | 1.000  | 26861072 | 9.63         |                   | 96.3 | 10837  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.747 | 1.744  | 0.003  | 0.563  | 4657025  | 2.48         |                   | 99.2 | 88540  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.747 | 1.745  | 0.002  | 1.000  | 21497034 | 9.78         |                   | 97.8 | 12049  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.783 | 1.780  | 0.003  | 1.000  | 99131    | 2.34         |                   | 100  | 680    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.783 | 1.783  | 0.0    | 1.000  | 28014178 | 8.41         |                   | 95.2 | 105824 |       |
| 298.90 > 99.00                        | 1.783 | 1.783  | 0.0    | 1.000  | 12761331 |              | 2.20(1.25-3.74)   | 95.2 | 86489  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.991 | 1.999  | -0.008 | 1.000  | 711767   | NC           |                   |      | 9363   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.991 | 2.000  | -0.009 | 1.000  | 6341030  | 8.97         |                   | 96.1 | 269024 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.037 | 2.037  | 0.0    | 1.000  | 20297289 | 10.5         |                   | 105  | 27327  |       |
| 313.00 > 119.00                       | 2.037 | 2.037  | 0.0    | 1.000  | 1901738  |              | 10.67(5.03-15.10) | 105  | 32214  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.037 | 2.037  | 0.0    | 1.000  | 4709249  | 2.35         |                   | 94.0 | 113102 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.059 | 2.059  | 0.0    | 1.000  | 25577332 | 8.63         |                   | 92.0 | 129323 |       |
| 349.00 > 99.00                        | 2.059 | 2.059  | 0.0    | 1.000  | 10408450 |              | 2.46(1.36-4.07)   | 92.0 | 84074  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |        |       |
| 329.10 > 285.00                       | 2.138 | 2.134  | 0.004  | 1.005  | 3404733  | NC           |                   |      | 25152  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                 |      |        |       |
| 332.10 > 287.00                       | 2.127 | 2.134     | -0.007    | 1.000     | 259760   | NC              |                 |      | 4872   |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |        |       |
| 367.00 > 322.00                       | 2.372 | 2.374     | -0.002    | 1.000     | 4521122  | 2.36            |                 | 94.2 | 103832 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |        |       |
| 363.00 > 319.00                       | 2.372 | 2.374     | -0.002    | 1.000     | 18928350 | 9.91            |                 | 99.1 | 24502  |       |
| 363.00 > 169.00                       | 2.372 | 2.374     | -0.002    | 1.000     | 7698081  |                 | 2.46(1.13-3.40) | 99.1 | 38789  |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 399.00 > 80.00                        | 2.384 | 2.386     | -0.002    | 1.000     | 22174743 | 8.73            |                 | 95.9 | 50739  |       |
| 399.00 > 99.00                        | 2.384 | 2.386     | -0.002    | 1.000     | 7625236  |                 | 2.91(1.50-4.49) | 95.9 | 19325  |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |        |       |
| 403.00 > 84.00                        | 2.384 | 2.386     | -0.002    | 1.000     | 5333305  | 2.25            |                 | 95.1 | 51552  |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |        |       |
| 377.00 > 251.00                       | 2.418 | 2.418     | 0.0       | 1.000     | 45699176 | NC              |                 |      | 247060 |       |
| 377.00 > 85.00                        | 2.418 | 2.418     | 0.0       | 1.000     | 30434458 |                 | 1.50(0.84-2.53) |      | 136808 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |        |       |
| 427.00 > 407.00                       | 2.704 | 2.707     | -0.003    | 1.000     | 6574970  | 9.73            |                 | 103  | 33349  |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |        |       |
| 429.00 > 81.00                        | 2.704 | 2.707     | -0.003    | 1.000     | 913641   | 2.16            |                 | 90.8 | 12419  |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 417.00 > 372.00                       | 2.727 | 2.731     | -0.004    | 1.000     | 4465836  | 2.46            |                 | 98.4 | 66165  |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 413.00 > 369.00                       | 2.727 | 2.734     | -0.007    | 1.000     | 19682065 | 9.36            |                 | 93.6 | 6951   |       |
| 413.00 > 169.00                       | 2.727 | 2.734     | -0.007    | 1.000     | 10699568 |                 | 1.84(0.84-2.52) | 93.6 | 26447  |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 415.00 > 370.00                       | 2.727 | 2.734     | -0.007    |           | 4792823  | 2.50            |                 |      | 55635  |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 449.00 > 80.00                        | 2.735 | 2.739     | -0.004    | 1.000     | 19707477 | 9.22            |                 | 96.8 | 154276 |       |
| 449.00 > 99.00                        | 2.735 | 2.739     | -0.004    | 1.000     | 5631991  |                 | 3.50(1.94-5.82) | 96.8 | 51101  |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                        | 3.102 | 3.104     | -0.002    | 1.000     | 3835347  | 2.35            |                 | 98.4 | 14077  |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 499.00 > 80.00                        | 3.102 | 3.105     | -0.003    | 1.000     | 16474463 | 8.73            |                 | 94.1 | 62171  |       |
| 499.00 > 99.00                        | 3.102 | 3.105     | -0.003    | 1.000     | 3644418  |                 | 4.52(2.31-6.93) | 94.1 | 38943  |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 463.00 > 419.00                       | 3.102 | 3.107     | -0.005    | 1.000     | 15430529 | 10.3            |                 | 103  | 35152  |       |
| 463.00 > 169.00                       | 3.102 | 3.107     | -0.005    | 1.000     | 3742679  |                 | 4.12(1.90-5.69) | 103  | 86988  |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |        |       |
| 468.00 > 423.00                       | 3.102 | 3.107     | -0.005    | 1.000     | 3539647  | 2.38            |                 | 95.4 | 67016  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |        |       |
| 531.00 > 351.00                       | 3.313 | 3.316     | -0.003    | 1.000     | 27038736 | NC              |                 |      | 151536 |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |        |       |
| 506.00 > 78.00                        | 3.419 | 3.420     | -0.001    | 1.000     | 5353791  | 2.51            |                 | 100  | 42855  |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |        |       |
| 498.00 > 78.00                        | 3.419 | 3.422     | -0.003    | 1.000     | 20311842 | 9.74            |                 | 97.4 | 92159  |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |        |       |
| 549.00 > 80.00                        | 3.447 | 3.455     | -0.008    | 1.000     | 11982938 | 9.86            |                 | 103  | 129081 |       |
| 549.00 > 99.00                        | 3.447 | 3.455     | -0.008    | 1.000     | 4517536  |                 | 2.65(1.33-3.97) | 103  | 36734  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|--------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |        |       |
| 527.00 > 507.00                       | 3.456 | 3.458  | -0.002 | 1.000  | 5636776  | 9.03         |                  | 94.3 | 96836  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |        |       |
| 529.00 > 81.00                        | 3.456 | 3.459  | -0.003 | 1.000  | 1107332  | 2.30         |                  | 95.9 | 17230  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |        |       |
| 513.00 > 469.00                       | 3.465 | 3.468  | -0.003 | 1.000  | 12079263 | 10.0         |                  | 100  | 50962  |       |
| 513.00 > 169.00                       | 3.465 | 3.468  | -0.003 | 1.000  | 2195345  |              | 5.50(2.36-7.09)  | 100  | 53198  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |        |       |
| 515.00 > 470.00                       | 3.465 | 3.468  | -0.003 | 1.000  | 3099083  | 2.45         |                  | 98.2 | 75403  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |        |       |
| 573.00 > 419.00                       | 3.621 | 3.624  | -0.003 | 1.000  | 1836867  | 2.64         |                  | 105  | 26085  |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |        |       |
| 570.00 > 419.00                       | 3.631 | 3.631  | 0.0    | 1.003  | 7460336  | 10.0         |                  | 100  | 34337  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |        |       |
| 599.00 > 80.00                        | 3.776 | 3.781  | -0.005 | 1.000  | 10184141 | 9.45         |                  | 98.0 | 62249  |       |
| 599.00 > 99.00                        | 3.776 | 3.781  | -0.005 | 1.000  | 3433819  |              | 2.97(1.39-4.16)  | 98.0 | 52416  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |        |       |
| 589.00 > 419.00                       | 3.787 | 3.794  | -0.007 | 1.000  | 1619647  | 2.27         |                  | 90.6 | 6610   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |        |       |
| 584.00 > 419.00                       | 3.797 | 3.800  | -0.003 | 1.003  | 6246594  | 10.3         |                  | 103  | 48696  |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |        |       |
| 563.00 > 519.00                       | 3.797 | 3.800  | -0.003 | 1.000  | 8334466  | 10.9         |                  | 109  | 30519  |       |
| 563.00 > 169.00                       | 3.797 | 3.800  | -0.003 | 1.000  | 2023681  |              | 4.12(2.12-6.36)  | 109  | 46537  |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |        |       |
| 565.00 > 520.00                       | 3.797 | 3.800  | -0.003 | 1.000  | 2282286  | 2.28         |                  | 91.3 | 46508  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |        |       |
| 631.00 > 451.00                       | 3.956 | 3.958  | -0.002 | 1.000  | 37717270 | NC           |                  |      | 230708 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |        |       |
| 615.00 > 570.00                       | 4.092 | 4.099  | -0.007 | 1.000  | 2747572  | 2.55         |                  | 102  | 16845  |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |        |       |
| 613.00 > 569.00                       | 4.092 | 4.100  | -0.008 | 1.000  | 11301274 | 9.85         |                  | 98.5 | 8337   |       |
| 613.00 > 169.00                       | 4.092 | 4.100  | -0.008 | 1.000  | 2859090  |              | 3.95(2.13-6.40)  | 98.5 | 24321  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |        |       |
| 663.00 > 619.00                       | 4.369 | 4.368  | 0.001  | 1.000  | 12033356 | 9.57         |                  | 95.7 | 5602   |       |
| 663.00 > 169.00                       | 4.369 | 4.368  | 0.001  | 1.000  | 3833274  |              | 3.14(1.25-3.76)  | 95.7 | 21634  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |        |       |
| 713.00 > 169.00                       | 4.602 | 4.608  | -0.006 | 1.000  | 3455816  | 10.5         |                  | 105  | 20553  |       |
| 713.00 > 219.00                       | 4.602 | 4.608  | -0.006 | 1.000  | 2590223  |              | 1.33(0.71-2.13)  | 105  | 24606  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |        |       |
| 715.00 > 670.00                       | 4.602 | 4.608  | -0.006 | 1.000  | 3267831  | 2.47         |                  | 98.9 | 13292  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |        |       |
| 815.00 > 770.00                       | 5.026 | 5.030  | -0.004 | 1.000  | 6039184  | 2.69         |                  | 108  | 15019  |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |        |       |
| 813.00 > 769.00                       | 5.026 | 5.031  | -0.005 | 1.000  | 20254827 | NC           |                  |      | 4013   |       |
| 813.00 > 169.00                       | 5.026 | 5.031  | -0.005 | 1.000  | 3770206  |              | 5.37(2.86-8.58)  |      | 15174  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |        |       |
| 913.00 > 869.00                       | 5.404 | 5.408  | -0.004 | 1.000  | 24654923 | NC           |                  |      | 3137   |       |
| 913.00 > 169.00                       | 5.397 | 5.408  | -0.011 | 0.999  | 3221223  |              | 7.65(3.83-11.48) |      | 9462   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL7\_00004

Amount Added: 1.00

Units: mL



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2017.05.15LLB\_ICAL\_008.d

Injection Date: 15-May-2018 16:00:25

Instrument ID: A8\_N

Lims ID: IC L7 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

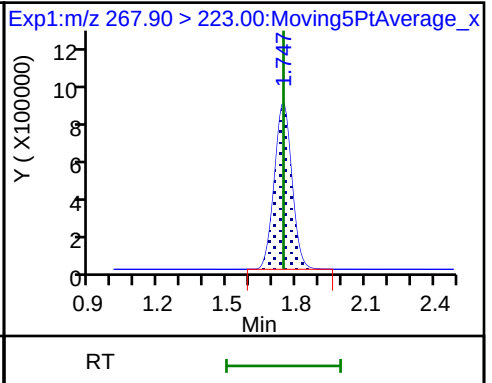
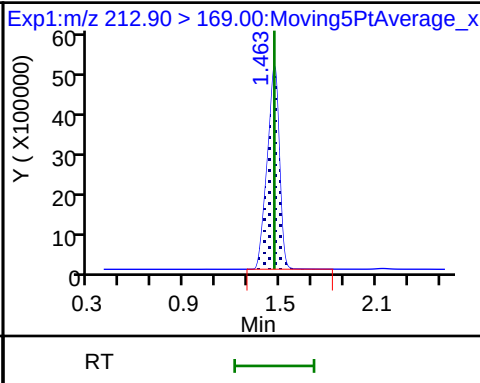
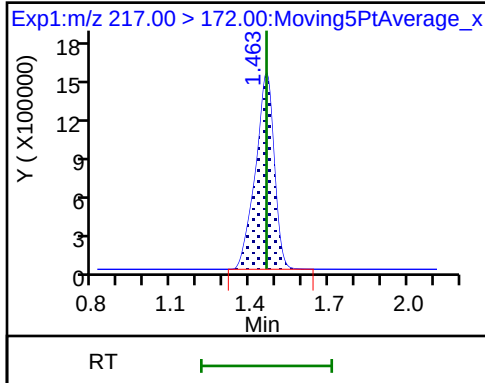
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

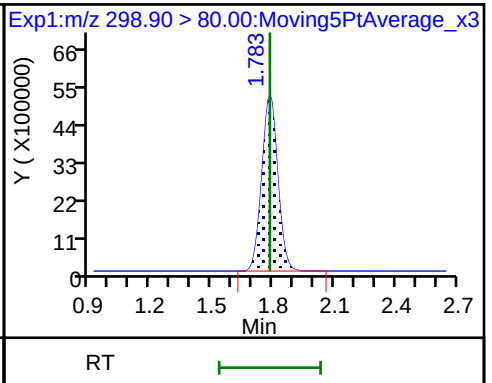
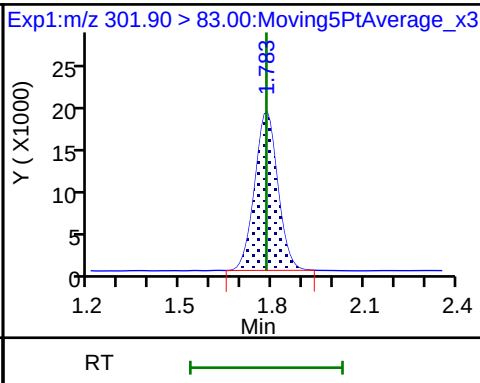
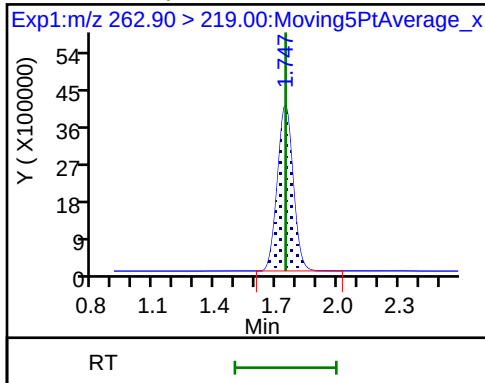
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

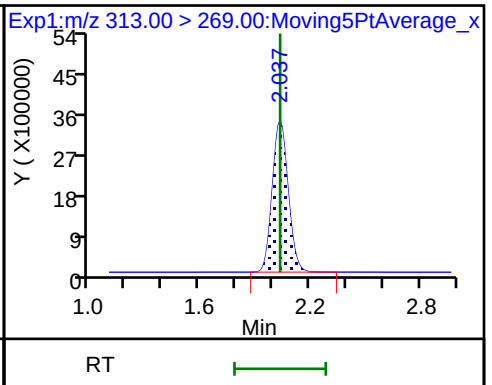
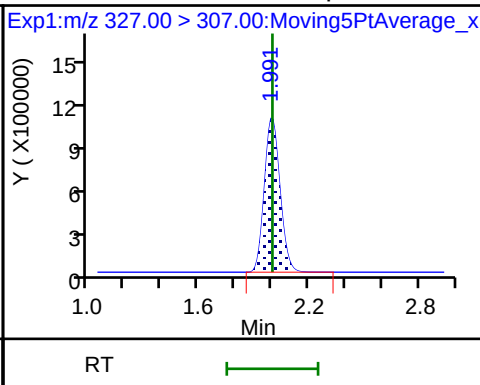
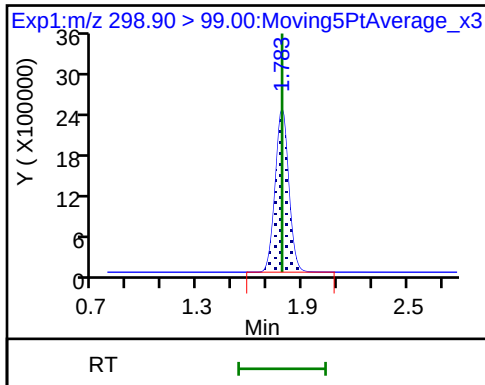
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

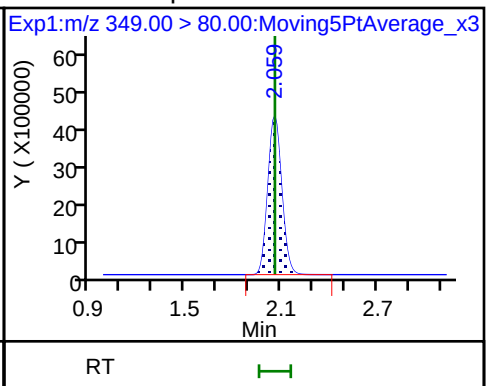
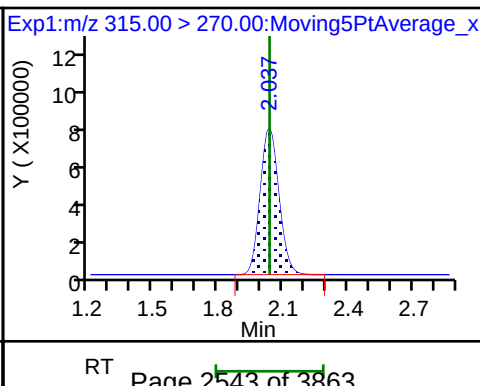
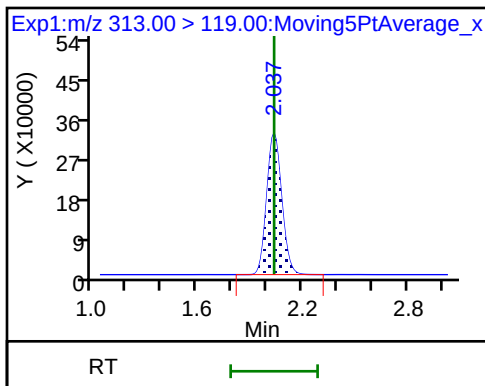
6 Perfluorohexanoic acid



6 Perfluorohexanoic acid

D 7 13C2 PFHxA

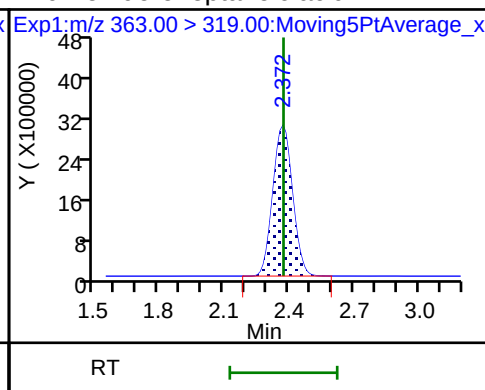
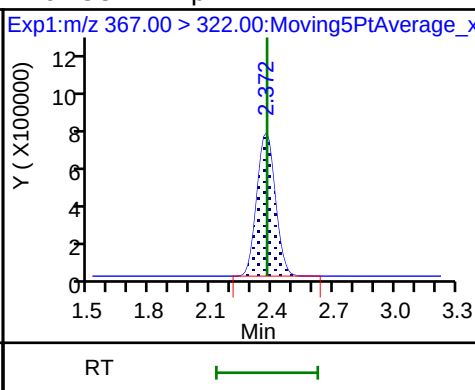
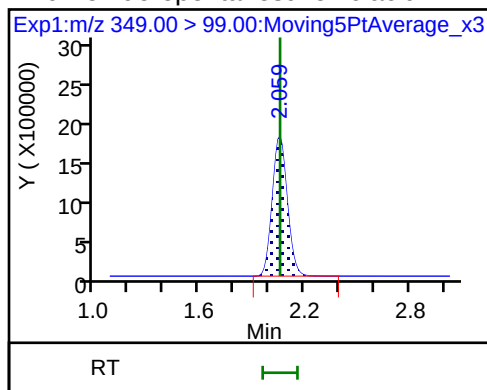
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

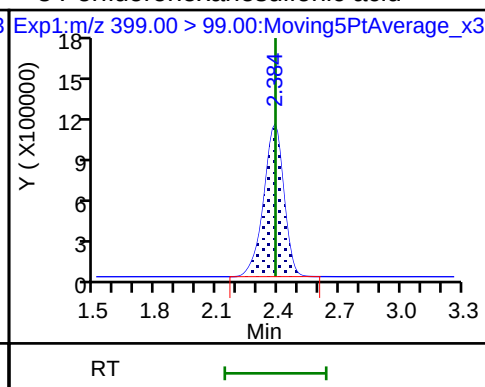
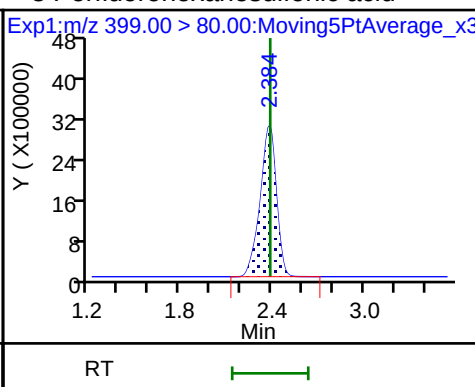
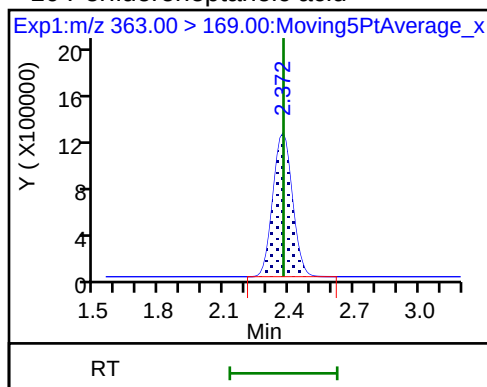
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

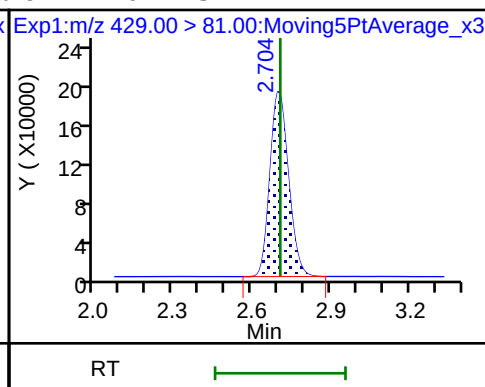
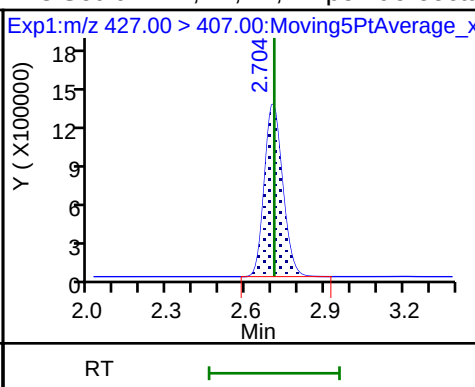
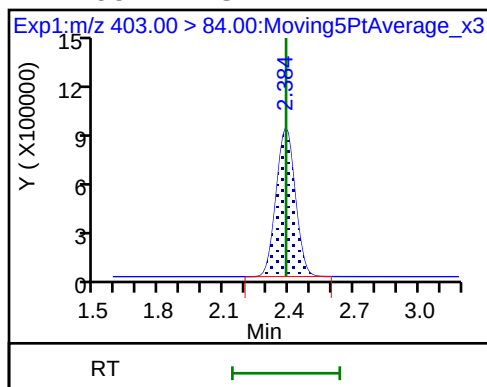
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## 13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

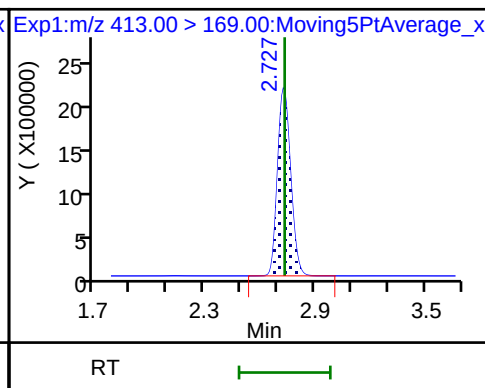
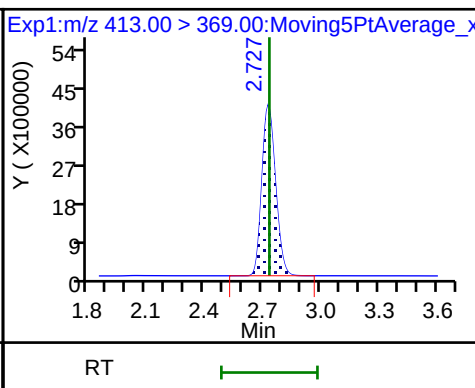
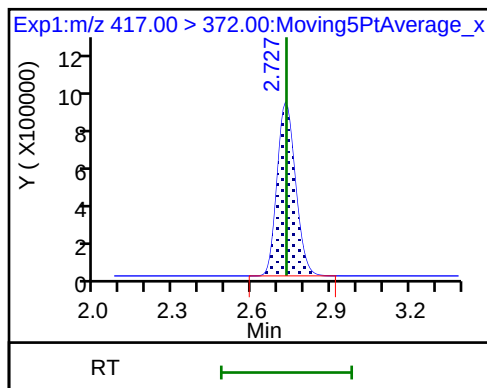
## D 12 M2-6:2FTS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

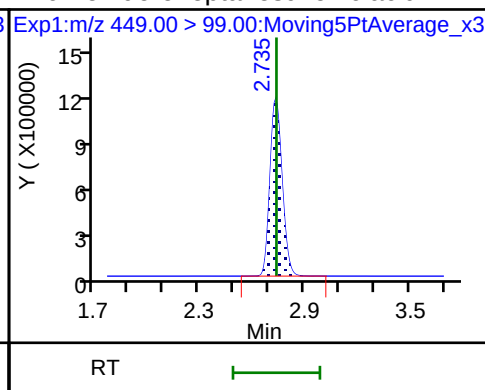
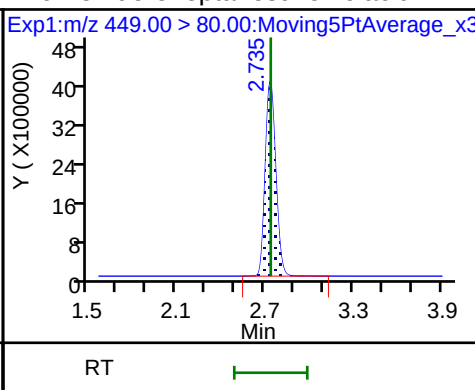
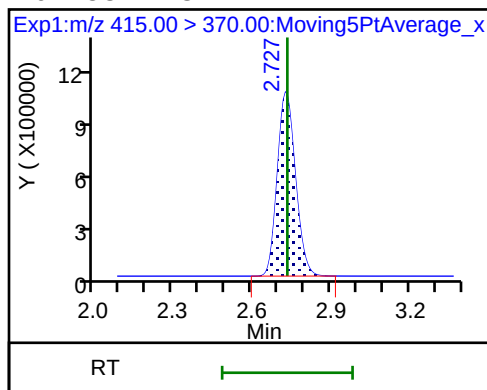
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

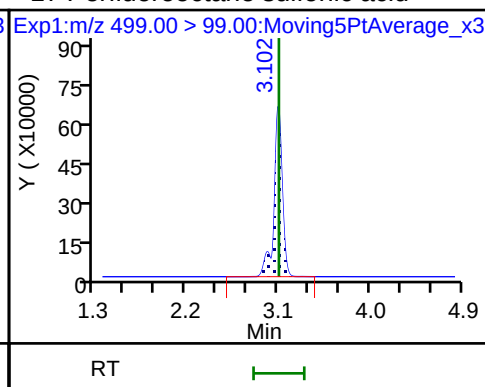
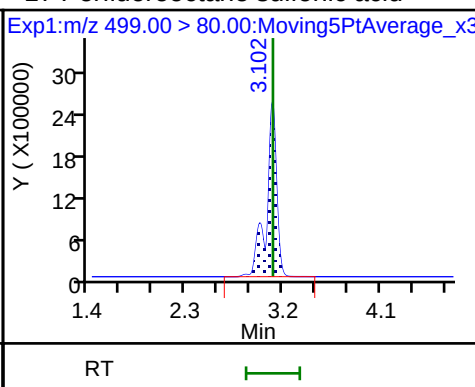
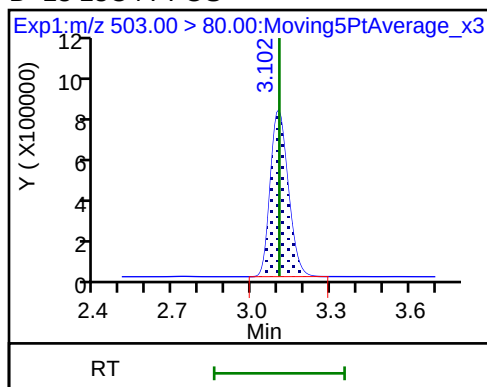
16 Perfluoroheptanesulfonic acid



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid

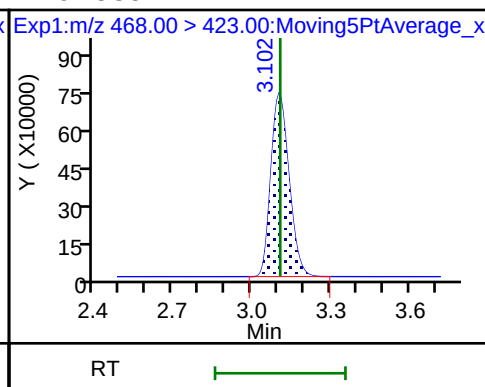
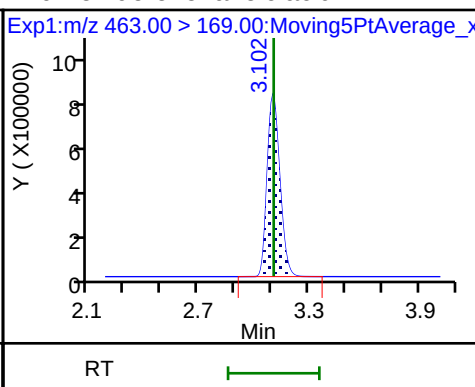
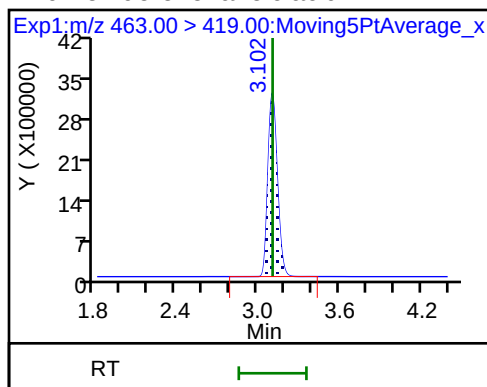
17 Perfluorooctane sulfonic acid



20 Perfluorononanoic acid

20 Perfluorononanoic acid

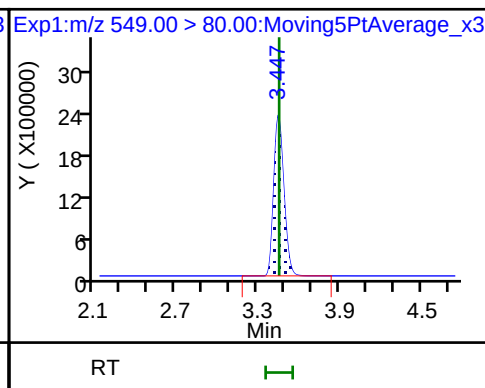
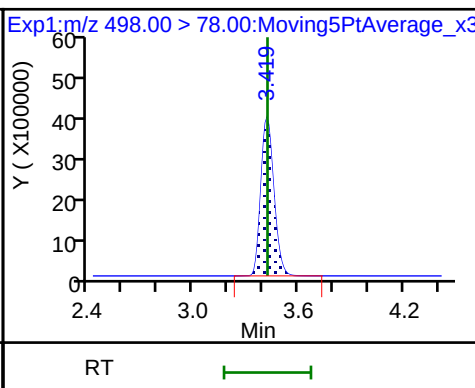
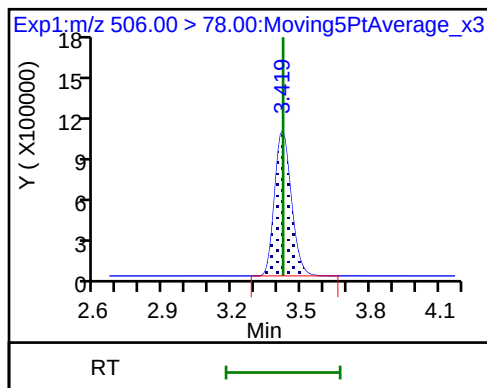
D 19 13C5 PFNA



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

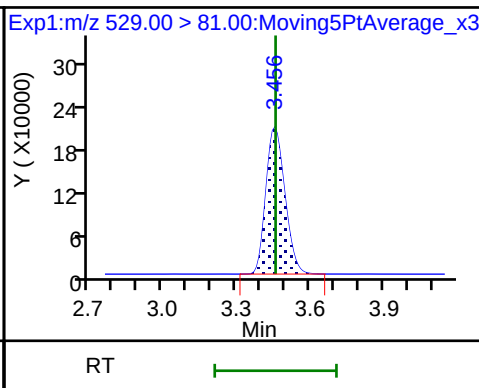
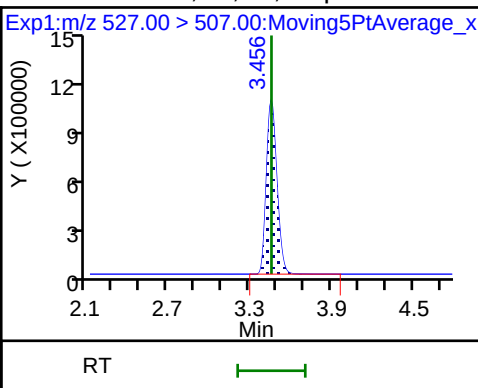
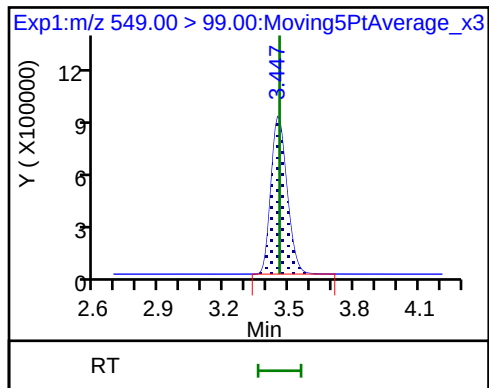
68 Perfluorononanesulfonic acid



68 Perfluorononanesulfonic acid

25 Sodium 1H,1H,2H,2H-perfluorodeca

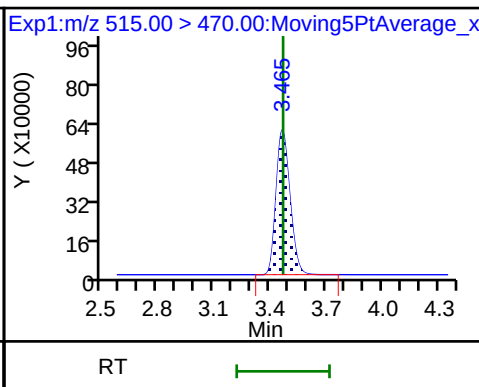
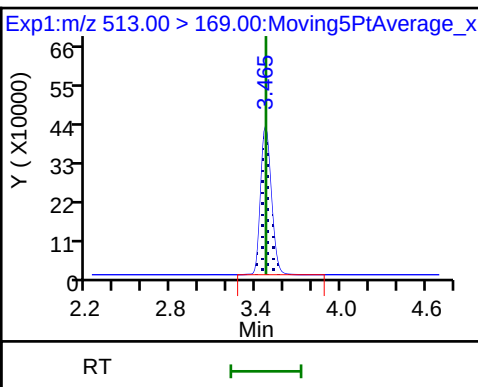
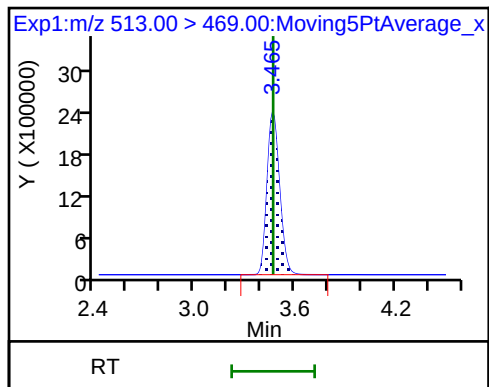
De26 M2-8:2FTS



24 Perfluorodecanoic acid

24 Perfluorodecanoic acid

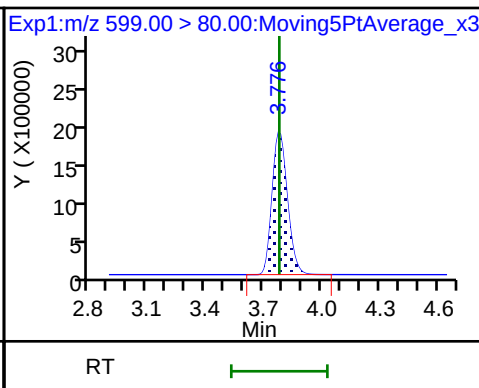
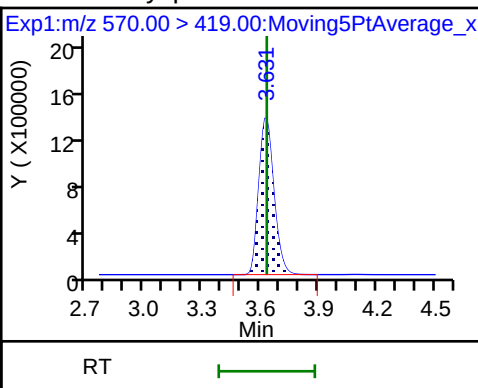
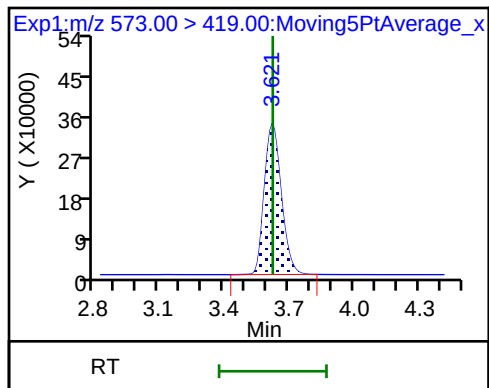
D 23 13C2 PFDA



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonami

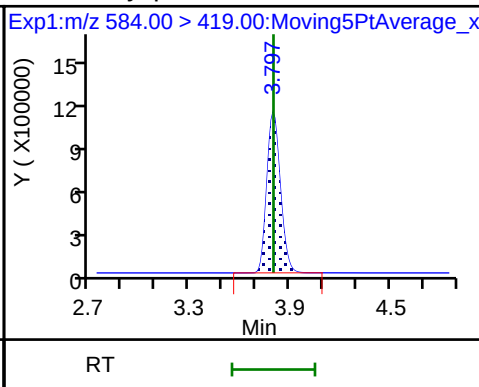
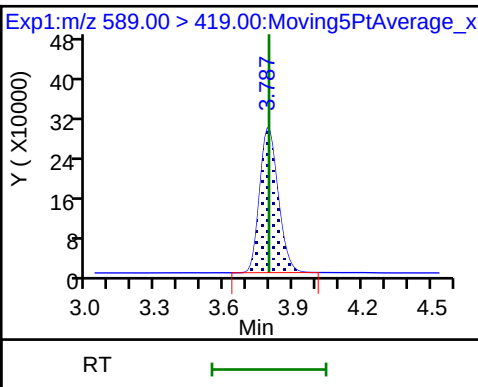
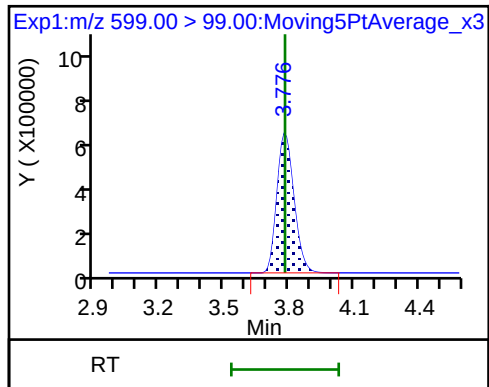
29 Perfluorodecane Sulfonic acid



29 Perfluorodecane Sulfonic acid

D 32 d5-NEtFOSAA

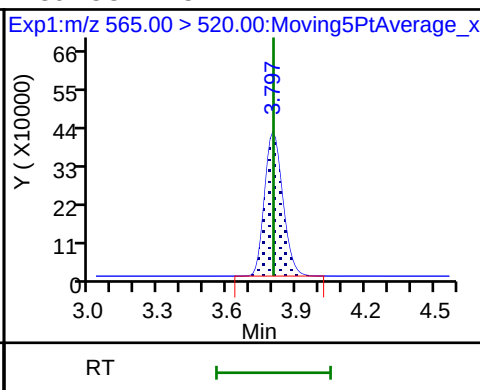
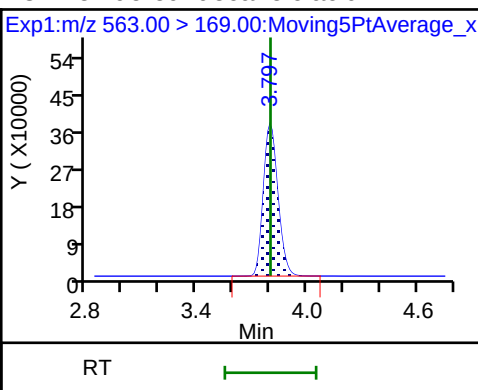
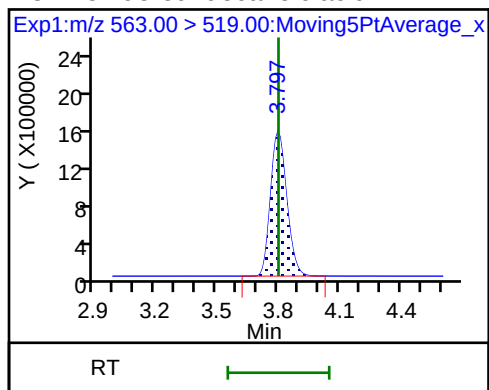
33 N-ethyl perfluorooctane sulfonamid



## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

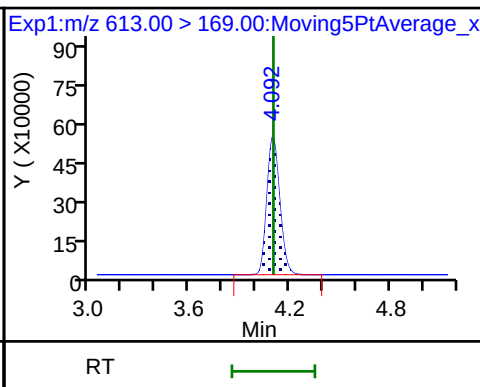
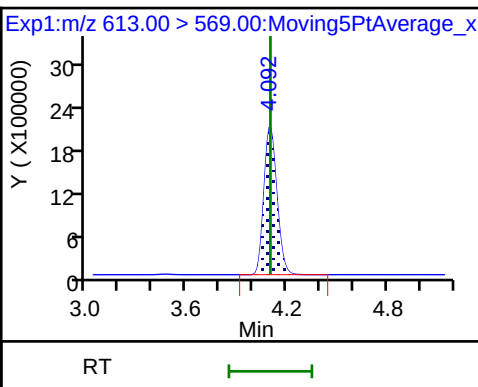
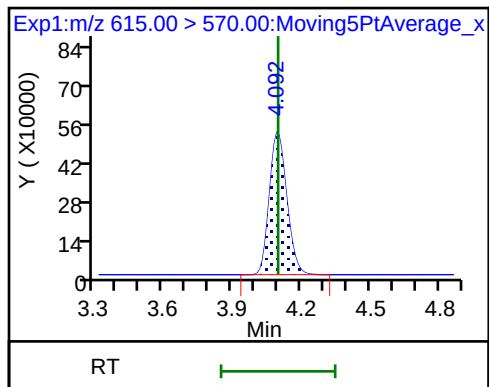
## D 30 13C2 PFUnA



## D 36 13C2 PFDaA

## 37 Perfluorododecanoic acid

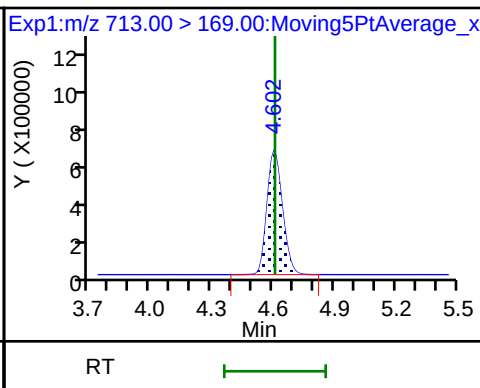
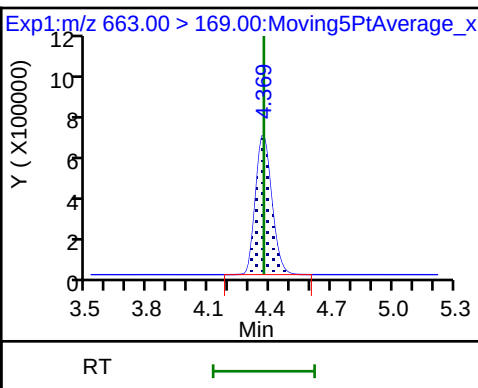
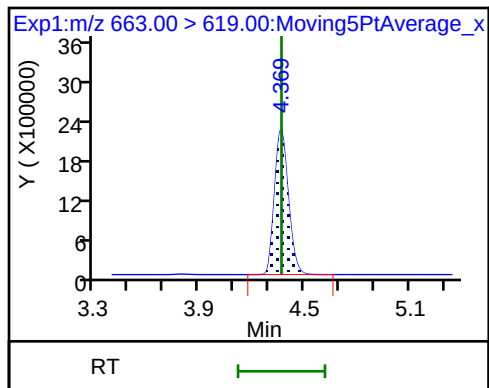
## 37 Perfluorododecanoic acid



## 41 Perfluorotridecanoic acid

## 41 Perfluorotridecanoic acid

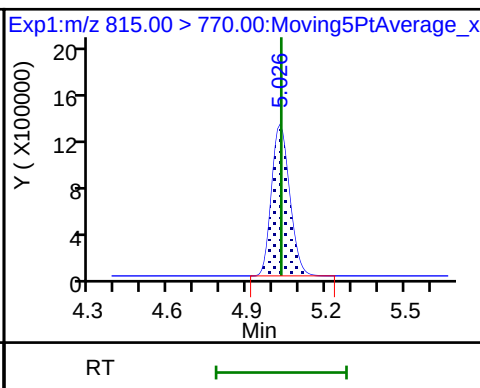
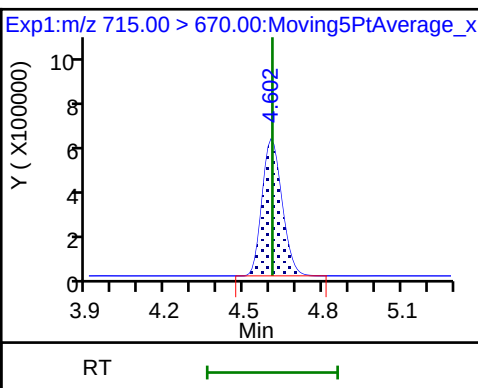
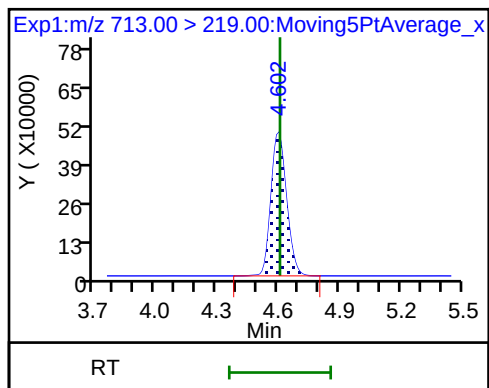
## 42 Perfluorotetradecanoic acid



## 42 Perfluorotetradecanoic acid

## D 43 13C2-PFTeDA

## D 44 13C2-PFHxDA





TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Lims ID: IC L5 Full  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 15-May-2018 16:39:20 ALS Bottle#: 14 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L5-FULL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:20:21 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: hannigana

Date: 15-May-2018 17:02:24

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.460 | 1.462  | -0.002 | 1.000  | 6642110  | 2.57         |                   | 103  | 3522   |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.460 | 1.462  | -0.002 | 1.000  | 6946962  | 2.43         |                   | 97.0 | 48779  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.742 | 1.744  | -0.002 | 0.562  | 4467248  | 2.43         |                   | 97.3 | 62925  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.742 | 1.745  | -0.003 | 1.000  | 5339518  | 2.53         |                   | 101  | 2721   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.769 | 1.780  | -0.011 | 1.000  | 94691    | 2.28         |                   | 98.2 | 560    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.778 | 1.783  | -0.005 | 1.005  | 7259728  | 2.28         |                   | 103  | 29926  |       |
| 298.90 > 99.00                        | 1.778 | 1.783  | -0.005 | 1.005  | 2969623  |              | 2.44(1.25-3.74)   | 103  | 17715  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.997 | 1.999  | -0.002 | 1.000  | 671442   | NC           |                   |      | 7829   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.997 | 2.000  | -0.003 | 1.000  | 1593481  | 2.36         |                   | 101  | 66177  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.031 | 2.037  | -0.006 | 1.000  | 5043564  | 2.58         |                   | 103  | 120426 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.031 | 2.037  | -0.006 | 1.000  | 4776223  | 2.30         |                   | 92.1 | 8080   |       |
| 313.00 > 119.00                       | 2.031 | 2.037  | -0.006 | 1.000  | 454875   |              | 10.50(5.03-15.10) | 92.1 | 5745   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.054 | 2.059  | -0.005 | 1.000  | 6623884  | 2.34         |                   | 99.7 | 60833  |       |
| 349.00 > 99.00                        | 2.054 | 2.059  | -0.005 | 1.000  | 2517632  |              | 2.63(1.36-4.07)   | 99.7 | 18835  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |        |       |
| 332.10 > 287.00                       | 2.133 | 2.134  | -0.001 | 1.000  | 223493   | NC           |                   |      | 4741   |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |           |           |           |          |                 |                 |      |       |       |
| 329.10 > 285.00                       | 2.133 | 2.134     | -0.001    | 1.000     | 725223   | NC              |                 |      | 6005  |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                       | 2.366 | 2.374     | -0.008    | 1.000     | 4839723  | 2.57            |                 | 103  | 7018  |       |
| 363.00 > 169.00                       | 2.366 | 2.374     | -0.008    | 1.000     | 1886033  |                 | 2.57(1.13-3.40) | 103  | 9727  |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.366 | 2.374     | -0.008    | 1.000     | 4465208  | 2.38            |                 | 95.2 | 79790 |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.378 | 2.386     | -0.008    | 1.000     | 5339851  | 2.30            |                 | 97.4 | 57465 |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                        | 2.378 | 2.386     | -0.008    | 1.000     | 5630297  | 2.21            |                 | 97.3 | 22030 |       |
| 399.00 > 99.00                        | 2.378 | 2.386     | -0.008    | 1.000     | 1904888  |                 | 2.96(1.50-4.49) | 97.3 | 6814  |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |       |       |
| 377.00 > 251.00                       | 2.413 | 2.418     | -0.005    | 1.000     | 14089104 | NC              |                 |      | 89697 |       |
| 377.00 > 85.00                        | 2.413 | 2.418     | -0.005    | 1.000     | 8375544  |                 | 1.68(0.84-2.53) |      | 55492 |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.701 | 2.707     | -0.006    | 1.000     | 953169   | 2.30            |                 | 96.9 | 17534 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |       |       |
| 427.00 > 407.00                       | 2.701 | 2.707     | -0.006    | 1.000     | 1635620  | 2.31            |                 | 97.5 | 9167  |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.724 | 2.731     | -0.007    | 1.000     | 4456920  | 2.51            |                 | 100  | 62304 |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.724 | 2.734     | -0.010    |           | 4684803  | 2.50            |                 |      | 69393 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                       | 2.724 | 2.734     | -0.010    | 1.000     | 4857127  | 2.31            |                 | 92.6 | 1728  |       |
| 413.00 > 169.00                       | 2.724 | 2.734     | -0.010    | 1.000     | 2639966  |                 | 1.84(0.84-2.52) | 92.6 | 10891 |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 449.00 > 80.00                        | 2.731 | 2.739     | -0.008    | 1.000     | 5160059  | 2.43            |                 | 102  | 33696 |       |
| 449.00 > 99.00                        | 2.731 | 2.739     | -0.008    | 1.000     | 1350563  |                 | 3.82(1.94-5.82) | 102  | 21055 |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.094 | 3.104     | -0.010    | 1.000     | 3815593  | 2.39            |                 | 100  | 27877 |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                        | 3.094 | 3.105     | -0.011    | 1.000     | 3965534  | 2.11            |                 | 91.1 | 24321 |       |
| 499.00 > 99.00                        | 3.094 | 3.105     | -0.011    | 1.000     | 911395   |                 | 4.35(2.31-6.93) | 91.1 | 8420  |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.102 | 3.107     | -0.005    | 1.000     | 3538499  | 2.44            |                 | 97.5 | 67448 |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 463.00 > 419.00                       | 3.102 | 3.107     | -0.005    | 1.000     | 3811509  | 2.54            |                 | 102  | 5907  |       |
| 463.00 > 169.00                       | 3.102 | 3.107     | -0.005    | 1.000     | 903128   |                 | 4.22(1.90-5.69) | 102  | 31191 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |       |       |
| 531.00 > 351.00                       | 3.310 | 3.316     | -0.006    | 1.000     | 6694592  | NC              |                 |      | 42297 |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.415 | 3.420     | -0.005    | 1.000     | 5178962  | 2.48            |                 | 99.3 | 42716 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.415 | 3.422     | -0.007    | 1.000     | 5372059  | 2.66            |                 | 107  | 66457 |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 549.00 > 80.00                        | 3.443 | 3.455     | -0.012    | 1.000     | 2885064  | 2.39            |                 | 99.4 | 38099 |       |
| 549.00 > 99.00                        | 3.443 | 3.455     | -0.012    | 1.000     | 1131430  |                 | 2.55(1.33-3.97) | 99.4 | 20200 |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.452 | 3.458  | -0.006 | 1.000  | 1458360  | 2.38         |                  | 99.2 | 28234 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.452 | 3.459  | -0.007 | 1.000  | 1089191  | 2.31         |                  | 96.5 | 19371 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.462 | 3.468  | -0.006 | 1.000  | 2997952  | 2.43         |                  | 97.1 | 44831 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.462 | 3.468  | -0.006 | 1.000  | 3028523  | 2.60         |                  | 104  | 16268 |       |
| 513.00 > 169.00                       | 3.462 | 3.468  | -0.006 | 1.000  | 523942   |              | 5.78(2.36-7.09)  | 104  | 12814 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.616 | 3.624  | -0.008 | 1.000  | 1561957  | 2.29         |                  | 91.8 | 35761 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.626 | 3.631  | -0.005 | 1.003  | 1690352  | 2.67         |                  | 107  | 9358  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.771 | 3.781  | -0.010 | 1.000  | 2626191  | 2.45         |                  | 102  | 48906 |       |
| 599.00 > 99.00                        | 3.771 | 3.781  | -0.010 | 1.000  | 877720   |              | 2.99(1.39-4.16)  | 102  | 16087 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.792 | 3.794  | -0.002 | 1.000  | 1777821  | 2.54         |                  | 102  | 10004 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.792 | 3.800  | -0.008 | 1.000  | 2447962  | 2.50         |                  | 100  | 55931 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.792 | 3.800  | -0.008 | 1.000  | 1802433  | 2.20         |                  | 88.2 | 8412  |       |
| 563.00 > 169.00                       | 3.792 | 3.800  | -0.008 | 1.000  | 494938   |              | 3.64(2.12-6.36)  | 88.2 | 22587 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.792 | 3.800  | -0.008 | 1.000  | 1590051  | 2.38         |                  | 95.1 | 28778 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.950 | 3.958  | -0.008 | 1.000  | 11086572 | NC           |                  |      | 67521 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.093 | 4.099  | -0.006 | 1.000  | 2514089  | 2.39         |                  | 95.6 | 19064 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.093 | 4.100  | -0.007 | 1.000  | 2676169  | 2.55         |                  | 102  | 2268  |       |
| 613.00 > 169.00                       | 4.093 | 4.100  | -0.007 | 1.000  | 658572   |              | 4.06(2.13-6.40)  | 102  | 10193 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.363 | 4.368  | -0.005 | 1.000  | 2999335  | 2.61         |                  | 104  | 1572  |       |
| 663.00 > 169.00                       | 4.363 | 4.368  | -0.005 | 1.000  | 941505   |              | 3.19(1.25-3.76)  | 104  | 10269 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.596 | 4.608  | -0.012 | 1.000  | 3141974  | 2.43         |                  | 97.3 | 13003 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.596 | 4.608  | -0.012 | 1.000  | 821303   | 2.59         |                  | 104  | 8787  |       |
| 713.00 > 219.00                       | 4.596 | 4.608  | -0.012 | 1.000  | 611068   |              | 1.34(0.71-2.13)  | 104  | 11665 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 5.012 | 5.030  | -0.018 | 1.000  | 5796576  | 2.64         |                  | 106  | 14652 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 5.021 | 5.031  | -0.010 | 1.002  | 5252895  | NC           |                  |      | 1229  |       |
| 813.00 > 169.00                       | 5.021 | 5.031  | -0.010 | 1.002  | 870423   |              | 6.03(2.86-8.58)  |      | 5354  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.389 | 5.408  | -0.019 | 1.000  | 6240519  | NC           |                  |      | 1014  |       |
| 913.00 > 169.00                       | 5.389 | 5.408  | -0.019 | 1.000  | 788129   |              | 7.92(3.83-11.48) |      | 4740  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Injection Date: 15-May-2018 16:39:20

Instrument ID: A8\_N

Lims ID: IC L5 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

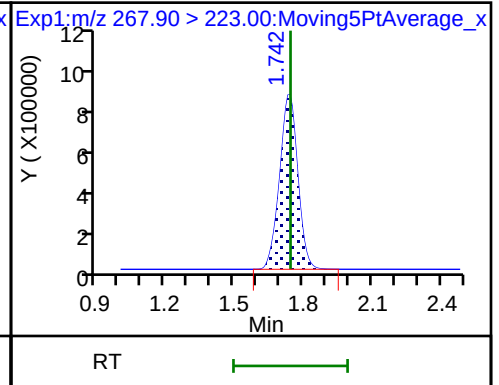
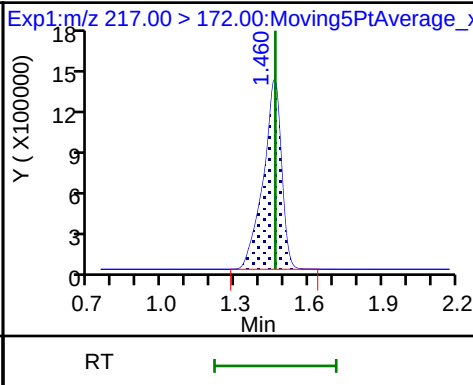
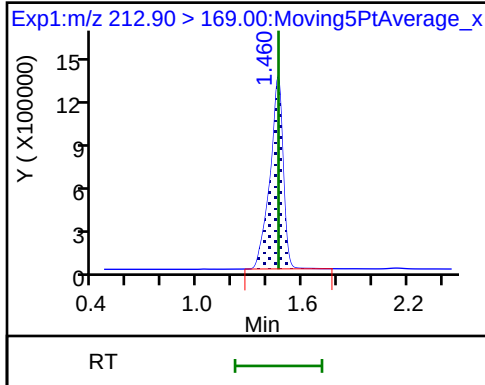
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

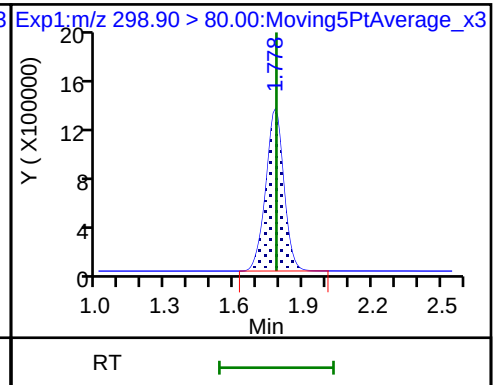
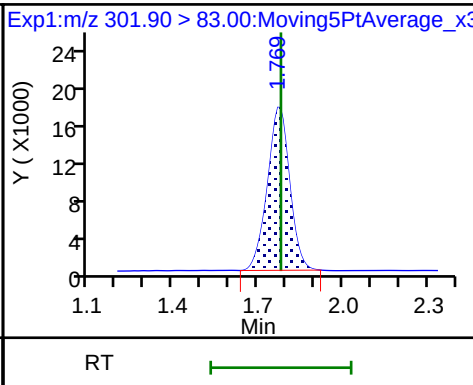
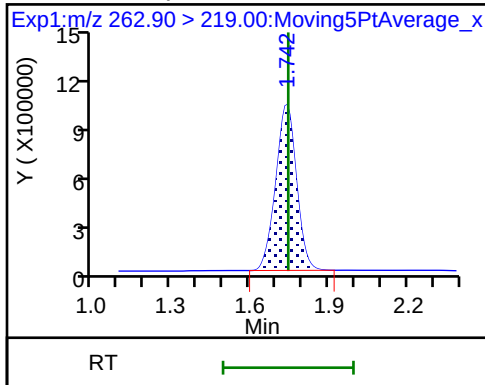
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

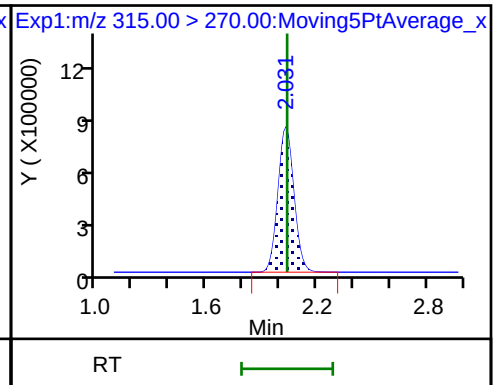
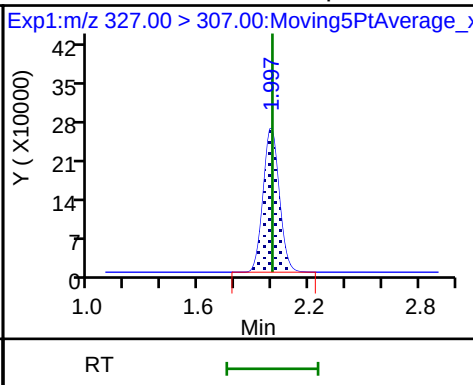
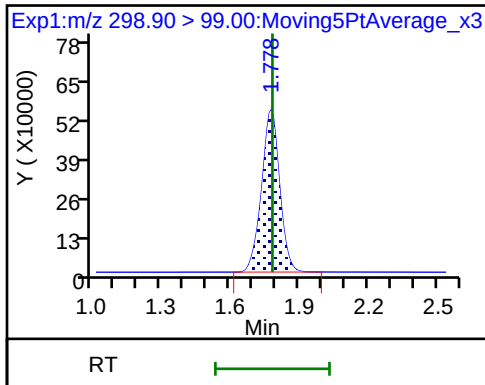
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

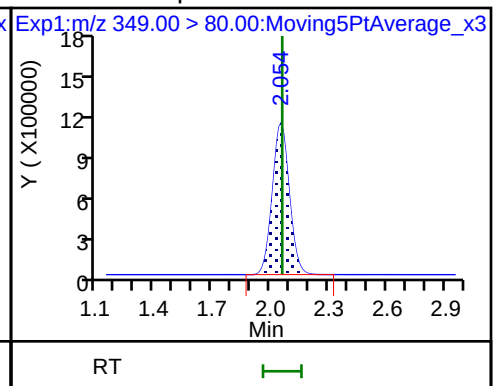
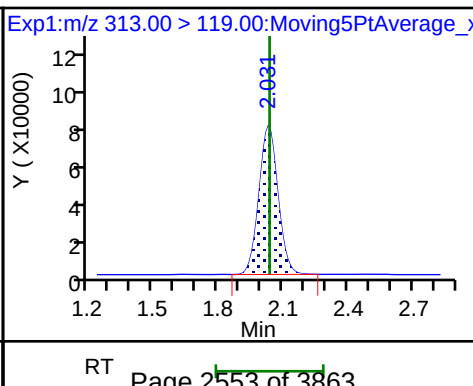
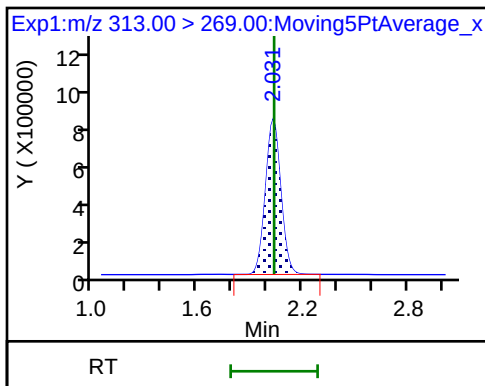
## De 7 13C2 PFHxA

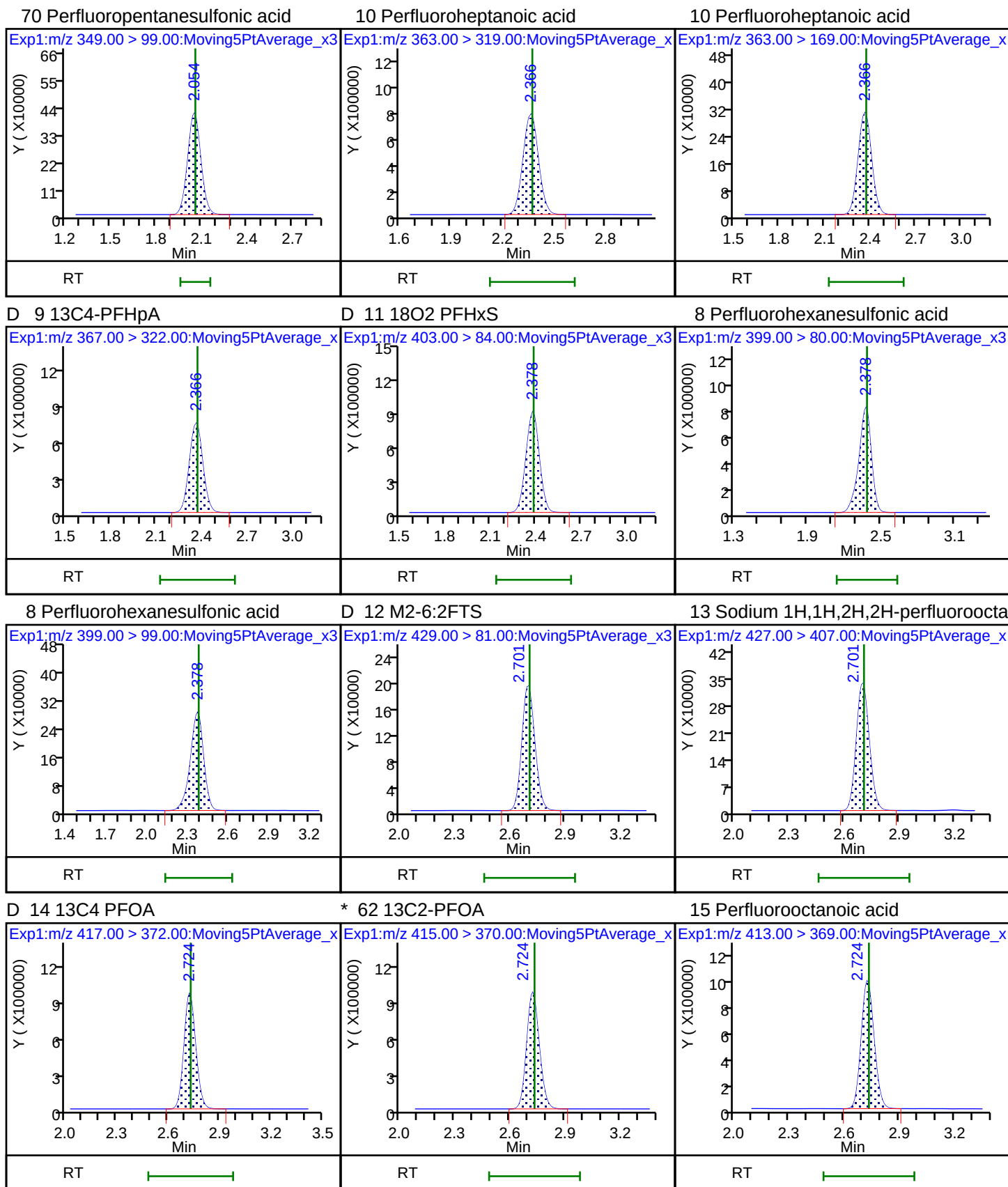


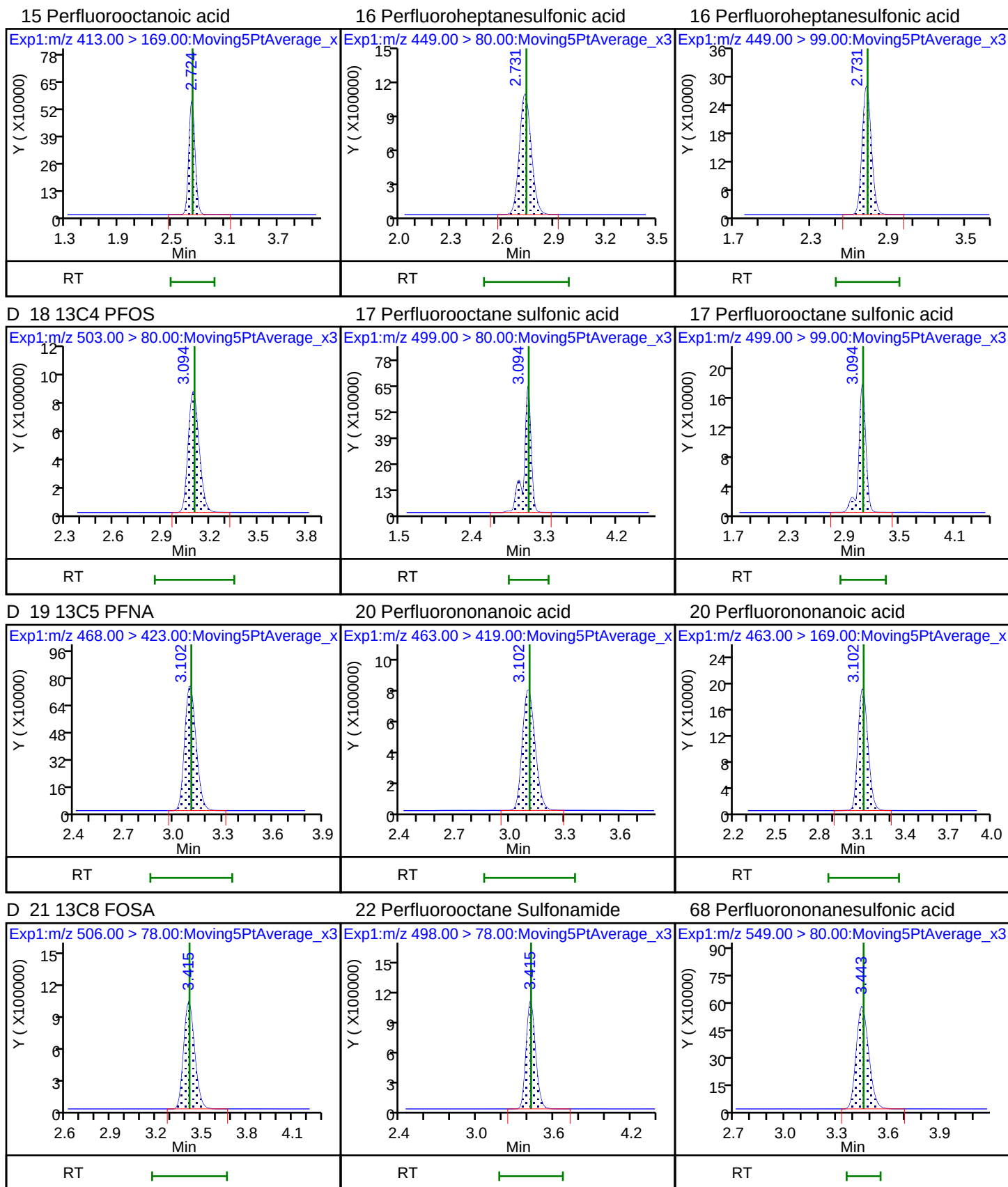
## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid





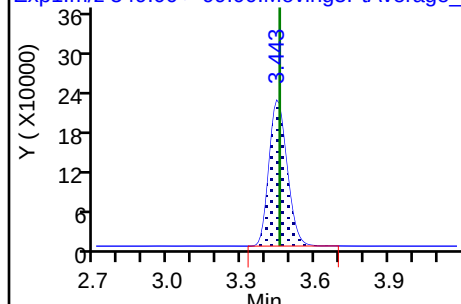


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

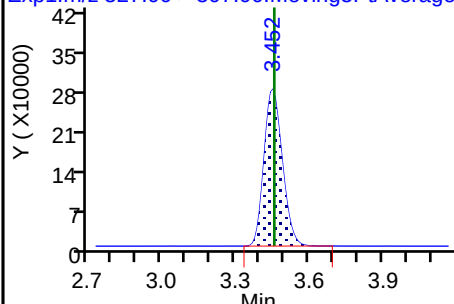
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



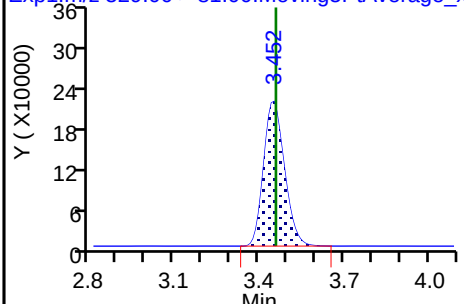
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



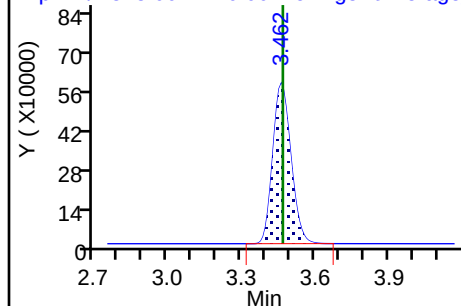
RT

## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

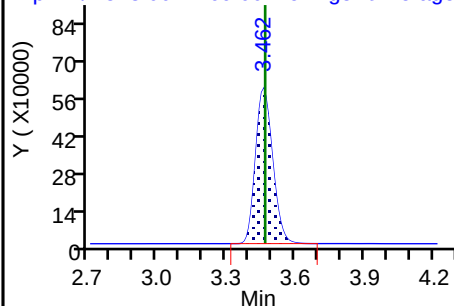
## 24 Perfluorodecanoic acid

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



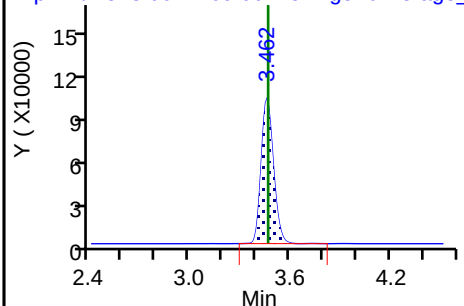
RT

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



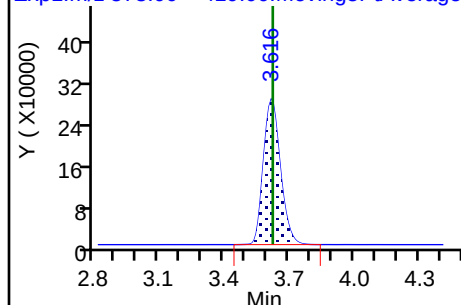
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

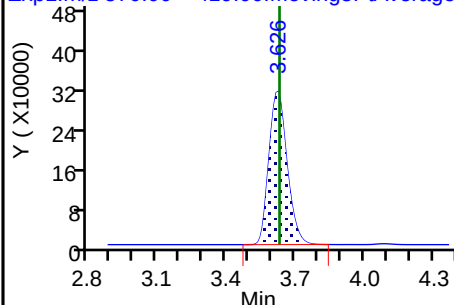
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



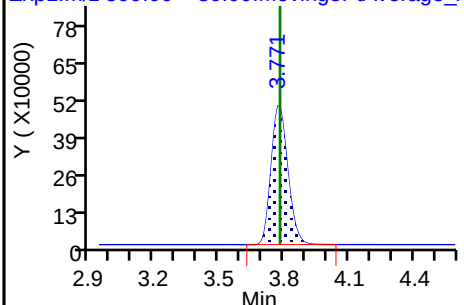
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



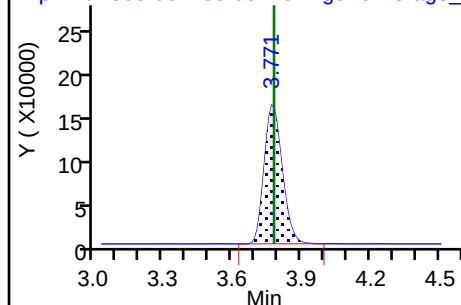
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

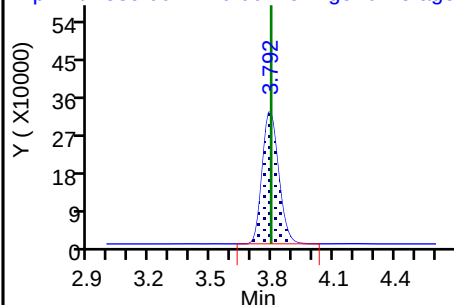
## D 30 13C2 PFUnA

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



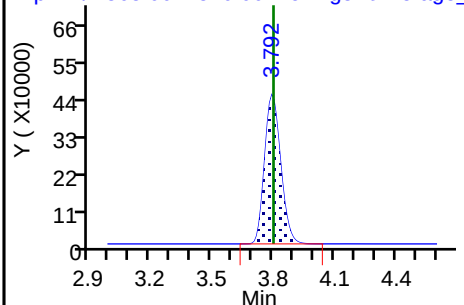
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

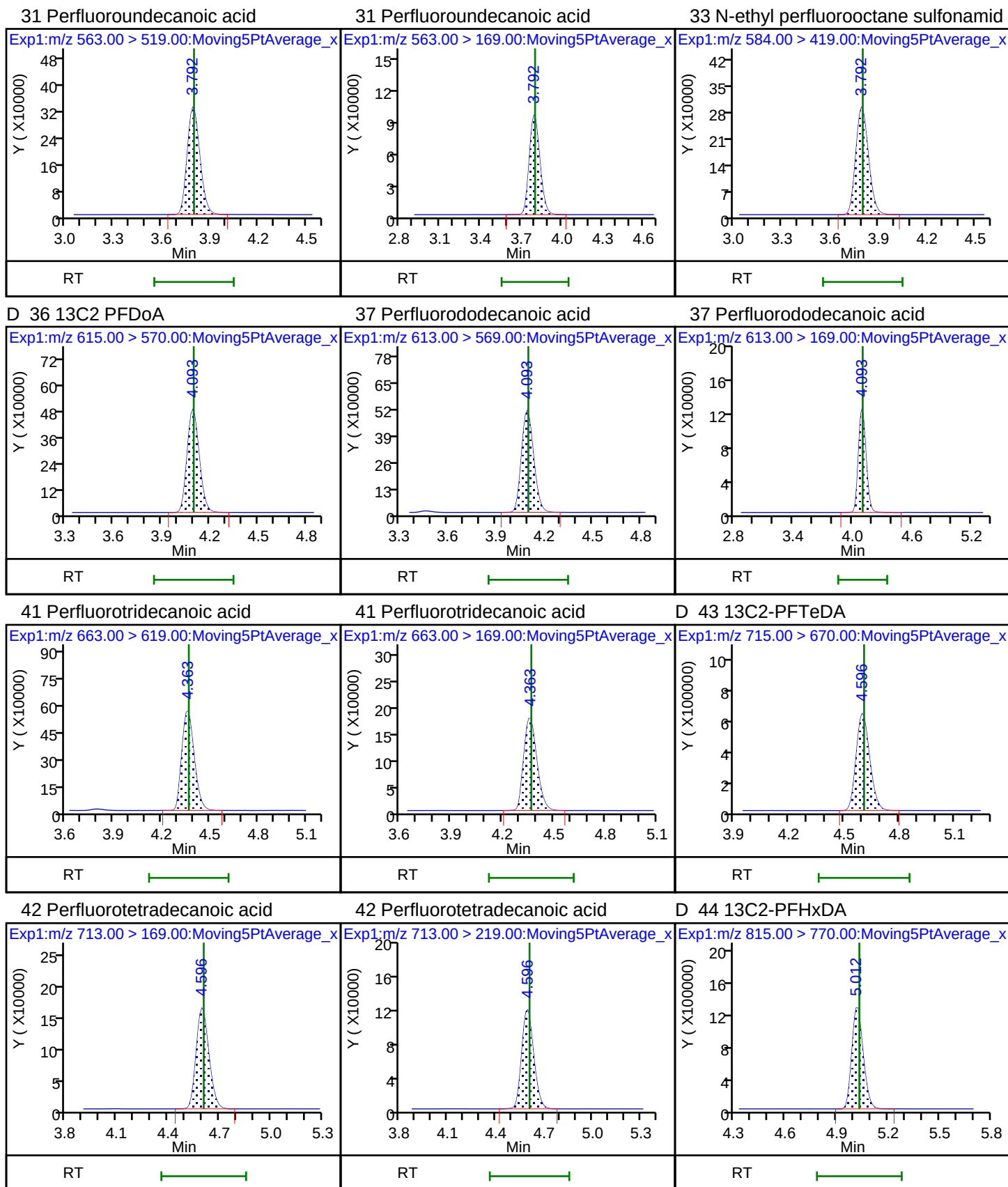


RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3



RT







## Calibration

/ Perfluorobutyric acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

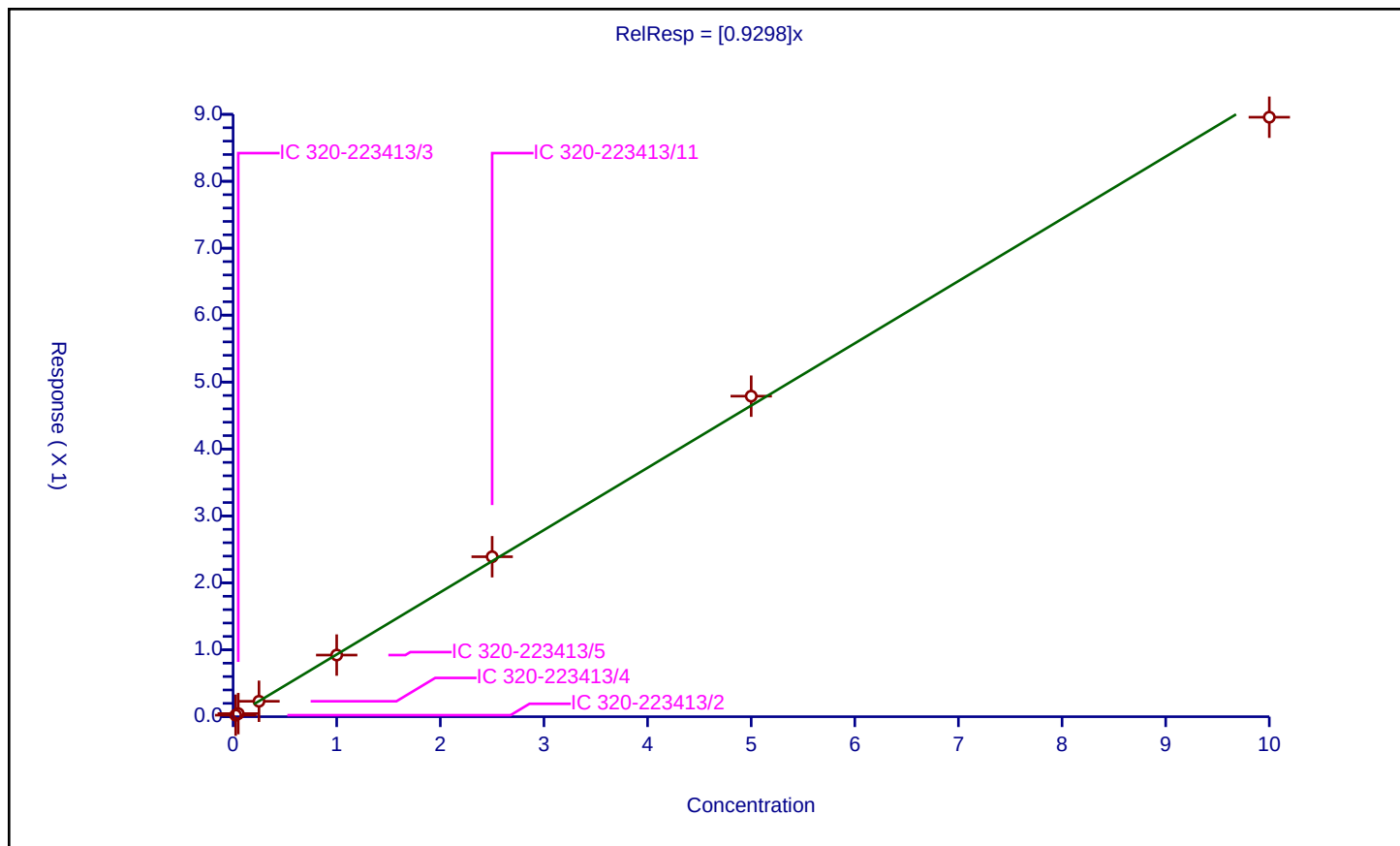
### Curve Coefficients

Intercept: 0  
 Slope: 0.9298

### Error Coefficients

Standard Error: 12500000  
 Relative Standard Error: 2.3  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.999

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.023104   | 2.5       | 7998943.0   | 0.924147 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.046563   | 2.5       | 8732721.0   | 0.93125  | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.230627   | 2.5       | 7493234.0   | 0.922507 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.921191   | 2.5       | 7049149.0   | 0.921191 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.390293   | 2.5       | 6946962.0   | 0.956117 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 4.789436   | 2.5       | 6751655.0   | 0.957887 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 8.957287   | 2.5       | 7496989.0   | 0.895729 | Y    |



## Calibration

/ Perfluoropentanoic acid

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** IsoDil  
**Response Base:**  
**RF Rounding:** 0

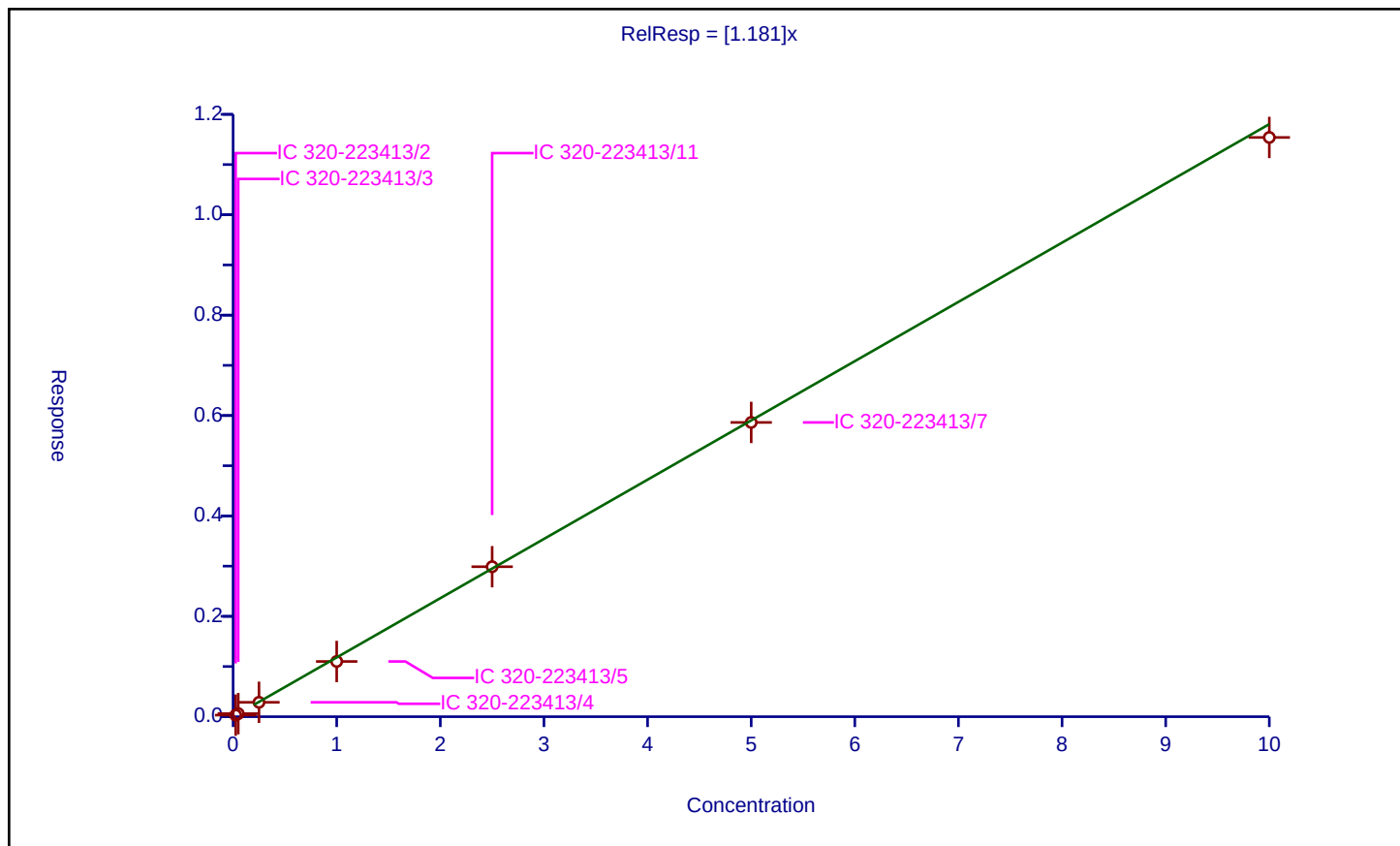
### Curve Coefficients

**Intercept:** 0  
**Slope:** 1.181

### Error Coefficients

**Standard Error:** 9990000  
**Relative Standard Error:** 4.6  
**Correlation Coefficient:** 0.999  
**Coefficient of Determination (Adjusted):** 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.031562   | 2.5       | 5228218.0   | 1.262476 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.061584   | 2.5       | 5506602.0   | 1.231676 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.286757   | 2.5       | 4737268.0   | 1.147028 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 1.100537   | 2.5       | 4710025.0   | 1.100537 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.988147   | 2.5       | 4467248.0   | 1.195259 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.862777   | 2.5       | 4328345.0   | 1.172555 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 11.540111  | 2.5       | 4657025.0   | 1.154011 | Y    |



## Calibration

/ Perfluorobutanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

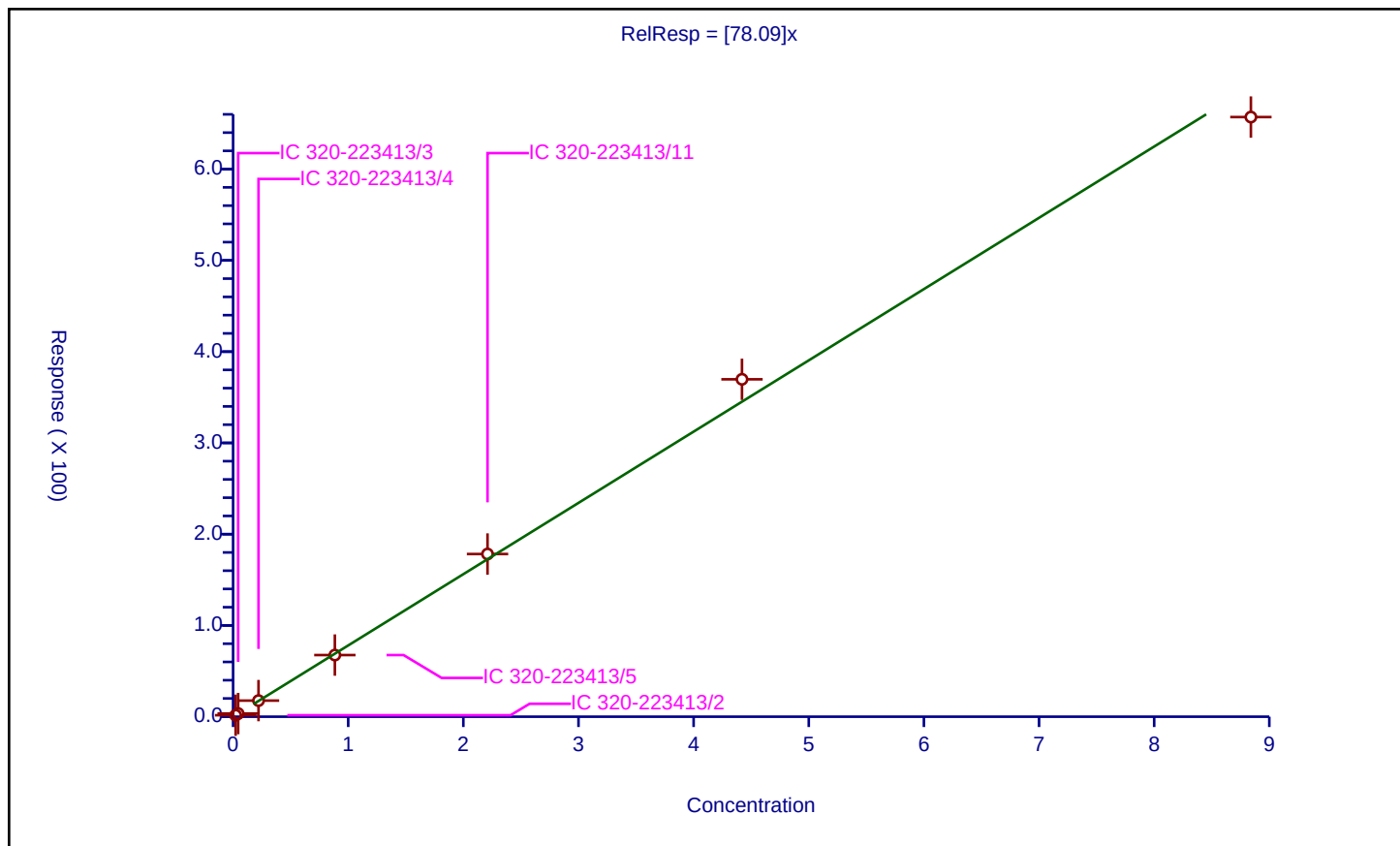
### Curve Coefficients

Intercept: 0  
 Slope: 78.09

### Error Coefficients

Standard Error: 13200000  
 Relative Standard Error: 4.7  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF       | Used |
|----|------------------|---------------|------------|-----------|-------------|-----------|------|
| 1  | IC 320-223413/2  | 0.0221        | 1.621676   | 2.325     | 110547.0    | 73.379018 | Y    |
| 2  | IC 320-223413/3  | 0.0442        | 3.463565   | 2.325     | 117730.0    | 78.361193 | Y    |
| 3  | IC 320-223413/4  | 0.221         | 17.647766  | 2.325     | 99970.0     | 79.854146 | Y    |
| 4  | IC 320-223413/5  | 0.884         | 67.556508  | 2.325     | 98369.0     | 76.421389 | Y    |
| 5  | IC 320-223413/11 | 2.21          | 178.252079 | 2.325     | 94691.0     | 80.657049 | Y    |
| 6  | IC 320-223413/7  | 4.42          | 369.697667 | 2.325     | 87185.0     | 83.642006 | Y    |
| 7  | IC 320-223413/8  | 8.84          | 657.03931  | 2.325     | 99131.0     | 74.325714 | Y    |



## Calibration

/ Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

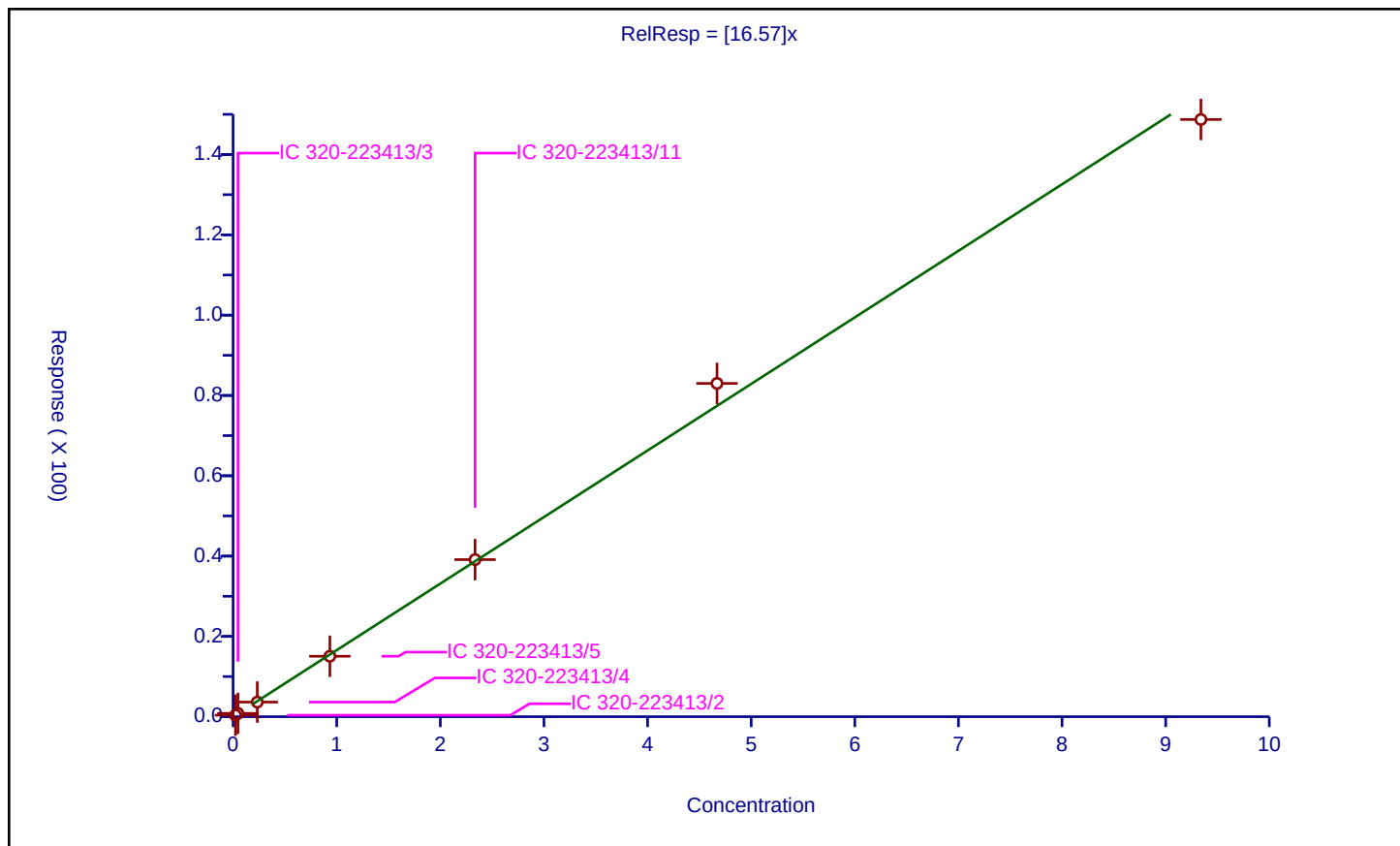
### Curve Coefficients

Intercept: 0  
 Slope: 16.57

### Error Coefficients

Standard Error: 2970000  
 Relative Standard Error: 5.3  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF       | Used |
|----|------------------|---------------|------------|-----------|-------------|-----------|------|
| 1  | IC 320-223413/2  | 0.02335       | 0.37609    | 2.325     | 110547.0    | 16.106649 | Y    |
| 2  | IC 320-223413/3  | 0.0467        | 0.82869    | 2.325     | 117730.0    | 17.744964 | Y    |
| 3  | IC 320-223413/4  | 0.2335        | 3.641484   | 2.325     | 99970.0     | 15.595222 | Y    |
| 4  | IC 320-223413/5  | 0.934         | 15.055267  | 2.325     | 98369.0     | 16.119129 | Y    |
| 5  | IC 320-223413/11 | 2.335         | 39.125612  | 2.325     | 94691.0     | 16.756151 | Y    |
| 6  | IC 320-223413/7  | 4.67          | 83.00038   | 2.325     | 87185.0     | 17.773101 | Y    |
| 7  | IC 320-223413/8  | 9.34          | 148.721336 | 2.325     | 99131.0     | 15.923055 | Y    |



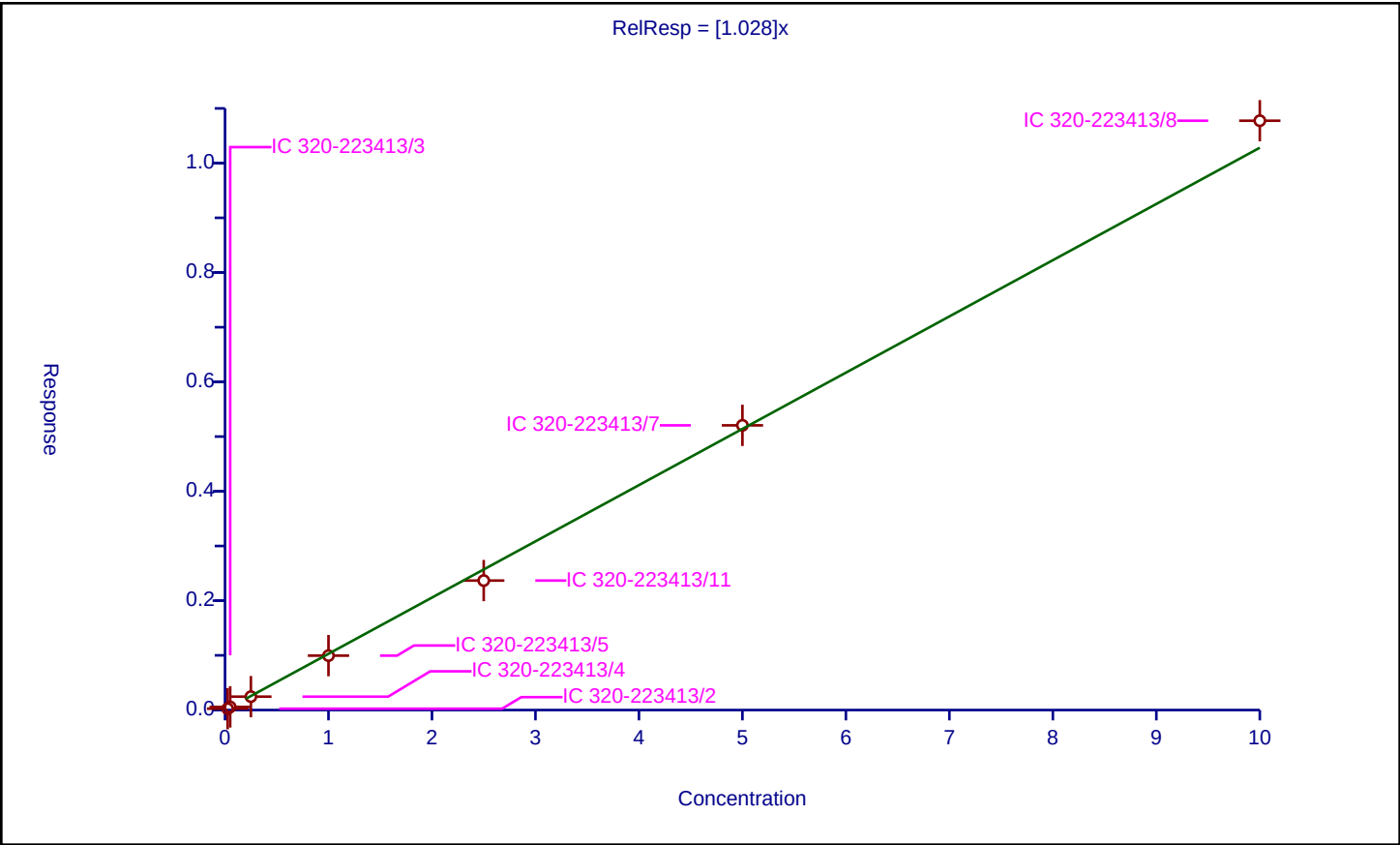
Calibration

/ Perfluorohexanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 1.028   |
| Error Coefficients                       |         |
| Standard Error:                          | 9400000 |
| Relative Standard Error:                 | 6.6     |
| Correlation Coefficient:                 | 0.999   |
| Coefficient of Determination (Adjusted): | 0.995   |

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.0252     | 2.5       | 5626147.0   | 1.00799  | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.057403   | 2.5       | 5922451.0   | 1.148064 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.245112   | 2.5       | 5134906.0   | 0.980446 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.994902   | 2.5       | 4854075.0   | 0.994902 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.367484   | 2.5       | 5043564.0   | 0.946994 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.205567   | 2.5       | 4583820.0   | 1.041113 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 10.775226  | 2.5       | 4709249.0   | 1.077523 | Y    |



## Calibration

/ Perfluoropentanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

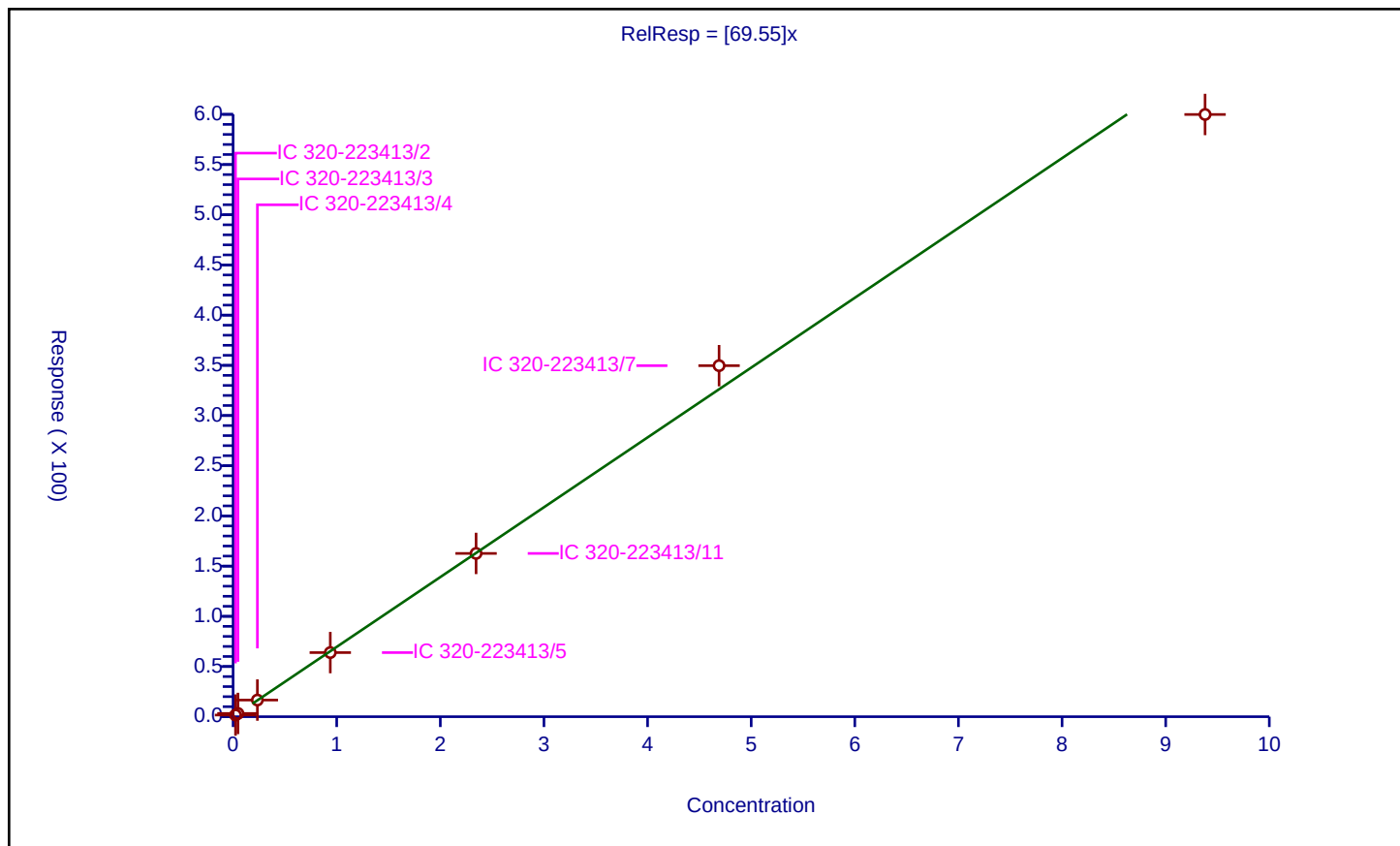
### Curve Coefficients

Intercept: 0  
 Slope: 69.55

### Error Coefficients

Standard Error: 12100000  
 Relative Standard Error: 4.6  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF       | Used |
|----|------------------|---------------|------------|-----------|-------------|-----------|------|
| 1  | IC 320-223413/2  | 0.02345       | 1.654065   | 2.325     | 110547.0    | 70.535831 | Y    |
| 2  | IC 320-223413/3  | 0.0469        | 3.26442    | 2.325     | 117730.0    | 69.603839 | Y    |
| 3  | IC 320-223413/4  | 0.2345        | 16.581364  | 2.325     | 99970.0     | 70.709442 | Y    |
| 4  | IC 320-223413/5  | 0.938         | 63.877525  | 2.325     | 98369.0     | 68.099707 | Y    |
| 5  | IC 320-223413/11 | 2.345         | 162.639853 | 2.325     | 94691.0     | 69.356014 | Y    |
| 6  | IC 320-223413/7  | 4.69          | 349.685013 | 2.325     | 87185.0     | 74.559704 | Y    |
| 7  | IC 320-223413/8  | 9.38          | 599.885978 | 2.325     | 99131.0     | 63.953729 | Y    |



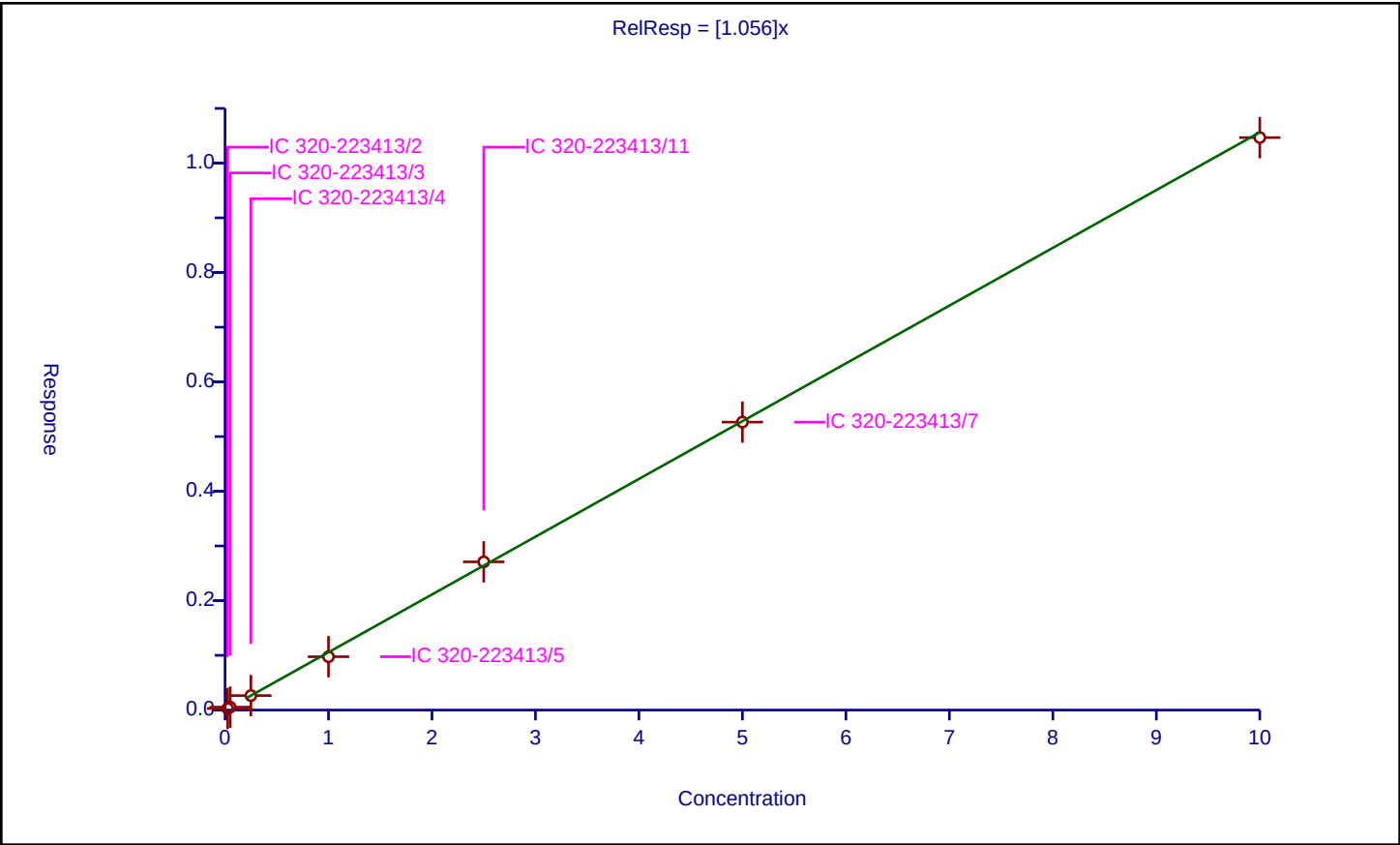
Calibration

/ Perfluoroheptanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 1.056   |
| Error Coefficients                       |         |
| Standard Error:                          | 8830000 |
| Relative Standard Error:                 | 4.1     |
| Correlation Coefficient:                 | 1.000   |
| Coefficient of Determination (Adjusted): | 0.998   |

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.027924   | 2.5       | 5577473.0   | 1.116957 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.053061   | 2.5       | 5774309.0   | 1.061218 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.264298   | 2.5       | 5050240.0   | 1.057193 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.975396   | 2.5       | 4714171.0   | 0.975396 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.709685   | 2.5       | 4465208.0   | 1.083874 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.264617   | 2.5       | 4318388.0   | 1.052923 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 10.466622  | 2.5       | 4521122.0   | 1.046662 | Y    |



## Calibration

/ Perfluorohexanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

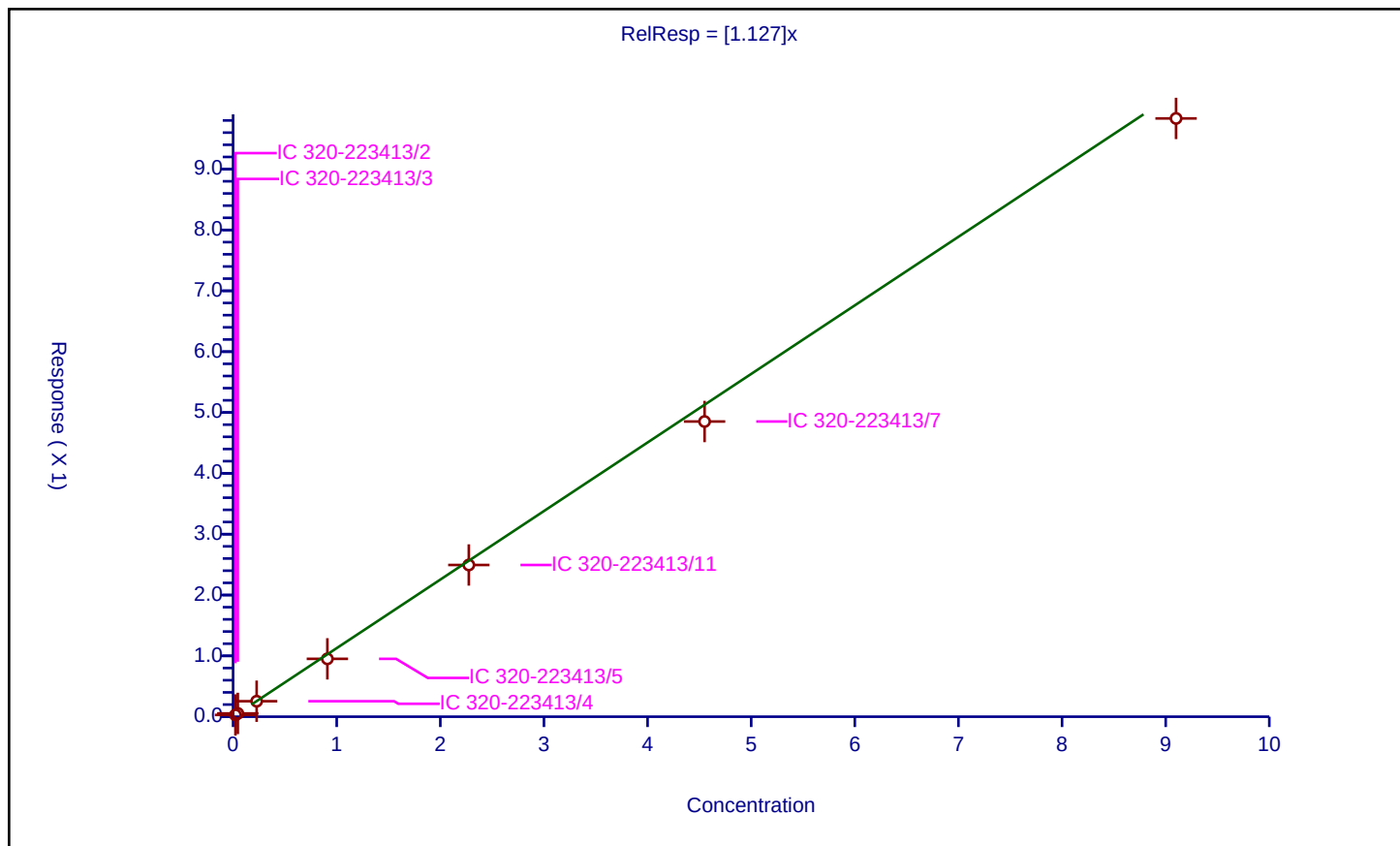
### Curve Coefficients

Intercept: 0  
 Slope: 1.127

### Error Coefficients

Standard Error: 10300000  
 Relative Standard Error: 7.6  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.992

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.02275       | 0.029275   | 2.365     | 6497213.0   | 1.286792 | Y    |
| 2  | IC 320-223413/3  | 0.0455        | 0.054276   | 2.365     | 6581524.0   | 1.192872 | Y    |
| 3  | IC 320-223413/4  | 0.2275        | 0.254784   | 2.365     | 5692452.0   | 1.11993  | Y    |
| 4  | IC 320-223413/5  | 0.91          | 0.951005   | 2.365     | 5565884.0   | 1.04506  | Y    |
| 5  | IC 320-223413/11 | 2.275         | 2.493637   | 2.365     | 5339851.0   | 1.096104 | Y    |
| 6  | IC 320-223413/7  | 4.55          | 4.85177    | 2.365     | 5191664.0   | 1.066323 | Y    |
| 7  | IC 320-223413/8  | 9.1           | 9.833165   | 2.365     | 5333305.0   | 1.080568 | Y    |





## Calibration

/ Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)

Curve Type: Linear  
 Weighting: Conc\_Sq  
 Origin: None  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

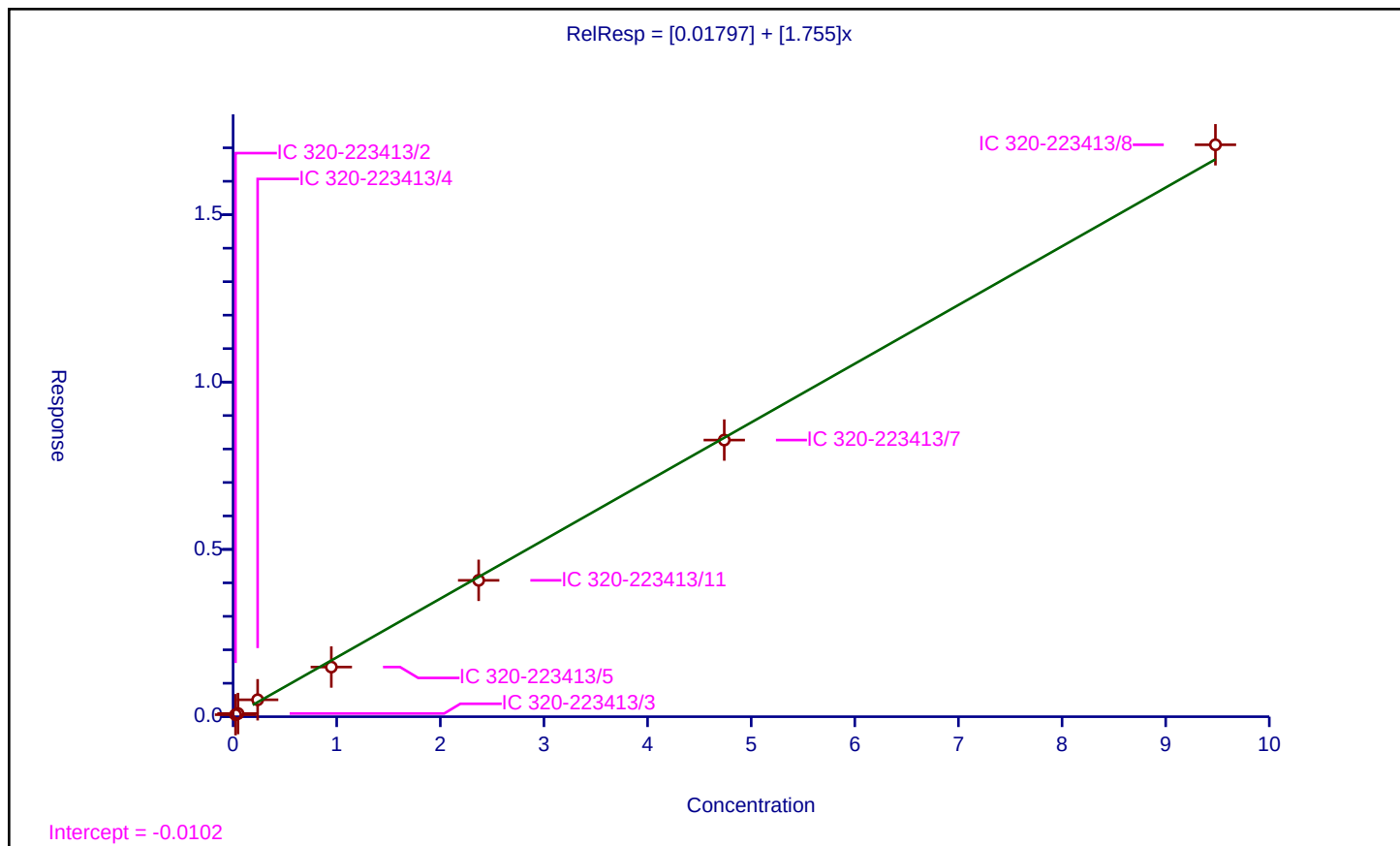
### Curve Coefficients

Intercept: 0.01797  
 Slope: 1.755

### Error Coefficients

Standard Error: 3330000  
 Relative Standard Error: 10.1  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.990

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.0237        | 0.060388   | 2.375     | 1179634.0   | 2.548017 | Y    |
| 2  | IC 320-223413/3  | 0.0474        | 0.095492   | 2.375     | 1201925.0   | 2.0146   | Y    |
| 3  | IC 320-223413/4  | 0.237         | 0.506054   | 2.375     | 1076802.0   | 2.135249 | Y    |
| 4  | IC 320-223413/5  | 0.948         | 1.484407   | 2.375     | 1028277.0   | 1.56583  | Y    |
| 5  | IC 320-223413/11 | 2.37          | 4.075455   | 2.375     | 953169.0    | 1.719601 | Y    |
| 6  | IC 320-223413/7  | 4.74          | 8.267203   | 2.375     | 867962.0    | 1.744136 | Y    |
| 7  | IC 320-223413/8  | 9.48          | 17.091564  | 2.375     | 913641.0    | 1.802908 | Y    |



## Calibration

/ Perfluorooctanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

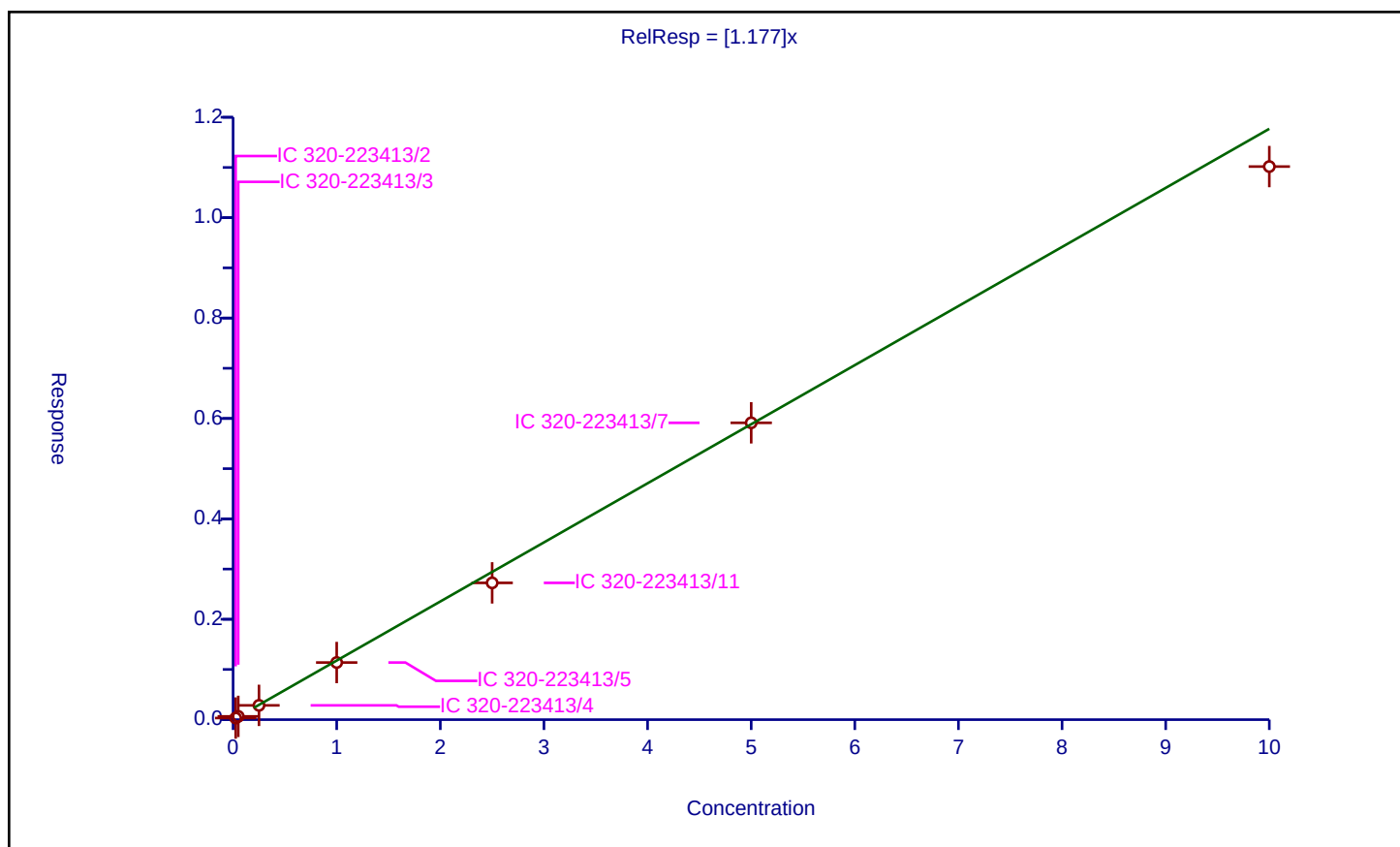
## Curve Coefficients

Intercept: 0  
Slope: 1.177

## Error Coefficients

Standard Error: 9210000  
Relative Standard Error: 7.3  
Correlation Coefficient: 1.000  
Coefficient of Determination (Adjusted): 0.993

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.03206    | 2.5       | 5162191.0   | 1.282382 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.06533    | 2.5       | 5272655.0   | 1.30659  | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.284496   | 2.5       | 4619416.0   | 1.137986 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 1.138031   | 2.5       | 4460027.0   | 1.138031 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.724486   | 2.5       | 4456920.0   | 1.089795 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.913082   | 2.5       | 4079623.0   | 1.182616 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 11.01813   | 2.5       | 4465836.0   | 1.101813 | Y    |



## Calibration

/ Perfluoroheptanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

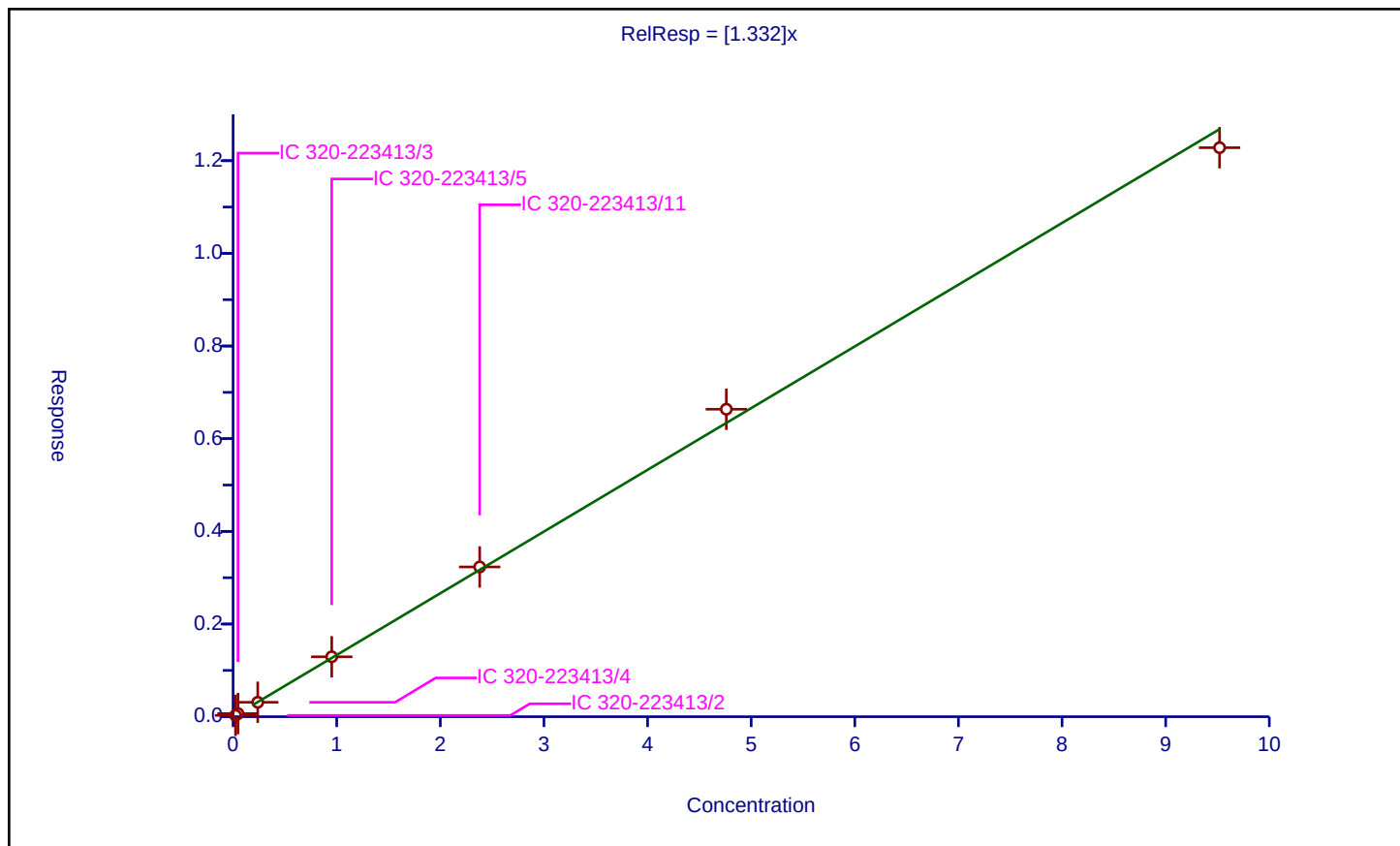
### Curve Coefficients

Intercept: 0  
 Slope: 1.332

### Error Coefficients

Standard Error: 9270000  
 Relative Standard Error: 5.5  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.996

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.0238        | 0.028505   | 2.39      | 4516956.0   | 1.197673 | Y    |
| 2  | IC 320-223413/3  | 0.0476        | 0.067413   | 2.39      | 4415247.0   | 1.416243 | Y    |
| 3  | IC 320-223413/4  | 0.238         | 0.311586   | 2.39      | 4024927.0   | 1.309183 | Y    |
| 4  | IC 320-223413/5  | 0.952         | 1.293247   | 2.39      | 3779459.0   | 1.358452 | Y    |
| 5  | IC 320-223413/11 | 2.38          | 3.232143   | 2.39      | 3815593.0   | 1.358043 | Y    |
| 6  | IC 320-223413/7  | 4.76          | 6.636219   | 2.39      | 3520558.0   | 1.394164 | Y    |
| 7  | IC 320-223413/8  | 9.52          | 12.280732  | 2.39      | 3835347.0   | 1.289993 | Y    |



## Calibration

/ Perfluorooctane sulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

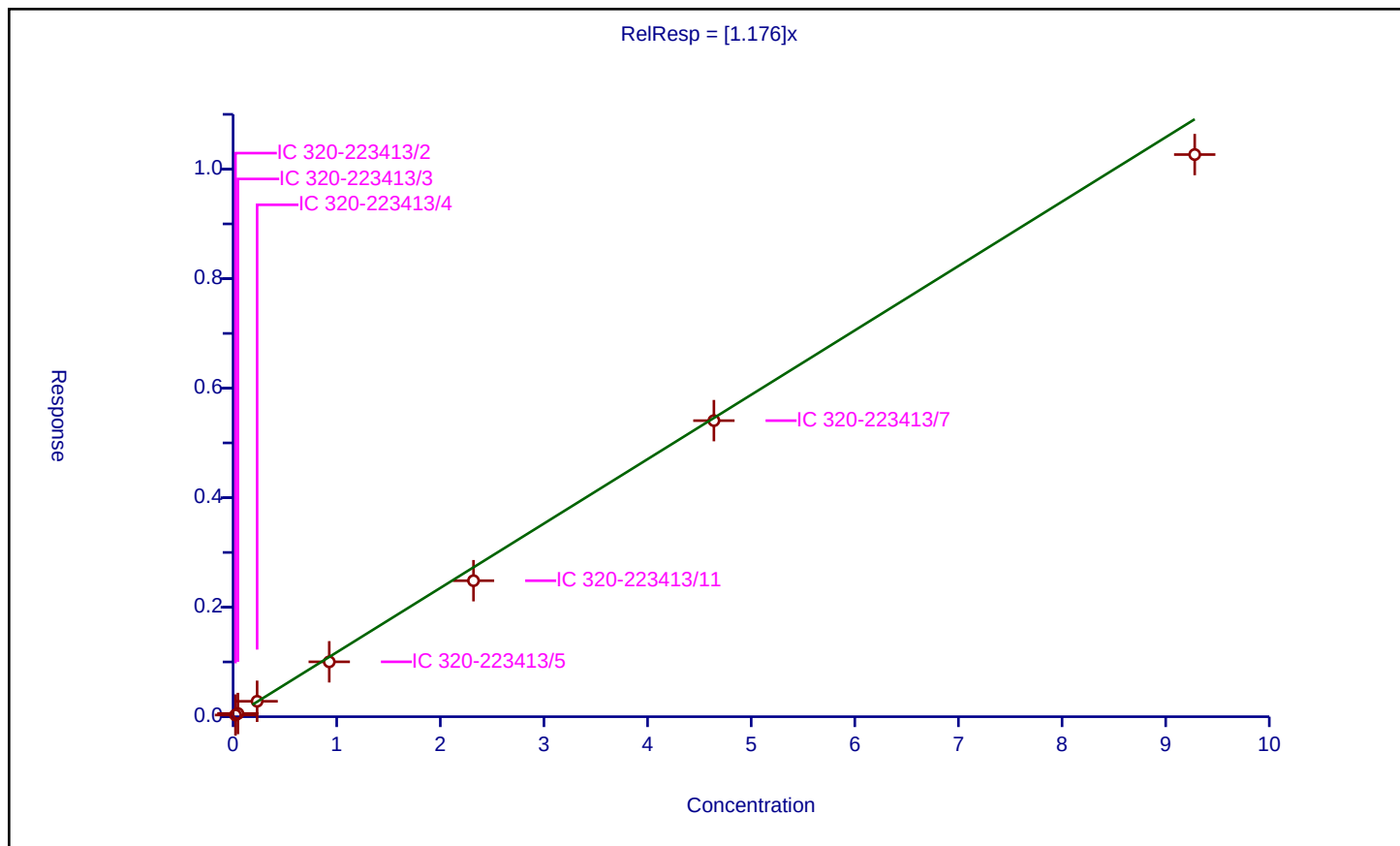
### Curve Coefficients

Intercept: 0  
 Slope: 1.176

### Error Coefficients

Standard Error: 7670000  
 Relative Standard Error: 8.4  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.991

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.0232        | 0.030848   | 2.39      | 4516956.0   | 1.329658 | Y    |
| 2  | IC 320-223413/3  | 0.0464        | 0.05859    | 2.39      | 4415247.0   | 1.262725 | Y    |
| 3  | IC 320-223413/4  | 0.232         | 0.282038   | 2.39      | 4024927.0   | 1.215679 | Y    |
| 4  | IC 320-223413/5  | 0.928         | 1.002487   | 2.39      | 3779459.0   | 1.080267 | Y    |
| 5  | IC 320-223413/11 | 2.32          | 2.48392    | 2.39      | 3815593.0   | 1.070655 | Y    |
| 6  | IC 320-223413/7  | 4.64          | 5.407083   | 2.39      | 3520558.0   | 1.16532  | Y    |
| 7  | IC 320-223413/8  | 9.28          | 10.266077  | 2.39      | 3835347.0   | 1.106258 | Y    |



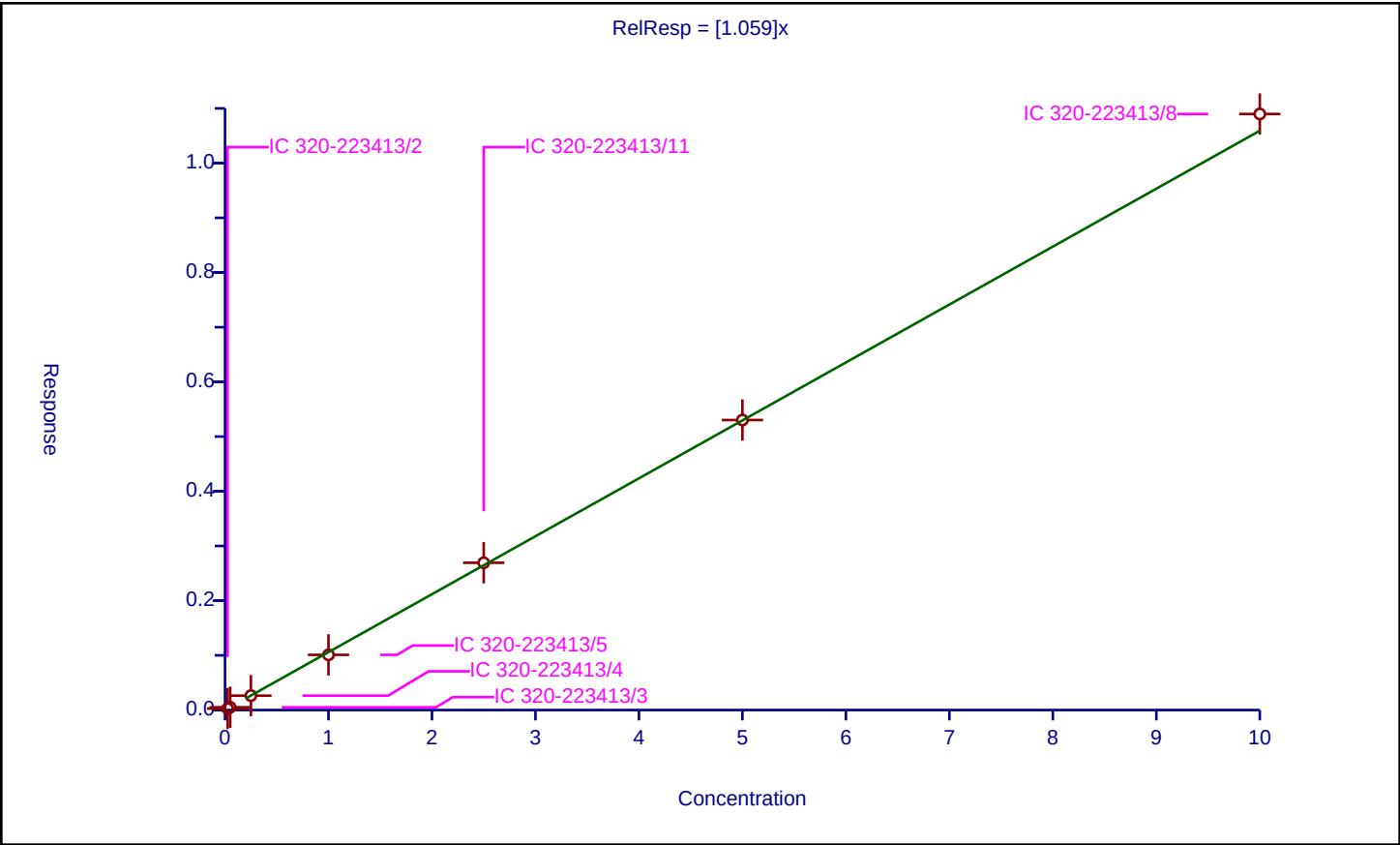
Calibration

/ Perfluorononanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 1.059   |
| Error Coefficients                       |         |
| Standard Error:                          | 7140000 |
| Relative Standard Error:                 | 3.3     |
| Correlation Coefficient:                 | 0.999   |
| Coefficient of Determination (Adjusted): | 0.999   |

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.027572   | 2.5       | 4268517.0   | 1.102865 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.051043   | 2.5       | 4502703.0   | 1.020865 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.263408   | 2.5       | 3819382.0   | 1.053634 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 1.009411   | 2.5       | 3600246.0   | 1.009411 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.692885   | 2.5       | 3538499.0   | 1.077154 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.302849   | 2.5       | 3359491.0   | 1.06057  | Y    |
| 7  | IC 320-223413/8  | 10.0          | 10.898353  | 2.5       | 3539647.0   | 1.089835 | Y    |



## Calibration

## / Perfluorooctane Sulfonamide

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** IsoDil  
**Response Base:**  
**RF Rounding:** 0

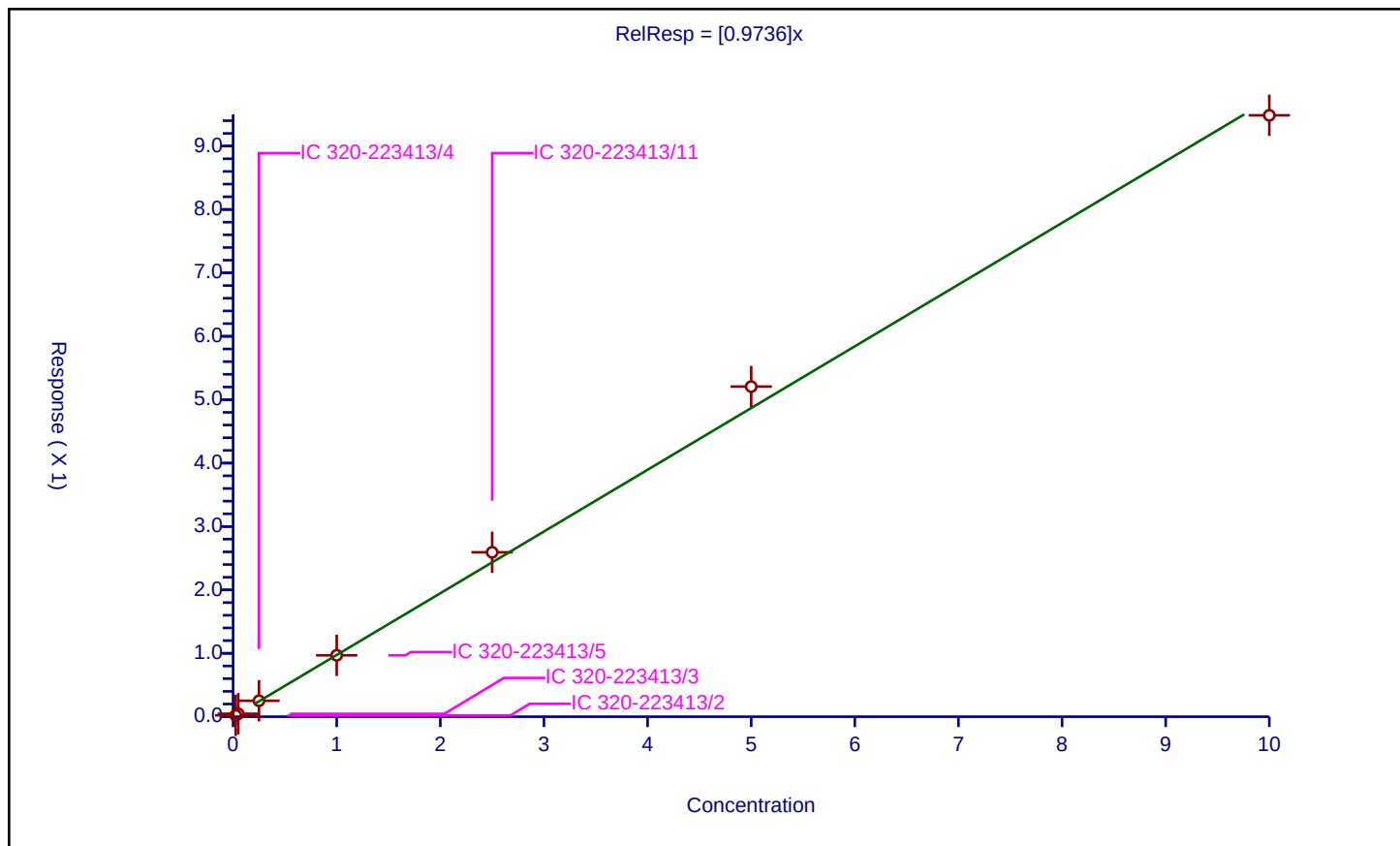
### Curve Coefficients

**Intercept:** 0  
**Slope:** 0.9736

### Error Coefficients

**Standard Error:** 9600000  
**Relative Standard Error:** 6.1  
**Correlation Coefficient:** 1.000  
**Coefficient of Determination (Adjusted):** 0.996

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.021924   | 2.5       | 5956672.0   | 0.876966 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.04682    | 2.5       | 5858621.0   | 0.936398 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.25161    | 2.5       | 5466463.0   | 1.006439 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.968289   | 2.5       | 5346931.0   | 0.968289 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.593212   | 2.5       | 5178962.0   | 1.037285 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.20651    | 2.5       | 4976852.0   | 1.041302 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 9.484794   | 2.5       | 5353791.0   | 0.948479 | Y    |



## Calibration

/ Perfluorononanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

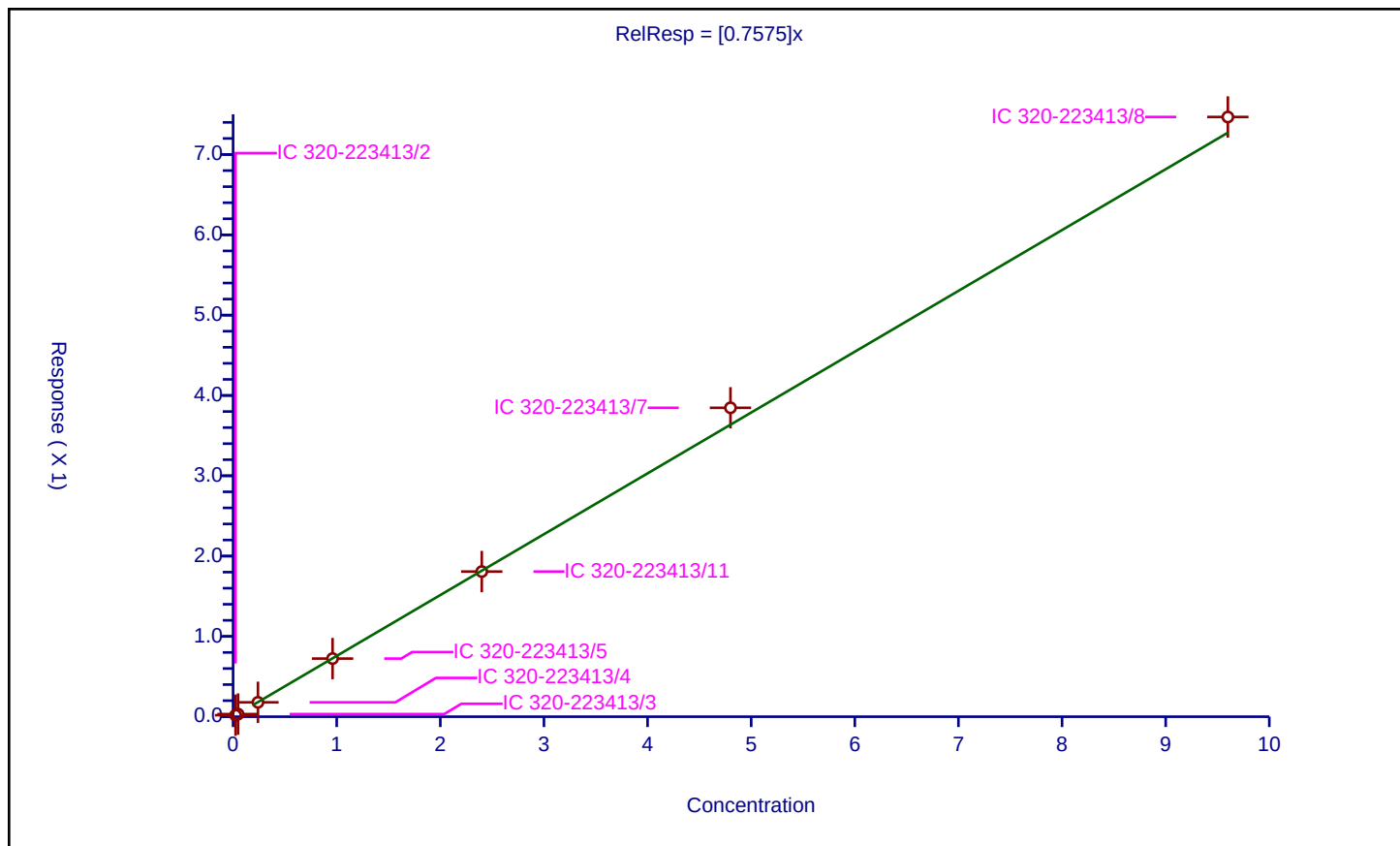
### Curve Coefficients

Intercept: 0  
 Slope: 0.7575

### Error Coefficients

Standard Error: 5560000  
 Relative Standard Error: 5.1  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.024         | 0.0189     | 2.39      | 4516956.0   | 0.787481 | Y    |
| 2  | IC 320-223413/3  | 0.048         | 0.032746   | 2.39      | 4415247.0   | 0.682204 | Y    |
| 3  | IC 320-223413/4  | 0.24          | 0.179215   | 2.39      | 4024927.0   | 0.74673  | Y    |
| 4  | IC 320-223413/5  | 0.96          | 0.723687   | 2.39      | 3779459.0   | 0.75384  | Y    |
| 5  | IC 320-223413/11 | 2.4           | 1.807138   | 2.39      | 3815593.0   | 0.752974 | Y    |
| 6  | IC 320-223413/7  | 4.8           | 3.846277   | 2.39      | 3520558.0   | 0.801308 | Y    |
| 7  | IC 320-223413/8  | 9.6           | 7.467179   | 2.39      | 3835347.0   | 0.777831 | Y    |



## Calibration

/ Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

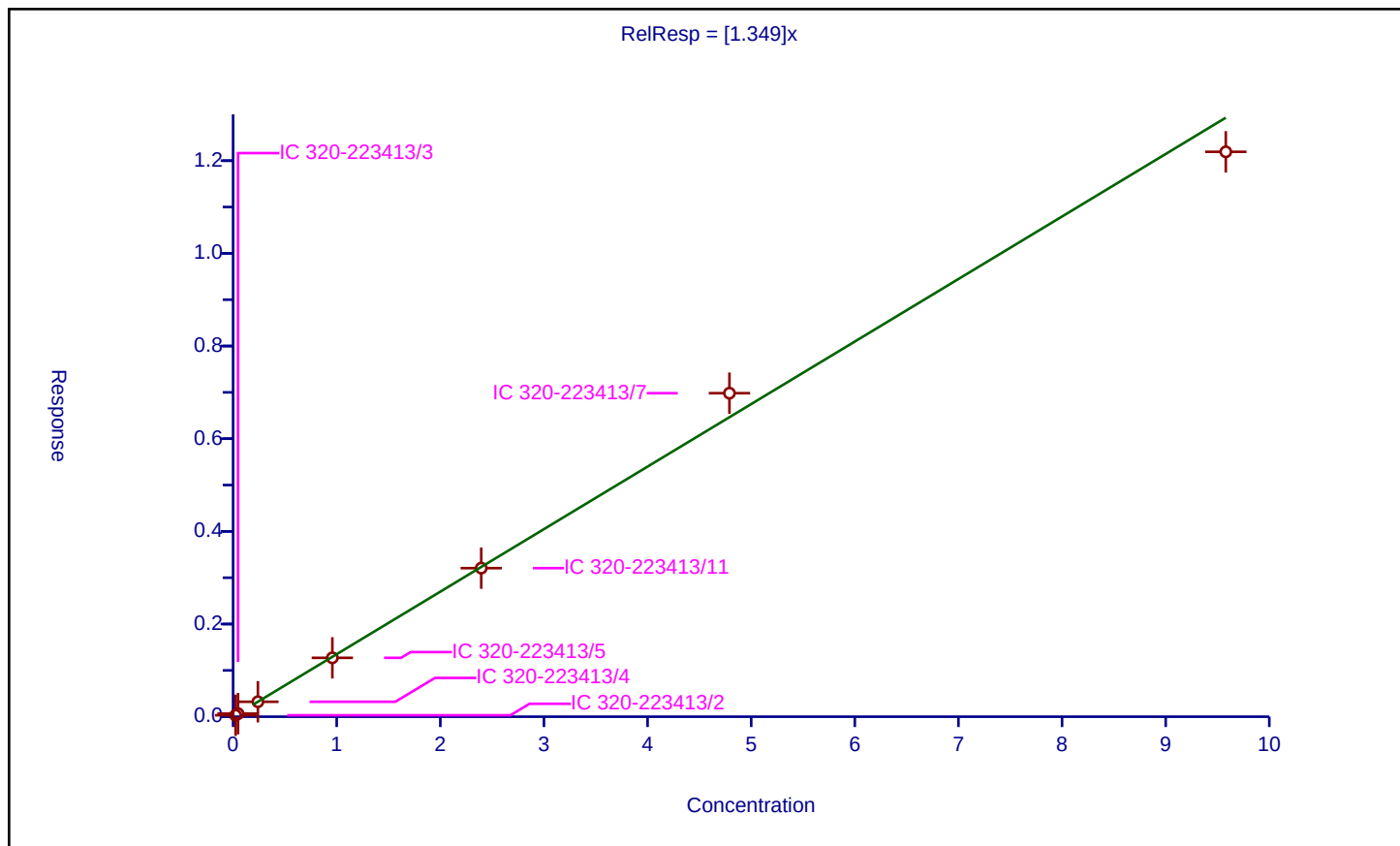
### Curve Coefficients

Intercept: 0  
 Slope: 1.349

### Error Coefficients

Standard Error: 2660000  
 Relative Standard Error: 4.3  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.998

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.02395       | 0.03158    | 2.395     | 1426703.0   | 1.318565 | Y    |
| 2  | IC 320-223413/3  | 0.0479        | 0.066379   | 2.395     | 1426640.0   | 1.385774 | Y    |
| 3  | IC 320-223413/4  | 0.2395        | 0.322423   | 2.395     | 1187676.0   | 1.346234 | Y    |
| 4  | IC 320-223413/5  | 0.958         | 1.27079    | 2.395     | 1096366.0   | 1.326503 | Y    |
| 5  | IC 320-223413/11 | 2.395         | 3.206758   | 2.395     | 1089191.0   | 1.338939 | Y    |
| 6  | IC 320-223413/7  | 4.79          | 6.982192   | 2.395     | 972368.0    | 1.45766  | Y    |
| 7  | IC 320-223413/8  | 9.58          | 12.191537  | 2.395     | 1107332.0   | 1.272603 | Y    |





## Calibration

/ Perfluorodecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

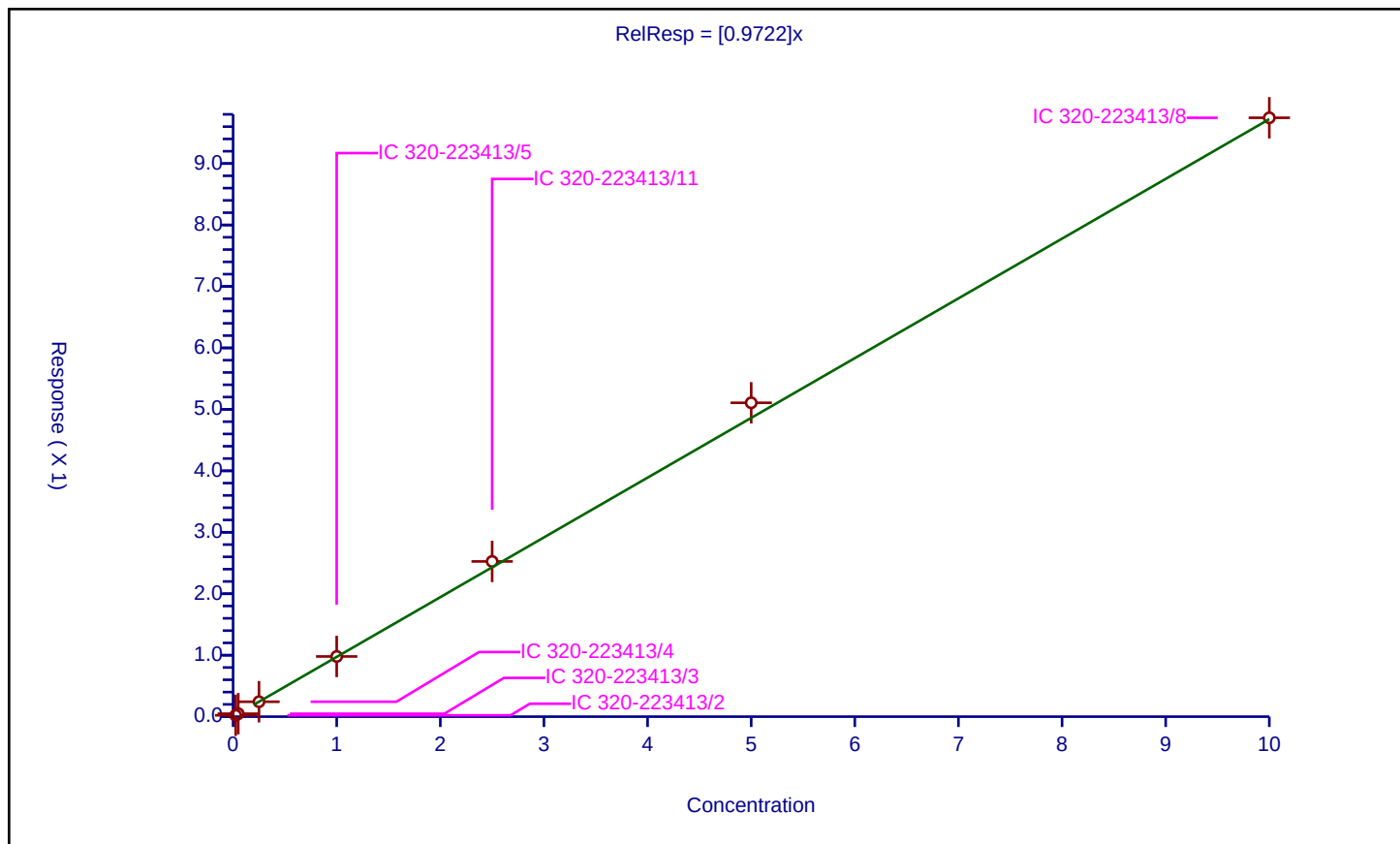
### Curve Coefficients

Intercept: 0  
 Slope: 0.9722

### Error Coefficients

Standard Error: 5620000  
 Relative Standard Error: 4.5  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.998

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.022168   | 2.5       | 3594922.0   | 0.886723 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.048141   | 2.5       | 3752181.0   | 0.962813 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.242669   | 2.5       | 3297462.0   | 0.970677 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.979358   | 2.5       | 3084670.0   | 0.979358 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.525493   | 2.5       | 2997952.0   | 1.010197 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.106929   | 2.5       | 2812041.0   | 1.021386 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 9.744224   | 2.5       | 3099083.0   | 0.974422 | Y    |



## Calibration

/ N-methyl perfluorooctane sulfonamidoacetic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

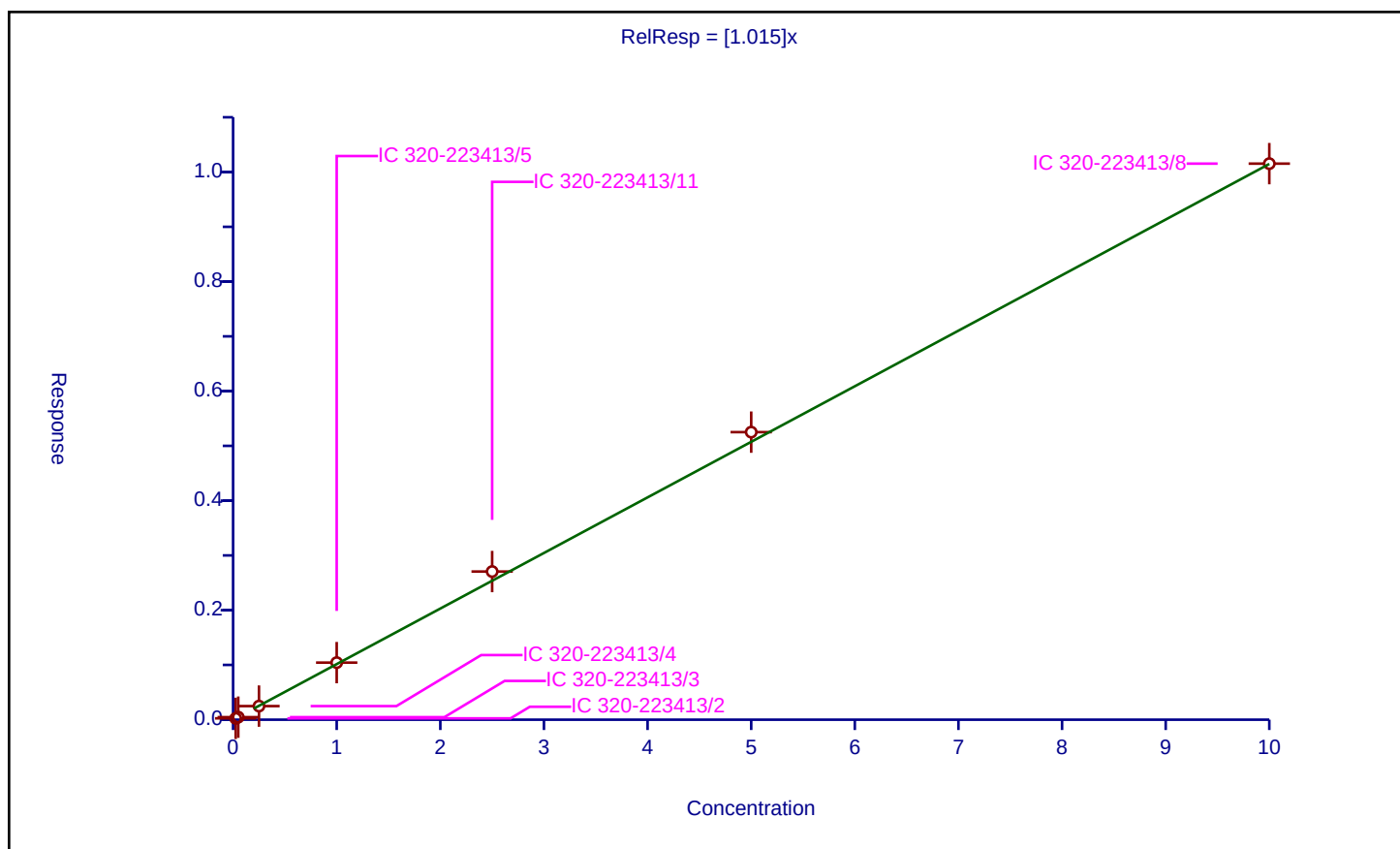
### Curve Coefficients

Intercept: 0  
 Slope: 1.015

### Error Coefficients

Standard Error: 3410000  
 Relative Standard Error: 4.8  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.02464    | 2.5       | 1940146.0   | 0.985596 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.046708   | 2.5       | 2060337.0   | 0.934168 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.248379   | 2.5       | 1854527.0   | 0.993515 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 1.0424     | 2.5       | 1667566.0   | 1.0424   | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.705503   | 2.5       | 1561957.0   | 1.082201 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.250998   | 2.5       | 1561125.0   | 1.0502   | Y    |
| 7  | IC 320-223413/8  | 10.0          | 10.153615  | 2.5       | 1836867.0   | 1.015361 | Y    |



## Calibration

/ Perfluorodecane Sulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

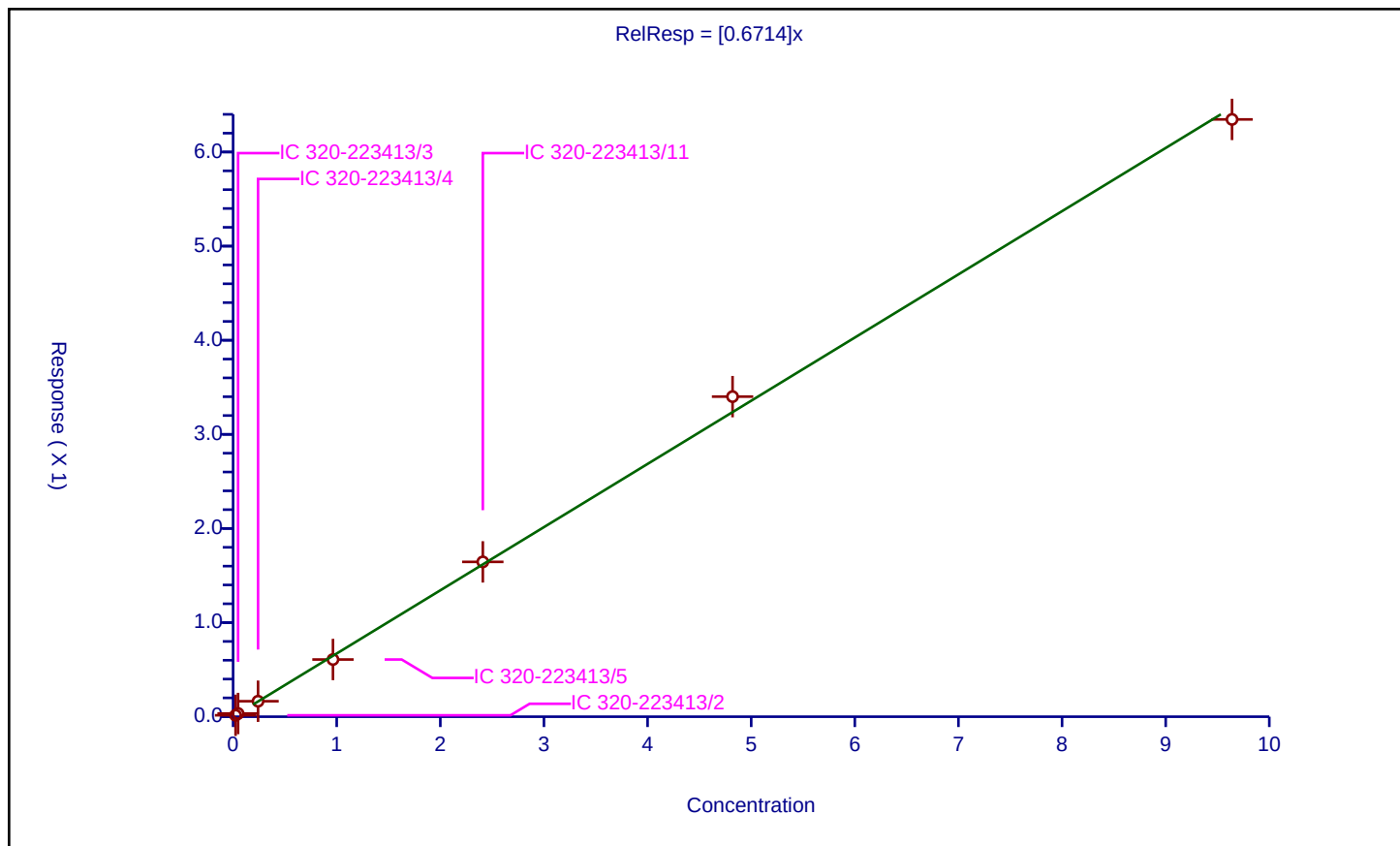
### Curve Coefficients

Intercept: 0  
 Slope: 0.6714

### Error Coefficients

Standard Error: 4770000  
 Relative Standard Error: 4.8  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.0241        | 0.015224   | 2.39      | 4516956.0   | 0.631713 | Y    |
| 2  | IC 320-223413/3  | 0.0482        | 0.034117   | 2.39      | 4415247.0   | 0.707819 | Y    |
| 3  | IC 320-223413/4  | 0.241         | 0.164737   | 2.39      | 4024927.0   | 0.683554 | Y    |
| 4  | IC 320-223413/5  | 0.964         | 0.607741   | 2.39      | 3779459.0   | 0.630436 | Y    |
| 5  | IC 320-223413/11 | 2.41          | 1.644986   | 2.39      | 3815593.0   | 0.682567 | Y    |
| 6  | IC 320-223413/7  | 4.82          | 3.400965   | 2.39      | 3520558.0   | 0.705594 | Y    |
| 7  | IC 320-223413/8  | 9.64          | 6.346257   | 2.39      | 3835347.0   | 0.658325 | Y    |



## Calibration

/ Perfluoroundecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

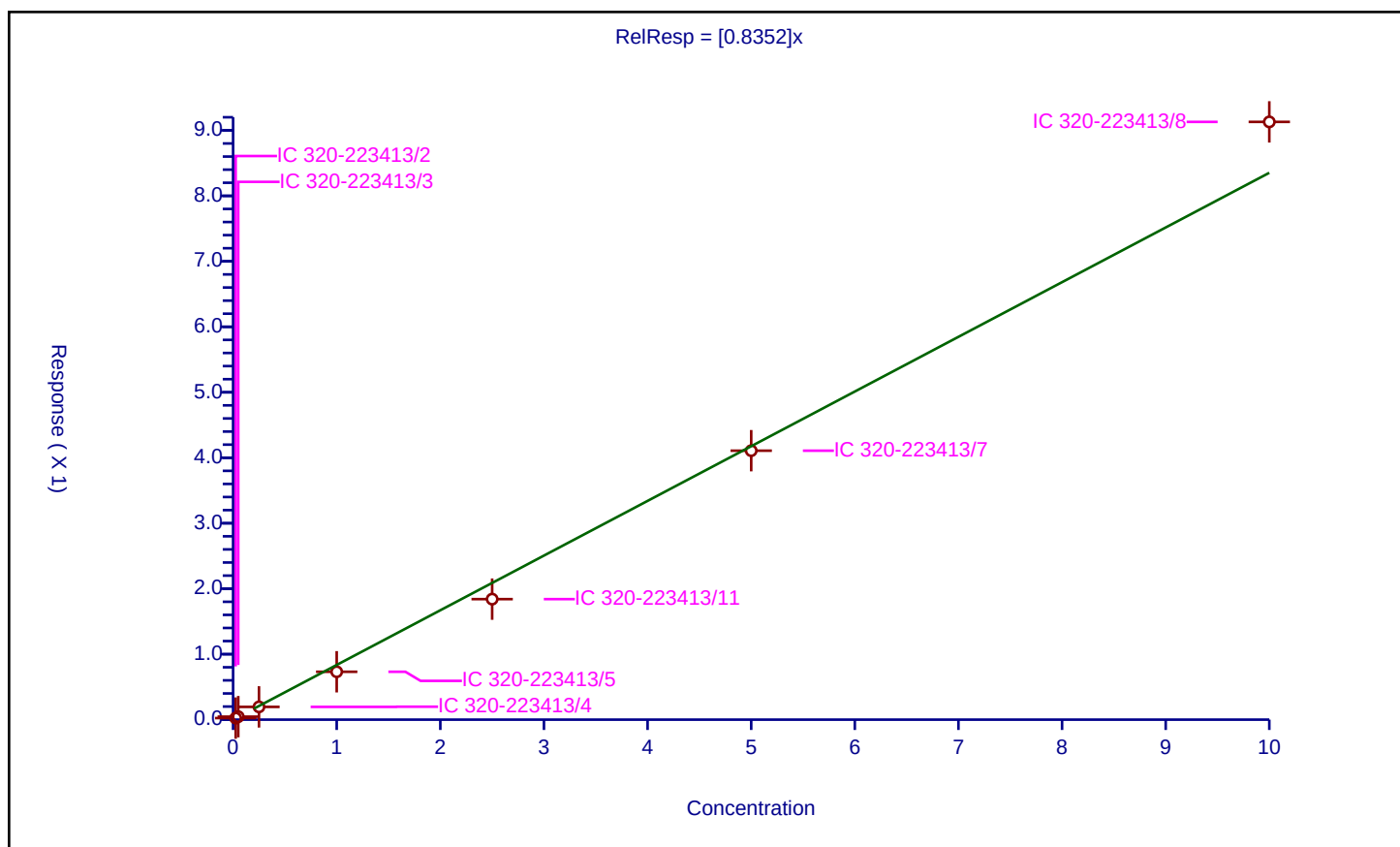
### Curve Coefficients

Intercept: 0  
 Slope: 0.8352

### Error Coefficients

Standard Error: 3810000  
 Relative Standard Error: 10.9  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.984

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.023789   | 2.5       | 2840675.0   | 0.95157  | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.045689   | 2.5       | 2914989.0   | 0.913777 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.194752   | 2.5       | 2576940.0   | 0.779009 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.731215   | 2.5       | 2587053.0   | 0.731215 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 1.840749   | 2.5       | 2447962.0   | 0.736299 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 4.107749   | 2.5       | 2262574.0   | 0.82155  | Y    |
| 7  | IC 320-223413/8  | 10.0          | 9.129515   | 2.5       | 2282286.0   | 0.912952 | Y    |



## Calibration

/ N-ethyl perfluorooctane sulfonamidoacetic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

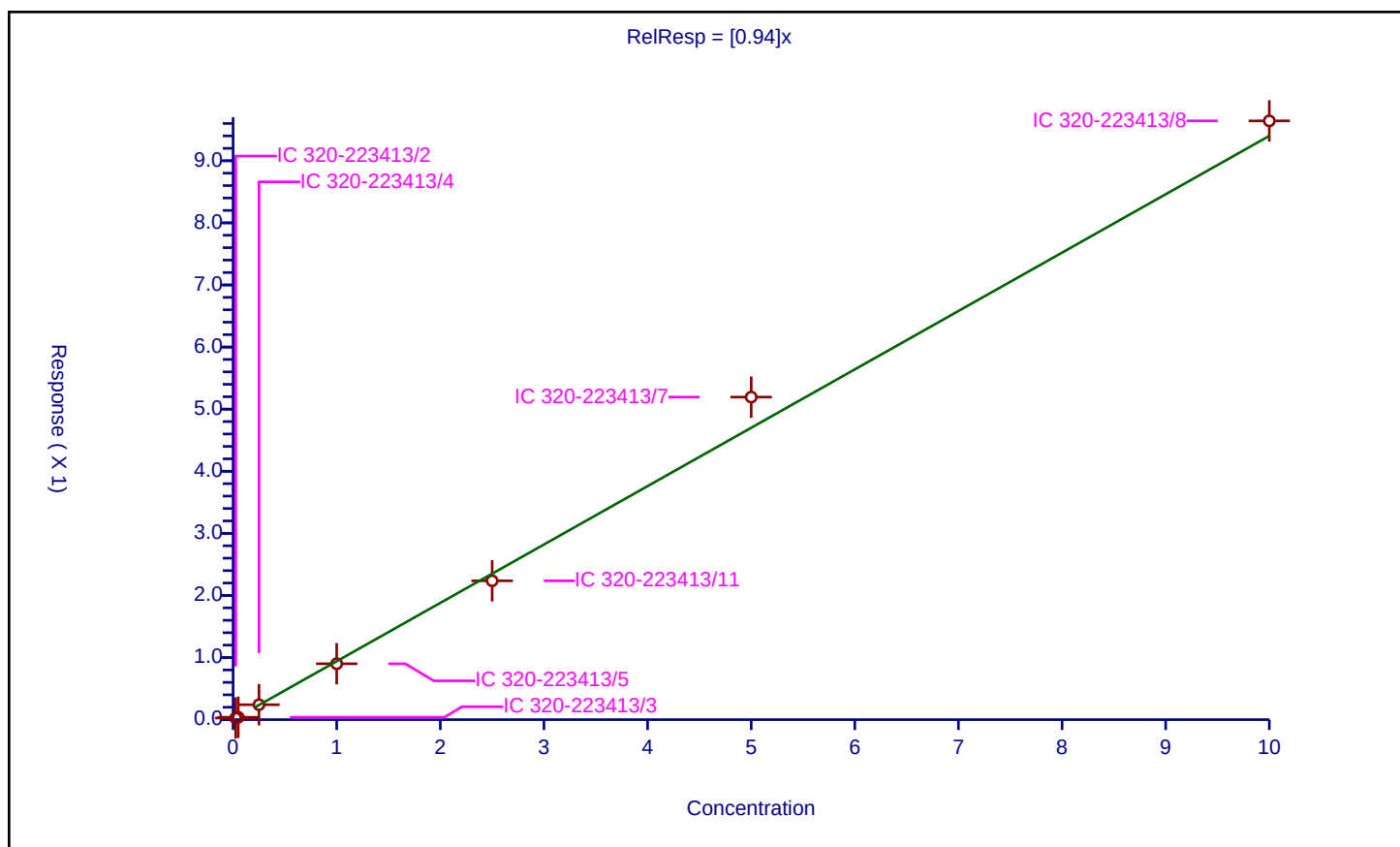
### Curve Coefficients

Intercept: 0  
 Slope: 0.94

### Error Coefficients

Standard Error: 2940000  
 Relative Standard Error: 10.3  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.987

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.026309   | 2.5       | 2119254.0   | 1.052351 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.03841    | 2.5       | 2144987.0   | 0.76821  | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.240507   | 2.5       | 1857905.0   | 0.96203  | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.900266   | 2.5       | 1808821.0   | 0.900266 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.235955   | 2.5       | 1777821.0   | 0.894382 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.194028   | 2.5       | 1507014.0   | 1.038806 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 9.641907   | 2.5       | 1619647.0   | 0.964191 | Y    |



## Calibration

/ Perfluorododecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

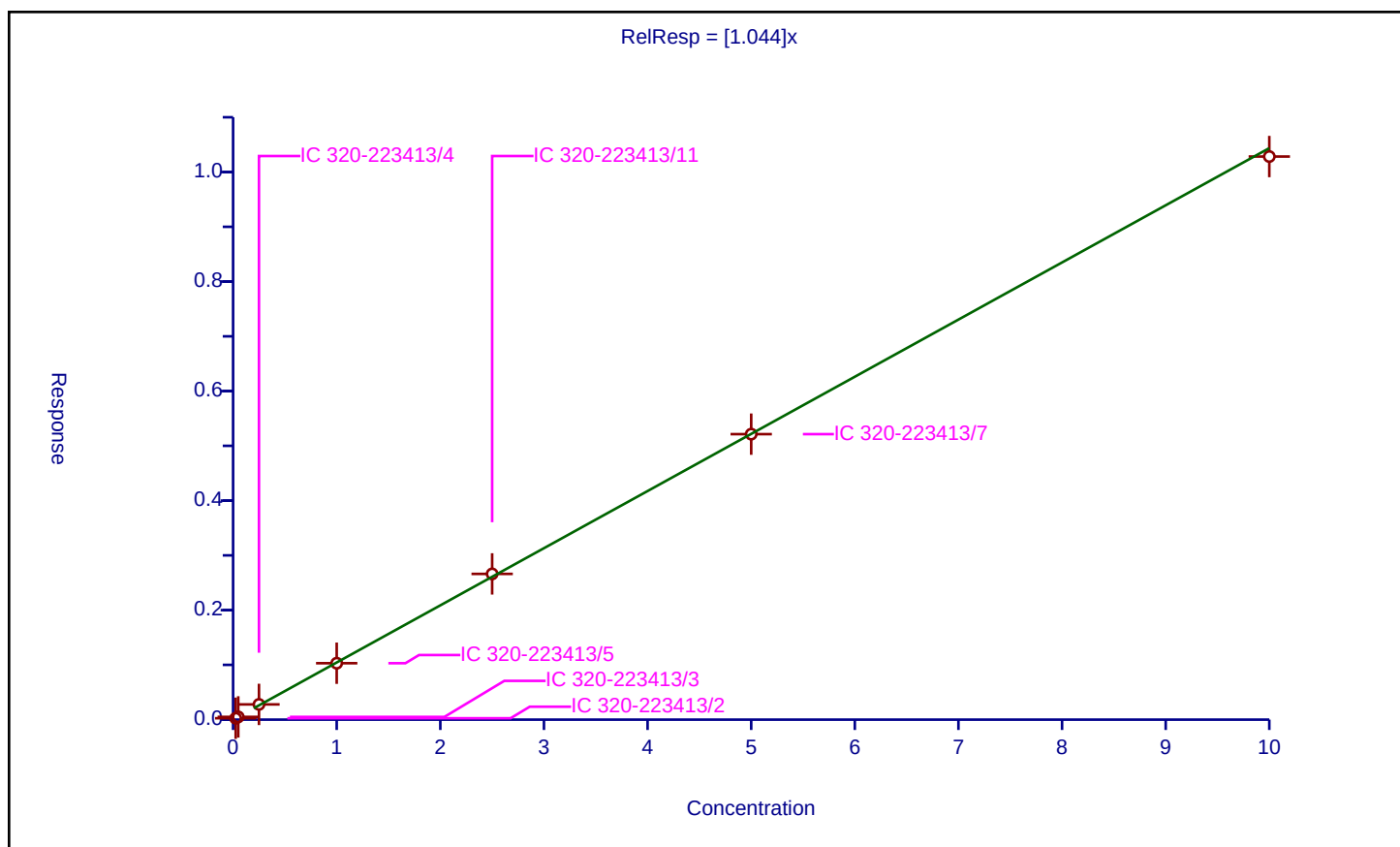
### Curve Coefficients

Intercept: 0  
 Slope: 1.044

### Error Coefficients

Standard Error: 5230000  
 Relative Standard Error: 3.4  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.999

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.025547   | 2.5       | 2960567.0   | 1.021899 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.0502     | 2.5       | 3058640.0   | 1.004008 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.278393   | 2.5       | 2740425.0   | 1.113572 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 1.030575   | 2.5       | 2679695.0   | 1.030575 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.661172   | 2.5       | 2514089.0   | 1.064469 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.213621   | 2.5       | 2544838.0   | 1.042724 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 10.282964  | 2.5       | 2747572.0   | 1.028296 | Y    |



Calibration

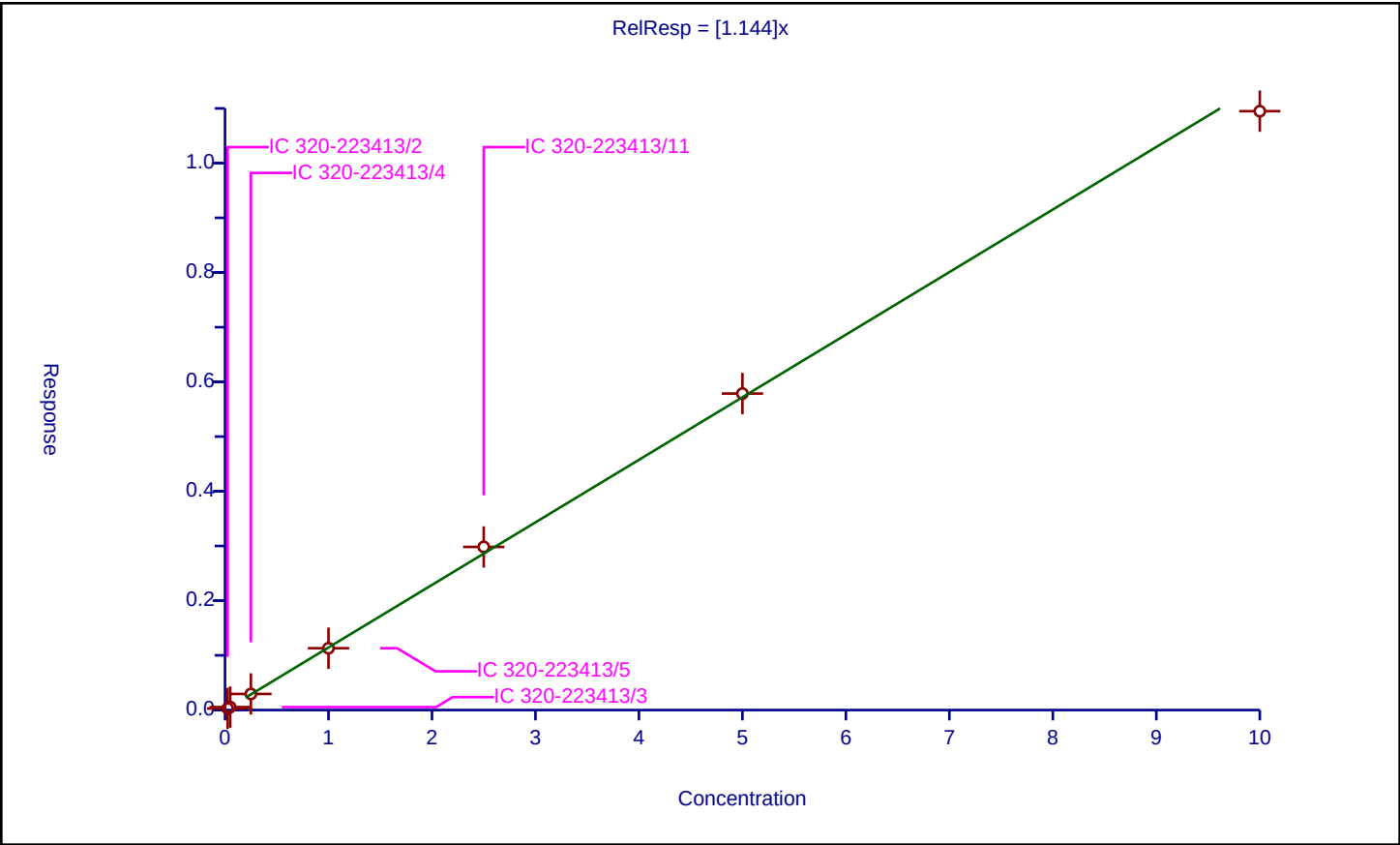
/ Perfluorotridecanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients |       |
|--------------------|-------|
| Intercept:         | 0     |
| Slope:             | 1.144 |

| Error Coefficients                       |         |
|------------------------------------------|---------|
| Standard Error:                          | 5630000 |
| Relative Standard Error:                 | 3.7     |
| Correlation Coefficient:                 | 1.000   |
| Coefficient of Determination (Adjusted): | 0.998   |

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.029231   | 2.5       | 2960567.0   | 1.169235 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.054221   | 2.5       | 3058640.0   | 1.08442  | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.294504   | 2.5       | 2740425.0   | 1.178014 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 1.130478   | 2.5       | 2679695.0   | 1.130478 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 2.982527   | 2.5       | 2514089.0   | 1.193011 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 5.786335   | 2.5       | 2544838.0   | 1.157267 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 10.949082  | 2.5       | 2747572.0   | 1.094908 | Y    |



## Calibration

/ Perfluorotetradecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

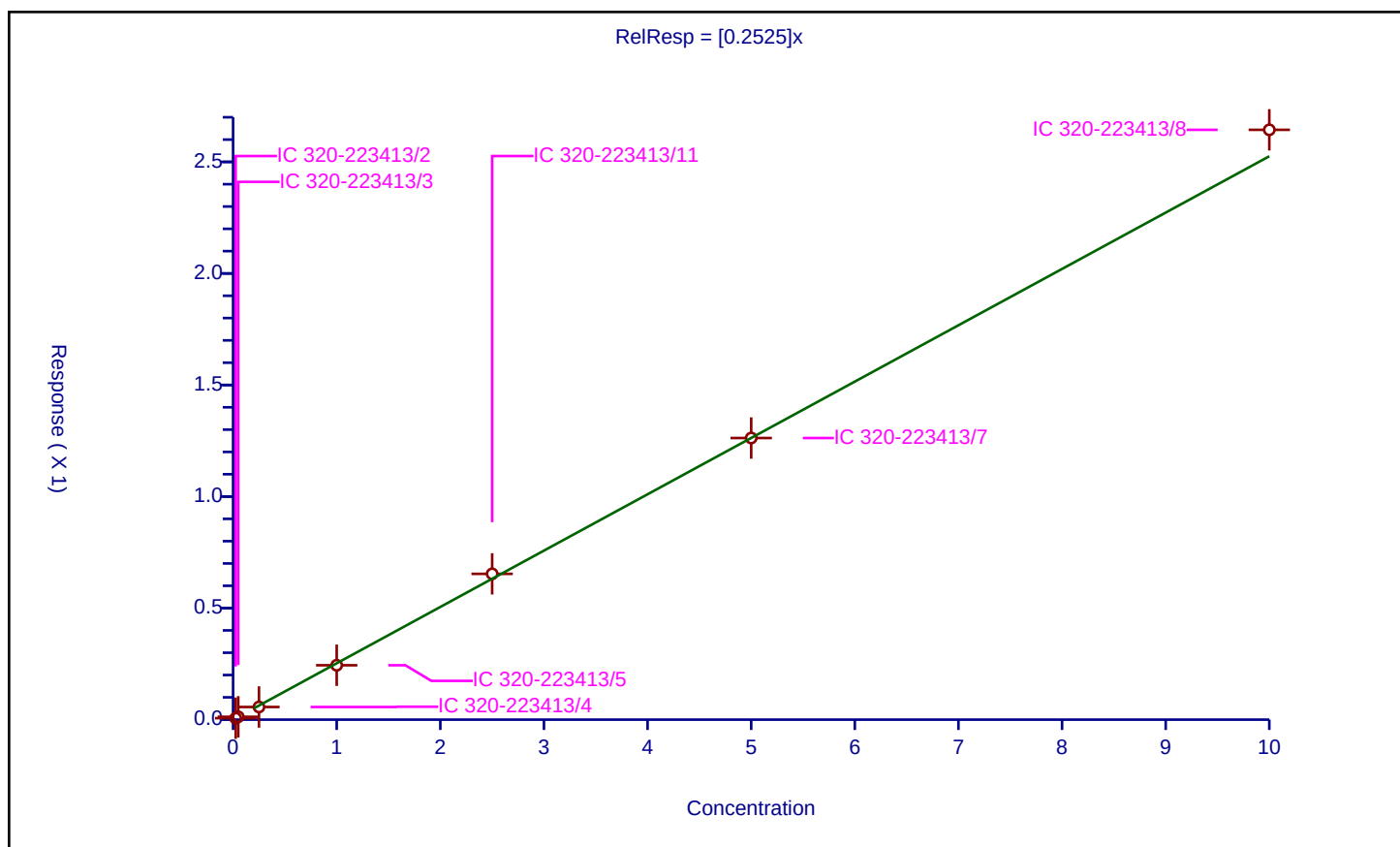
### Curve Coefficients

Intercept: 0  
 Slope: 0.2525

### Error Coefficients

Standard Error: 1590000  
 Relative Standard Error: 5.3  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level            | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|------------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-223413/2  | 0.025         | 0.006554   | 2.5       | 3777870.0   | 0.262158 | Y    |
| 2  | IC 320-223413/3  | 0.05          | 0.012825   | 2.5       | 3285420.0   | 0.256497 | Y    |
| 3  | IC 320-223413/4  | 0.25          | 0.056743   | 2.5       | 3595983.0   | 0.226973 | Y    |
| 4  | IC 320-223413/5  | 1.0           | 0.243826   | 2.5       | 3394312.0   | 0.243826 | Y    |
| 5  | IC 320-223413/11 | 2.5           | 0.653493   | 2.5       | 3141974.0   | 0.261397 | Y    |
| 6  | IC 320-223413/7  | 5.0           | 1.262333   | 2.5       | 3113223.0   | 0.252467 | Y    |
| 7  | IC 320-223413/8  | 10.0          | 2.643815   | 2.5       | 3267831.0   | 0.264381 | Y    |





FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

Calibration Files:

|         |                 |                      |
|---------|-----------------|----------------------|
| LEVEL:  | LAB SAMPLE ID:  | LAB FILE ID:         |
| Level 1 | IC 320-227354/2 | 2018.06.05ICAL_002.d |
| Level 2 | IC 320-227354/3 | 2018.06.05ICAL_003.d |
| Level 3 | IC 320-227354/4 | 2018.06.05ICAL_004.d |
| Level 4 | IC 320-227354/5 | 2018.06.05ICAL_005.d |
| Level 5 | IC 320-227354/6 | 2018.06.05ICAL_006.d |
| Level 6 | IC 320-227354/7 | 2018.06.05ICAL_007.d |
| Level 7 | IC 320-227354/8 | 2018.06.05ICAL_008.d |

| ANALYTE                               | RRF              |                  |        |        |        | CURVE TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX %RSD | R^2 OR COD | # | MIN R^2 OR COD |
|---------------------------------------|------------------|------------------|--------|--------|--------|------------|-------------|--------|----|---|---------|------|---|----------|------------|---|----------------|
|                                       | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3  | LVL 4  | LVL 5  |            | B           | M1     | M2 |   |         |      |   |          |            |   |                |
| Perfluorobutanoic acid (PFBA)         | 1.2064<br>1.0019 | 1.1191<br>0.9996 | 0.9954 | 0.9716 | 1.0043 | AveID      |             | 1.0426 |    |   |         | 8.3  |   | 20.0     |            |   |                |
| Perfluoropentanoic acid (PFPeA)       | 1.4018<br>1.2259 | 1.1878<br>1.1687 | 1.1272 | 1.1675 | 1.2254 | AveID      |             | 1.2149 |    |   |         | 7.4  |   | 20.0     |            |   |                |
| Perfluorobutanesulfonic acid (PFBS)   | 75.023<br>77.203 | 78.754<br>74.407 | 76.405 | 79.857 | 81.346 | AveID      |             | 77.571 |    |   |         | 3.3  |   | 20.0     |            |   |                |
| 4:2 FTS                               | 18.658<br>19.604 | 19.927<br>17.959 | 19.819 | 19.633 | 18.929 | AveID      |             | 19.218 |    |   |         | 3.8  |   | 20.0     |            |   |                |
| Perfluorohexanoic acid (PFHxA)        | 1.2124<br>1.0241 | 1.2006<br>1.0366 | 1.0626 | 1.0243 | 1.0570 | AveID      |             | 1.0882 |    |   |         | 7.6  |   | 20.0     |            |   |                |
| Perfluoropentanesulfonic acid         | 66.529<br>68.972 | 69.829<br>66.509 | 70.785 | 72.666 | 73.223 | AveID      |             | 69.788 |    |   |         | 3.8  |   | 20.0     |            |   |                |
| Perfluoroheptanoic acid (PFHpA)       | 1.1921<br>1.1266 | 1.1432<br>1.0776 | 1.0931 | 1.1592 | 1.1470 | AveID      |             | 1.1341 |    |   |         | 3.4  |   | 20.0     |            |   |                |
| Perfluorohexanesulfonic acid (PFHxS)  | 1.2725<br>1.1361 | 1.2113<br>1.1033 | 1.0759 | 1.1098 | 1.1168 | AveID      |             | 1.1465 |    |   |         | 6.1  |   | 20.0     |            |   |                |
| 6:2FTS                                | 1.8365<br>1.6597 | 1.8762<br>1.6600 | 1.7833 | 1.6216 | 1.5957 | AveID      |             | 1.7190 |    |   |         | 6.5  |   | 20.0     |            |   |                |
| Perfluorooctanoic acid (PFOA)         | 1.4390<br>1.1564 | 1.2697<br>1.0874 | 1.1878 | 1.1264 | 1.1508 | AveID      |             | 1.2025 |    |   |         | 9.9  |   | 20.0     |            |   |                |
| Perfluoroheptanesulfonic Acid (PFHpS) | 1.3531<br>1.4279 | 1.2595<br>1.3949 | 1.3378 | 1.3862 | 1.4588 | AveID      |             | 1.3740 |    |   |         | 4.7  |   | 20.0     |            |   |                |
| Perfluorononanoic acid (PFNA)         | 0.9802<br>1.0611 | 1.0886<br>1.0820 | 1.1127 | 1.0836 | 1.1241 | AveID      |             | 1.0760 |    |   |         | 4.4  |   | 20.0     |            |   |                |
| Perfluorooctanesulfonic acid (PFOS)   | 1.2924<br>1.1793 | 1.1962<br>1.1892 | 1.1290 | 1.1512 | 1.1740 | AveID      |             | 1.1873 |    |   |         | 4.4  |   | 20.0     |            |   |                |
| Perfluorooctane Sulfonamide (PFOSA)   | 1.0528<br>1.0494 | 1.0504<br>1.0489 | 0.9922 | 1.0185 | 1.0652 | AveID      |             | 1.0396 |    |   |         | 2.4  |   | 20.0     |            |   |                |

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354  
SDG No.: \_\_\_\_\_  
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N  
Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

| ANALYTE                                                       | RRF              |                  |        |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|---------------------------------------------------------------|------------------|------------------|--------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|                                                               | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3  | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| 8:2FTS                                                        | 1.2650<br>1.3293 | 1.5089<br>1.3709 | 1.3395 | 1.4104 | 1.3762 | AveID         |             | 1.3715 |    |   |         | 5.5  |   | 20.0        |               |   |                   |
| Perfluorononanesulfonic acid                                  | 0.6982<br>0.8044 | 0.7638<br>0.8081 | 0.7482 | 0.8237 | 0.8273 | AveID         |             | 0.7820 |    |   |         | 6.1  |   | 20.0        |               |   |                   |
| Perfluorodecanoic acid (PFDA)                                 | 1.2373<br>1.0569 | 1.0747<br>1.0630 | 0.9988 | 0.9929 | 1.0578 | AveID         |             | 1.0688 |    |   |         | 7.6  |   | 20.0        |               |   |                   |
| N-methyl perfluorooctane<br>sulfonamidoacetic acid (NMeFOSAA) | 0.9611<br>1.0252 | 0.9703<br>1.0478 | 0.9935 | 0.9727 | 1.0090 | AveID         |             | 0.9971 |    |   |         | 3.2  |   | 20.0        |               |   |                   |
| Perfluoroundecanoic acid (PFUnA)                              | 0.9052<br>0.8179 | 0.8499<br>0.8877 | 0.8765 | 0.7574 | 0.8193 | AveID         |             | 0.8449 |    |   |         | 6.0  |   | 20.0        |               |   |                   |
| Perfluorodecanesulfonic acid (PFDS)                           | 0.6207<br>0.6898 | 0.7185<br>0.7132 | 0.6604 | 0.7060 | 0.7180 | AveID         |             | 0.6895 |    |   |         | 5.3  |   | 20.0        |               |   |                   |
| N-ethyl perfluorooctane<br>sulfonamidoacetic acid (NEtFOSAA)  | 0.7733<br>0.8959 | 0.9490<br>0.9264 | 0.8914 | 0.8325 | 0.8529 | AveID         |             | 0.8745 |    |   |         | 6.8  |   | 20.0        |               |   |                   |
| Perfluorododecanoic acid (PFDoA)                              | 1.1009<br>1.0584 | 1.1114<br>1.0876 | 1.1216 | 1.0940 | 1.1187 | AveID         |             | 1.0989 |    |   |         | 2.0  |   | 20.0        |               |   |                   |
| Perfluorotridecanoic Acid (PFTriA)                            | 1.1950<br>1.1783 | 1.1396<br>1.2227 | 1.1293 | 1.1266 | 1.1661 | AveID         |             | 1.1654 |    |   |         | 3.1  |   | 20.0        |               |   |                   |
| Perfluorotetradecanoic acid (PFTeA)                           | 0.2856<br>0.2526 | 0.3084<br>0.2572 | 0.2597 | 0.2550 | 0.2654 | AveID         |             | 0.2691 |    |   |         | 7.6  |   | 20.0        |               |   |                   |
| 13C4 PFBA                                                     | 1.3699<br>1.4329 | 1.3569<br>1.4262 | 1.3854 | 1.4148 | 1.4083 | Ave           |             | 1.3992 |    |   |         | 2.1  |   | 20.0        |               |   |                   |
| 13C5-PFPeA                                                    | 0.9267<br>0.9663 | 0.9354<br>0.9521 | 0.9421 | 0.9686 | 0.9417 | Ave           |             | 0.9476 |    |   |         | 1.6  |   | 20.0        |               |   |                   |
| 13C3-PFBS                                                     | 0.0212<br>0.0215 | 0.0202<br>0.0215 | 0.0207 | 0.0209 | 0.0207 | Ave           |             | 0.0210 |    |   |         | 2.3  |   | 20.0        |               |   |                   |
| 13C2 PFHxA                                                    | 0.9952<br>1.0348 | 0.9882<br>1.0102 | 0.9909 | 1.0117 | 1.0221 | Ave           |             | 1.0076 |    |   |         | 1.7  |   | 20.0        |               |   |                   |
| 13C4-PFHpA                                                    | 0.9615<br>0.9815 | 0.9739<br>0.9651 | 0.9531 | 0.9906 | 0.9764 | Ave           |             | 0.9717 |    |   |         | 1.3  |   | 20.0        |               |   |                   |
| 18O2 PFHxS                                                    | 1.1507<br>1.1658 | 1.1622<br>1.1614 | 1.2064 | 1.2011 | 1.1990 | Ave           |             | 1.1781 |    |   |         | 2.0  |   | 20.0        |               |   |                   |
| M2-6:2FTS                                                     | 0.2368<br>0.2408 | 0.2412<br>0.2327 | 0.2414 | 0.2538 | 0.2432 | Ave           |             | 0.2414 |    |   |         | 2.7  |   | 20.0        |               |   |                   |
| 13C4 PFOA                                                     | 0.9187<br>0.9891 | 0.9253<br>0.9998 | 0.9383 | 0.9943 | 0.9832 | Ave           |             | 0.9641 |    |   |         | 3.6  |   | 20.0        |               |   |                   |
| 13C5 PFNA                                                     | 0.8125<br>0.8280 | 0.8041<br>0.8185 | 0.8107 | 0.8232 | 0.8001 | Ave           |             | 0.8138 |    |   |         | 1.2  |   | 20.0        |               |   |                   |
| 13C4 PFOS                                                     | 0.8078<br>0.8022 | 0.7916<br>0.7981 | 0.7991 | 0.8062 | 0.7865 | Ave           |             | 0.7988 |    |   |         | 1.0  |   | 20.0        |               |   |                   |

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

| ANALYTE     | RRF              |                  |        |        |        | CURVE<br>TYPE | COEFFICIENT |        |    | # | MIN RRF | %RSD | # | MAX<br>%RSD | R^2<br>OR COD | # | MIN R^2<br>OR COD |
|-------------|------------------|------------------|--------|--------|--------|---------------|-------------|--------|----|---|---------|------|---|-------------|---------------|---|-------------------|
|             | LVL 1<br>LVL 6   | LVL 2<br>LVL 7   | LVL 3  | LVL 4  | LVL 5  |               | B           | M1     | M2 |   |         |      |   |             |               |   |                   |
| 13C8 FOSA   | 1.0179<br>1.0223 | 0.9862<br>1.0076 | 1.0121 | 1.0123 | 0.9932 | Ave           |             | 1.0074 |    |   |         | 1.3  |   | 20.0        |               |   |                   |
| M2-8:2FTS   | 0.2546<br>0.2585 | 0.2452<br>0.2389 | 0.2646 | 0.2490 | 0.2487 | Ave           |             | 0.2514 |    |   |         | 3.4  |   | 20.0        |               |   |                   |
| 13C2 PFDA   | 0.6257<br>0.6680 | 0.6585<br>0.6309 | 0.6773 | 0.6917 | 0.6425 | Ave           |             | 0.6564 |    |   |         | 3.7  |   | 20.0        |               |   |                   |
| d3-NMeFOSAA | 0.3832<br>0.3846 | 0.3904<br>0.3905 | 0.3812 | 0.4018 | 0.3883 | Ave           |             | 0.3886 |    |   |         | 1.8  |   | 20.0        |               |   |                   |
| d5-NEtFOSAA | 0.4221<br>0.4008 | 0.4189<br>0.3889 | 0.4231 | 0.4300 | 0.4265 | Ave           |             | 0.4158 |    |   |         | 3.6  |   | 20.0        |               |   |                   |
| 13C2 PFUnA  | 0.5439<br>0.5418 | 0.5599<br>0.5040 | 0.5531 | 0.5684 | 0.5483 | Ave           |             | 0.5456 |    |   |         | 3.8  |   | 20.0        |               |   |                   |
| 13C2 PFDoA  | 0.5607<br>0.5925 | 0.5790<br>0.5804 | 0.5842 | 0.5969 | 0.5953 | Ave           |             | 0.5841 |    |   |         | 2.1  |   | 20.0        |               |   |                   |
| 13C2-PFTeDA | 0.7607<br>0.7851 | 0.7482<br>0.7397 | 0.7618 | 0.7738 | 0.7375 | Ave           |             | 0.7581 |    |   |         | 2.3  |   | 20.0        |               |   |                   |
| 13C2-PFHxDA | 1.4690<br>1.4268 | 1.4553<br>1.4229 | 1.4313 | 1.4611 | 1.4637 | Ave           |             | 1.4471 |    |   |         | 1.3  |   | 20.0        |               |   |                   |

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

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

Calibration Files:

|         |                 |                      |
|---------|-----------------|----------------------|
| LEVEL:  | LAB SAMPLE ID:  | LAB FILE ID:         |
| Level 1 | IC 320-227354/2 | 2018.06.05ICAL_002.d |
| Level 2 | IC 320-227354/3 | 2018.06.05ICAL_003.d |
| Level 3 | IC 320-227354/4 | 2018.06.05ICAL_004.d |
| Level 4 | IC 320-227354/5 | 2018.06.05ICAL_005.d |
| Level 5 | IC 320-227354/6 | 2018.06.05ICAL_006.d |
| Level 6 | IC 320-227354/7 | 2018.06.05ICAL_007.d |
| Level 7 | IC 320-227354/8 | 2018.06.05ICAL_008.d |

| ANALYTE                               | IS<br>REF | CURVE<br>TYPE | RESPONSE          |                    |        |         |         | CONCENTRATION (NG/ML) |                |       |       |       |
|---------------------------------------|-----------|---------------|-------------------|--------------------|--------|---------|---------|-----------------------|----------------|-------|-------|-------|
|                                       |           |               | LVL 1<br>LVL 6    | LVL 2<br>LVL 7     | LVL 3  | LVL 4   | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 |
| Perfluorobutanoic acid (PFBA)         |           | AveID         | 71751<br>12165637 | 137582<br>23084851 | 611006 | 2410167 | 6234596 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluoropentanoic acid (PFPeA)       |           | AveID         | 56400<br>10038078 | 100666<br>18018439 | 470492 | 1982667 | 5086603 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorobutanesulfonic acid (PFBS)   |           | AveID         | 60967<br>12453648 | 127235<br>22887561 | 618366 | 2586734 | 6570038 | 0.0221<br>4.42        | 0.0442<br>8.84 | 0.221 | 0.884 | 2.21  |
| 4:2 FTS                               |           | AveID         | 16020<br>3341196  | 34014<br>5836570   | 169474 | 671912  | 1615298 | 0.0234<br>4.67        | 0.0467<br>9.34 | 0.234 | 0.934 | 2.34  |
| Perfluorohexanoic acid (PFHxA)        |           | AveID         | 52384<br>8979689  | 107491<br>16956861 | 466494 | 1816892 | 4762494 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluoropentanesulfonic acid         |           | AveID         | 57367<br>11805538 | 119706<br>21707651 | 607875 | 2497582 | 6275236 | 0.0235<br>4.69        | 0.0469<br>9.38 | 0.235 | 0.938 | 2.35  |
| Perfluoroheptanoic acid (PFHpA)       |           | AveID         | 49762<br>9369847  | 100861<br>16840878 | 461565 | 2013304 | 4936887 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorohexanesulfonic acid (PFHxS)  |           | AveID         | 57848<br>10213097 | 116064<br>18882579 | 523312 | 2126858 | 5371295 | 0.0228<br>4.55        | 0.0455<br>9.10 | 0.228 | 0.910 | 2.28  |
| 6:2FTS                                |           | AveID         | 17902<br>3210186  | 38862<br>5929389   | 180827 | 683928  | 1621426 | 0.0237<br>4.74        | 0.0474<br>9.48 | 0.237 | 0.948 | 2.37  |
| Perfluorooctanoic acid (PFOA)         |           | AveID         | 57450<br>9701900  | 106541<br>17622615 | 494299 | 1965587 | 4992547 | 0.0250<br>5.01        | 0.0501<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluoroheptanesulfonic Acid (PFHpS) |           | AveID         | 45179<br>9240089  | 85996<br>17163051  | 450916 | 1865429 | 4814441 | 0.0238<br>4.76        | 0.0476<br>9.52 | 0.238 | 0.952 | 2.38  |
| Perfluorononanoic acid (PFNA)         |           | AveID         | 34573<br>7444457  | 79303<br>14341016  | 399680 | 1563988 | 3964360 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorooctanesulfonic acid (PFOS)   |           | AveID         | 42066<br>7439087  | 79615<br>14263799  | 370944 | 1510175 | 3776811 | 0.0232<br>4.64        | 0.0464<br>9.28 | 0.232 | 0.928 | 2.32  |
| Perfluorooctane Sulfonamide (PFOSA)   |           | AveID         | 46523<br>9090745  | 93858<br>17114560  | 444927 | 1807725 | 4663724 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| 8:2FTS                                |           | AveID         | 13398<br>2788951  | 32112<br>5080289   | 150464 | 589788  | 1445486 | 0.0240<br>4.79        | 0.0479<br>9.58 | 0.240 | 0.958 | 2.40  |

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

| ANALYTE                                                    | IS REF     | CURVE TYPE | RESPONSE           |                    |         |         |         | CONCENTRATION (NG/ML) |                |       |       |       |
|------------------------------------------------------------|------------|------------|--------------------|--------------------|---------|---------|---------|-----------------------|----------------|-------|-------|-------|
|                                                            |            |            | LVL 1<br>LVL 6     | LVL 2<br>LVL 7     | LVL 3   | LVL 4   | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 |
| Perfluorononanesulfonic acid                               |            | AveID      | 23510<br>5249427   | 52592<br>10026596  | 254310  | 1117743 | 2753203 | 0.0240<br>4.80        | 0.0480<br>9.60 | 0.240 | 0.960 | 2.40  |
| Perfluorodecanoic acid (PFDA)                              |            | AveID      | 33608<br>5982396   | 64118<br>10860215  | 299751  | 1204130 | 2995720 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) |            | AveID      | 15987<br>3341332   | 34319<br>6625159   | 167814  | 685215  | 1727107 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluoroundecanoic acid (PFUnA)                           |            | AveID      | 21373<br>3754999   | 43110<br>7245235   | 214812  | 754830  | 1980195 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorodecanesulfonic acid (PFDS)                        |            | AveID      | 20986<br>4520146   | 49675<br>8886214   | 225397  | 962104  | 2399517 | 0.0241<br>4.82        | 0.0482<br>9.64 | 0.241 | 0.964 | 2.41  |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  |            | AveID      | 14170<br>3042773   | 36019<br>5834501   | 167081  | 627574  | 1603587 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorododecanoic acid (PFDoA)                           |            | AveID      | 26800<br>5314076   | 58296<br>10222125  | 290307  | 1144976 | 2935400 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorotridecanoic Acid (PFTriA)                         |            | AveID      | 29092<br>5915808   | 59777<br>11492471  | 292310  | 1179085 | 3059749 | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| Perfluorotetradecanoic acid (PFTeA)                        |            | AveID      | 9433<br>1680275    | 20906<br>3080342   | 87652   | 345900  | 862847  | 0.0250<br>5.00        | 0.0500<br>10.0 | 0.250 | 1.00  | 2.50  |
| 13C4 PFBA                                                  | 13PF<br>OA | Ave        | 5947307<br>6071080 | 6146744<br>5773717 | 6138199 | 6201421 | 6207769 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C5-PFPeA                                                 | 13PF<br>OA | Ave        | 4023471<br>4094010 | 4237476<br>3854315 | 4174052 | 4245493 | 4150906 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C3-PFBS                                                  | 13PF<br>OA | Ave        | 85493<br>84852     | 84983<br>80901     | 85144   | 85194   | 84969   | 2.33<br>2.33          | 2.33<br>2.33   | 2.33  | 2.33  | 2.33  |
| 13C2 PFHxA                                                 | 13PF<br>OA | Ave        | 4320820<br>4384399 | 4476556<br>4089622 | 4390111 | 4434509 | 4505561 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C4-PFHpA                                                 | 13PF<br>OA | Ave        | 4174338<br>4158596 | 4411501<br>3907099 | 4222666 | 4341946 | 4304120 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 18O2 PFHxS                                                 | 13PF<br>OA | Ave        | 4725916<br>4672624 | 4980443<br>4447895 | 5056251 | 4980455 | 4999793 | 2.37<br>2.37          | 2.37<br>2.37   | 2.37  | 2.37  | 2.37  |
| M2-6:2FTS                                                  | 13PF<br>OA | Ave        | 976862<br>969154   | 1037830<br>894885  | 1016167 | 1056640 | 1018271 | 2.38<br>2.38          | 2.38<br>2.38   | 2.38  | 2.38  | 2.38  |
| 13C4 PFOA                                                  | 13PF<br>OA | Ave        | 3988383<br>4190761 | 4191344<br>4047574 | 4157379 | 4358346 | 4333833 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C5 PFNA                                                  | 13PF<br>OA | Ave        | 3527292<br>3507927 | 3642361<br>3313564 | 3591827 | 3608236 | 3526736 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C4 PFOS                                                  | 13PF<br>OA | Ave        | 3352986<br>3249167 | 3428276<br>3088993 | 3384749 | 3378414 | 3314199 | 2.39<br>2.39          | 2.39<br>2.39   | 2.39  | 2.39  | 2.39  |
| 13C8 FOSA                                                  | 13PF<br>OA | Ave        | 4419138<br>4331460 | 4467650<br>4079339 | 4484265 | 4437048 | 4378158 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| M2-8:2FTS                                                  | 13PF<br>OA | Ave        | 1059139<br>1049042 | 1064084<br>926421  | 1123283 | 1045448 | 1050319 | 2.40<br>2.40          | 2.40<br>2.40   | 2.40  | 2.40  | 2.40  |

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

| ANALYTE     | IS<br>REF  | CURVE<br>TYPE | RESPONSE           |                    |         |         |         | CONCENTRATION (NG/ML) |                |       |       |       |
|-------------|------------|---------------|--------------------|--------------------|---------|---------|---------|-----------------------|----------------|-------|-------|-------|
|             |            |               | LVL 1<br>LVL 6     | LVL 2<br>LVL 7     | LVL 3   | LVL 4   | LVL 5   | LVL 1<br>LVL 6        | LVL 2<br>LVL 7 | LVL 3 | LVL 4 | LVL 5 |
| 13C2 PFDA   | 13PF<br>OA | Ave           | 2716339<br>2830080 | 2983039<br>2554258 | 3000974 | 3031724 | 2831965 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| d3-NMeFOSAA | 13PF<br>OA | Ave           | 1663469<br>1629652 | 1768487<br>1580798 | 1689060 | 1761089 | 1711637 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| d5-NEtFOSAA | 13PF<br>OA | Ave           | 1832483<br>1698178 | 1897724<br>1574432 | 1874454 | 1884668 | 1880177 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2 PFUnA  | 13PF<br>OA | Ave           | 2361228<br>2295440 | 2536101<br>2040350 | 2450667 | 2491515 | 2417072 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2 PFDoA  | 13PF<br>OA | Ave           | 2434472<br>2510329 | 2622715<br>2349769 | 2588443 | 2616438 | 2623887 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2-PFTeDA | 13PF<br>OA | Ave           | 3302697<br>3326246 | 3389482<br>2994414 | 3374999 | 3391529 | 3250808 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |
| 13C2-PFHxDA | 13PF<br>OA | Ave           | 6377645<br>6044992 | 6592255<br>5760288 | 6341404 | 6404193 | 6451812 | 2.50<br>2.50          | 2.50<br>2.50   | 2.50  | 2.50  | 2.50  |

Curve Type Legend:

Ave = Average ISTD  
AveID = Average isotope dilution

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

Calibration Files:

|         |                 |                      |
|---------|-----------------|----------------------|
| LEVEL:  | LAB SAMPLE ID:  | LAB FILE ID:         |
| Level 1 | IC 320-227354/2 | 2018.06.05ICAL_002.d |
| Level 2 | IC 320-227354/3 | 2018.06.05ICAL_003.d |
| Level 3 | IC 320-227354/4 | 2018.06.05ICAL_004.d |
| Level 4 | IC 320-227354/5 | 2018.06.05ICAL_005.d |
| Level 5 | IC 320-227354/6 | 2018.06.05ICAL_006.d |
| Level 6 | IC 320-227354/7 | 2018.06.05ICAL_007.d |
| Level 7 | IC 320-227354/8 | 2018.06.05ICAL_008.d |

| ANALYTE                               | PERCENT ERROR      |         |         |         |         |         | PERCENT ERROR LIMIT |       |       |       |       |       |
|---------------------------------------|--------------------|---------|---------|---------|---------|---------|---------------------|-------|-------|-------|-------|-------|
|                                       | LVL 1 #<br>LVL 7 # | LVL 2 # | LVL 3 # | LVL 4 # | LVL 5 # | LVL 6 # | LVL 1<br>LVL 7      | LVL 2 | LVL 3 | LVL 4 | LVL 5 | LVL 6 |
| Perfluorobutanoic acid (PFBA)         | 15.7<br>-4.1       | 7.3     | -4.5    | -6.8    | -3.7    | -3.9    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoropentanoic acid (PFPeA)       | 15.4<br>-3.8       | -2.2    | -7.2    | -3.9    | 0.9     | 0.9     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorobutanesulfonic acid (PFBS)   | -3.3<br>-4.1       | 1.5     | -1.5    | 2.9     | 4.9     | -0.5    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| 4:2 FTS                               | -2.9<br>-6.6       | 3.7     | 3.1     | 2.2     | -1.5    | 2.0     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorohexanoic acid (PFHxA)        | 11.4<br>-4.7       | 10.3    | -2.4    | -5.9    | -2.9    | -5.9    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoropentanesulfonic acid         | -4.7<br>-4.7       | 0.1     | 1.4     | 4.1     | 4.9     | -1.2    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoroheptanoic acid (PFHpA)       | 5.1<br>-5.0        | 0.8     | -3.6    | 2.2     | 1.1     | -0.7    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorohexanesulfonic acid (PFHxS)  | 11.0<br>-3.8       | 5.6     | -6.2    | -3.2    | -2.6    | -0.9    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| 6:2FTS                                | 6.8<br>-3.4        | 9.1     | 3.7     | -5.7    | -7.2    | -3.5    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorooctanoic acid (PFOA)         | 19.7<br>-9.6       | 5.6     | -1.2    | -6.3    | -4.3    | -3.8    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoroheptanesulfonic Acid (PFHpS) | -1.5<br>1.5        | -8.3    | -2.6    | 0.9     | 6.2     | 3.9     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorononanoic acid (PFNA)         | -8.9<br>0.6        | 1.2     | 3.4     | 0.7     | 4.5     | -1.4    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorooctanesulfonic acid (PFOS)   | 8.9<br>0.2         | 0.7     | -4.9    | -3.0    | -1.1    | -0.7    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorooctane Sulfonamide (PFOSA)   | 1.3<br>0.9         | 1.0     | -4.6    | -2.0    | 2.5     | 0.9     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| 8:2FTS                                | -7.8<br>0.0        | 10.0    | -2.3    | 2.8     | 0.3     | -3.1    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |

FORM VI  
LCMS BY ISOTOPIC DILUTION - INITIAL CALIBRATION DATA  
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1 Analy Batch No.: 227354  
SDG No.: \_\_\_\_\_  
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N  
Calibration Start Date: 06/05/2018 14:28 Calibration End Date: 06/05/2018 15:15 Calibration ID: 39550

| ANALYTE                                                       | PERCENT ERROR      |         |         |         |         |         | PERCENT ERROR LIMIT |       |       |       |       |       |
|---------------------------------------------------------------|--------------------|---------|---------|---------|---------|---------|---------------------|-------|-------|-------|-------|-------|
|                                                               | LVL 1 #<br>LVL 7 # | LVL 2 # | LVL 3 # | LVL 4 # | LVL 5 # | LVL 6 # | LVL 1<br>LVL 7      | LVL 2 | LVL 3 | LVL 4 | LVL 5 | LVL 6 |
| Perfluorononanesulfonic acid                                  | -10.7<br>3.3       | -2.3    | -4.3    | 5.3     | 5.8     | 2.9     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorodecanoic acid (PFDA)                                 | 15.8<br>-0.5       | 0.6     | -6.5    | -7.1    | -1.0    | -1.1    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| N-methyl perfluorooctane<br>sulfonamidoacetic acid (NMeFOSAA) | -3.6<br>5.1        | -2.7    | -0.4    | -2.4    | 1.2     | 2.8     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluoroundecanoic acid (PFUnA)                              | 7.1<br>5.1         | 0.6     | 3.8     | -10.4   | -3.0    | -3.2    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorodecanesulfonic acid (PFDS)                           | -10.0<br>3.4       | 4.2     | -4.2    | 2.4     | 4.1     | 0.0     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| N-ethyl perfluorooctane<br>sulfonamidoacetic acid (NEtFOSAA)  | -11.6<br>5.9       | 8.5     | 1.9     | -4.8    | -2.5    | 2.4     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorododecanoic acid (PFDoA)                              | 0.2<br>-1.0        | 1.1     | 2.1     | -0.4    | 1.8     | -3.7    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorotridecanoic Acid (PFTriA)                            | 2.5<br>4.9         | -2.2    | -3.1    | -3.3    | 0.1     | 1.1     | 30<br>30            | 30    | 30    | 30    | 30    | 30    |
| Perfluorotetradecanoic acid (PFTeA)                           | 6.1<br>-4.4        | 14.6    | -3.5    | -5.3    | -1.4    | -6.1    | 30<br>30            | 30    | 30    | 30    | 30    | 30    |



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_002.d  
 Lims ID: IC L1 Full  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 05-Jun-2018 14:28:42 ALS Bottle#: 47 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L1-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:08:54 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:10:01

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                  |      |       |       |
| 217.00 > 172.00                       | 1.463 | 1.462  | 0.001  | 0.539  | 5947307  | 2.45         |                  | 97.9 | 30672 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                  |      |       |       |
| 212.90 > 169.00                       | 1.463 | 1.463  | 0.0    | 1.000  | 71751    | 0.0289       |                  | 116  | 32.3  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 262.90 > 219.00                       | 1.739 | 1.736  | 0.003  | 1.000  | 56400    | 0.0288       |                  | 115  | 32.2  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                  |      |       |       |
| 267.90 > 223.00                       | 1.739 | 1.736  | 0.003  | 0.641  | 4023471  | 2.45         |                  | 97.8 | 50779 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                  |      |       |       |
| 301.90 > 83.00                        | 1.775 | 1.772  | 0.003  | 0.654  | 85493    | 2.35         |                  | 101  | 787   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                  |      |       |       |
| 298.90 > 80.00                        | 1.775 | 1.774  | 0.001  | 1.000  | 60967    | 0.0214       |                  | 96.7 | 253   |       |
| 298.90 > 99.00                        | 1.775 | 1.774  | 0.001  | 1.000  | 26952    |              | 2.26(1.25-3.74)  | 96.7 | 264   |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 329.00 > 81.00                        | 1.993 | 1.990  | 0.003  | 0.734  | 668009   | NC           |                  |      | 7058  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                  |      |       |       |
| 327.00 > 307.00                       | 1.993 | 1.990  | 0.003  | 1.123  | 16020    | 0.0227       |                  | 97.1 | 972   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                  |      |       |       |
| 315.00 > 270.00                       | 2.027 | 2.023  | 0.004  | 0.747  | 4320820  | 2.47         |                  | 98.8 | 65868 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                  |      |       | M     |
| 313.00 > 269.00                       | 2.027 | 2.023  | 0.004  | 1.000  | 52384    | 0.0279       |                  | 111  | 81.2  |       |
| 313.00 > 119.00                       | 2.016 | 2.023  | -0.007 | 0.994  | 5550     |              | 9.44(5.03-15.10) | 111  | 74.2  | M     |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 349.00 > 80.00                        | 2.049 | 2.051  | -0.002 | 1.155  | 57367    | 0.0224       |                  | 95.3 | 715   |       |
| 349.00 > 99.00                        | 2.049 | 2.051  | -0.002 | 1.155  | 19638    |              | 2.92(1.36-4.07)  | 95.3 | 404   |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                  |      |       |       |
| 329.10 > 285.00                       | 2.129 | 2.125  | 0.004  | 1.000  | 8150     | NC           |                  |      | 41.8  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                 |      |       |       |
| 332.10 > 287.00                       | 2.129 | 2.125     | 0.004     | 0.784     | 187043   | NC              |                 |      | 4395  |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.360 | 2.356     | 0.004     | 0.870     | 4174338  | 2.47            |                 | 98.9 | 47156 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                       | 2.360 | 2.358     | 0.002     | 1.000     | 49762    | 0.0263          |                 | 105  | 54.8  |       |
| 363.00 > 169.00                       | 2.360 | 2.358     | 0.002     | 1.000     | 15637    |                 | 3.18(1.13-3.40) | 105  | 70.3  |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                        | 2.373 | 2.377     | -0.004    | 1.000     | 57848    | 0.0252          |                 | 111  | 254   |       |
| 399.00 > 99.00                        | 2.373 | 2.377     | -0.004    | 1.000     | 21503    |                 | 2.69(1.50-4.49) | 111  | 158   |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.373 | 2.378     | -0.005    | 0.875     | 4725916  | 2.31            |                 | 97.7 | 38014 |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |       |       |
| 377.00 > 251.00                       | 2.397 | 2.403     | -0.006    | 0.775     | 128790   | NC              |                 |      | 2210  |       |
| 377.00 > 85.00                        | 2.397 | 2.403     | -0.006    | 0.775     | 81769    |                 | 1.58(0.84-2.53) |      | 1498  |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.691 | 2.689     | 0.002     | 0.992     | 976862   | 2.33            |                 | 98.1 | 14199 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |       |       |
| 427.00 > 407.00                       | 2.691 | 2.690     | 0.001     | 1.000     | 17902    | 0.0253          |                 | 107  | 251   |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.714 | 2.714     | 0.0       | 1.000     | 3988383  | 2.38            |                 | 95.3 | 47807 |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.714 | 2.714     | 0.0       |           | 4341541  | 2.50            |                 |      | 44633 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                       | 2.714 | 2.715     | -0.001    | 1.000     | 57450    | 0.0299          |                 | 120  | 19.5  |       |
| 413.00 > 169.00                       | 2.714 | 2.715     | -0.001    | 1.000     | 31408    |                 | 1.83(0.84-2.52) | 120  | 91.3  |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 449.00 > 80.00                        | 2.729 | 2.727     | 0.002     | 0.882     | 45179    | 0.0234          |                 | 98.5 | 434   |       |
| 449.00 > 99.00                        | 2.721 | 2.727     | -0.006    | 0.879     | 13147    |                 | 3.44(1.94-5.82) | 98.5 | 355   |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.087 | 3.084     | 0.003     | 1.138     | 3527292  | 2.50            |                 | 99.8 | 33592 |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 463.00 > 419.00                       | 3.079 | 3.085     | -0.006    | 0.998     | 34573    | 0.0228          |                 | 91.1 | 96.8  |       |
| 463.00 > 169.00                       | 3.087 | 3.085     | 0.002     | 1.000     | 9785     |                 | 3.53(1.90-5.69) | 91.1 | 244   |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                        | 3.087 | 3.091     | -0.004    | 0.998     | 42066    | 0.0253          |                 | 109  | 229   |       |
| 499.00 > 99.00                        | 3.087 | 3.091     | -0.004    | 0.998     | 10443    |                 | 4.03(2.31-6.93) | 109  | 124   |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.094 | 3.092     | 0.002     | 1.140     | 3352986  | 2.42            |                 | 101  | 41028 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |       |       |
| 531.00 > 351.00                       | 3.301 | 3.300     | 0.001     | 1.067     | 55604    | NC              |                 |      | 1239  |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.415 | 3.417     | -0.002    | 1.258     | 4419138  | 2.53            |                 | 101  | 45053 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.415 | 3.417     | -0.002    | 1.000     | 46523    | 0.0253          |                 | 101  | 762   |       |
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 529.00 > 81.00                        | 3.433 | 3.435     | -0.002    | 1.265     | 1059139  | 2.43            |                 | 101  | 14328 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.433 | 3.435  | -0.002 | 1.000  | 13398    | 0.0221       |                 | 92.2 | 515   |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.443 | 3.443  | 0.0    | 1.113  | 23510    | 0.0214       |                 | 89.3 | 260   |       |
| 549.00 > 99.00                        | 3.452 | 3.443  | 0.009  | 1.116  | 10616    |              | 2.21(1.33-3.97) | 89.3 | 159   |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.443 | 3.445  | -0.002 | 1.269  | 2716339  | 2.38         |                 | 95.3 | 32156 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.452 | 3.446  | 0.006  | 1.003  | 33608    | 0.0289       |                 | 116  | 150   |       |
| 513.00 > 169.00                       | 3.443 | 3.446  | -0.003 | 1.000  | 6809     |              | 4.94(2.36-7.09) | 116  | 122   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.594 | 3.598  | -0.004 | 1.325  | 1663469  | 2.47         |                 | 98.6 | 18737 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.605 | 3.605  | 0.0    | 1.003  | 15987    | 0.0241       |                 | 96.4 | 131   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.769 | 3.767  | 0.002  | 1.389  | 1832483  | 2.54         |                 | 102  | 21946 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.769 | 3.771  | -0.002 | 1.000  | 21373    | 0.0268       |                 | 107  | 111   |       |
| 563.00 > 169.00                       | 3.780 | 3.771  | 0.009  | 1.003  | 5530     |              | 3.86(2.12-6.36) | 107  | 167   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.769 | 3.771  | -0.002 | 1.389  | 2361228  | 2.49         |                 | 99.7 | 46847 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.769 | 3.773  | -0.004 | 1.218  | 20986    | 0.0217       |                 | 90.0 | 299   |       |
| 599.00 > 99.00                        | 3.759 | 3.773  | -0.014 | 1.215  | 6009     |              | 3.49(1.39-4.16) | 90.0 | 194   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.780 | 3.773  | 0.007  | 1.003  | 14170    | 0.0221       |                 | 88.4 | 175   |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.936 | 3.939  | -0.003 | 1.272  | 88674    | NC           |                 |      | 1656  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.069 | 4.070  | -0.001 | 1.499  | 2434472  | 2.40         |                 | 96.0 | 19232 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.069 | 4.070  | -0.001 | 1.000  | 26800    | 0.0250       |                 | 100  | 35.8  |       |
| 613.00 > 169.00                       | 4.059 | 4.070  | -0.011 | 0.997  | 6489     |              | 4.13(2.13-6.40) | 100  | 117   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.329 | 4.329  | -0.001 | 1.064  | 29092    | 0.0256       |                 | 103  | 32.7  |       |
| 663.00 > 169.00                       | 4.329 | 4.329  | -0.001 | 1.064  | 9431     |              | 3.08(1.25-3.76) | 103  | 166   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.572 | 4.568  | 0.004  | 1.685  | 3302697  | 2.51         |                 | 100  | 15566 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.572 | 4.570  | 0.002  | 1.000  | 9433     | 0.0265       |                 | 106  | 156   |       |
| 713.00 > 219.00                       | 4.572 | 4.570  | 0.002  | 1.000  | 6696     |              | 1.41(0.71-2.13) | 106  | 200   |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.982 | 4.982  | 0.0    | 1.836  | 6377645  | 2.54         |                 | 102  | 13608 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.982 | 4.983  | -0.001 | 1.000  | 112400   | NC           |                 |      | 48.6  |       |
| 813.00 > 169.00                       | 4.982 | 4.983  | -0.001 | 1.000  | 18717    |              | 6.01(2.86-8.58) |      | 175   |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.348 | 5.346     | 0.002     | 1.074     | 65702    | NC              |                  |      | 18.7 |       |
| 913.00 > 169.00               | 5.348 | 5.346     | 0.002     | 1.074     | 8351     |                 | 7.87(3.83-11.48) |      | 94.8 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

### Reagents:

LCPFC\_LL1\_00006

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_002.d

Injection Date: 05-Jun-2018 14:28:42

Instrument ID: A8\_N

Lims ID: IC L1 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 47

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

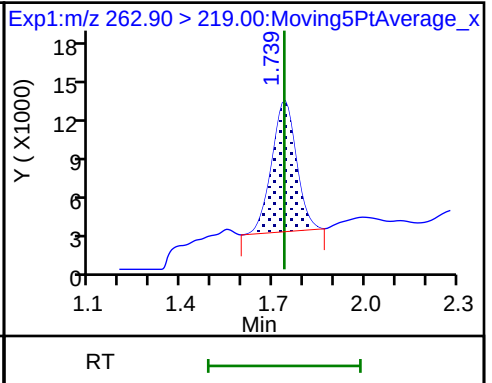
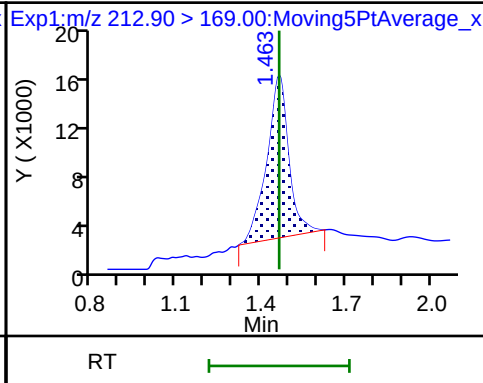
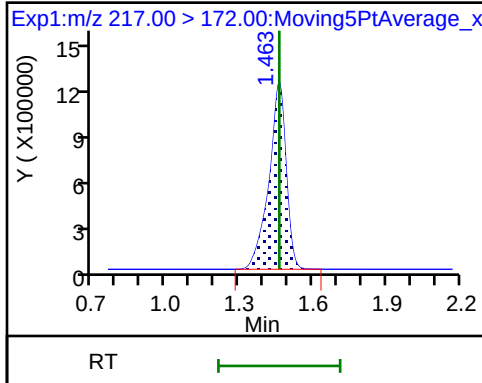
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

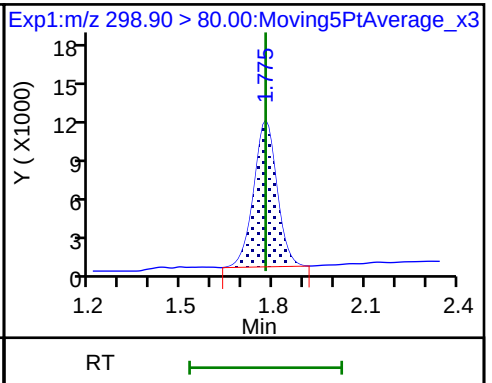
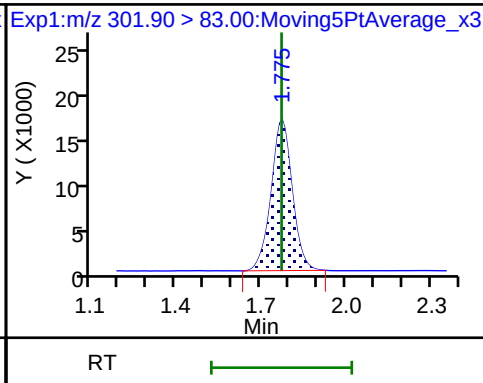
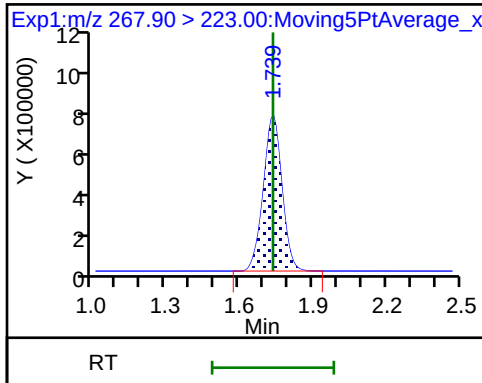
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

D 47 13C3-PFBS

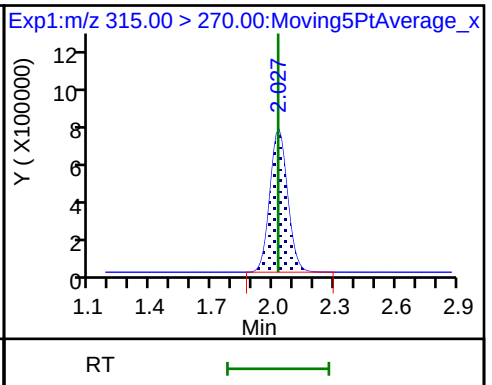
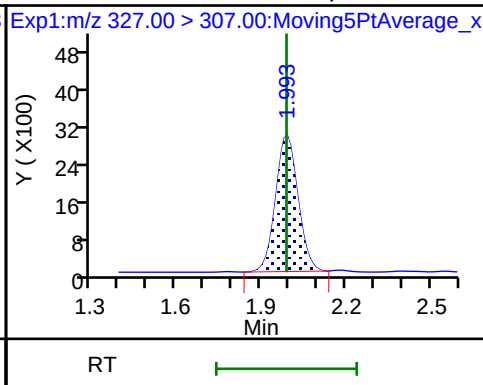
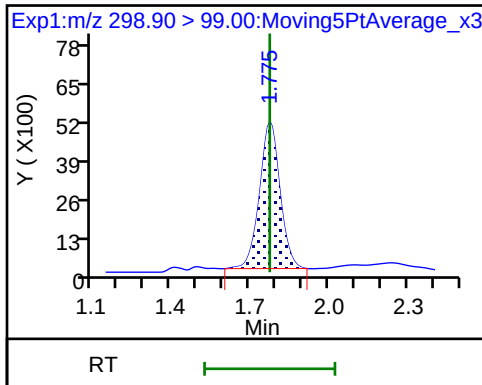
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

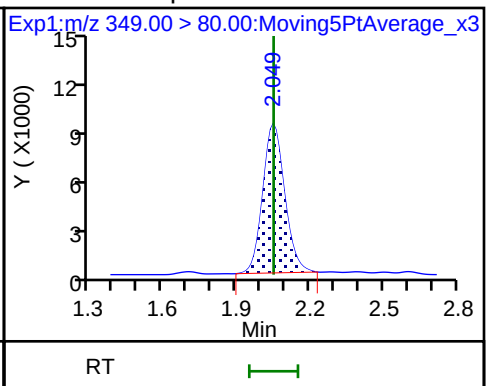
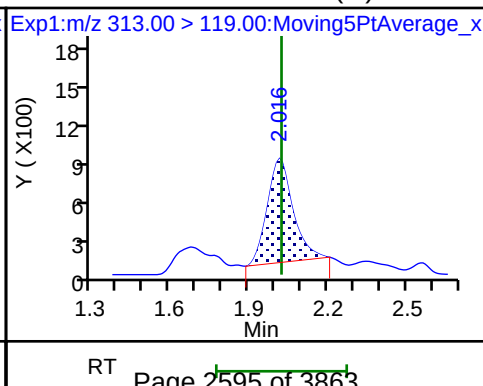
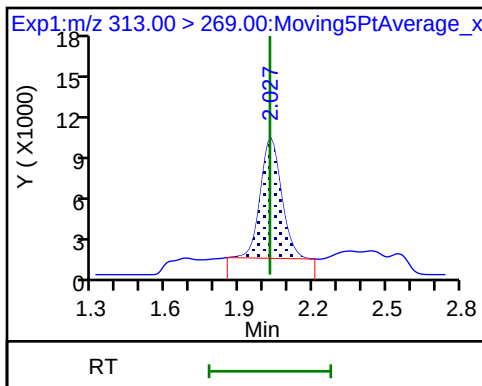
De 7 13C2 PFHxA

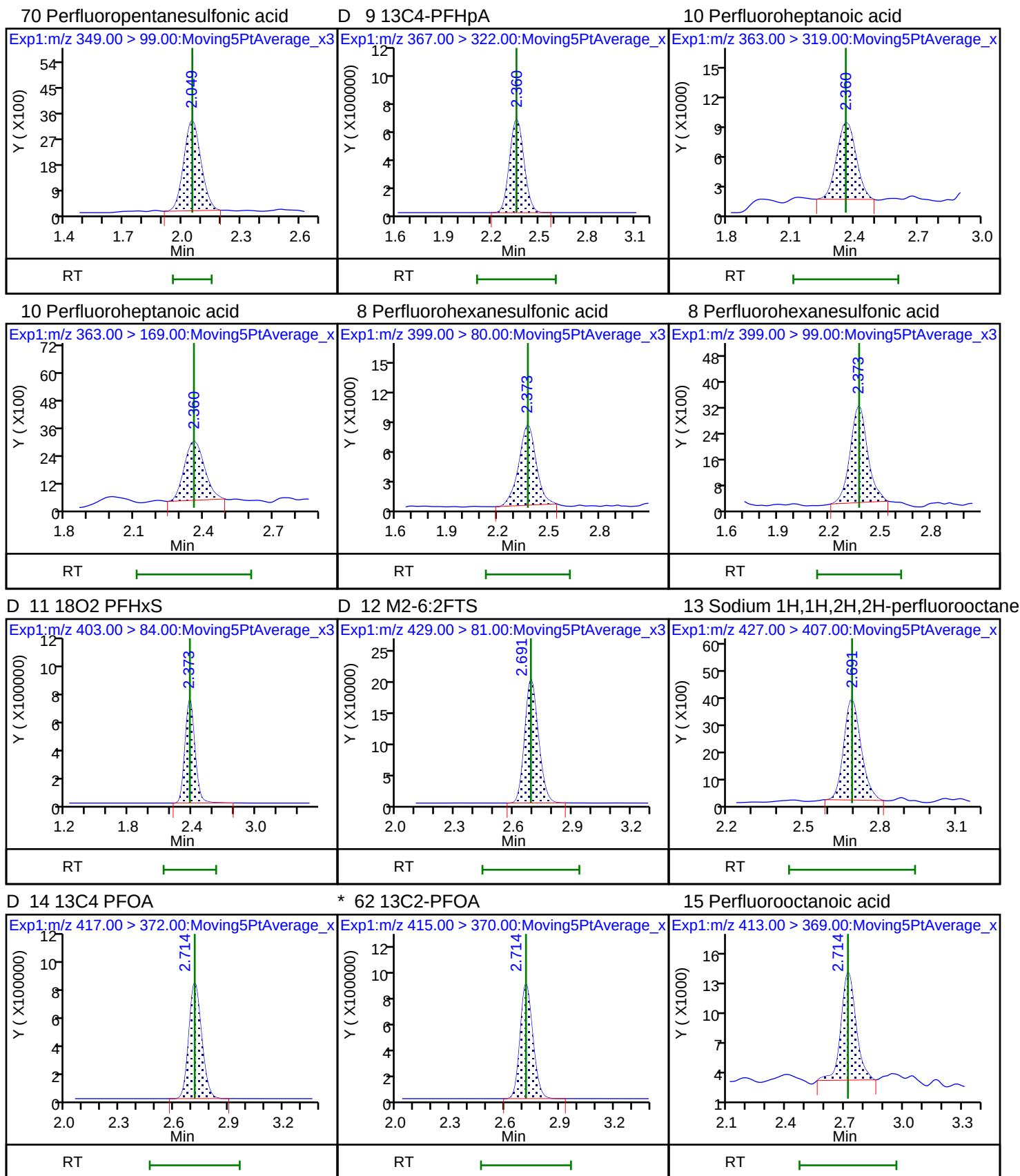


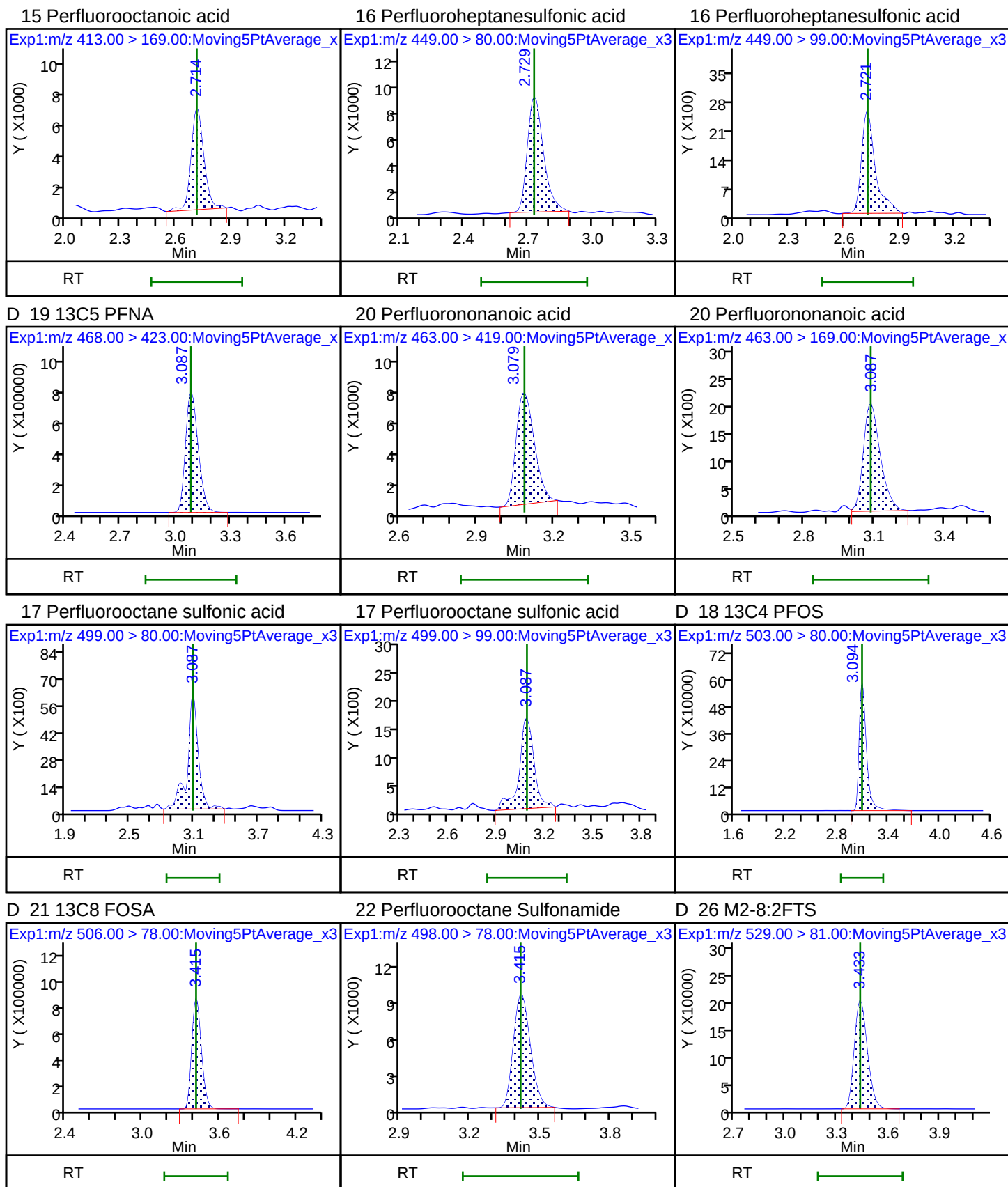
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid (M)

70 Perfluoropentanesulfonic acid

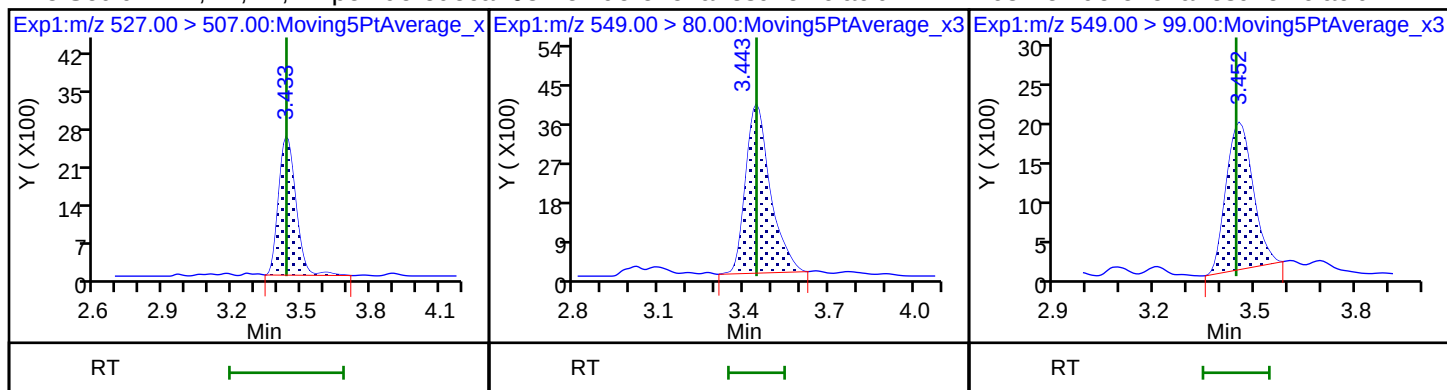






## 25 Sodium 1H,1H,2H,2H-perfluorodecanoic acid

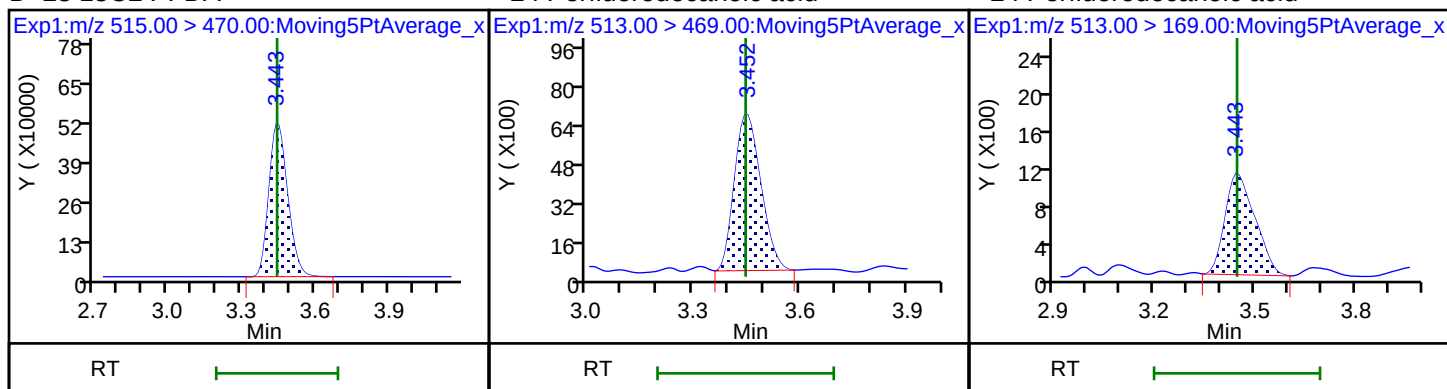
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

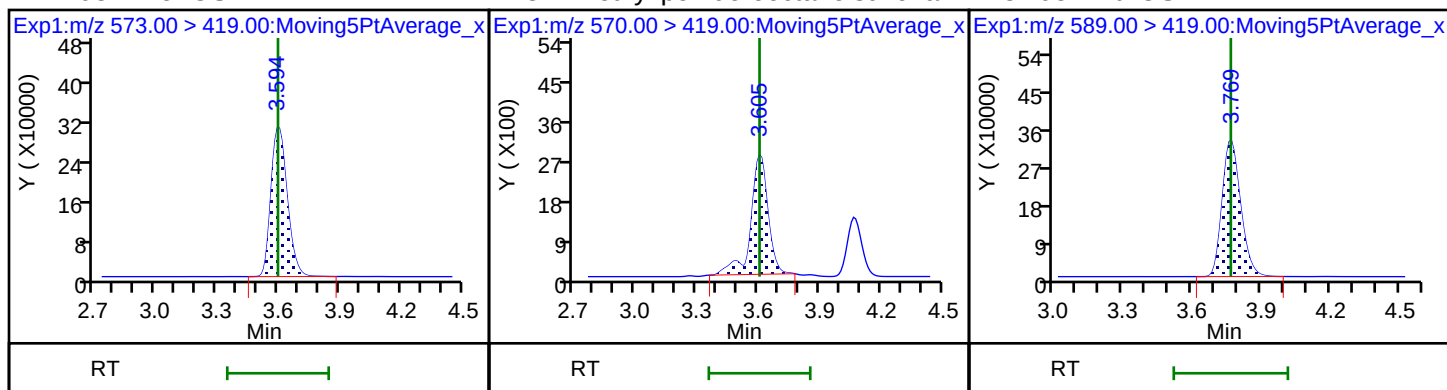
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamide

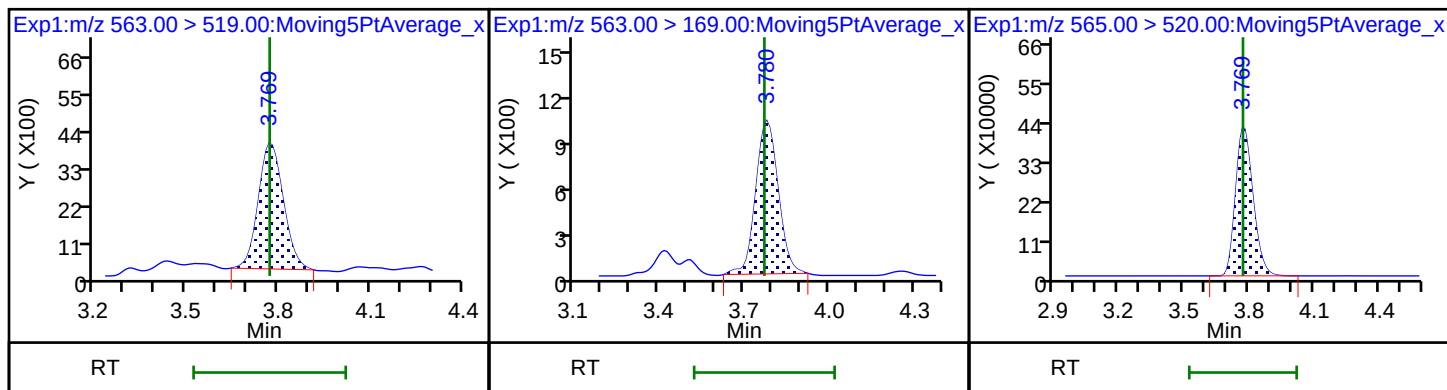
## 32 d5-NEtFOSAA



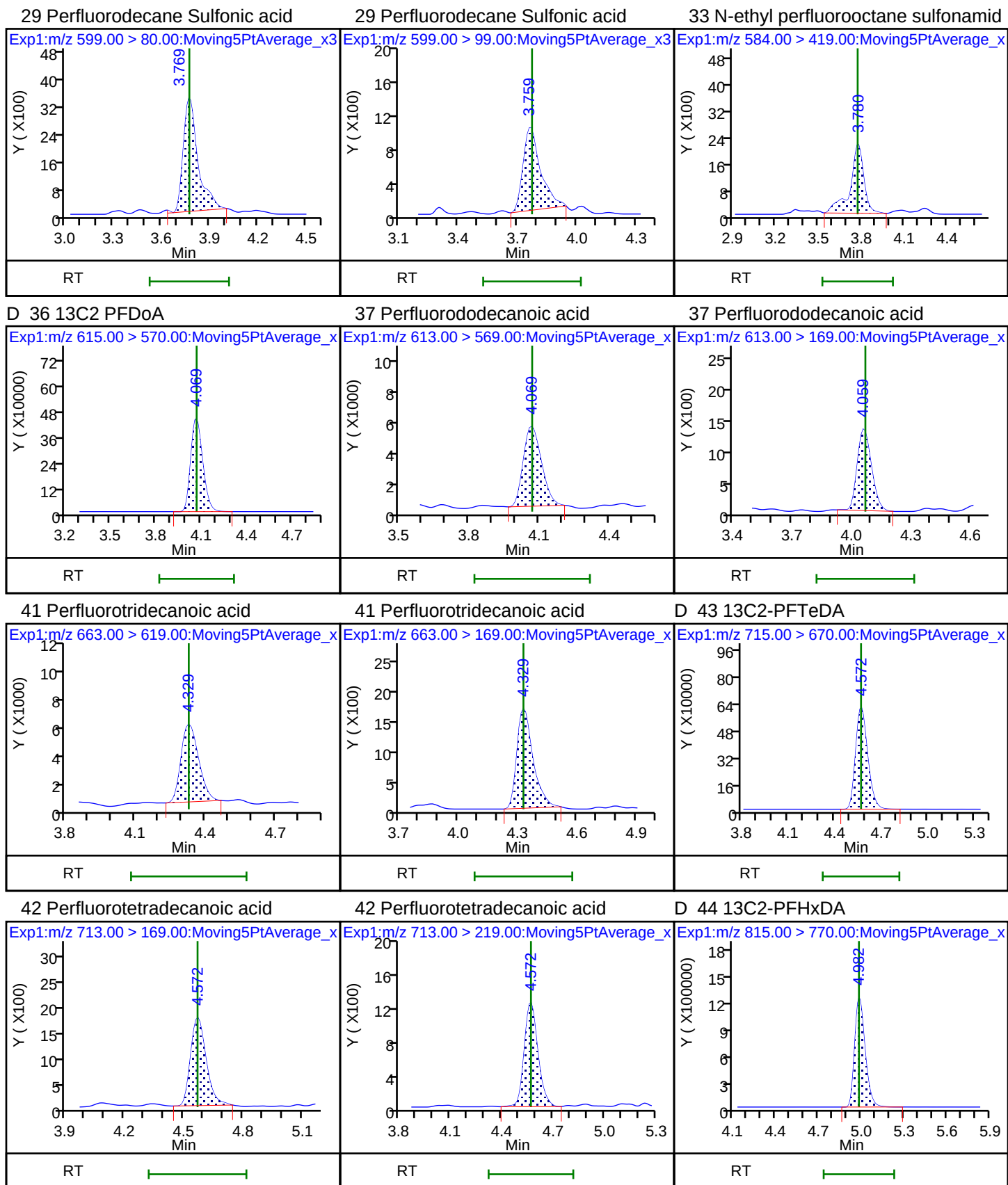
## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA









## TestAmerica Sacramento

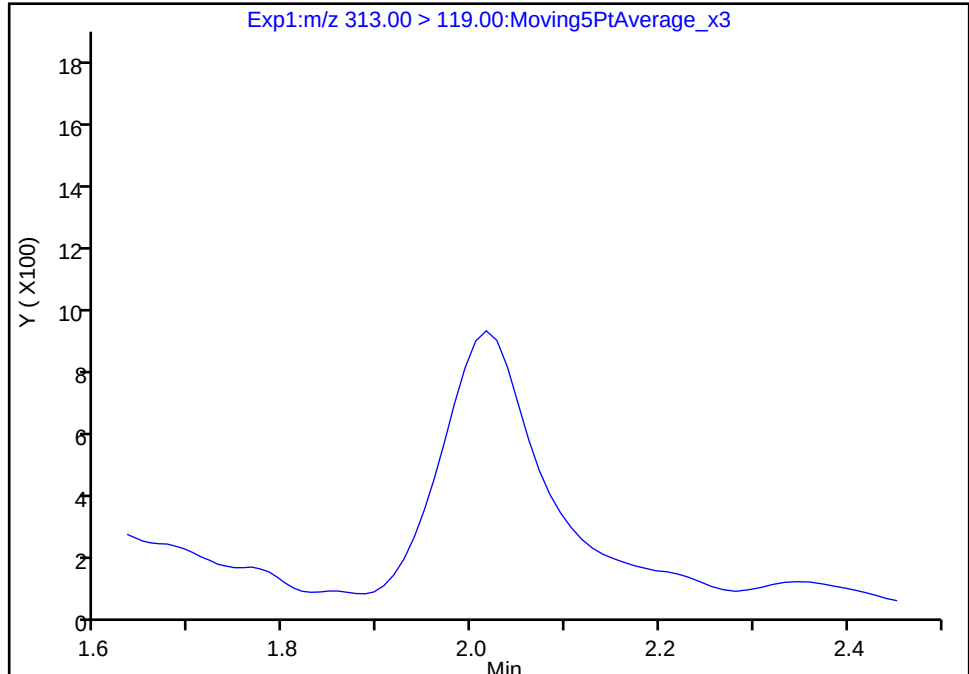
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_002.d  
Injection Date: 05-Jun-2018 14:28:42 Instrument ID: A8\_N  
Lims ID: IC L1 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 47 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**6 Perfluorohexanoic acid, CAS: 307-24-4**

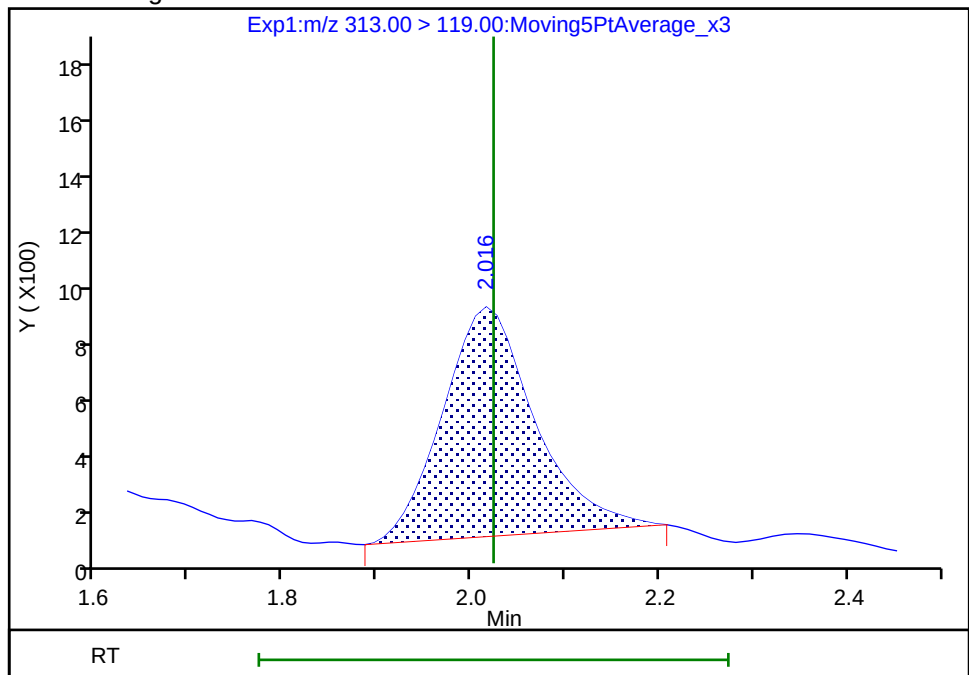
Signal: 2

Not Detected  
Expected RT: 2.02

## Processing Integration Results



## Manual Integration Results



RT: 2.02  
Area: 5550  
Amount: 0.027852  
Amount Units: ng/ml

Reviewer: westendorfc, 05-Jun-2018 17:02:20

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_003.d  
 Lims ID: IC L2 Full  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 05-Jun-2018 14:36:31 ALS Bottle#: 48 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L2-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:08:58 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:10:43

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

D 1 13C4 PFBA

217.00 > 172.00 1.463 1.462 0.001 0.538 6146744 2.42 97.0 32468

2 Perfluorobutyric acid

212.90 > 169.00 1.463 1.463 0.0 1.000 137582 0.0537 107 65.1

4 Perfluoropentanoic acid

262.90 > 219.00 1.737 1.736 0.001 1.000 100666 0.0489 97.8 65.3 M

D 3 13C5-PFPeA

267.90 > 223.00 1.737 1.736 0.001 0.639 4237476 2.47 98.7 54767

D 47 13C3-PFBS

301.90 > 83.00 1.773 1.772 0.001 0.652 84983 2.24 96.3 738

5 Perfluorobutanesulfonic acid

298.90 > 80.00 1.773 1.774 -0.001 1.000 127235 0.0449 102 517

298.90 > 99.00 1.773 1.774 -0.001 1.000 53661 2.37(1.25-3.74) 102 517

D 60 M2-4:2FTS

329.00 > 81.00 1.991 1.990 0.001 0.732 697708 NC 7504

61 Sodium 1H,1H,2H,2H-perfluorohexane

327.00 > 307.00 1.991 1.990 0.001 1.123 34014 0.0484 104 1925

D 7 13C2 PFHxA

315.00 > 270.00 2.025 2.023 0.002 0.745 4476556 2.45 98.1 84396

6 Perfluorohexanoic acid

313.00 > 269.00 2.025 2.023 0.002 1.000 107491 0.0552 110 160

313.00 > 119.00 2.025 2.023 0.002 1.000 10061 10.68(5.03-15.10) 110 109

70 Perfluoropentanesulfonic acid

349.00 > 80.00 2.048 2.051 -0.003 1.155 119706 0.0469 100 1083

349.00 > 99.00 2.048 2.051 -0.003 1.155 47023 2.55(1.36-4.07) 100 1130

67 Perfluoro(2-propoxypropanoic) acid

329.10 > 285.00 2.127 2.125 0.002 1.000 15721 NC 78.8

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.127 | 2.125  | 0.002  | 0.782  | 207291   | NC           |                 |      | 4361  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.358 | 2.356  | 0.002  | 0.867  | 4411501  | 2.51         |                 | 100  | 50701 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 100861   | 0.0504       |                 | 101  | 117   |       |
| 363.00 > 169.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 45050    |              | 2.24(1.13-3.40) | 101  | 241   |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.384 | 2.377  | 0.007  | 1.000  | 116064   | 0.0481       |                 | 106  | 410   |       |
| 399.00 > 99.00                        | 2.371 | 2.377  | -0.006 | 0.995  | 39162    |              | 2.96(1.50-4.49) | 106  | 224   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.384 | 2.378  | 0.006  | 0.877  | 4980443  | 2.33         |                 | 98.7 | 25000 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.406 | 2.403  | 0.003  | 0.778  | 273658   | NC           |                 |      | 4237  |       |
| 377.00 > 85.00                        | 2.406 | 2.403  | 0.003  | 0.778  | 158226   |              | 1.73(0.84-2.53) |      | 2189  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.689 | 2.689  | 0.0    | 0.989  | 1037830  | 2.37         |                 | 99.9 | 15346 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.689 | 2.690  | -0.001 | 1.000  | 38862    | 0.0517       |                 | 109  | 593   |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.719 | 2.714  | 0.005  | 1.000  | 4191344  | 2.40         |                 | 96.0 | 44921 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.719 | 2.714  | 0.005  |        | 4529956  | 2.50         |                 |      | 45000 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.719 | 2.715  | 0.004  | 1.000  | 106541   | 0.0528       |                 | 106  | 37.8  |       |
| 413.00 > 169.00                       | 2.719 | 2.715  | 0.004  | 1.000  | 57065    |              | 1.87(0.84-2.52) | 106  | 190   |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.727 | 2.727  | 0.0    | 0.882  | 85996    | 0.0436       |                 | 91.7 | 815   |       |
| 449.00 > 99.00                        | 2.727 | 2.727  | 0.0    | 0.882  | 26107    |              | 3.29(1.94-5.82) | 91.7 | 497   |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.084 | 3.084  | 0.0    | 1.134  | 3642361  | 2.47         |                 | 98.8 | 46984 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.092 | 3.085  | 0.007  | 1.003  | 79303    | 0.0506       |                 | 101  | 251   |       |
| 463.00 > 169.00                       | 3.084 | 3.085  | -0.001 | 1.000  | 17419    |              | 4.55(1.90-5.69) | 101  | 711   |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.092 | 3.091  | 0.001  | 1.000  | 79615    | 0.0467       |                 | 101  | 374   |       |
| 499.00 > 99.00                        | 3.099 | 3.091  | 0.008  | 1.002  | 19449    |              | 4.09(2.31-6.93) | 101  | 246   |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.092 | 3.092  | 0.0    | 1.137  | 3428276  | 2.37         |                 | 99.1 | 49666 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.299 | 3.300  | -0.001 | 1.067  | 124438   | NC           |                 |      | 2401  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.421 | 3.417  | 0.004  | 1.258  | 4467650  | 2.45         |                 | 97.9 | 40971 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.421 | 3.417  | 0.004  | 1.000  | 93858    | 0.0505       |                 | 101  | 1520  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.439 | 3.435  | 0.004  | 1.265  | 1064084  | 2.34         |                 | 97.5 | 14327 |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                 |      |       |       |
| 527.00 > 507.00                       | 3.439 | 3.435     | 0.004     | 1.000     | 32112    | 0.0527          |                 | 110  | 1464  |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |       |       |
| 549.00 > 80.00                        | 3.448 | 3.443     | 0.005     | 1.115     | 52592    | 0.0469          |                 | 97.7 | 1141  |       |
| 549.00 > 99.00                        | 3.448 | 3.443     | 0.005     | 1.115     | 20758    |                 | 2.53(1.33-3.97) | 97.7 | 414   |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                 |      |       |       |
| 515.00 > 470.00                       | 3.448 | 3.445     | 0.003     | 1.268     | 2983039  | 2.51            |                 | 100  | 57250 |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 513.00 > 469.00                       | 3.448 | 3.446     | 0.002     | 1.000     | 64118    | 0.0503          |                 | 101  | 389   |       |
| 513.00 > 169.00                       | 3.448 | 3.446     | 0.002     | 1.000     | 10727    |                 | 5.98(2.36-7.09) | 101  | 192   |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 573.00 > 419.00                       | 3.600 | 3.598     | 0.002     | 1.324     | 1768487  | 2.51            |                 | 100  | 16954 |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                 |      |       |       |
| 570.00 > 419.00                       | 3.611 | 3.605     | 0.006     | 1.003     | 34319    | 0.0487          |                 | 97.3 | 356   |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |      |       |       |
| 589.00 > 419.00                       | 3.774 | 3.767     | 0.007     | 1.388     | 1897724  | 2.52            |                 | 101  | 25836 |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 563.00 > 519.00                       | 3.774 | 3.771     | 0.003     | 1.000     | 43110    | 0.0503          |                 | 101  | 321   |       |
| 563.00 > 169.00                       | 3.774 | 3.771     | 0.003     | 1.000     | 14178    |                 | 3.04(2.12-6.36) | 101  | 379   |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |      |       |       |
| 565.00 > 520.00                       | 3.774 | 3.771     | 0.003     | 1.388     | 2536101  | 2.57            |                 | 103  | 30502 |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 599.00 > 80.00                        | 3.784 | 3.773     | 0.011     | 1.224     | 49675    | 0.0502          |                 | 104  | 771   |       |
| 599.00 > 99.00                        | 3.774 | 3.773     | 0.001     | 1.221     | 12036    |                 | 4.13(1.39-4.16) | 104  | 276   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |      |       |       |
| 584.00 > 419.00                       | 3.774 | 3.773     | 0.001     | 1.000     | 36019    | 0.0543          |                 | 109  | 1220  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                 |      |       |       |
| 631.00 > 451.00                       | 3.941 | 3.939     | 0.002     | 1.275     | 198454   | NC              |                 |      | 3841  |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                 |      |       |       |
| 615.00 > 570.00                       | 4.072 | 4.070     | 0.002     | 1.497     | 2622715  | 2.48            |                 | 99.1 | 18362 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                 |      |       |       |
| 613.00 > 569.00                       | 4.072 | 4.070     | 0.002     | 1.000     | 58296    | 0.0506          |                 | 101  | 74.8  |       |
| 613.00 > 169.00                       | 4.072 | 4.070     | 0.002     | 1.000     | 12763    |                 | 4.57(2.13-6.40) | 101  | 225   |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                 |      |       |       |
| 663.00 > 619.00                       | 4.330 | 4.329     | 0.001     | 1.063     | 59777    | 0.0489          |                 | 97.8 | 64.1  |       |
| 663.00 > 169.00                       | 4.330 | 4.329     | 0.001     | 1.063     | 20221    |                 | 2.96(1.25-3.76) | 97.8 | 283   |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 715.00 > 670.00                       | 4.572 | 4.568     | 0.004     | 1.682     | 3389482  | 2.47            |                 | 98.7 | 16858 |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 713.00 > 169.00                       | 4.572 | 4.570     | 0.002     | 1.000     | 20906    | 0.0573          |                 | 115  | 377   |       |
| 713.00 > 219.00                       | 4.562 | 4.570     | -0.008    | 0.998     | 13262    |                 | 1.58(0.71-2.13) | 115  | 355   |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |      |       |       |
| 815.00 > 770.00                       | 4.983 | 4.982     | 0.001     | 1.832     | 6592255  | 2.51            |                 | 101  | 14584 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                 |      |       |       |
| 813.00 > 769.00                       | 4.983 | 4.983     | 0.0       | 1.000     | 188893   | NC              |                 |      | 76.4  |       |
| 813.00 > 169.00                       | 4.983 | 4.983     | 0.0       | 1.000     | 30240    |                 | 6.25(2.86-8.58) |      | 287   |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.349 | 5.346     | 0.003     | 1.074     | 136551   | NC              |                  |      | 39.3 |       |
| 913.00 > 169.00               | 5.342 | 5.346     | -0.004    | 1.072     | 16539    |                 | 8.26(3.83-11.48) |      | 234  |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

### Reagents:

LCPFC\_LL2\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05\ICAL\_003.d

Injection Date: 05-Jun-2018 14:36:31

Instrument ID: A8\_N

Lims ID: IC L2 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 48

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

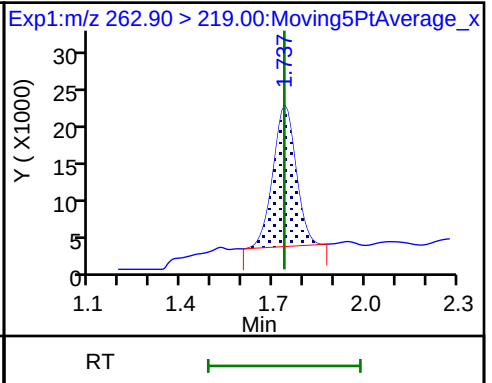
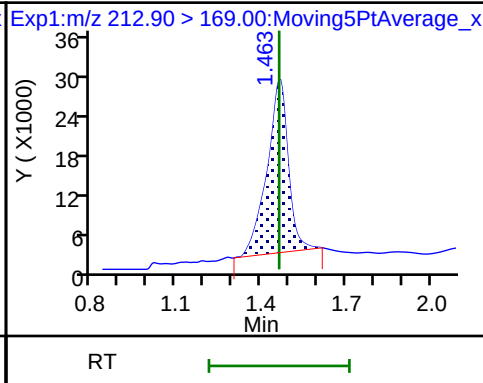
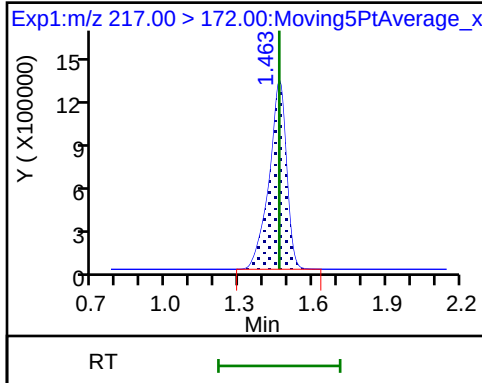
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

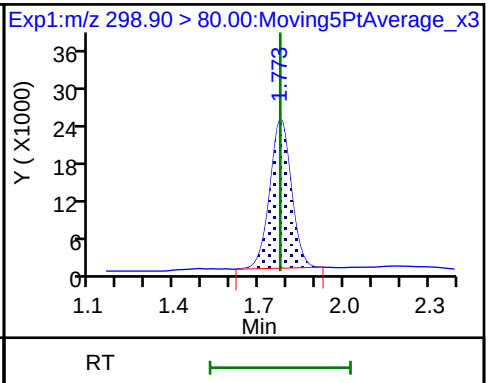
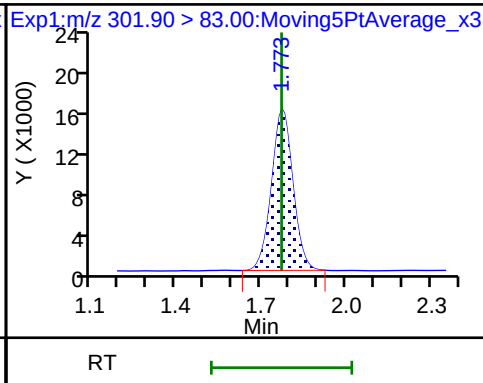
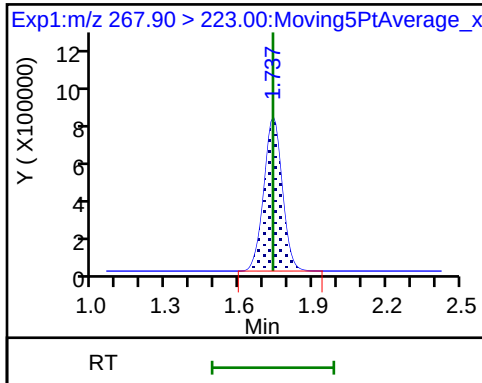
4 Perfluoropentanoic acid (M)



D 3 13C5-PFPeA

D 47 13C3-PFBS

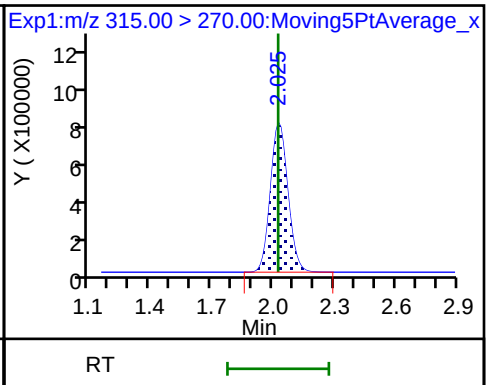
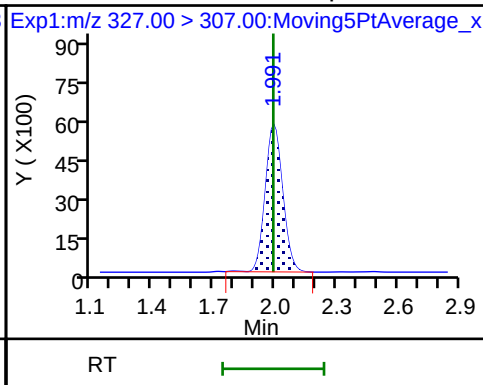
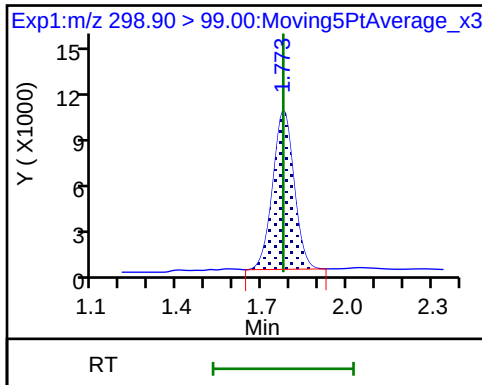
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoate

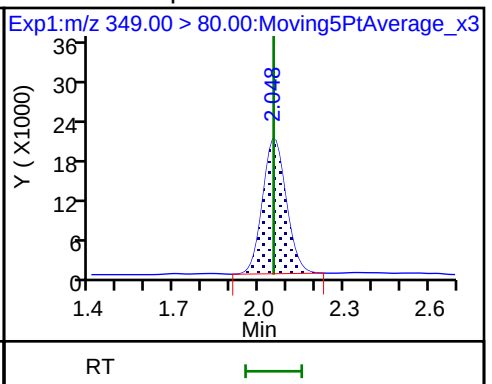
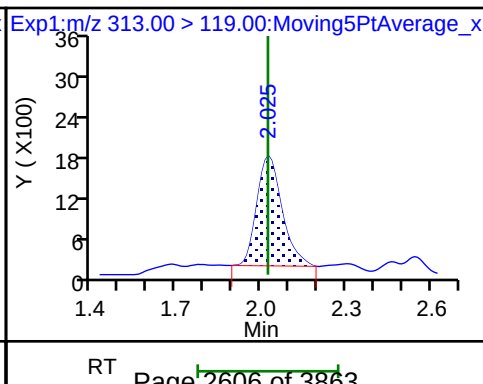
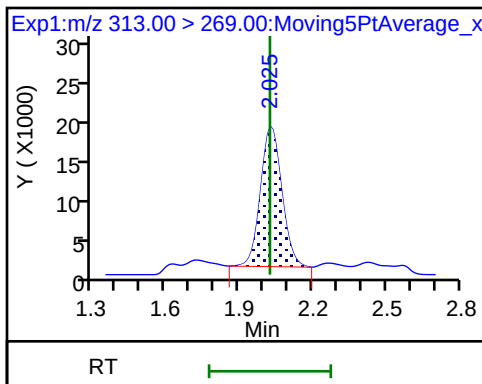
De 7 13C2 PFHxA



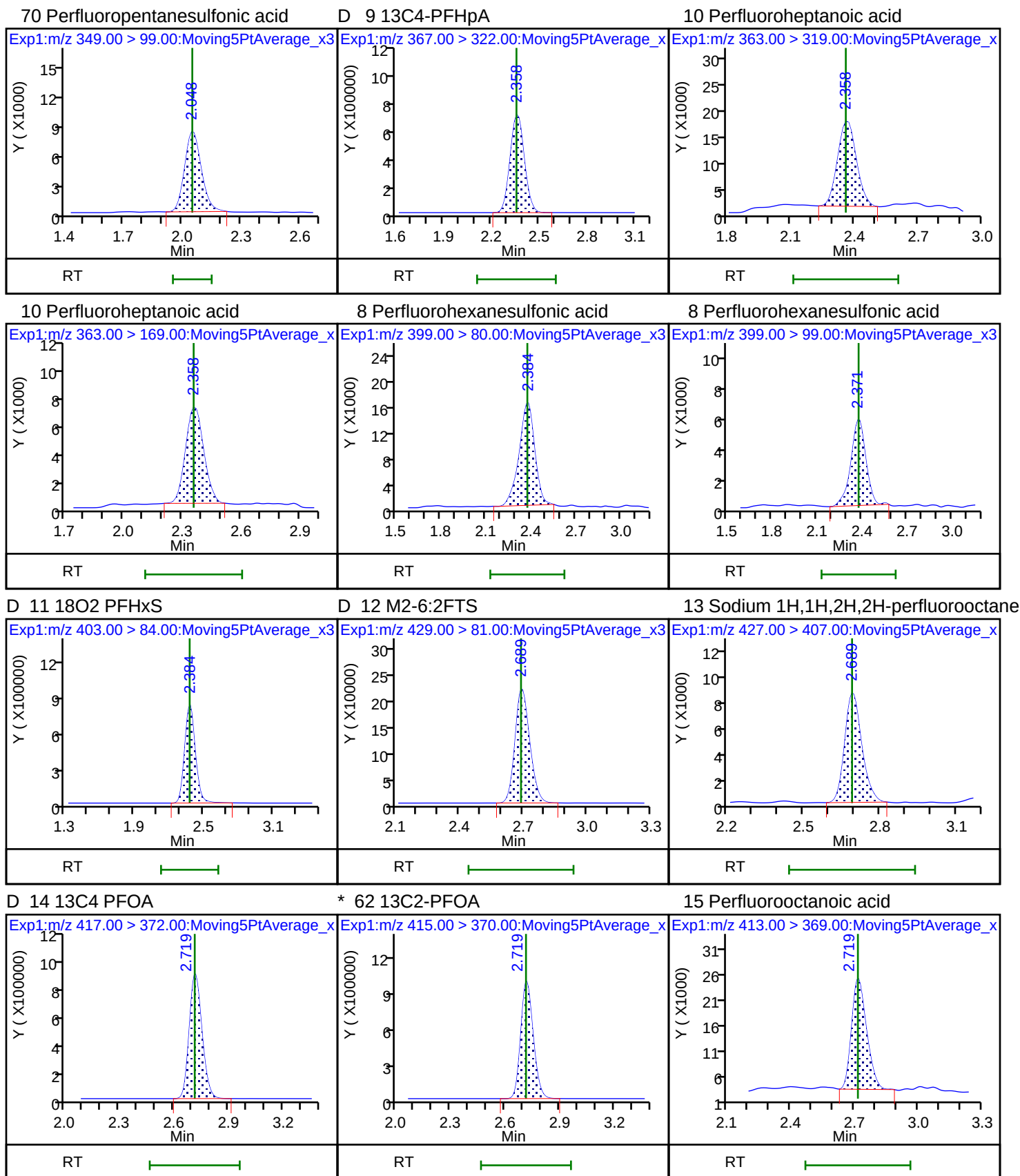
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

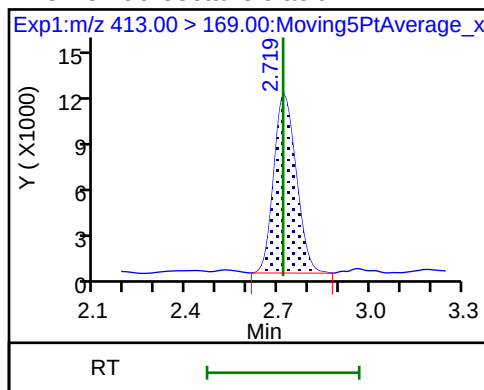
70 Perfluoropentanesulfonic acid



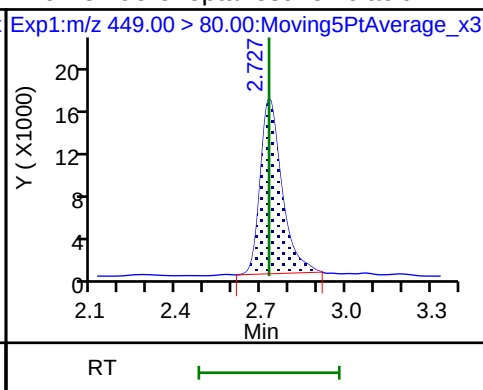




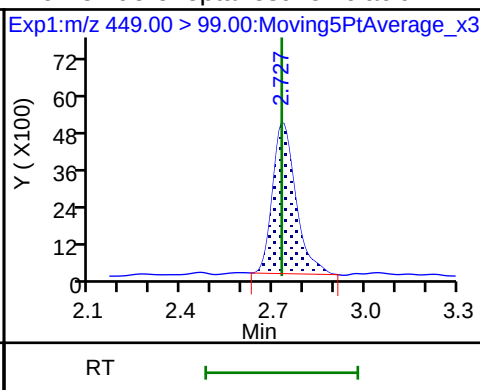
15 Perfluorooctanoic acid



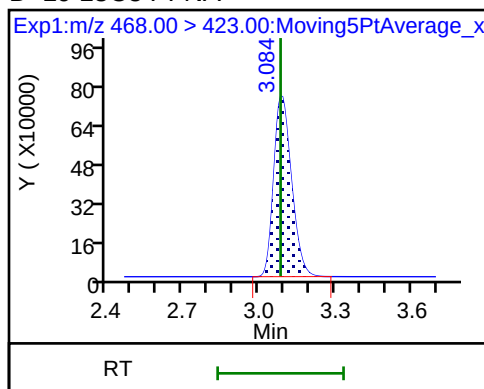
16 Perfluoroheptanesulfonic acid



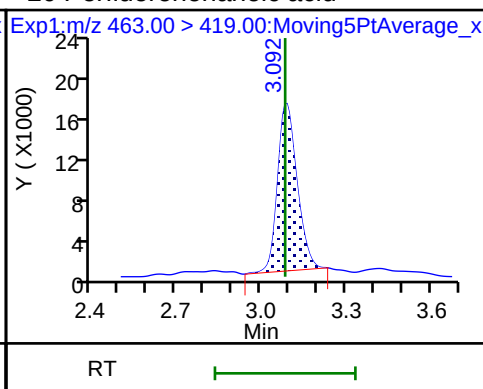
16 Perfluoroheptanesulfonic acid



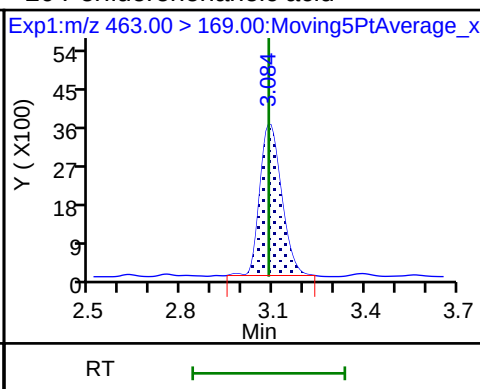
D 19 13C5 PFNA



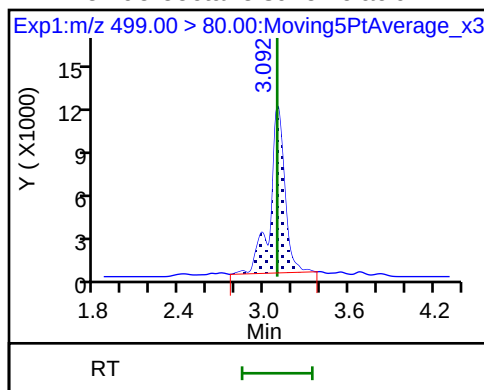
20 Perfluorononanoic acid



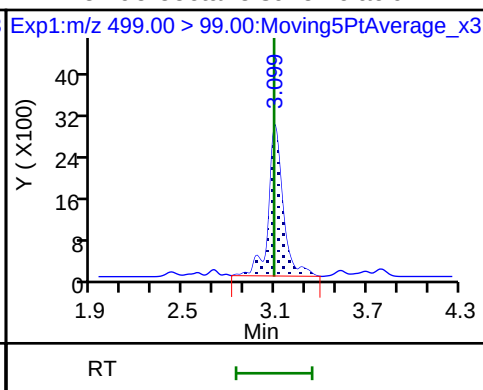
20 Perfluorononanoic acid



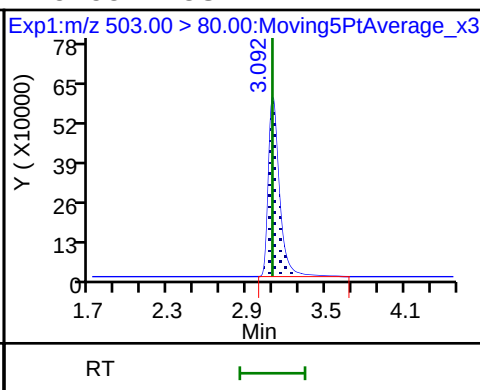
17 Perfluorooctane sulfonic acid



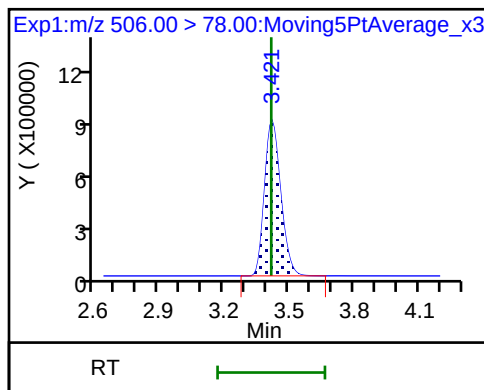
17 Perfluorooctane sulfonic acid



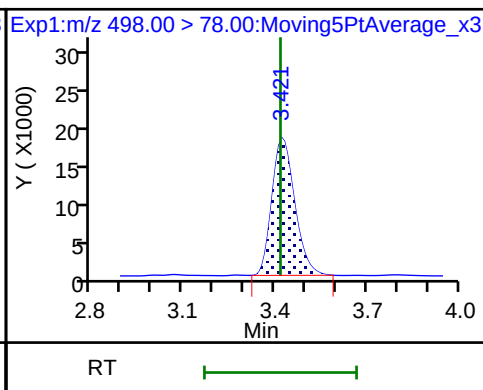
D 18 13C4 PFOS



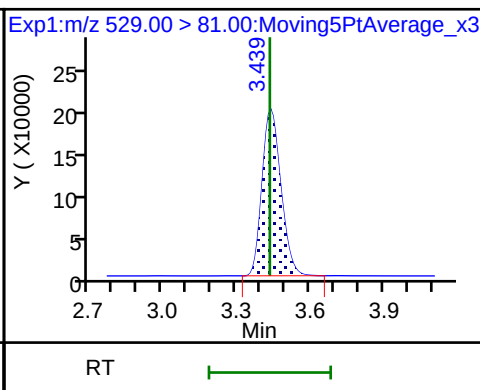
D 21 13C8 FOSA



22 Perfluorooctane Sulfonamide

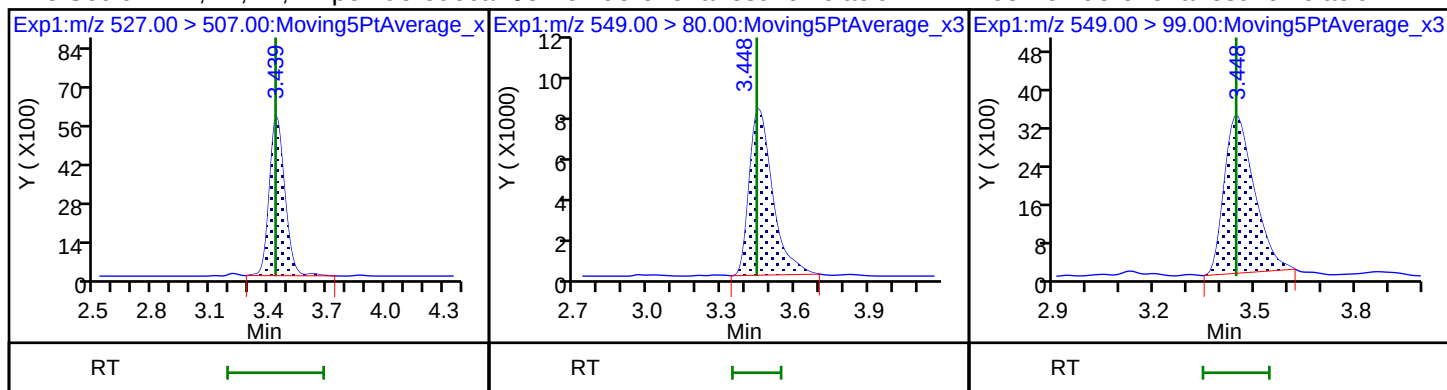


D 26 M2-8:2FTS



## 25 Sodium 1H,1H,2H,2H-perfluorodecanoic acid

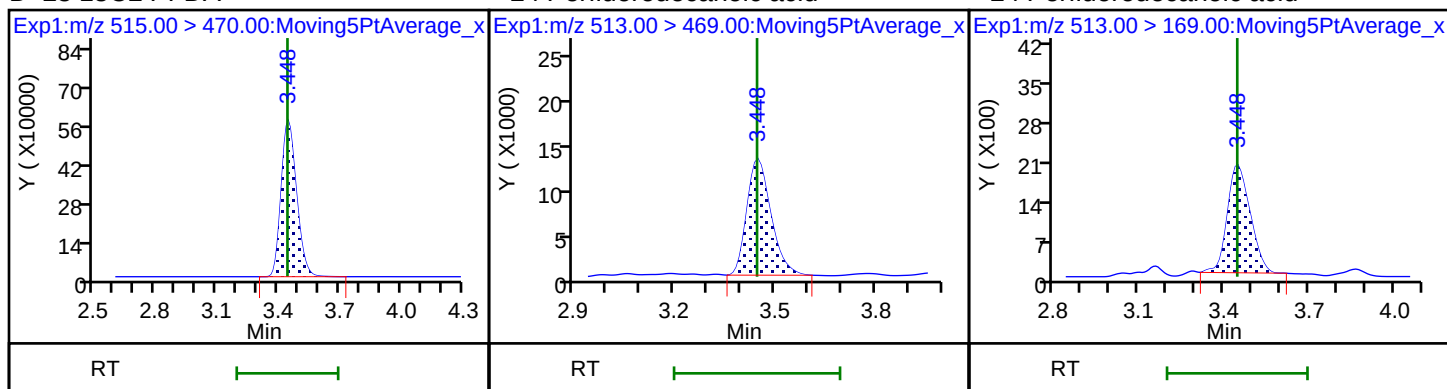
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

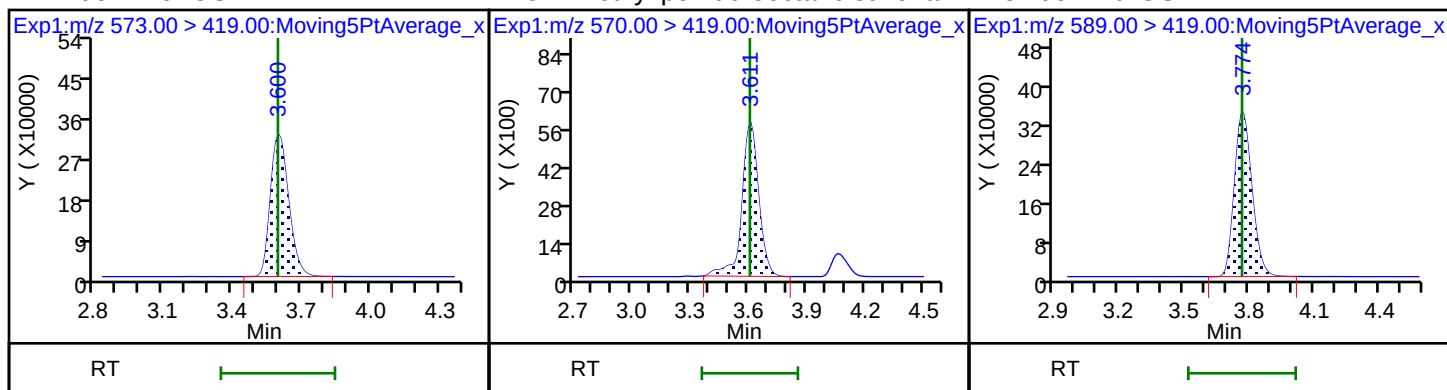
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamide

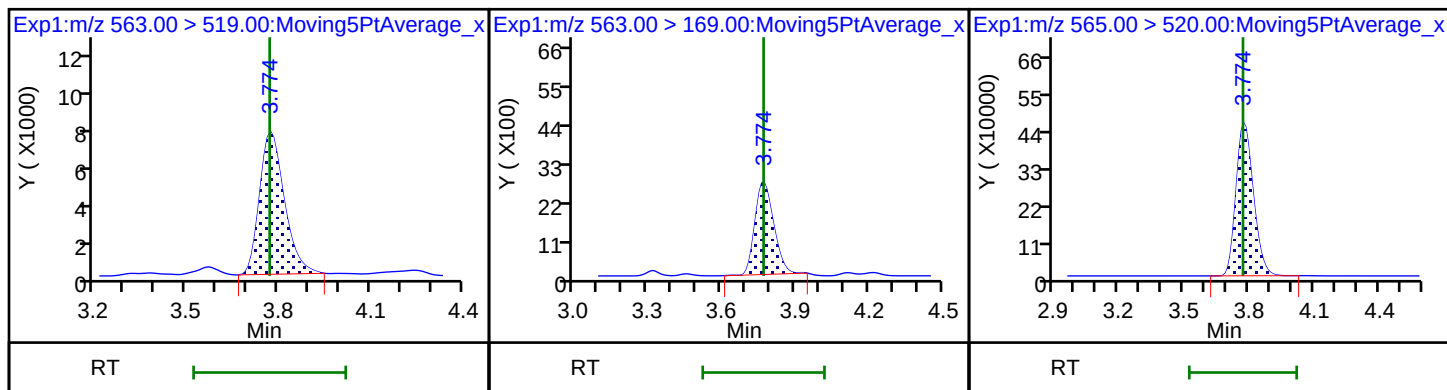
## 32 d5-NEtFOSAA

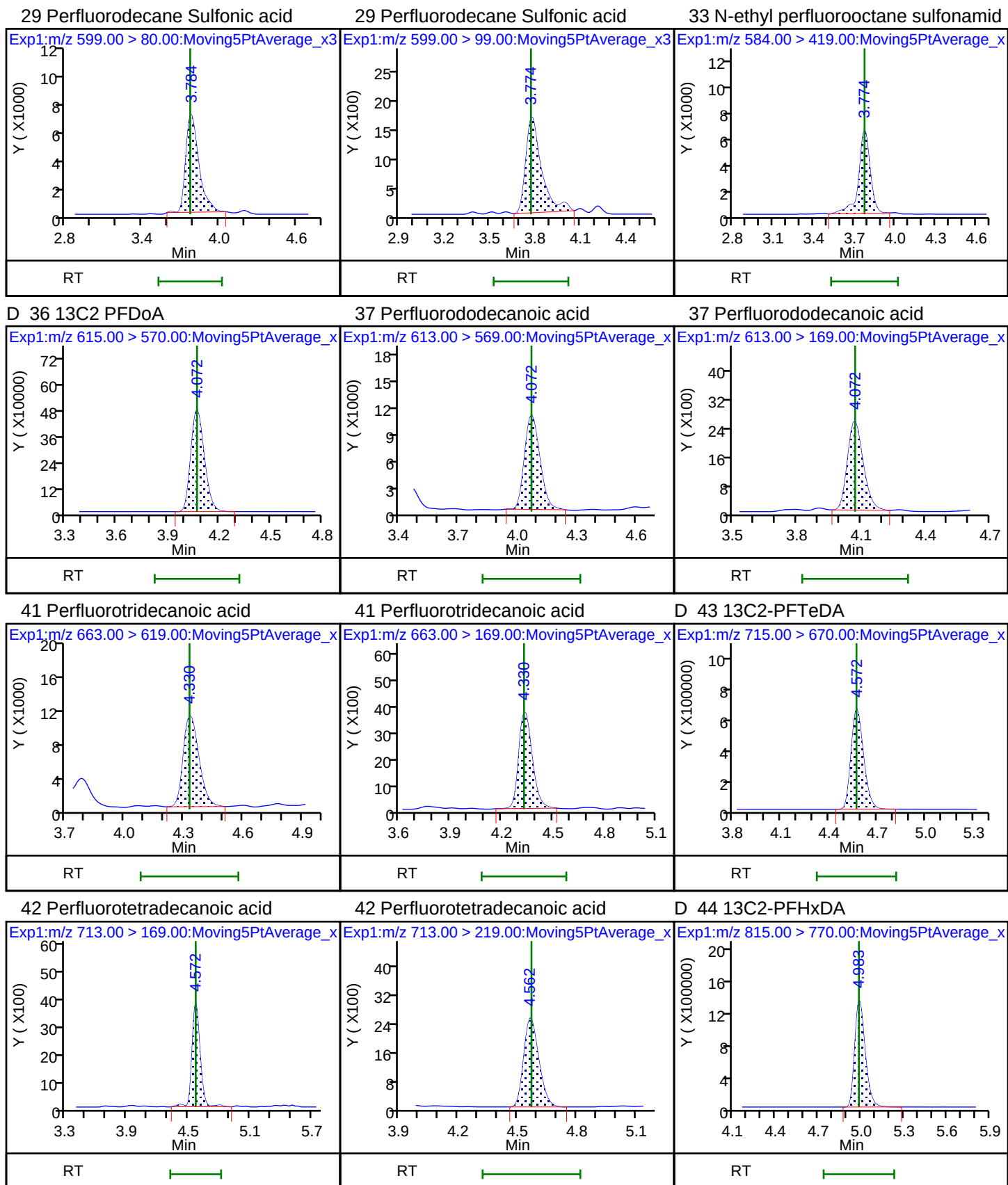


## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA







## TestAmerica Sacramento

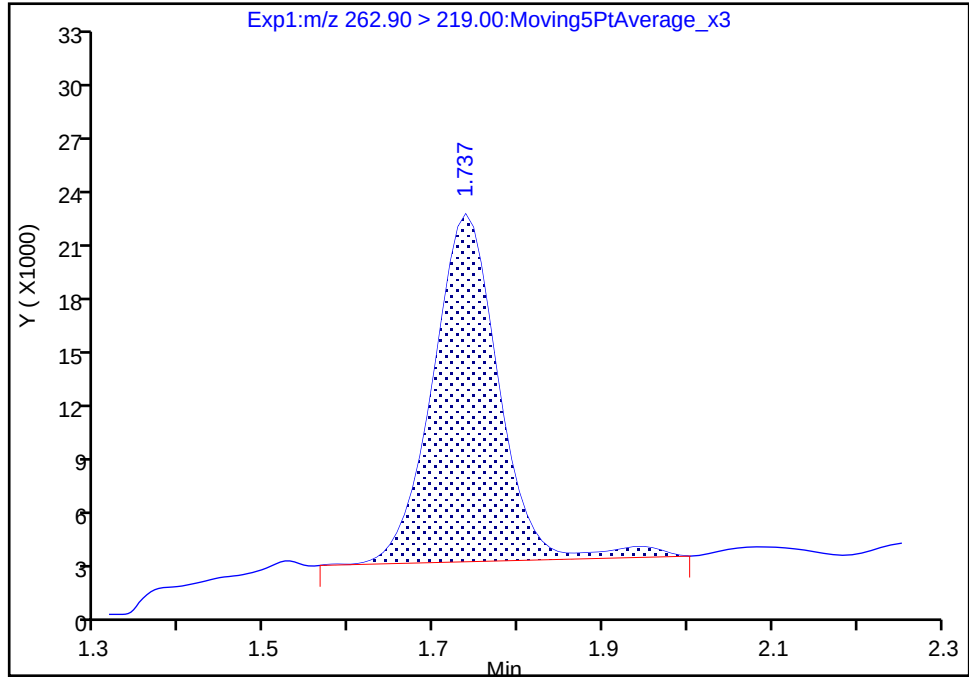
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05\ICAL\_003.d  
Injection Date: 05-Jun-2018 14:36:31 Instrument ID: A8\_N  
Lims ID: IC L2 Full  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 48 Worklist Smp#: 3  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**4 Perfluoropentanoic acid, CAS: 2706-90-3**

Signal: 1

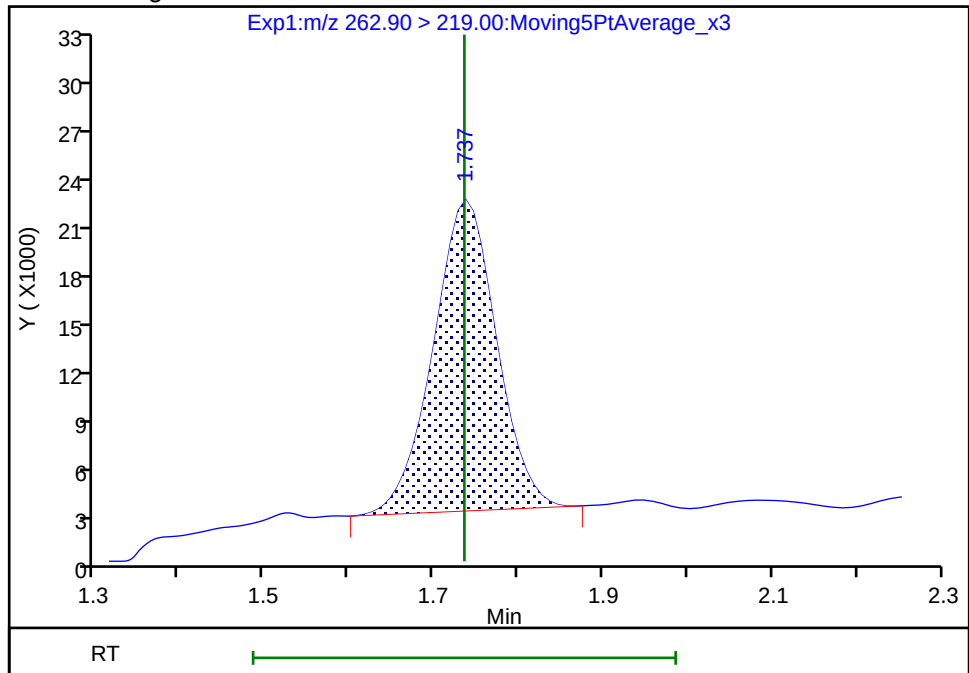
RT: 1.74  
Area: 106405  
Amount: 0.051263  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.74  
Area: 100666  
Amount: 0.048885  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: westendorfc, 05-Jun-2018 17:02:49

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_004.d  
 Lims ID: IC L3 Full  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 05-Jun-2018 14:44:22 ALS Bottle#: 49 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L3-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:09:02 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:10:54

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.461 | 1.462  | -0.001 | 0.537  | 6138199  | 2.48         |                   | 99.0 | 32641 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.466 | 1.463  | 0.003  | 1.004  | 611006   | 0.2387       |                   | 95.5 | 316   |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.734 | 1.736  | -0.002 | 1.000  | 470492   | 0.2319       |                   | 92.8 | 367   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.734 | 1.736  | -0.002 | 0.638  | 4174052  | 2.49         |                   | 99.4 | 53765 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.770 | 1.772  | -0.002 | 0.651  | 85144    | 2.29         |                   | 98.6 | 625   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.779 | 1.774  | 0.005  | 1.005  | 618366   | 0.2177       |                   | 98.5 | 3022  |       |
| 298.90 > 99.00                        | 1.779 | 1.774  | 0.005  | 1.005  | 277729   |              | 2.23(1.25-3.74)   | 98.5 | 2817  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.988 | 1.990  | -0.002 | 0.731  | 697008   | NC           |                   |      | 6624  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.988 | 1.990  | -0.002 | 1.123  | 169474   | 0.2408       |                   | 103  | 9748  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.022 | 2.023  | -0.001 | 0.744  | 4390111  | 2.46         |                   | 98.3 | 67586 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.022 | 2.023  | -0.001 | 1.000  | 466494   | 0.2441       |                   | 97.6 | 708   |       |
| 313.00 > 119.00                       | 2.022 | 2.023  | -0.001 | 1.000  | 40306    |              | 11.57(5.03-15.10) | 97.6 | 476   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.056 | 2.051  | 0.005  | 1.161  | 607875   | 0.2379       |                   | 101  | 7771  |       |
| 349.00 > 99.00                        | 2.056 | 2.051  | 0.005  | 1.161  | 222895   |              | 2.73(1.36-4.07)   | 101  | 4147  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.124 | 2.125  | -0.001 | 1.000  | 73681    | NC           |                   |      | 432   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.124 | 2.125  | -0.001 | 0.781  | 207511   | NC           |                 |      | 5828  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.355 | 2.356  | -0.001 | 0.866  | 4222666  | 2.45         |                 | 98.1 | 67726 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.355 | 2.358  | -0.003 | 1.000  | 461565   | 0.2410       |                 | 96.4 | 585   |       |
| 363.00 > 169.00                       | 2.369 | 2.358  | 0.011  | 1.006  | 165186   |              | 2.79(1.13-3.40) | 96.4 | 784   |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.381 | 2.377  | 0.004  | 1.000  | 523312   | 0.2135       |                 | 93.8 | 1668  |       |
| 399.00 > 99.00                        | 2.381 | 2.377  | 0.004  | 1.000  | 186081   |              | 2.81(1.50-4.49) | 93.8 | 975   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.381 | 2.378  | 0.003  | 0.876  | 5056251  | 2.42         |                 | 102  | 26114 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.403 | 2.403  | 0.0    | 0.776  | 1340049  | NC           |                 |      | 22596 |       |
| 377.00 > 85.00                        | 2.403 | 2.403  | 0.0    | 0.776  | 763953   |              | 1.75(0.84-2.53) |      | 14378 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.688 | 2.689  | -0.001 | 0.989  | 1016167  | 2.38         |                 | 100  | 15053 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.696 | 2.690  | 0.006  | 1.003  | 180827   | 0.2459       |                 | 104  | 2301  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.718 | 2.714  | 0.004  | 1.000  | 4157379  | 2.43         |                 | 97.3 | 37753 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.718 | 2.714  | 0.004  |        | 4430562  | 2.50         |                 |      | 51741 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.718 | 2.715  | 0.003  | 1.000  | 494299   | 0.2472       |                 | 98.8 | 191   |       |
| 413.00 > 169.00                       | 2.718 | 2.715  | 0.003  | 1.000  | 266440   |              | 1.86(0.84-2.52) | 98.8 | 997   |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.734 | 2.727  | 0.007  | 0.882  | 450916   | 0.2317       |                 | 97.4 | 2694  |       |
| 449.00 > 99.00                        | 2.726 | 2.727  | -0.001 | 0.880  | 122520   |              | 3.68(1.94-5.82) | 97.4 | 1953  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.083 | 3.084  | -0.001 | 1.134  | 3591827  | 2.49         |                 | 99.6 | 53806 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.090 | 3.085  | 0.005  | 1.003  | 399680   | 0.2585       |                 | 103  | 1430  |       |
| 463.00 > 169.00                       | 3.090 | 3.085  | 0.005  | 1.003  | 88635    |              | 4.51(1.90-5.69) | 103  | 3191  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.098 | 3.091  | 0.007  | 1.000  | 370944   | 0.2206       |                 | 95.1 | 2028  |       |
| 499.00 > 99.00                        | 3.090 | 3.091  | -0.001 | 0.998  | 77754    |              | 4.77(2.31-6.93) | 95.1 | 1013  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.098 | 3.092  | 0.006  | 1.140  | 3384749  | 2.39         |                 | 100  | 32873 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.305 | 3.300  | 0.005  | 1.067  | 592770   | NC           |                 |      | 10569 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.419 | 3.417  | 0.002  | 1.258  | 4484265  | 2.51         |                 | 100  | 54111 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.419 | 3.417  | 0.002  | 1.000  | 444927   | 0.2386       |                 | 95.4 | 6642  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.437 | 3.435  | 0.002  | 1.264  | 1123283  | 2.52         |                 | 105  | 15299 |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.437 | 3.435  | 0.002  | 1.000  | 150464   | 0.2339       |                 | 97.7 | 4109  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.447 | 3.443  | 0.004  | 1.113  | 254310   | 0.2296       |                 | 95.7 | 2718  |       |
| 549.00 > 99.00                        | 3.447 | 3.443  | 0.004  | 1.113  | 93984    |              | 2.71(1.33-3.97) | 95.7 | 1025  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.447 | 3.445  | 0.002  | 1.268  | 3000974  | 2.58         |                 | 103  | 38665 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.447 | 3.446  | 0.001  | 1.000  | 299751   | 0.2336       |                 | 93.5 | 1611  |       |
| 513.00 > 169.00                       | 3.447 | 3.446  | 0.001  | 1.000  | 51509    |              | 5.82(2.36-7.09) | 93.5 | 1416  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.599 | 3.598  | 0.001  | 1.324  | 1689060  | 2.45         |                 | 98.1 | 24014 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.609 | 3.605  | 0.004  | 1.003  | 167814   | 0.2491       |                 | 99.6 | 1378  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.763 | 3.767  | -0.004 | 1.384  | 1874454  | 2.54         |                 | 102  | 20926 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.773 | 3.771  | 0.002  | 1.000  | 214812   | 0.2594       |                 | 104  | 1505  |       |
| 563.00 > 169.00                       | 3.773 | 3.771  | 0.002  | 1.000  | 48236    |              | 4.45(2.12-6.36) | 104  | 1699  |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.773 | 3.771  | 0.002  | 1.388  | 2450667  | 2.53         |                 | 101  | 36895 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.773 | 3.773  | 0.0    | 1.218  | 225397   | 0.2308       |                 | 95.8 | 4047  |       |
| 599.00 > 99.00                        | 3.773 | 3.773  | 0.0    | 1.218  | 79204    |              | 2.85(1.39-4.16) | 95.8 | 1905  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.773 | 3.773  | 0.0    | 1.003  | 167081   | 0.2548       |                 | 102  | 5171  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.940 | 3.939  | 0.001  | 1.272  | 867229   | NC           |                 |      | 9874  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.071 | 4.070  | 0.001  | 1.498  | 2588443  | 2.50         |                 | 100  | 18059 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.071 | 4.070  | 0.001  | 1.000  | 290307   | 0.2551       |                 | 102  | 392   |       |
| 613.00 > 169.00                       | 4.071 | 4.070  | 0.001  | 1.000  | 66810    |              | 4.35(2.13-6.40) | 102  | 891   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.329 | 4.329  | 0.0    | 1.063  | 292310   | 0.2423       |                 | 96.9 | 323   |       |
| 663.00 > 169.00                       | 4.329 | 4.329  | 0.0    | 1.063  | 96210    |              | 3.04(1.25-3.76) | 96.9 | 1441  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.572 | 4.568  | 0.004  | 1.682  | 3374999  | 2.51         |                 | 100  | 17068 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.572 | 4.570  | 0.002  | 1.000  | 87652    | 0.2413       |                 | 96.5 | 1159  |       |
| 713.00 > 219.00                       | 4.562 | 4.570  | -0.008 | 0.998  | 63262    |              | 1.39(0.71-2.13) | 96.5 | 1423  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.982 | 4.982  | 0.0    | 1.833  | 6341404  | 2.47         |                 | 98.9 | 12933 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.982 | 4.983  | -0.001 | 1.000  | 673081   | NC           |                 |      | 275   |       |
| 813.00 > 169.00                       | 4.982 | 4.983  | -0.001 | 1.000  | 107322   |              | 6.27(2.86-8.58) |      | 1043  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|-----|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |     |       |
| 913.00 > 869.00               | 5.349 | 5.346     | 0.003     | 1.074     | 654886   | NC              |                  |      | 178 |       |
| 913.00 > 169.00               | 5.349 | 5.346     | 0.003     | 1.074     | 82554    |                 | 7.93(3.83-11.48) |      | 927 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL3\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05\ICAL\_004.d

Injection Date: 05-Jun-2018 14:44:22

Instrument ID: A8\_N

Lims ID: IC L3 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 49

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

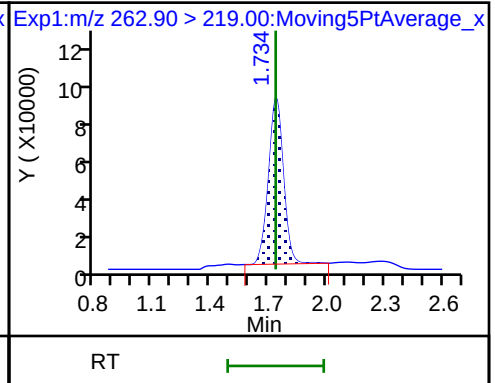
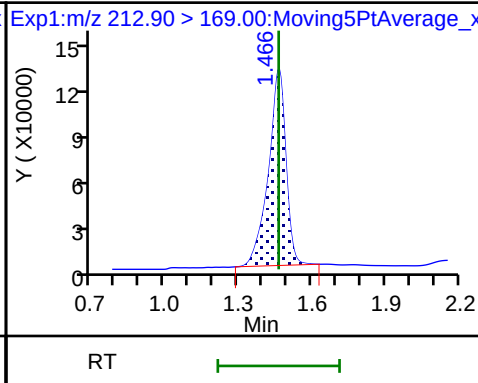
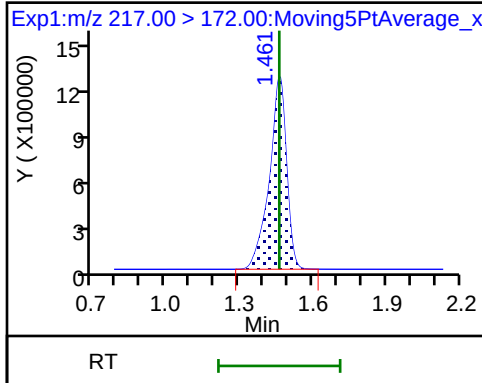
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

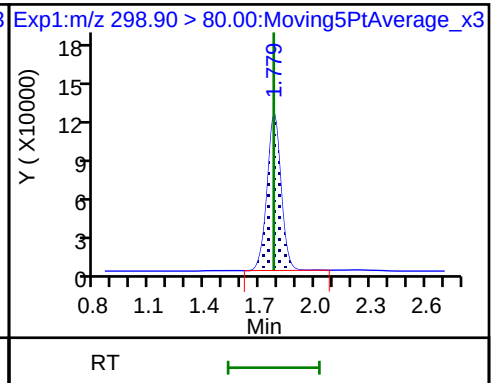
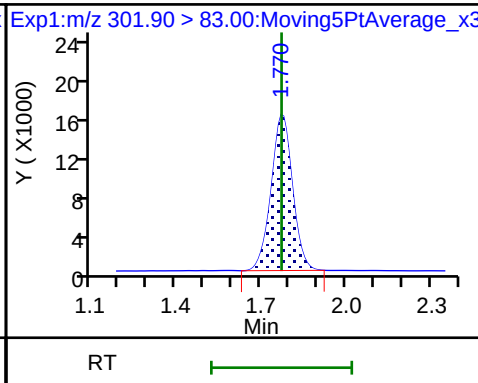
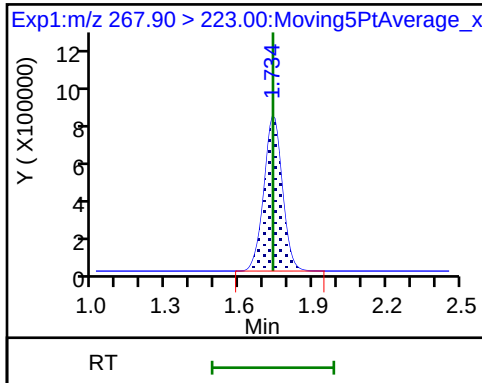
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

D 47 13C3-PFBS

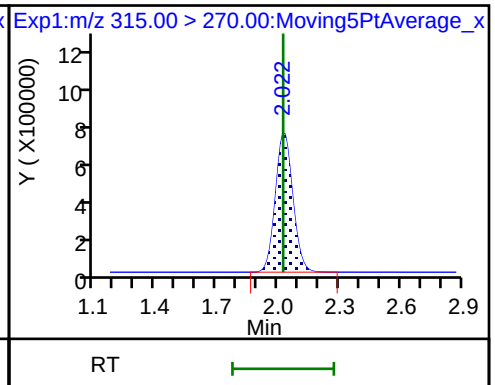
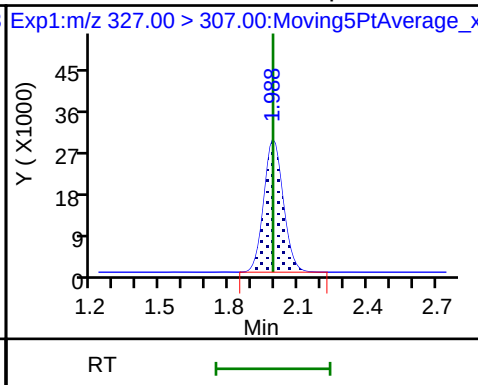
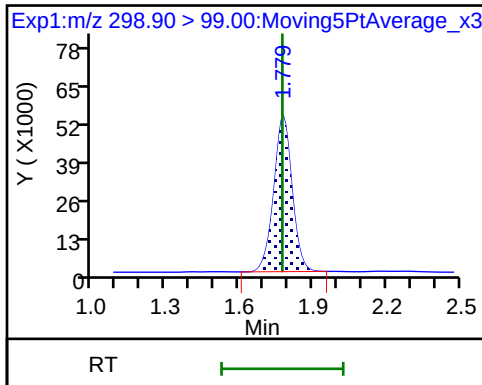
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoate

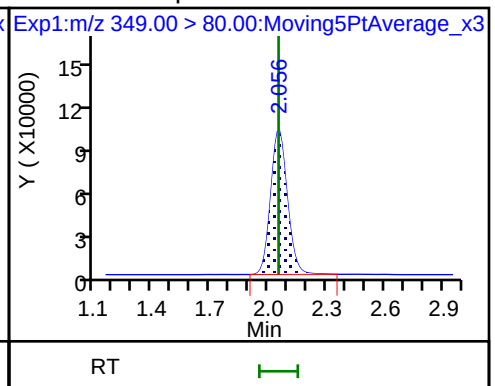
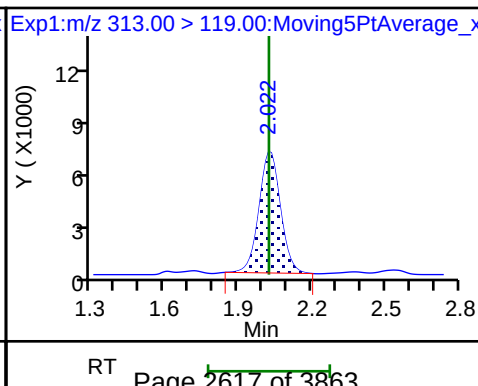
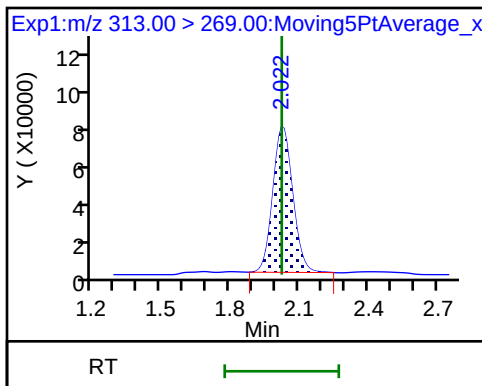
De 7 13C2 PFHxA



6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

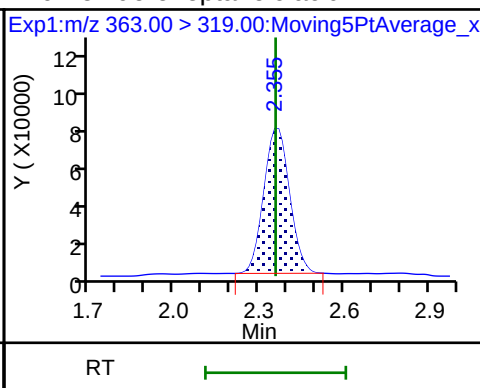
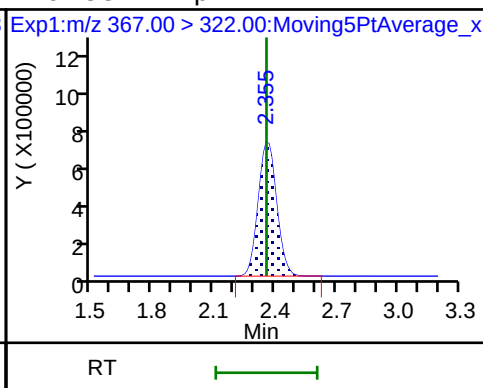
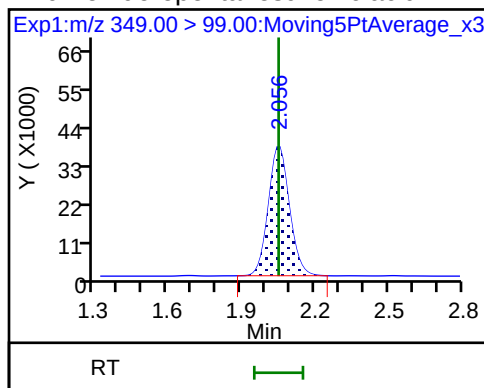
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

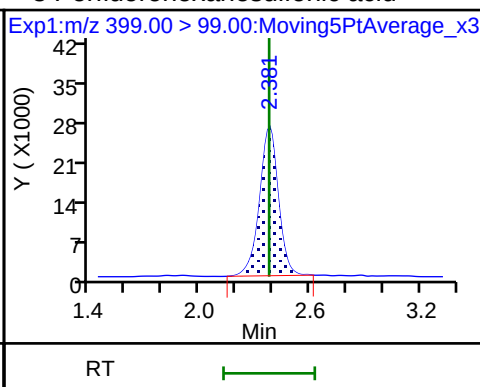
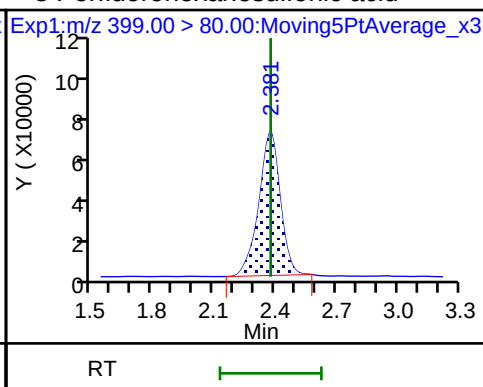
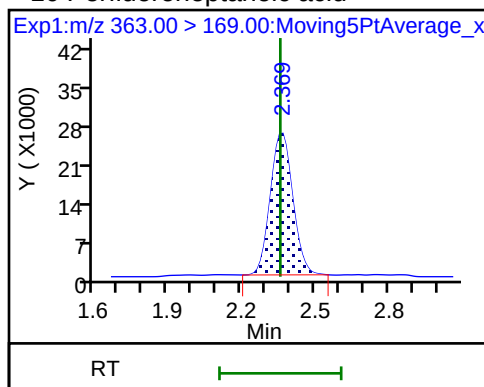
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

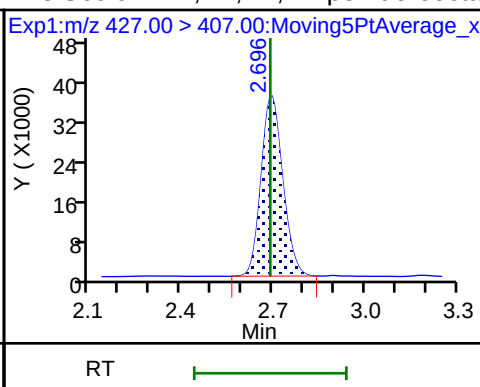
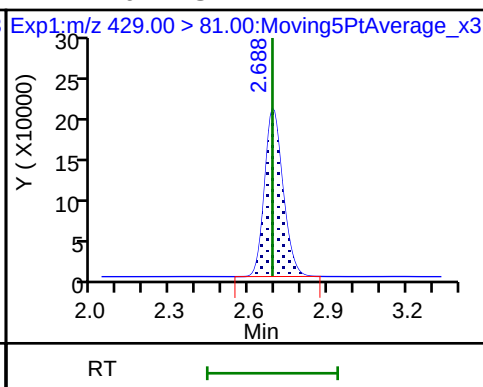
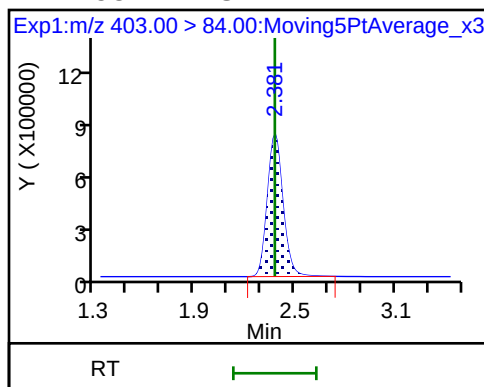
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## D 12 M2-6:2FTS

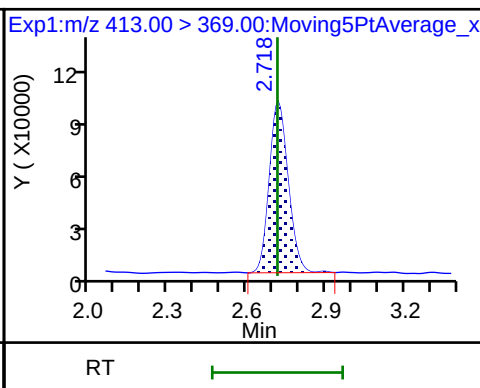
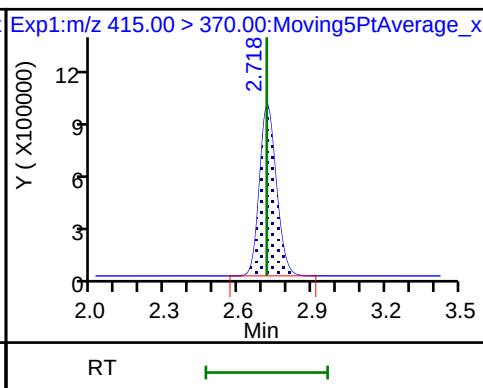
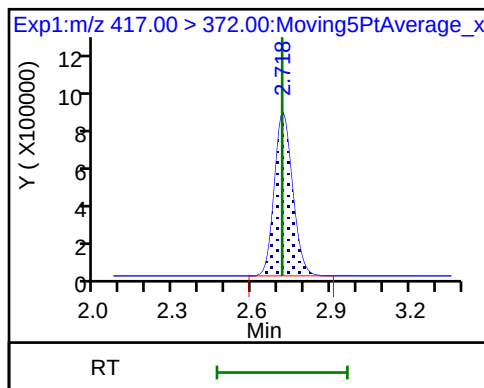
## 13 Sodium 1H,1H,2H,2H-perfluorooctane

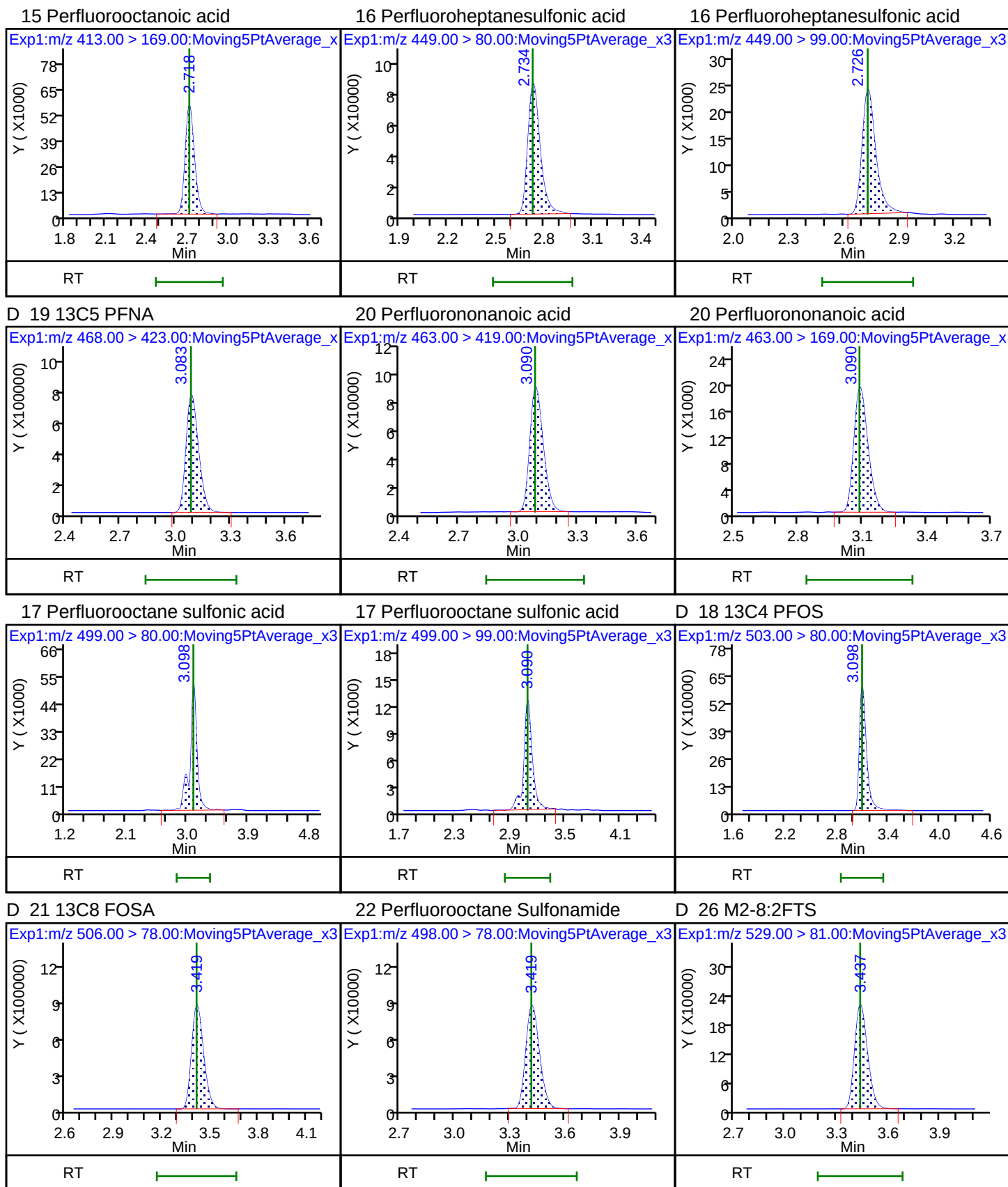


## D 14 13C4 PFOA

## \* 62 13C2-PFOA

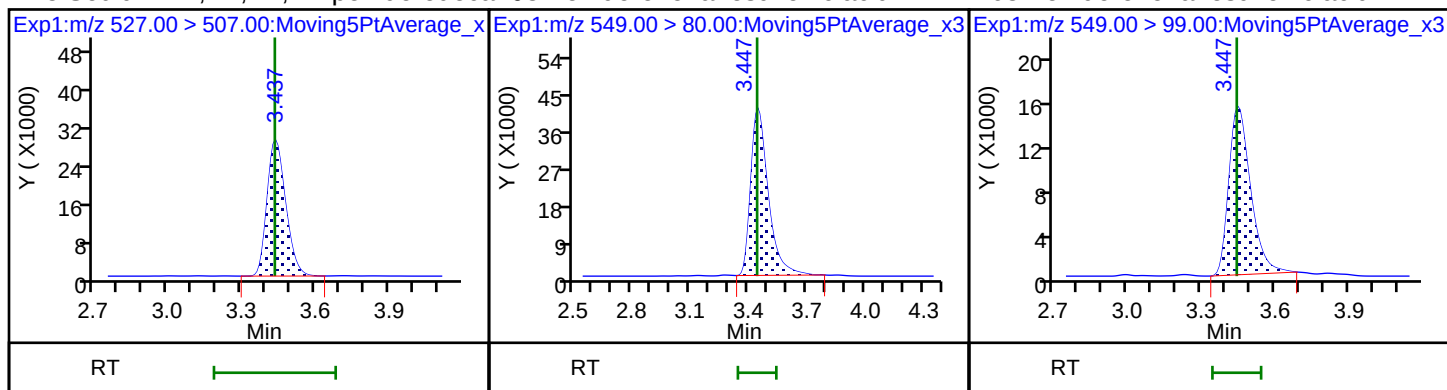
## 15 Perfluorooctanoic acid





## 25 Sodium 1H,1H,2H,2H-perfluorodecan-68 Perfluorononanesulfonic acid

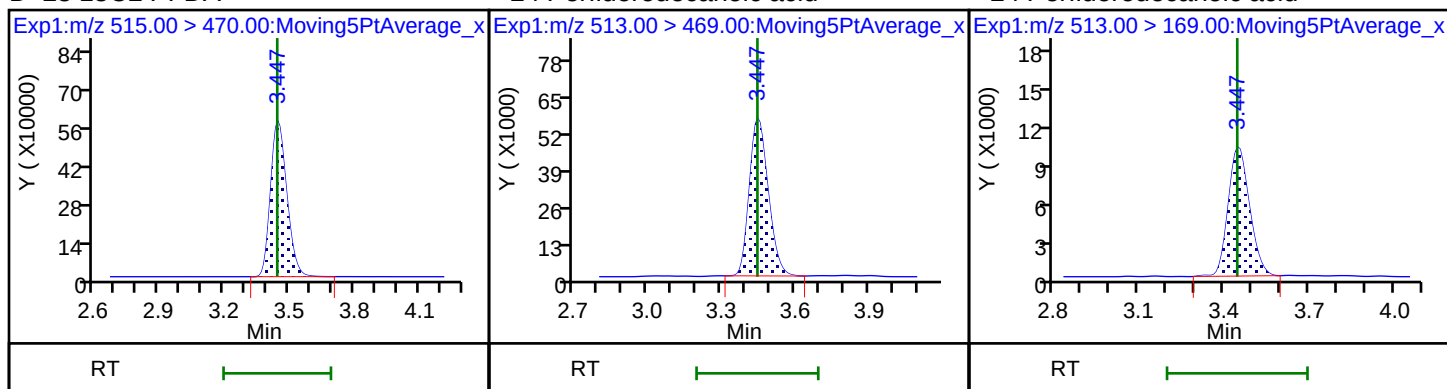
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

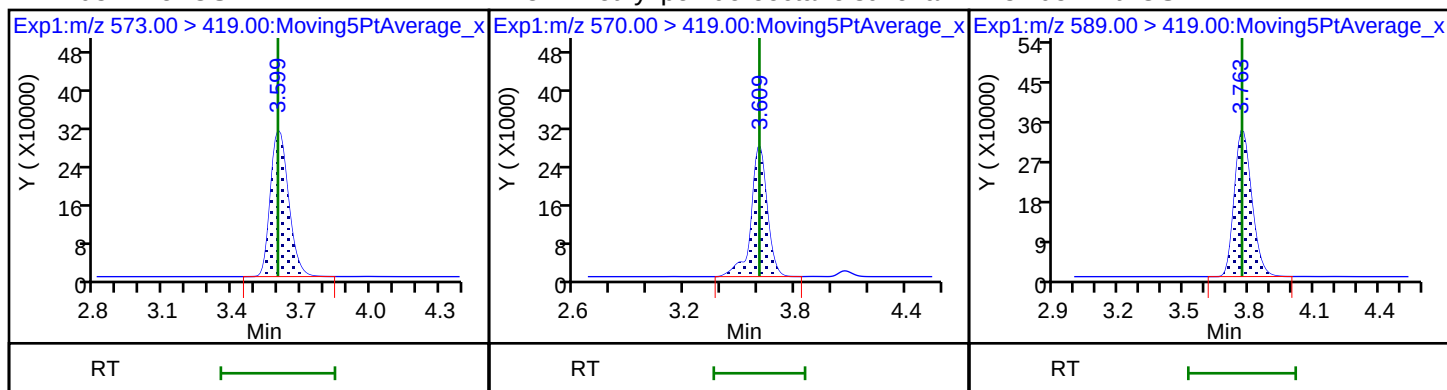
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamid

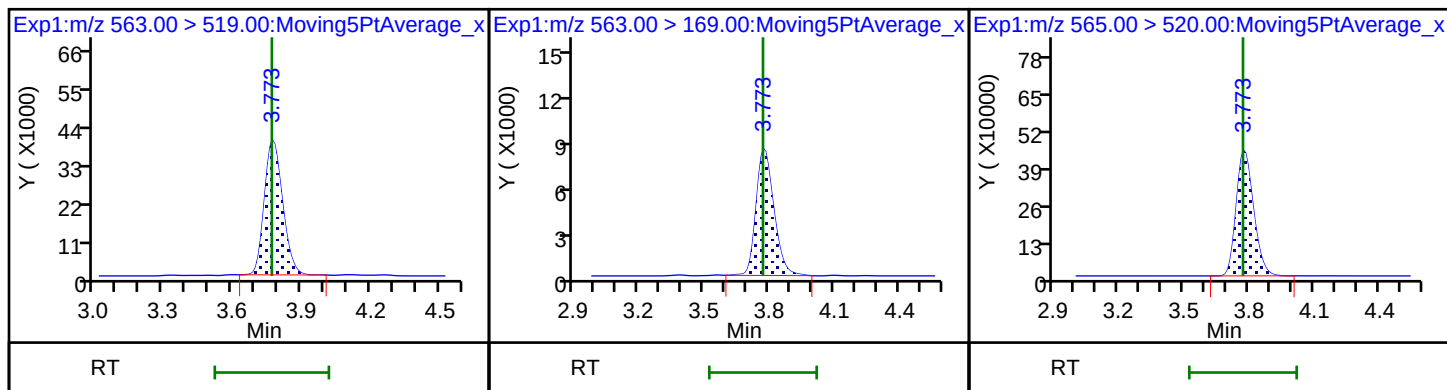
## 32 d5-NEtFOSAA

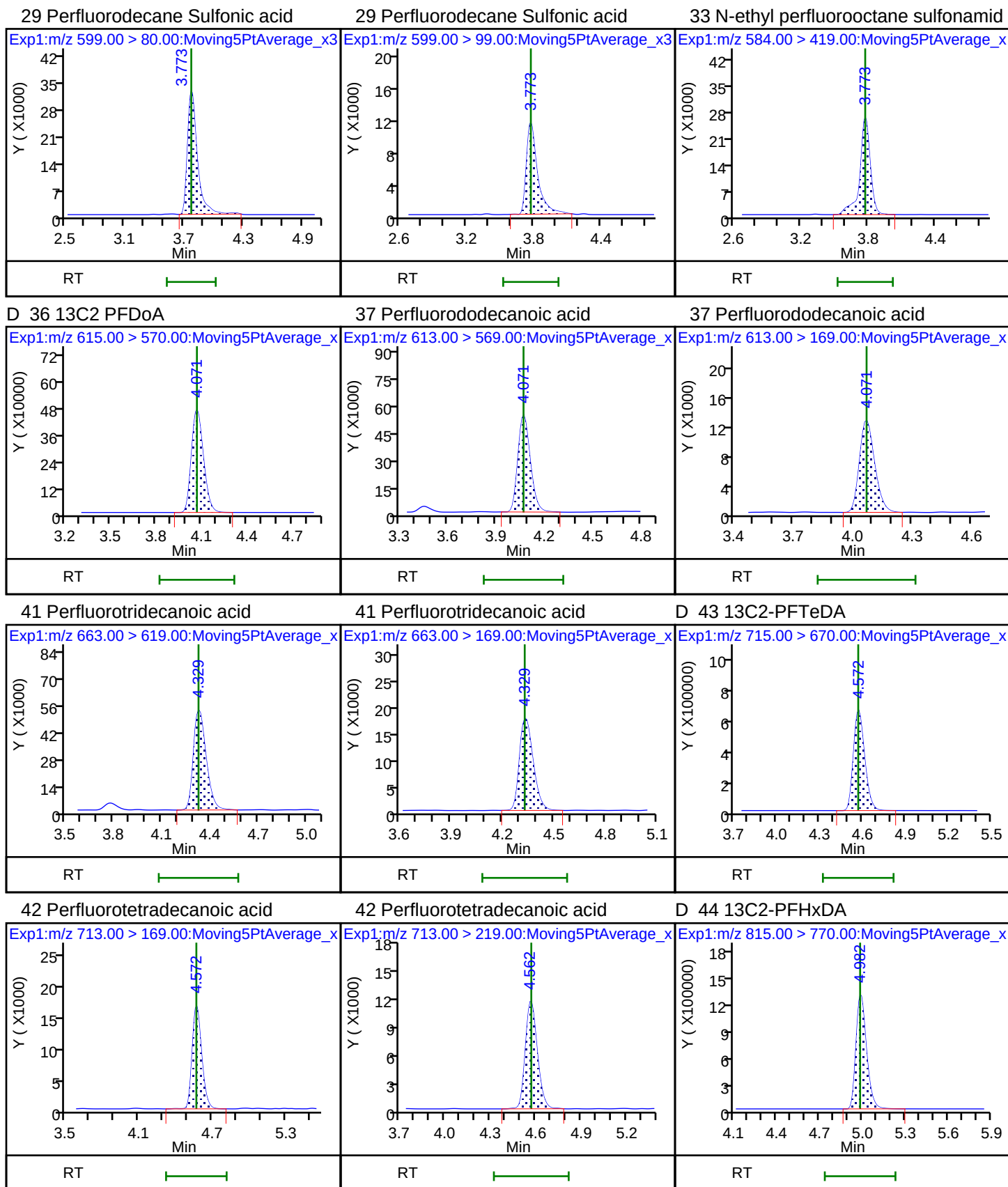


## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA









TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_005.d  
 Lims ID: IC L4 Full  
 Client ID:  
 Sample Type: ICIS Calib Level: 4  
 Inject. Date: 05-Jun-2018 14:52:11 ALS Bottle#: 50 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L4-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:09:06 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:11:13

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.464 | 1.462  | 0.002  | 0.539  | 6201421  | 2.53         |                   | 101  | 32650 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.464 | 1.463  | 0.001  | 1.000  | 2410167  | 0.9319       |                   | 93.2 | 1239  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.739 | 1.736  | 0.003  | 1.000  | 1982667  | 0.9610       |                   | 96.1 | 1534  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.739 | 1.736  | 0.003  | 0.641  | 4245493  | 2.56         |                   | 102  | 54274 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.775 | 1.772  | 0.003  | 0.654  | 85194    | 2.32         |                   | 99.8 | 716   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.775 | 1.774  | 0.001  | 1.000  | 2586734  | 0.9101       |                   | 103  | 10366 |       |
| 298.90 > 99.00                        | 1.775 | 1.774  | 0.001  | 1.000  | 1069728  |              | 2.42(1.25-3.74)   | 103  | 11337 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.993 | 1.990  | 0.003  | 0.734  | 690090   | NC           |                   |      | 7934  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.993 | 1.990  | 0.003  | 1.123  | 671912   | 0.9541       |                   | 102  | 38081 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.027 | 2.023  | 0.004  | 0.747  | 4434509  | 2.51         |                   | 100  | 75188 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.027 | 2.023  | 0.004  | 1.000  | 1816892  | 0.9413       |                   | 94.1 | 3124  |       |
| 313.00 > 119.00                       | 2.027 | 2.023  | 0.004  | 1.000  | 175113   |              | 10.38(5.03-15.10) | 94.1 | 2130  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.050 | 2.051  | -0.001 | 1.155  | 2497582  | 0.9767       |                   | 104  | 17577 |       |
| 349.00 > 99.00                        | 2.050 | 2.051  | -0.001 | 1.155  | 928980   |              | 2.69(1.36-4.07)   | 104  | 14313 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.129 | 2.125  | 0.004  | 1.000  | 292550   | NC           |                   |      | 1783  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                 |      |       |       |
| 332.10 > 287.00                       | 2.129 | 2.125     | 0.004     | 0.784     | 196229   | NC              |                 |      | 3659  |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.360 | 2.356     | 0.004     | 0.870     | 4341946  | 2.55            |                 | 102  | 57934 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                       | 2.360 | 2.358     | 0.002     | 1.000     | 2013304  | 1.02            |                 | 102  | 2563  |       |
| 363.00 > 169.00                       | 2.360 | 2.358     | 0.002     | 1.000     | 724819   |                 | 2.78(1.13-3.40) | 102  | 3513  |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                        | 2.373 | 2.377     | -0.004    | 0.995     | 2126858  | 0.8809          |                 | 96.8 | 5446  |       |
| 399.00 > 99.00                        | 2.373 | 2.377     | -0.004    | 0.995     | 686754   |                 | 3.10(1.50-4.49) | 96.8 | 2796  |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.385 | 2.378     | 0.007     | 0.879     | 4980455  | 2.41            |                 | 102  | 42719 |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |       |       |
| 377.00 > 251.00                       | 2.408 | 2.403     | 0.005     | 0.779     | 5613540  | NC              |                 |      | 58704 |       |
| 377.00 > 85.00                        | 2.408 | 2.403     | 0.005     | 0.779     | 3285012  |                 | 1.71(0.84-2.53) |      | 45762 |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.691 | 2.689     | 0.002     | 0.992     | 1056640  | 2.50            |                 | 105  | 13011 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |       |       |
| 427.00 > 407.00                       | 2.691 | 2.690     | 0.001     | 1.000     | 683928   | 0.8943          |                 | 94.3 | 10148 |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.713 | 2.714     | -0.001    | 1.000     | 4358346  | 2.58            |                 | 103  | 70021 |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.713 | 2.714     | -0.001    |           | 4383202  | 2.50            |                 |      | 45631 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                       | 2.713 | 2.715     | -0.002    | 1.000     | 1965587  | 0.9376          |                 | 93.7 | 832   |       |
| 413.00 > 169.00                       | 2.713 | 2.715     | -0.002    | 1.000     | 1031814  |                 | 1.90(0.84-2.52) | 93.7 | 3497  |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 449.00 > 80.00                        | 2.729 | 2.727     | 0.002     | 0.883     | 1865429  | 0.9604          |                 | 101  | 12905 |       |
| 449.00 > 99.00                        | 2.729 | 2.727     | 0.002     | 0.883     | 490514   |                 | 3.80(1.94-5.82) | 101  | 4340  |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.084 | 3.084     | 0.0       | 1.136     | 3608236  | 2.53            |                 | 101  | 53604 |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 463.00 > 419.00                       | 3.084 | 3.085     | -0.001    | 1.000     | 1563988  | 1.01            |                 | 101  | 5459  |       |
| 463.00 > 169.00                       | 3.084 | 3.085     | -0.001    | 1.000     | 367955   |                 | 4.25(1.90-5.69) | 101  | 15354 |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                        | 3.091 | 3.091     | 0.0       | 1.000     | 1510175  | 0.8998          |                 | 97.0 | 9609  |       |
| 499.00 > 99.00                        | 3.091 | 3.091     | 0.0       | 1.000     | 325237   |                 | 4.64(2.31-6.93) | 97.0 | 4203  |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.091 | 3.092     | -0.001    | 1.139     | 3378414  | 2.41            |                 | 101  | 41890 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |       |       |
| 531.00 > 351.00                       | 3.299 | 3.300     | -0.001    | 1.067     | 2409185  | NC              |                 |      | 25142 |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.420 | 3.417     | 0.003     | 1.260     | 4437048  | 2.51            |                 | 100  | 42876 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.420 | 3.417     | 0.003     | 1.000     | 1807725  | 0.9797          |                 | 98.0 | 23167 |       |
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 529.00 > 81.00                        | 3.439 | 3.435     | 0.004     | 1.267     | 1045448  | 2.37            |                 | 99.0 | 14045 |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                 |      |        |       |
| 527.00 > 507.00                       | 3.439 | 3.435     | 0.004     | 1.000     | 589788   | 0.9852          |                 | 103  | 18530  |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |        |       |
| 549.00 > 80.00                        | 3.439 | 3.443     | -0.004    | 1.112     | 1117743  | 1.01            |                 | 105  | 21887  |       |
| 549.00 > 99.00                        | 3.439 | 3.443     | -0.004    | 1.112     | 399566   |                 | 2.80(1.33-3.97) | 105  | 6950   |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                 |      |        |       |
| 515.00 > 470.00                       | 3.448 | 3.445     | 0.003     | 1.271     | 3031724  | 2.63            |                 | 105  | 38608  |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 513.00 > 469.00                       | 3.448 | 3.446     | 0.002     | 1.000     | 1204130  | 0.9290          |                 | 92.9 | 6794   |       |
| 513.00 > 169.00                       | 3.448 | 3.446     | 0.002     | 1.000     | 217151   |                 | 5.55(2.36-7.09) | 92.9 | 5866   |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                 |      |        |       |
| 573.00 > 419.00                       | 3.600 | 3.598     | 0.002     | 1.327     | 1761089  | 2.59            |                 | 103  | 20040  |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                 |      |        |       |
| 570.00 > 419.00                       | 3.600 | 3.605     | -0.005    | 1.000     | 685215   | 0.9756          |                 | 97.6 | 5343   |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |      |        |       |
| 589.00 > 419.00                       | 3.763 | 3.767     | -0.004    | 1.387     | 1884668  | 2.59            |                 | 103  | 24558  |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |      |        |       |
| 563.00 > 519.00                       | 3.774 | 3.771     | 0.003     | 1.000     | 754830   | 0.8965          |                 | 89.6 | 4274   |       |
| 563.00 > 169.00                       | 3.774 | 3.771     | 0.003     | 1.000     | 192857   |                 | 3.91(2.12-6.36) | 89.6 | 8692   |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |      |        |       |
| 565.00 > 520.00                       | 3.774 | 3.771     | 0.003     | 1.391     | 2491515  | 2.60            |                 | 104  | 50199  |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 599.00 > 80.00                        | 3.774 | 3.773     | 0.001     | 1.221     | 962104   | 0.9871          |                 | 102  | 27729  |       |
| 599.00 > 99.00                        | 3.774 | 3.773     | 0.001     | 1.221     | 308218   |                 | 3.12(1.39-4.16) | 102  | 7510   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |      |        |       |
| 584.00 > 419.00                       | 3.774 | 3.773     | 0.001     | 1.003     | 627574   | 0.9520          |                 | 95.2 | 10548  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                 |      |        |       |
| 631.00 > 451.00                       | 3.941 | 3.939     | 0.002     | 1.275     | 3630948  | NC              |                 |      | 100774 |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                 |      |        |       |
| 615.00 > 570.00                       | 4.071 | 4.070     | 0.001     | 1.500     | 2616438  | 2.55            |                 | 102  | 19006  |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                 |      |        |       |
| 613.00 > 569.00                       | 4.071 | 4.070     | 0.001     | 1.000     | 1144976  | 1.00            |                 | 99.6 | 1469   |       |
| 613.00 > 169.00                       | 4.071 | 4.070     | 0.001     | 1.000     | 276435   |                 | 4.14(2.13-6.40) | 99.6 | 4976   |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                 |      |        |       |
| 663.00 > 619.00                       | 4.330 | 4.329     | 0.001     | 1.063     | 1179085  | 0.9667          |                 | 96.7 | 1211   |       |
| 663.00 > 169.00                       | 4.330 | 4.329     | 0.001     | 1.063     | 378690   |                 | 3.11(1.25-3.76) | 96.7 | 4572   |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |      |        |       |
| 715.00 > 670.00                       | 4.572 | 4.568     | 0.004     | 1.685     | 3391529  | 2.55            |                 | 102  | 17566  |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 713.00 > 169.00                       | 4.572 | 4.570     | 0.002     | 1.000     | 345900   | 0.9474          |                 | 94.7 | 4829   |       |
| 713.00 > 219.00                       | 4.562 | 4.570     | -0.008    | 0.998     | 247697   |                 | 1.40(0.71-2.13) | 94.7 | 5635   |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |      |        |       |
| 815.00 > 770.00                       | 4.983 | 4.982     | 0.001     | 1.836     | 6404193  | 2.52            |                 | 101  | 13470  |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                 |      |        |       |
| 813.00 > 769.00                       | 4.983 | 4.983     | 0.0       | 1.000     | 2548247  | NC              |                 |      | 1035   |       |
| 813.00 > 169.00                       | 4.983 | 4.983     | 0.0       | 1.000     | 409485   |                 | 6.22(2.86-8.58) |      | 3515   |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.349 | 5.346     | 0.003     | 1.073     | 2830623  | NC              |                  |      | 707  |       |
| 913.00 > 169.00               | 5.342 | 5.346     | -0.004    | 1.072     | 331128   |                 | 8.55(3.83-11.48) |      | 2744 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL4\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_005.d

Injection Date: 05-Jun-2018 14:52:11

Instrument ID: A8\_N

Lims ID: IC L4 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 50

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

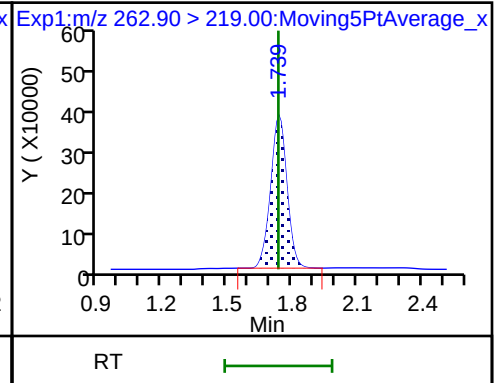
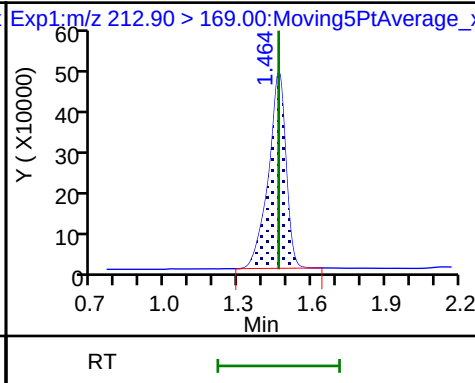
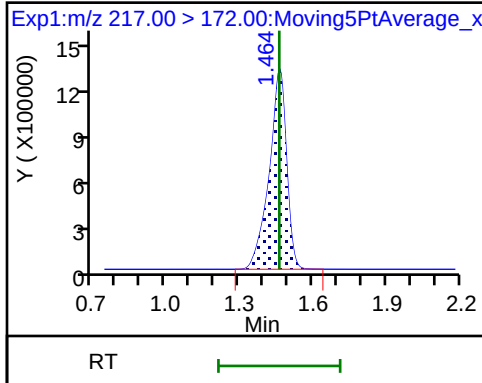
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

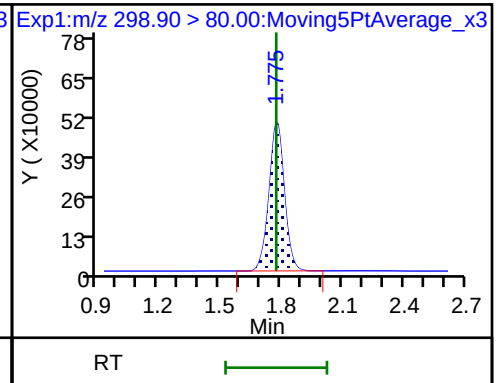
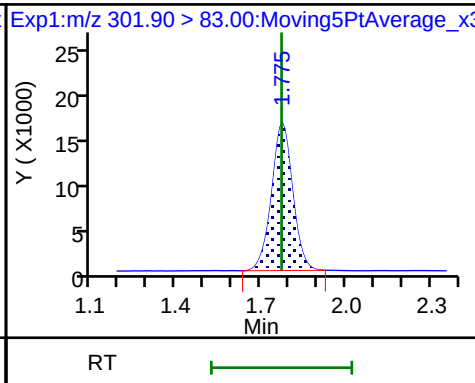
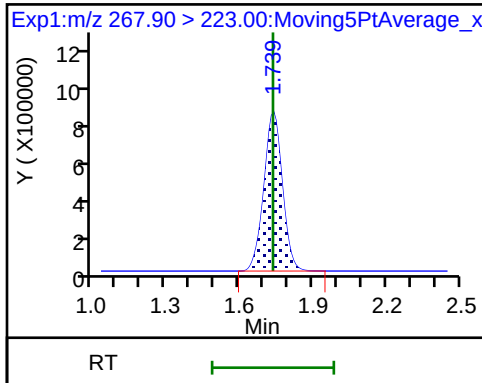
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

D 47 13C3-PFBS

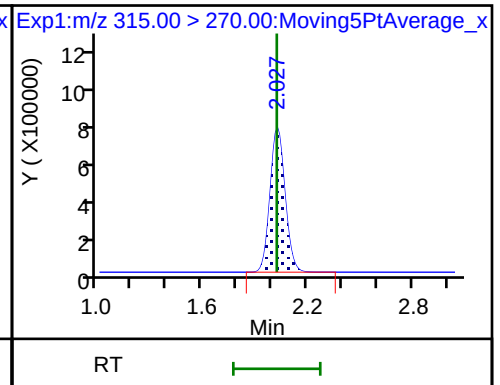
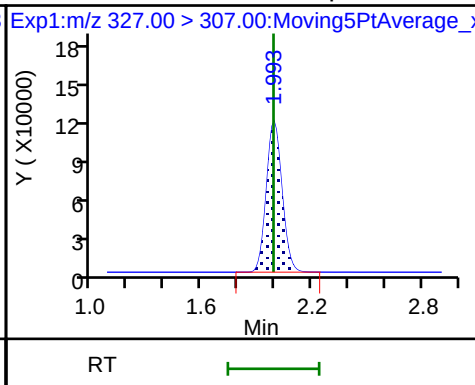
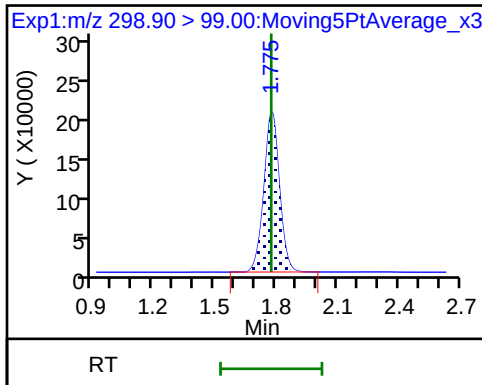
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

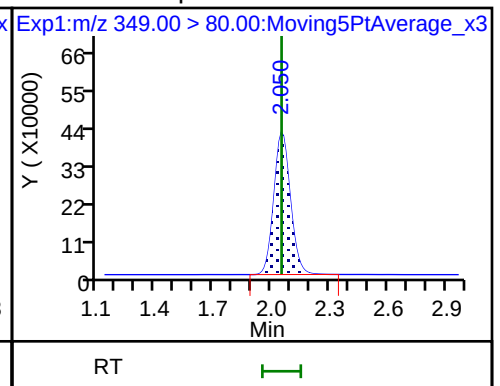
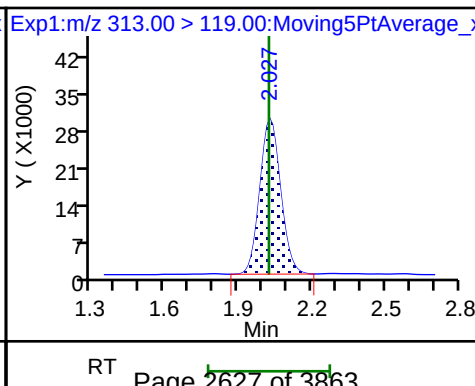
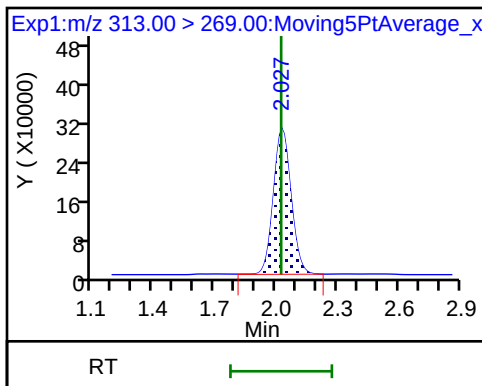
De 7 13C2 PFHxA

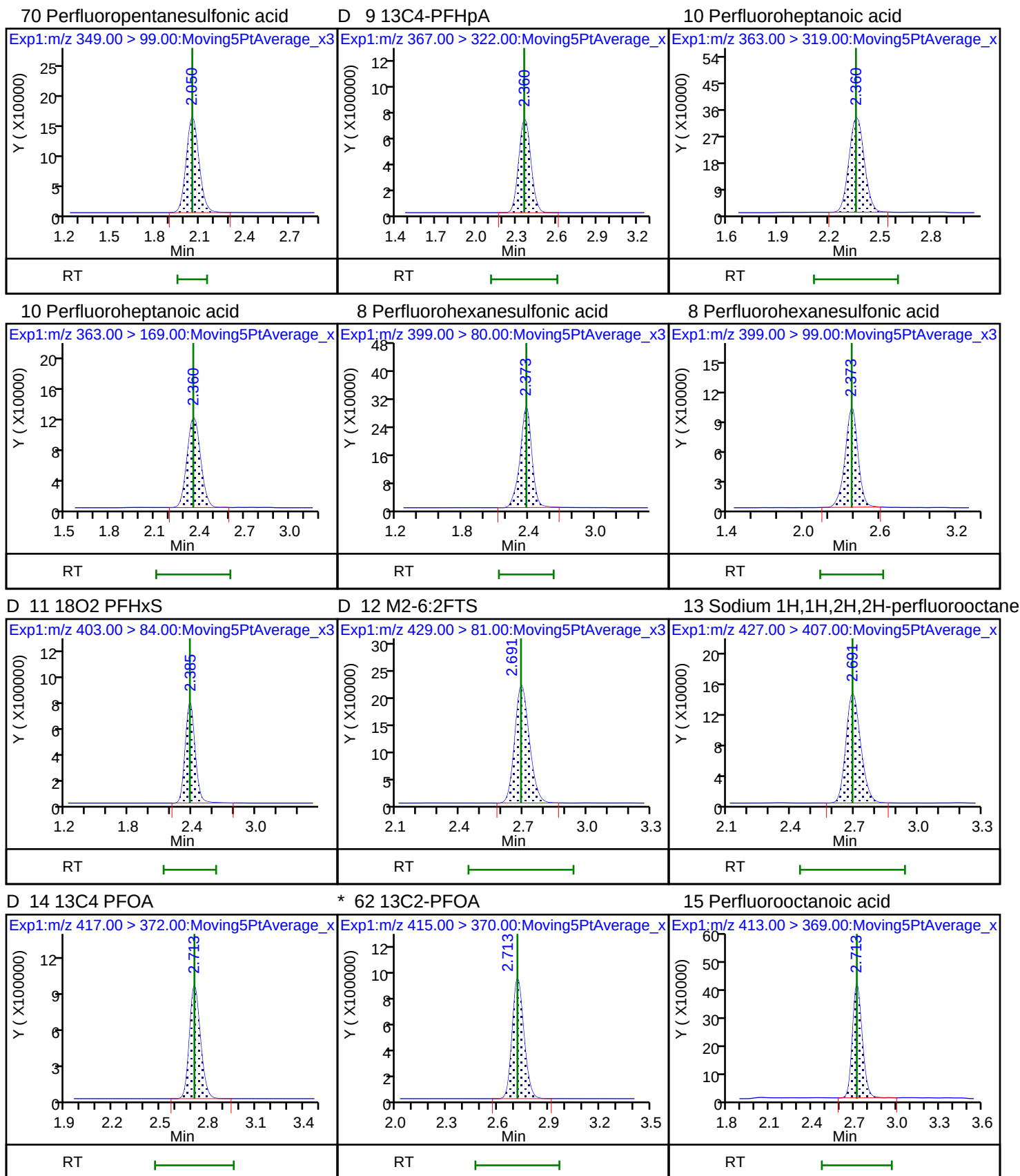


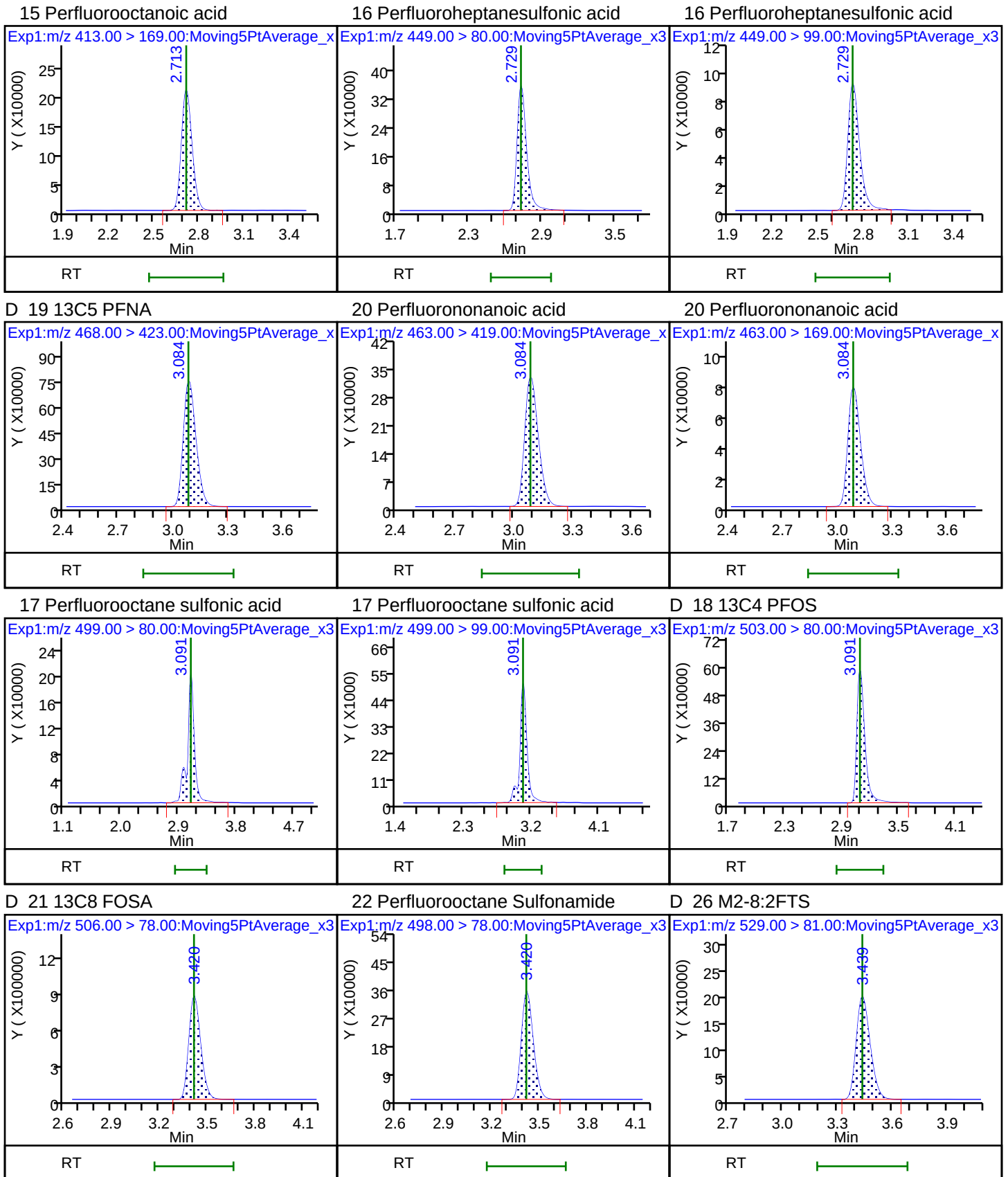
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid

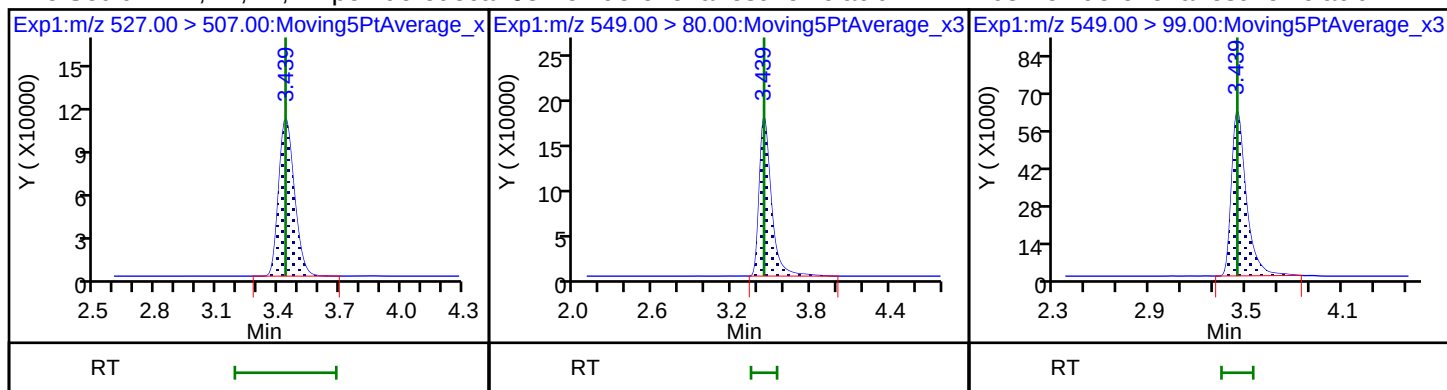






## 25 Sodium 1H,1H,2H,2H-perfluorodecan-68 Perfluorononanesulfonic acid

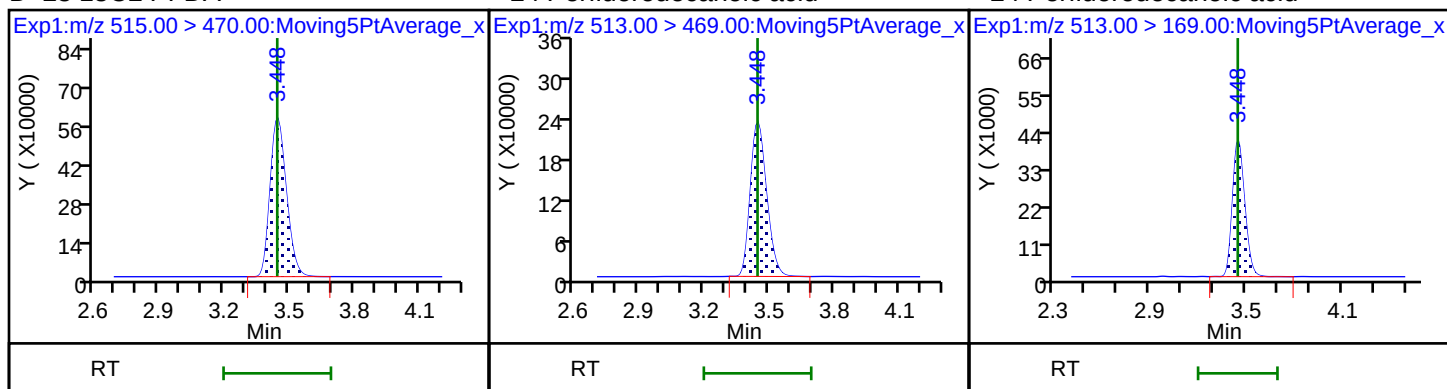
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

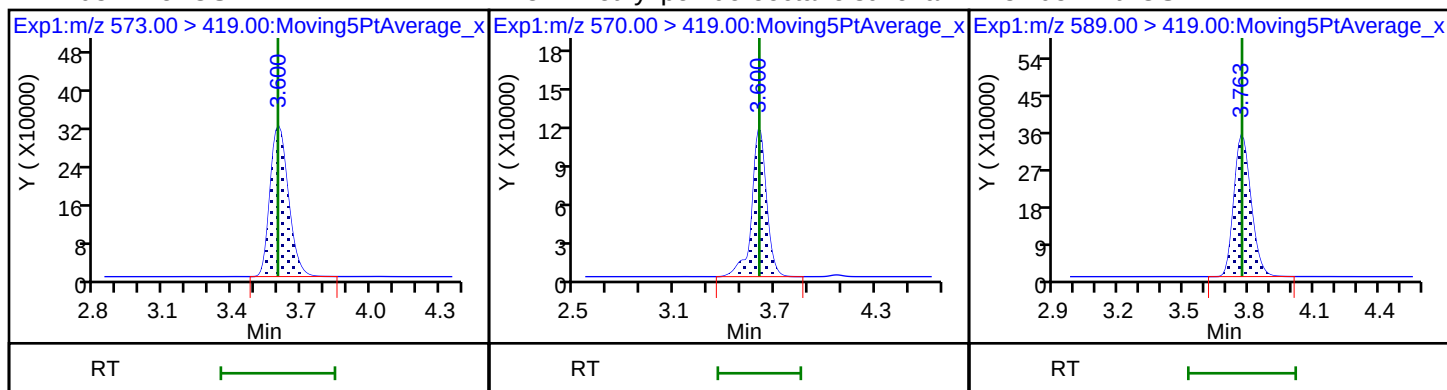
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamid

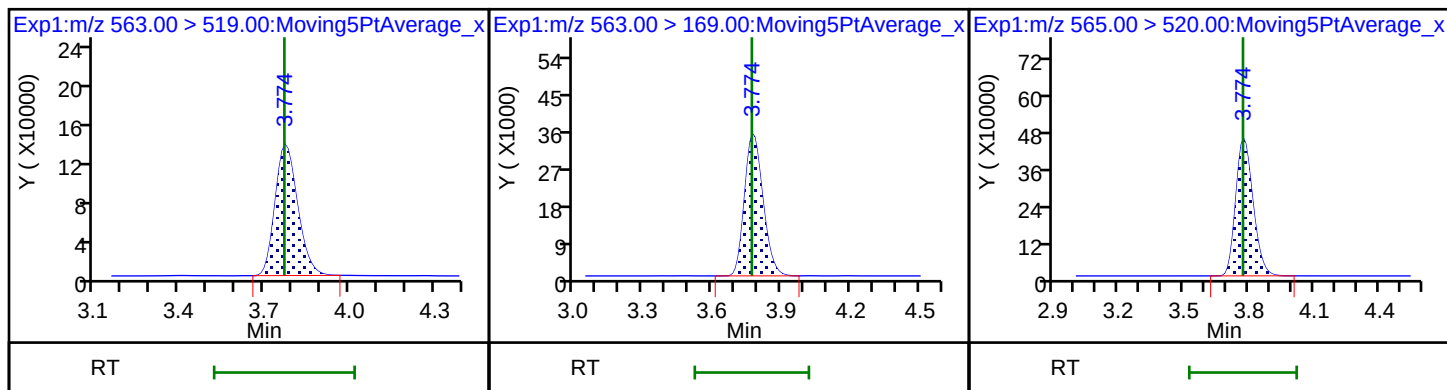
## 32 d5-NEtFOSAA



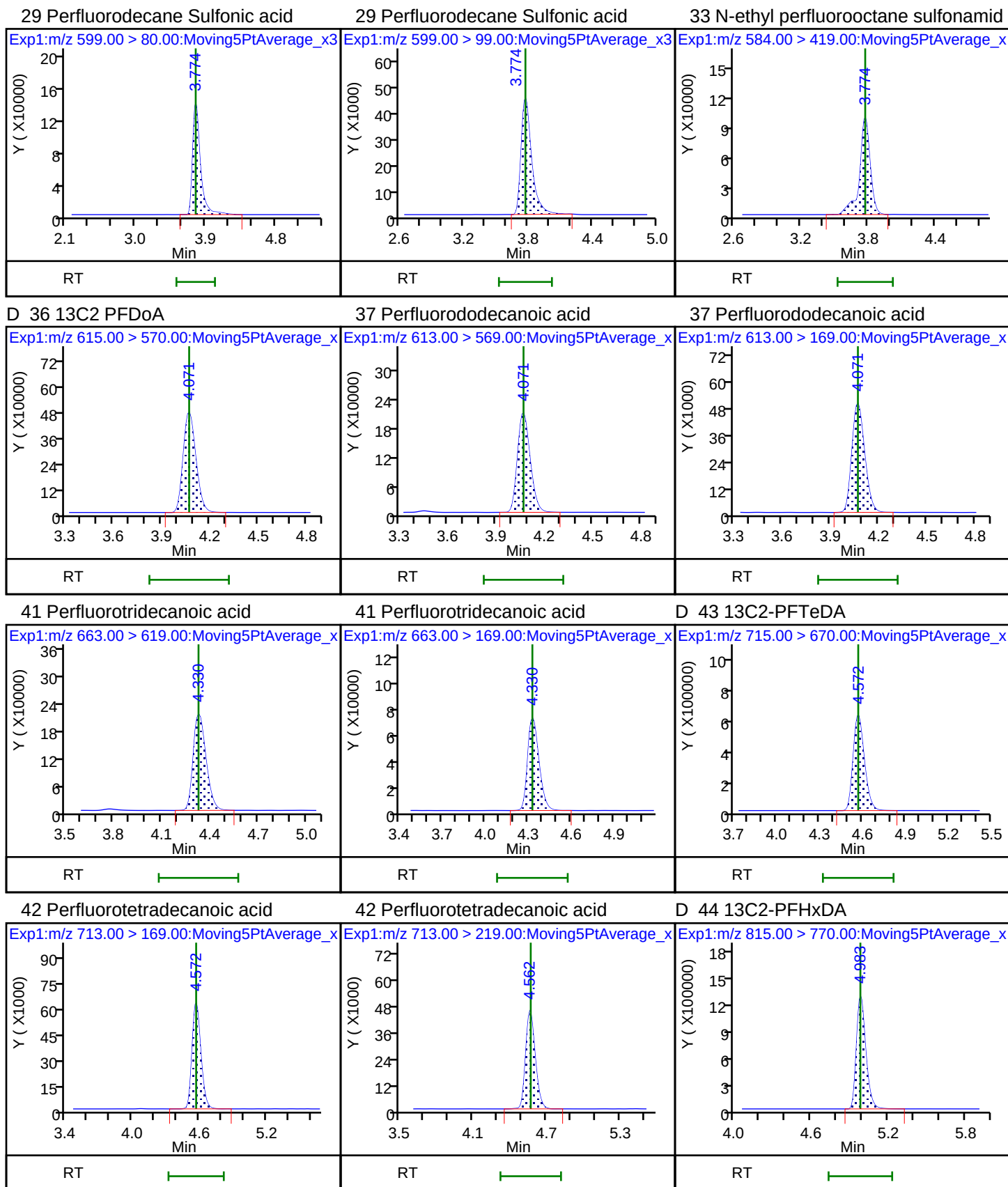
## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA









TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_006.d  
 Lims ID: IC L5 Full  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 05-Jun-2018 14:59:58 ALS Bottle#: 51 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L5-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:09:10 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:56:53

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.461 | 1.462  | -0.001 | 0.537  | 6207769  | 2.52         |                   | 101  | 34696 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.466 | 1.463  | 0.003  | 1.004  | 6234596  | 2.41         |                   | 96.3 | 4777  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.734 | 1.736  | -0.002 | 1.000  | 5086603  | 2.52         |                   | 101  | 4393  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.734 | 1.736  | -0.002 | 0.638  | 4150906  | 2.48         |                   | 99.4 | 56653 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.770 | 1.772  | -0.002 | 0.651  | 84969    | 2.30         |                   | 98.9 | 677   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.779 | 1.774  | 0.005  | 1.005  | 6570038  | 2.32         |                   | 105  | 26259 |       |
| 298.90 > 99.00                        | 1.779 | 1.774  | 0.005  | 1.005  | 2751869  |              | 2.39(1.25-3.74)   | 105  | 24880 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.988 | 1.990  | -0.002 | 0.731  | 652056   | NC           |                   |      | 8613  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.988 | 1.990  | -0.002 | 1.123  | 1615298  | 2.30         |                   | 98.5 | 92397 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.022 | 2.023  | -0.001 | 0.744  | 4505561  | 2.54         |                   | 101  | 69329 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.022 | 2.023  | -0.001 | 1.000  | 4762494  | 2.43         |                   | 97.1 | 8357  |       |
| 313.00 > 119.00                       | 2.022 | 2.023  | -0.001 | 1.000  | 426868   |              | 11.16(5.03-15.10) | 97.1 | 5091  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.056 | 2.051  | 0.005  | 1.161  | 6275236  | 2.46         |                   | 105  | 34033 |       |
| 349.00 > 99.00                        | 2.056 | 2.051  | 0.005  | 1.161  | 2249600  |              | 2.79(1.36-4.07)   | 105  | 29083 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.123 | 2.125  | -0.002 | 1.000  | 684386   | NC           |                   |      | 3959  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.123 | 2.125  | -0.002 | 0.781  | 212341   | NC           |                 |      | 6012  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.354 | 2.356  | -0.002 | 0.866  | 4304120  | 2.51         |                 | 100  | 62252 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.354 | 2.358  | -0.004 | 1.000  | 4936887  | 2.53         |                 | 101  | 5615  |       |
| 363.00 > 169.00                       | 2.354 | 2.358  | -0.004 | 1.000  | 1894801  |              | 2.61(1.13-3.40) | 101  | 10493 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.380 | 2.377  | 0.003  | 1.000  | 5371295  | 2.22         |                 | 97.4 | 9621  |       |
| 399.00 > 99.00                        | 2.380 | 2.377  | 0.003  | 1.000  | 1759542  |              | 3.05(1.50-4.49) | 97.4 | 6944  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.380 | 2.378  | 0.002  | 0.876  | 4999793  | 2.41         |                 | 102  | 24791 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.403 | 2.403  | 0.0    | 0.776  | 13574669 | NC           |                 |      | 84338 |       |
| 377.00 > 85.00                        | 2.403 | 2.403  | 0.0    | 0.776  | 8461780  |              | 1.60(0.84-2.53) |      | 89046 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.688 | 2.689  | -0.001 | 0.989  | 1018271  | 2.39         |                 | 101  | 14228 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.688 | 2.690  | -0.002 | 1.000  | 1621426  | 2.20         |                 | 92.8 | 27569 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.718 | 2.714  | 0.004  | 1.000  | 4333833  | 2.55         |                 | 102  | 55750 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.718 | 2.714  | 0.004  |        | 4407994  | 2.50         |                 |      | 45706 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.718 | 2.715  | 0.003  | 1.000  | 4992547  | 2.40         |                 | 95.7 | 2265  |       |
| 413.00 > 169.00                       | 2.718 | 2.715  | 0.003  | 1.000  | 2628696  |              | 1.90(0.84-2.52) | 95.7 | 10757 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.725 | 2.727  | -0.002 | 0.881  | 4814441  | 2.53         |                 | 106  | 35713 |       |
| 449.00 > 99.00                        | 2.725 | 2.727  | -0.002 | 0.881  | 1257479  |              | 3.83(1.94-5.82) | 106  | 21410 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.087 | 3.084  | 0.003  | 1.136  | 3526736  | 2.46         |                 | 98.3 | 55182 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.087 | 3.085  | 0.002  | 1.000  | 3964360  | 2.61         |                 | 104  | 12737 |       |
| 463.00 > 169.00                       | 3.087 | 3.085  | 0.002  | 1.000  | 916515   |              | 4.33(1.90-5.69) | 104  | 27147 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.094 | 3.091  | 0.003  | 1.000  | 3776811  | 2.29         |                 | 98.9 | 16204 |       |
| 499.00 > 99.00                        | 3.094 | 3.091  | 0.003  | 1.000  | 831571   |              | 4.54(2.31-6.93) | 98.9 | 10766 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.094 | 3.092  | 0.002  | 1.139  | 3314199  | 2.35         |                 | 98.5 | 38848 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.302 | 3.300  | 0.002  | 1.067  | 6254245  | NC           |                 |      | 64693 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.415 | 3.417  | -0.002 | 1.257  | 4378158  | 2.46         |                 | 98.6 | 32576 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.415 | 3.417  | -0.002 | 1.000  | 4663724  | 2.56         |                 | 102  | 32008 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.433 | 3.435  | -0.002 | 1.263  | 1050319  | 2.37         |                 | 99.0 | 16380 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |        |       |
| 527.00 > 507.00                       | 3.433 | 3.435  | -0.002 | 1.000  | 1445486  | 2.40         |                 | 100  | 54301  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.443 | 3.443  | 0.0    | 1.113  | 2753203  | 2.54         |                 | 106  | 54304  |       |
| 549.00 > 99.00                        | 3.443 | 3.443  | 0.0    | 1.113  | 1022509  |              | 2.69(1.33-3.97) | 106  | 31842  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |        |       |
| 515.00 > 470.00                       | 3.443 | 3.445  | -0.002 | 1.267  | 2831965  | 2.45         |                 | 97.9 | 41264  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 513.00 > 469.00                       | 3.443 | 3.446  | -0.003 | 1.000  | 2995720  | 2.47         |                 | 99.0 | 14600  |       |
| 513.00 > 169.00                       | 3.443 | 3.446  | -0.003 | 1.000  | 523540   |              | 5.72(2.36-7.09) | 99.0 | 14251  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |        |       |
| 573.00 > 419.00                       | 3.605 | 3.598  | 0.007  | 1.327  | 1711637  | 2.50         |                 | 99.9 | 16359  |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |        |       |
| 570.00 > 419.00                       | 3.605 | 3.605  | 0.0    | 1.000  | 1727107  | 2.53         |                 | 101  | 8914   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |        |       |
| 589.00 > 419.00                       | 3.770 | 3.767  | 0.003  | 1.387  | 1880177  | 2.56         |                 | 103  | 17472  |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |        |       |
| 563.00 > 519.00                       | 3.770 | 3.771  | -0.001 | 1.000  | 1980195  | 2.42         |                 | 97.0 | 10150  |       |
| 563.00 > 169.00                       | 3.770 | 3.771  | -0.001 | 1.000  | 474494   |              | 4.17(2.12-6.36) | 97.0 | 14088  |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |        |       |
| 565.00 > 520.00                       | 3.770 | 3.771  | -0.001 | 1.387  | 2417072  | 2.51         |                 | 100  | 39009  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 599.00 > 80.00                        | 3.770 | 3.773  | -0.003 | 1.218  | 2399517  | 2.51         |                 | 104  | 68531  |       |
| 599.00 > 99.00                        | 3.770 | 3.773  | -0.003 | 1.218  | 791876   |              | 3.03(1.39-4.16) | 104  | 28240  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |        |       |
| 584.00 > 419.00                       | 3.770 | 3.773  | -0.003 | 1.000  | 1603587  | 2.44         |                 | 97.5 | 33817  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |        |       |
| 631.00 > 451.00                       | 3.939 | 3.939  | 0.0    | 1.273  | 9687318  | NC           |                 |      | 137077 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |        |       |
| 615.00 > 570.00                       | 4.071 | 4.070  | 0.001  | 1.498  | 2623887  | 2.55         |                 | 102  | 19866  |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |        |       |
| 613.00 > 569.00                       | 4.071 | 4.070  | 0.001  | 1.000  | 2935400  | 2.55         |                 | 102  | 3575   |       |
| 613.00 > 169.00                       | 4.071 | 4.070  | 0.001  | 1.000  | 685250   |              | 4.28(2.13-6.40) | 102  | 7776   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |        |       |
| 663.00 > 619.00                       | 4.330 | 4.329  | 0.001  | 1.063  | 3059749  | 2.50         |                 | 100  | 3072   |       |
| 663.00 > 169.00                       | 4.330 | 4.329  | 0.001  | 1.063  | 936929   |              | 3.27(1.25-3.76) | 100  | 9512   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |        |       |
| 715.00 > 670.00                       | 4.564 | 4.568  | -0.004 | 1.679  | 3250808  | 2.43         |                 | 97.3 | 14217  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |        |       |
| 713.00 > 169.00                       | 4.564 | 4.570  | -0.006 | 1.000  | 862847   | 2.47         |                 | 98.6 | 9797   |       |
| 713.00 > 219.00                       | 4.564 | 4.570  | -0.006 | 1.000  | 611740   |              | 1.41(0.71-2.13) | 98.6 | 12376  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |        |       |
| 815.00 > 770.00                       | 4.985 | 4.982  | 0.003  | 1.834  | 6451812  | 2.53         |                 | 101  | 15811  |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |        |       |
| 813.00 > 769.00                       | 4.985 | 4.983  | 0.002  | 1.000  | 6268380  | NC           |                 |      | 2228   |       |
| 813.00 > 169.00                       | 4.985 | 4.983  | 0.002  | 1.000  | 1018757  |              | 6.15(2.86-8.58) |      | 6433   |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.344 | 5.346     | -0.002    | 1.072     | 7044203  | NC              |                  |      | 1673 |       |
| 913.00 > 169.00               | 5.344 | 5.346     | -0.002    | 1.072     | 854671   |                 | 8.24(3.83-11.48) |      | 6186 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL5\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_006.d

Injection Date: 05-Jun-2018 14:59:58

Instrument ID: A8\_N

Lims ID: IC L5 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 51

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

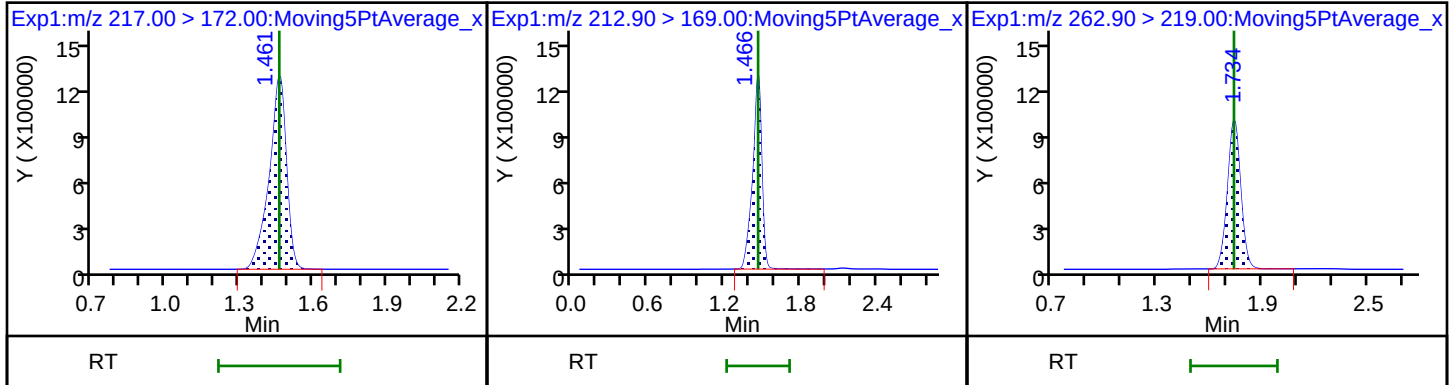
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

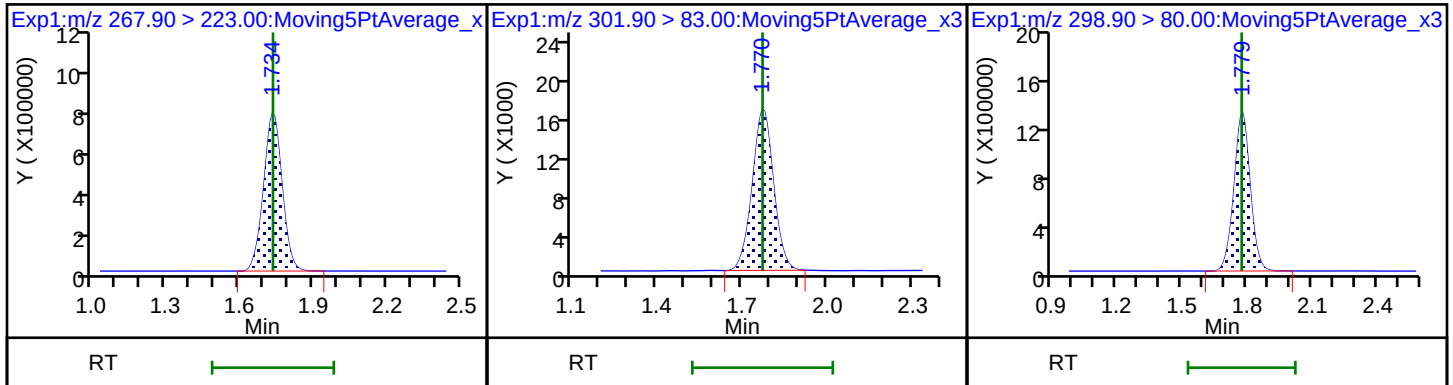
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

D 47 13C3-PFBS

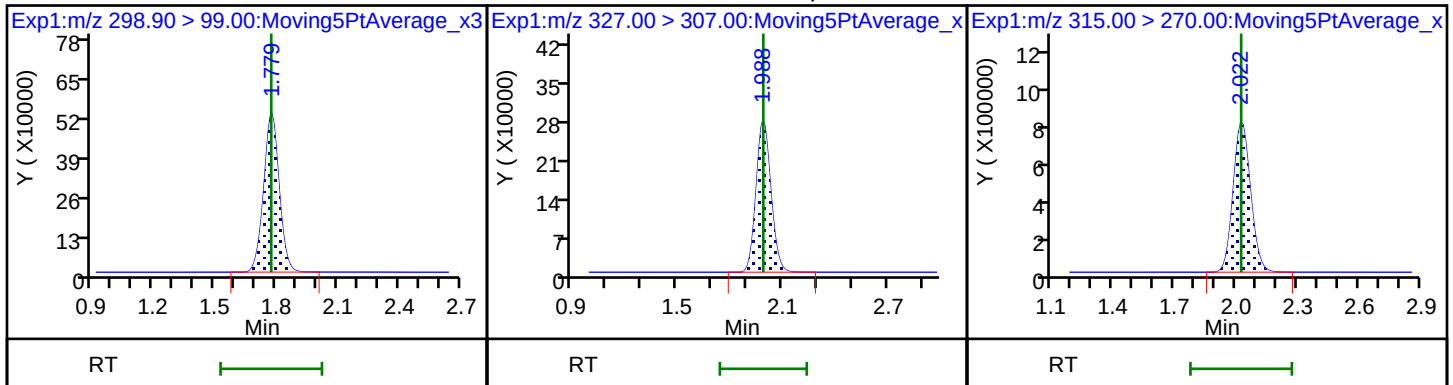
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoate

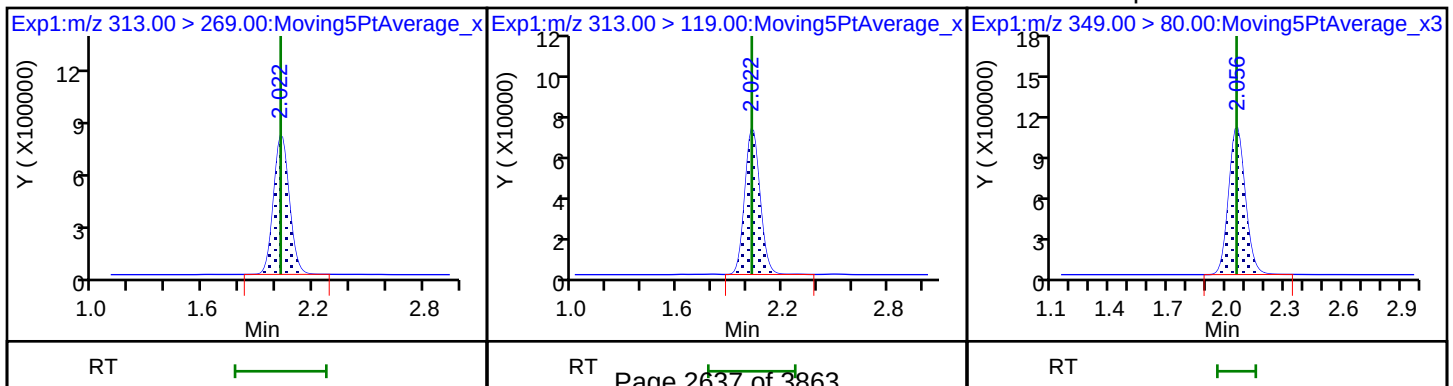
De 7 13C2 PFHxA

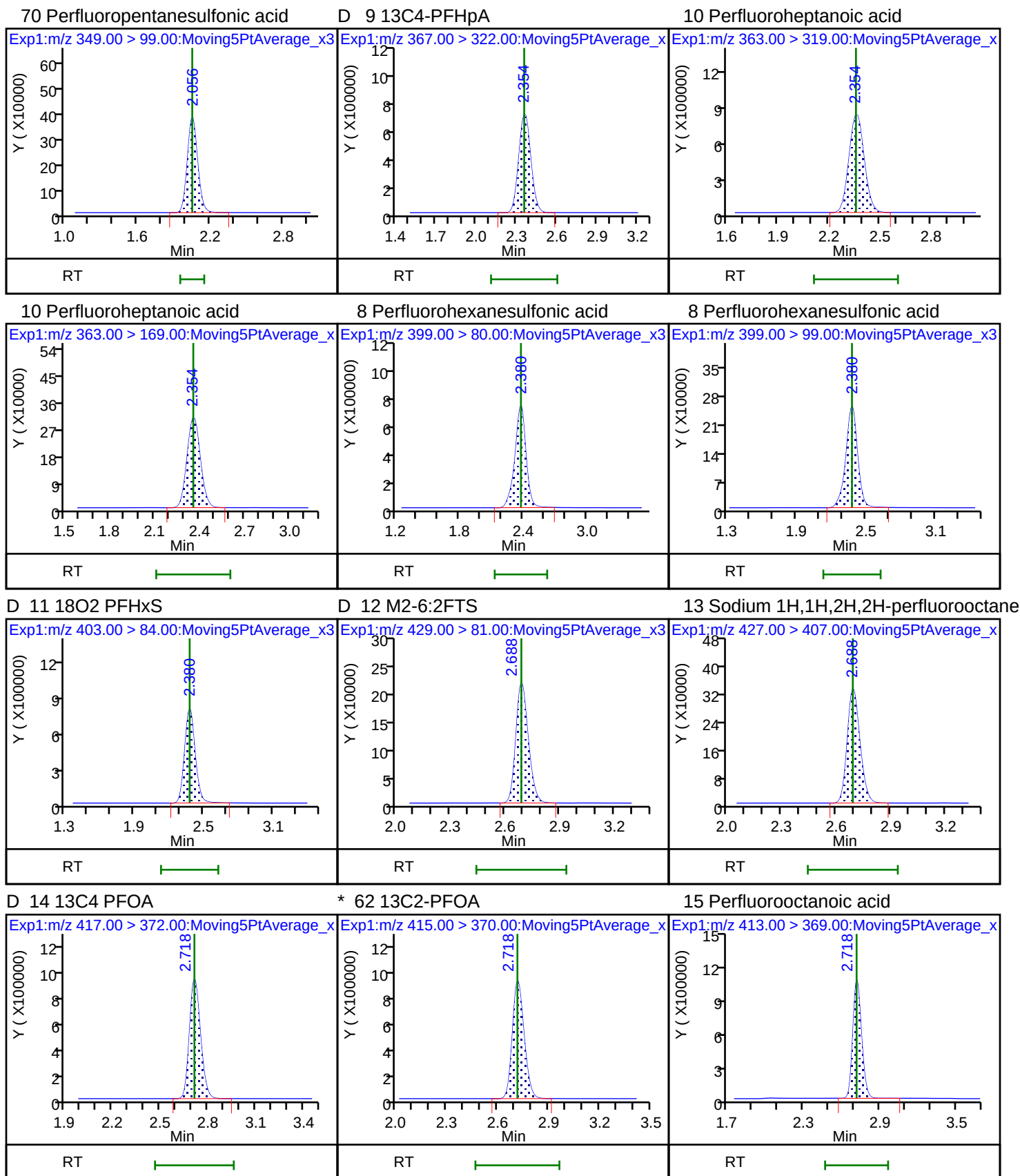


6 Perfluorohexanoic acid

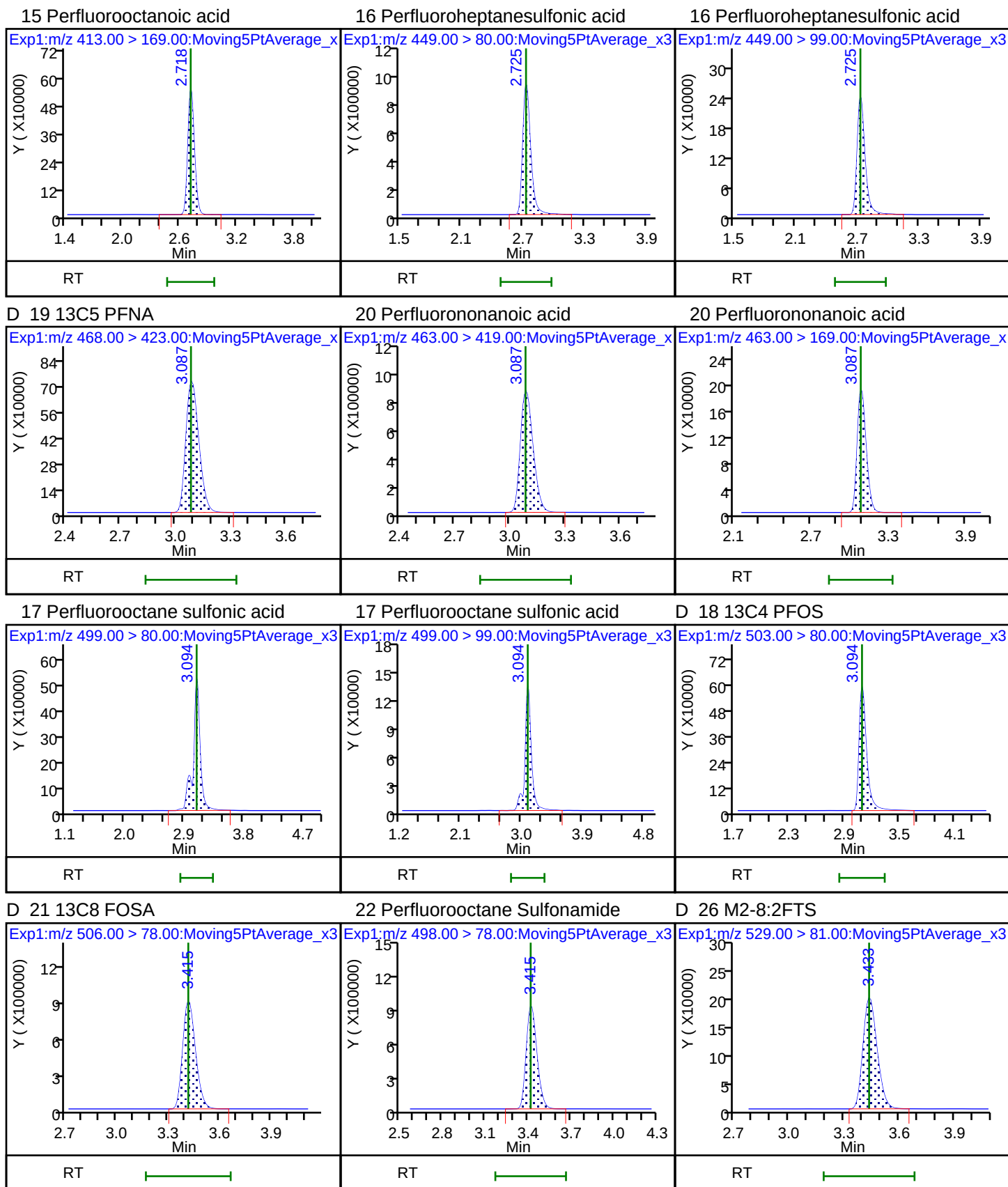
6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid



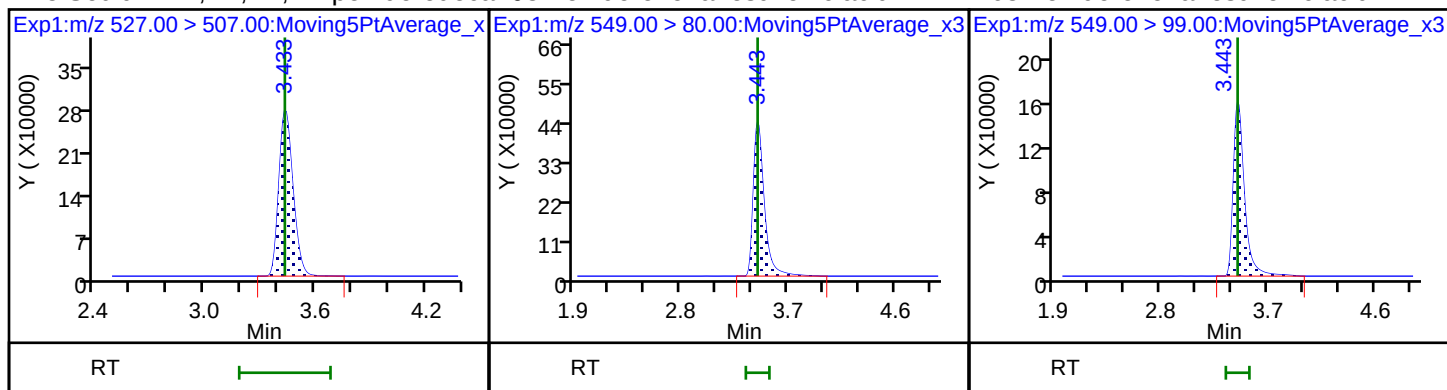






## 25 Sodium 1H,1H,2H,2H-perfluorodecan-68 Perfluorononanesulfonic acid

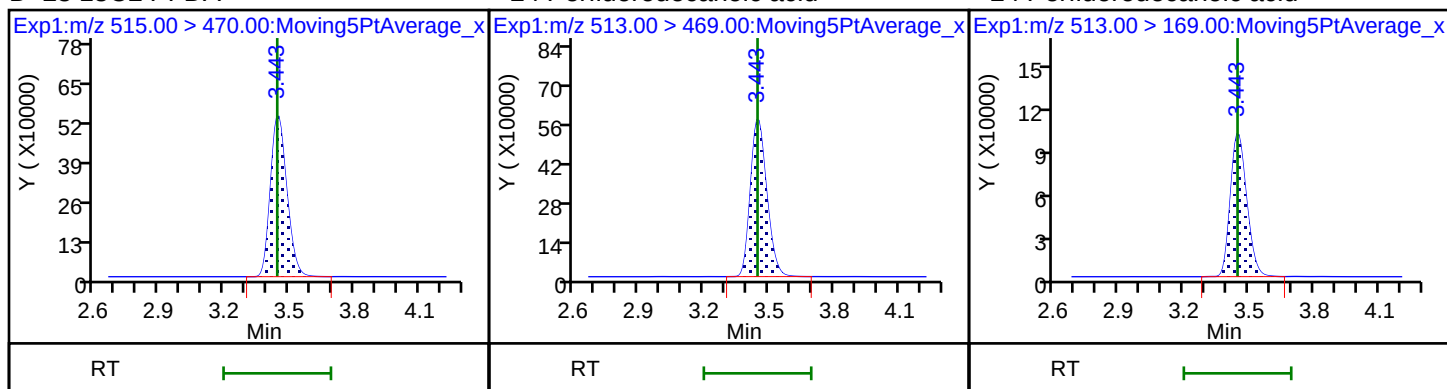
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

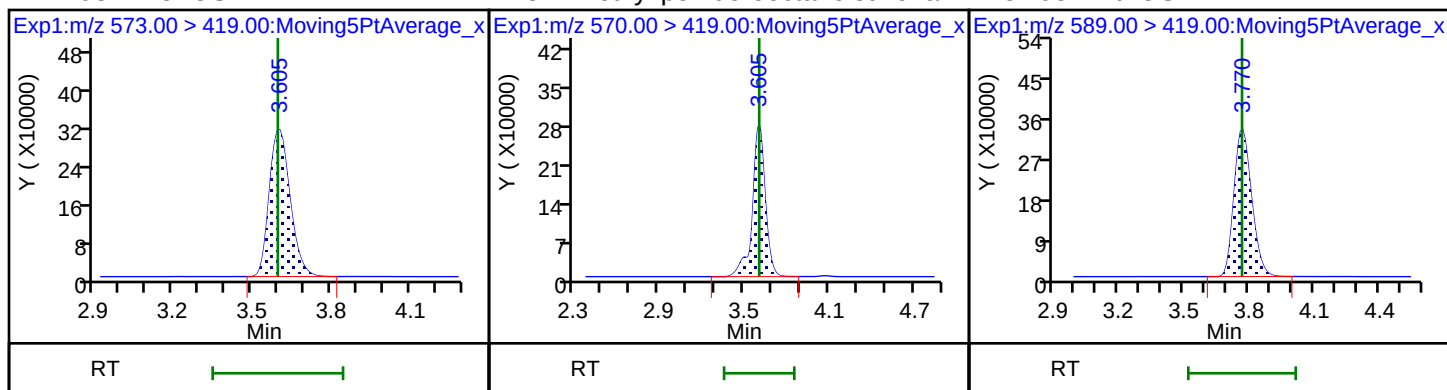
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamid

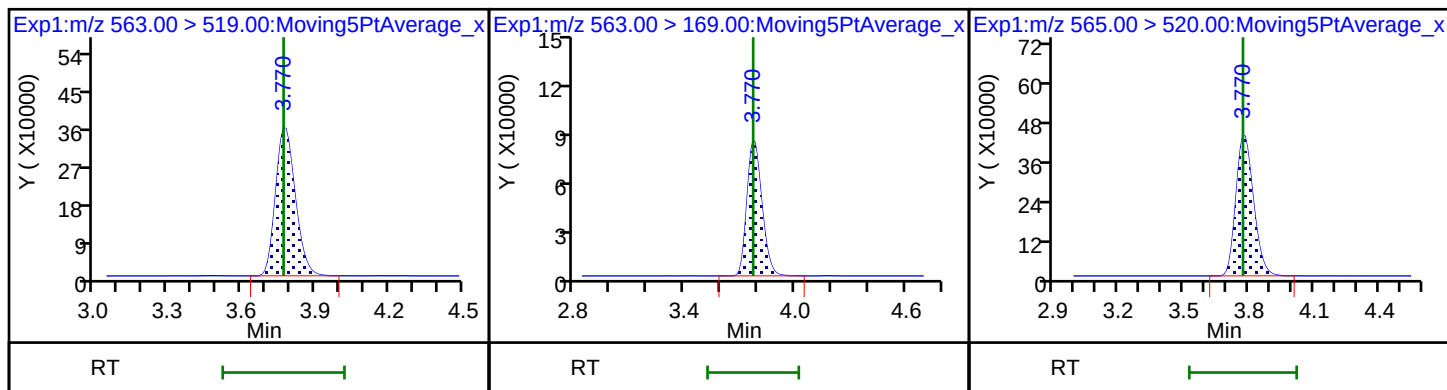
## 32 d5-NEtFOSAA

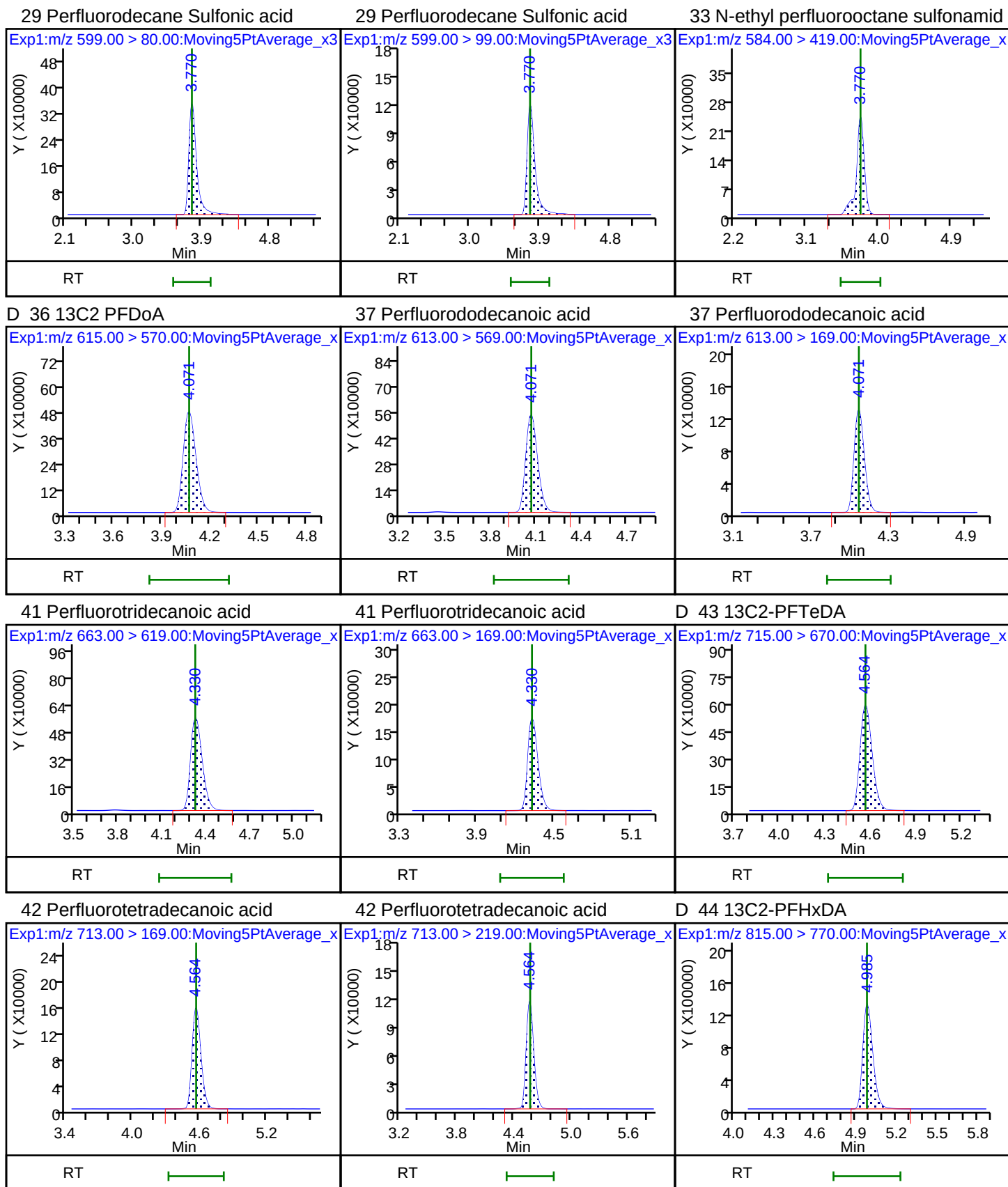


## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA







TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_007.d  
 Lims ID: IC L6 Full  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 05-Jun-2018 15:07:46 ALS Bottle#: 52 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L6-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:09:14 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:57:06

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.458 | 1.462  | -0.004 | 0.539  | 6071080  | 2.56         |                   | 102  | 34684  |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.458 | 1.463  | -0.005 | 1.000  | 12165637 | 4.80         |                   | 96.1 | 6602   |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.729 | 1.736  | -0.007 | 1.000  | 10038078 | 5.05         |                   | 101  | 7277   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.729 | 1.736  | -0.007 | 0.639  | 4094010  | 2.55         |                   | 102  | 55890  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.765 | 1.772  | -0.007 | 0.653  | 84852    | 2.39         |                   | 103  | 651    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.765 | 1.774  | -0.009 | 1.000  | 12453648 | 4.40         |                   | 99.5 | 39151  |       |
| 298.90 > 99.00                        | 1.765 | 1.774  | -0.009 | 1.000  | 5325223  |              | 2.34(1.25-3.74)   | 99.5 | 40560  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.981 | 1.990  | -0.009 | 0.732  | 651788   | NC           |                   |      | 6925   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.981 | 1.990  | -0.009 | 1.122  | 3341196  | 4.76         |                   | 102  | 144094 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.014 | 2.023  | -0.009 | 0.745  | 4384399  | 2.57         |                   | 103  | 52795  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.014 | 2.023  | -0.009 | 1.000  | 8979689  | 4.71         |                   | 94.1 | 15805  |       |
| 313.00 > 119.00                       | 2.014 | 2.023  | -0.009 | 1.000  | 822672   |              | 10.92(5.03-15.10) | 94.1 | 12477  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.048 | 2.051  | -0.003 | 1.160  | 11805538 | 4.64         |                   | 98.8 | 88993  |       |
| 349.00 > 99.00                        | 2.048 | 2.051  | -0.003 | 1.160  | 4506050  |              | 2.62(1.36-4.07)   | 98.8 | 41977  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |        |       |
| 329.10 > 285.00                       | 2.116 | 2.125  | -0.009 | 1.000  | 1450070  | NC           |                   |      | 9426   |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                 |      |        |       |
| 332.10 > 287.00                       | 2.116 | 2.125     | -0.009    | 0.782     | 189554   | NC              |                 |      | 3899   |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |        |       |
| 367.00 > 322.00                       | 2.345 | 2.356     | -0.011    | 0.867     | 4158596  | 2.53            |                 | 101  | 41243  |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |        |       |
| 363.00 > 319.00                       | 2.358 | 2.358     | 0.0       | 1.006     | 9369847  | 4.97            |                 | 99.3 | 11522  |       |
| 363.00 > 169.00                       | 2.358 | 2.358     | 0.0       | 1.006     | 3651806  |                 | 2.57(1.13-3.40) | 99.3 | 16047  |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 399.00 > 80.00                        | 2.372 | 2.377     | -0.005    | 1.000     | 10213097 | 4.51            |                 | 99.1 | 17355  |       |
| 399.00 > 99.00                        | 2.372 | 2.377     | -0.005    | 1.000     | 3467804  |                 | 2.95(1.50-4.49) | 99.1 | 11668  |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |        |       |
| 403.00 > 84.00                        | 2.372 | 2.378     | -0.006    | 0.877     | 4672624  | 2.34            |                 | 99.0 | 40512  |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |        |       |
| 377.00 > 251.00                       | 2.395 | 2.403     | -0.008    | 0.777     | 25408190 | NC              |                 |      | 130987 |       |
| 377.00 > 85.00                        | 2.395 | 2.403     | -0.008    | 0.777     | 15797230 |                 | 1.61(0.84-2.53) |      | 82282  |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |        |       |
| 429.00 > 81.00                        | 2.682 | 2.689     | -0.007    | 0.992     | 969154   | 2.37            |                 | 99.7 | 14524  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |        |       |
| 427.00 > 407.00                       | 2.682 | 2.690     | -0.008    | 1.000     | 3210186  | 4.58            |                 | 96.5 | 24433  |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 417.00 > 372.00                       | 2.705 | 2.714     | -0.009    | 1.000     | 4190761  | 2.56            |                 | 103  | 71614  |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 415.00 > 370.00                       | 2.705 | 2.714     | -0.009    |           | 4236849  | 2.50            |                 |      | 41108  |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 413.00 > 369.00                       | 2.712 | 2.715     | -0.003    | 1.003     | 9701900  | 4.81            |                 | 96.2 | 3657   |       |
| 413.00 > 169.00                       | 2.712 | 2.715     | -0.003    | 1.003     | 4992383  |                 | 1.94(0.84-2.52) | 96.2 | 16276  |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 449.00 > 80.00                        | 2.720 | 2.727     | -0.007    | 0.882     | 9240089  | 4.95            |                 | 104  | 34864  |       |
| 449.00 > 99.00                        | 2.720 | 2.727     | -0.007    | 0.882     | 2407258  |                 | 3.84(1.94-5.82) | 104  | 88135  |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |        |       |
| 468.00 > 423.00                       | 3.075 | 3.084     | -0.009    | 1.137     | 3507927  | 2.54            |                 | 102  | 48642  |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 463.00 > 419.00                       | 3.075 | 3.085     | -0.010    | 1.000     | 7444457  | 4.93            |                 | 98.6 | 19404  |       |
| 463.00 > 169.00                       | 3.083 | 3.085     | -0.002    | 1.003     | 1752719  |                 | 4.25(1.90-5.69) | 98.6 | 45099  |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 499.00 > 80.00                        | 3.083 | 3.091     | -0.008    | 1.000     | 7439087  | 4.61            |                 | 99.3 | 67726  |       |
| 499.00 > 99.00                        | 3.083 | 3.091     | -0.008    | 1.000     | 1558361  |                 | 4.77(2.31-6.93) | 99.3 | 16237  |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                        | 3.083 | 3.092     | -0.009    | 1.140     | 3249167  | 2.40            |                 | 100  | 16708  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |        |       |
| 531.00 > 351.00                       | 3.290 | 3.300     | -0.010    | 1.067     | 12230805 | NC              |                 |      | 170541 |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |        |       |
| 506.00 > 78.00                        | 3.410 | 3.417     | -0.007    | 1.261     | 4331460  | 2.54            |                 | 101  | 56393  |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |        |       |
| 498.00 > 78.00                        | 3.410 | 3.417     | -0.007    | 1.000     | 9090745  | 5.05            |                 | 101  | 63064  |       |
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                 |      |        |       |
| 529.00 > 81.00                        | 3.429 | 3.435     | -0.006    | 1.268     | 1049042  | 2.46            |                 | 103  | 15416  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |        |       |
| 527.00 > 507.00                       | 3.429 | 3.435  | -0.006 | 1.000  | 2788951  | 4.64         |                 | 96.9 | 58647  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.438 | 3.443  | -0.005 | 1.115  | 5249427  | 4.94         |                 | 103  | 68931  |       |
| 549.00 > 99.00                        | 3.438 | 3.443  | -0.005 | 1.115  | 1865217  |              | 2.81(1.33-3.97) | 103  | 57253  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |        |       |
| 515.00 > 470.00                       | 3.438 | 3.445  | -0.007 | 1.271  | 2830080  | 2.54         |                 | 102  | 48671  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 513.00 > 469.00                       | 3.438 | 3.446  | -0.008 | 1.000  | 5982396  | 4.94         |                 | 98.9 | 29485  |       |
| 513.00 > 169.00                       | 3.438 | 3.446  | -0.008 | 1.000  | 1043904  |              | 5.73(2.36-7.09) | 98.9 | 22151  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |        |       |
| 573.00 > 419.00                       | 3.588 | 3.598  | -0.010 | 1.327  | 1629652  | 2.47         |                 | 99.0 | 16382  |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |        |       |
| 570.00 > 419.00                       | 3.599 | 3.605  | -0.006 | 1.003  | 3341332  | 5.14         |                 | 103  | 20639  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |        |       |
| 589.00 > 419.00                       | 3.764 | 3.767  | -0.003 | 1.392  | 1698178  | 2.41         |                 | 96.4 | 13542  |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |        |       |
| 563.00 > 519.00                       | 3.764 | 3.771  | -0.007 | 1.000  | 3754999  | 4.84         |                 | 96.8 | 18472  |       |
| 563.00 > 169.00                       | 3.764 | 3.771  | -0.007 | 1.000  | 883786   |              | 4.25(2.12-6.36) | 96.8 | 17237  |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |        |       |
| 565.00 > 520.00                       | 3.764 | 3.771  | -0.007 | 1.392  | 2295440  | 2.48         |                 | 99.3 | 40327  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 599.00 > 80.00                        | 3.764 | 3.773  | -0.009 | 1.221  | 4520146  | 4.82         |                 | 100  | 64510  |       |
| 599.00 > 99.00                        | 3.764 | 3.773  | -0.009 | 1.221  | 1502249  |              | 3.01(1.39-4.16) | 100  | 52143  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |        |       |
| 584.00 > 419.00                       | 3.764 | 3.773  | -0.009 | 1.000  | 3042773  | 5.12         |                 | 102  | 28398  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |        |       |
| 631.00 > 451.00                       | 3.933 | 3.939  | -0.006 | 1.276  | 18421443 | NC           |                 |      | 516337 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |        |       |
| 615.00 > 570.00                       | 4.066 | 4.070  | -0.004 | 1.503  | 2510329  | 2.54         |                 | 101  | 15850  |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |        |       |
| 613.00 > 569.00                       | 4.066 | 4.070  | -0.004 | 1.000  | 5314076  | 4.82         |                 | 96.3 | 5963   |       |
| 613.00 > 169.00                       | 4.066 | 4.070  | -0.004 | 1.000  | 1302522  |              | 4.08(2.13-6.40) | 96.3 | 15945  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |        |       |
| 663.00 > 619.00                       | 4.326 | 4.329  | -0.003 | 1.064  | 5915808  | 5.06         |                 | 101  | 5771   |       |
| 663.00 > 169.00                       | 4.326 | 4.329  | -0.003 | 1.064  | 1847986  |              | 3.20(1.25-3.76) | 101  | 13777  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |        |       |
| 715.00 > 670.00                       | 4.561 | 4.568  | -0.007 | 1.687  | 3326246  | 2.59         |                 | 104  | 14102  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |        |       |
| 713.00 > 169.00                       | 4.561 | 4.570  | -0.009 | 1.000  | 1680275  | 4.69         |                 | 93.9 | 14475  |       |
| 713.00 > 219.00                       | 4.561 | 4.570  | -0.009 | 1.000  | 1224333  |              | 1.37(0.71-2.13) | 93.9 | 14753  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |        |       |
| 815.00 > 770.00                       | 4.974 | 4.982  | -0.008 | 1.839  | 6044992  | 2.46         |                 | 98.6 | 14325  |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |        |       |
| 813.00 > 769.00                       | 4.982 | 4.983  | -0.001 | 1.002  | 12196948 | NC           |                 |      | 4197   |       |
| 813.00 > 169.00                       | 4.982 | 4.983  | -0.001 | 1.002  | 1989308  |              | 6.13(2.86-8.58) |      | 10482  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.342 | 5.346     | -0.004    | 1.074     | 13350780 | NC              |                  |      | 2852 |       |
| 913.00 > 169.00               | 5.342 | 5.346     | -0.004    | 1.074     | 1568471  |                 | 8.51(3.83-11.48) |      | 7965 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL6\_00006

Amount Added: 1.00

Units: mL



## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_007.d

Injection Date: 05-Jun-2018 15:07:46

Instrument ID: A8\_N

Lims ID: IC L6 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 52

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

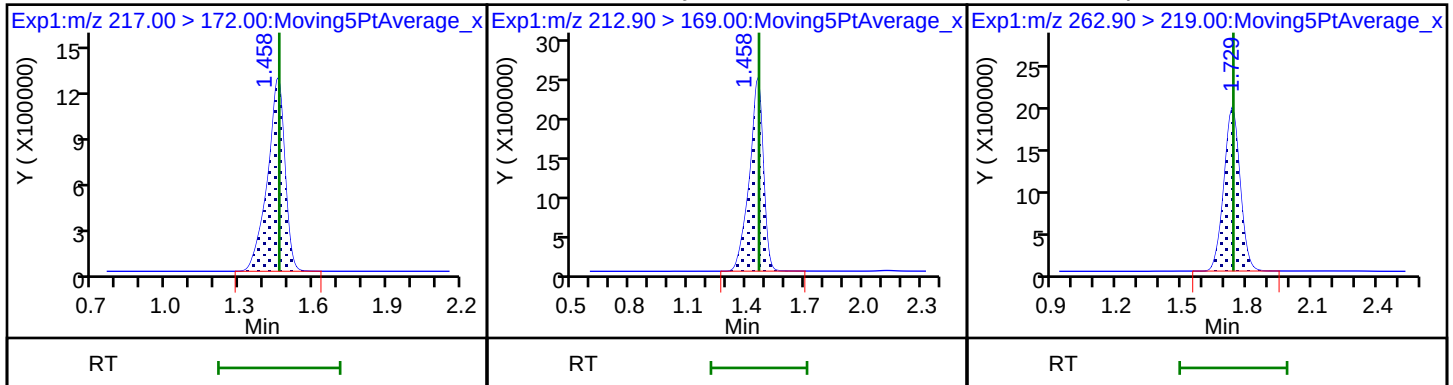
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

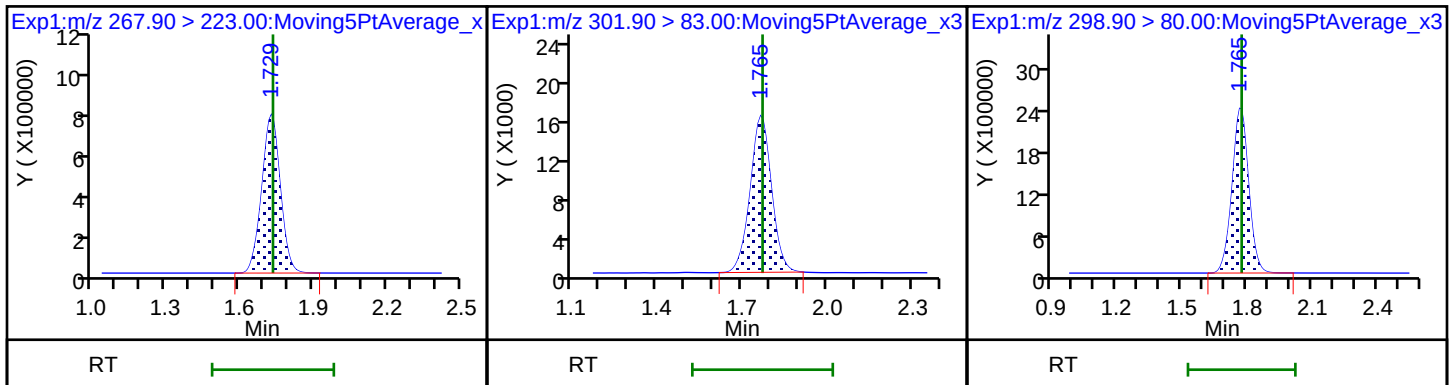
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

D 47 13C3-PFBS

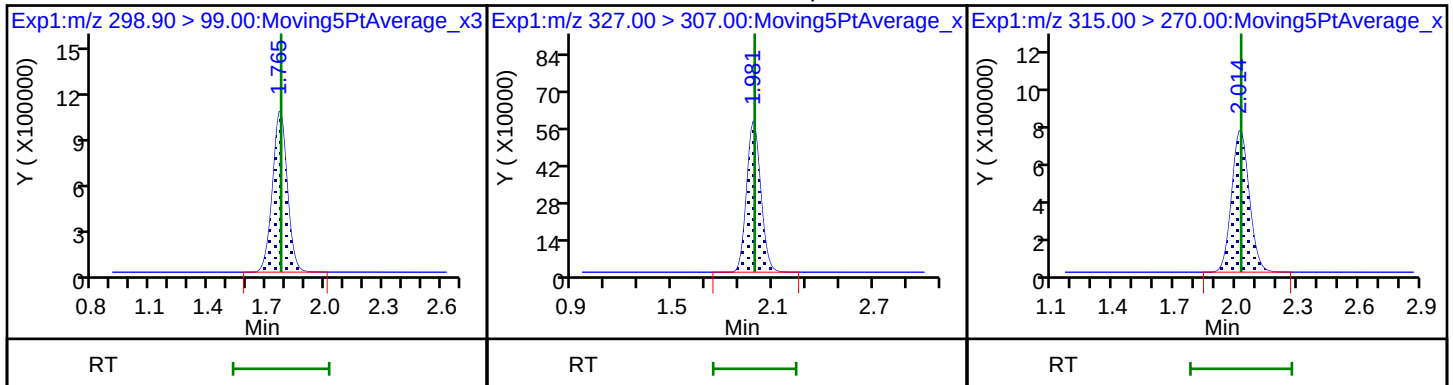
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoate

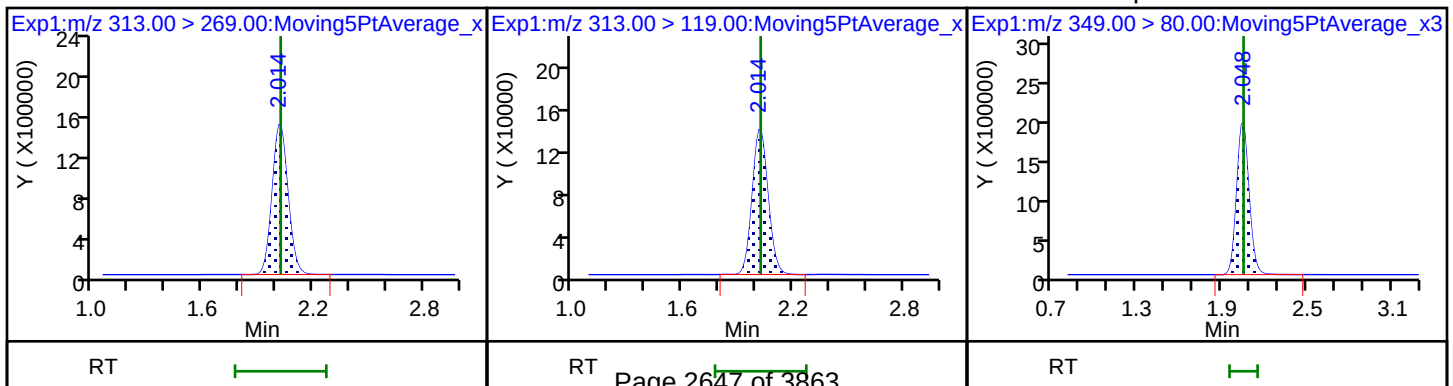
De 7 13C2 PFHxA

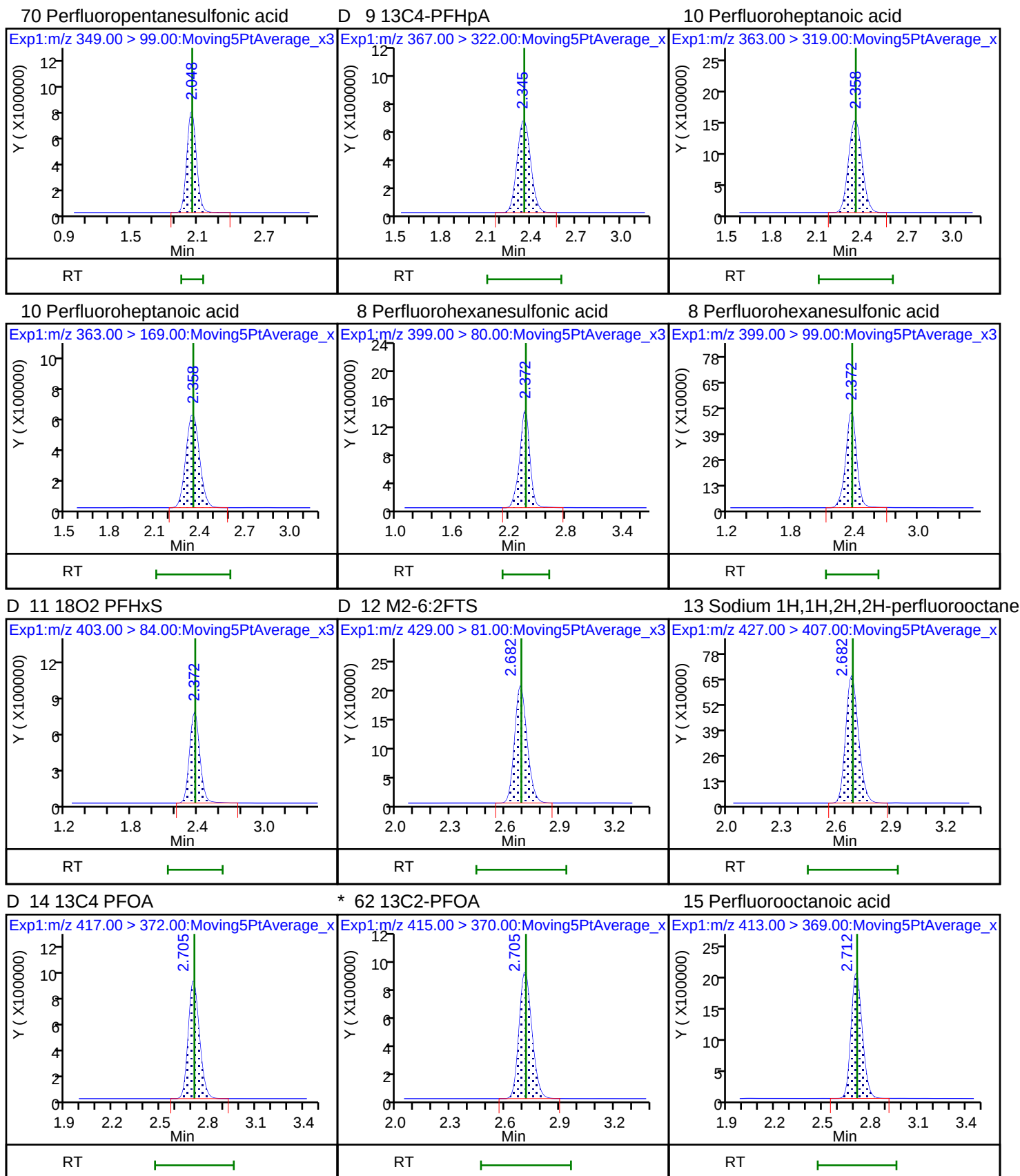


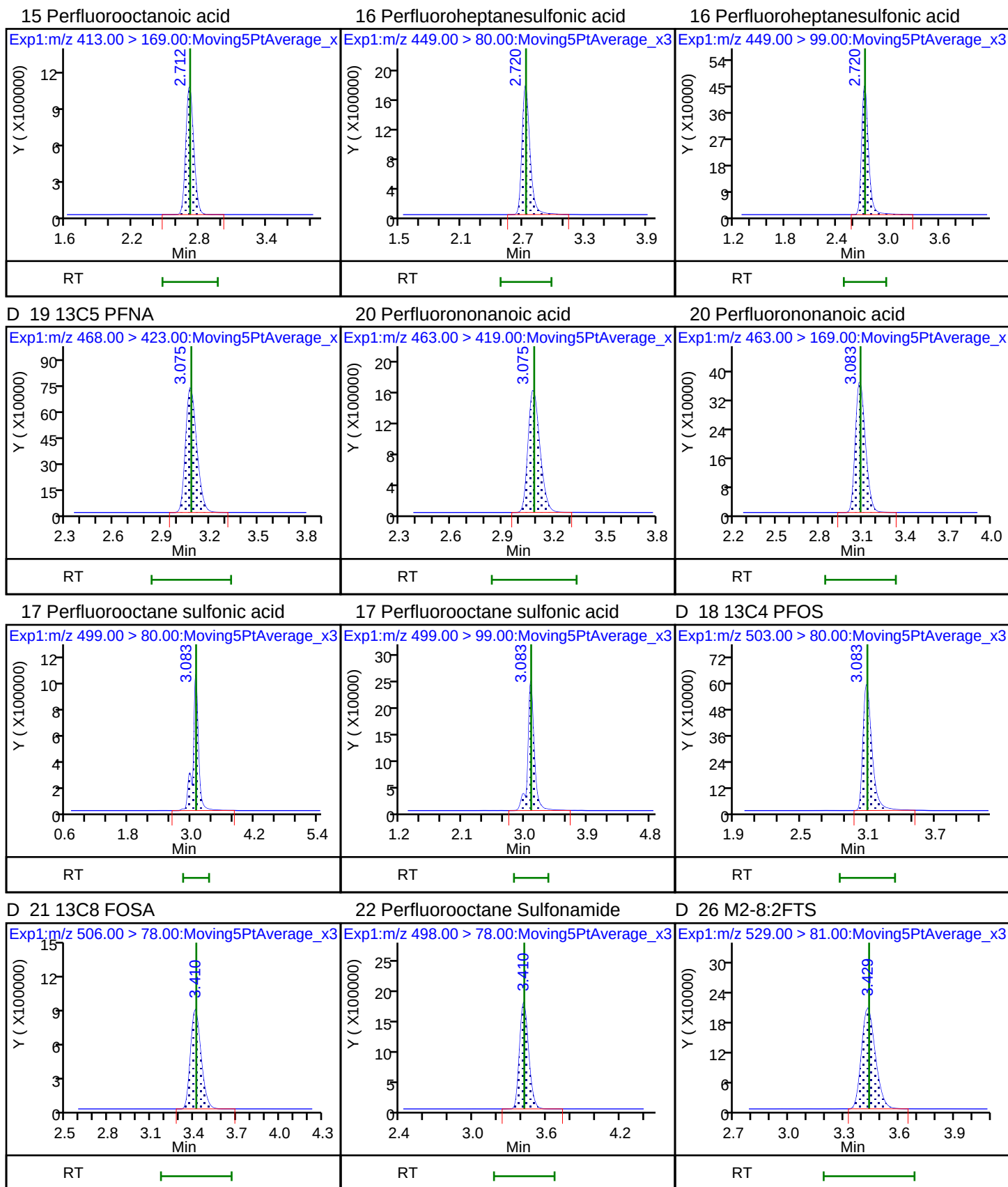
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid

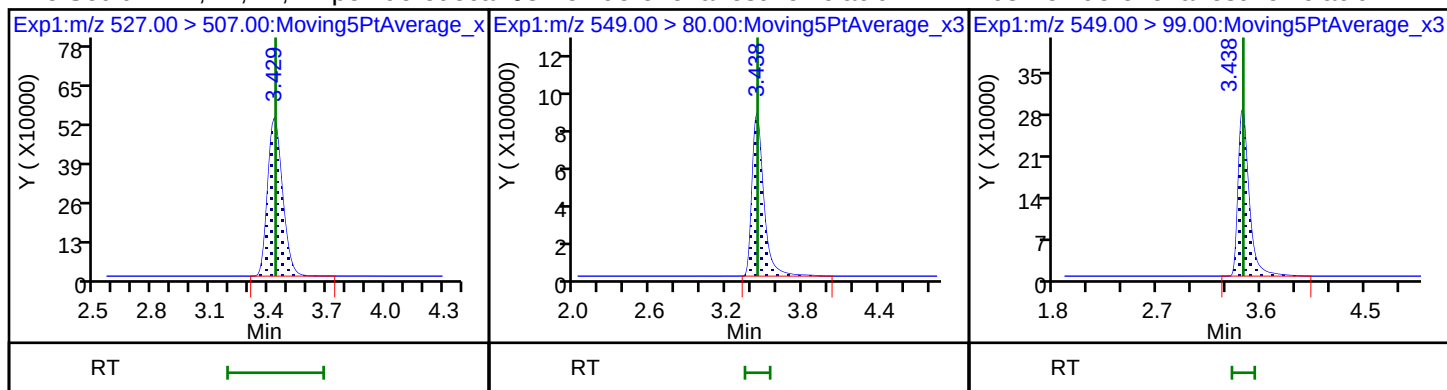






## 25 Sodium 1H,1H,2H,2H-perfluorodecan-6-yl sulfonate

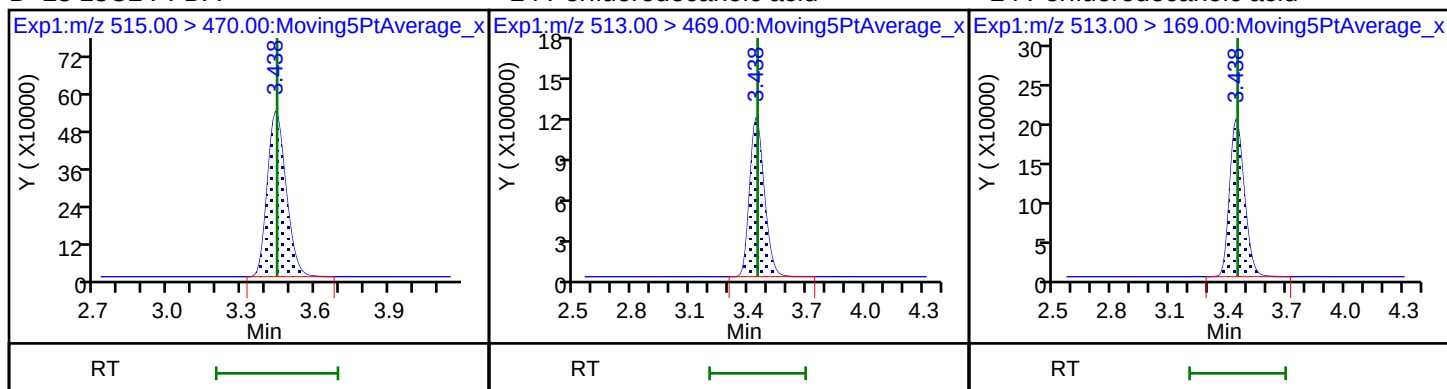
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

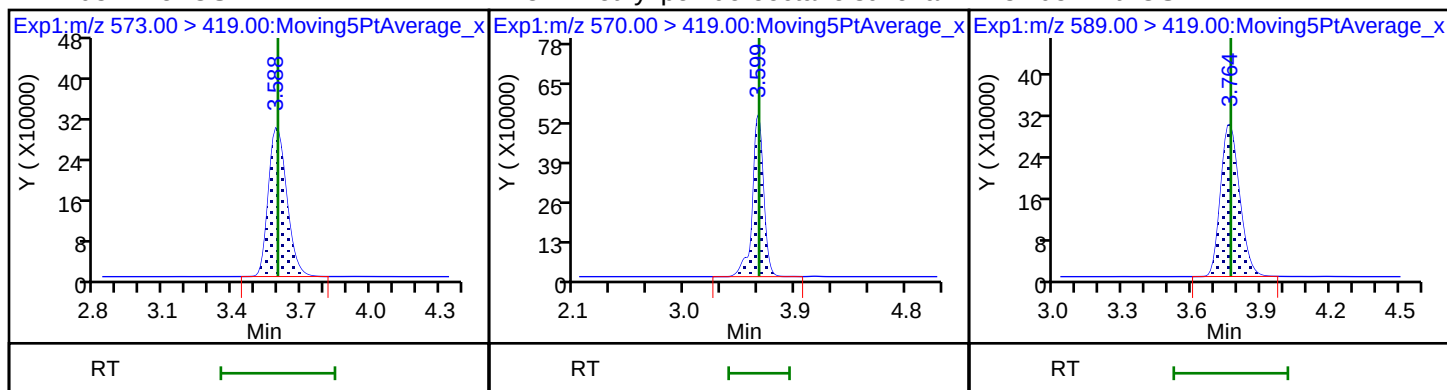
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamide

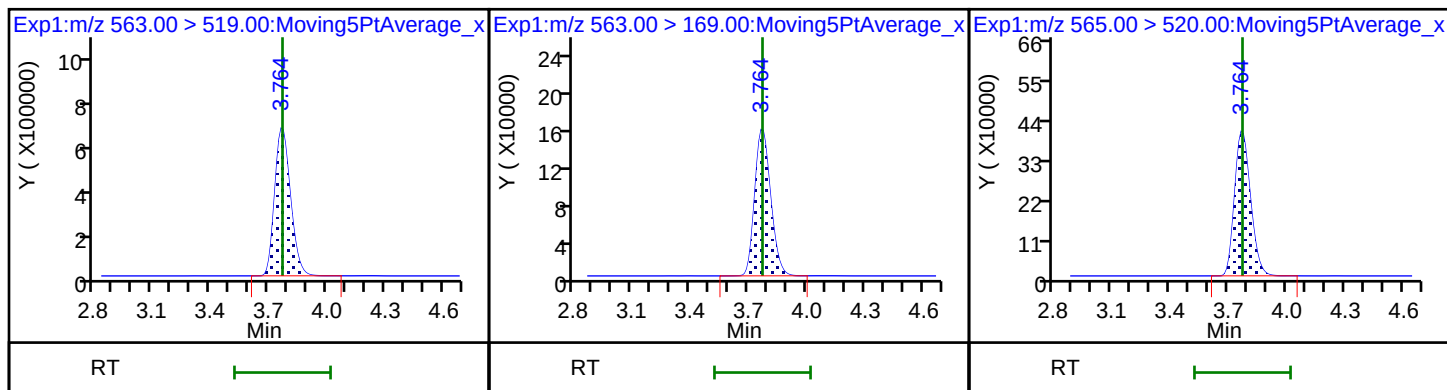
## 32 d5-NEtFOSAA

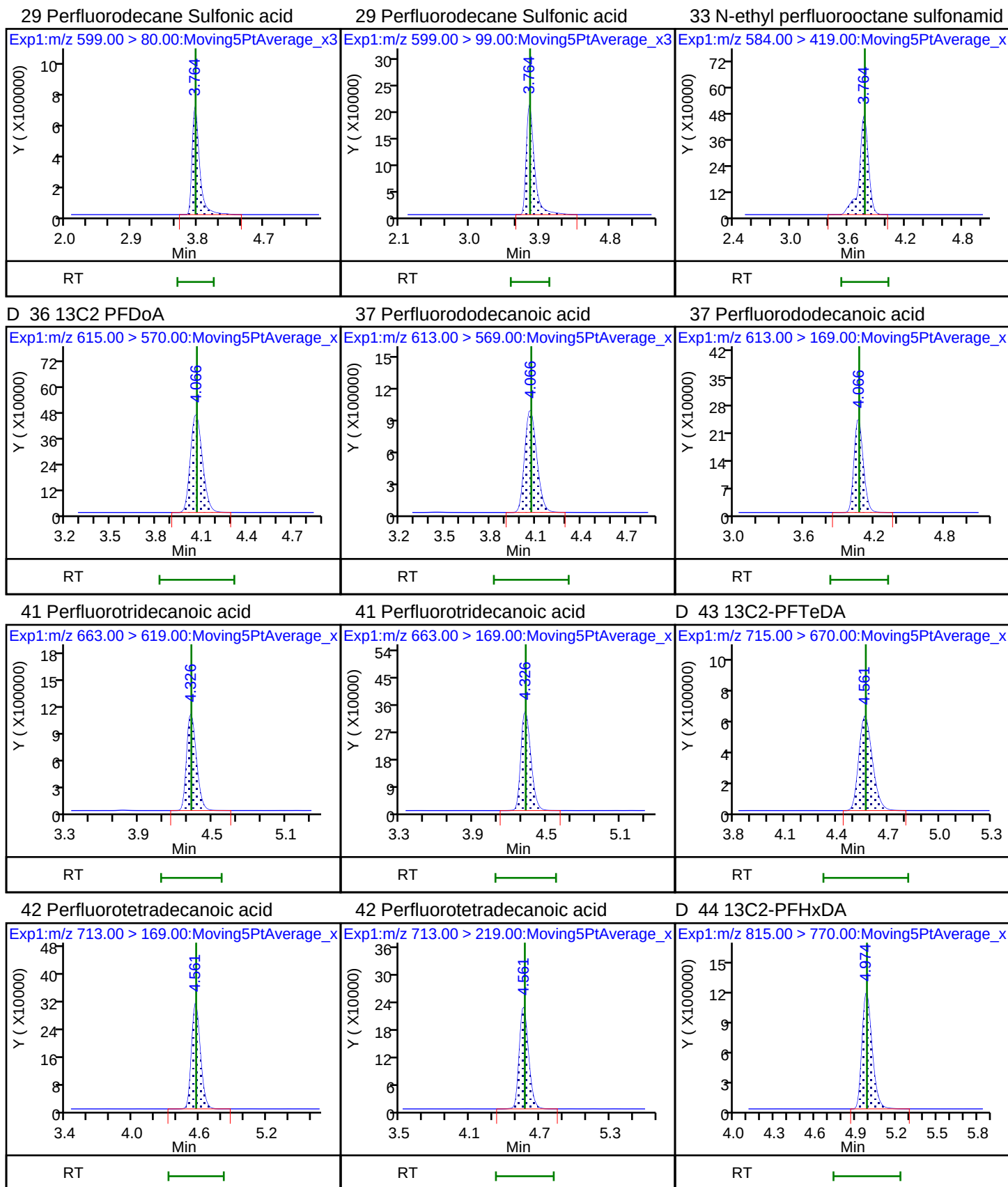


## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA







TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d  
 Lims ID: IC L7 Full  
 Client ID:  
 Sample Type: IC Calib Level: 7  
 Inject. Date: 05-Jun-2018 15:15:34 ALS Bottle#: 53 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L7-FULL  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 05-Jun-2018 17:09:17 Calib Date: 05-Jun-2018 15:15:34  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Column 1 : Det: EXP1

Process Host: XAWRK003

First Level Reviewer: phomsophat

Date: 05-Jun-2018 15:57:19

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.464 | 1.462  | 0.002  | 0.539  | 5773717  | 2.55         |                   | 102  | 31741  |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.464 | 1.463  | 0.001  | 1.000  | 23084851 | 9.59         |                   | 95.9 | 12755  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.739 | 1.736  | 0.003  | 1.000  | 18018439 | 9.62         |                   | 96.2 | 13629  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.739 | 1.736  | 0.003  | 0.641  | 3854315  | 2.51         |                   | 100  | 51574  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.775 | 1.772  | 0.003  | 0.654  | 80901    | 2.38         |                   | 103  | 706    |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.775 | 1.774  | 0.001  | 1.000  | 22887561 | 8.48         |                   | 95.9 | 69668  |       |
| 298.90 > 99.00                        | 1.775 | 1.774  | 0.001  | 1.000  | 9982807  |              | 2.29(1.25-3.74)   | 95.9 | 72403  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.993 | 1.990  | 0.003  | 0.734  | 577111   | NC           |                   |      | 5402   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.993 | 1.990  | 0.003  | 1.123  | 5836570  | 8.73         |                   | 93.4 | 196640 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.027 | 2.023  | 0.004  | 0.747  | 4089622  | 2.51         |                   | 100  | 62258  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.027 | 2.023  | 0.004  | 1.000  | 16956861 | 9.53         |                   | 95.3 | 30228  |       |
| 313.00 > 119.00                       | 2.027 | 2.023  | 0.004  | 1.000  | 1605153  |              | 10.56(5.03-15.10) | 95.3 | 22477  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.050 | 2.051  | -0.001 | 1.155  | 21707651 | 8.94         |                   | 95.3 | 149769 |       |
| 349.00 > 99.00                        | 2.050 | 2.051  | -0.001 | 1.155  | 8520233  |              | 2.55(1.36-4.07)   | 95.3 | 89325  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |        |       |
| 329.10 > 285.00                       | 2.129 | 2.125  | 0.004  | 1.000  | 2700893  | NC           |                   |      | 14196  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |        |       |
| 332.10 > 287.00                       | 2.129 | 2.125  | 0.004  | 0.784  | 189873   | NC           |                 |      | 4485   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                       | 2.360 | 2.356  | 0.004  | 0.870  | 3907099  | 2.48         |                 | 99.3 | 48328  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.360 | 2.358  | 0.002  | 1.000  | 16840878 | 9.50         |                 | 95.0 | 17456  |       |
| 363.00 > 169.00                       | 2.360 | 2.358  | 0.002  | 1.000  | 7115161  |              | 2.37(1.13-3.40) | 95.0 | 29143  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.373 | 2.377  | -0.004 | 1.000  | 18882579 | 8.76         |                 | 96.2 | 19954  |       |
| 399.00 > 99.00                        | 2.373 | 2.377  | -0.004 | 1.000  | 6476946  |              | 2.92(1.50-4.49) | 96.2 | 20401  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.373 | 2.378  | -0.005 | 0.875  | 4447895  | 2.33         |                 | 98.6 | 43395  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |        |       |
| 377.00 > 251.00                       | 2.408 | 2.403  | 0.005  | 0.778  | 42382949 | NC           |                 |      | 201202 |       |
| 377.00 > 85.00                        | 2.408 | 2.403  | 0.005  | 0.778  | 27271538 |              | 1.55(0.84-2.53) |      | 127360 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.691 | 2.689  | 0.002  | 0.992  | 894885   | 2.29         |                 | 96.4 | 16738  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.691 | 2.690  | 0.001  | 1.000  | 5929389  | 9.15         |                 | 96.6 | 43513  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.714 | 2.714  | 0.0    | 1.000  | 4047574  | 2.59         |                 | 104  | 55403  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.714 | 2.714  | 0.0    |        | 4048370  | 2.50         |                 |      | 45524  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.714 | 2.715  | -0.001 | 1.000  | 17622615 | 9.05         |                 | 90.4 | 7381   |       |
| 413.00 > 169.00                       | 2.714 | 2.715  | -0.001 | 1.000  | 9454668  |              | 1.86(0.84-2.52) | 90.4 | 22746  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.729 | 2.727  | 0.002  | 0.882  | 17163051 | 9.66         |                 | 102  | 49567  |       |
| 449.00 > 99.00                        | 2.729 | 2.727  | 0.002  | 0.882  | 4551313  |              | 3.77(1.94-5.82) | 102  | 85450  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.087 | 3.084  | 0.003  | 1.138  | 3313564  | 2.51         |                 | 101  | 40950  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                       | 3.087 | 3.085  | 0.002  | 1.000  | 14341016 | 10.1         |                 | 101  | 35655  |       |
| 463.00 > 169.00                       | 3.087 | 3.085  | 0.002  | 1.000  | 3490816  |              | 4.11(1.90-5.69) | 101  | 90377  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.094 | 3.091  | 0.003  | 1.000  | 14263799 | 9.29         |                 | 100  | 192180 |       |
| 499.00 > 99.00                        | 3.094 | 3.091  | 0.003  | 1.000  | 2990823  |              | 4.77(2.31-6.93) | 100  | 23539  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.094 | 3.092  | 0.002  | 1.140  | 3088993  | 2.39         |                 | 99.9 | 26489  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |        |       |
| 531.00 > 351.00                       | 3.303 | 3.300  | 0.003  | 1.067  | 22426858 | NC           |                 |      | 179663 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.417 | 3.417  | 0.0    | 1.259  | 4079339  | 2.50         |                 | 100  | 43706  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 17114560 | 10.1         |                 | 101  | 148453 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 529.00 > 81.00                        | 3.436 | 3.435  | 0.001  | 1.266  | 926421   | 2.28         |                 | 95.0 | 14525  |       |



| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec  | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|-------|--------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                 |       |        |       |
| 527.00 > 507.00                       | 3.436 | 3.435     | 0.001     | 1.000     | 5080289  | 9.58            |                 | 100.0 | 49640  |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |       |        |       |
| 549.00 > 80.00                        | 3.445 | 3.443     | 0.002     | 1.113     | 10026596 | 9.92            |                 | 103   | 92722  |       |
| 549.00 > 99.00                        | 3.445 | 3.443     | 0.002     | 1.113     | 3604417  |                 | 2.78(1.33-3.97) | 103   | 139806 |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                 |       |        |       |
| 515.00 > 470.00                       | 3.445 | 3.445     | 0.0       | 1.270     | 2554258  | 2.40            |                 | 96.1  | 39675  |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                 |       |        |       |
| 513.00 > 469.00                       | 3.445 | 3.446     | -0.001    | 1.000     | 10860215 | 9.95            |                 | 99.5  | 60332  |       |
| 513.00 > 169.00                       | 3.445 | 3.446     | -0.001    | 1.000     | 1872110  |                 | 5.80(2.36-7.09) | 99.5  | 31247  |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                 |       |        |       |
| 573.00 > 419.00                       | 3.598 | 3.598     | 0.0       | 1.326     | 1580798  | 2.51            |                 | 100   | 20091  |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                 |       |        |       |
| 570.00 > 419.00                       | 3.608 | 3.605     | 0.003     | 1.003     | 6625159  | 10.5            |                 | 105   | 30469  |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                 |       |        |       |
| 589.00 > 419.00                       | 3.763 | 3.767     | -0.004    | 1.387     | 1574432  | 2.34            |                 | 93.5  | 15993  |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                 |       |        |       |
| 563.00 > 519.00                       | 3.774 | 3.771     | 0.003     | 1.000     | 7245235  | 10.5            |                 | 105   | 35180  |       |
| 563.00 > 169.00                       | 3.774 | 3.771     | 0.003     | 1.000     | 1792829  |                 | 4.04(2.12-6.36) | 105   | 39722  |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                 |       |        |       |
| 565.00 > 520.00                       | 3.774 | 3.771     | 0.003     | 1.391     | 2040350  | 2.31            |                 | 92.4  | 29887  |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                 |       |        |       |
| 599.00 > 80.00                        | 3.774 | 3.773     | 0.001     | 1.220     | 8886214  | 9.97            |                 | 103   | 179594 |       |
| 599.00 > 99.00                        | 3.774 | 3.773     | 0.001     | 1.220     | 2968250  |                 | 2.99(1.39-4.16) | 103   | 104401 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                 |       |        |       |
| 584.00 > 419.00                       | 3.774 | 3.773     | 0.001     | 1.003     | 5834501  | 10.6            |                 | 106   | 50194  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                 |       |        |       |
| 631.00 > 451.00                       | 3.944 | 3.939     | 0.005     | 1.274     | 34126758 | NC              |                 |       | 800296 |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                 |       |        |       |
| 615.00 > 570.00                       | 4.068 | 4.070     | -0.002    | 1.499     | 2349769  | 2.48            |                 | 99.4  | 15763  |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                 |       |        |       |
| 613.00 > 569.00                       | 4.068 | 4.070     | -0.002    | 1.000     | 10222125 | 9.90            |                 | 99.0  | 11858  |       |
| 613.00 > 169.00                       | 4.068 | 4.070     | -0.002    | 1.000     | 2585356  |                 | 3.95(2.13-6.40) | 99.0  | 26218  |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                 |       |        |       |
| 663.00 > 619.00                       | 4.329 | 4.329     | -0.001    | 1.064     | 11492471 | 10.5            |                 | 105   | 9799   |       |
| 663.00 > 169.00                       | 4.329 | 4.329     | -0.001    | 1.064     | 3466046  |                 | 3.32(1.25-3.76) | 105   | 23826  |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                 |       |        |       |
| 715.00 > 670.00                       | 4.564 | 4.568     | -0.004    | 1.682     | 2994414  | 2.44            |                 | 97.6  | 10381  |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                 |       |        |       |
| 713.00 > 169.00                       | 4.574 | 4.570     | 0.004     | 1.002     | 3080342  | 9.56            |                 | 95.6  | 22180  |       |
| 713.00 > 219.00                       | 4.564 | 4.570     | -0.006    | 1.000     | 2238564  |                 | 1.38(0.71-2.13) | 95.6  | 16859  |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                 |       |        |       |
| 815.00 > 770.00                       | 4.985 | 4.982     | 0.003     | 1.837     | 5760288  | 2.46            |                 | 98.3  | 15562  |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                 |       |        |       |
| 813.00 > 769.00                       | 4.985 | 4.983     | 0.002     | 1.000     | 21579524 | NC              |                 |       | 6480   |       |
| 813.00 > 169.00                       | 4.985 | 4.983     | 0.002     | 1.000     | 3525495  |                 | 6.12(2.86-8.58) |       | 16905  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|-------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |       |       |
| 913.00 > 869.00               | 5.344 | 5.346     | -0.002    | 1.072     | 23832827 | NC              |                  |      | 4496  |       |
| 913.00 > 169.00               | 5.344 | 5.346     | -0.002    | 1.072     | 3012977  |                 | 7.91(3.83-11.48) |      | 11670 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL7\_00005

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180605-59232.b\2018.06.05ICAL\_008.d

Injection Date: 05-Jun-2018 15:15:34

Instrument ID: A8\_N

Lims ID: IC L7 Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 53

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

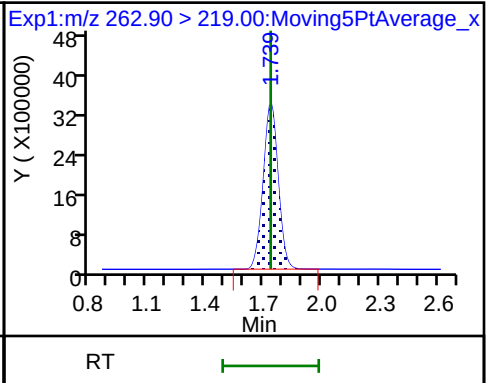
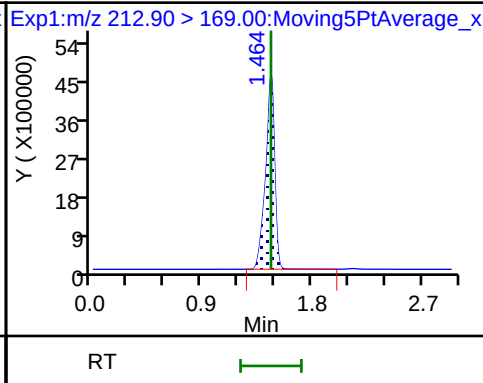
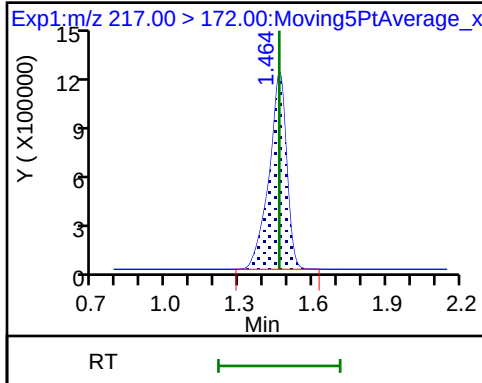
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

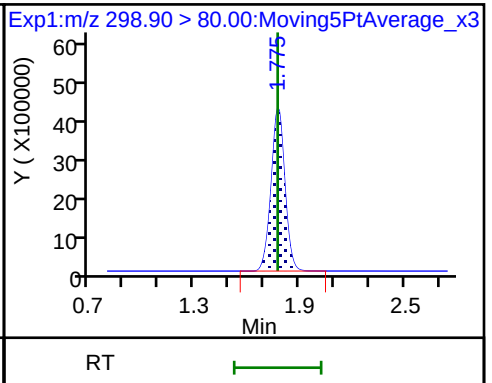
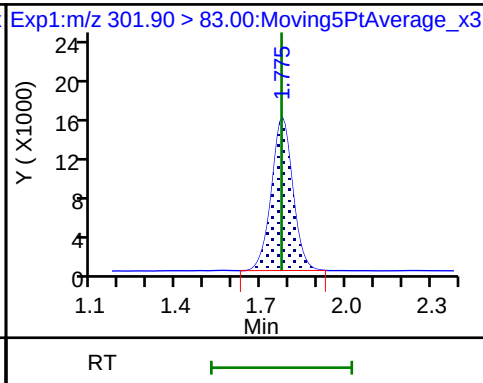
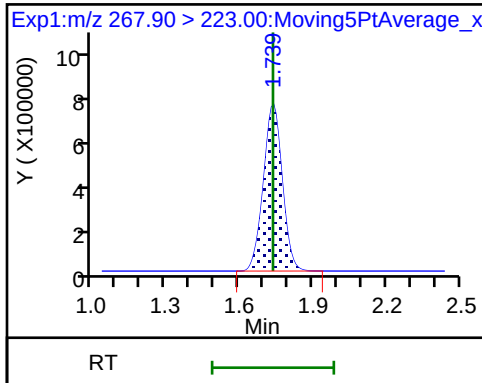
4 Perfluoropentanoic acid



D 3 13C5-PFPeA

D 47 13C3-PFBS

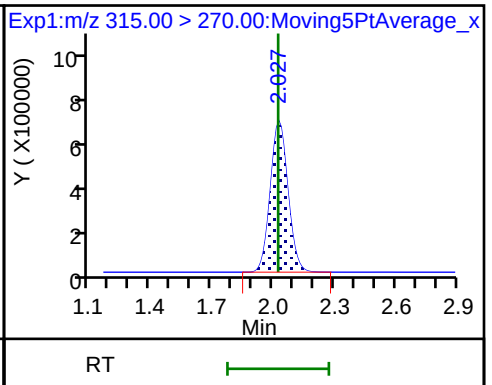
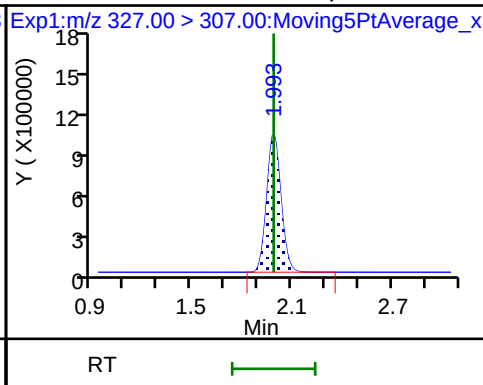
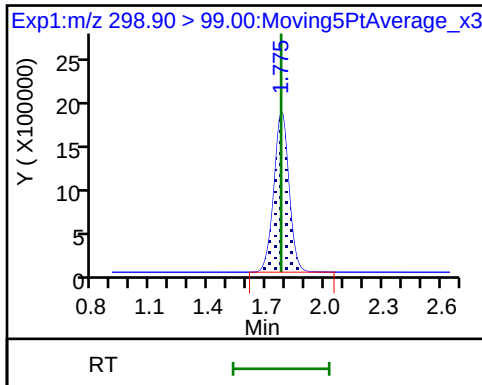
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

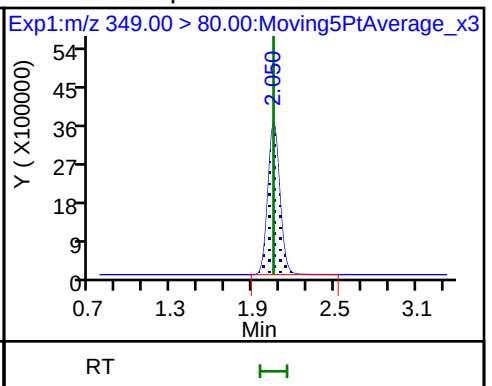
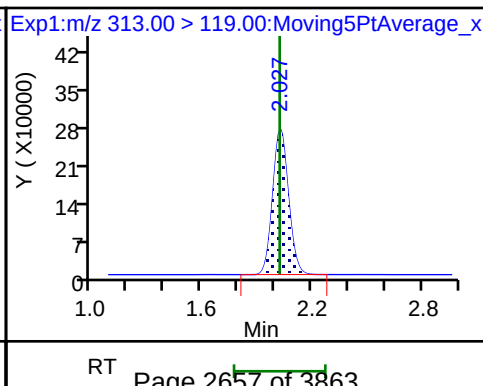
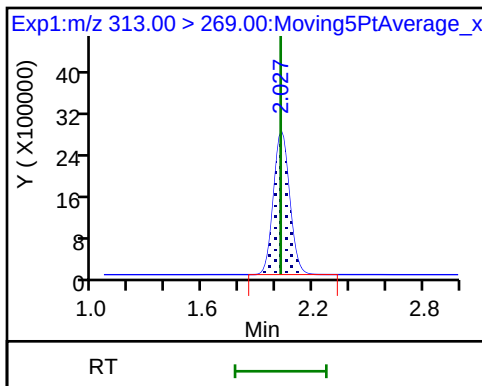
De 7 13C2 PFHxA



6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

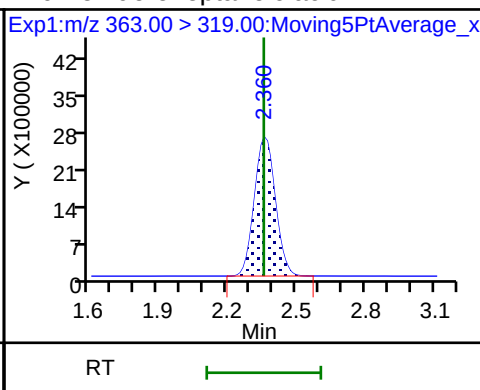
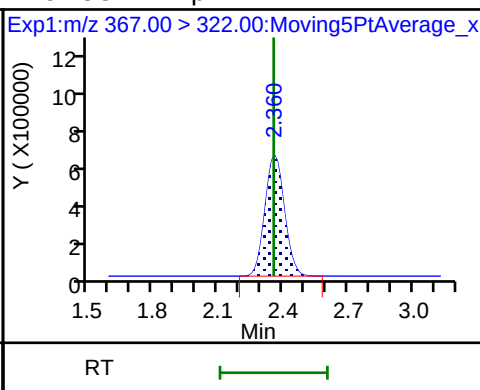
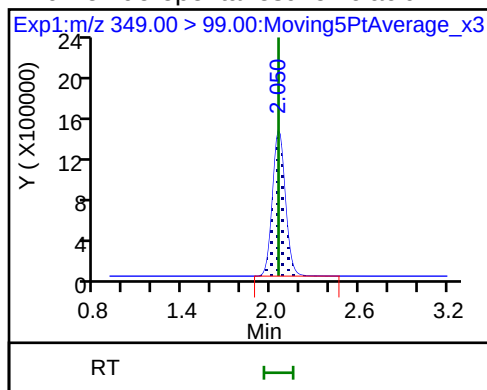
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

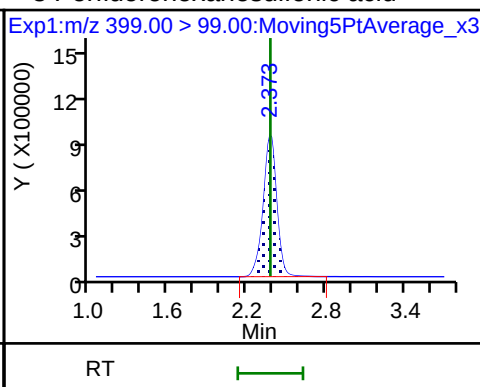
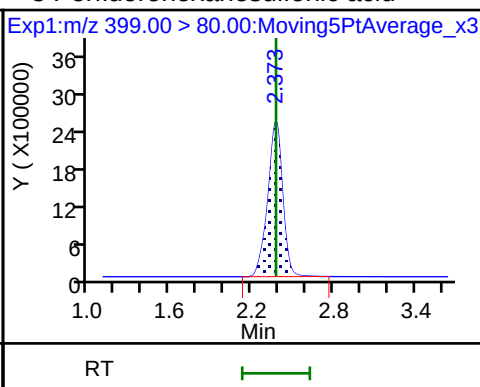
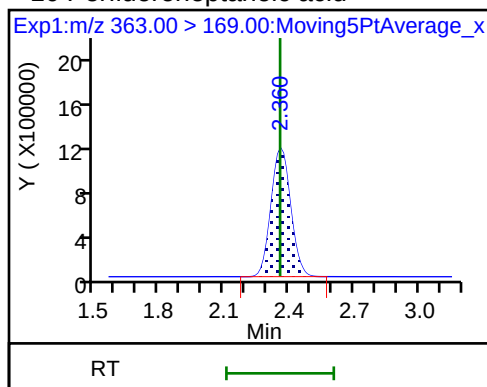
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

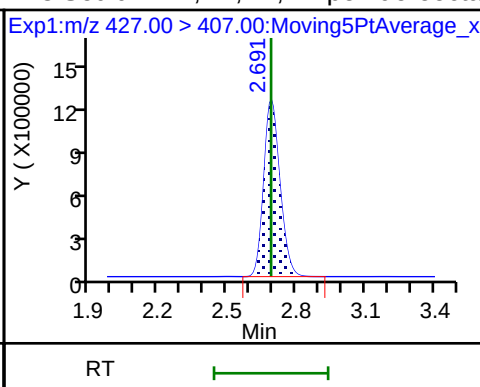
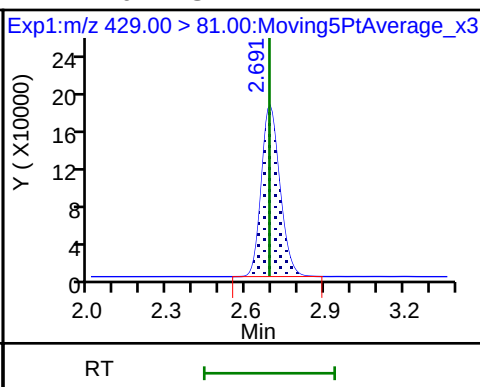
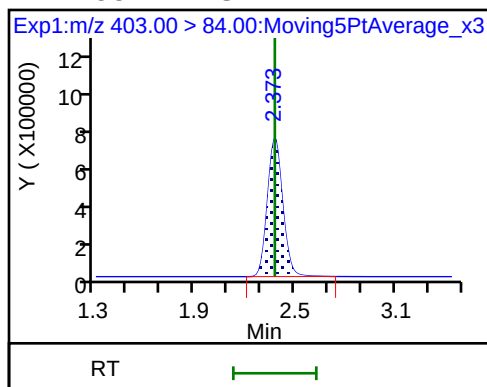
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## D 12 M2-6:2FTS

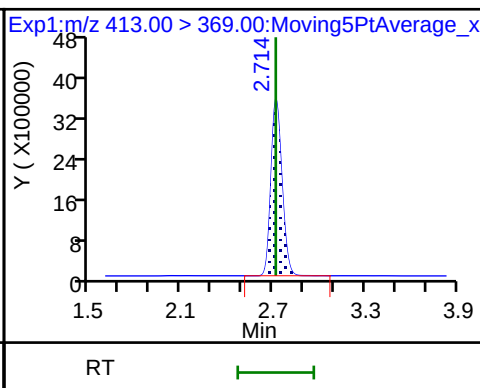
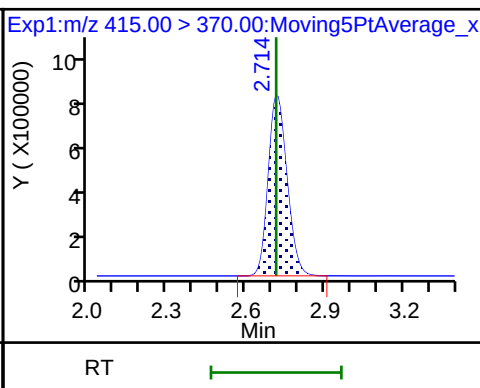
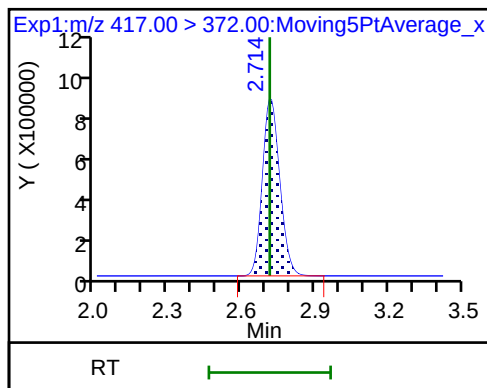
## 13 Sodium 1H,1H,2H,2H-perfluorooctane

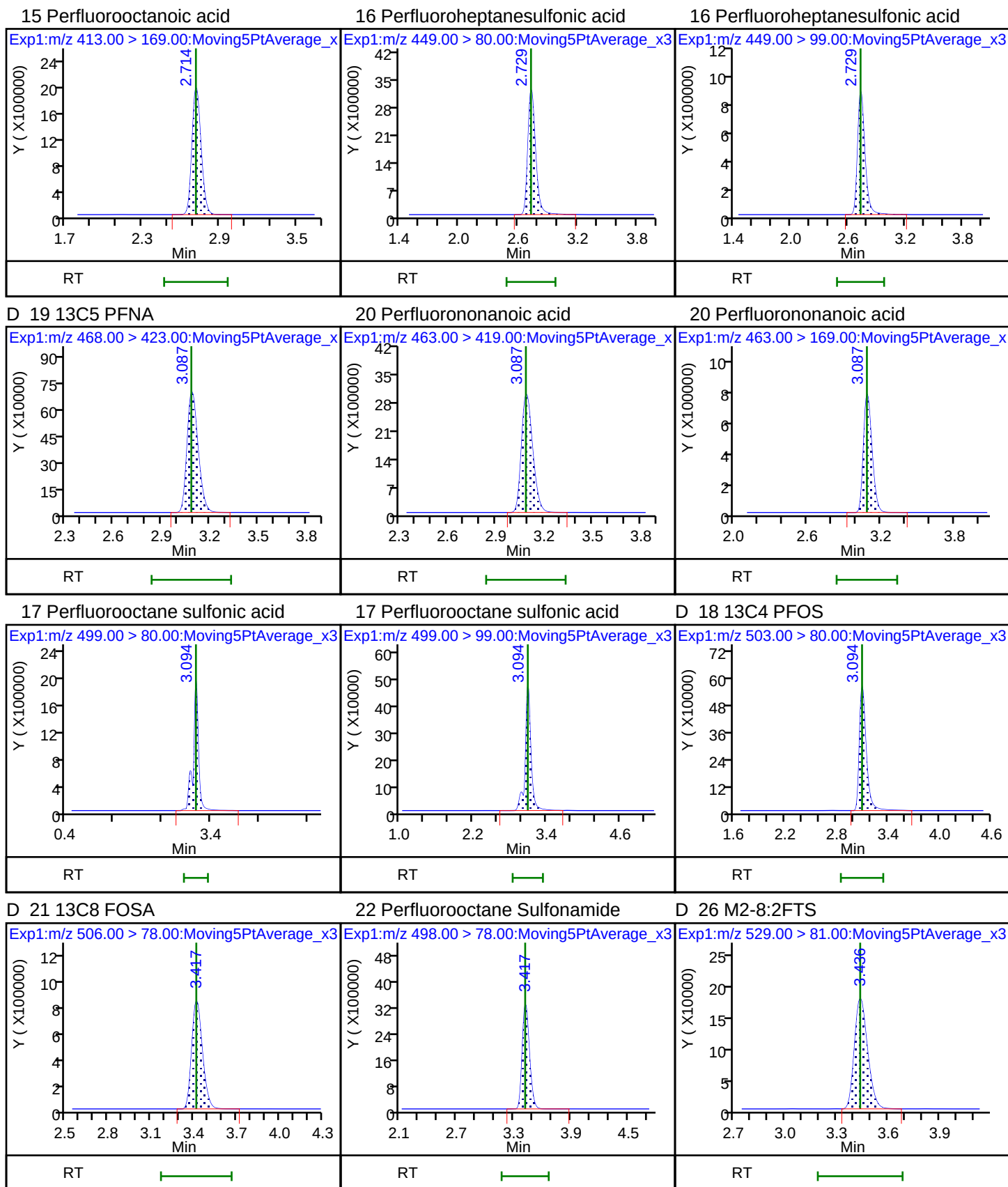


## D 14 13C4 PFOA

## \* 62 13C2-PFOA

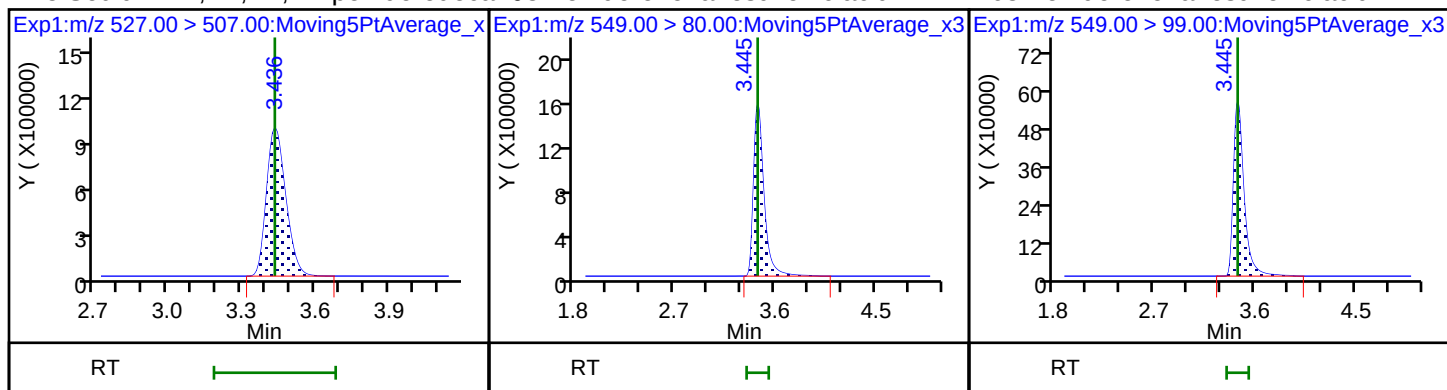
## 15 Perfluorooctanoic acid





## 25 Sodium 1H,1H,2H,2H-perfluorodecan-6-yl sulfonate

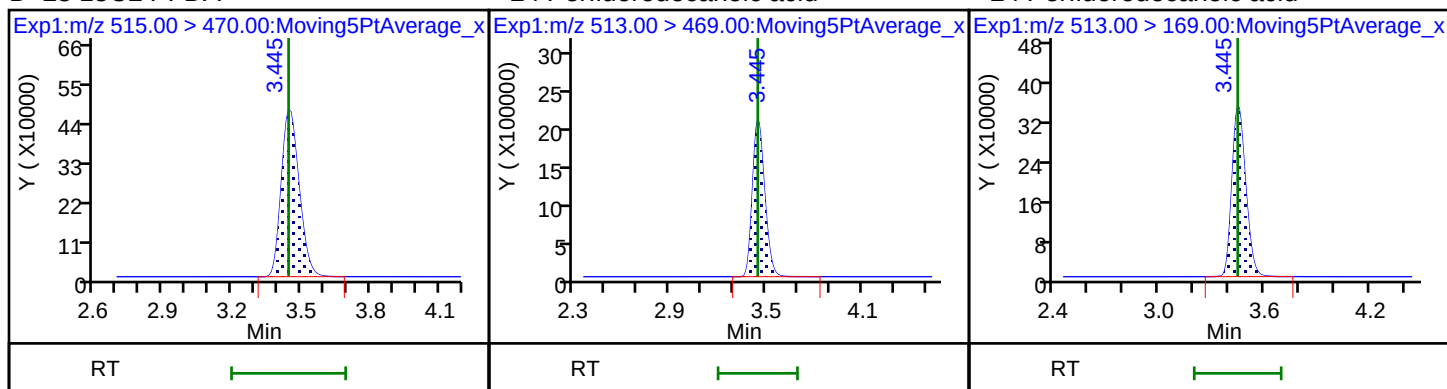
## 68 Perfluorononanesulfonic acid



## D 23 13C2 PFDA

## 24 Perfluorodecanoic acid

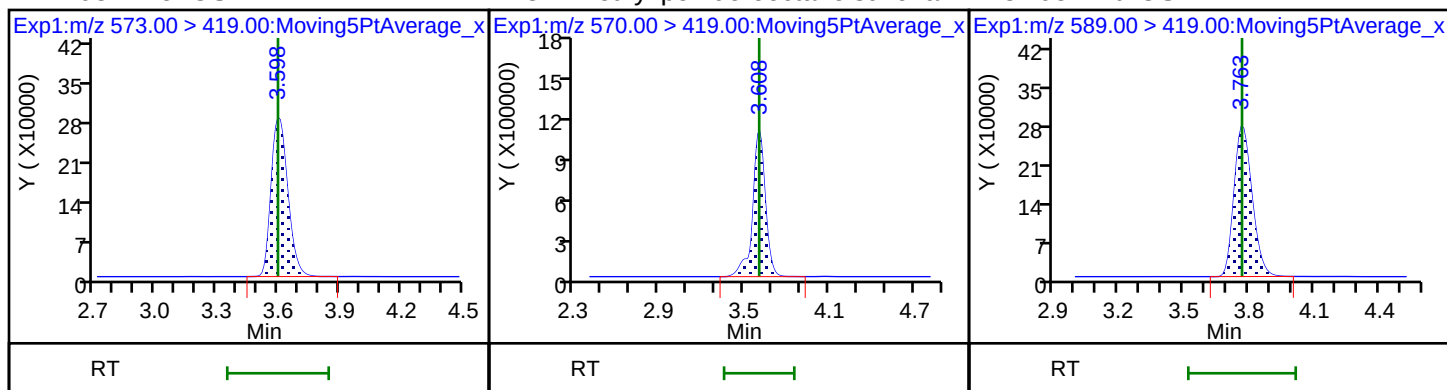
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonamide

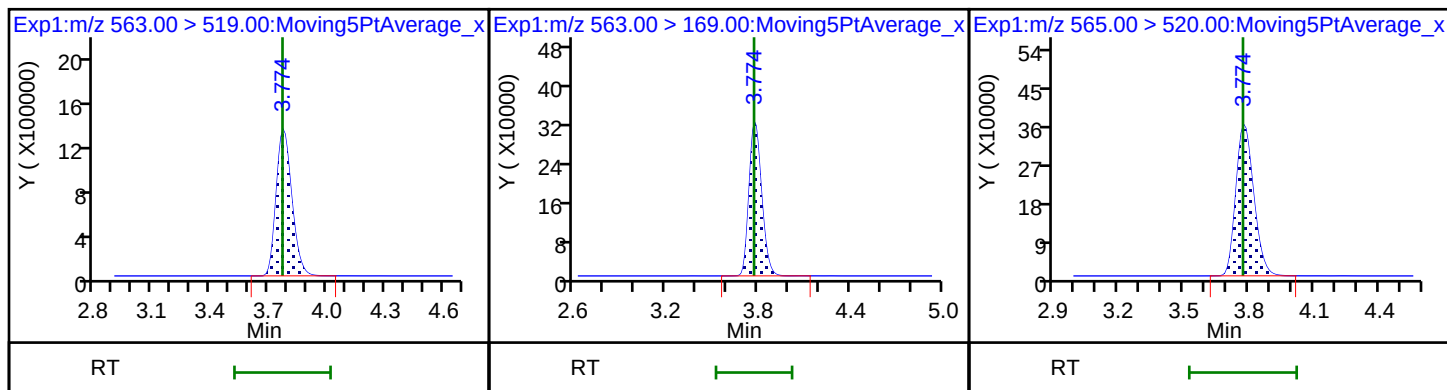
## 32 d5-NEtFOSAA

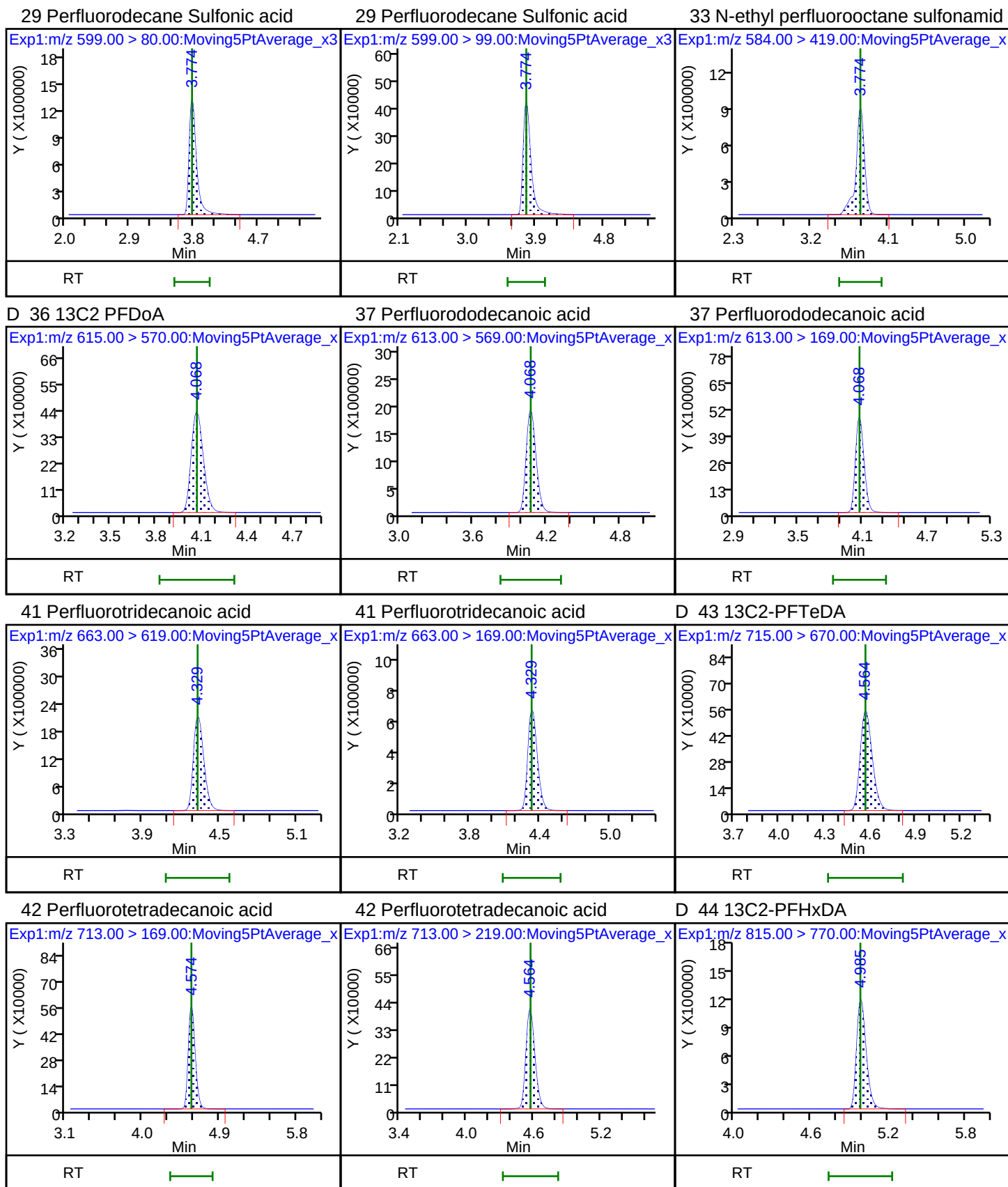


## 31 Perfluoroundecanoic acid

## 31 Perfluoroundecanoic acid

## D 30 13C2 PFUnA









## Calibration

/ Perfluorobutyric acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

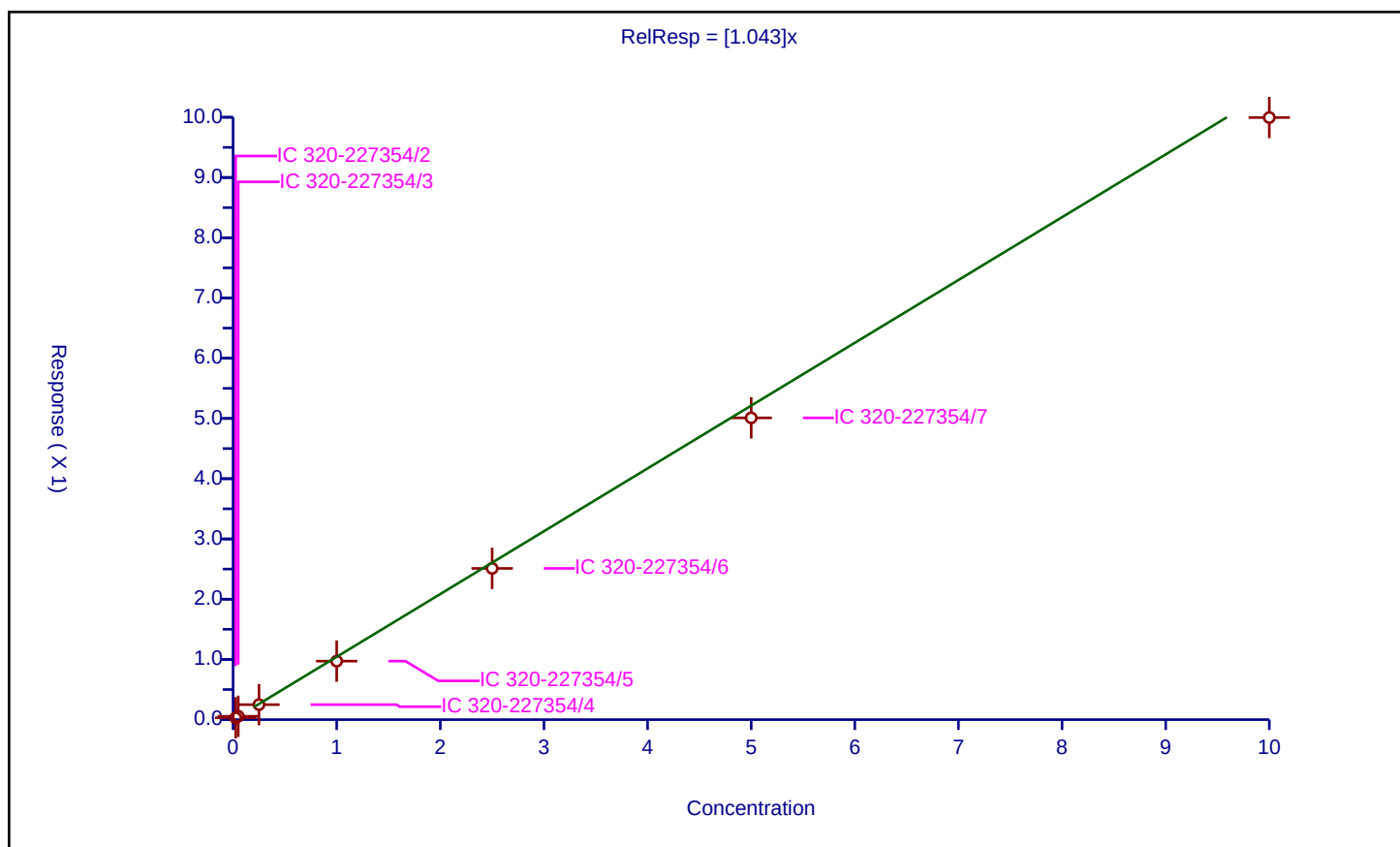
### Curve Coefficients

Intercept: 0  
 Slope: 1.043

### Error Coefficients

Standard Error: 11000000  
 Relative Standard Error: 8.3  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.991

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.030161   | 2.5       | 5947307.0   | 1.206445 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.055957   | 2.5       | 6146744.0   | 1.119145 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.248854   | 2.5       | 6138199.0   | 0.995416 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 0.971619   | 2.5       | 6201421.0   | 0.971619 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.510804   | 2.5       | 6207769.0   | 1.004322 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.009668   | 2.5       | 6071080.0   | 1.001934 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 9.995663   | 2.5       | 5773717.0   | 0.999566 | Y    |



## Calibration

/ Perfluoropentanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

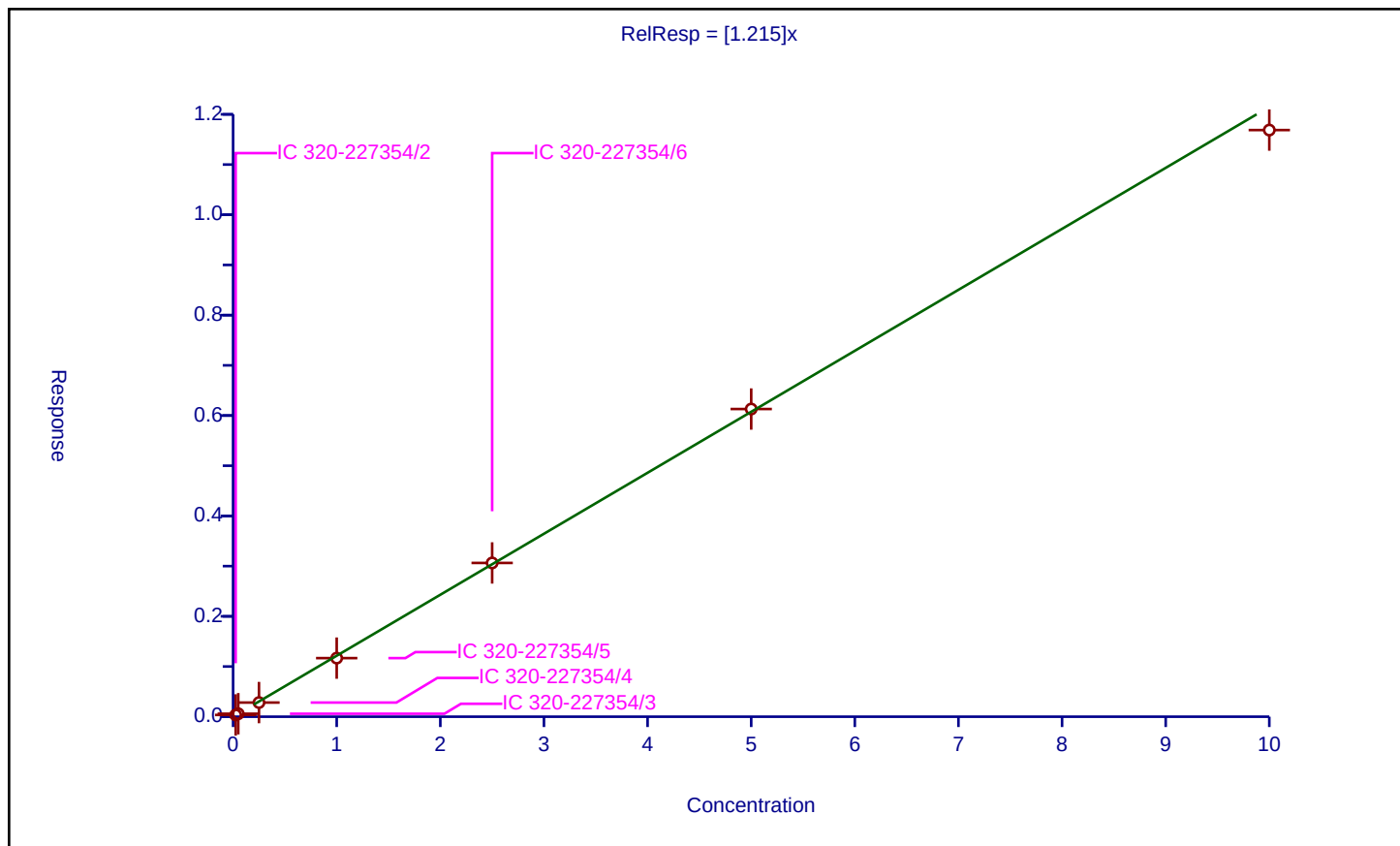
### Curve Coefficients

Intercept: 0  
 Slope: 1.215

### Error Coefficients

Standard Error: 8710000  
 Relative Standard Error: 7.4  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.993

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.035044   | 2.5       | 4023471.0   | 1.401775 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.05939    | 2.5       | 4237476.0   | 1.187806 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.281796   | 2.5       | 4174052.0   | 1.127183 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.167513   | 2.5       | 4245493.0   | 1.167513 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 3.06355    | 2.5       | 4150906.0   | 1.22542  | Y    |
| 6  | IC 320-227354/7 | 5.0           | 6.129735   | 2.5       | 4094010.0   | 1.225947 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 11.687186  | 2.5       | 3854315.0   | 1.168719 | Y    |



## Calibration

/ Perfluorobutanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

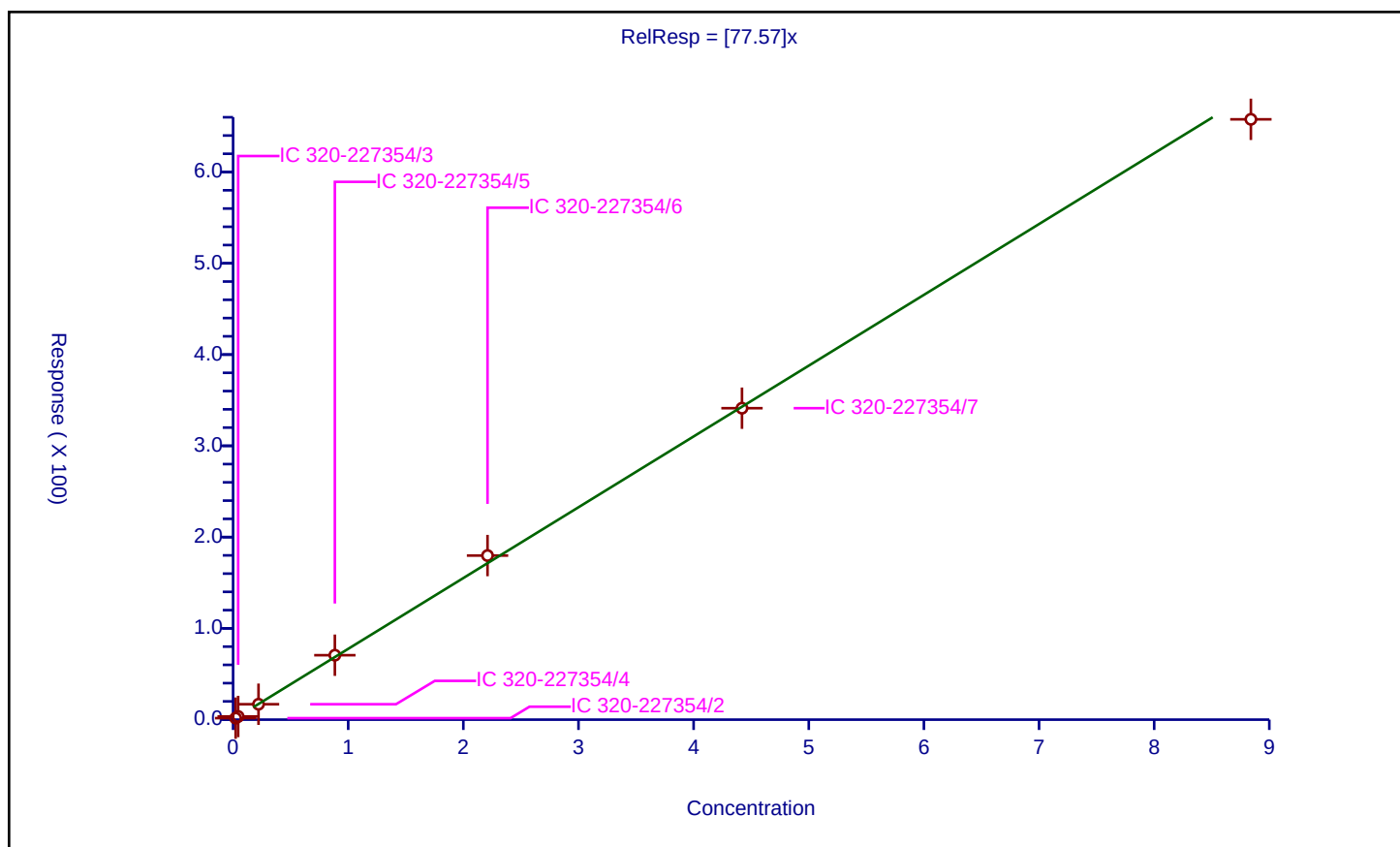
### Curve Coefficients

Intercept: 0  
 Slope: 77.57

### Error Coefficients

Standard Error: 11000000  
 Relative Standard Error: 3.3  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.999

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF       | Used |
|----|-----------------|---------------|------------|-----------|-------------|-----------|------|
| 1  | IC 320-227354/2 | 0.0221        | 1.65801    | 2.325     | 85493.0     | 75.023091 | Y    |
| 2  | IC 320-227354/3 | 0.0442        | 3.480948   | 2.325     | 84983.0     | 78.754472 | Y    |
| 3  | IC 320-227354/4 | 0.221         | 16.885523  | 2.325     | 85144.0     | 76.40508  | Y    |
| 4  | IC 320-227354/5 | 0.884         | 70.593663  | 2.325     | 85194.0     | 79.857085 | Y    |
| 5  | IC 320-227354/6 | 2.21          | 179.775428 | 2.325     | 84969.0     | 81.346348 | Y    |
| 6  | IC 320-227354/7 | 4.42          | 341.238057 | 2.325     | 84852.0     | 77.20318  | Y    |
| 7  | IC 320-227354/8 | 8.84          | 657.7617   | 2.325     | 80901.0     | 74.407432 | Y    |



## Calibration

/ Sodium 1H,1H,2H,2H-perfluorohexane sulfonate (4:2)

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

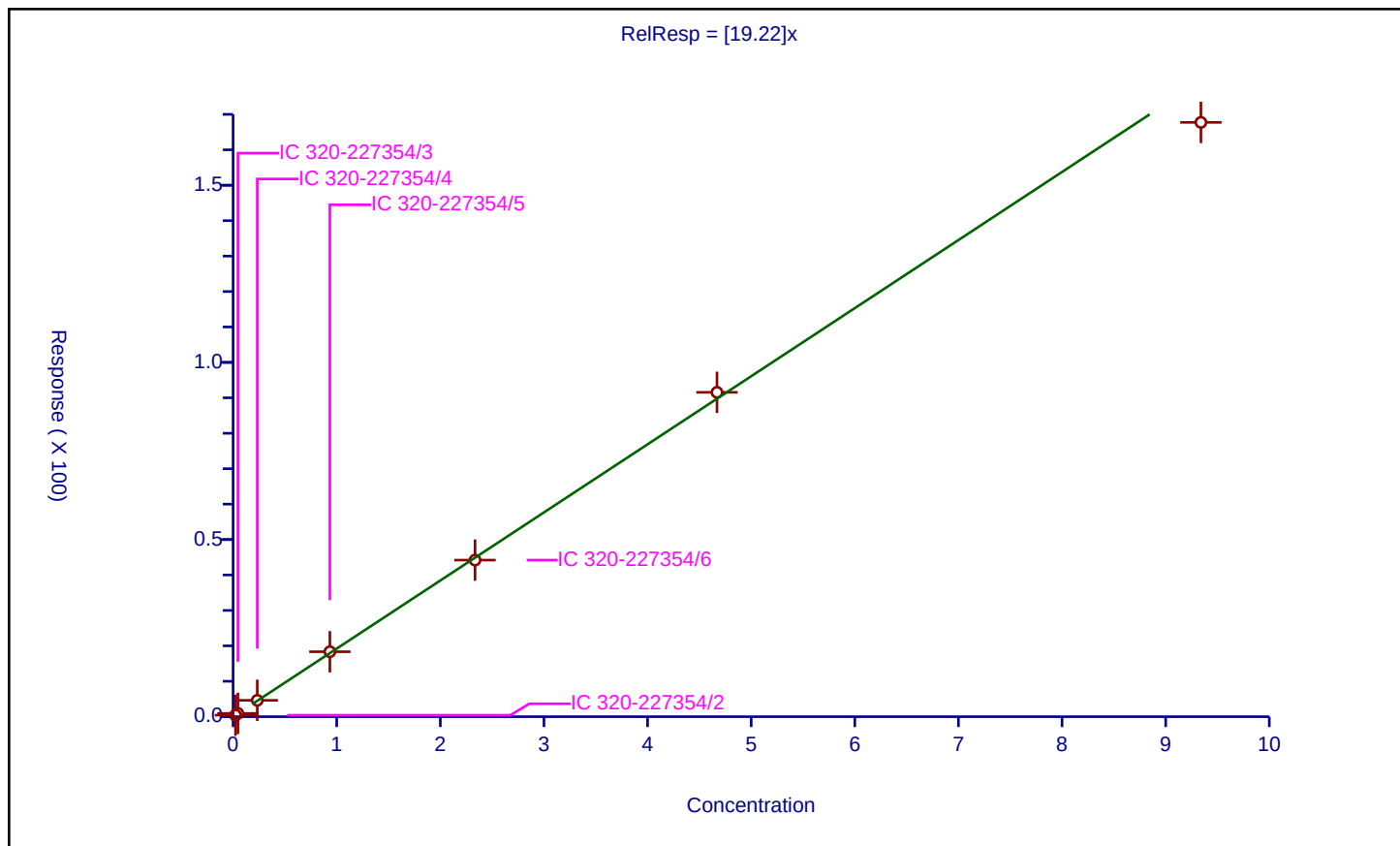
### Curve Coefficients

Intercept: 0  
 Slope: 19.22

### Error Coefficients

Standard Error: 2840000  
 Relative Standard Error: 3.8  
 Correlation Coefficient: 0.995  
 Coefficient of Determination (Adjusted): 0.998

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF       | Used |
|----|-----------------|---------------|------------|-----------|-------------|-----------|------|
| 1  | IC 320-227354/2 | 0.02335       | 0.435667   | 2.325     | 85493.0     | 18.658126 | Y    |
| 2  | IC 320-227354/3 | 0.0467        | 0.930569   | 2.325     | 84983.0     | 19.926532 | Y    |
| 3  | IC 320-227354/4 | 0.2335        | 4.627772   | 2.325     | 85144.0     | 19.819154 | Y    |
| 4  | IC 320-227354/5 | 0.934         | 18.336918  | 2.325     | 85194.0     | 19.632675 | Y    |
| 5  | IC 320-227354/6 | 2.335         | 44.199271  | 2.325     | 84969.0     | 18.929024 | Y    |
| 6  | IC 320-227354/7 | 4.67          | 91.550944  | 2.325     | 84852.0     | 19.604057 | Y    |
| 7  | IC 320-227354/8 | 9.34          | 167.736187 | 2.325     | 80901.0     | 17.958907 | Y    |



## Calibration

/ Perfluorohexanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

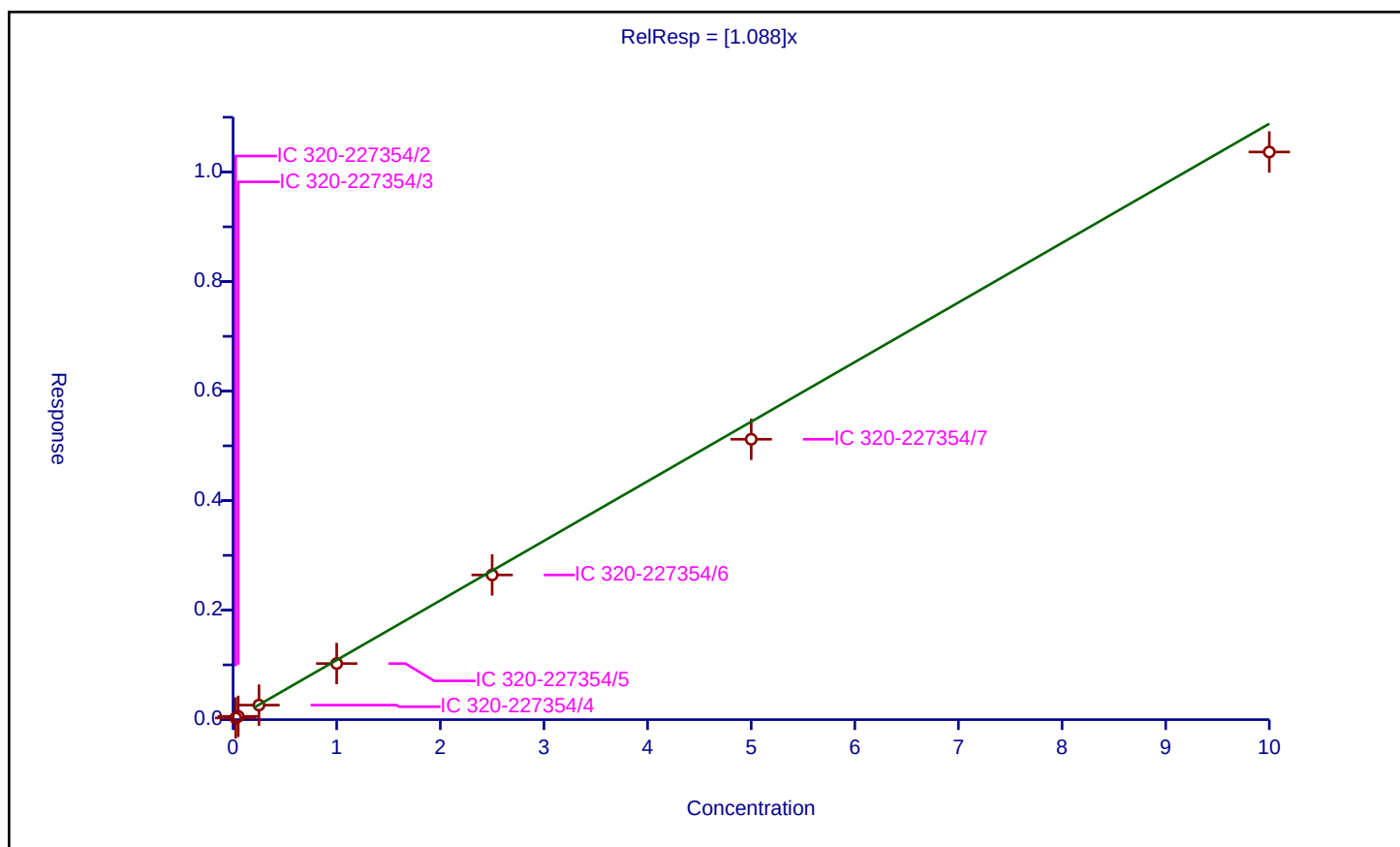
### Curve Coefficients

Intercept: 0  
 Slope: 1.088

### Error Coefficients

Standard Error: 8110000  
 Relative Standard Error: 7.6  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.992

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.030309   | 2.5       | 4320820.0   | 1.212362 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.06003    | 2.5       | 4476556.0   | 1.200599 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.26565    | 2.5       | 4390111.0   | 1.062602 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.024292   | 2.5       | 4434509.0   | 1.024292 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.642564   | 2.5       | 4505561.0   | 1.057026 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.120251   | 2.5       | 4384399.0   | 1.02405  | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.365787  | 2.5       | 4089622.0   | 1.036579 | Y    |



Calibration

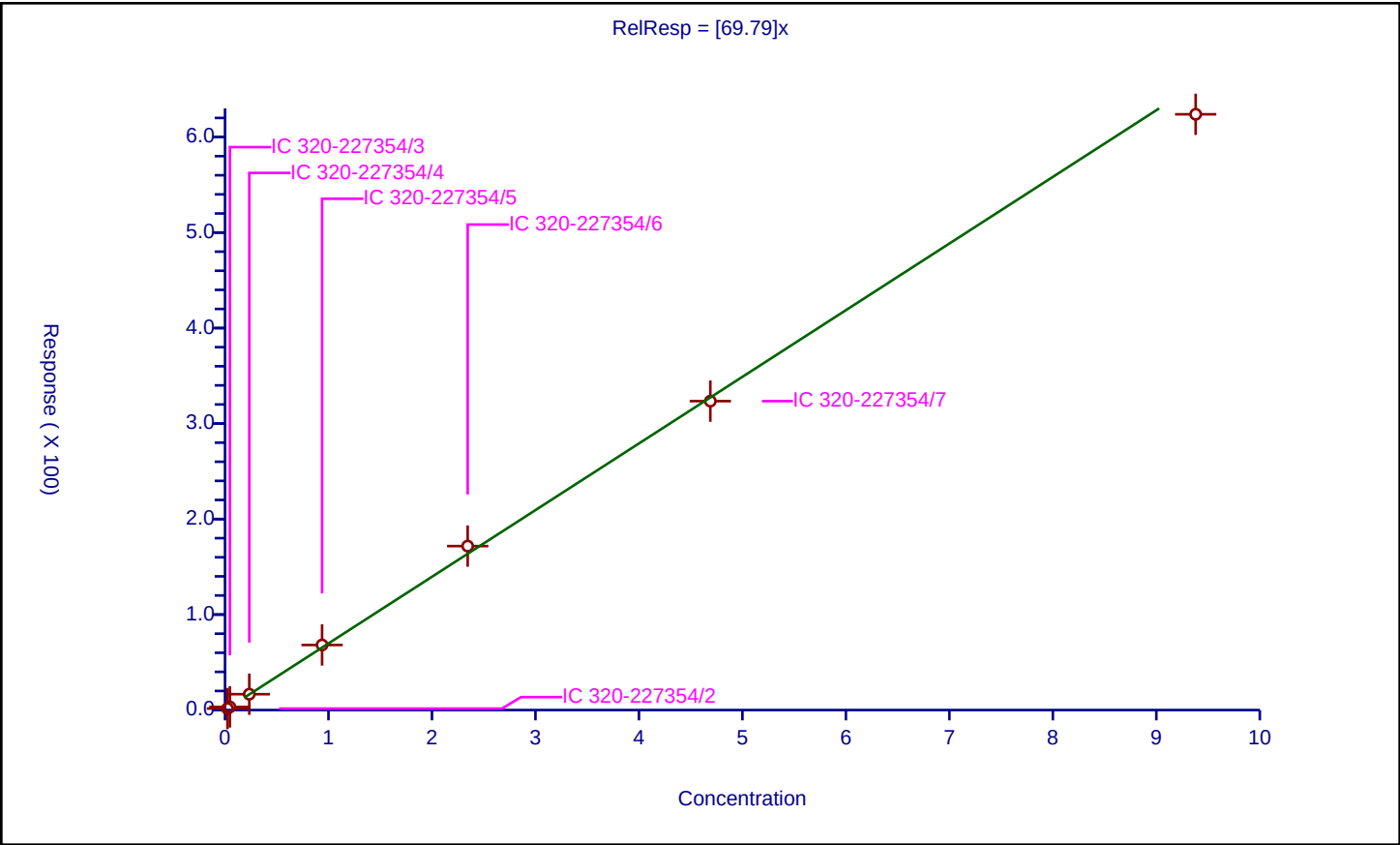
/ Perfluoropentanesulfonic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients |       |
|--------------------|-------|
| Intercept:         | 0     |
| Slope:             | 69.79 |

| Error Coefficients                       |          |
|------------------------------------------|----------|
| Standard Error:                          | 10500000 |
| Relative Standard Error:                 | 3.8      |
| Correlation Coefficient:                 | 0.997    |
| Coefficient of Determination (Adjusted): | 0.998    |

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF       | Used |
|----|-----------------|---------------|------------|-----------|-------------|-----------|------|
| 1  | IC 320-227354/2 | 0.02345       | 1.560108   | 2.325     | 85493.0     | 66.529107 | Y    |
| 2  | IC 320-227354/3 | 0.0469        | 3.274966   | 2.325     | 84983.0     | 69.828703 | Y    |
| 3  | IC 320-227354/4 | 0.2345        | 16.599048  | 2.325     | 85144.0     | 70.784854 | Y    |
| 4  | IC 320-227354/5 | 0.938         | 68.160647  | 2.325     | 85194.0     | 72.665935 | Y    |
| 5  | IC 320-227354/6 | 2.345         | 171.708784 | 2.325     | 84969.0     | 73.223362 | Y    |
| 6  | IC 320-227354/7 | 4.69          | 323.479421 | 2.325     | 84852.0     | 68.972158 | Y    |
| 7  | IC 320-227354/8 | 9.38          | 623.852469 | 2.325     | 80901.0     | 66.508792 | Y    |



## Calibration

/ Perfluoroheptanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

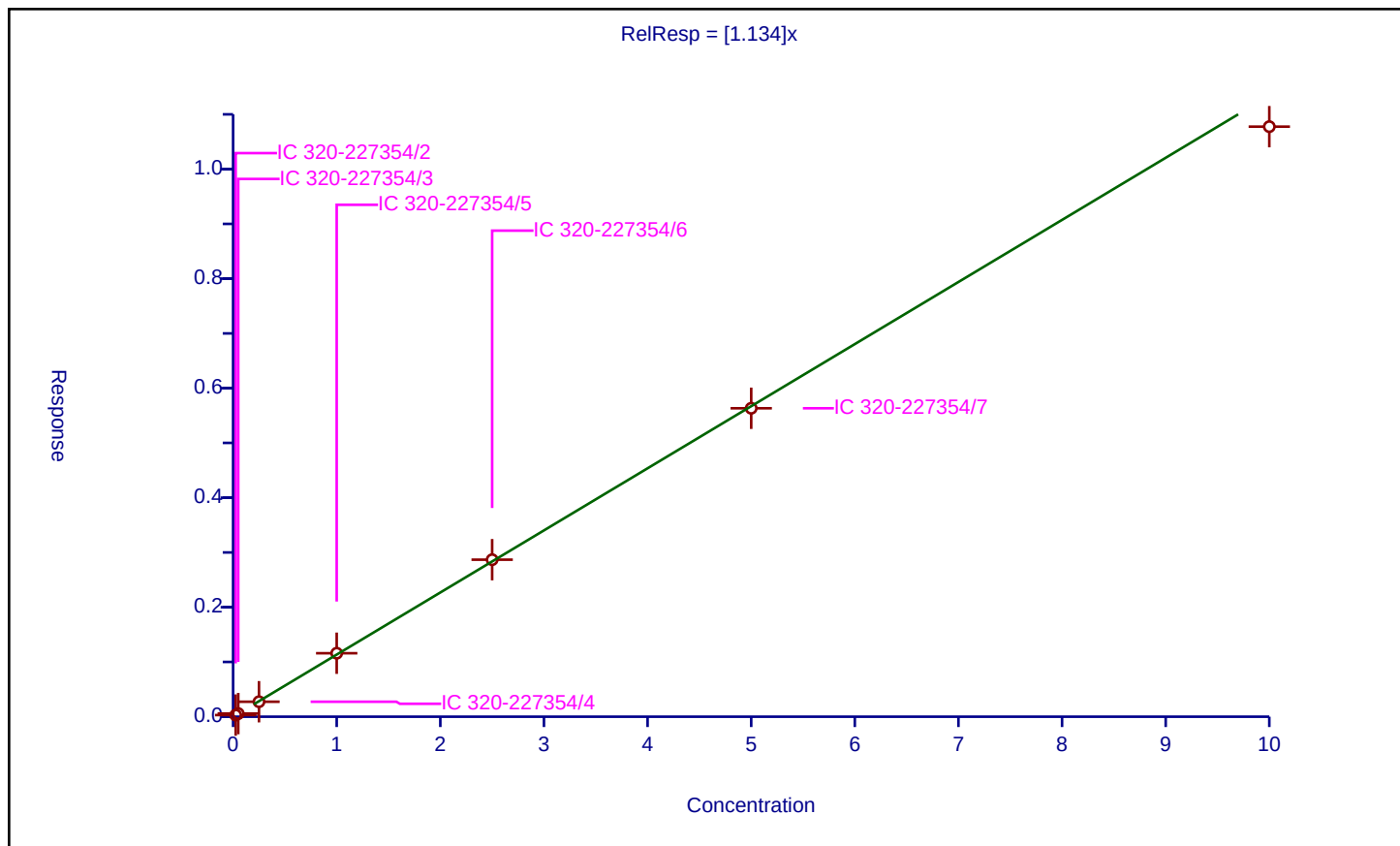
### Curve Coefficients

Intercept: 0  
 Slope: 1.134

### Error Coefficients

Standard Error: 8170000  
 Relative Standard Error: 3.4  
 Correlation Coefficient: 0.996  
 Coefficient of Determination (Adjusted): 0.998

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.029802   | 2.5       | 4174338.0   | 1.192093 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.057158   | 2.5       | 4411501.0   | 1.14316  | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.273266   | 2.5       | 4222666.0   | 1.093065 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.159218   | 2.5       | 4341946.0   | 1.159218 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.867536   | 2.5       | 4304120.0   | 1.147014 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.632819   | 2.5       | 4158596.0   | 1.126564 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.77582   | 2.5       | 3907099.0   | 1.077582 | Y    |



## Calibration

/ Perfluorohexanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

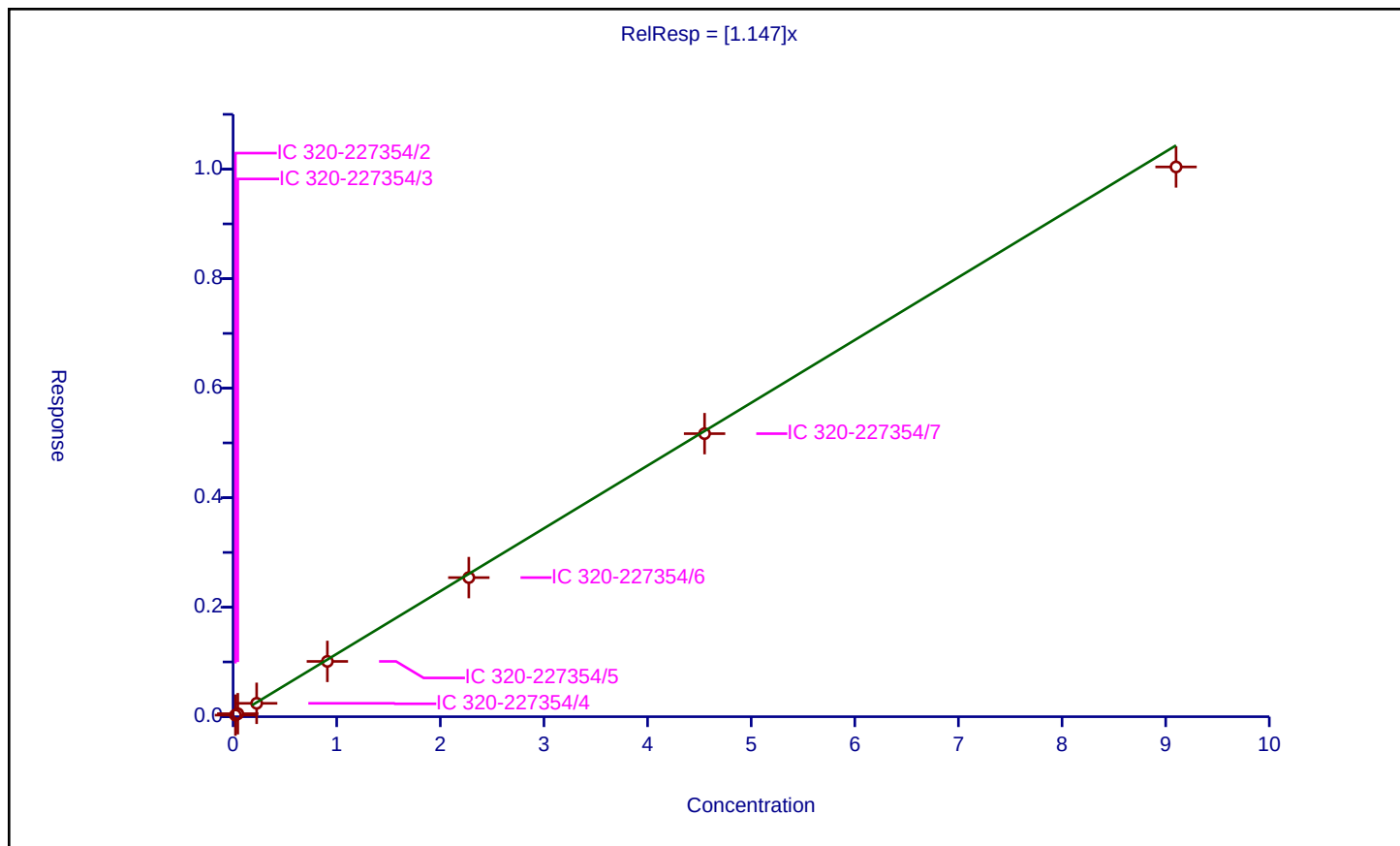
### Curve Coefficients

Intercept: 0  
 Slope: 1.147

### Error Coefficients

Standard Error: 9080000  
 Relative Standard Error: 6.1  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.995

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.02275       | 0.028949   | 2.365     | 4725916.0   | 1.272483 | Y    |
| 2  | IC 320-227354/3 | 0.0455        | 0.055114   | 2.365     | 4980443.0   | 1.211293 | Y    |
| 3  | IC 320-227354/4 | 0.2275        | 0.244773   | 2.365     | 5056251.0   | 1.075925 | Y    |
| 4  | IC 320-227354/5 | 0.91          | 1.009952   | 2.365     | 4980455.0   | 1.109837 | Y    |
| 5  | IC 320-227354/6 | 2.275         | 2.540728   | 2.365     | 4999793.0   | 1.116803 | Y    |
| 6  | IC 320-227354/7 | 4.55          | 5.169253   | 2.365     | 4672624.0   | 1.1361   | Y    |
| 7  | IC 320-227354/8 | 9.1           | 10.040097  | 2.365     | 4447895.0   | 1.103307 | Y    |





## Calibration

/ Sodium 1H,1H,2H,2H-perfluorooctane sulfonate (6:2)

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

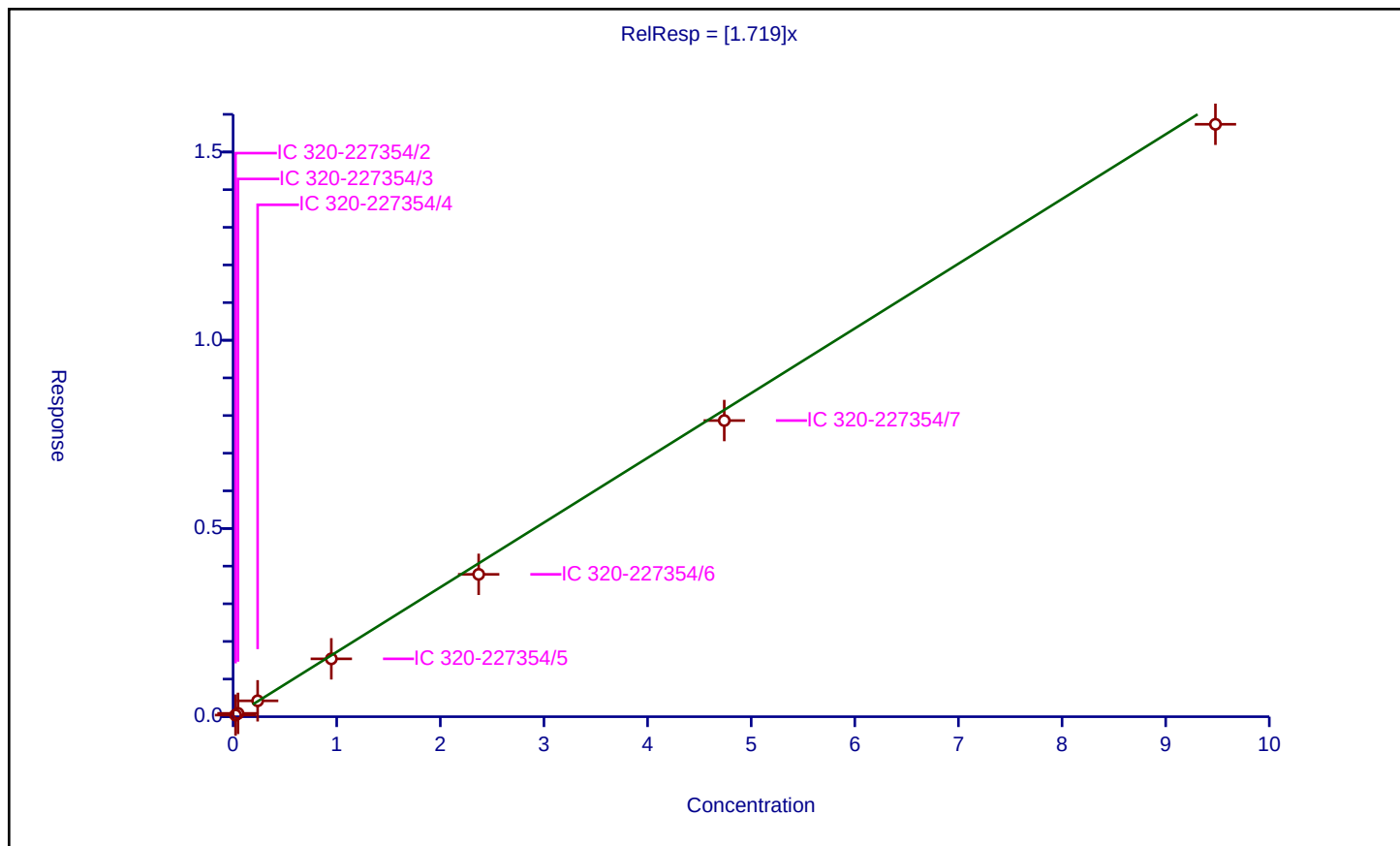
### Curve Coefficients

Intercept: 0  
 Slope: 1.719

### Error Coefficients

Standard Error: 2850000  
 Relative Standard Error: 6.5  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.994

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.0237        | 0.043524   | 2.375     | 976862.0    | 1.836469 | Y    |
| 2  | IC 320-227354/3 | 0.0474        | 0.088933   | 2.375     | 1037830.0   | 1.876222 | Y    |
| 3  | IC 320-227354/4 | 0.237         | 0.422631   | 2.375     | 1016167.0   | 1.783255 | Y    |
| 4  | IC 320-227354/5 | 0.948         | 1.537259   | 2.375     | 1056640.0   | 1.621581 | Y    |
| 5  | IC 320-227354/6 | 2.37          | 3.78179    | 2.375     | 1018271.0   | 1.595692 | Y    |
| 6  | IC 320-227354/7 | 4.74          | 7.866853   | 2.375     | 969154.0    | 1.659674 | Y    |
| 7  | IC 320-227354/8 | 9.48          | 15.736434  | 2.375     | 894885.0    | 1.659961 | Y    |



## Calibration

/ Perfluorooctanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

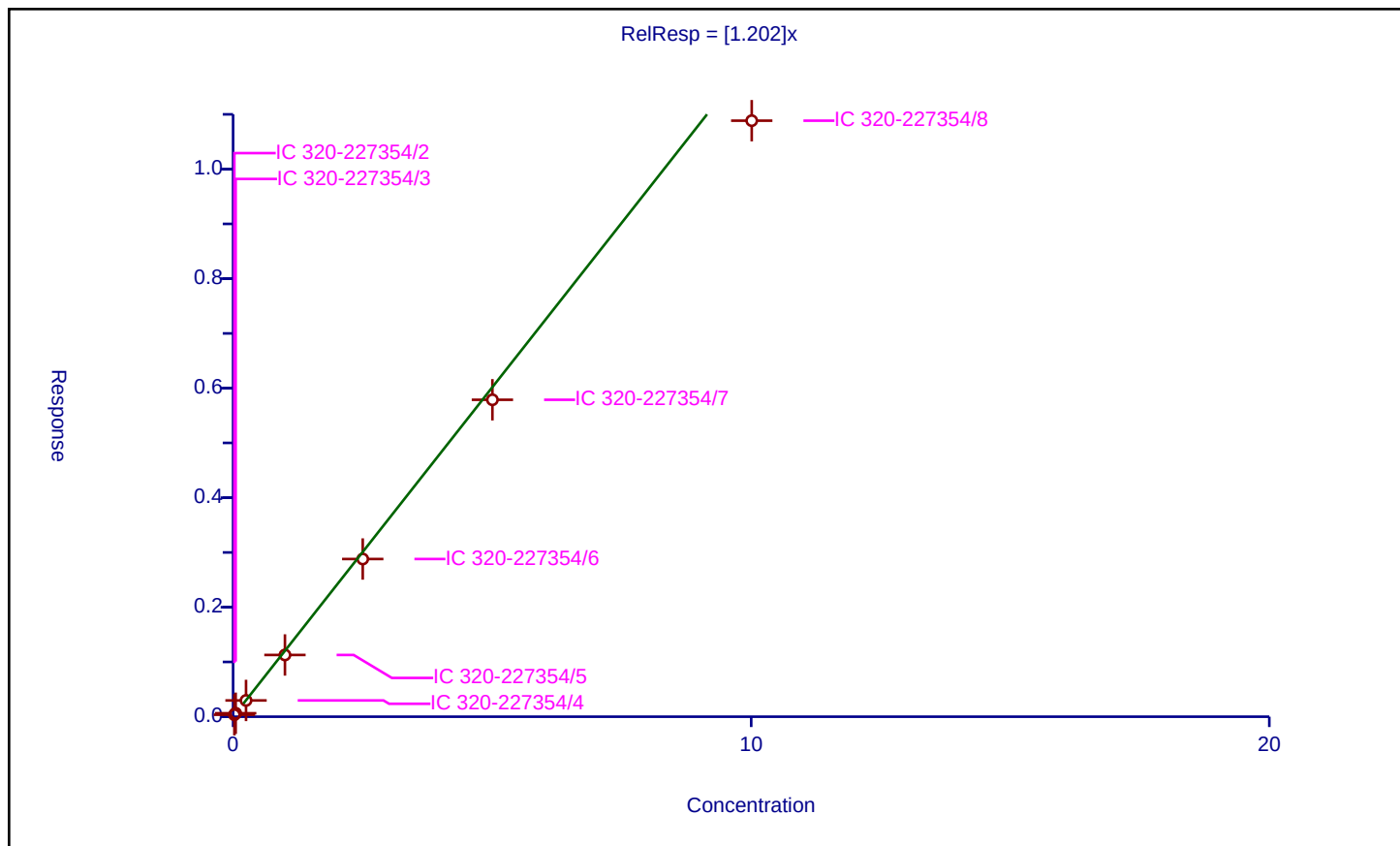
## Curve Coefficients

Intercept: 0  
Slope: 1.202

## Error Coefficients

Standard Error: 8500000  
Relative Standard Error: 9.9  
Correlation Coefficient: 0.997  
Coefficient of Determination (Adjusted): 0.986

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025025      | 0.036011   | 2.5       | 3988383.0   | 1.438994 | Y    |
| 2  | IC 320-227354/3 | 0.05005       | 0.063548   | 2.5       | 4191344.0   | 1.269695 | Y    |
| 3  | IC 320-227354/4 | 0.25025       | 0.297242   | 2.5       | 4157379.0   | 1.18778  | Y    |
| 4  | IC 320-227354/5 | 1.001         | 1.127484   | 2.5       | 4358346.0   | 1.126358 | Y    |
| 5  | IC 320-227354/6 | 2.5025        | 2.879983   | 2.5       | 4333833.0   | 1.150843 | Y    |
| 6  | IC 320-227354/7 | 5.005         | 5.787672   | 2.5       | 4190761.0   | 1.156378 | Y    |
| 7  | IC 320-227354/8 | 10.01         | 10.884677  | 2.5       | 4047574.0   | 1.08738  | Y    |



## Calibration

/ Perfluoroheptanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

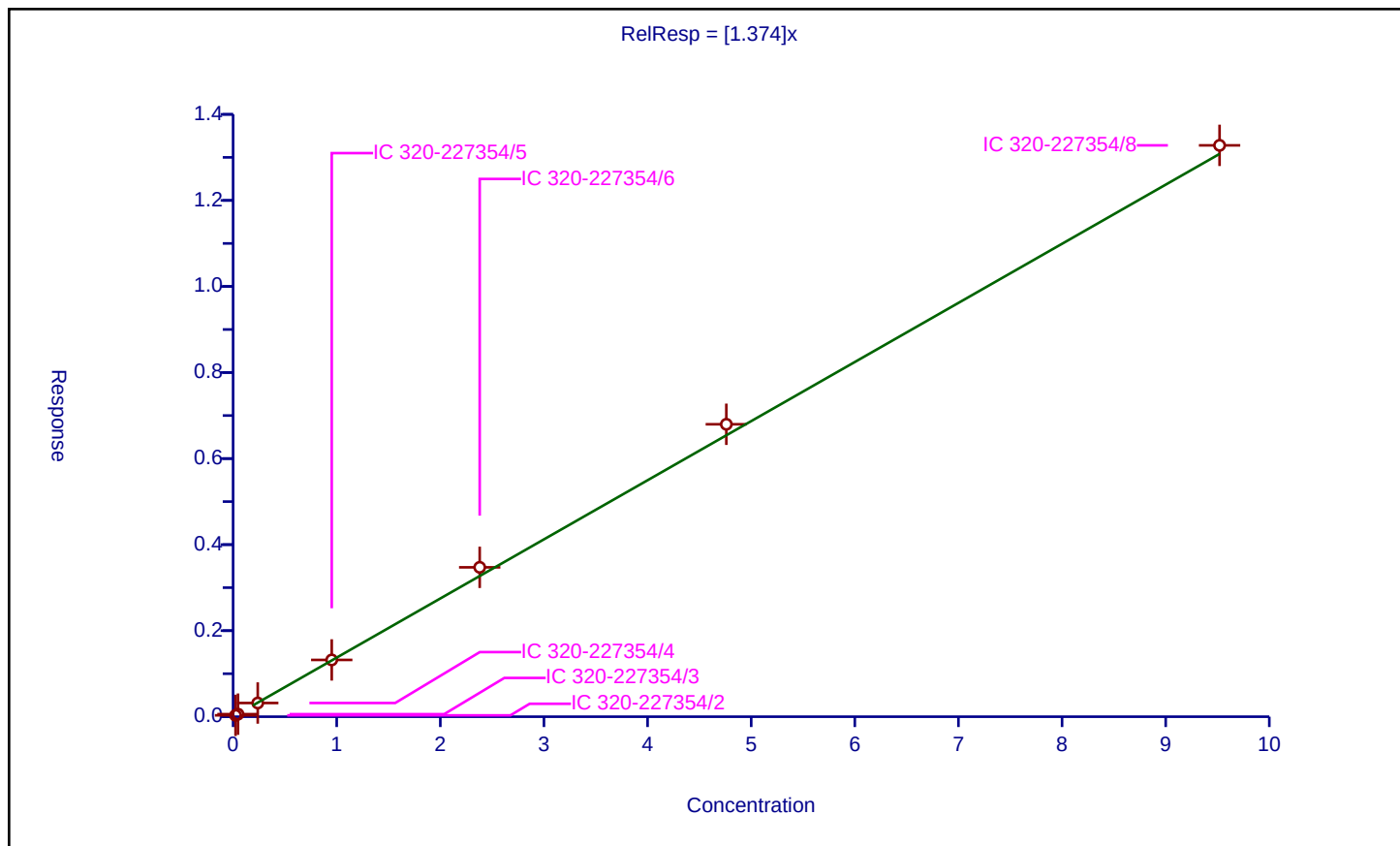
### Curve Coefficients

Intercept: 0  
 Slope: 1.374

### Error Coefficients

Standard Error: 8230000  
 Relative Standard Error: 4.7  
 Correlation Coefficient: 0.998  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.0238        | 0.032203   | 2.39      | 3352986.0   | 1.353087 | Y    |
| 2  | IC 320-227354/3 | 0.0476        | 0.059952   | 2.39      | 3428276.0   | 1.259486 | Y    |
| 3  | IC 320-227354/4 | 0.238         | 0.318396   | 2.39      | 3384749.0   | 1.337797 | Y    |
| 4  | IC 320-227354/5 | 0.952         | 1.319665   | 2.39      | 3378414.0   | 1.386203 | Y    |
| 5  | IC 320-227354/6 | 2.38          | 3.471884   | 2.39      | 3314199.0   | 1.458775 | Y    |
| 6  | IC 320-227354/7 | 4.76          | 6.796761   | 2.39      | 3249167.0   | 1.427891 | Y    |
| 7  | IC 320-227354/8 | 9.52          | 13.279309  | 2.39      | 3088993.0   | 1.394885 | Y    |



## Calibration

/ Perfluorononanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

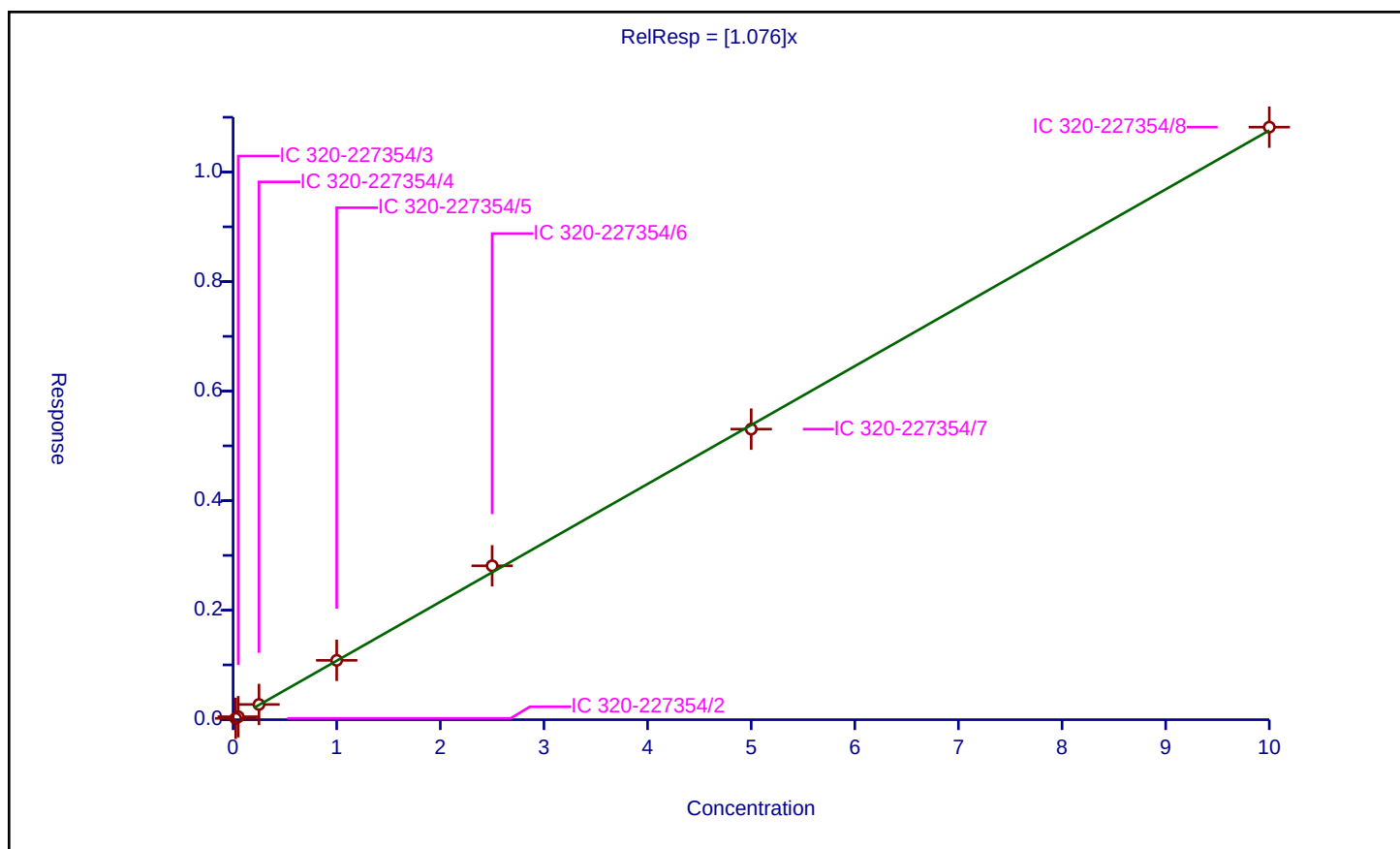
## Curve Coefficients

Intercept: 0  
Slope: 1.076

## Error Coefficients

Standard Error: 6820000  
Relative Standard Error: 4.4  
Correlation Coefficient: 0.999  
Coefficient of Determination (Adjusted): 0.998

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.024504   | 2.5       | 3527292.0   | 0.980157 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.054431   | 2.5       | 3642361.0   | 1.088621 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.278187   | 2.5       | 3591827.0   | 1.112748 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.083624   | 2.5       | 3608236.0   | 1.083624 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.810219   | 2.5       | 3526736.0   | 1.124088 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.305453   | 2.5       | 3507927.0   | 1.061091 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.819933  | 2.5       | 3313564.0   | 1.081993 | Y    |



## Calibration

/ Perfluorooctane sulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

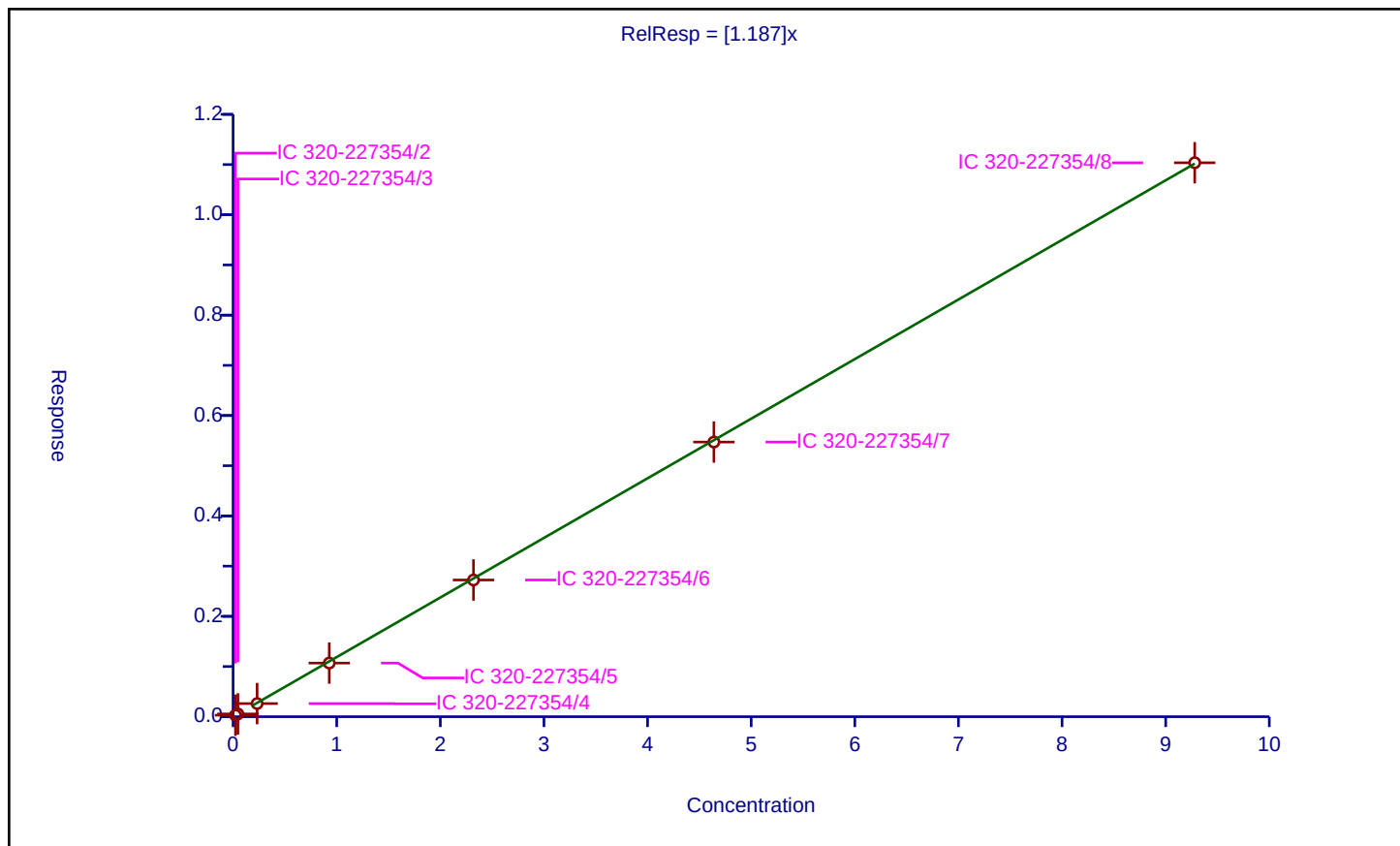
### Curve Coefficients

Intercept: 0  
 Slope: 1.187

### Error Coefficients

Standard Error: 6780000  
 Relative Standard Error: 4.4  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.998

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.0232        | 0.029985   | 2.39      | 3352986.0   | 1.292437 | Y    |
| 2  | IC 320-227354/3 | 0.0464        | 0.055503   | 2.39      | 3428276.0   | 1.196187 | Y    |
| 3  | IC 320-227354/4 | 0.232         | 0.261927   | 2.39      | 3384749.0   | 1.128994 | Y    |
| 4  | IC 320-227354/5 | 0.928         | 1.068347   | 2.39      | 3378414.0   | 1.151236 | Y    |
| 5  | IC 320-227354/6 | 2.32          | 2.723608   | 2.39      | 3314199.0   | 1.173969 | Y    |
| 6  | IC 320-227354/7 | 4.64          | 5.471993   | 2.39      | 3249167.0   | 1.179309 | Y    |
| 7  | IC 320-227354/8 | 9.28          | 11.036114  | 2.39      | 3088993.0   | 1.189236 | Y    |



## Calibration

## / Perfluorooctane Sulfonamide

**Curve Type:** Average  
**Weighting:** Conc\_Sq  
**Origin:** Force  
**Dependency:** Response  
**Calib Mode:** IsoDil  
**Response Base:**  
**RF Rounding:** 0

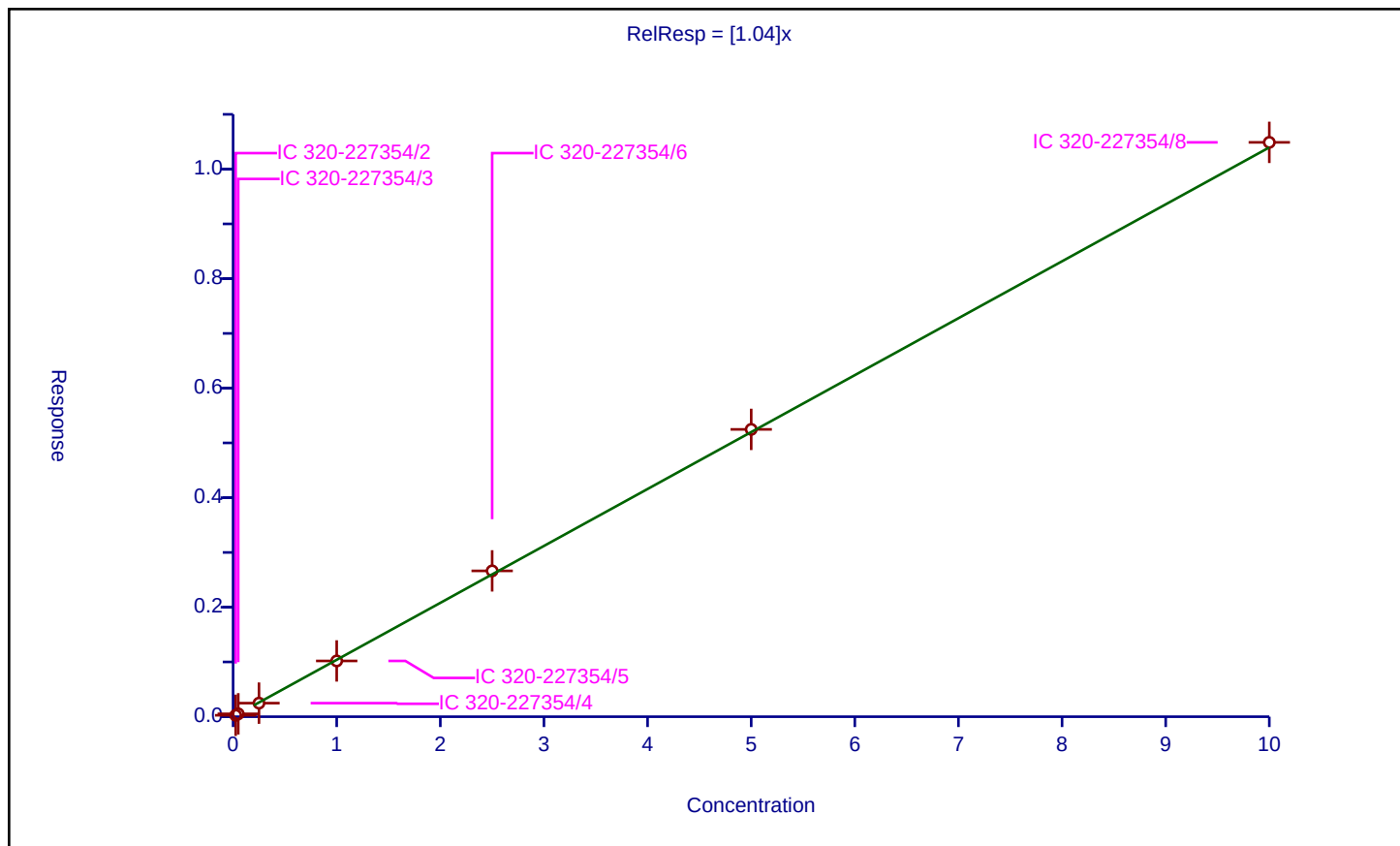
### Curve Coefficients

**Intercept:** 0  
**Slope:** 1.04

### Error Coefficients

**Standard Error:** 8170000  
**Relative Standard Error:** 2.4  
**Correlation Coefficient:** 0.999  
**Coefficient of Determination (Adjusted):** 0.999

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.026319   | 2.5       | 4419138.0   | 1.052762 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.052521   | 2.5       | 4467650.0   | 1.050418 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.248049   | 2.5       | 4484265.0   | 0.992196 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.01854    | 2.5       | 4437048.0   | 1.01854  | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.663063   | 2.5       | 4378158.0   | 1.065225 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.246929   | 2.5       | 4331460.0   | 1.049386 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.488562  | 2.5       | 4079339.0   | 1.048856 | Y    |



## Calibration

/ Sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2)

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

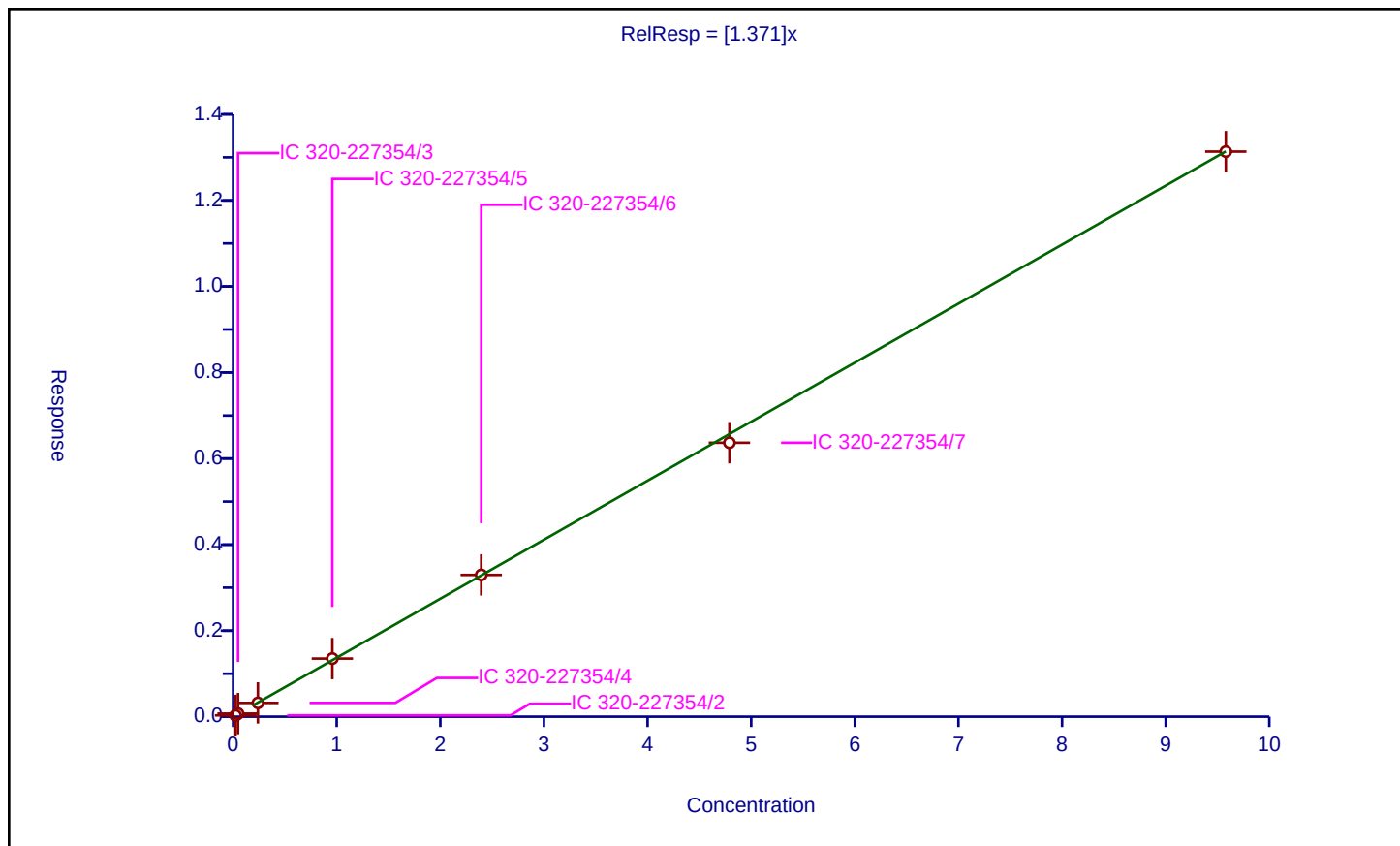
### Curve Coefficients

Intercept: 0  
 Slope: 1.371

### Error Coefficients

Standard Error: 2450000  
 Relative Standard Error: 5.5  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.996

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.02395       | 0.030297   | 2.395     | 1059139.0   | 1.26499  | Y    |
| 2  | IC 320-227354/3 | 0.0479        | 0.072276   | 2.395     | 1064084.0   | 1.508903 | Y    |
| 3  | IC 320-227354/4 | 0.2395        | 0.320811   | 2.395     | 1123283.0   | 1.339502 | Y    |
| 4  | IC 320-227354/5 | 0.958         | 1.351136   | 2.395     | 1045448.0   | 1.410371 | Y    |
| 5  | IC 320-227354/6 | 2.395         | 3.296083   | 2.395     | 1050319.0   | 1.376235 | Y    |
| 6  | IC 320-227354/7 | 4.79          | 6.367274   | 2.395     | 1049042.0   | 1.329285 | Y    |
| 7  | IC 320-227354/8 | 9.58          | 13.133653  | 2.395     | 926421.0    | 1.370945 | Y    |



## Calibration

/ Perfluorodecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

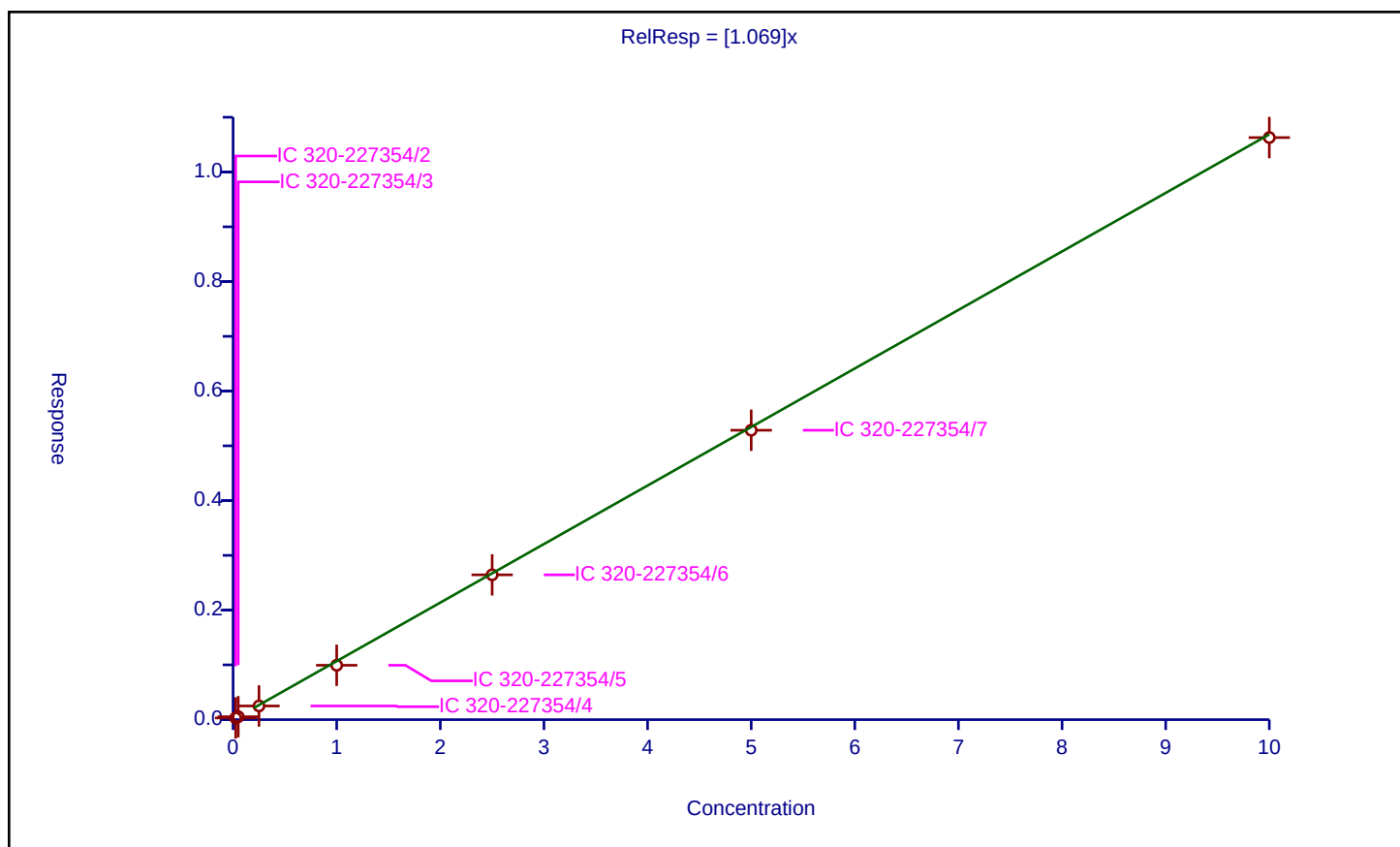
### Curve Coefficients

Intercept: 0  
 Slope: 1.069

### Error Coefficients

Standard Error: 5230000  
 Relative Standard Error: 7.6  
 Correlation Coefficient: 0.997  
 Coefficient of Determination (Adjusted): 0.992

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.030931   | 2.5       | 2716339.0   | 1.237254 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.053735   | 2.5       | 2983039.0   | 1.074709 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.249711   | 2.5       | 3000974.0   | 0.998846 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 0.992942   | 2.5       | 3031724.0   | 0.992942 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.64456    | 2.5       | 2831965.0   | 1.057824 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.284653   | 2.5       | 2830080.0   | 1.056931 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.62952   | 2.5       | 2554258.0   | 1.062952 | Y    |





## Calibration

/ Perfluorononanesulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

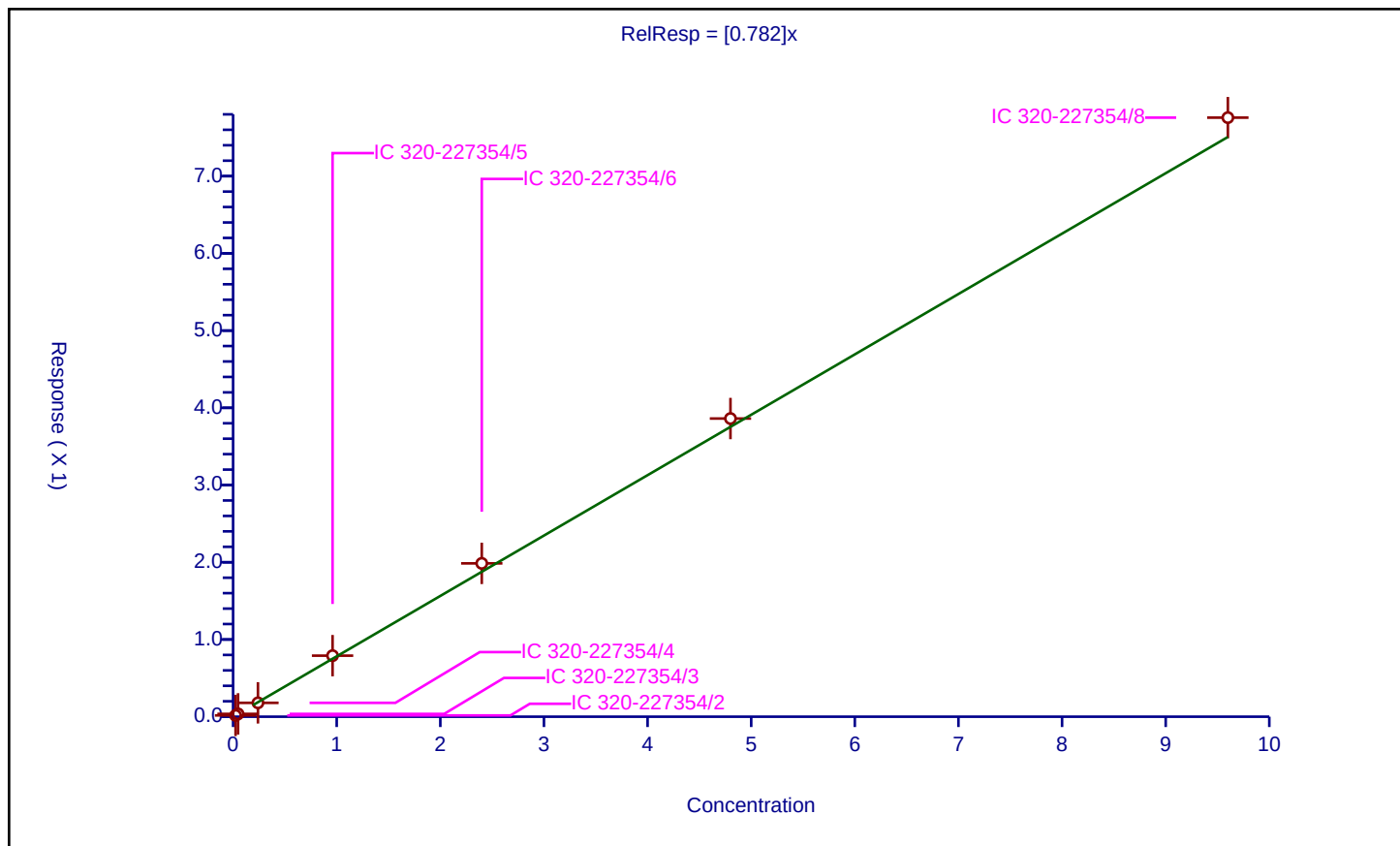
### Curve Coefficients

Intercept: 0  
 Slope: 0.782

### Error Coefficients

Standard Error: 4780000  
 Relative Standard Error: 6.1  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.996

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.024         | 0.016758   | 2.39      | 3352986.0   | 0.698245 | Y    |
| 2  | IC 320-227354/3 | 0.048         | 0.036664   | 2.39      | 3428276.0   | 0.763837 | Y    |
| 3  | IC 320-227354/4 | 0.24          | 0.17957    | 2.39      | 3384749.0   | 0.74821  | Y    |
| 4  | IC 320-227354/5 | 0.96          | 0.790728   | 2.39      | 3378414.0   | 0.823675 | Y    |
| 5  | IC 320-227354/6 | 2.4           | 1.985444   | 2.39      | 3314199.0   | 0.827268 | Y    |
| 6  | IC 320-227354/7 | 4.8           | 3.861338   | 2.39      | 3249167.0   | 0.804445 | Y    |
| 7  | IC 320-227354/8 | 9.6           | 7.757727   | 2.39      | 3088993.0   | 0.808097 | Y    |



## Calibration

/ N-methyl perfluorooctane sulfonamidoacetic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

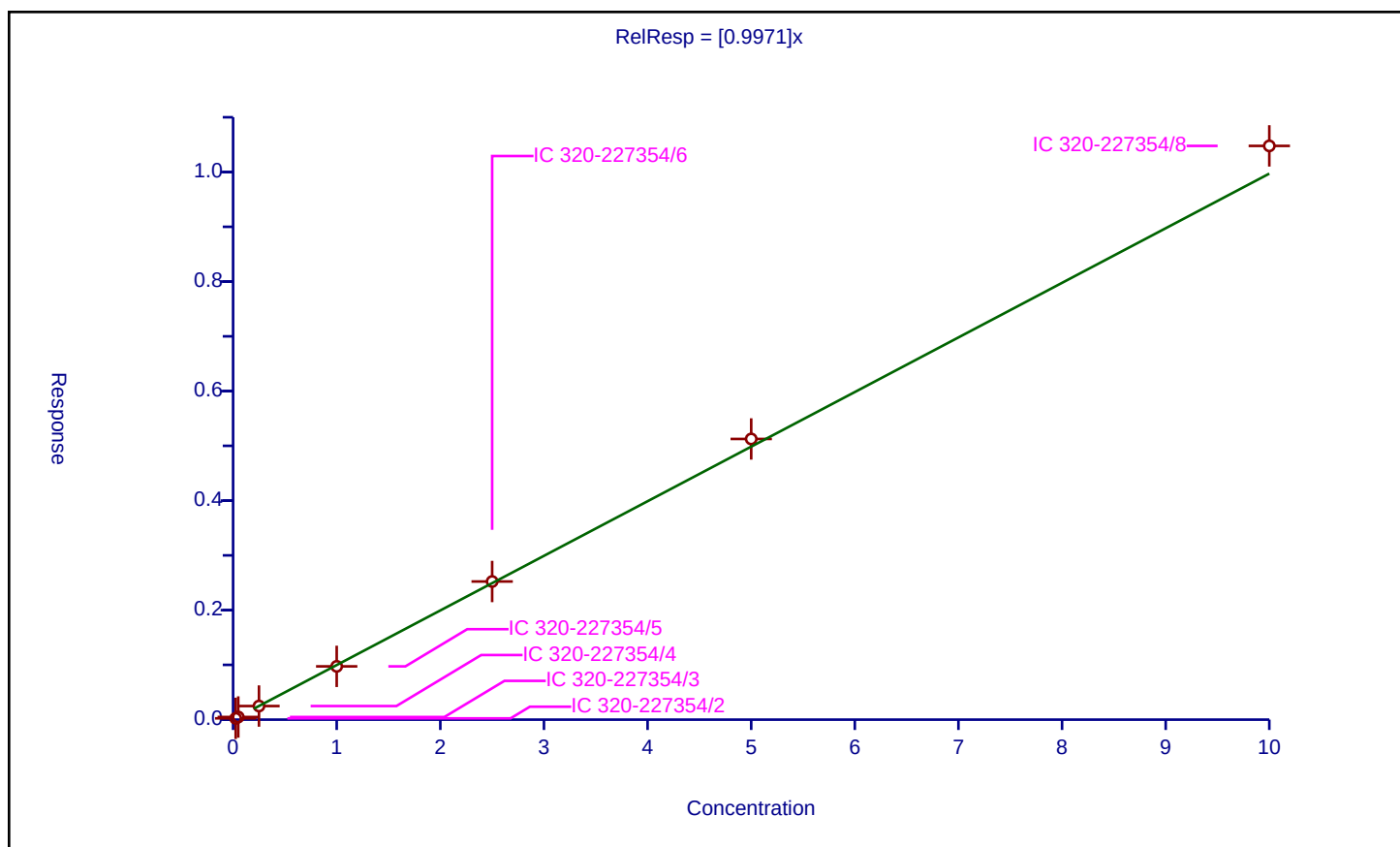
### Curve Coefficients

Intercept: 0  
 Slope: 0.9971

### Error Coefficients

Standard Error: 3120000  
 Relative Standard Error: 3.2  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.999

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.024027   | 2.5       | 1663469.0   | 0.961064 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.048515   | 2.5       | 1768487.0   | 0.970293 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.248384   | 2.5       | 1689060.0   | 0.993535 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 0.972715   | 2.5       | 1761089.0   | 0.972715 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.522595   | 2.5       | 1711637.0   | 1.009038 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.125837   | 2.5       | 1629652.0   | 1.025167 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.477555  | 2.5       | 1580798.0   | 1.047755 | Y    |



## Calibration

/ Perfluoroundecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

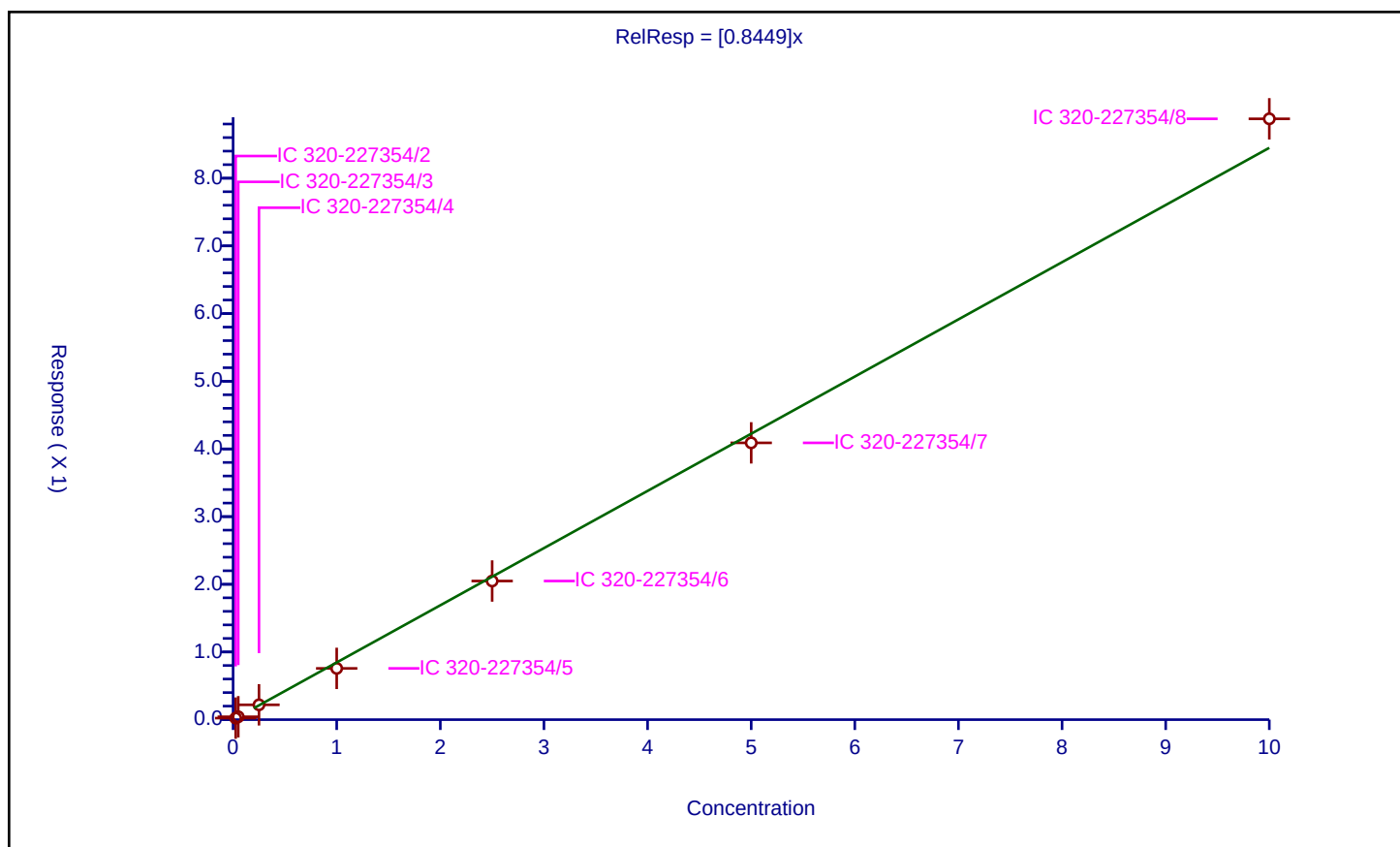
### Curve Coefficients

Intercept: 0  
 Slope: 0.8449

### Error Coefficients

Standard Error: 3440000  
 Relative Standard Error: 6.0  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.995

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.022629   | 2.5       | 2361228.0   | 0.905165 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.042496   | 2.5       | 2536101.0   | 0.849927 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.219136   | 2.5       | 2450667.0   | 0.876545 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 0.757401   | 2.5       | 2491515.0   | 0.757401 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.048134   | 2.5       | 2417072.0   | 0.819254 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 4.089629   | 2.5       | 2295440.0   | 0.817926 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 8.877441   | 2.5       | 2040350.0   | 0.887744 | Y    |



## Calibration

/ Perfluorodecane Sulfonic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

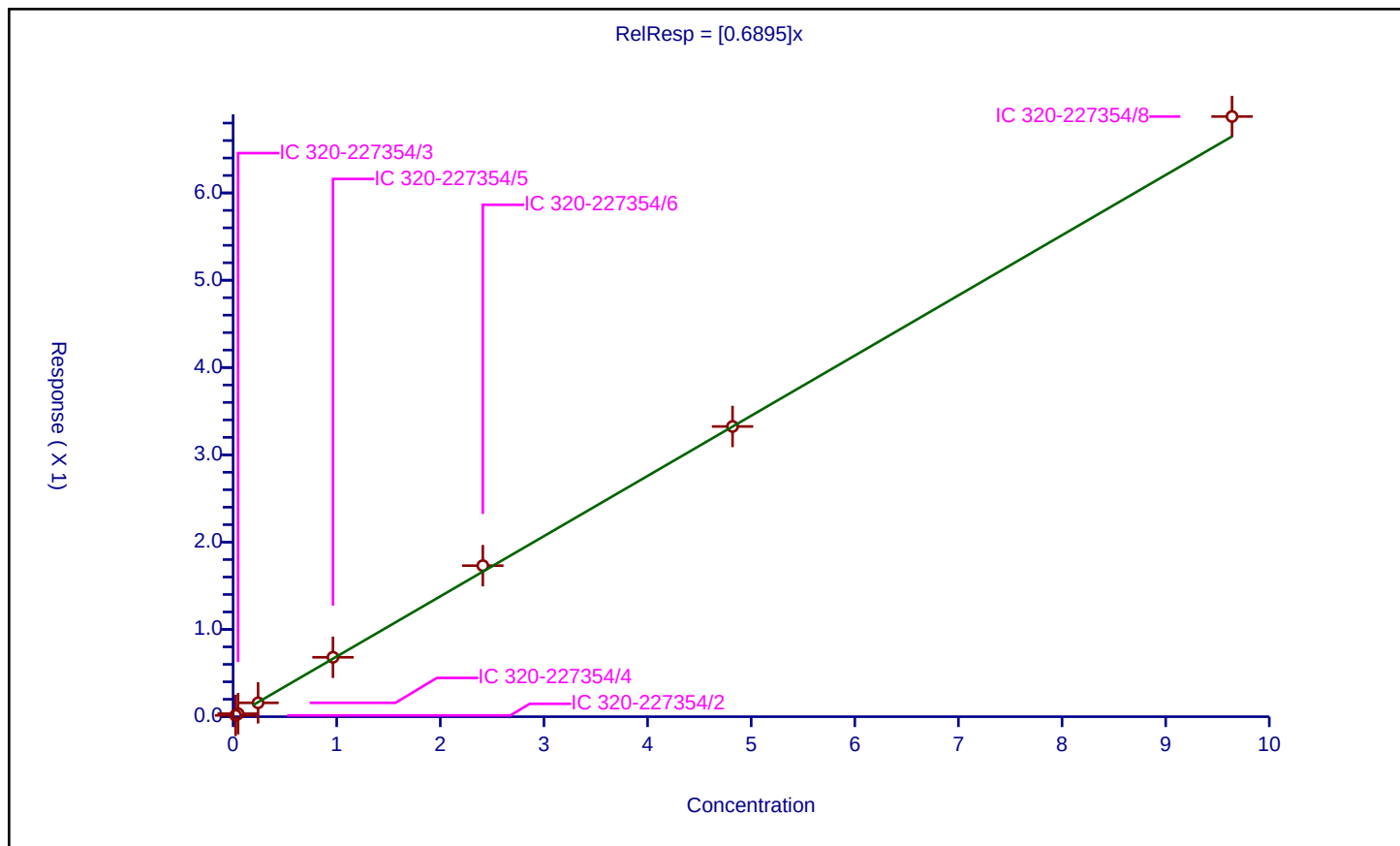
### Curve Coefficients

Intercept: 0  
 Slope: 0.6895

### Error Coefficients

Standard Error: 4210000  
 Relative Standard Error: 5.3  
 Correlation Coefficient: 1.000  
 Coefficient of Determination (Adjusted): 0.997

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.0241        | 0.014959   | 2.39      | 3352986.0   | 0.620696 | Y    |
| 2  | IC 320-227354/3 | 0.0482        | 0.034631   | 2.39      | 3428276.0   | 0.718477 | Y    |
| 3  | IC 320-227354/4 | 0.241         | 0.159155   | 2.39      | 3384749.0   | 0.660393 | Y    |
| 4  | IC 320-227354/5 | 0.964         | 0.680624   | 2.39      | 3378414.0   | 0.706041 | Y    |
| 5  | IC 320-227354/6 | 2.41          | 1.730387   | 2.39      | 3314199.0   | 0.718003 | Y    |
| 6  | IC 320-227354/7 | 4.82          | 3.324898   | 2.39      | 3249167.0   | 0.689813 | Y    |
| 7  | IC 320-227354/8 | 9.64          | 6.875396   | 2.39      | 3088993.0   | 0.713215 | Y    |



## Calibration

/ N-ethyl perfluorooctane sulfonamidoacetic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

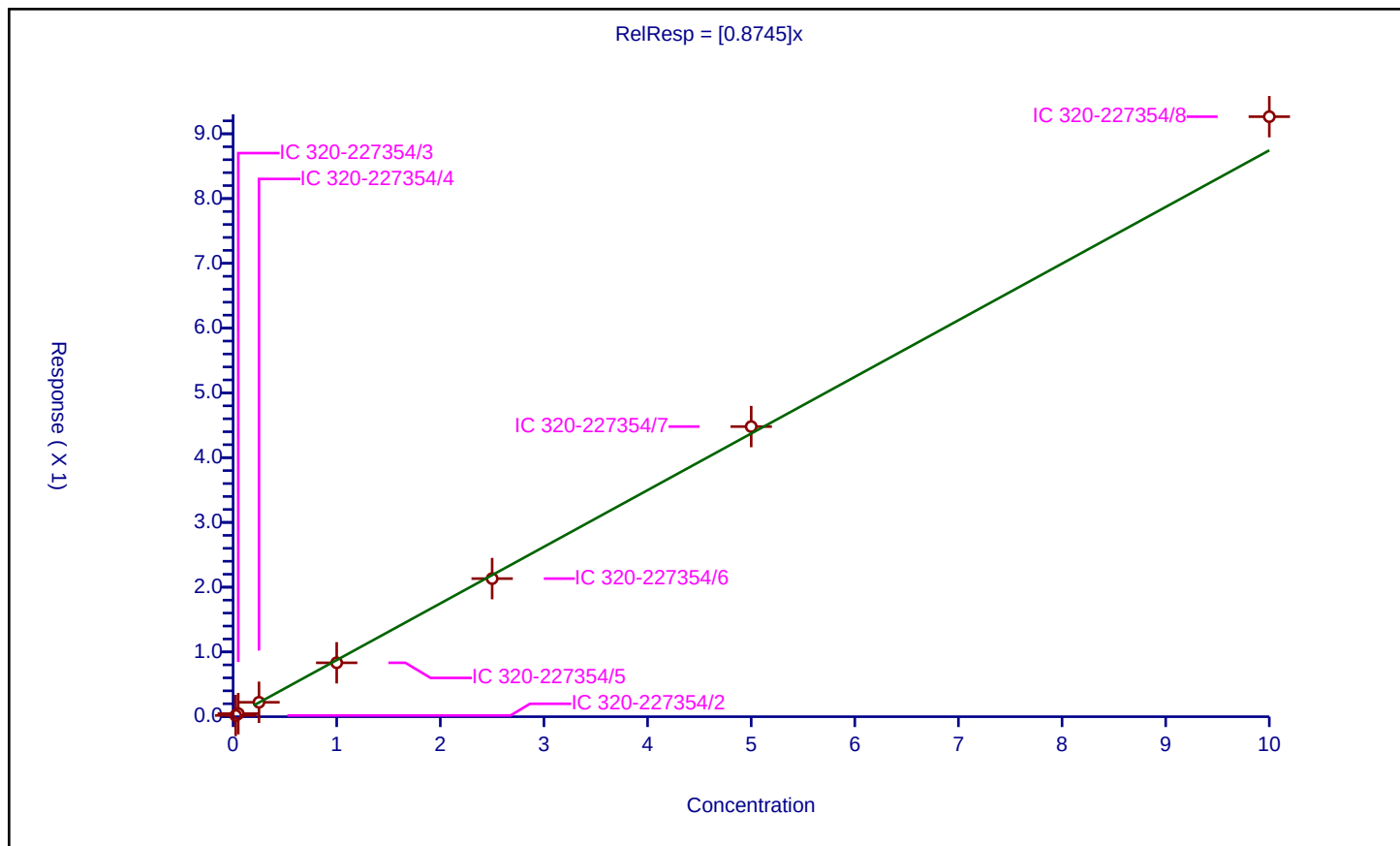
### Curve Coefficients

Intercept: 0  
 Slope: 0.8745

### Error Coefficients

Standard Error: 2780000  
 Relative Standard Error: 6.8  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 0.994

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.019332   | 2.5       | 1832483.0   | 0.773268 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.04745    | 2.5       | 1897724.0   | 0.949005 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.22284    | 2.5       | 1874454.0   | 0.891358 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 0.832473   | 2.5       | 1884668.0   | 0.832473 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.132229   | 2.5       | 1880177.0   | 0.852892 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 4.479467   | 2.5       | 1698178.0   | 0.895893 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 9.264454   | 2.5       | 1574432.0   | 0.926445 | Y    |



## Calibration

/ Perfluorododecanoic acid

Curve Type: Average  
 Weighting: Conc\_Sq  
 Origin: Force  
 Dependency: Response  
 Calib Mode: IsoDil  
 Response Base:  
 RF Rounding: 0

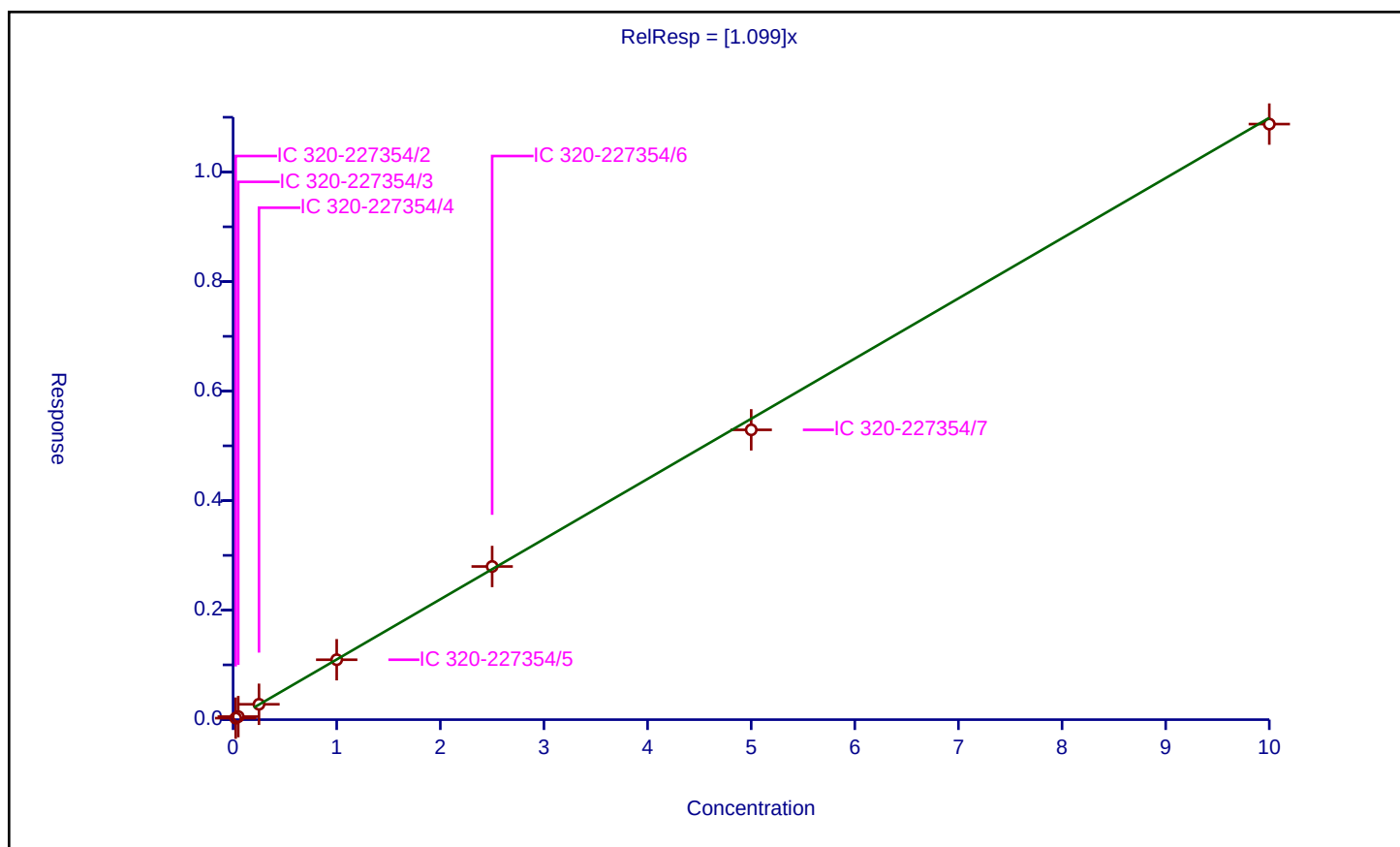
### Curve Coefficients

Intercept: 0  
 Slope: 1.099

### Error Coefficients

Standard Error: 4880000  
 Relative Standard Error: 2.0  
 Correlation Coefficient: 0.999  
 Coefficient of Determination (Adjusted): 1.000

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.027521   | 2.5       | 2434472.0   | 1.100855 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.055568   | 2.5       | 2622715.0   | 1.111367 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.280388   | 2.5       | 2588443.0   | 1.121551 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.094022   | 2.5       | 2616438.0   | 1.094022 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.796805   | 2.5       | 2623887.0   | 1.118722 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.292211   | 2.5       | 2510329.0   | 1.058442 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 10.87567   | 2.5       | 2349769.0   | 1.087567 | Y    |



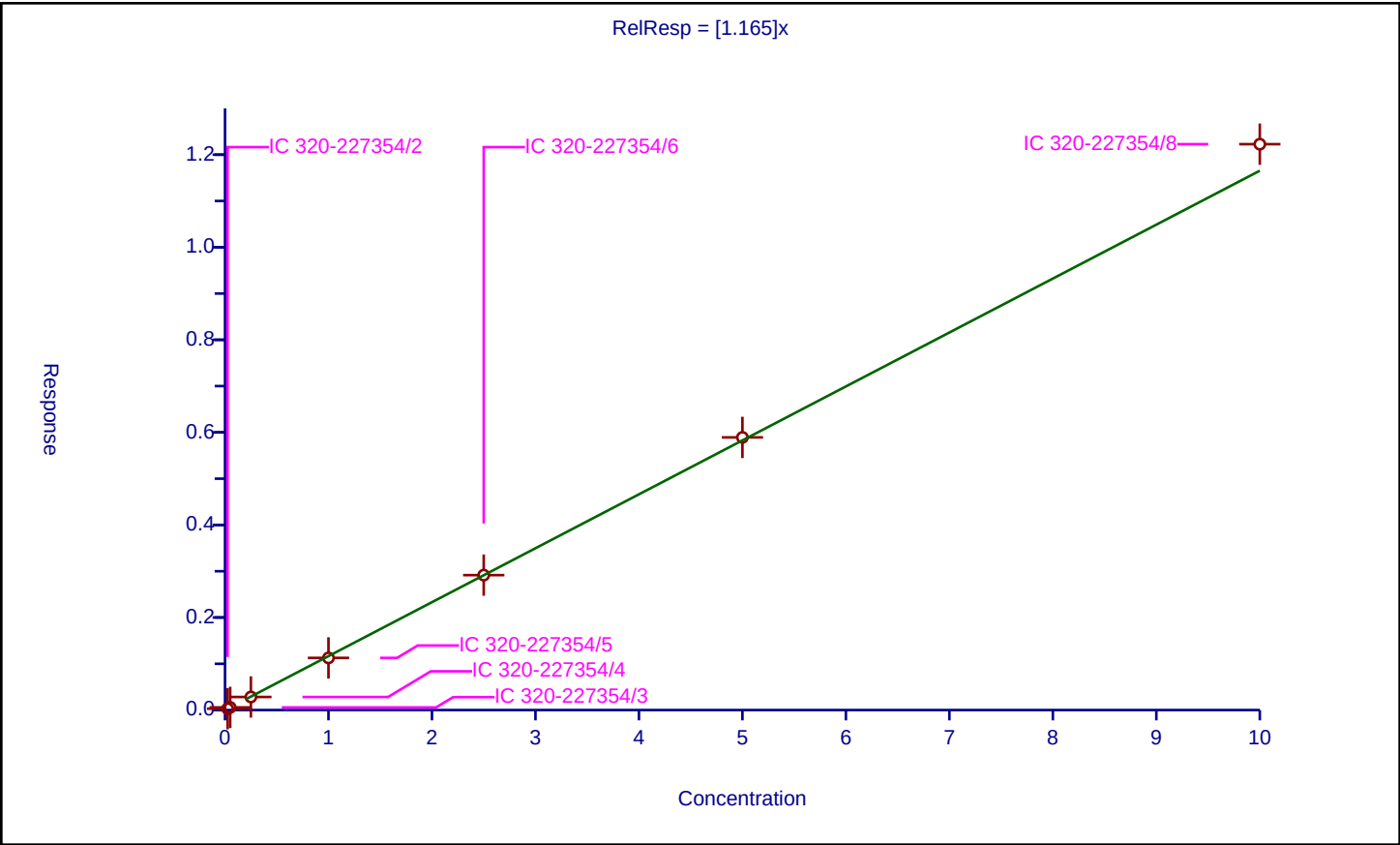
Calibration

/ Perfluorotridecanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 1.165   |
| Error Coefficients                       |         |
| Standard Error:                          | 5450000 |
| Relative Standard Error:                 | 3.1     |
| Correlation Coefficient:                 | 1.000   |
| Coefficient of Determination (Adjusted): | 0.999   |

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.029875   | 2.5       | 2434472.0   | 1.195002 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.05698    | 2.5       | 2622715.0   | 1.139602 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.282322   | 2.5       | 2588443.0   | 1.129289 | Y    |
| 4  | IC 320-227354/5 | 1.0           | 1.126613   | 2.5       | 2616438.0   | 1.126613 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 2.915283   | 2.5       | 2623887.0   | 1.166113 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 5.891467   | 2.5       | 2510329.0   | 1.178293 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 12.227235  | 2.5       | 2349769.0   | 1.222723 | Y    |



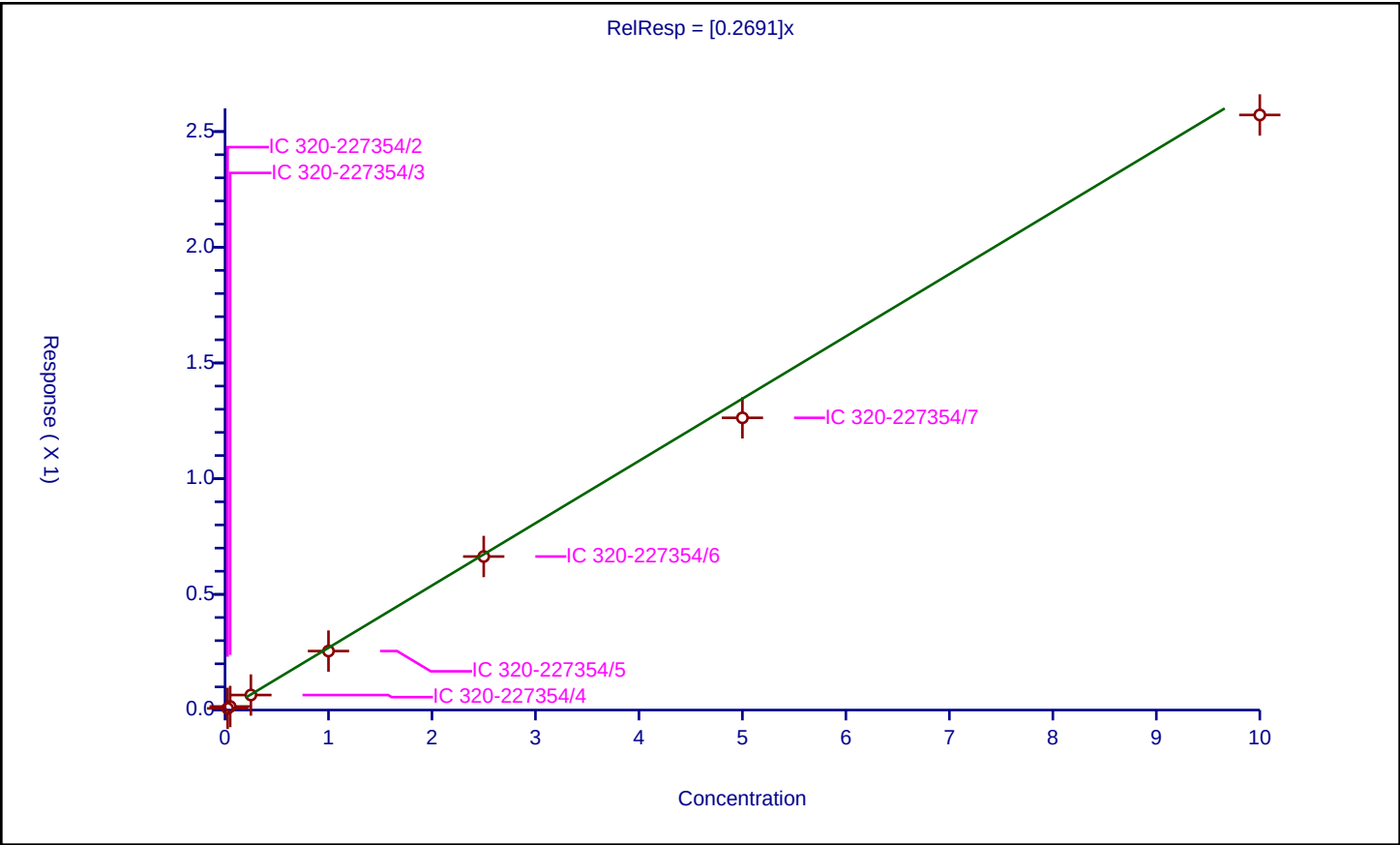
Calibration

/ Perfluorotetradecanoic acid

Curve Type: Average  
Weighting: Conc\_Sq  
Origin: Force  
Dependency: Response  
Calib Mode: IsoDil  
Response Base:  
RF Rounding: 0

| Curve Coefficients                       |         |
|------------------------------------------|---------|
| Intercept:                               | 0       |
| Slope:                                   | 0.2691  |
| Error Coefficients                       |         |
| Standard Error:                          | 1480000 |
| Relative Standard Error:                 | 7.6     |
| Correlation Coefficient:                 | 0.998   |
| Coefficient of Determination (Adjusted): | 0.992   |

| ID | Level           | Concentration | Rel. Resp. | IS Amount | IS Response | RRF      | Used |
|----|-----------------|---------------|------------|-----------|-------------|----------|------|
| 1  | IC 320-227354/2 | 0.025         | 0.00714    | 2.5       | 3302697.0   | 0.285615 | Y    |
| 2  | IC 320-227354/3 | 0.05          | 0.01542    | 2.5       | 3389482.0   | 0.308395 | Y    |
| 3  | IC 320-227354/4 | 0.25          | 0.064927   | 2.5       | 3374999.0   | 0.25971  | Y    |
| 4  | IC 320-227354/5 | 1.0           | 0.254973   | 2.5       | 3391529.0   | 0.254973 | Y    |
| 5  | IC 320-227354/6 | 2.5           | 0.663563   | 2.5       | 3250808.0   | 0.265425 | Y    |
| 6  | IC 320-227354/7 | 5.0           | 1.262891   | 2.5       | 3326246.0   | 0.252578 | Y    |
| 7  | IC 320-227354/8 | 10.0          | 2.57174    | 2.5       | 2994414.0   | 0.257174 | Y    |





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: ICV 320-223413/13 Calibration Date: 05/15/2018 17:23

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.15LLCC\_ICAL\_010.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|------------------------------------------------------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| Perfluorobutanoic acid (PFBA)                              | AveID         | 0.9298  | 0.9503 |         | 2.55           | 2.50            | 2.2   | 30.0      |
| Perfluoropentanoic acid (PFPeA)                            | AveID         | 1.181   | 1.167  |         | 2.47           | 2.50            | -1.1  | 30.0      |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID         | 78.09   | 82.15  |         | 2.33           | 2.21            | 5.2   | 30.0      |
| 4:2 FTS                                                    | AveID         | 16.57   | 18.05  |         | 2.55           | 2.34            | 8.9   | 30.0      |
| Perfluorohexanoic acid (PFHxA)                             | AveID         | 1.028   | 1.004  |         | 2.44           | 2.50            | -2.3  | 30.0      |
| Perfluoropentanesulfonic acid                              | AveID         | 69.55   | 71.81  |         | 2.43           | 2.35            | 3.3   | 30.0      |
| Perfluoroheptanoic acid (PFHpA)                            | AveID         | 1.056   | 1.142  |         | 2.70           | 2.50            | 8.1   | 30.0      |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID         | 1.127   | 1.055  |         | 2.14           | 2.28            | -6.3  | 30.0      |
| 6:2FTS                                                     | L2ID          |         | 1.554  |         | 2.09           | 2.38            | -11.9 | 30.0      |
| Perfluorooctanoic acid (PFOA)                              | AveID         | 1.177   | 1.151  |         | 2.44           | 2.50            | -2.2  | 30.0      |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID         | 1.332   | 1.351  |         | 2.41           | 2.38            | 1.4   | 30.0      |
| Perfluorononanoic acid (PFNA)                              | AveID         | 1.059   | 1.072  |         | 2.53           | 2.50            | 1.2   | 30.0      |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID         | 1.176   | 1.149  |         | 2.26           | 2.31            | -2.3  | 30.0      |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID         | 0.9736  | 0.9902 |         | 2.54           | 2.50            | 1.7   | 30.0      |
| Perfluorononanesulfonic acid                               | AveID         | 0.7575  | 0.7598 |         | 2.41           | 2.40            | 0.3   | 30.0      |
| 8:2FTS                                                     | AveID         | 1.349   | 1.309  |         | 2.33           | 2.40            | -3.0  | 30.0      |
| Perfluorodecanoic acid (PFDA)                              | AveID         | 0.9722  | 1.037  |         | 2.67           | 2.50            | 6.7   | 30.0      |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID         | 1.015   | 1.021  |         | 2.52           | 2.50            | 0.6   | 30.0      |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID         | 0.6714  | 0.7025 |         | 2.52           | 2.41            | 4.6   | 30.0      |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID         | 0.9400  | 0.9652 |         | 2.57           | 2.50            | 2.7   | 30.0      |
| Perfluoroundecanoic acid (PFUnA)                           | AveID         | 0.8352  | 0.7177 |         | 2.15           | 2.50            | -14.1 | 30.0      |
| Perfluorododecanoic acid (PFDoA)                           | AveID         | 1.044   | 0.996  |         | 2.39           | 2.50            | -4.5  | 30.0      |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID         | 1.144   | 1.104  |         | 2.41           | 2.50            | -3.5  | 30.0      |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID         | 0.2525  | 0.2469 |         | 2.44           | 2.50            | -2.2  | 30.0      |
| 13C4 PFBA                                                  | Ave           | 1.528   | 1.462  |         | 2.39           | 2.50            | -4.3  | 30.0      |
| 13C5-PFPeA                                                 | Ave           | 0.9798  | 0.9296 |         | 2.37           | 2.50            | -5.1  | 30.0      |
| 13C3-PFBS                                                  | Ave           | 0.0221  | 0.0208 |         | 2.18           | 2.33            | -6.0  | 30.0      |
| 13C2 PFHxA                                                 | Ave           | 1.045   | 0.998  |         | 2.39           | 2.50            | -4.5  | 30.0      |
| 13C4-PFHpA                                                 | Ave           | 1.001   | 0.9156 |         | 2.29           | 2.50            | -8.5  | 30.0      |
| 18O2 PFHxS                                                 | Ave           | 1.237   | 1.175  |         | 2.25           | 2.37            | -5.0  | 30.0      |
| M2-6:2FTS                                                  | Ave           | 0.2210  | 0.2207 |         | 2.37           | 2.38            | -0.1  | 30.0      |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-223413/13 Calibration Date: 05/15/2018 17:23  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.15LLCC\_ICAL\_010.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.8898 |         | 2.35           | 2.50            | -6.0 | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8094 |         | 2.28           | 2.39            | -4.8 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7379 |         | 2.38           | 2.50            | -4.7 | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.119  |         | 2.51           | 2.50            | 0.6  | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2407 |         | 2.29           | 2.40            | -4.3 | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6073 |         | 2.30           | 2.50            | -7.8 | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3568 |         | 2.45           | 2.50            | -1.8 | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3488 |         | 2.34           | 2.50            | -6.5 | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.4944 |         | 2.37           | 2.50            | -5.2 | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5571 |         | 2.48           | 2.50            | -0.8 | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6919 |         | 2.51           | 2.50            | 0.4  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.171  |         | 2.50           | 2.50            | 0.1  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLCC\_ICAL\_010.d  
 Lims ID: ICV Full  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 15-May-2018 17:23:06 ALS Bottle#: 18 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: ICV  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 16-May-2018 09:20:42 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK037

First Level Reviewer: hannigana

Date: 15-May-2018 17:33:11

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.462  | -0.010 | 1.000  | 6558644  | 2.39         |                   | 95.7 | 44583 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.458 | 1.462  | -0.004 | 1.004  | 6232384  | 2.55         |                   |      | 3830  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.730 | 1.744  | -0.014 | 0.560  | 4169955  | 2.37         |                   | 94.9 | 71064 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.739 | 1.745  | -0.006 | 1.005  | 4867541  | 2.47         |                   |      | 2619  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.766 | 1.780  | -0.014 | 1.000  | 86804    | 2.18         |                   | 94.0 | 672   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.775 | 1.783  | -0.008 | 1.005  | 6786179  | 2.33         |                   |      | 32587 |       |
| 298.90 > 99.00                        | 1.775 | 1.783  | -0.008 | 1.005  | 2714789  |              | 2.50(1.25-3.74)   |      | 20109 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.982 | 1.999  | -0.017 | 1.000  | 647709   | NC           |                   |      | 9057  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.993 | 2.000  | -0.007 | 1.000  | 1575421  | 2.55         |                   |      | 89480 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.027 | 2.037  | -0.010 | 1.000  | 4497390  | 2.44         |                   |      | 7112  |       |
| 313.00 > 119.00                       | 2.027 | 2.037  | -0.010 | 1.000  | 434640   |              | 10.35(5.03-15.10) |      | 6592  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.027 | 2.037  | -0.010 | 1.000  | 4477812  | 2.39         |                   | 95.5 | 93567 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.049 | 2.059  | -0.010 | 1.000  | 6300178  | 2.43         |                   |      | 66597 |       |
| 349.00 > 99.00                        | 2.049 | 2.059  | -0.010 | 1.000  | 2290834  |              | 2.75(1.36-4.07)   |      | 32182 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.129 | 2.134  | -0.005 | 1.000  | 637807   | NC           |                   |      | 5920  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|--------|-------|
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                 |      |        |       |
| 332.10 > 287.00                       | 2.129 | 2.134     | -0.005    | 1.000     | 203771   | NC              |                 |      | 3726   |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |        |       |
| 367.00 > 322.00                       | 2.360 | 2.374     | -0.014    | 1.000     | 4107005  | 2.29            |                 | 91.5 | 82212  |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |        |       |
| 363.00 > 319.00                       | 2.360 | 2.374     | -0.014    | 1.000     | 4689174  | 2.70            |                 |      | 6790   |       |
| 363.00 > 169.00                       | 2.360 | 2.374     | -0.014    | 1.000     | 1789663  |                 | 2.62(1.13-3.40) |      | 10179  |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |        |       |
| 399.00 > 80.00                        | 2.373 | 2.386     | -0.013    | 1.000     | 5072324  | 2.14            |                 |      | 23515  |       |
| 399.00 > 99.00                        | 2.373 | 2.386     | -0.013    | 1.000     | 1702243  |                 | 2.98(1.50-4.49) |      | 6349   |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |        |       |
| 403.00 > 84.00                        | 2.373 | 2.386     | -0.013    | 1.000     | 4985793  | 2.25            |                 | 95.0 | 50631  |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |        |       |
| 377.00 > 251.00                       | 2.408 | 2.418     | -0.010    | 1.000     | 12919348 | NC              |                 |      | 166549 |       |
| 377.00 > 85.00                        | 2.408 | 2.418     | -0.010    | 1.000     | 7441901  |                 | 1.74(0.84-2.53) |      | 56906  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |        |       |
| 427.00 > 407.00                       | 2.691 | 2.707     | -0.016    | 1.000     | 1461549  | 2.09            |                 |      | 9568   |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |        |       |
| 429.00 > 81.00                        | 2.691 | 2.707     | -0.016    | 1.000     | 940677   | 2.37            |                 | 99.9 | 19507  |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 417.00 > 372.00                       | 2.721 | 2.731     | -0.010    | 1.000     | 3991539  | 2.35            |                 | 94.0 | 60154  |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 413.00 > 369.00                       | 2.721 | 2.734     | -0.013    | 1.000     | 4593918  | 2.44            |                 |      | 2031   |       |
| 413.00 > 169.00                       | 2.721 | 2.734     | -0.013    | 1.000     | 2532726  |                 | 1.81(0.84-2.52) |      | 10558  |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |        |       |
| 415.00 > 370.00                       | 2.721 | 2.734     | -0.013    |           | 4485749  | 2.50            |                 |      | 73224  |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 449.00 > 80.00                        | 2.729 | 2.739     | -0.010    | 1.000     | 4660030  | 2.41            |                 |      | 28740  |       |
| 449.00 > 99.00                        | 2.721 | 2.739     | -0.018    | 0.997     | 1234090  |                 | 3.78(1.94-5.82) |      | 21469  |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |        |       |
| 503.00 > 80.00                        | 3.091 | 3.104     | -0.013    | 1.000     | 3470981  | 2.28            |                 | 95.2 | 22643  |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |        |       |
| 499.00 > 80.00                        | 3.091 | 3.105     | -0.014    | 1.000     | 3860176  | 2.26            |                 |      | 30403  |       |
| 499.00 > 99.00                        | 3.091 | 3.105     | -0.014    | 1.000     | 819041   |                 | 4.71(2.31-6.93) |      | 8926   |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |        |       |
| 463.00 > 419.00                       | 3.091 | 3.107     | -0.016    | 1.000     | 3549673  | 2.53            |                 |      | 6315   |       |
| 463.00 > 169.00                       | 3.091 | 3.107     | -0.016    | 1.000     | 831344   |                 | 4.27(1.90-5.69) |      | 24932  |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |        |       |
| 468.00 > 423.00                       | 3.091 | 3.107     | -0.016    | 1.000     | 3310210  | 2.38            |                 | 95.3 | 54117  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |        |       |
| 531.00 > 351.00                       | 3.299 | 3.316     | -0.017    | 1.000     | 6187168  | NC              |                 |      | 45851  |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |        |       |
| 506.00 > 78.00                        | 3.411 | 3.420     | -0.009    | 1.000     | 5020010  | 2.51            |                 | 101  | 47676  |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |        |       |
| 498.00 > 78.00                        | 3.411 | 3.422     | -0.011    | 1.000     | 4970983  | 2.54            |                 |      | 51844  |       |
| 68 Perfluorononanesulfonic acid       |       |           |           |           |          |                 |                 |      |        |       |
| 549.00 > 80.00                        | 3.439 | 3.455     | -0.016    | 1.000     | 2648226  | 2.41            |                 |      | 40237  |       |
| 549.00 > 99.00                        | 3.439 | 3.455     | -0.016    | 1.000     | 1029286  |                 | 2.57(1.33-3.97) |      | 18505  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.449 | 3.458  | -0.009 | 1.000  | 1356197  | 2.33         |                  |      | 23529 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.449 | 3.459  | -0.010 | 1.000  | 1034203  | 2.29         |                  | 95.7 | 24982 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.458 | 3.468  | -0.010 | 1.000  | 2825404  | 2.67         |                  |      | 13587 |       |
| 513.00 > 169.00                       | 3.458 | 3.468  | -0.010 | 1.000  | 488632   |              | 5.78(2.36-7.09)  |      | 13700 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.458 | 3.468  | -0.010 | 1.000  | 2724371  | 2.30         |                  | 92.2 | 41092 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.611 | 3.624  | -0.013 | 1.000  | 1600454  | 2.45         |                  | 98.2 | 21404 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.611 | 3.631  | -0.020 | 1.000  | 1634540  | 2.52         |                  |      | 10505 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.764 | 3.781  | -0.017 | 1.000  | 2461174  | 2.52         |                  |      | 34940 |       |
| 599.00 > 99.00                        | 3.764 | 3.781  | -0.017 | 1.000  | 854811   |              | 2.88(1.39-4.16)  |      | 19804 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.775 | 3.794  | -0.019 | 1.000  | 1564712  | 2.34         |                  | 93.5 | 7242  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.786 | 3.800  | -0.014 | 1.003  | 1510273  | 2.57         |                  |      | 19551 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.786 | 3.800  | -0.014 | 1.000  | 1591556  | 2.15         |                  |      | 6601  |       |
| 563.00 > 169.00                       | 3.786 | 3.800  | -0.014 | 1.000  | 437354   |              | 3.64(2.12-6.36)  |      | 16106 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.786 | 3.800  | -0.014 | 1.000  | 2217674  | 2.37         |                  | 94.8 | 41351 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.943 | 3.958  | -0.015 | 1.000  | 9764129  | NC           |                  |      | 81201 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.086 | 4.099  | -0.013 | 1.000  | 2498767  | 2.48         |                  | 99.2 | 20633 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.086 | 4.100  | -0.014 | 1.000  | 2489518  | 2.39         |                  |      | 2192  |       |
| 613.00 > 169.00                       | 4.086 | 4.100  | -0.014 | 1.000  | 660158   |              | 3.77(2.13-6.40)  |      | 9524  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.347 | 4.368  | -0.021 | 1.000  | 2757903  | 2.41         |                  |      | 1498  |       |
| 663.00 > 169.00                       | 4.347 | 4.368  | -0.021 | 1.000  | 830586   |              | 3.32(1.25-3.76)  |      | 8581  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.592 | 4.608  | -0.016 | 1.000  | 766392   | 2.44         |                  |      | 8270  |       |
| 713.00 > 219.00                       | 4.582 | 4.608  | -0.026 | 0.998  | 552064   |              | 1.39(0.71-2.13)  |      | 8171  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.592 | 4.608  | -0.016 | 1.000  | 3103625  | 2.51         |                  | 100  | 14331 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 5.008 | 5.030  | -0.022 | 1.000  | 5251192  | 2.50         |                  | 100  | 12649 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 5.008 | 5.031  | -0.023 | 1.000  | 5155170  | NC           |                  |      | 1223  |       |
| 813.00 > 169.00                       | 5.008 | 5.031  | -0.023 | 1.000  | 844334   |              | 6.11(2.86-8.58)  |      | 6207  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.386 | 5.408  | -0.022 | 1.000  | 5286159  | NC           |                  |      | 935   |       |
| 913.00 > 169.00                       | 5.386 | 5.408  | -0.022 | 1.000  | 634791   |              | 8.33(3.83-11.48) |      | 4660  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFCIC\_FULL\_00011

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLCC\_ICAL\_010.d

Injection Date: 15-May-2018 17:23:06

Instrument ID: A8\_N

Lims ID: ICV Full

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

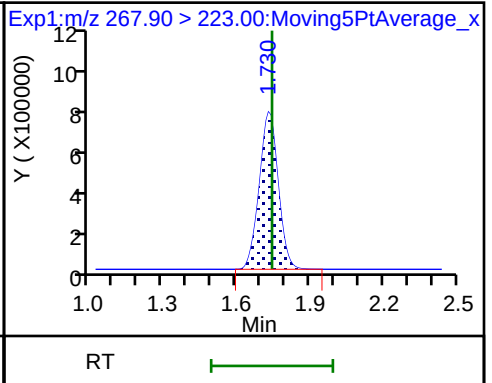
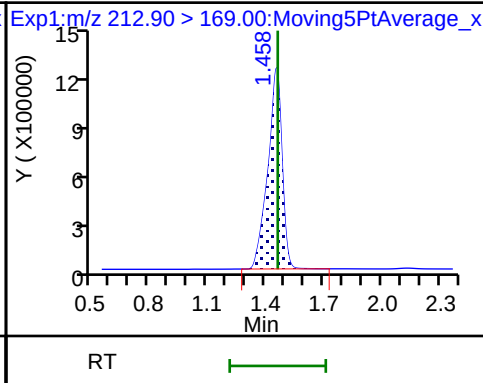
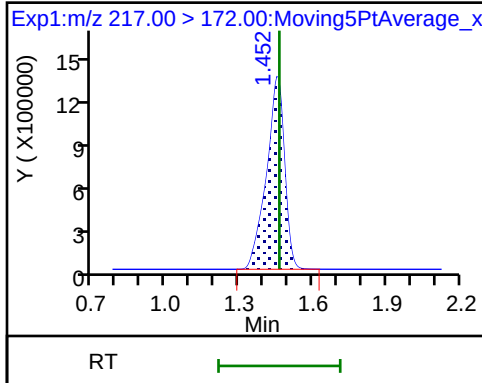
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

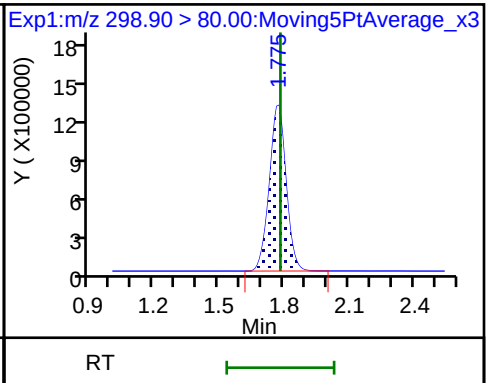
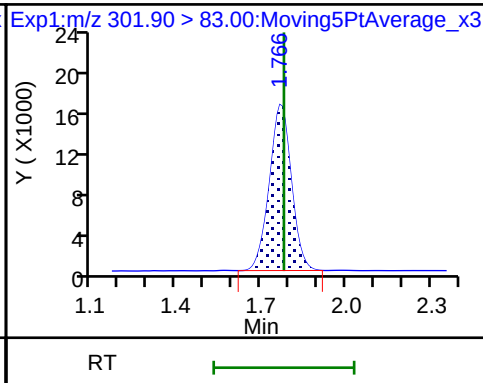
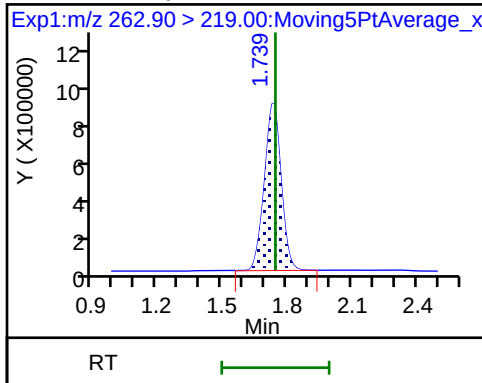
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

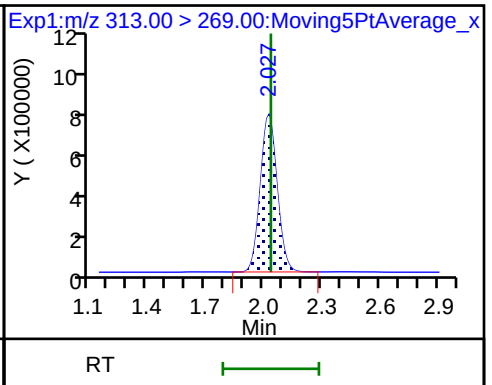
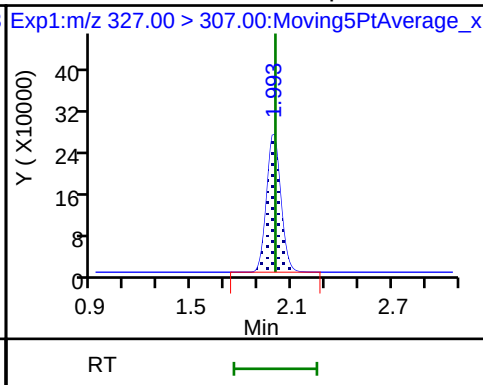
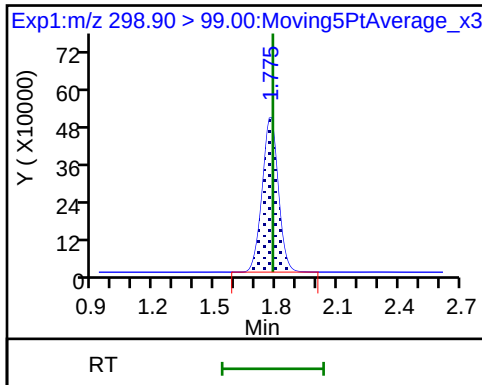
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

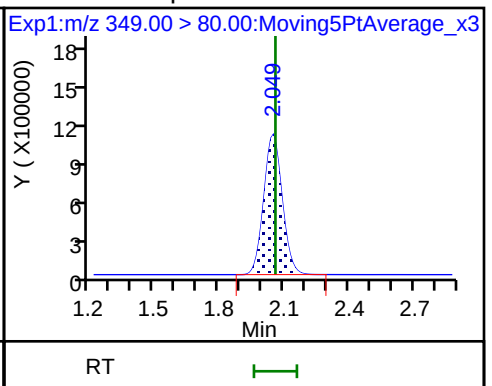
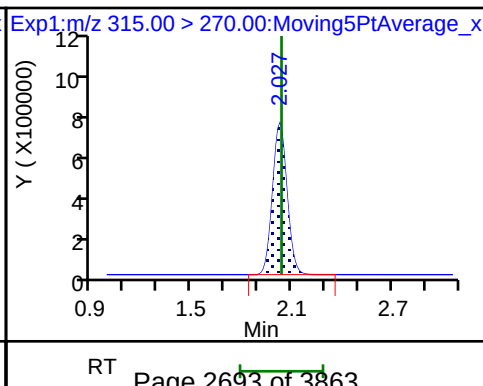
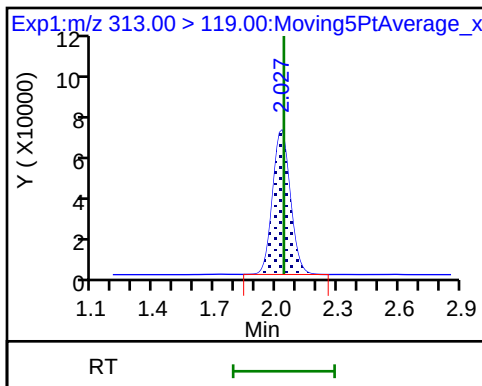
6 Perfluorohexanoic acid

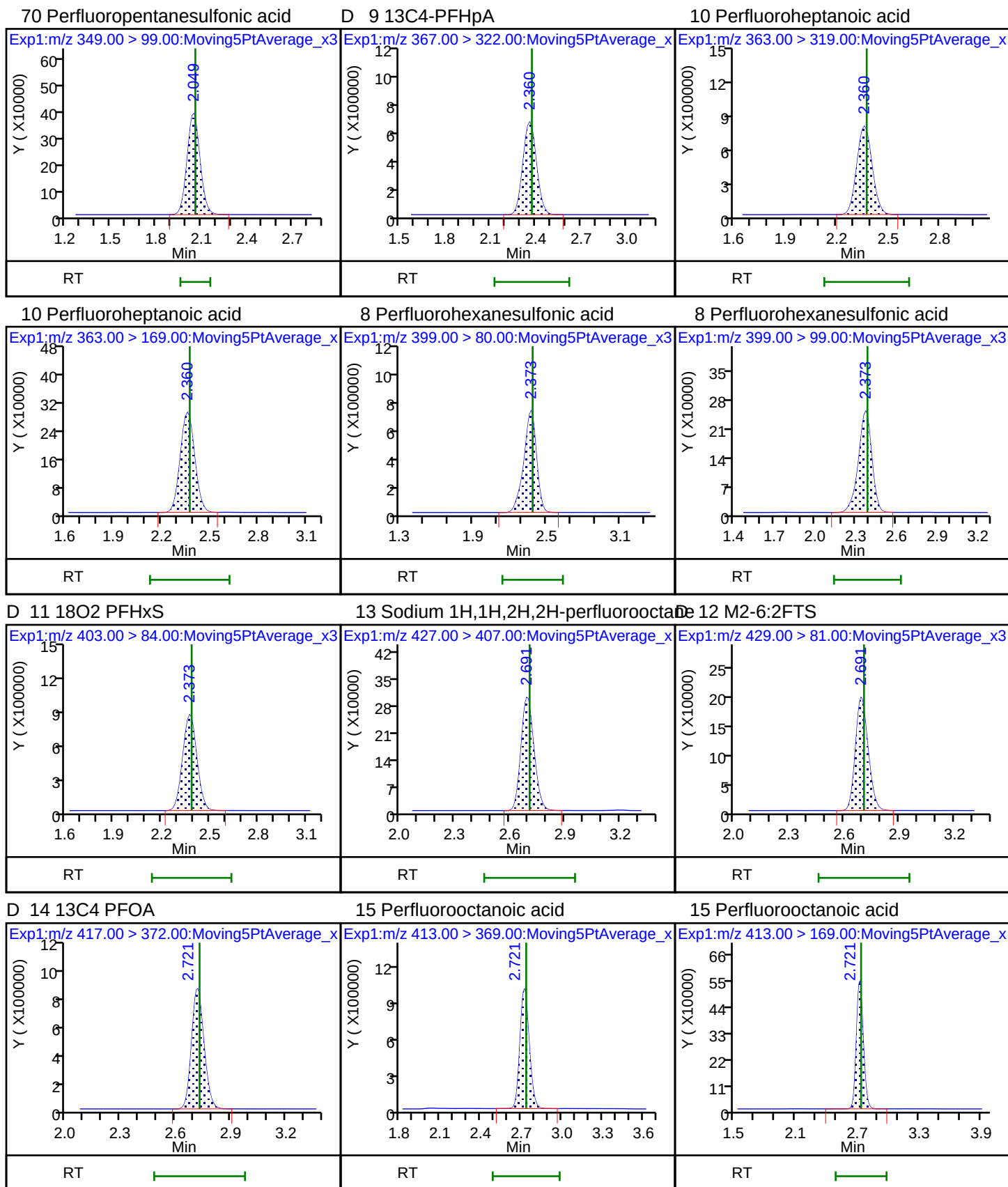


6 Perfluorohexanoic acid

D 7 13C2 PFHxA

70 Perfluoropentanesulfonic acid



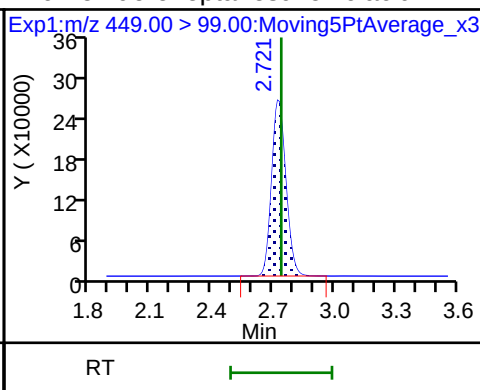
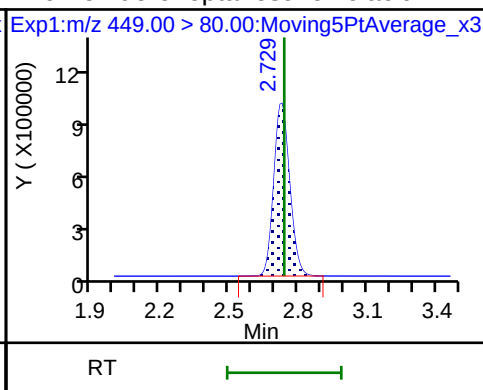
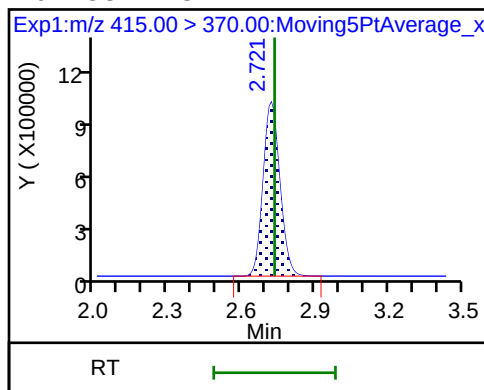




\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

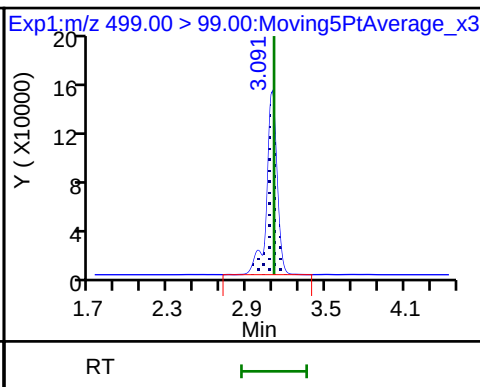
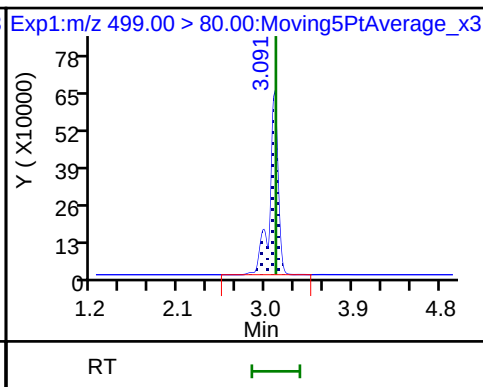
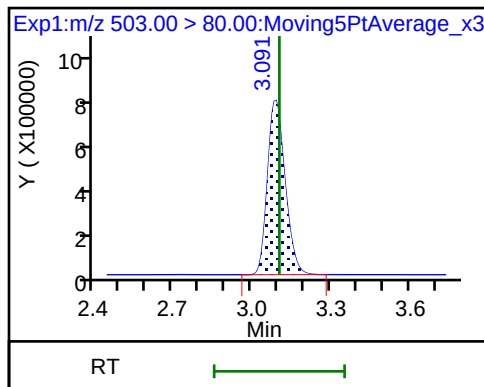
16 Perfluoroheptanesulfonic acid



D 18 13C4 PFOS

17 Perfluorooctane sulfonic acid

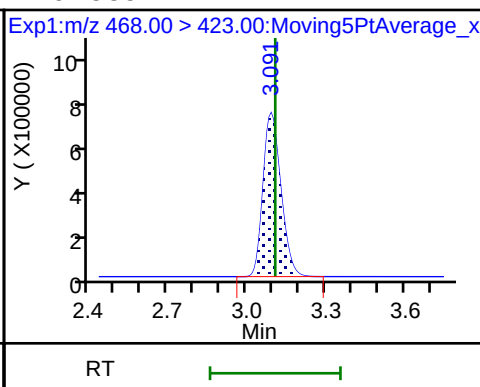
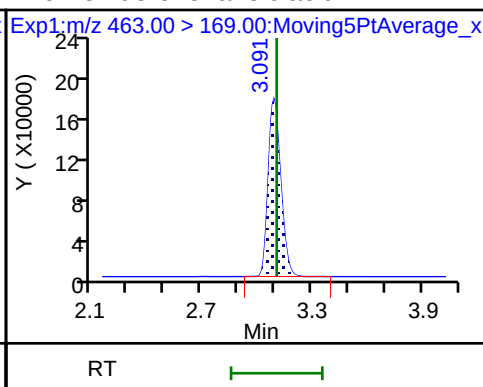
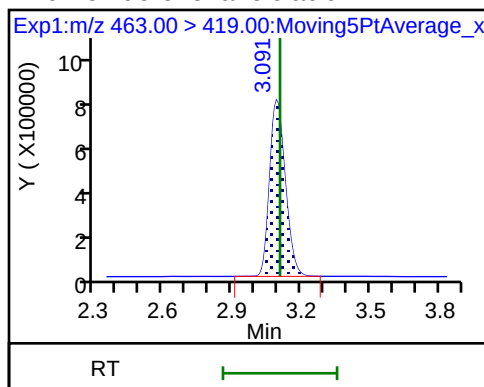
17 Perfluorooctane sulfonic acid



20 Perfluorononanoic acid

20 Perfluorononanoic acid

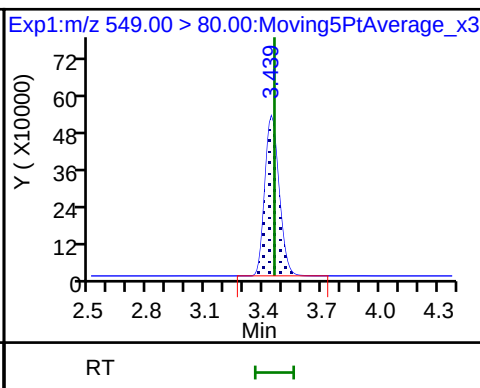
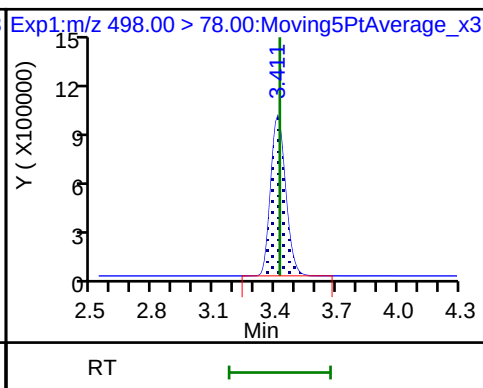
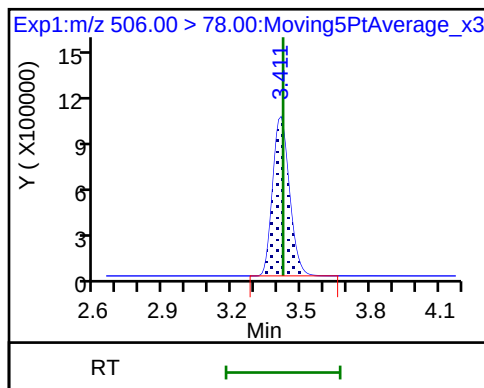
D 19 13C5 PFNA



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

68 Perfluorononanesulfonic acid

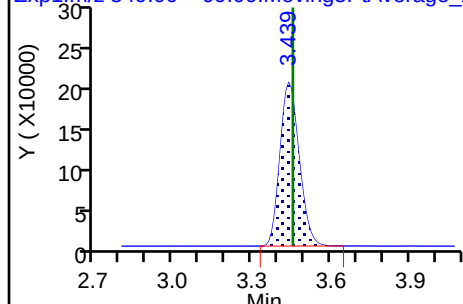


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodeca

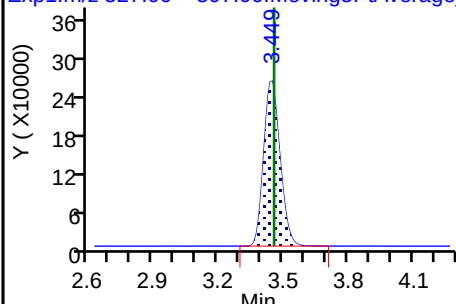
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



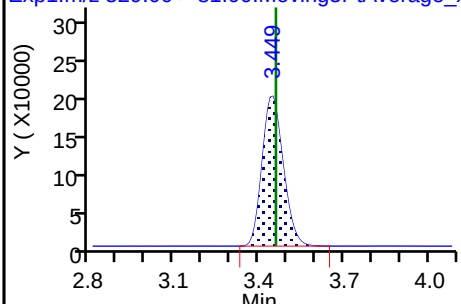
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



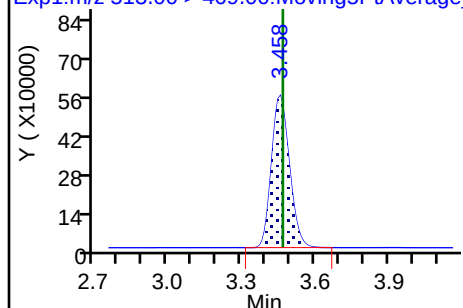
RT

## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

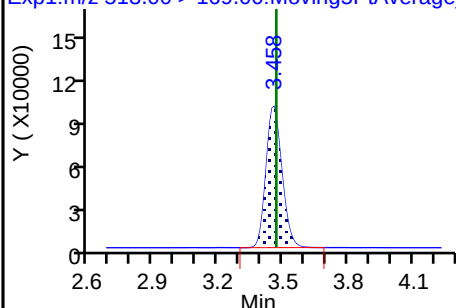
## D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



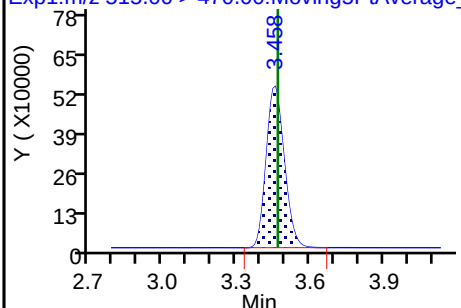
RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



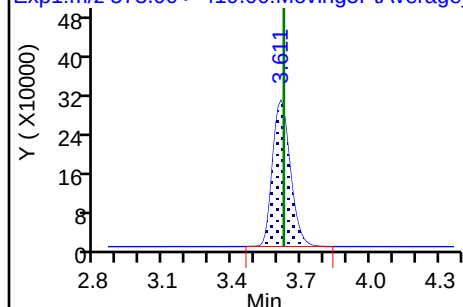
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

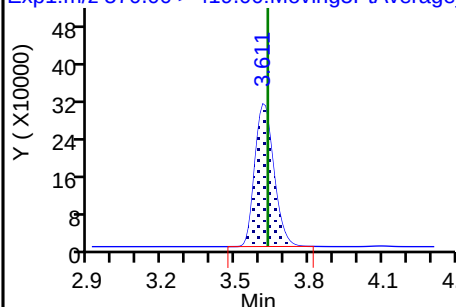
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



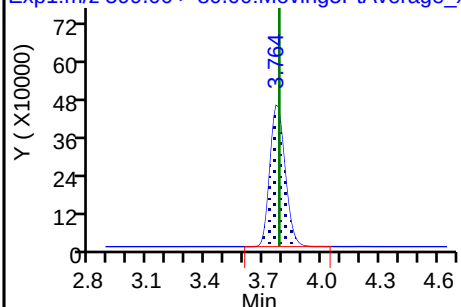
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



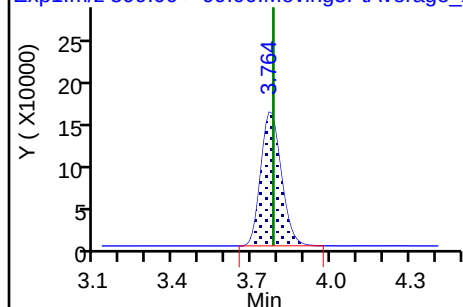
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

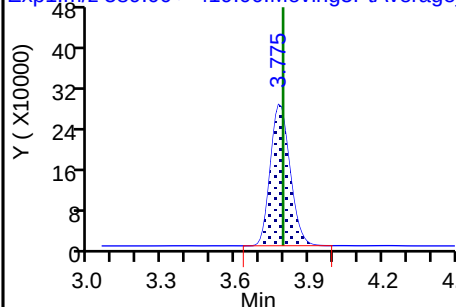
## 33 N-ethyl perfluorooctane sulfonamid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



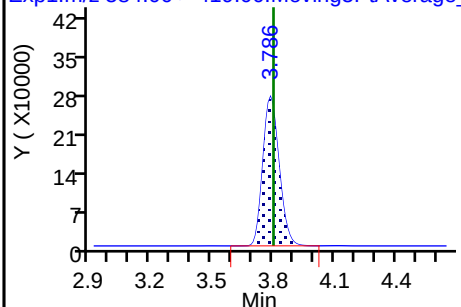
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

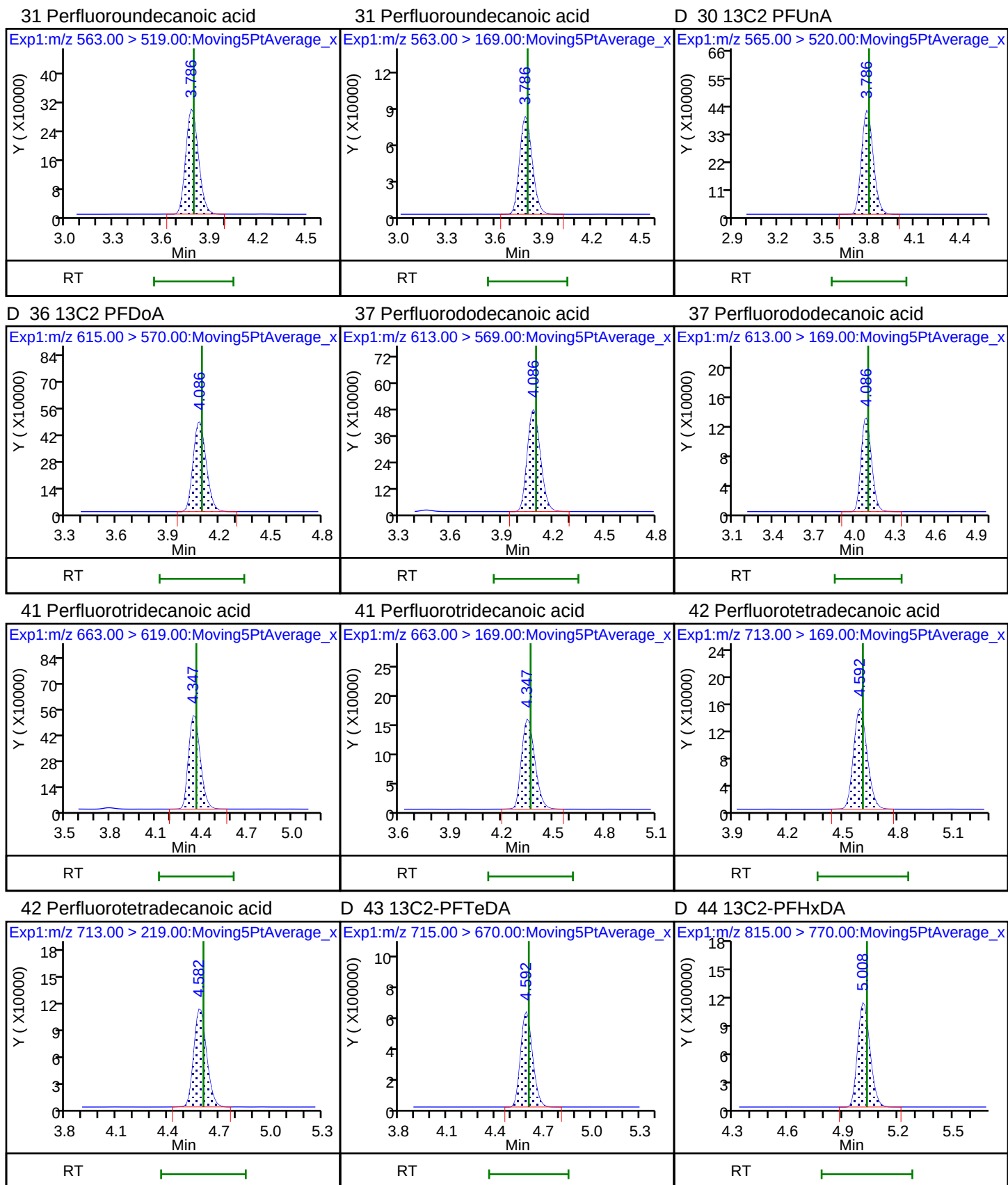


RT

Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x3



RT





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVL 320-224205/2 Calibration Date: 05/19/2018 04:17

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.18LLC\_005.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|------------------------------------------------------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| Perfluorobutanoic acid (PFBA)                              | AveID         | 0.9298  | 0.9678 |         | 0.0520         | 0.0500          | 4.1   | 30.0      |
| Perfluoropentanoic acid (PFPeA)                            | AveID         | 1.181   | 1.318  |         | 0.0558         | 0.0500          | 11.6  | 30.0      |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID         | 78.09   | 83.07  |         | 0.0470         | 0.0442          | 6.4   | 30.0      |
| 4:2 FTS                                                    | AveID         | 16.57   | 18.93  |         | 0.400          | 0.0467          | 14.2  | 30.0      |
| Perfluorohexanoic acid (PFHxA)                             | AveID         | 1.028   | 1.075  |         | 0.0523         | 0.0500          | 4.5   | 30.0      |
| Perfluoropentanesulfonic acid                              | AveID         | 69.55   | 72.40  |         | 0.0488         | 0.0469          | 4.1   | 30.0      |
| Perfluoroheptanoic acid (PFHpA)                            | AveID         | 1.056   | 1.219  |         | 0.0577         | 0.0500          | 15.4  | 30.0      |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID         | 1.127   | 1.208  |         | 0.0488         | 0.0455          | 7.2   | 30.0      |
| 6:2FTS                                                     | L2ID          |         | 1.912  |         | 0.400          | 0.0474          | -12.7 | 30.0      |
| Perfluorooctanoic acid (PFOA)                              | AveID         | 1.177   | 1.164  |         | 0.0495         | 0.0500          | -1.1  | 30.0      |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID         | 1.332   | 1.386  |         | 0.0495         | 0.0476          | 4.1   | 30.0      |
| Perfluorononanoic acid (PFNA)                              | AveID         | 1.059   | 0.9279 |         | 0.0438         | 0.0500          | -12.4 | 30.0      |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID         | 1.176   | 1.067  |         | 0.0421         | 0.0464          | -9.2  | 30.0      |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID         | 0.9736  | 1.020  |         | 0.0524         | 0.0500          | 4.8   | 30.0      |
| 8:2FTS                                                     | AveID         | 1.349   | 1.435  |         | 0.0509         | 0.0479          | 6.3   | 30.0      |
| Perfluorononanesulfonic acid                               | AveID         | 0.7575  | 0.7914 |         | 0.0501         | 0.0480          | 4.5   | 30.0      |
| Perfluorodecanoic acid (PFDA)                              | AveID         | 0.9722  | 0.9389 |         | 0.0483         | 0.0500          | -3.4  | 30.0      |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID         | 1.015   | 1.012  |         | 0.400          | 0.0500          | -0.2  | 30.0      |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID         | 0.6714  | 0.6059 |         | 0.0435         | 0.0482          | -9.8  | 30.0      |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID         | 0.9400  | 0.9084 |         | 0.0483         | 0.0500          | -3.4  | 30.0      |
| Perfluoroundecanoic acid (PFUnA)                           | AveID         | 0.8352  | 0.8550 |         | 0.0512         | 0.0500          | 2.4   | 30.0      |
| Perfluorododecanoic acid (PFDoA)                           | AveID         | 1.044   | 1.080  |         | 0.0517         | 0.0500          | 3.4   | 30.0      |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID         | 1.144   | 1.055  |         | 0.0461         | 0.0500          | -7.7  | 30.0      |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID         | 0.2525  | 0.2676 |         | 0.0530         | 0.0500          | 6.0   | 30.0      |
| 13C4 PFBA                                                  | Ave           | 1.528   | 1.468  |         | 2.40           | 2.50            | -4.0  | 30.0      |
| 13C5-PFPeA                                                 | Ave           | 0.9798  | 0.9623 |         | 2.46           | 2.50            | -1.8  | 30.0      |
| 13C3-PFBS                                                  | Ave           | 0.0221  | 0.0207 |         | 2.17           | 2.33            | -6.5  | 30.0      |
| 13C2 PFHxA                                                 | Ave           | 1.045   | 1.054  |         | 2.52           | 2.50            | 0.9   | 30.0      |
| 13C4-PFHpA                                                 | Ave           | 1.001   | 0.9702 |         | 2.42           | 2.50            | -3.1  | 30.0      |
| 18O2 PFHxS                                                 | Ave           | 1.237   | 1.182  |         | 2.26           | 2.37            | -4.4  | 30.0      |
| M2-6:2FTS                                                  | Ave           | 0.2210  | 0.2174 |         | 2.34           | 2.38            | -1.6  | 30.0      |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-224205/2 Calibration Date: 05/19/2018 04:17  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.18LLC\_005.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9713 |         | 2.56           | 2.50            | 2.6  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8267 |         | 2.32           | 2.39            | -2.8 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7954 |         | 2.57           | 2.50            | 2.7  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.033  |         | 2.32           | 2.50            | -7.2 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2571 |         | 2.45           | 2.40            | 2.3  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6481 |         | 2.46           | 2.50            | -1.6 | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3985 |         | 2.74           | 2.50            | 9.7  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3983 |         | 2.67           | 2.50            | 6.8  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5238 |         | 2.51           | 2.50            | 0.4  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5686 |         | 2.53           | 2.50            | 1.3  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7122 |         | 2.58           | 2.50            | 3.3  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.290  |         | 2.76           | 2.50            | 10.3 | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_005.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 19-May-2018 04:17:56 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 20-May-2018 11:40:15 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK019

First Level Reviewer: mongkols

Date: 20-May-2018 11:40:15

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.458 | 1.452  | 0.006  | 1.004  | 130655   | 0.0520       |                   | 104  | 75.1  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.457  | -0.005 | 1.000  | 6750384  | 2.40         |                   | 96.0 | 38333 |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.721 | 1.720  | 0.001  | 0.561  | 4425536  | 2.46         |                   | 98.2 | 64216 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.721 | 1.720  | 0.001  | 1.000  | 116638   | 0.0558       |                   | 112  | 69.9  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.757 | 1.756  | 0.001  | 1.000  | 88515    | 2.17         |                   | 93.5 | 783   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.757 | 1.757  | 0.001  | 1.000  | 139788   | 0.0470       |                   | 106  | 808   |       |
| 298.90 > 99.00                        | 1.757 | 1.757  | 0.001  | 1.000  | 56195    |              | 2.49(1.25-3.74)   |      | 944   |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.971 | 1.970  | 0.001  | 1.000  | 756373   | NC           |                   |      | 8626  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.971 | 1.971  | 0.0    | 1.000  | 33656    | 0.0533       |                   | 114  | 1899  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.004 | 2.003  | 0.001  | 1.000  | 4846913  | 2.52         |                   | 101  | 88913 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 104197   | 0.0523       |                   | 105  | 156   |       |
| 313.00 > 119.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 7874     |              | 13.23(5.03-15.10) |      | 106   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.027 | 2.027  | 0.0    | 1.000  | 129274   | 0.0488       |                   | 104  | 1645  |       |
| 349.00 > 99.00                        | 2.027 | 2.027  | 0.0    | 1.000  | 46015    |              | 2.81(1.36-4.07)   |      | 1086  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.106 | 2.104  | 0.002  | 1.000  | 237630   | NC           |                   |      | 5510  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.106 | 2.106  | 0.0    | 1.000  | 12321    | NC           |                 |      | 69.0  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.347 | 2.333  | 0.013  | 1.000  | 108810   | 0.0577       |                 | 115  | 149   |       |
| 363.00 > 169.00                       | 2.347 | 2.333  | 0.013  | 1.000  | 41992    |              | 2.59(1.13-3.40) |      | 205   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.347 | 2.345  | 0.001  | 1.000  | 4461790  | 2.42         |                 | 96.9 | 76826 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.360 | 2.346  | 0.014  | 1.000  | 119524   | 0.0488       |                 | 107  | 738   |       |
| 399.00 > 99.00                        | 2.360 | 2.346  | 0.014  | 1.000  | 33355    |              | 3.58(1.50-4.49) |      | 326   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.360 | 2.358  | 0.002  | 1.000  | 5144424  | 2.26         |                 | 95.6 | 42689 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.385 | 2.385  | 0.0    | 1.000  | 278564   | NC           |                 |      | 5124  |       |
| 377.00 > 85.00                        | 2.385 | 2.385  | 0.0    | 1.000  | 161190   |              | 1.73(0.84-2.53) |      | 3781  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.668 | 2.667  | 0.001  | 1.000  | 949740   | 2.34         |                 | 98.4 | 14373 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.676 | 2.668  | 0.008  | 1.003  | 36236    | 0.0414       |                 | 87.3 | 933   |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.698 | 2.691  | 0.007  |        | 4598834  | 2.50         |                 |      | 58644 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.698 | 2.697  | 0.001  | 1.000  | 4466650  | 2.56         |                 | 103  | 45994 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.698 | 2.698  | 0.0    | 1.000  | 104020   | 0.0495       |                 | 98.9 | 35.2  |       |
| 413.00 > 169.00                       | 2.698 | 2.698  | 0.0    | 1.000  | 57399    |              | 1.81(0.84-2.52) |      | 200   |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.706 | 2.698  | 0.008  | 1.000  | 100353   | 0.0495       |                 | 104  | 1460  |       |
| 449.00 > 99.00                        | 2.706 | 2.698  | 0.008  | 1.000  | 26112    |              | 3.84(1.94-5.82) |      | 604   |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.064 | 3.059  | 0.005  | 1.000  | 3634442  | 2.32         |                 | 97.2 | 25822 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.064 | 3.059  | 0.005  | 1.000  | 3657935  | 2.57         |                 | 103  | 58377 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.064 | 3.060  | 0.004  | 1.000  | 75320    | 0.0421       |                 | 90.8 | 803   |       |
| 499.00 > 99.00                        | 3.064 | 3.060  | 0.004  | 1.000  | 17880    |              | 4.21(2.31-6.93) |      | 449   |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       | M     |
| 463.00 > 419.00                       | 3.064 | 3.066  | -0.002 | 1.000  | 67884    | 0.0438       |                 | 87.6 | 163   | M     |
| 463.00 > 169.00                       | 3.064 | 3.066  | -0.002 | 1.000  | 18096    |              | 3.75(1.90-5.69) |      | 367   |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.272 | 3.272  | 0.0    | 1.000  | 124765   | NC           |                 |      | 1703  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.396 | 3.388  | 0.008  | 1.000  | 4749055  | 2.32         |                 | 92.8 | 34360 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.396 | 3.398  | -0.002 | 1.000  | 96926    | 0.0524       |                 | 105  | 2045  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.415 | 3.407  | 0.008  | 1.000  | 57764    | 0.0501       |                 | 104  | 797   |       |
| 549.00 > 99.00                        | 3.415 | 3.407  | 0.008  | 1.000  | 20080    |              | 2.88(1.33-3.97) |      | 663   |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.415 | 3.407  | 0.008  | 1.000  | 1132768  | 2.45         |                  | 102  | 21698 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.415 | 3.416  | -0.001 | 1.000  | 32510    | 0.0509       |                  | 106  | 1001  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.424 | 3.416  | 0.008  | 1.000  | 2980583  | 2.46         |                  | 98.4 | 51882 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.424 | 3.426  | -0.002 | 1.000  | 55967    | 0.0483       |                  | 96.6 | 239   |       |
| 513.00 > 169.00                       | 3.434 | 3.426  | 0.008  | 1.003  | 9962     |              | 5.62(2.36-7.09)  |      | 236   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.573 | 3.575  | -0.002 | 1.000  | 1832458  | 2.74         |                  | 110  | 29939 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.584 | 3.585  | -0.001 | 1.003  | 37100    | 0.0499       |                  | 99.8 | 292   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.749 | 3.740  | 0.009  | 1.000  | 1831798  | 2.67         |                  | 107  | 21604 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.739 | 3.740  | -0.001 | 1.000  | 44411    | 0.0435       |                  | 90.2 | 715   |       |
| 599.00 > 99.00                        | 3.749 | 3.740  | 0.009  | 1.003  | 14225    |              | 3.12(1.39-4.16)  |      | 619   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.759 | 3.750  | 0.009  | 1.000  | 2408750  | 2.51         |                  | 100  | 48663 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.759 | 3.750  | 0.009  | 1.000  | 41190    | 0.0512       |                  | 102  | 255   |       |
| 563.00 > 169.00                       | 3.759 | 3.750  | 0.009  | 1.000  | 12293    |              | 3.35(2.12-6.36)  |      | 284   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.759 | 3.750  | 0.009  | 1.003  | 33281    | 0.0483       |                  | 96.6 | 774   |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.916 | 3.907  | 0.009  | 1.000  | 191778   | NC           |                  |      | 2749  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.049 | 4.040  | 0.009  | 1.000  | 2614681  | 2.53         |                  | 101  | 17366 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.049 | 4.050  | -0.001 | 1.000  | 56453    | 0.0517       |                  | 103  | 67.3  |       |
| 613.00 > 169.00                       | 4.049 | 4.050  | -0.001 | 1.000  | 14583    |              | 3.87(2.13-6.40)  |      | 229   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.318 | 4.307  | 0.011  | 1.000  | 55188    | 0.0461       |                  | 92.3 | 53.6  |       |
| 663.00 > 169.00                       | 4.318 | 4.307  | 0.011  | 1.000  | 19429    |              | 2.84(1.25-3.76)  |      | 286   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.551 | 4.553  | -0.002 | 1.000  | 3275127  | 2.58         |                  | 103  | 16291 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.551 | 4.553  | -0.002 | 1.000  | 17528    | 0.0530       |                  | 106  | 222   |       |
| 713.00 > 219.00                       | 4.551 | 4.553  | -0.002 | 1.000  | 11454    |              | 1.53(0.71-2.13)  |      | 318   |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.973 | 4.966  | 0.007  | 1.000  | 5934700  | 2.76         |                  | 110  | 12063 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.973 | 4.966  | 0.007  | 1.000  | 169712   | NC           |                  |      | 63.2  |       |
| 813.00 > 169.00                       | 4.973 | 4.966  | 0.007  | 1.000  | 29196    |              | 5.81(2.86-8.58)  |      | 307   |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.334 | 5.329  | 0.005  | 1.000  | 125809   | NC           |                  |      | 31.4  |       |
| 913.00 > 169.00                       | 5.334 | 5.329  | 0.005  | 1.000  | 15979    |              | 7.87(3.83-11.48) |      | 195   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

[Reagents:](#)

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_005.d

Injection Date: 19-May-2018 04:17:56

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

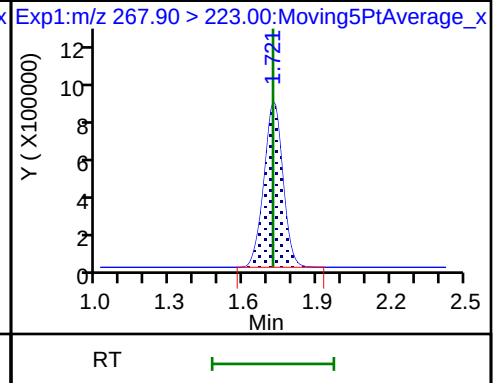
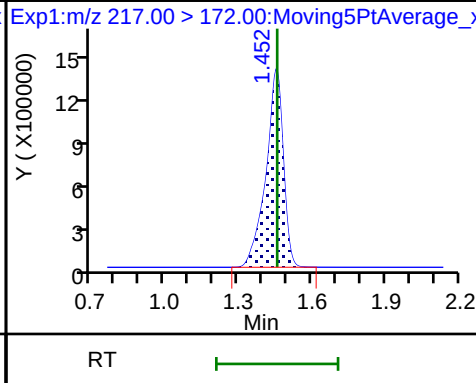
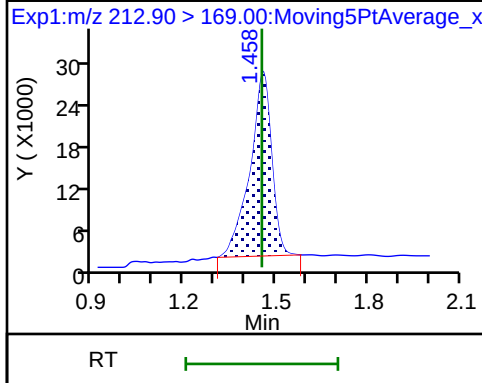
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

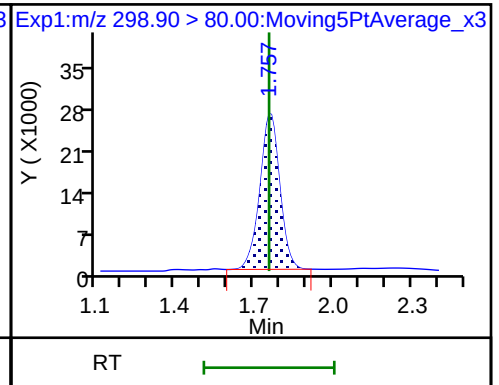
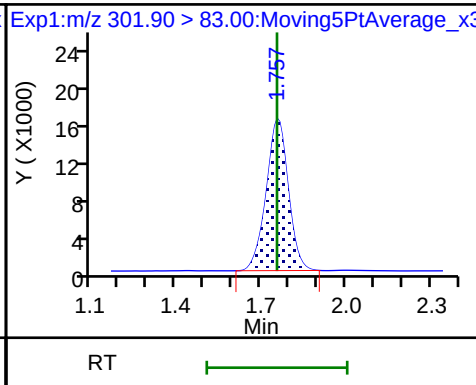
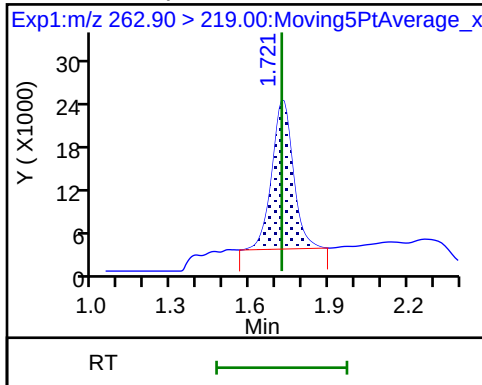
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

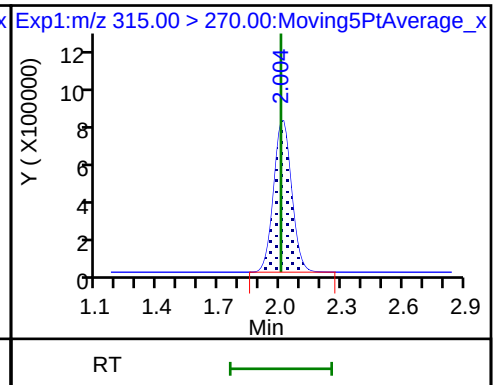
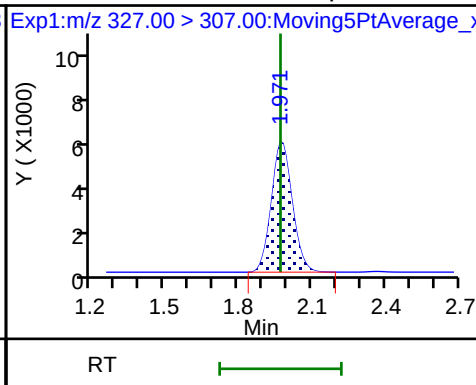
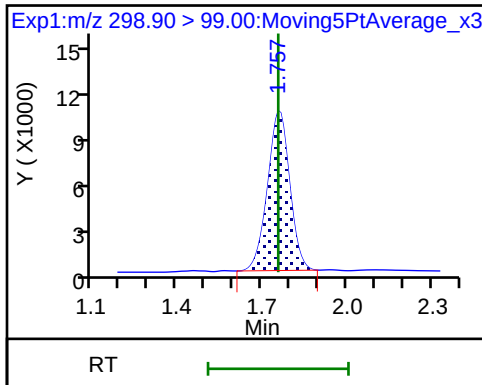
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

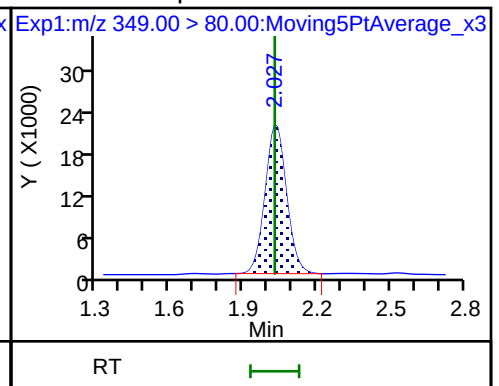
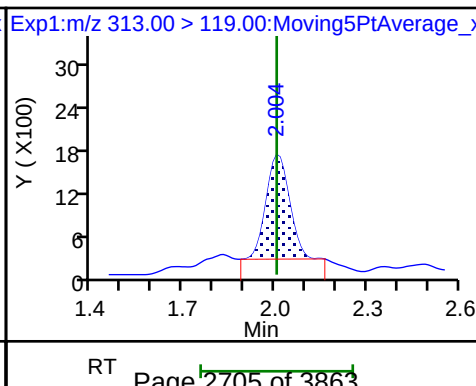
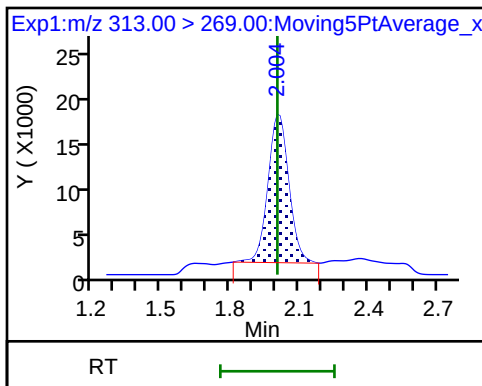
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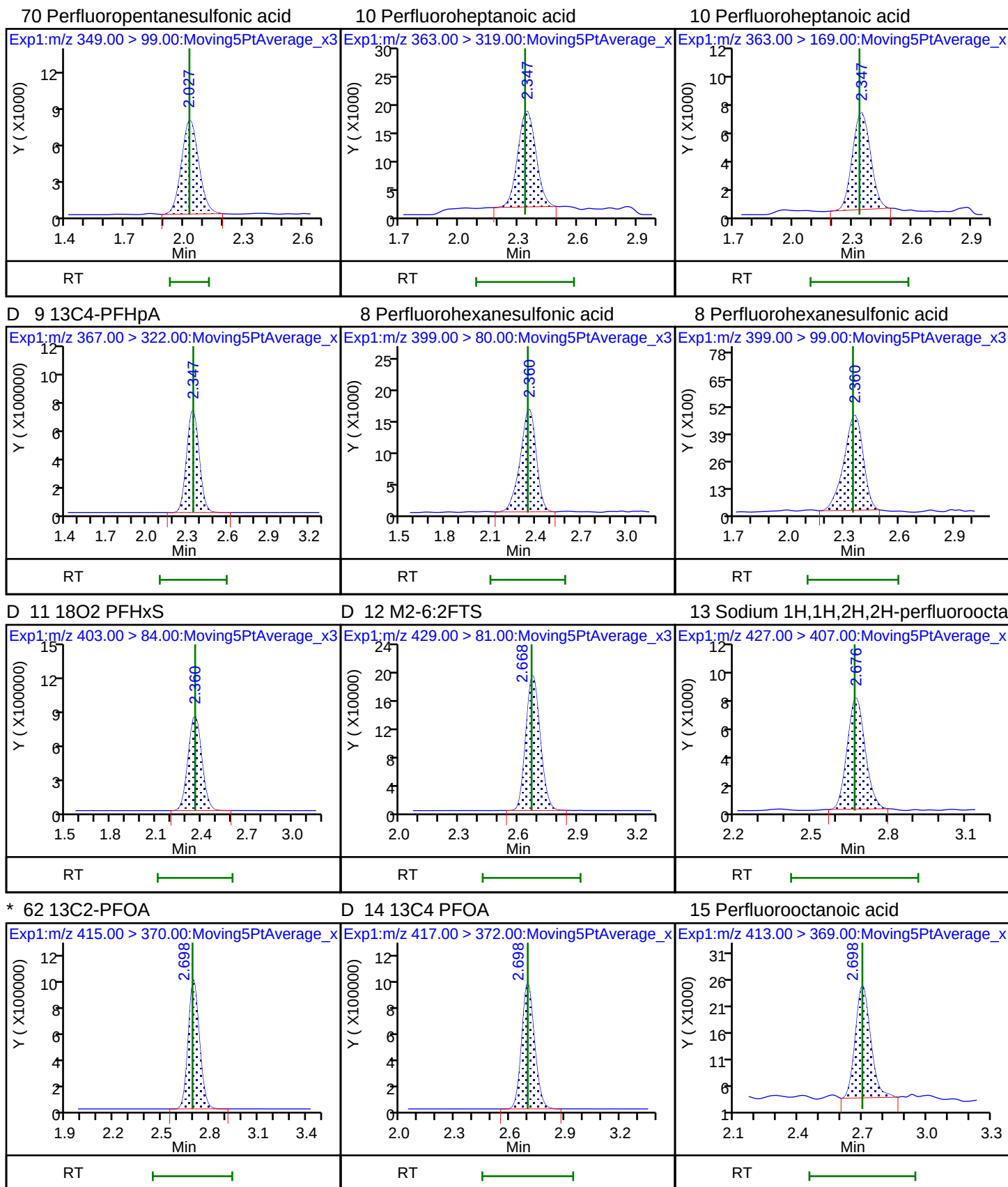


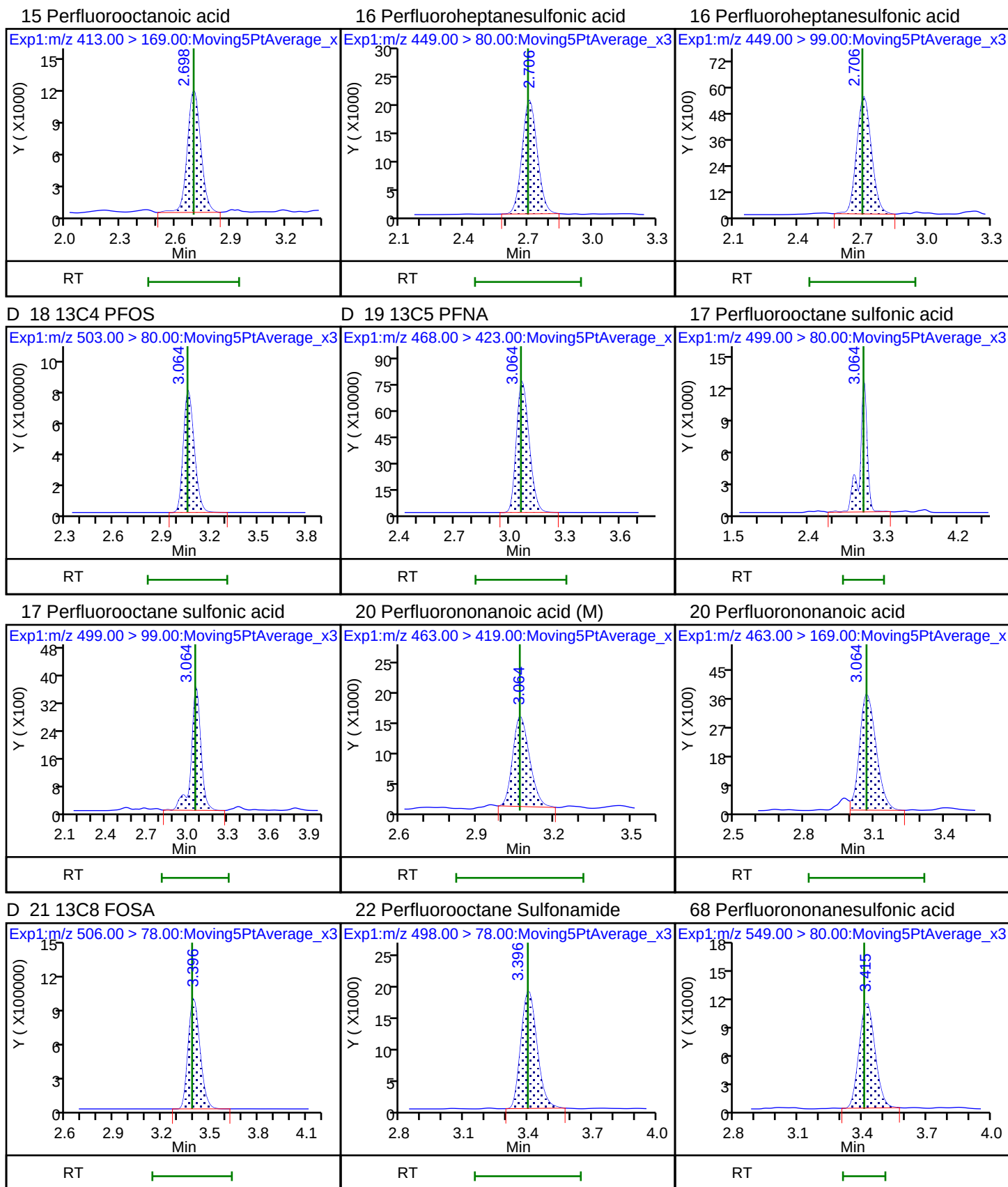
## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid



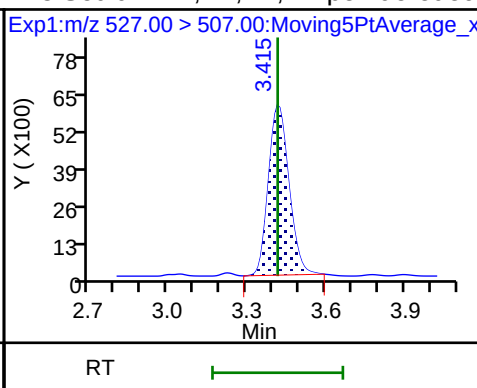
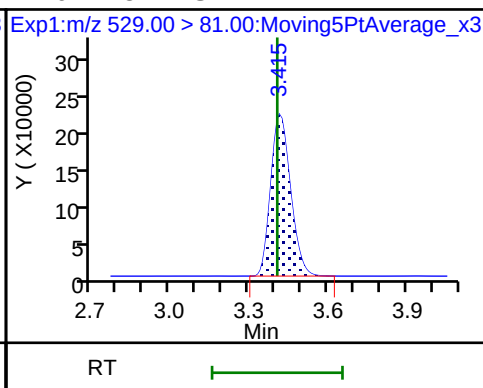
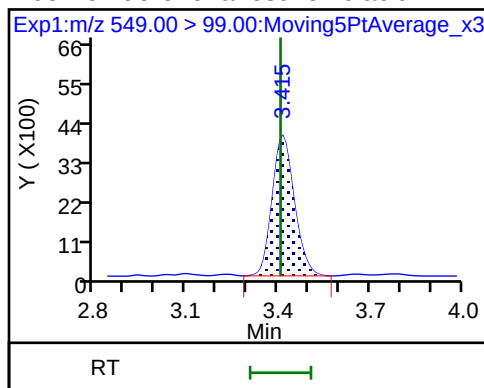




68 Perfluorononanesulfonic acid

D 26 M2-8:2FTS

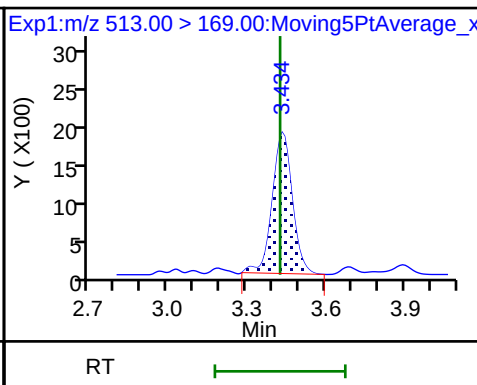
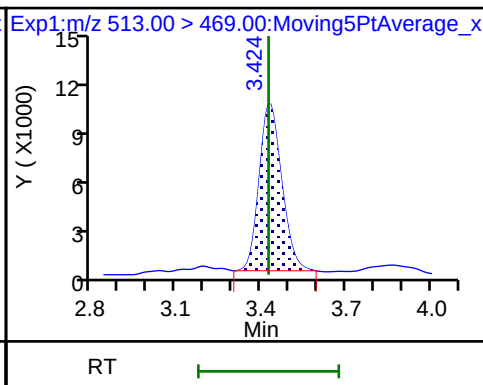
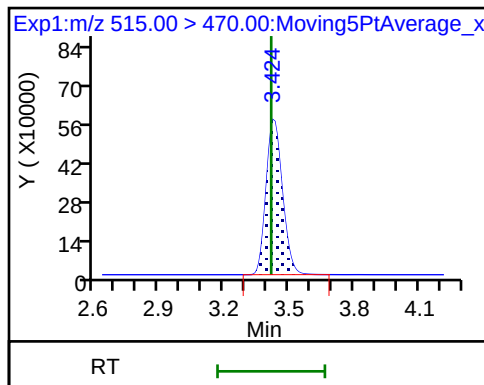
25 Sodium 1H,1H,2H,2H-perfluorodecane



D 23 13C2 PFDA

24 Perfluorodecanoic acid

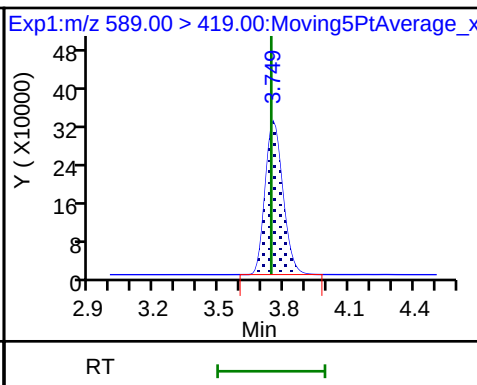
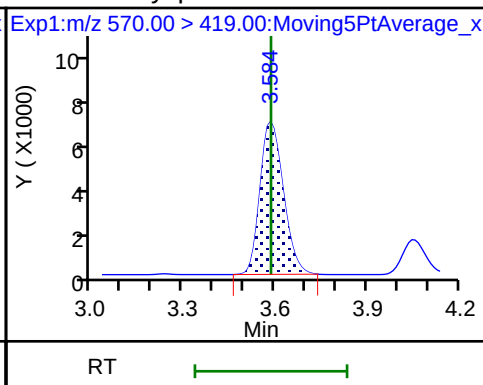
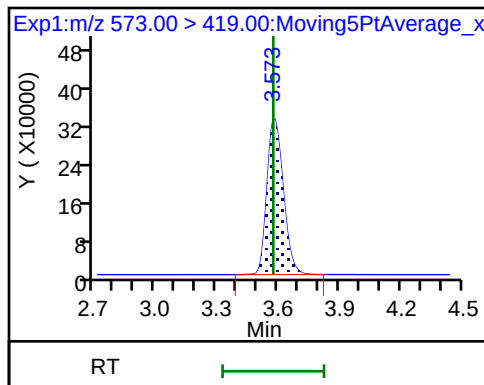
24 Perfluorodecanoic acid



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonamid

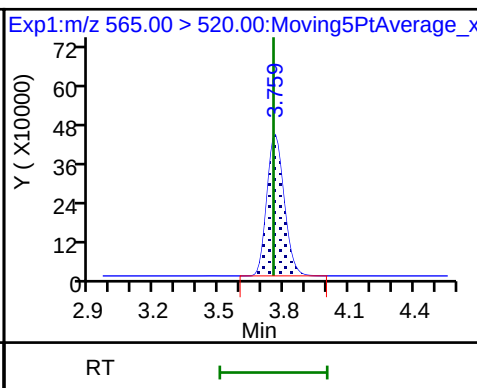
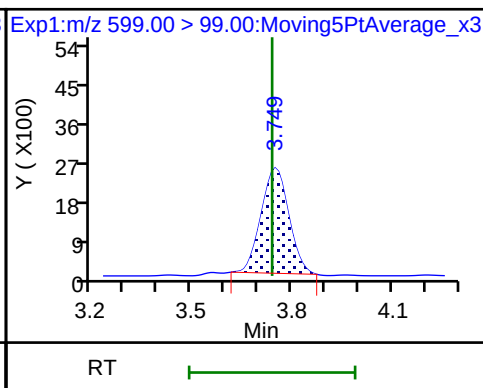
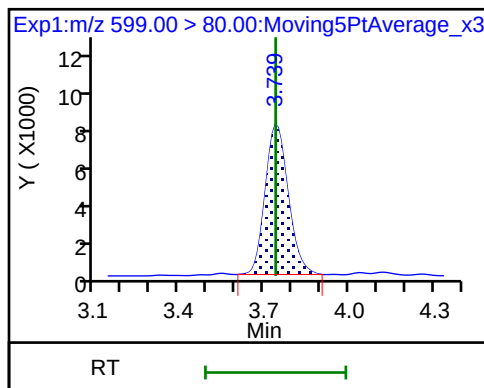
32 d5-NEtFOSAA

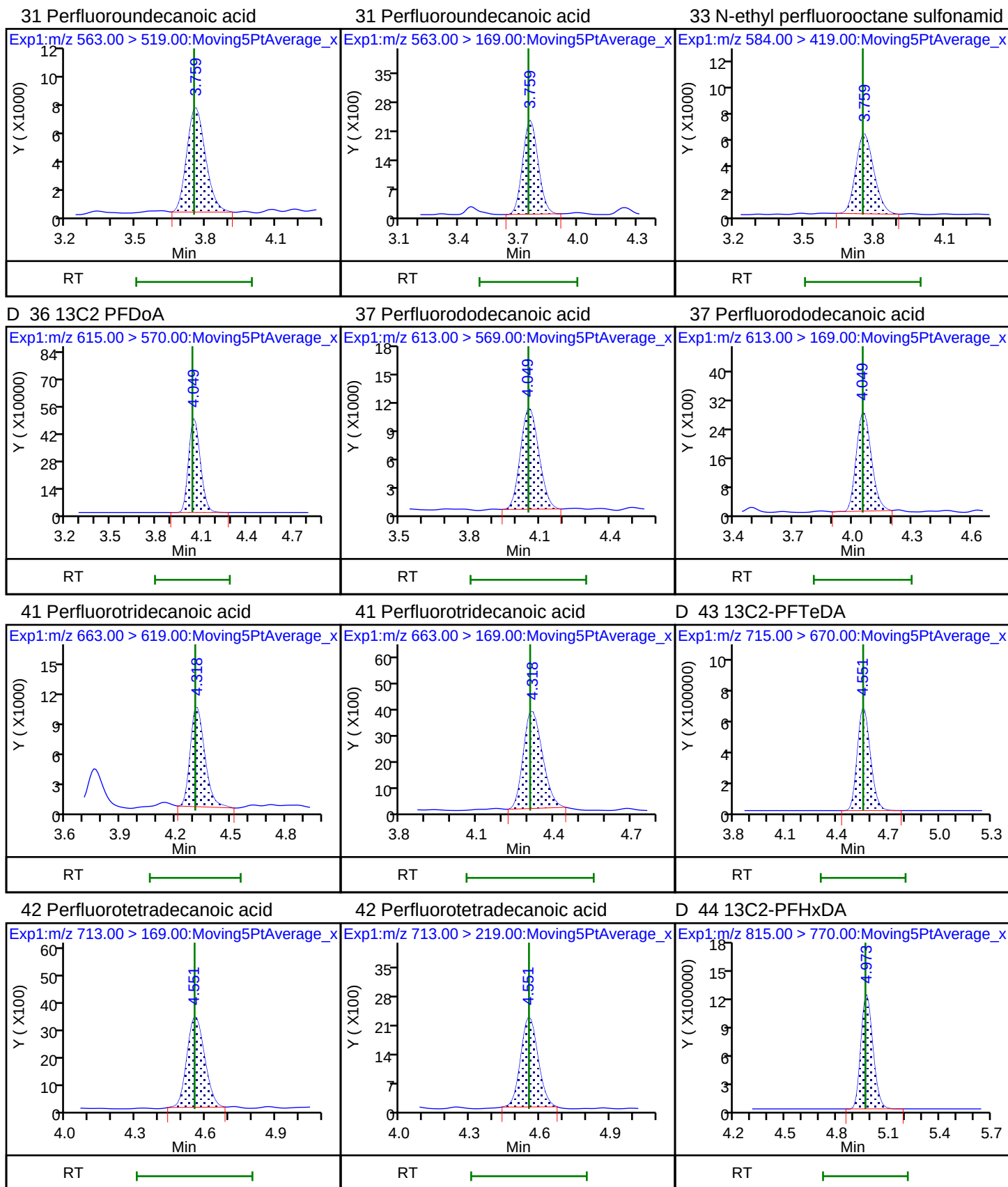


29 Perfluorodecane Sulfonic acid

29 Perfluorodecane Sulfonic acid

D 30 13C2 PFUnA









## TestAmerica Sacramento

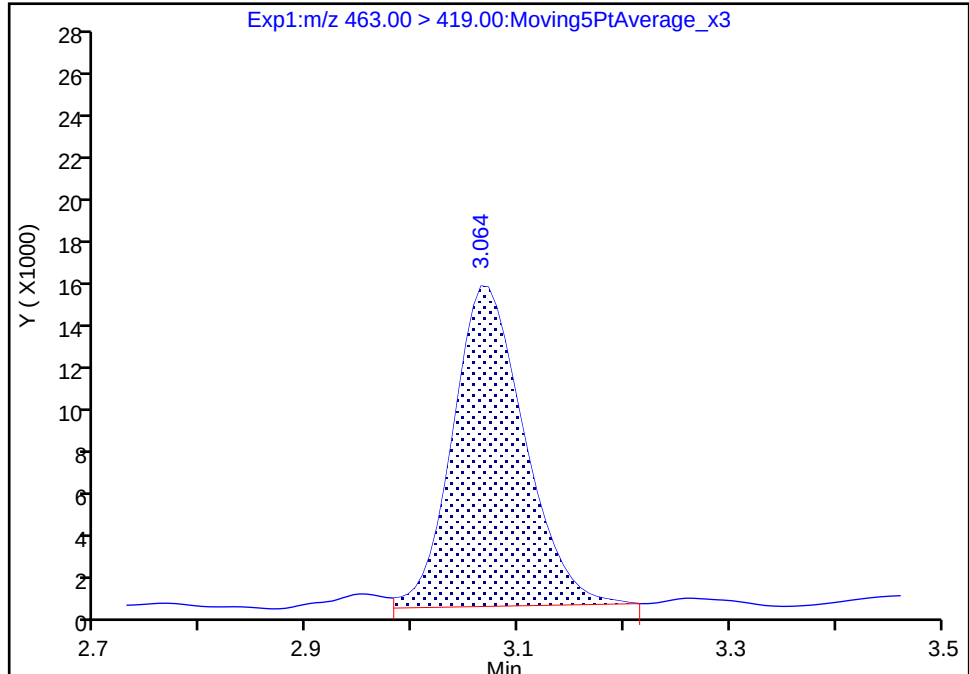
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Injection Date: 19-May-2018 04:17:56 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

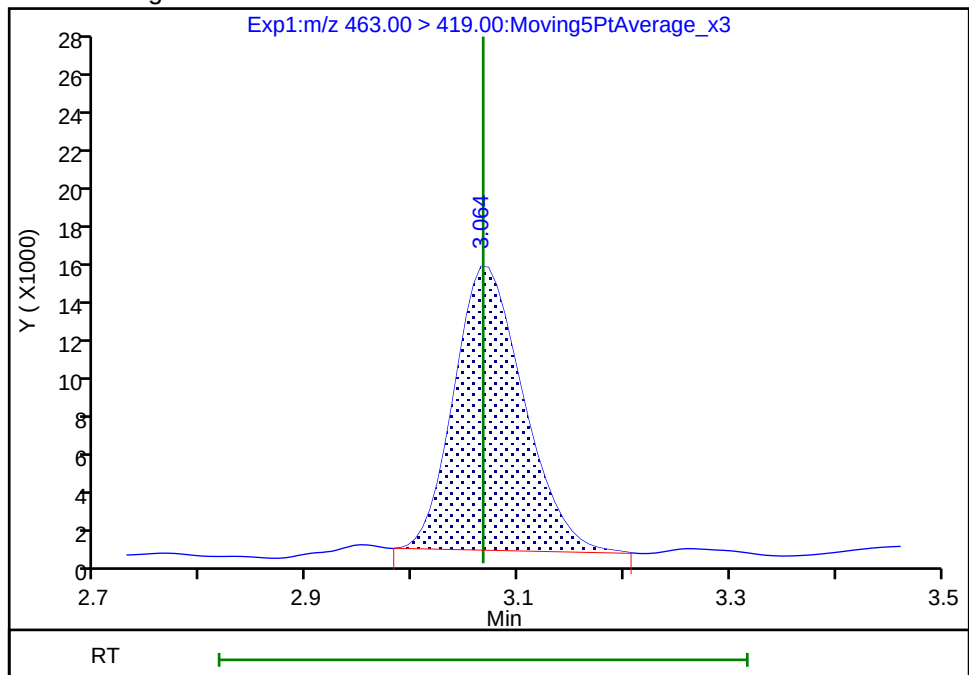
RT: 3.06  
Area: 71301  
Amount: 0.046007  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 67884  
Amount: 0.043802  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 20-May-2018 11:39:45  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2711 of 3863

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-224205/3 Calibration Date: 05/19/2018 04:25

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.18LLC\_025.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.8989 |         | 0.967       | 1.00         | -3.3  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.135  |         | 0.961       | 1.00         | -3.9  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 77.49  |         | 0.877       | 0.884        | -0.8  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.13  |         | 1.02        | 0.934        | 9.4   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 0.9677 |         | 0.941       | 1.00         | -5.9  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 69.44  |         | 0.937       | 0.938        | -0.2  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.009  |         | 0.956       | 1.00         | -4.4  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.046  |         | 0.845       | 0.910        | -7.1  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.871  |         | 1.00        | 0.948        | 5.5   | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.298  |         | 0.928       | 0.952        | -2.5  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.103  |         | 0.937       | 1.00         | -6.3  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.057  |         | 0.834       | 0.928        | -10.1 | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 0.9923 |         | 0.937       | 1.00         | -6.3  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 0.9907 |         | 1.02        | 1.00         | 1.8   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7338 |         | 0.930       | 0.960        | -3.1  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.189  |         | 0.844       | 0.958        | -11.9 | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9662 |         | 0.994       | 1.00         | -0.6  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 0.9701 |         | 0.956       | 1.00         | -4.4  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6215 |         | 0.892       | 0.964        | -7.4  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9066 |         | 0.964       | 1.00         | -3.6  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7930 |         | 0.949       | 1.00         | -5.1  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.035  |         | 0.991       | 1.00         | -0.9  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.142  |         | 0.998       | 1.00         | -0.2  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2332 |         | 0.924       | 1.00         | -7.6  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.467  |         | 2.40        | 2.50         | -4.0  | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9398 |         | 2.40        | 2.50         | -4.1  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0205 |         | 2.15        | 2.33         | -7.3  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.036  |         | 2.48        | 2.50         | -0.8  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 1.004  |         | 2.51        | 2.50         | 0.3   | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.118  |         | 2.14        | 2.37         | -9.6  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2144 |         | 2.30        | 2.38         | -3.0  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-224205/3 Calibration Date: 05/19/2018 04:25  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.18LLC\_025.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9360 |         | 2.47           | 2.50            | -1.1 | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8217 |         | 2.31           | 2.39            | -3.4 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7943 |         | 2.56           | 2.50            | 2.6  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.019  |         | 2.29           | 2.50            | -8.4 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2606 |         | 2.48           | 2.40            | 3.6  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6526 |         | 2.48           | 2.50            | -0.9 | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3887 |         | 2.67           | 2.50            | 7.0  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5155 |         | 2.47           | 2.50            | -1.2 | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3996 |         | 2.68           | 2.50            | 7.2  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5598 |         | 2.49           | 2.50            | -0.3 | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7431 |         | 2.70           | 2.50            | 7.8  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.374  |         | 2.94           | 2.50            | 17.5 | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_025.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 19-May-2018 04:25:48 ALS Bottle#: 13 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 20-May-2018 11:40:57 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK019

First Level Reviewer: mongkols

Date: 20-May-2018 11:40:57

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |           |           |           |          |                 |                   |      |        |       |
| 212.90 > 169.00                       | 1.452 | 1.452     | 0.0       | 1.000     | 2494215  | 0.9668          |                   | 96.7 | 1472   |       |
| D 1 13C4 PFBA                         |       |           |           |           |          |                 |                   |      |        |       |
| 217.00 > 172.00                       | 1.452 | 1.457     | -0.005    | 1.000     | 6936585  | 2.40            |                   | 96.0 | 39682  |       |
| D 3 13C5-PFPeA                        |       |           |           |           |          |                 |                   |      |        |       |
| 267.90 > 223.00                       | 1.720 | 1.720     | 0.0       | 0.562     | 4444617  | 2.40            |                   | 95.9 | 60582  |       |
| 4 Perfluoropentanoic acid             |       |           |           |           |          |                 |                   |      |        |       |
| 262.90 > 219.00                       | 1.720 | 1.720     | 0.0       | 1.000     | 2017628  | 0.9613          |                   | 96.1 | 1577   |       |
| D 47 13C3-PFBS                        |       |           |           |           |          |                 |                   |      |        |       |
| 301.90 > 83.00                        | 1.757 | 1.756     | 0.0       | 1.000     | 90241    | 2.15            |                   | 92.7 | 1146   |       |
| 5 Perfluorobutanesulfonic acid        |       |           |           |           |          |                 |                   |      |        |       |
| 298.90 > 80.00                        | 1.757 | 1.757     | 0.0       | 1.000     | 2658856  | 0.8772          |                   | 99.2 | 17869  |       |
| 298.90 > 99.00                        | 1.757 | 1.757     | 0.0       | 1.000     | 1122263  |                 | 2.37(1.25-3.74)   |      | 17545  |       |
| D 60 M2-4:2FTS                        |       |           |           |           |          |                 |                   |      |        |       |
| 329.00 > 81.00                        | 1.971 | 1.970     | 0.001     | 1.000     | 746743   | NC              |                   |      | 10549  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |           |           |           |          |                 |                   |      |        |       |
| 327.00 > 307.00                       | 1.971 | 1.971     | 0.0       | 1.000     | 657159   | 1.02            |                   | 109  | 27889  |       |
| D 7 13C2 PFHxA                        |       |           |           |           |          |                 |                   |      |        |       |
| 315.00 > 270.00                       | 2.004 | 2.003     | 0.001     | 1.000     | 4901149  | 2.48            |                   | 99.2 | 118131 |       |
| 6 Perfluorohexanoic acid              |       |           |           |           |          |                 |                   |      |        |       |
| 313.00 > 269.00                       | 2.004 | 2.004     | 0.0       | 1.000     | 1897134  | 0.9412          |                   | 94.1 | 2937   |       |
| 313.00 > 119.00                       | 2.004 | 2.004     | 0.0       | 1.000     | 165653   |                 | 11.45(5.03-15.10) |      | 1991   |       |
| 70 Perfluoropentanesulfonic acid      |       |           |           |           |          |                 |                   |      |        |       |
| 349.00 > 80.00                        | 2.027 | 2.027     | 0.0       | 1.000     | 2528063  | 0.9366          |                   | 99.8 | 32250  |       |
| 349.00 > 99.00                        | 2.027 | 2.027     | 0.0       | 1.000     | 908045   |                 | 2.78(1.36-4.07)   |      | 16872  |       |
| D 64 13C3 HFPO-DA                     |       |           |           |           |          |                 |                   |      |        |       |
| 332.10 > 287.00                       | 2.106 | 2.104     | 0.002     | 1.000     | 243444   | NC              |                   |      | 4589   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.106 | 2.106  | 0.0    | 1.000  | 282446   | NC           |                 |      | 2068  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 1917278  | 0.9556       |                 | 95.6 | 2509  |       |
| 363.00 > 169.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 764430   |              | 2.51(1.13-3.40) |      | 4152  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.333 | 2.345  | -0.012 | 1.000  | 4748397  | 2.51         |                 | 100  | 74754 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 2013463  | 0.8450       |                 | 92.9 | 10141 |       |
| 399.00 > 99.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 705291   |              | 2.85(1.50-4.49) |      | 5332  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.346 | 2.358  | -0.012 | 1.000  | 5001088  | 2.14         |                 | 90.4 | 46049 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.385 | 2.385  | 0.0    | 1.000  | 5513381  | NC           |                 |      | 75235 |       |
| 377.00 > 85.00                        | 2.385 | 2.385  | 0.0    | 1.000  | 3317377  |              | 1.66(0.84-2.53) |      | 54260 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.668 | 2.667  | 0.001  | 1.000  | 963164   | 2.30         |                 | 97.0 | 17382 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.668 | 2.668  | 0.0    | 1.000  | 719448   | 1.00         |                 | 106  | 15020 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.691 | 2.691  | 0.0    |        | 4729175  | 2.50         |                 |      | 57093 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.698 | 2.697  | 0.001  | 1.000  | 4426649  | 2.47         |                 | 98.9 | 64965 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.698 | 2.698  | 0.0    | 1.000  | 1953808  | 0.9375       |                 | 93.7 | 816   |       |
| 413.00 > 169.00                       | 2.691 | 2.698  | -0.007 | 0.997  | 1017036  |              | 1.92(0.84-2.52) |      | 3281  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.698 | 2.698  | 0.0    | 1.000  | 1921148  | 0.9279       |                 | 97.5 | 15876 |       |
| 449.00 > 99.00                        | 2.698 | 2.698  | 0.0    | 1.000  | 523471   |              | 3.67(1.94-5.82) |      | 15304 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.060 | 3.059  | 0.001  | 1.000  | 3715101  | 2.31         |                 | 96.6 | 23143 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.060 | 3.059  | 0.001  | 1.000  | 3756243  | 2.56         |                 | 103  | 71828 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.060 | 3.060  | 0.0    | 1.000  | 1525080  | 0.8344       |                 | 89.9 | 11157 |       |
| 499.00 > 99.00                        | 3.066 | 3.060  | 0.006  | 1.002  | 323943   |              | 4.71(2.31-6.93) |      | 4868  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.066 | 3.066  | 0.0    | 1.002  | 1490882  | 0.9368       |                 | 93.7 | 5228  |       |
| 463.00 > 169.00                       | 3.066 | 3.066  | 0.0    | 1.002  | 374311   |              | 3.98(1.90-5.69) |      | 7794  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.272 | 3.272  | 0.0    | 1.000  | 2549156  | NC           |                 |      | 27748 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.398 | 3.388  | 0.010  | 1.000  | 4819237  | 2.29         |                 | 91.6 | 36069 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.398 | 3.398  | 0.0    | 1.000  | 1909721  | 1.02         |                 | 102  | 26590 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.407 | 3.407  | 0.0    | 1.000  | 1094955  | 0.9299       |                 | 96.9 | 15050 |       |
| 549.00 > 99.00                        | 3.407 | 3.407  | 0.0    | 1.000  | 399786   |              | 2.74(1.33-3.97) |      | 8543  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.416 | 3.407  | 0.009  | 1.000  | 1180684  | 2.48         |                  | 104  | 19028 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.416 | 3.416  | 0.0    | 1.000  | 561632   | 0.8442       |                  | 88.1 | 13107 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.426 | 3.416  | 0.010  | 1.000  | 3086065  | 2.48         |                  | 99.1 | 58677 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.426 | 3.426  | 0.0    | 1.000  | 1192686  | 0.99         |                  | 99.4 | 5169  |       |
| 513.00 > 169.00                       | 3.426 | 3.426  | 0.0    | 1.000  | 221919   |              | 5.37(2.36-7.09)  |      | 10503 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.575 | 3.575  | 0.0    | 1.000  | 1838178  | 2.67         |                  | 107  | 24216 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.585 | 3.585  | 0.0    | 1.003  | 713316   | 0.9560       |                  | 95.6 | 5804  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.750 | 3.740  | 0.010  | 1.000  | 1889755  | 2.68         |                  | 107  | 14562 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.740 | 3.740  | 0.0    | 1.000  | 931338   | 0.8923       |                  | 92.6 | 14237 |       |
| 599.00 > 99.00                        | 3.740 | 3.740  | 0.0    | 1.000  | 296516   |              | 3.14(1.39-4.16)  |      | 5994  |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.750 | 3.750  | 0.0    | 1.000  | 2437780  | 2.47         |                  | 98.8 | 44057 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.750 | 3.750  | 0.0    | 1.000  | 773250   | 0.9495       |                  | 94.9 | 4978  |       |
| 563.00 > 169.00                       | 3.750 | 3.750  | 0.0    | 1.000  | 201659   |              | 3.83(2.12-6.36)  |      | 4603  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.750 | 3.750  | 0.0    | 1.000  | 685270   | 0.9644       |                  | 96.4 | 20153 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.907 | 3.907  | 0.0    | 1.000  | 4141148  | NC           |                  |      | 45598 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.050 | 4.040  | 0.010  | 1.000  | 2647569  | 2.49         |                  | 99.7 | 20287 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.050 | 4.050  | 0.0    | 1.000  | 1095797  | 0.99         |                  | 99.1 | 1350  |       |
| 613.00 > 169.00                       | 4.050 | 4.050  | 0.0    | 1.000  | 262953   |              | 4.17(2.13-6.40)  |      | 3738  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.307 | 4.307  | 0.0    | 1.000  | 1209027  | 1.00         |                  | 99.8 | 1090  |       |
| 663.00 > 169.00                       | 4.307 | 4.307  | 0.0    | 1.000  | 381887   |              | 3.17(1.25-3.76)  |      | 5183  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 3514439  | 2.70         |                  | 108  | 17958 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 327877   | 0.9236       |                  | 92.4 | 4159  |       |
| 713.00 > 219.00                       | 4.543 | 4.553  | -0.010 | 0.998  | 235111   |              | 1.39(0.71-2.13)  |      | 4435  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.966 | 4.966  | 0.0    | 1.000  | 6496662  | 2.94         |                  | 117  | 12991 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.966 | 4.966  | 0.0    | 1.000  | 2444062  | NC           |                  |      | 891   |       |
| 813.00 > 169.00                       | 4.966 | 4.966  | 0.0    | 1.000  | 386101   |              | 6.33(2.86-8.58)  |      | 3198  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.329 | 5.329  | 0.0    | 1.000  | 2682924  | NC           |                  |      | 612   |       |
| 913.00 > 169.00                       | 5.329 | 5.329  | 0.0    | 1.000  | 329937   |              | 8.13(3.83-11.48) |      | 2784  |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_025.d

Injection Date: 19-May-2018 04:25:48

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

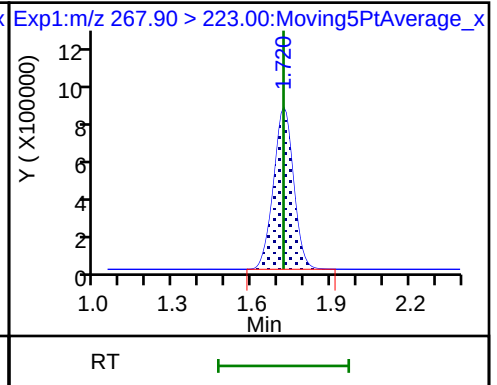
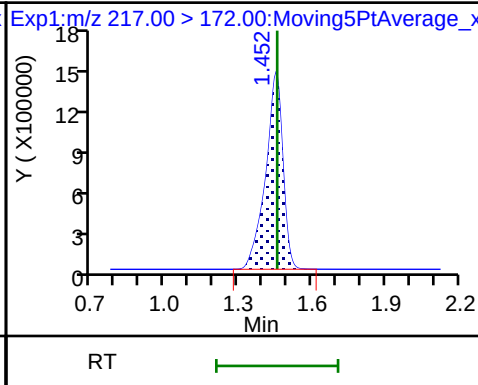
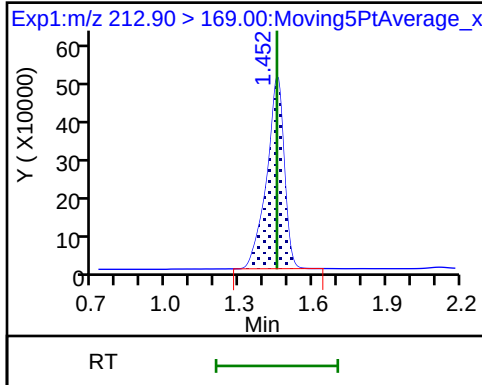
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

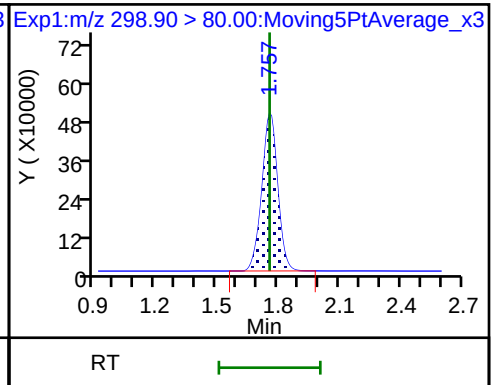
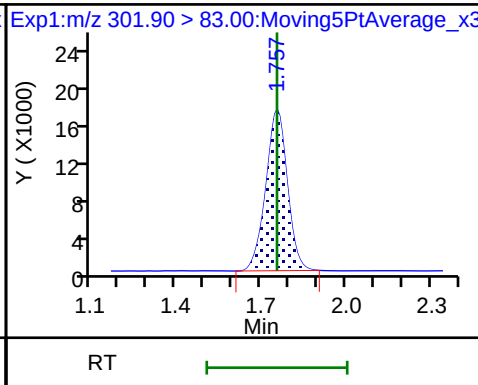
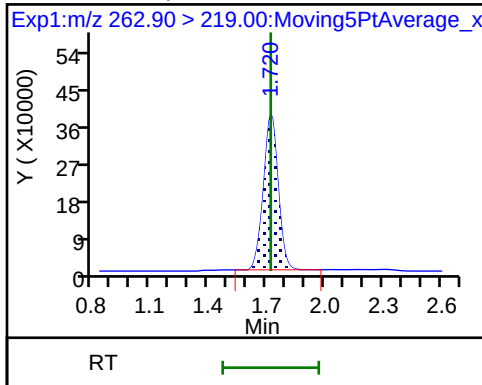
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

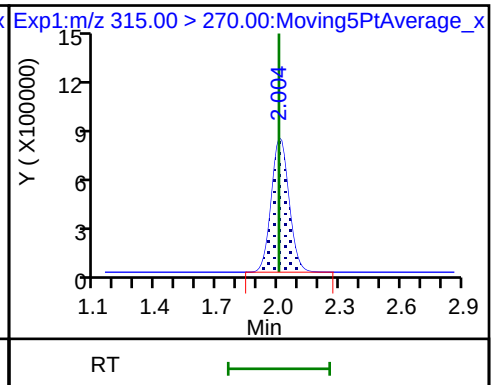
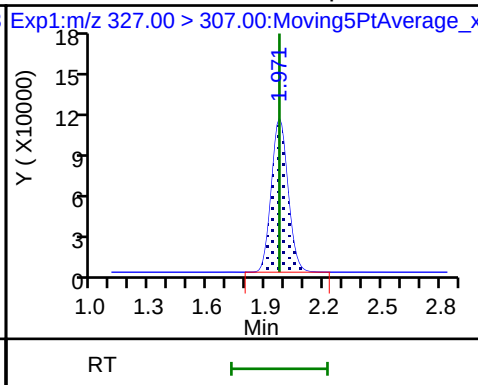
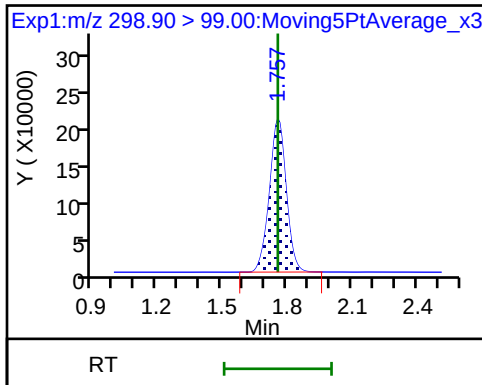
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

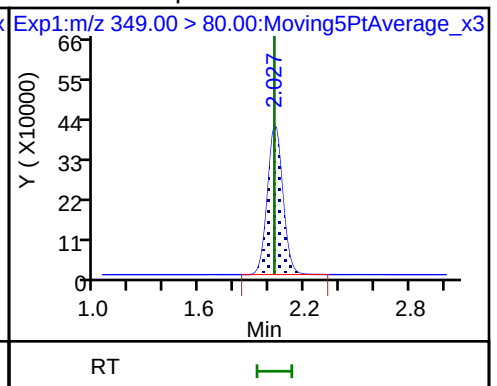
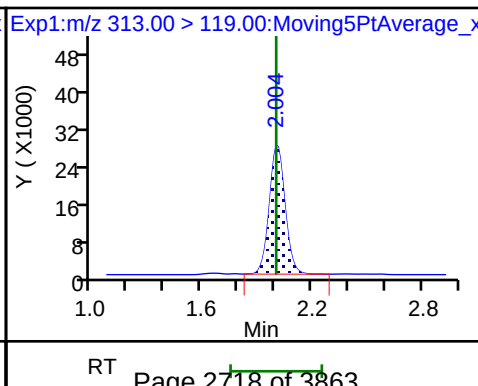
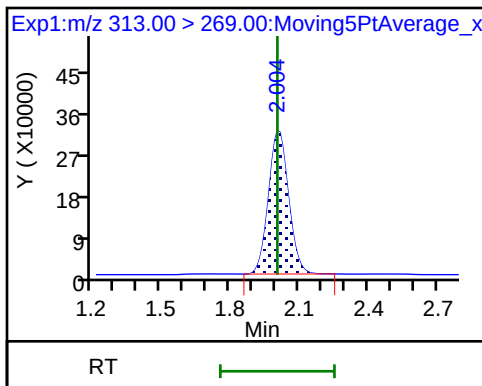
## De 7 13C2 PFHxA



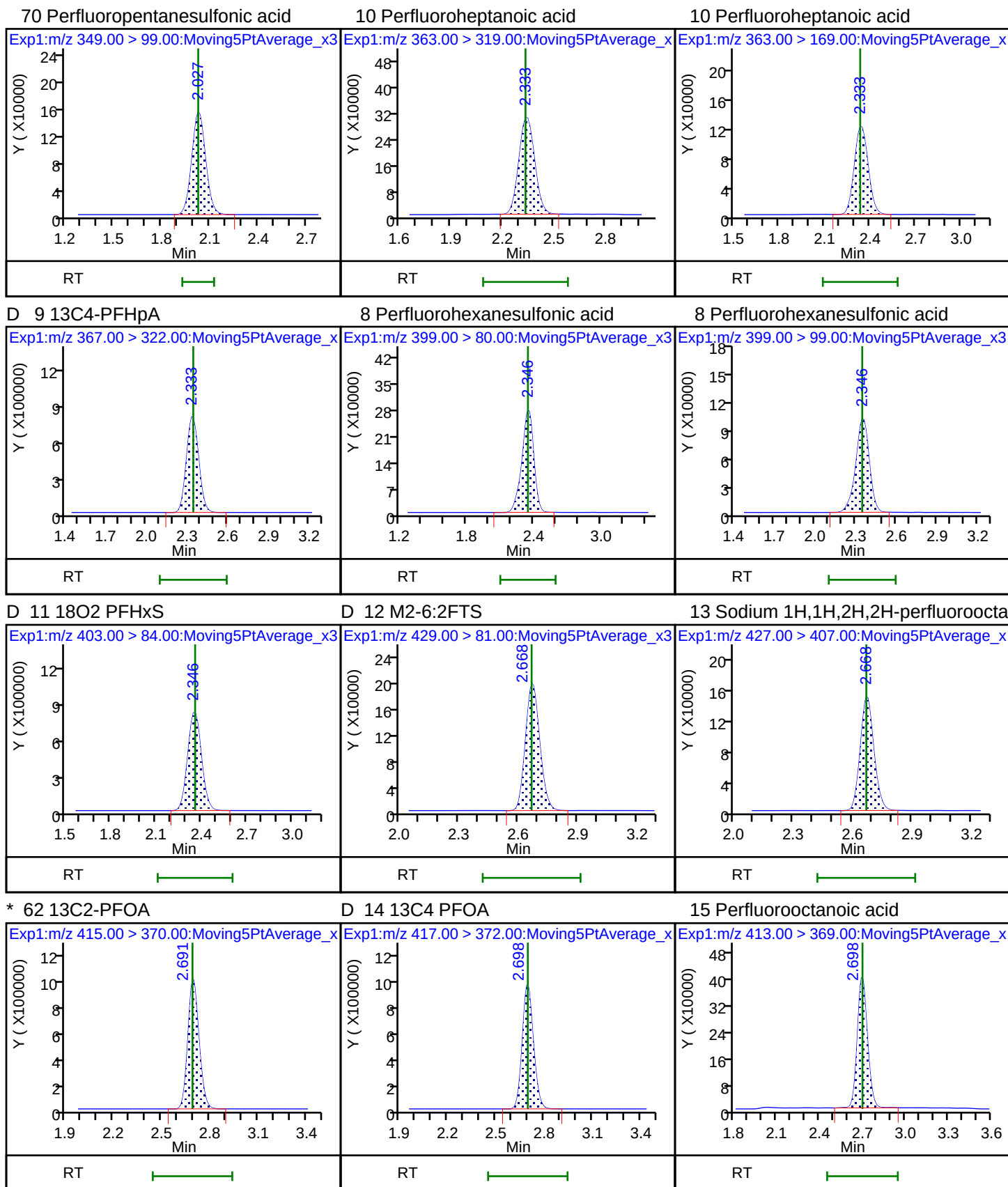
## 6 Perfluorohexanoic acid

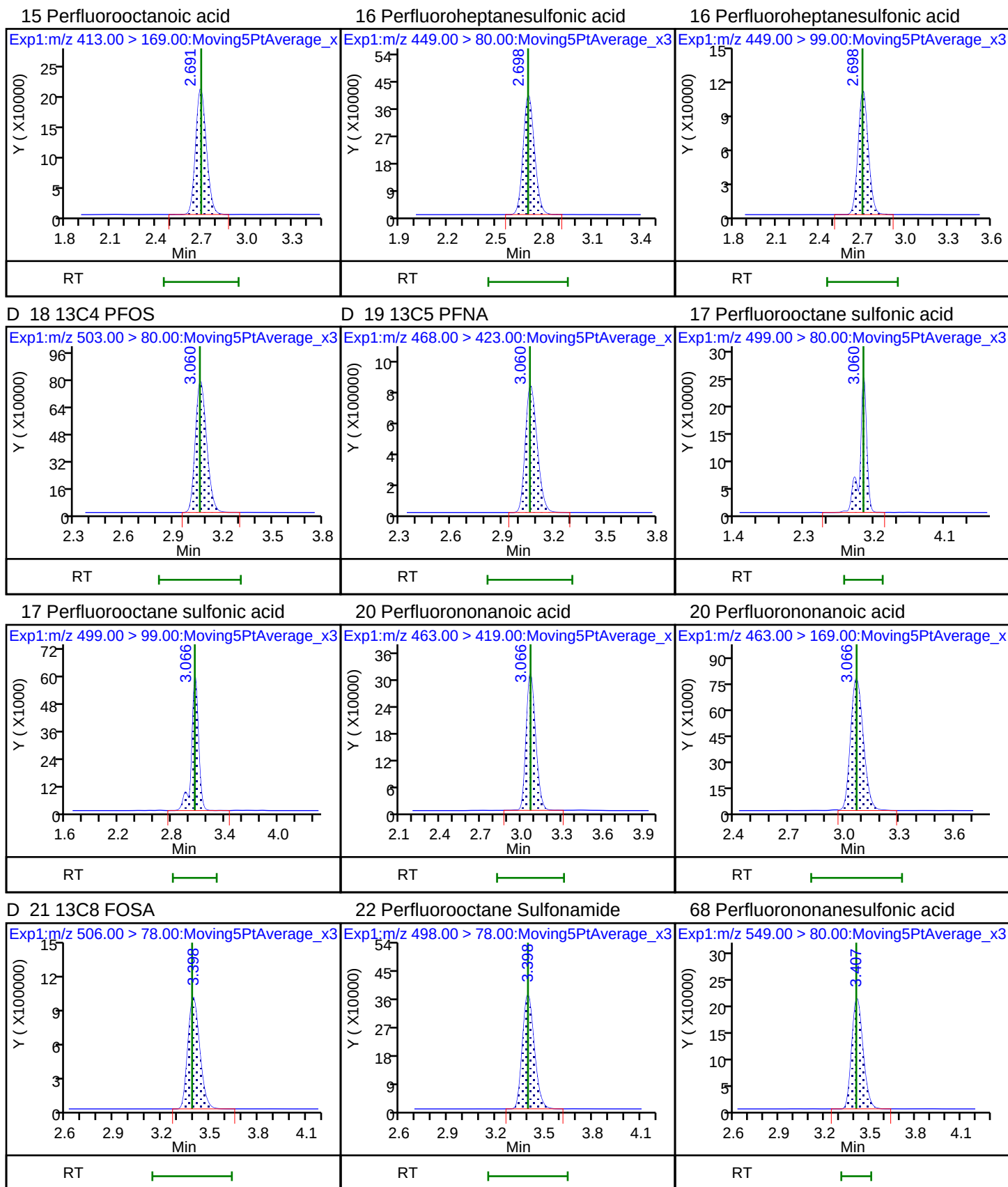
## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid





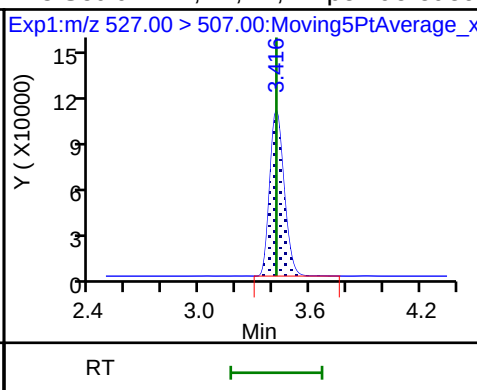
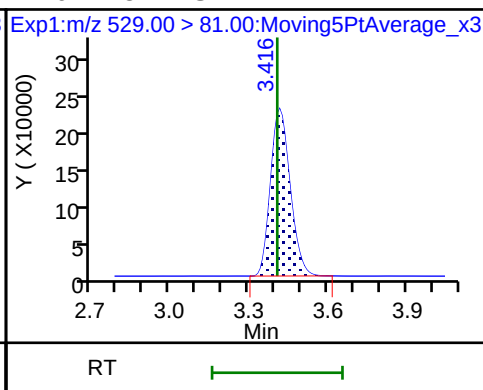
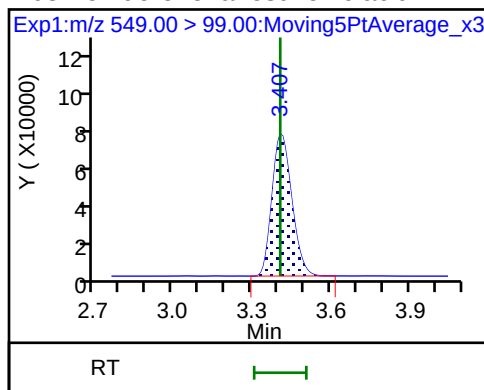




68 Perfluorononanesulfonic acid

D 26 M2-8:2FTS

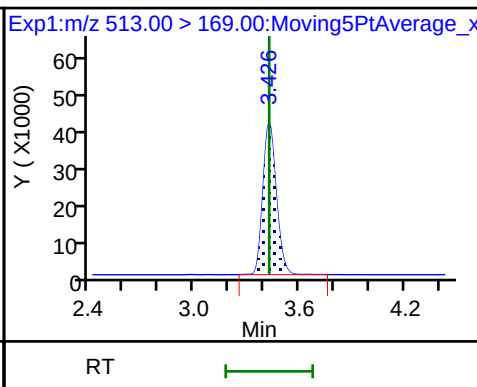
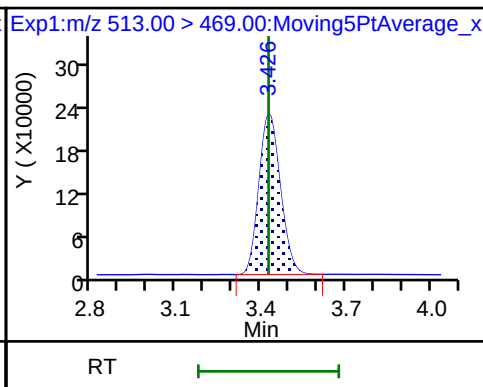
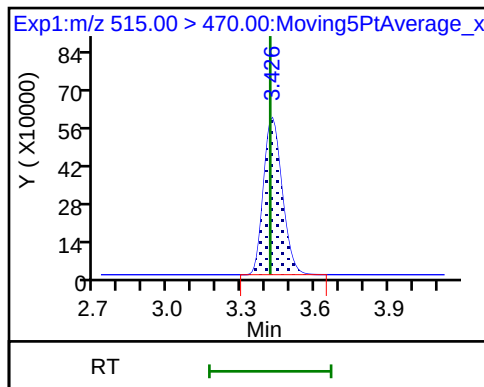
25 Sodium 1H,1H,2H,2H-perfluorodecane



D 23 13C2 PFDA

24 Perfluorodecanoic acid

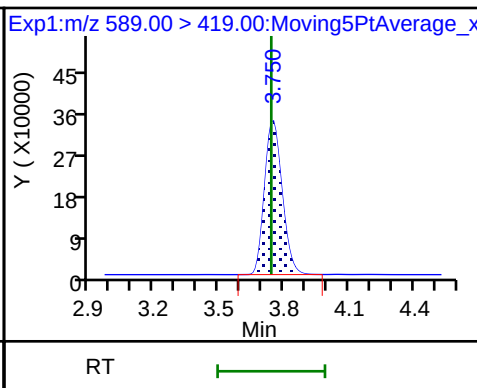
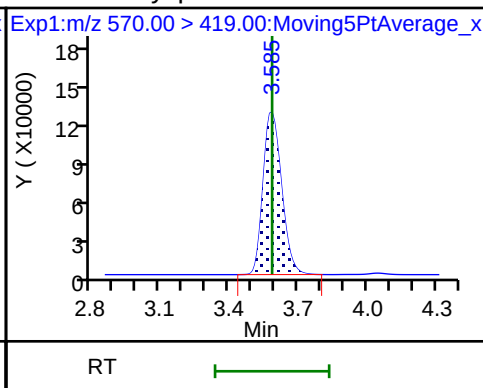
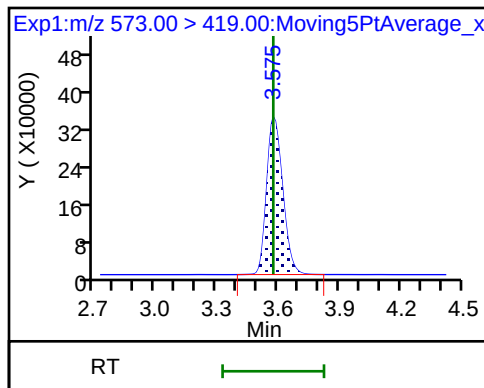
24 Perfluorodecanoic acid



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonamid

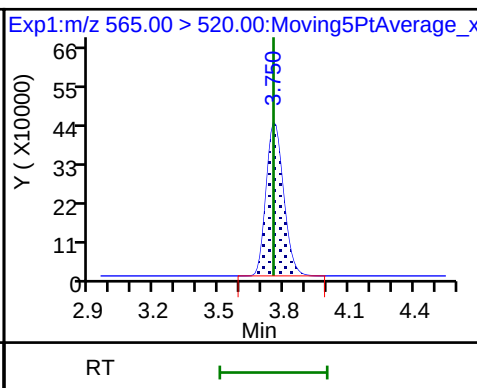
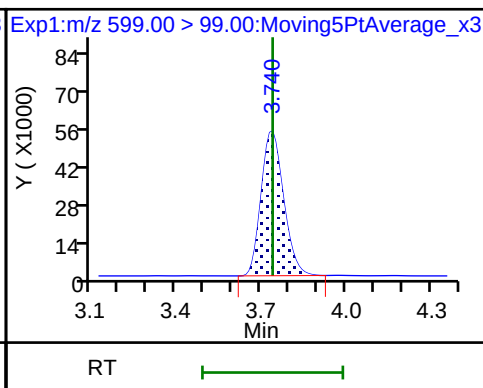
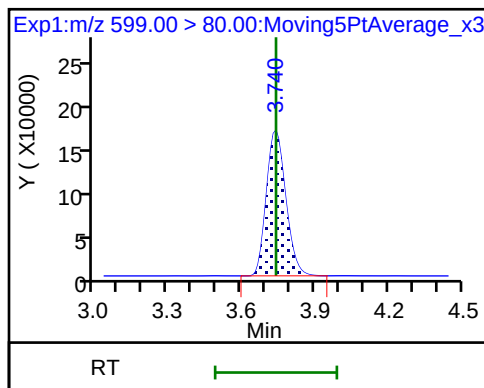
32 d5-NEtFOSAA

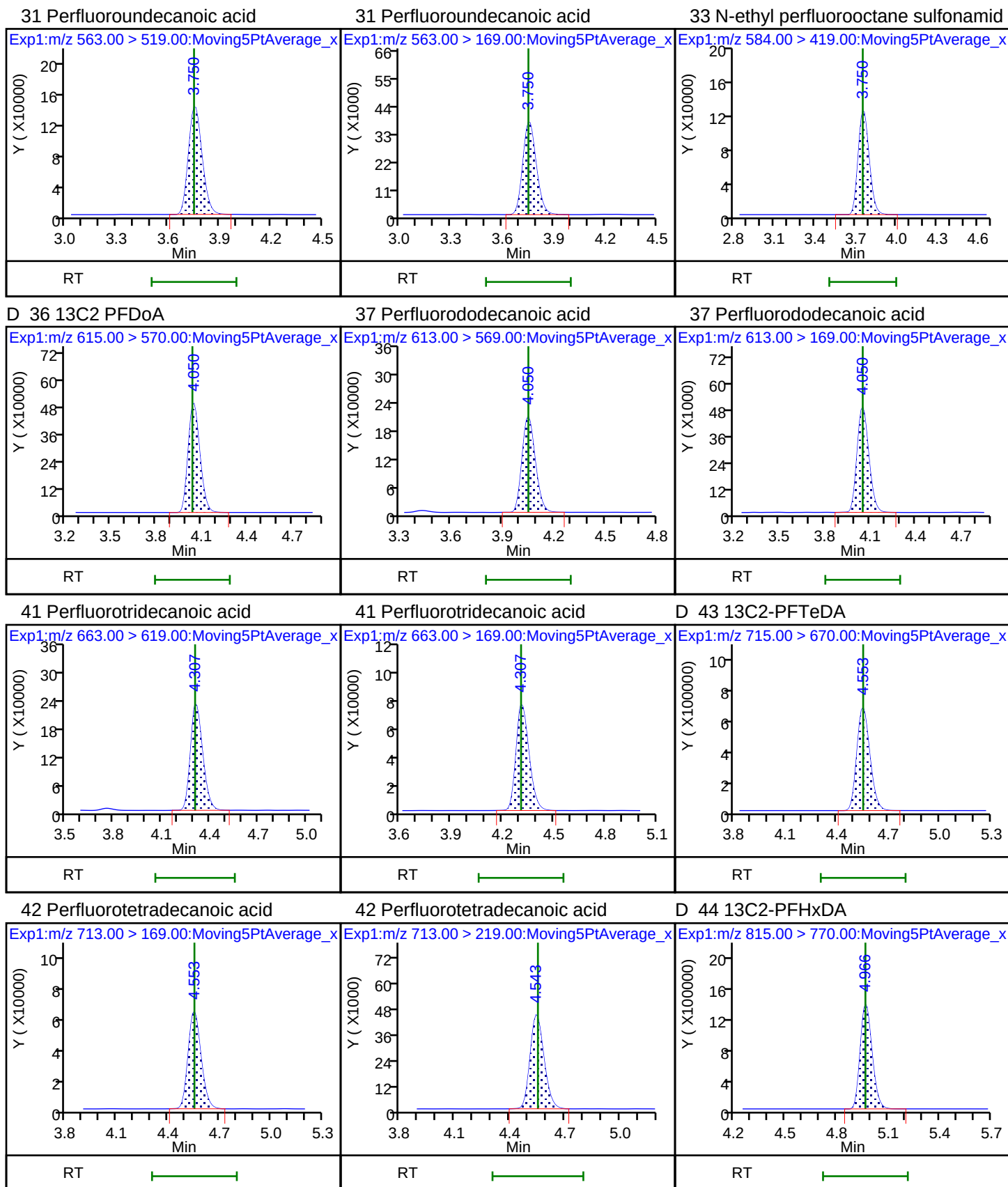


29 Perfluorodecane Sulfonic acid

29 Perfluorodecane Sulfonic acid

D 30 13C2 PFUnA







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-224205/14 Calibration Date: 05/19/2018 05:51

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.18LLC\_036.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9518 |         | 2.56        | 2.50         | 2.4   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.193  |         | 2.53        | 2.50         | 1.1   | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 80.27  |         | 2.27        | 2.21         | 2.8   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 19.11  |         | 2.69        | 2.34         | 15.3  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.056  |         | 2.57        | 2.50         | 2.7   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 73.88  |         | 2.49        | 2.35         | 6.2   | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.070  |         | 2.53        | 2.50         | 1.3   | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.097  |         | 2.21        | 2.28         | -2.6  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.749  |         | 2.35        | 2.37         | -0.8  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.119  |         | 2.38        | 2.50         | -5.0  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.342  |         | 2.40        | 2.38         | 0.8   | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.067  |         | 2.52        | 2.50         | 0.7   | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.101  |         | 2.17        | 2.32         | -6.4  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.065  |         | 2.73        | 2.50         | 9.4   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7595 |         | 2.41        | 2.40         | 0.3   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.322  |         | 2.35        | 2.40         | -2.1  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.026  |         | 2.64        | 2.50         | 5.5   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.063  |         | 2.62        | 2.50         | 4.7   | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6579 |         | 2.36        | 2.41         | -2.0  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9329 |         | 2.48        | 2.50         | -0.8  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8241 |         | 2.47        | 2.50         | -1.3  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 0.999  |         | 2.39        | 2.50         | -4.3  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.228  |         | 2.68        | 2.50         | 7.4   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2444 |         | 2.42        | 2.50         | -3.2  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.423  |         | 2.33        | 2.50         | -6.9  | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9268 |         | 2.36        | 2.50         | -5.4  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0203 |         | 2.13        | 2.33         | -8.3  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.012  |         | 2.42        | 2.50         | -3.1  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9443 |         | 2.36        | 2.50         | -5.7  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.100  |         | 2.10        | 2.37         | -11.0 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2242 |         | 2.41        | 2.38         | 1.5   | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-224205/14 Calibration Date: 05/19/2018 05:51  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.18LLC\_036.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9371 |         | 2.47           | 2.50            | -1.0  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7987 |         | 2.24           | 2.39            | -6.1  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7667 |         | 2.47           | 2.50            | -1.0  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9901 |         | 2.22           | 2.50            | -11.0 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2399 |         | 2.28           | 2.40            | -4.6  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6288 |         | 2.39           | 2.50            | -4.5  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3906 |         | 2.69           | 2.50            | 7.5   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5141 |         | 2.46           | 2.50            | -1.4  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4017 |         | 2.69           | 2.50            | 7.7   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5576 |         | 2.48           | 2.50            | -0.7  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6966 |         | 2.53           | 2.50            | 1.1   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.313  |         | 2.81           | 2.50            | 12.3  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_036.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 19-May-2018 05:51:47 ALS Bottle#: 14 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 11:15:58 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK027

First Level Reviewer: barnettj

Date: 21-May-2018 10:55:05

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.452 | 1.452  | 0.0    | 1.000  | 5958228  | 2.56         |                   | 102  | 3862  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.457  | -0.005 | 1.000  | 6259810  | 2.33         |                   | 93.1 | 36592 |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.721 | 1.720  | 0.001  | 0.562  | 4078053  | 2.36         |                   | 94.6 | 63512 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.721 | 1.721  | 0.0    | 1.000  | 4864999  | 2.53         |                   | 101  | 3108  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.757 | 1.756  | 0.001  | 1.000  | 83061    | 2.13         |                   | 91.7 | 2174  |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.757 | 1.757  | 0.0    | 1.000  | 6337287  | 2.27         |                   | 103  | 30907 |       |
| 298.90 > 99.00                        | 1.757 | 1.757  | 0.0    | 1.000  | 2660906  |              | 2.38(1.25-3.74)   |      | 30915 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.971 | 1.970  | 0.001  | 1.000  | 706210   | NC           |                   |      | 8548  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.971 | 1.971  | 0.0    | 1.000  | 1593819  | 2.69         |                   | 115  | 89262 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.004 | 2.003  | 0.001  | 1.000  | 4453906  | 2.42         |                   | 96.9 | 82132 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 4704505  | 2.57         |                   | 103  | 9624  |       |
| 313.00 > 119.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 427341   |              | 11.01(5.03-15.10) |      | 5027  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.027 | 2.027  | 0.0    | 1.000  | 6189062  | 2.49         |                   | 106  | 68451 |       |
| 349.00 > 99.00                        | 2.027 | 2.027  | 0.0    | 1.000  | 2254433  |              | 2.75(1.36-4.07)   |      | 37716 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.106 | 2.104  | 0.002  | 1.000  | 246518   | NC           |                   |      | 5828  |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.106 | 2.106  | 0.0    | 1.000  | 703634   | NC           |                 |      | 5824  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.334 | 2.334  | 0.0    | 1.000  | 4445572  | 2.53         |                 | 101  | 5867  |       |
| 363.00 > 169.00                       | 2.334 | 2.334  | 0.0    | 1.000  | 1750035  |              | 2.54(1.13-3.40) |      | 9349  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.334 | 2.345  | -0.011 | 1.000  | 4154663  | 2.36         |                 | 94.3 | 58270 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.347 | 2.347  | 0.0    | 1.000  | 4833353  | 2.21         |                 | 97.4 | 18141 |       |
| 399.00 > 99.00                        | 2.347 | 2.347  | 0.0    | 1.000  | 1616426  |              | 2.99(1.50-4.49) |      | 9024  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.347 | 2.358  | -0.011 | 1.000  | 4580444  | 2.10         |                 | 89.0 | 33502 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.386 | 2.386  | 0.0    | 1.000  | 13154743 | NC           |                 |      | 92045 |       |
| 377.00 > 85.00                        | 2.386 | 2.386  | 0.0    | 1.000  | 7878708  |              | 1.67(0.84-2.53) |      | 79665 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.668 | 2.667  | 0.001  | 1.000  | 937142   | 2.41         |                 | 101  | 15597 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.668 | 2.668  | 0.0    | 1.000  | 1635450  | 2.35         |                 | 99.2 | 41451 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.690 | 2.690  | 0.0    |        | 4399981  | 2.50         |                 |      | 43746 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.690 | 2.690  | 0.0    | 1.000  | 4612475  | 2.38         |                 | 95.0 | 1778  |       |
| 413.00 > 169.00                       | 2.698 | 2.690  | 0.008  | 1.003  | 2467566  |              | 1.87(0.84-2.52) |      | 8096  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.690 | 2.697  | -0.007 | 1.000  | 4123068  | 2.47         |                 | 99.0 | 59215 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.705 | 2.705  | 0.0    | 1.000  | 4490733  | 2.40         |                 | 101  | 26489 |       |
| 449.00 > 99.00                        | 2.698 | 2.705  | -0.007 | 0.997  | 1224968  |              | 3.67(1.94-5.82) |      | 18849 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.057 | 3.059  | -0.002 | 1.000  | 3359414  | 2.24         |                 | 93.9 | 23348 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.064 | 3.059  | 0.005  | 1.000  | 3373258  | 2.47         |                 | 99.0 | 47094 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.064 | 3.064  | 0.0    | 1.002  | 3590791  | 2.17         |                 | 93.6 | 19187 |       |
| 499.00 > 99.00                        | 3.064 | 3.064  | 0.0    | 1.002  | 773856   |              | 4.64(2.31-6.93) |      | 19862 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.064 | 3.064  | 0.0    | 1.000  | 3599434  | 2.52         |                 | 101  | 10702 |       |
| 463.00 > 169.00                       | 3.064 | 3.064  | 0.0    | 1.000  | 845540   |              | 4.26(1.90-5.69) |      | 34571 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.271 | 3.271  | 0.0    | 1.000  | 6133369  | NC           |                 |      | 37660 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.396 | 3.388  | 0.008  | 1.000  | 4356269  | 2.22         |                 | 89.0 | 35091 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 4638265  | 2.73         |                 | 109  | 55886 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.405 | 3.405  | 0.0    | 1.000  | 2562058  | 2.41         |                 | 100  | 44277 |       |
| 549.00 > 99.00                        | 3.405 | 3.405  | 0.0    | 1.000  | 961856   |              | 2.66(1.33-3.97) |      | 15344 |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|-------|-------|
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                  |      |       |       |
| 529.00 > 81.00                        | 3.415 | 3.407     | 0.008     | 1.000     | 1011156  | 2.28            |                  | 95.4 | 23777 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                  |      |       |       |
| 527.00 > 507.00                       | 3.415 | 3.415     | 0.0       | 1.000     | 1336351  | 2.35            |                  | 97.9 | 36136 |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                  |      |       |       |
| 515.00 > 470.00                       | 3.424 | 3.416     | 0.008     | 1.000     | 2766889  | 2.39            |                  | 95.5 | 44047 |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                  |      |       |       |
| 513.00 > 469.00                       | 3.424 | 3.424     | 0.0       | 1.000     | 2838698  | 2.64            |                  | 106  | 11733 |       |
| 513.00 > 169.00                       | 3.424 | 3.424     | 0.0       | 1.000     | 523520   |                 | 5.42(2.36-7.09)  |      | 16410 |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 573.00 > 419.00                       | 3.573 | 3.575     | -0.002    | 1.000     | 1718392  | 2.69            |                  | 107  | 20936 |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                  |      |       |       |
| 570.00 > 419.00                       | 3.584 | 3.584     | 0.0       | 1.003     | 1825874  | 2.62            |                  | 105  | 12114 |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                  |      |       |       |
| 599.00 > 80.00                        | 3.738 | 3.738     | 0.0       | 1.000     | 2228559  | 2.36            |                  | 98.0 | 22137 |       |
| 599.00 > 99.00                        | 3.738 | 3.738     | 0.0       | 1.000     | 743731   |                 | 3.00(1.39-4.16)  |      | 13271 |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 589.00 > 419.00                       | 3.749 | 3.740     | 0.009     | 1.000     | 1767532  | 2.69            |                  | 108  | 17319 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                  |      |       |       |
| 584.00 > 419.00                       | 3.749 | 3.749     | 0.0       | 1.000     | 1648880  | 2.48            |                  | 99.2 | 24134 |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 563.00 > 519.00                       | 3.749 | 3.749     | 0.0       | 1.000     | 1864150  | 2.47            |                  | 98.7 | 11435 |       |
| 563.00 > 169.00                       | 3.749 | 3.749     | 0.0       | 1.000     | 461690   |                 | 4.04(2.12-6.36)  |      | 13629 |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                  |      |       |       |
| 565.00 > 520.00                       | 3.749 | 3.750     | -0.001    | 1.000     | 2262185  | 2.46            |                  | 98.6 | 45151 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                  |      |       |       |
| 631.00 > 451.00                       | 3.907 | 3.907     | 0.0       | 1.000     | 9645277  | NC              |                  |      | 75111 |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                  |      |       |       |
| 615.00 > 570.00                       | 4.050 | 4.040     | 0.010     | 1.000     | 2453273  | 2.48            |                  | 99.3 | 15581 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 613.00 > 569.00                       | 4.050 | 4.050     | 0.0       | 1.000     | 2449976  | 2.39            |                  | 95.7 | 3028  |       |
| 613.00 > 169.00                       | 4.050 | 4.050     | 0.0       | 1.000     | 646180   |                 | 3.79(2.13-6.40)  |      | 9898  |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                  |      |       |       |
| 663.00 > 619.00                       | 4.307 | 4.307     | 0.0       | 1.000     | 3013510  | 2.68            |                  | 107  | 3070  |       |
| 663.00 > 169.00                       | 4.307 | 4.307     | 0.0       | 1.000     | 919163   |                 | 3.28(1.25-3.76)  |      | 10660 |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                  |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 748963   | 2.42            |                  | 96.8 | 7726  |       |
| 713.00 > 219.00                       | 4.553 | 4.553     | -0.011    | 0.998     | 545741   |                 | 1.37(0.71-2.13)  |      | 9234  |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 3065087  | 2.53            |                  | 101  | 13687 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 813.00 > 769.00                       | 4.966 | 4.966     | 0.0       | 1.000     | 5550221  | NC              |                  |      | 1980  |       |
| 813.00 > 169.00                       | 4.966 | 4.966     | 0.0       | 1.000     | 916564   |                 | 6.06(2.86-8.58)  |      | 6187  |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 815.00 > 770.00                       | 4.966 | 4.966     | 0.0       | 1.000     | 5777394  | 2.81            |                  | 112  | 13260 |       |
| 46 Perfluorooctadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 913.00 > 869.00                       | 5.329 | 5.329     | 0.0       | 1.000     | 6476066  | NC              |                  |      | 1581  |       |
| 913.00 > 169.00                       | 5.329 | 5.329     | 0.0       | 1.000     | 805156   |                 | 8.04(3.83-11.48) |      | 4615  |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_036.d

Injection Date: 19-May-2018 05:51:47

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

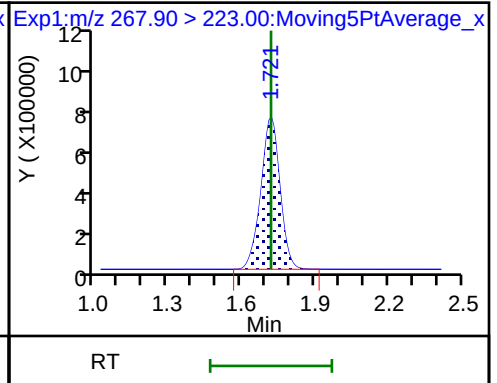
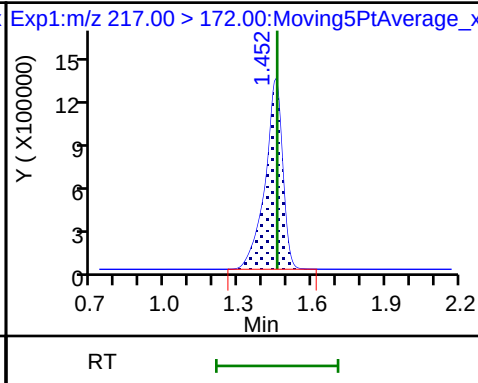
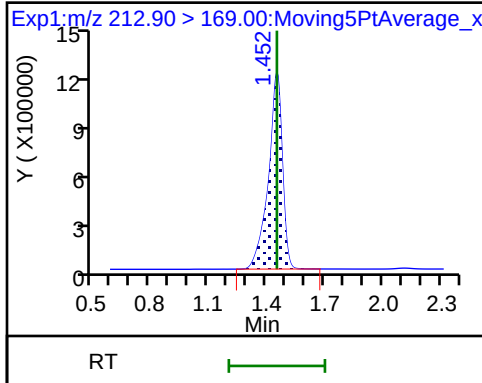
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

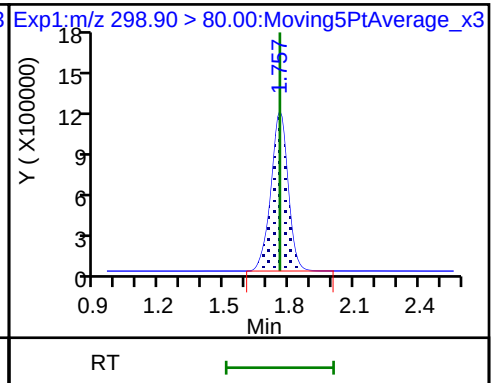
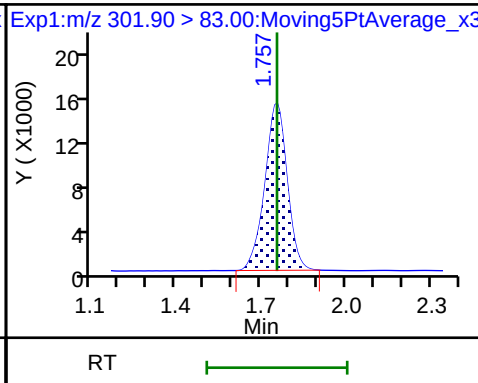
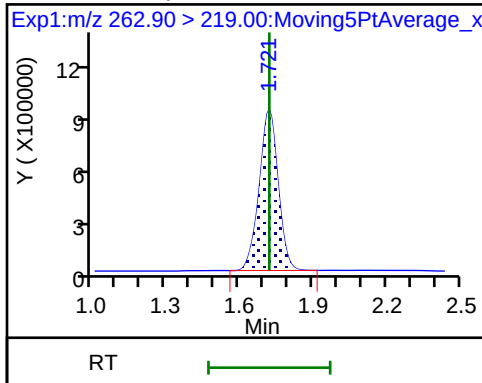
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

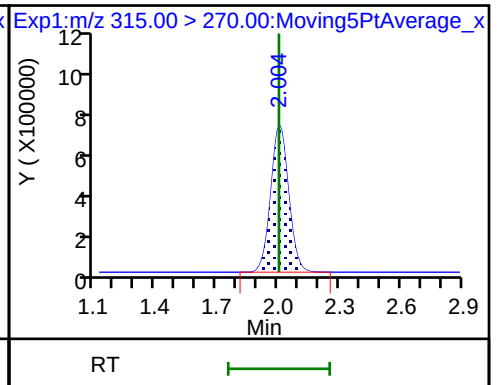
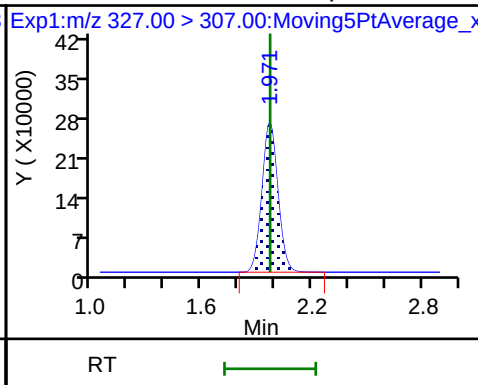
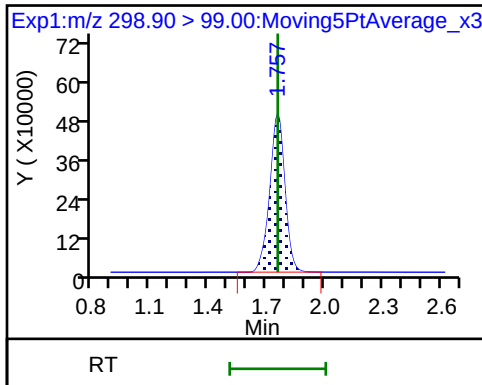
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

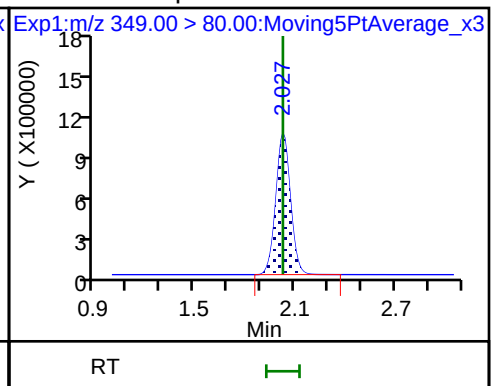
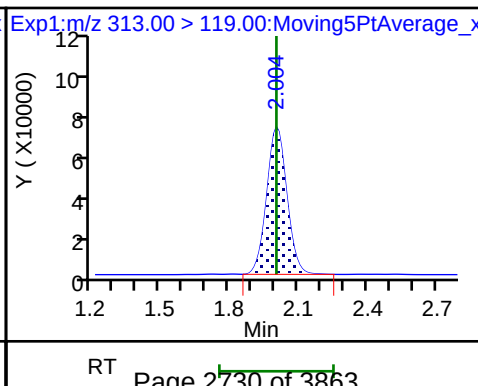
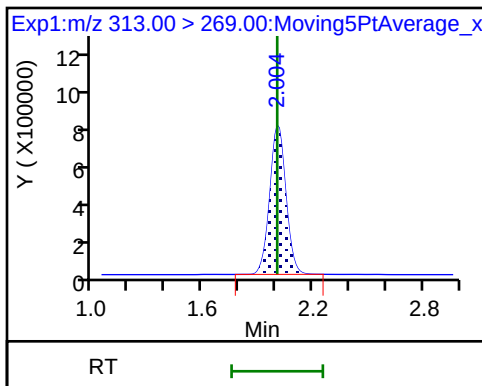
## De 7 13C2 PFHxA

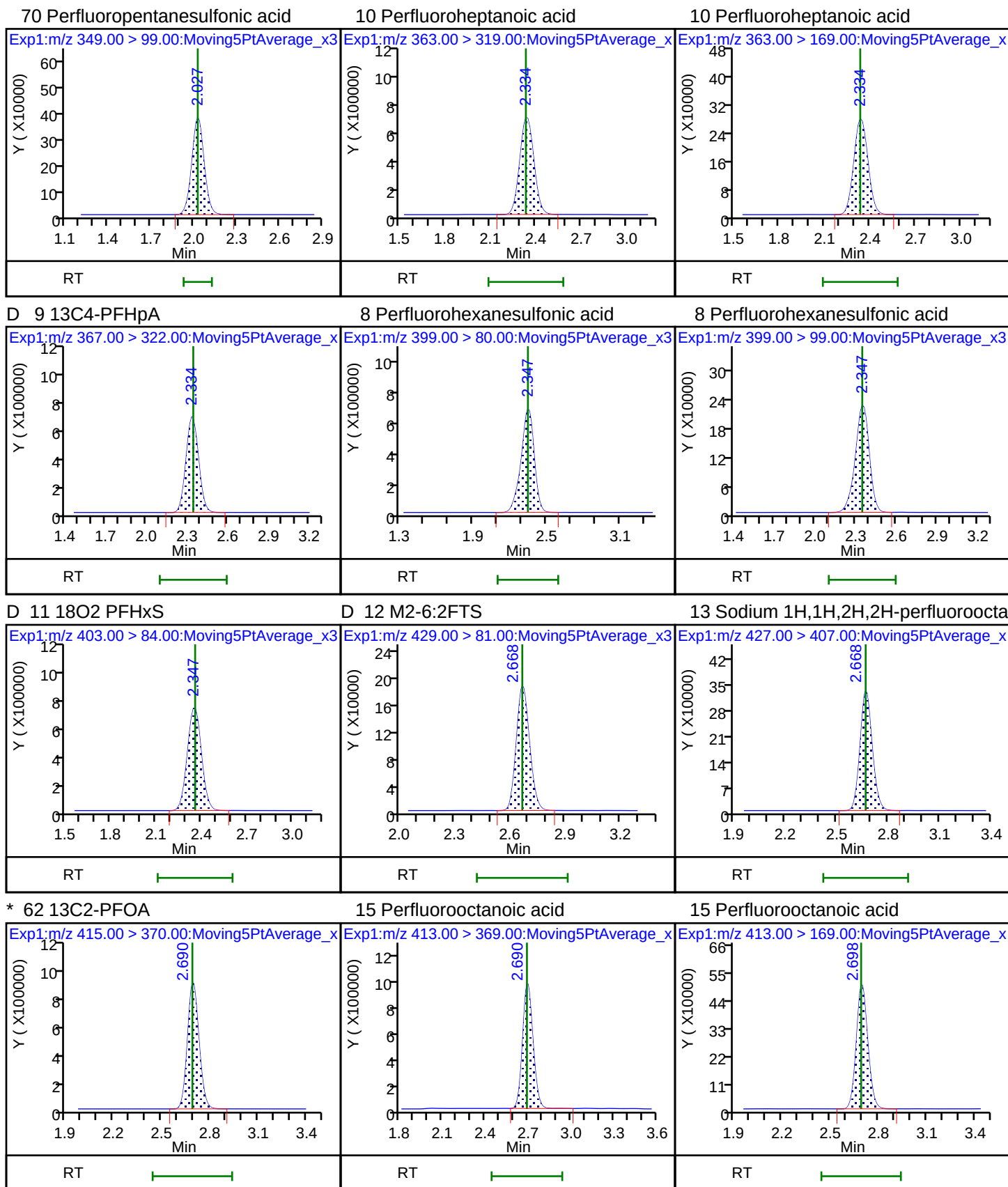


## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid

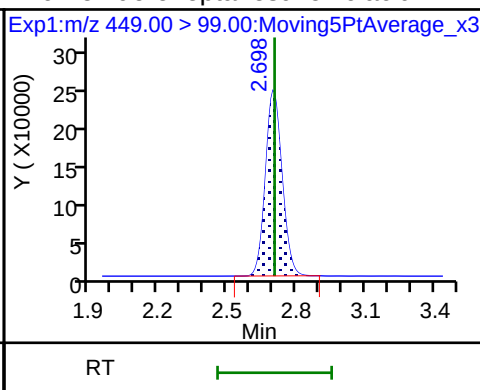
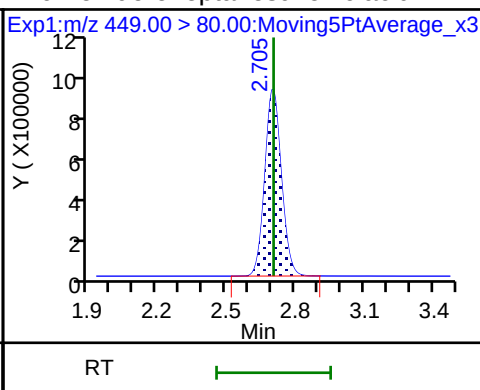
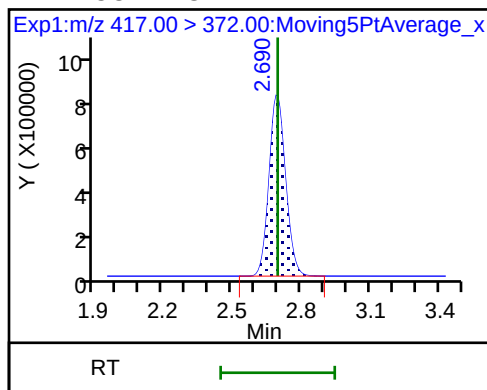




## D 14 13C4 PFOA

## 16 Perfluoroheptanesulfonic acid

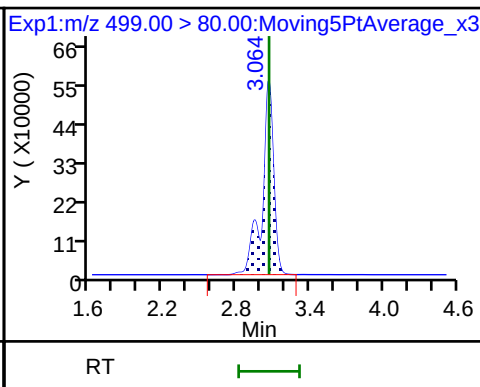
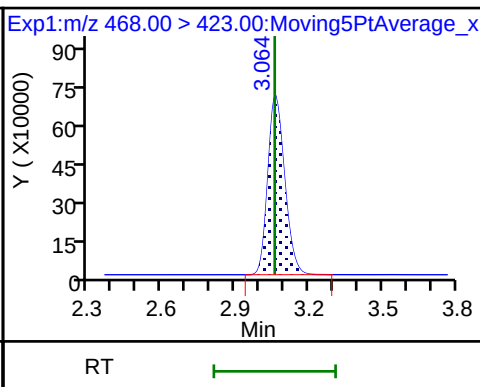
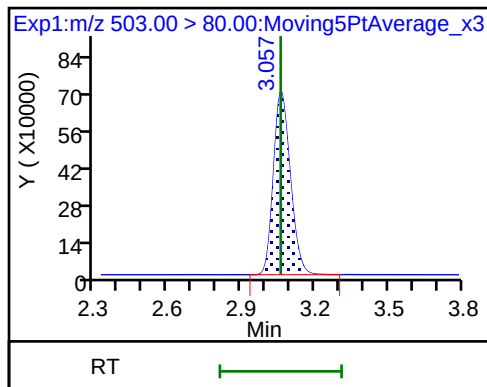
## 16 Perfluoroheptanesulfonic acid



## D 18 13C4 PFOS

## D 19 13C5 PFNA

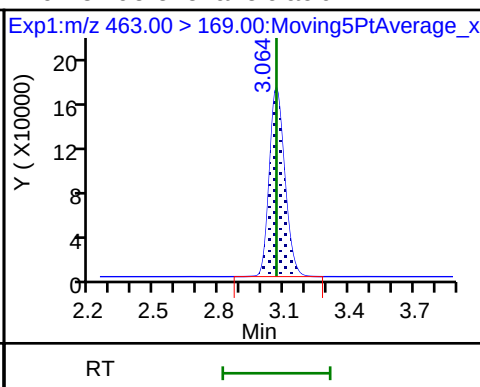
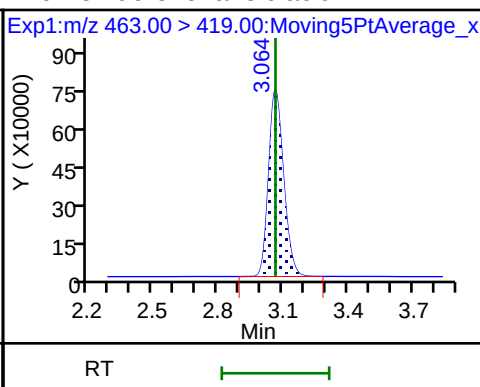
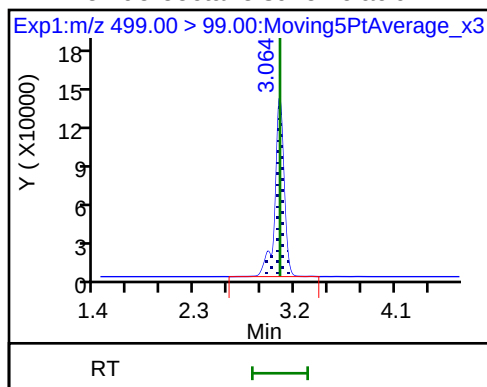
## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid

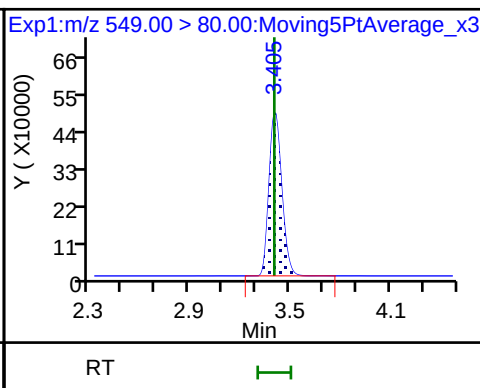
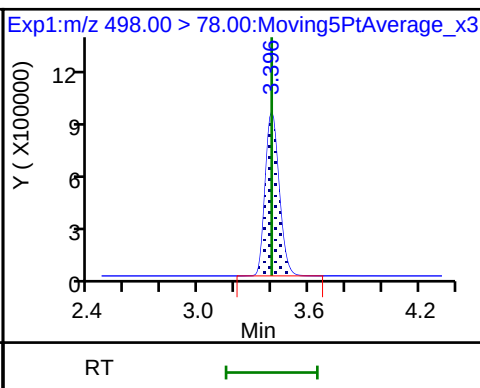
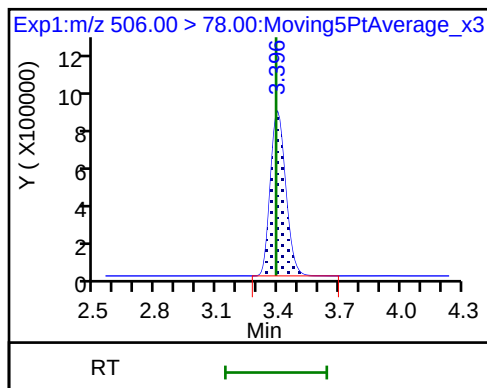
## 20 Perfluorononanoic acid

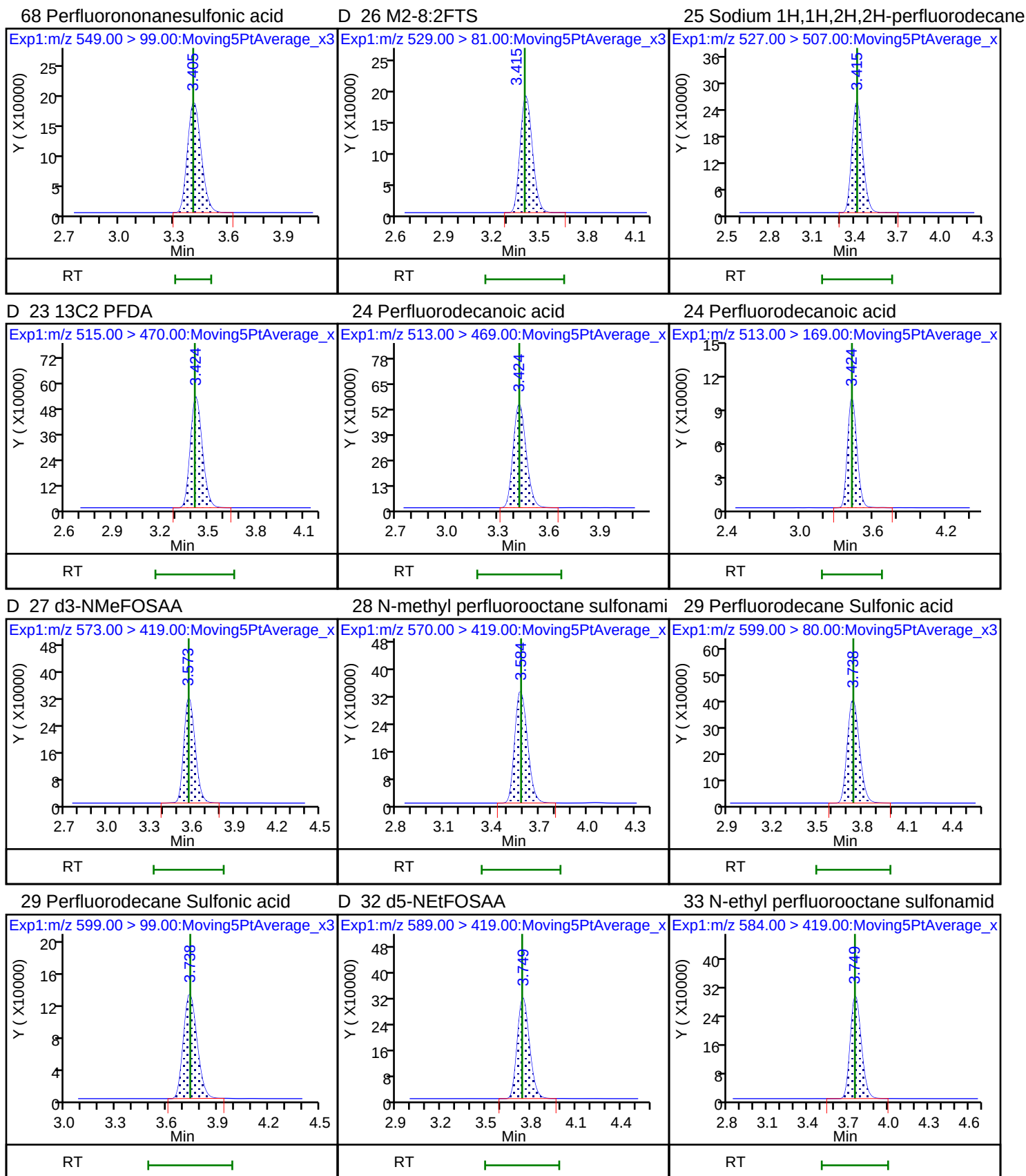


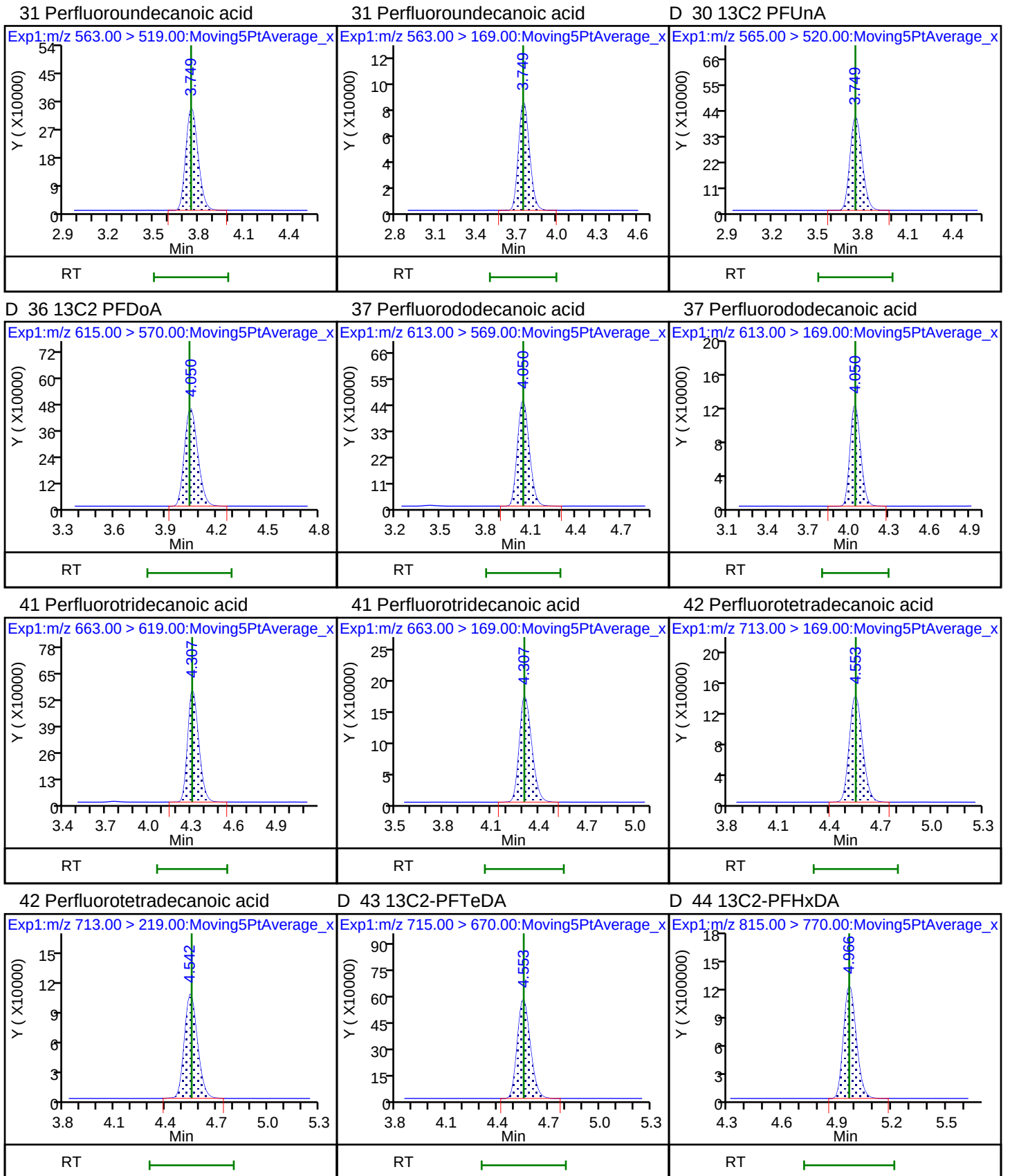
## D 21 13C8 FOSA

## 22 Perfluorooctane Sulfonamide

## 68 Perfluorononanesulfonic acid











FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-224205/25 Calibration Date: 05/19/2018 07:17

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.18LLC\_047.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9128 |         | 0.982       | 1.00         | -1.8  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.133  |         | 0.960       | 1.00         | -4.0  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 78.08  |         | 0.884       | 0.884        | -0.0  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 17.99  |         | 1.01        | 0.934        | 8.5   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 0.9932 |         | 0.966       | 1.00         | -3.4  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 67.96  |         | 0.917       | 0.938        | -2.3  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 0.9907 |         | 0.938       | 1.00         | -6.2  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.007  |         | 0.813       | 0.910        | -10.6 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.736  |         | 0.928       | 0.948        | -2.2  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.285  |         | 0.918       | 0.952        | -3.5  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.111  |         | 0.944       | 1.00         | -5.6  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.039  |         | 0.820       | 0.928        | -11.7 | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.008  |         | 0.951       | 1.00         | -4.9  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.018  |         | 1.05        | 1.00         | 4.5   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.199  |         | 0.851       | 0.958        | -11.1 | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7436 |         | 0.942       | 0.960        | -1.8  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9454 |         | 0.972       | 1.00         | -2.8  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.008  |         | 0.994       | 1.00         | -0.6  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6017 |         | 0.864       | 0.964        | -10.4 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9354 |         | 0.995       | 1.00         | -0.5  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7867 |         | 0.942       | 1.00         | -5.8  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.028  |         | 0.985       | 1.00         | -1.5  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.221  |         | 1.07        | 1.00         | 6.7   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2395 |         | 0.948       | 1.00         | -5.2  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.385  |         | 2.27        | 2.50         | -9.4  | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9161 |         | 2.34        | 2.50         | -6.5  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0198 |         | 2.07        | 2.33         | -10.8 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9819 |         | 2.35        | 2.50         | -6.0  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9576 |         | 2.39        | 2.50         | -4.3  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.136  |         | 2.17        | 2.37         | -8.1  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2152 |         | 2.31        | 2.38         | -2.6  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-224205/25 Calibration Date: 05/19/2018 07:17  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.18LLC\_047.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9182 |         | 2.42           | 2.50            | -3.0  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7783 |         | 2.19           | 2.39            | -8.5  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7676 |         | 2.48           | 2.50            | -0.9  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9706 |         | 2.18           | 2.50            | -12.8 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2428 |         | 2.31           | 2.40            | -3.5  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6418 |         | 2.44           | 2.50            | -2.6  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3754 |         | 2.58           | 2.50            | 3.3   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3937 |         | 2.64           | 2.50            | 5.6   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5189 |         | 2.49           | 2.50            | -0.5  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5417 |         | 2.41           | 2.50            | -3.5  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6983 |         | 2.53           | 2.50            | 1.3   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.298  |         | 2.77           | 2.50            | 10.9  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_047.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 19-May-2018 07:17:39 ALS Bottle#: 13 Worklist Smp#: 25  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 11:16:37 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK027

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec  | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|-------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |       |       |       |
| 212.90 > 169.00                       | 1.458 | 1.458  | 0.0    | 1.000  | 2441999  | 0.9817       |                   | 98.2  | 1353  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |       |       |       |
| 217.00 > 172.00                       | 1.458 | 1.457  | 0.001  | 1.000  | 6688071  | 2.27         |                   | 90.6  | 37254 |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |       |       |       |
| 267.90 > 223.00                       | 1.729 | 1.720  | 0.009  | 0.563  | 4422330  | 2.34         |                   | 93.5  | 64340 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |       |       |       |
| 262.90 > 219.00                       | 1.729 | 1.729  | 0.0    | 1.000  | 2004682  | 0.9600       |                   | 96.0  | 1427  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |       |       |       |
| 301.90 > 83.00                        | 1.765 | 1.756  | 0.009  | 1.000  | 88699    | 2.07         |                   | 89.2  | 928   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |       |       |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 2633231  | 0.8839       |                   | 100.0 | 16975 |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 1082273  |              | 2.43(1.25-3.74)   |       | 15571 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |       |       |       |
| 329.00 > 81.00                        | 1.981 | 1.970  | 0.011  | 1.000  | 736836   | NC           |                   |       | 10396 |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |       |       |       |
| 327.00 > 307.00                       | 1.981 | 1.981  | 0.0    | 1.000  | 640957   | 1.01         |                   | 109   | 35995 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |       |       |       |
| 315.00 > 270.00                       | 2.014 | 2.003  | 0.011  | 1.000  | 4740173  | 2.35         |                   | 94.0  | 79704 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |       |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 1883223  | 0.9660       |                   | 96.6  | 3321  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 170812   |              | 11.03(5.03-15.10) |       | 2184  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |       |       |       |
| 349.00 > 80.00                        | 2.037 | 2.037  | 0.0    | 1.000  | 2432102  | 0.9167       |                   | 97.7  | 31162 |       |
| 349.00 > 99.00                        | 2.037 | 2.037  | 0.0    | 1.000  | 904992   |              | 2.69(1.36-4.07)   |       | 15158 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |       |       |       |
| 332.10 > 287.00                       | 2.116 | 2.104  | 0.012  | 1.000  | 212724   | NC           |                   |       | 4899  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |       |       |       |
| 329.10 > 285.00                       | 2.116 | 2.116  | 0.0    | 1.000  | 273019   | NC           |                   |       | 2068  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 1831859  | 0.9379       |                 | 93.8 | 2630  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 712530   |              | 2.57(1.13-3.40) |      | 4034  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 4622702  | 2.39         |                 | 95.7 | 66465 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 2010985  | 0.8133       |                 | 89.4 | 9261  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 674753   |              | 2.98(1.50-4.49) |      | 4620  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 5189412  | 2.17         |                 | 91.9 | 45894 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.395 | 2.395  | 0.0    | 1.000  | 5806583  | NC           |                 |      | 63185 |       |
| 377.00 > 85.00                        | 2.384 | 2.395  | -0.011 | 0.995  | 3280533  |              | 1.77(0.84-2.53) |      | 37979 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.675 | 2.667  | 0.008  | 1.000  | 986830   | 2.31         |                 | 97.4 | 16930 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.675 | 2.675  | 0.0    | 1.000  | 683876   | 0.9276       |                 | 97.8 | 19772 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.705 | 2.705  | 0.0    |        | 4827597  | 2.50         |                 |      | 52243 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.705 | 2.705  | 0.0    | 1.000  | 1969880  | 0.9439       |                 | 94.4 | 796   |       |
| 413.00 > 169.00                       | 2.705 | 2.705  | 0.0    | 1.000  | 1044688  |              | 1.89(0.84-2.52) |      | 4272  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.705 | 2.697  | 0.008  | 1.000  | 4432752  | 2.42         |                 | 97.0 | 47104 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.705 | 2.705  | 0.0    | 1.000  | 1838532  | 0.9184       |                 | 96.5 | 18809 |       |
| 449.00 > 99.00                        | 2.705 | 2.705  | 0.0    | 1.000  | 497865   |              | 3.69(1.94-5.82) |      | 10125 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.066 | 3.059  | 0.007  | 1.000  | 3591964  | 2.19         |                 | 91.5 | 29092 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.073 | 3.059  | 0.014  | 1.000  | 3705821  | 2.48         |                 | 99.1 | 45532 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.066 | 3.066  | 0.0    | 1.000  | 1448781  | 0.8199       |                 | 88.3 | 10438 |       |
| 499.00 > 99.00                        | 3.066 | 3.066  | 0.0    | 1.000  | 319529   |              | 4.53(2.31-6.93) |      | 6717  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.073 | 3.073  | 0.0    | 1.000  | 1493852  | 0.9515       |                 | 95.1 | 3661  |       |
| 463.00 > 169.00                       | 3.073 | 3.073  | 0.0    | 1.000  | 358915   |              | 4.16(1.90-5.69) |      | 12625 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.281 | 3.281  | 0.0    | 1.000  | 2569524  | NC           |                 |      | 28769 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.399 | 3.388  | 0.011  | 1.000  | 4685738  | 2.18         |                 | 87.2 | 36065 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.399 | 3.399  | 0.0    | 1.000  | 1907469  | 1.05         |                 | 105  | 28233 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 1072843  | 0.9424       |                 | 98.2 | 18873 |       |
| 549.00 > 99.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 378767   |              | 2.83(1.33-3.97) |      | 8052  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.417 | 3.407  | 0.010  | 1.000  | 1122720  | 2.31         |                 | 96.5 | 26506 |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                  |      |       |       |
| 527.00 > 507.00                       | 3.417 | 3.417     | 0.0       | 1.000     | 538588   | 0.8514          |                  | 88.9 | 9373  |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                  |      |       |       |
| 515.00 > 470.00                       | 3.427 | 3.416     | 0.011     | 1.000     | 3098330  | 2.44            |                  | 97.4 | 45581 |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                  |      |       |       |
| 513.00 > 469.00                       | 3.427 | 3.427     | 0.0       | 1.000     | 1171609  | 0.9724          |                  | 97.2 | 7151  |       |
| 513.00 > 169.00                       | 3.427 | 3.427     | 0.0       | 1.000     | 225235   |                 | 5.20(2.36-7.09)  |      | 6168  |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 573.00 > 419.00                       | 3.586 | 3.575     | 0.011     | 1.000     | 1812235  | 2.58            |                  | 103  | 24984 |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                  |      |       |       |
| 570.00 > 419.00                       | 3.586 | 3.586     | 0.0       | 1.000     | 730932   | 0.99            |                  | 99.4 | 4360  |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                  |      |       |       |
| 599.00 > 80.00                        | 3.741 | 3.741     | 0.0       | 1.000     | 871785   | 0.8639          |                  | 89.6 | 13268 |       |
| 599.00 > 99.00                        | 3.741 | 3.741     | 0.0       | 1.000     | 302892   |                 | 2.88(1.39-4.16)  |      | 6910  |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 589.00 > 419.00                       | 3.751 | 3.740     | 0.011     | 1.000     | 1900624  | 2.64            |                  | 106  | 18074 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                  |      |       |       |
| 584.00 > 419.00                       | 3.761 | 3.761     | 0.0       | 1.003     | 711110   | 1.00            |                  | 99.5 | 15959 |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 563.00 > 519.00                       | 3.761 | 3.761     | 0.0       | 1.000     | 788197   | 0.9419          |                  | 94.2 | 7545  |       |
| 563.00 > 169.00                       | 3.761 | 3.761     | 0.0       | 1.000     | 209146   |                 | 3.77(2.12-6.36)  |      | 6274  |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                  |      |       |       |
| 565.00 > 520.00                       | 3.761 | 3.750     | 0.011     | 1.000     | 2504849  | 2.49            |                  | 99.5 | 57039 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                  |      |       |       |
| 631.00 > 451.00                       | 3.918 | 3.918     | 0.0       | 1.000     | 3978807  | NC              |                  |      | 32323 |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                  |      |       |       |
| 615.00 > 570.00                       | 4.051 | 4.040     | 0.011     | 1.000     | 2615127  | 2.41            |                  | 96.5 | 17309 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 613.00 > 569.00                       | 4.051 | 4.051     | 0.0       | 1.000     | 1075562  | 0.9852          |                  | 98.5 | 1315  |       |
| 613.00 > 169.00                       | 4.051 | 4.051     | 0.0       | 1.000     | 247170   |                 | 4.35(2.13-6.40)  |      | 4495  |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                  |      |       |       |
| 663.00 > 619.00                       | 4.319 | 4.319     | 0.0       | 1.000     | 1276877  | 1.07            |                  | 107  | 1174  |       |
| 663.00 > 169.00                       | 4.319 | 4.319     | 0.0       | 1.000     | 371940   |                 | 3.43(1.25-3.76)  |      | 6300  |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                  |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 322894   | 0.9482          |                  | 94.8 | 4314  |       |
| 713.00 > 219.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 232184   |                 | 1.39(0.71-2.13)  |      | 5477  |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 3371269  | 2.53            |                  | 101  | 19129 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 813.00 > 769.00                       | 4.976 | 4.976     | 0.0       | 1.000     | 2340772  | NC              |                  |      | 893   |       |
| 813.00 > 169.00                       | 4.976 | 4.976     | 0.0       | 1.000     | 392302   |                 | 5.97(2.86-8.58)  |      | 3029  |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 815.00 > 770.00                       | 4.976 | 4.966     | 0.010     | 1.000     | 6264055  | 2.77            |                  | 111  | 12816 |       |
| 46 Perfluorooctadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 913.00 > 869.00                       | 5.337 | 5.337     | 0.0       | 1.000     | 2676924  | NC              |                  |      | 669   |       |
| 913.00 > 169.00                       | 5.337 | 5.337     | 0.0       | 1.000     | 327411   |                 | 8.18(3.83-11.48) |      | 2705  |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180518-58407.b\2018.05.18LLC\_047.d

Injection Date: 19-May-2018 07:17:39

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

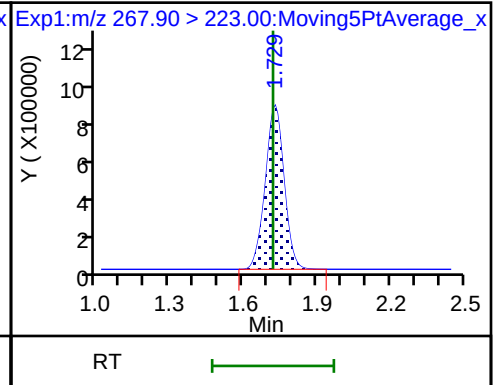
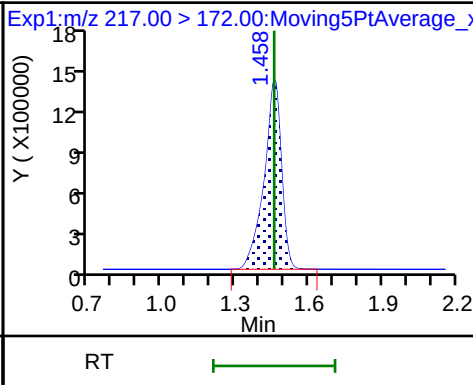
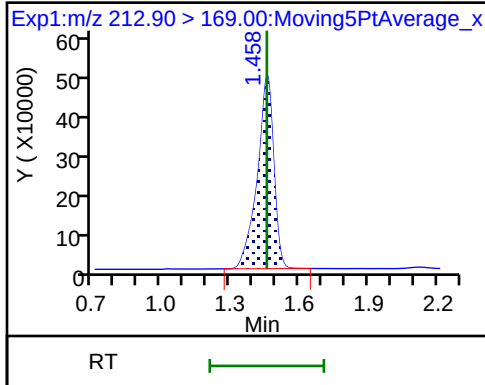
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

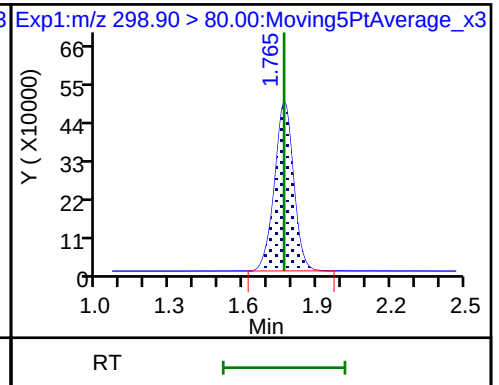
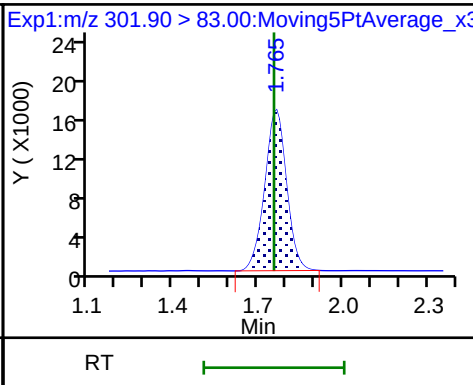
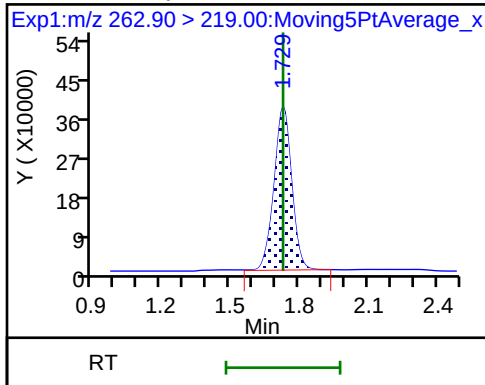
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

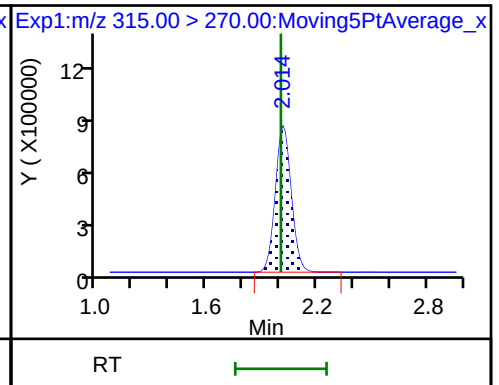
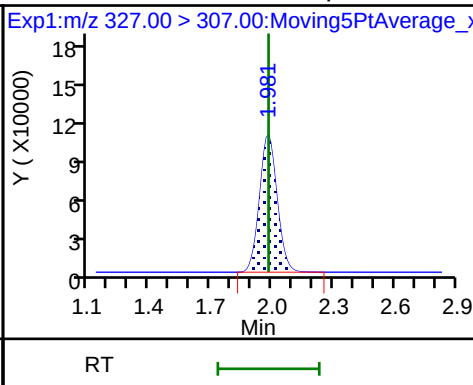
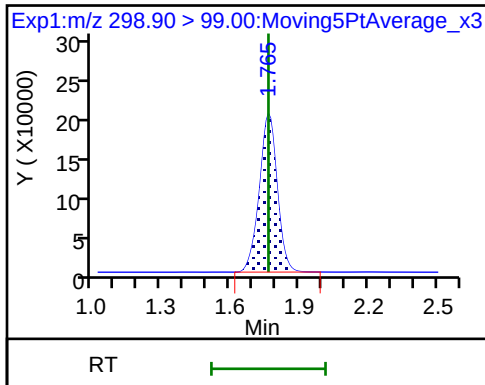
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

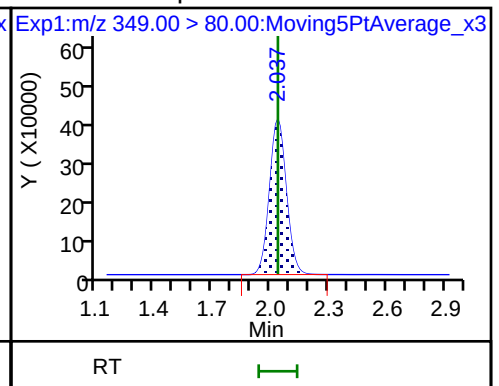
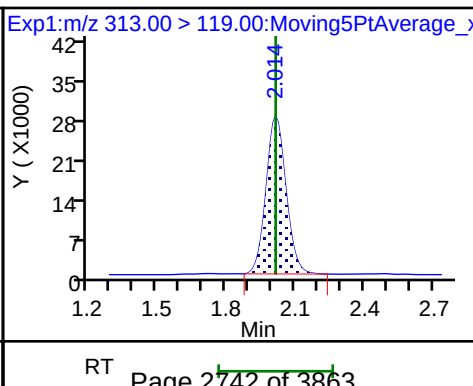
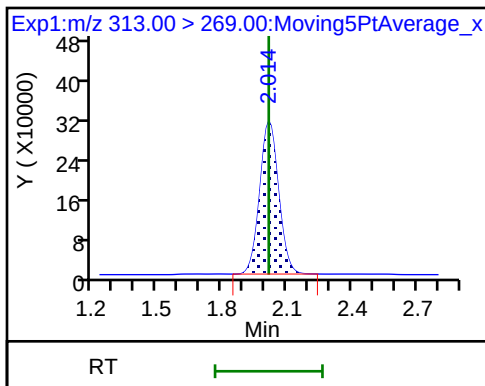
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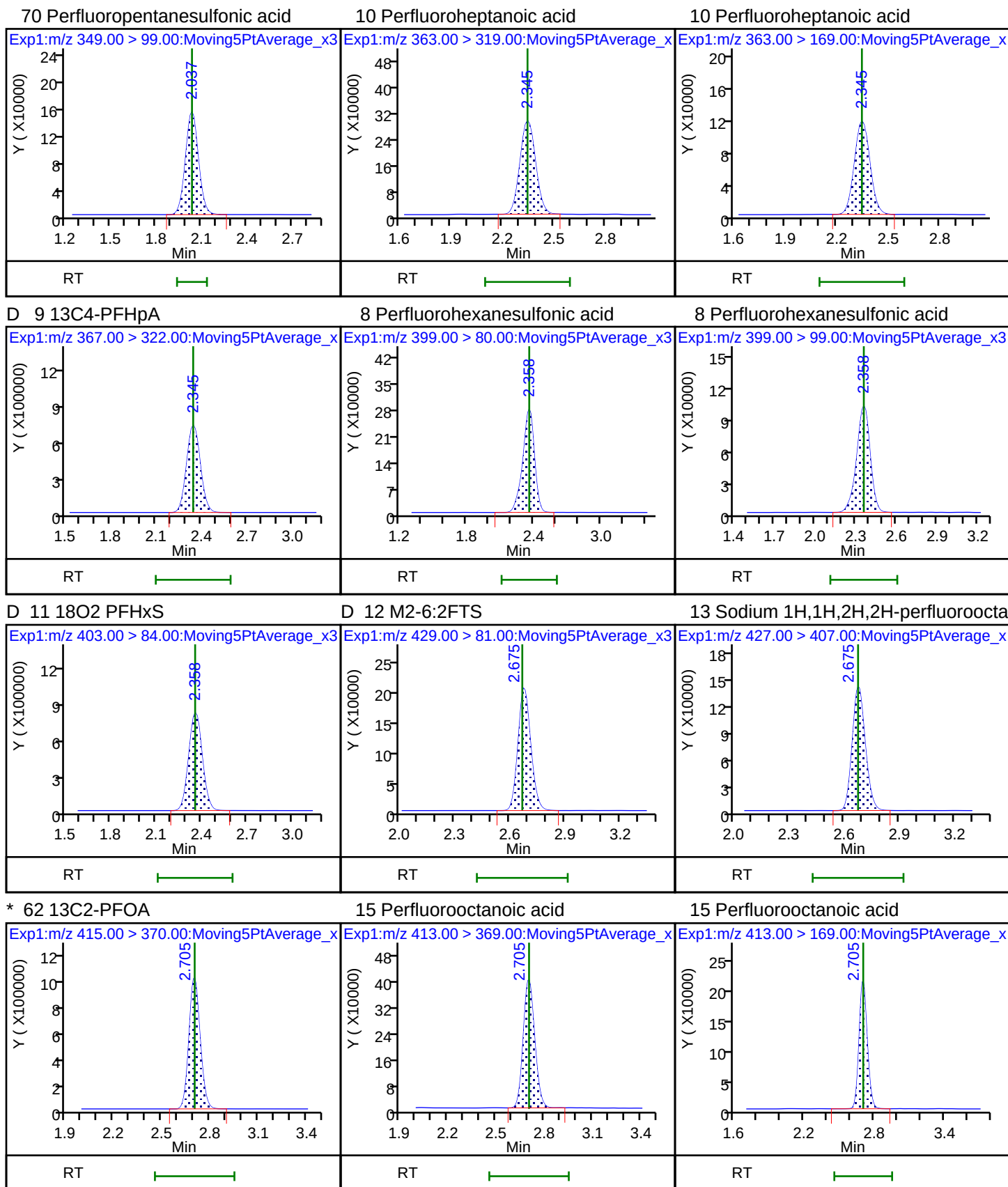
## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid



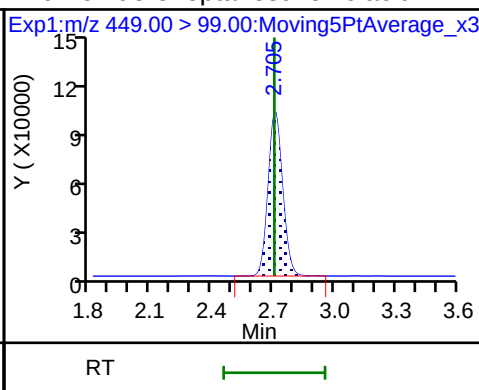
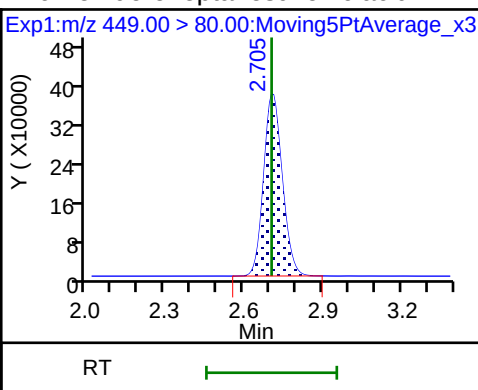
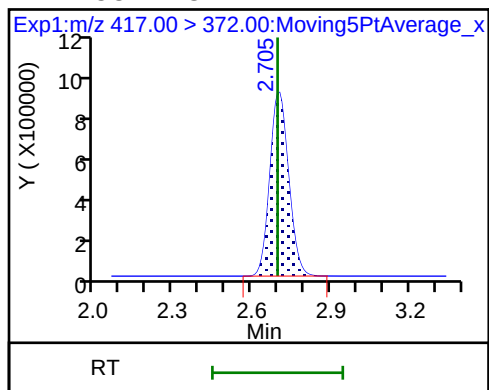




## D 14 13C4 PFOA

## 16 Perfluoroheptanesulfonic acid

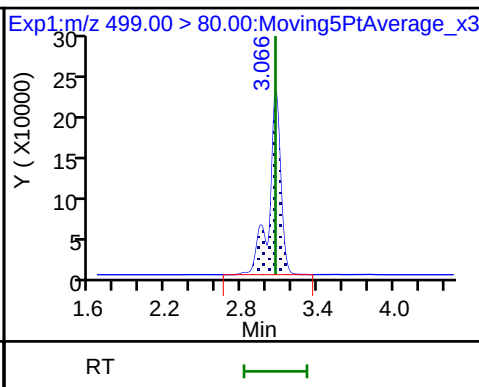
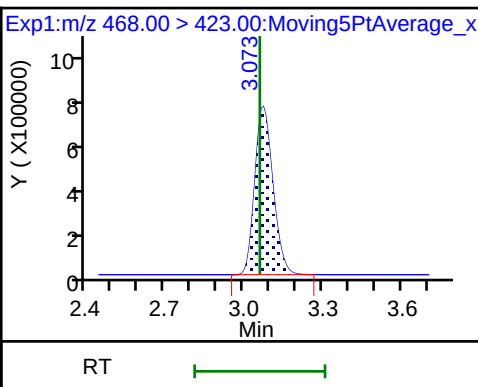
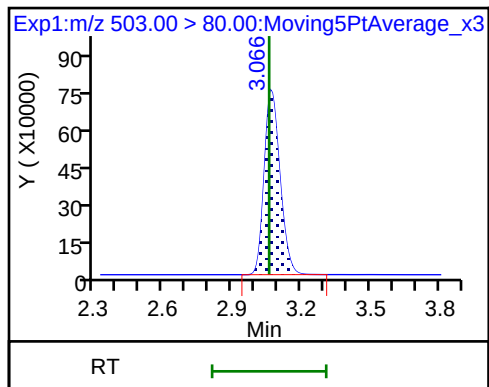
## 16 Perfluoroheptanesulfonic acid



## D 18 13C4 PFOS

## D 19 13C5 PFNA

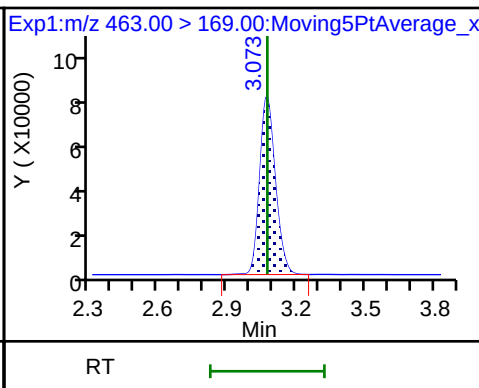
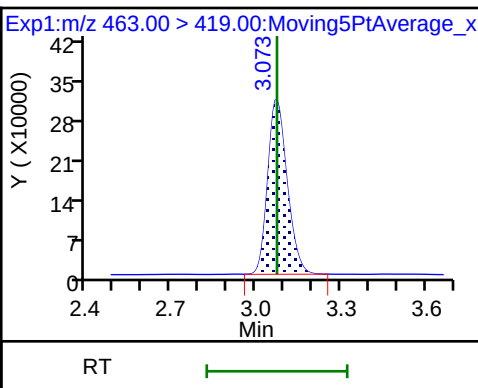
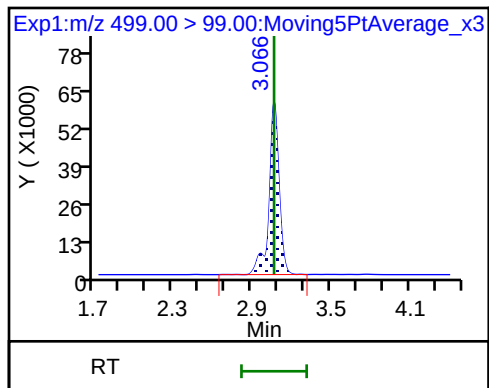
## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid

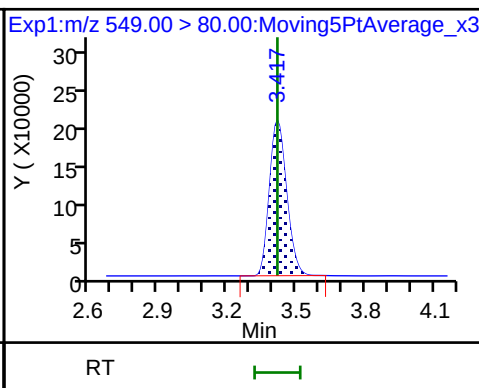
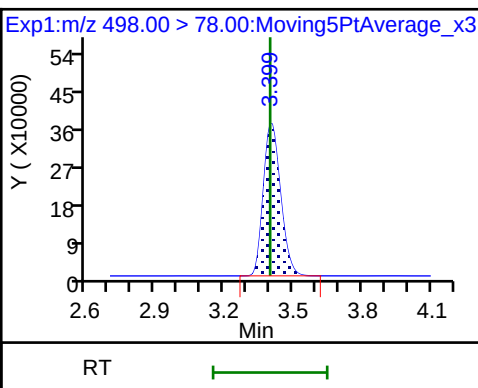
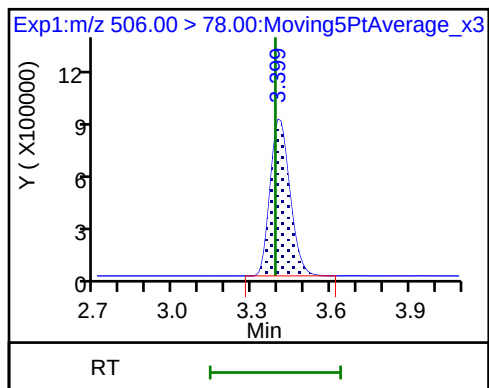
## 20 Perfluorononanoic acid



## D 21 13C8 FOSA

## 22 Perfluorooctane Sulfonamide

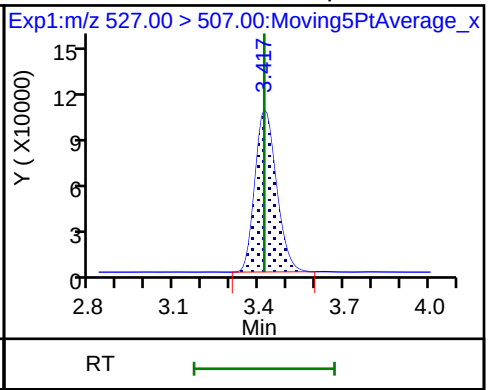
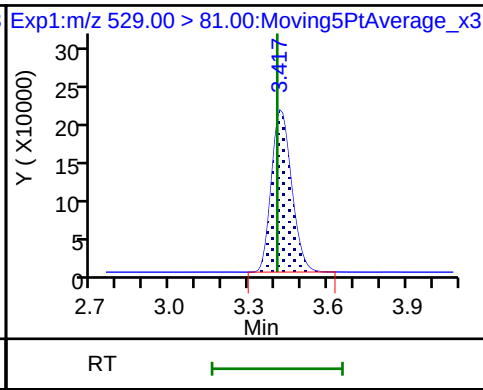
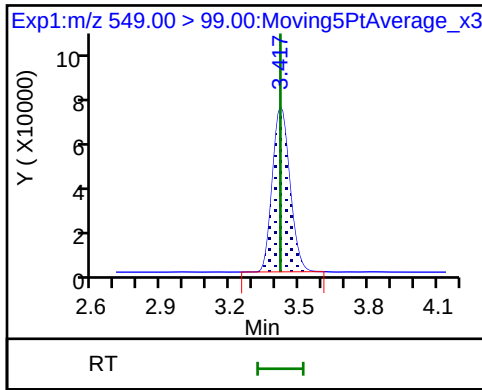
## 68 Perfluorononanesulfonic acid



68 Perfluorononanesulfonic acid

D 26 M2-8:2FTS

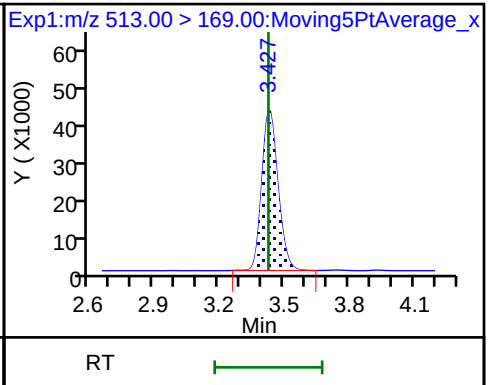
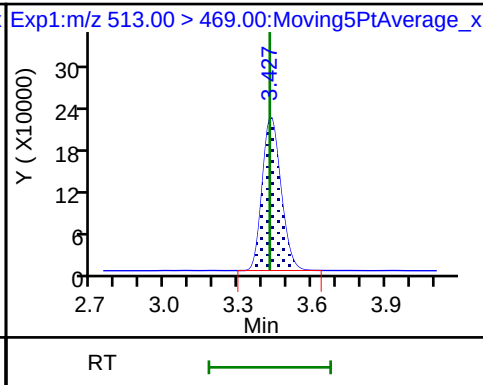
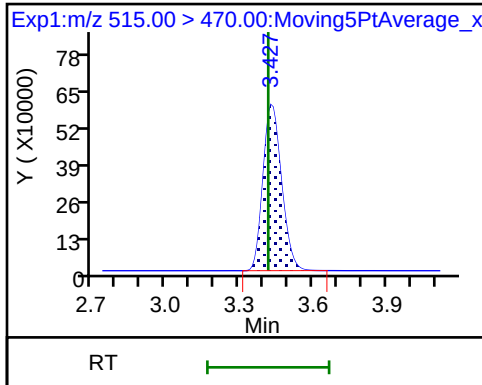
25 Sodium 1H,1H,2H,2H-perfluorodecane



D 23 13C2 PFDA

24 Perfluorodecanoic acid

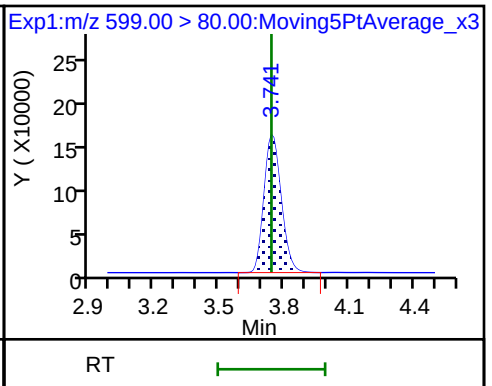
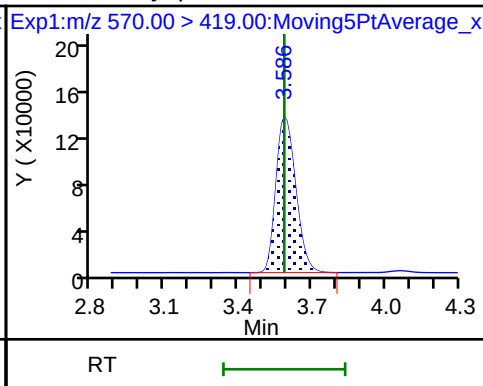
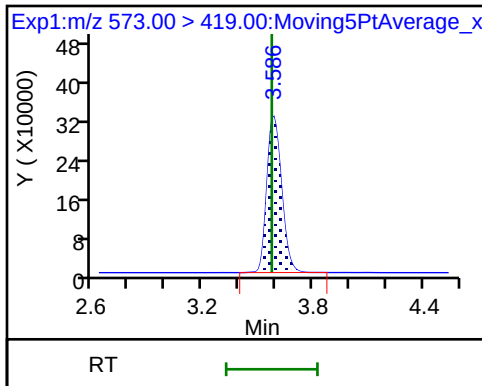
24 Perfluorodecanoic acid



D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonami

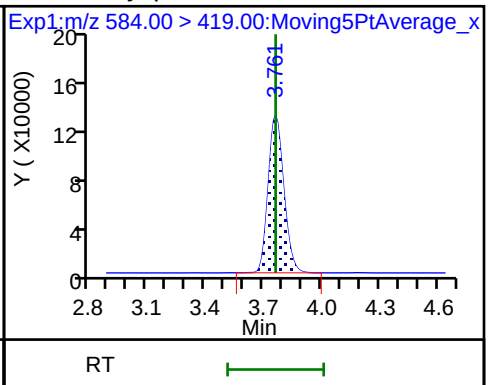
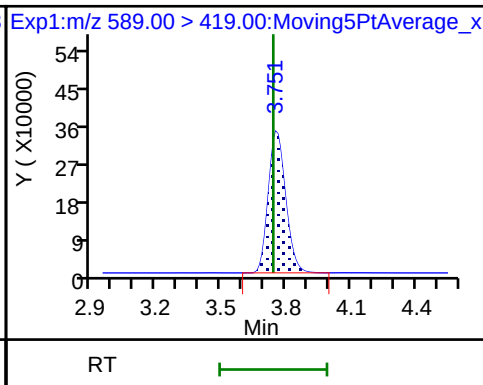
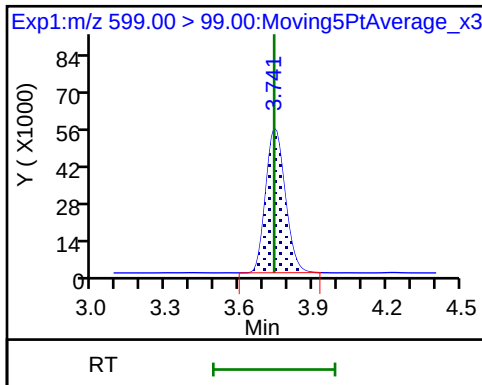
29 Perfluorodecane Sulfonic acid

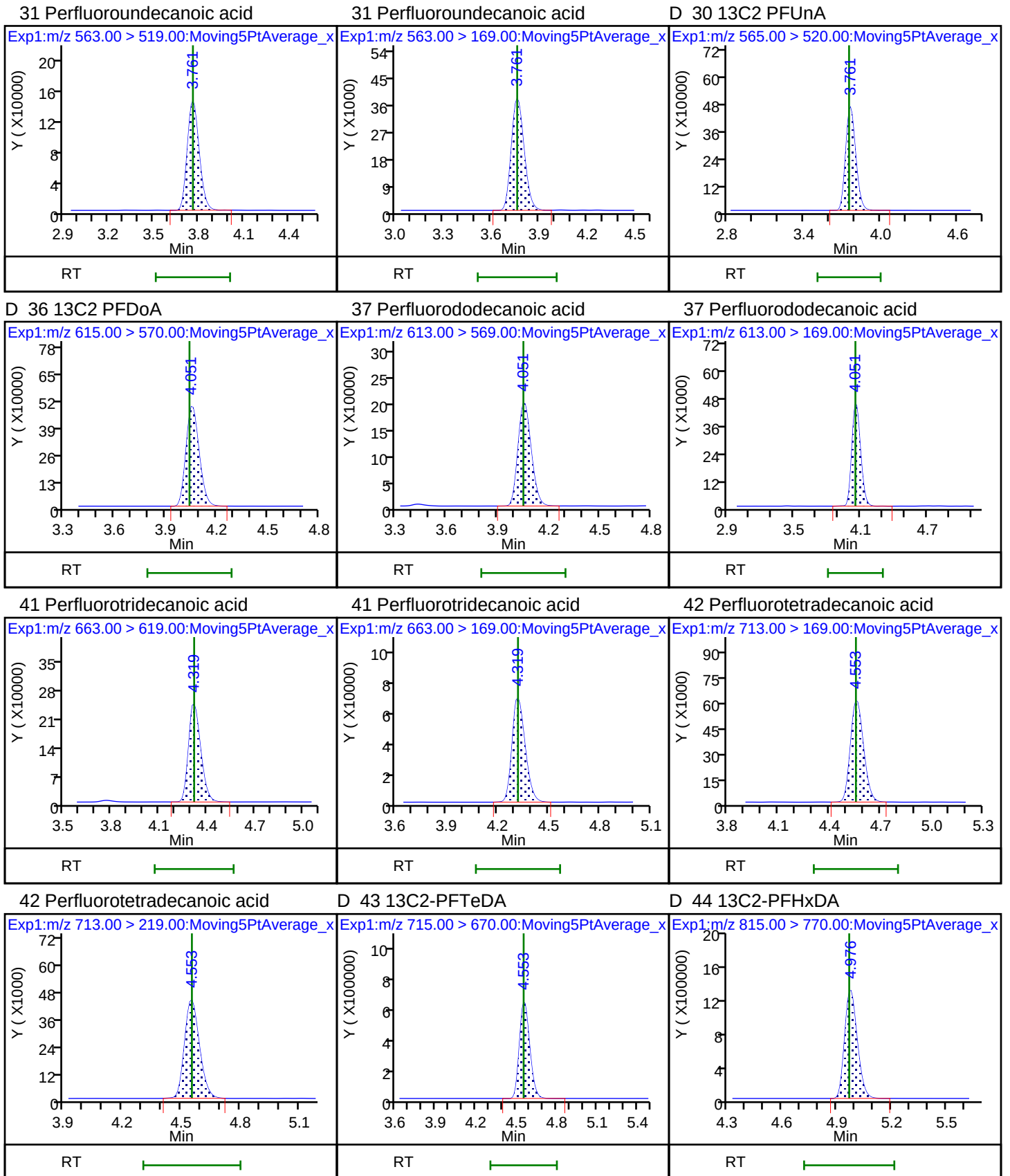


29 Perfluorodecane Sulfonic acid

D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVL 320-224461/2 Calibration Date: 05/21/2018 10:02

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.21LLQCA\_004.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9668 |         | 0.0520      | 0.0500       | 4.0   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.276  |         | 0.0541      | 0.0500       | 8.1   | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 80.77  |         | 0.0457      | 0.0442       | 3.4   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 17.92  |         | 0.400       | 0.0467       | 8.1   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.063  |         | 0.0517      | 0.0500       | 3.4   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 72.58  |         | 0.0489      | 0.0469       | 4.4   | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.069  |         | 0.0506      | 0.0500       | 1.2   | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.251  |         | 0.0505      | 0.0455       | 11.0  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.837  |         | 0.400       | 0.0474       | -16.9 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.329  |         | 0.0475      | 0.0476       | -0.3  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.172  |         | 0.0498      | 0.0500       | -0.4  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 0.9636 |         | 0.0455      | 0.0500       | -9.0  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.171  |         | 0.0462      | 0.0464       | -0.4  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.023  |         | 0.0525      | 0.0500       | 5.0   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7609 |         | 0.0482      | 0.0480       | 0.4   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.385  |         | 0.400       | 0.0479       | 2.6   | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.056  |         | 0.0543      | 0.0500       | 8.6   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.037  |         | 0.400       | 0.0500       | 2.2   | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.5795 |         | 0.0416      | 0.0482       | -13.7 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 1.055  |         | 0.0561      | 0.0500       | 12.2  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.9007 |         | 0.0539      | 0.0500       | 7.8   | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.043  |         | 0.0500      | 0.0500       | -0.0  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.218  |         | 0.0532      | 0.0500       | 6.5   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2310 |         | 0.0457      | 0.0500       | -8.5  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.418  |         | 2.32        | 2.50         | -7.2  | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9252 |         | 2.36        | 2.50         | -5.6  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0203 |         | 2.13        | 2.33         | -8.5  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9813 |         | 2.35        | 2.50         | -6.1  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9604 |         | 2.40        | 2.50         | -4.1  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.138  |         | 2.18        | 2.37         | -8.0  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2157 |         | 2.32        | 2.38         | -2.4  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-224461/2 Calibration Date: 05/21/2018 10:02  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.21LLQCA\_004.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9655 |         | 2.55           | 2.50            | 2.0  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7930 |         | 2.23           | 2.39            | -6.7 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7663 |         | 2.47           | 2.50            | -1.1 | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.006  |         | 2.26           | 2.50            | -9.6 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2424 |         | 2.31           | 2.40            | -3.6 | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6335 |         | 2.40           | 2.50            | -3.8 | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3962 |         | 2.73           | 2.50            | 9.0  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5110 |         | 2.45           | 2.50            | -2.0 | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4148 |         | 2.78           | 2.50            | 11.2 | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5486 |         | 2.44           | 2.50            | -2.3 | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6992 |         | 2.54           | 2.50            | 1.5  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.324  |         | 2.83           | 2.50            | 13.2 | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58482.b\2018.05.21LLQCA\_004.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 21-May-2018 10:02:42 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58482.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 16:11:31 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK007

First Level Reviewer: hannigana

Date: 21-May-2018 10:24:37

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                  |      |       |       |
| 217.00 > 172.00                       | 1.446 | 1.453  | -0.006 | 1.000  | 6790966  | 2.32         |                  | 92.8 | 40521 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                  |      |       |       |
| 212.90 > 169.00                       | 1.452 | 1.463  | -0.011 | 1.004  | 131306   | 0.0520       |                  | 104  | 76.1  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                  |      |       |       |
| 267.90 > 223.00                       | 1.720 | 1.721  | -0.001 | 0.563  | 4430667  | 2.36         |                  | 94.4 | 60388 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 262.90 > 219.00                       | 1.720 | 1.729  | -0.009 | 1.000  | 113082   | 0.0541       |                  | 108  | 71.6  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                  |      |       |       |
| 301.90 > 83.00                        | 1.756 | 1.757  | -0.001 | 1.000  | 90243    | 2.13         |                  | 91.5 | 805   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                  |      |       |       |
| 298.90 > 80.00                        | 1.756 | 1.774  | -0.018 | 1.000  | 138560   | 0.0457       |                  | 103  | 569   |       |
| 298.90 > 99.00                        | 1.756 | 1.774  | -0.018 | 1.000  | 59009    |              | 2.35(1.25-3.74)  |      | 809   |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.971  | -0.001 | 1.000  | 719372   | NC           |                  |      | 10280 |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                  |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.981  | -0.011 | 1.000  | 32483    | 0.0505       |                  | 108  | 1792  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                  |      |       |       |
| 315.00 > 270.00                       | 2.003 | 2.004  | -0.001 | 1.000  | 4698966  | 2.35         |                  | 93.9 | 78924 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                  |      |       |       |
| 313.00 > 269.00                       | 2.003 | 2.025  | -0.022 | 1.000  | 99876    | 0.0517       |                  | 103  | 185   |       |
| 313.00 > 119.00                       | 2.014 | 2.025  | -0.011 | 1.006  | 10057    |              | 9.93(5.03-15.10) |      | 117   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 349.00 > 80.00                        | 2.025 | 2.048  | -0.023 | 1.000  | 132116   | 0.0489       |                  | 104  | 1846  |       |
| 349.00 > 99.00                        | 2.025 | 2.048  | -0.023 | 1.000  | 48020    |              | 2.75(1.36-4.07)  |      | 1174  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                  |      |       |       |
| 332.10 > 287.00                       | 2.104 | 2.106  | -0.002 | 1.000  | 215016   | NC           |                  |      | 5814  |       |



| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |           |           |           |          |                 |                 |      |       |       |
| 329.10 > 285.00                       | 2.104 | 2.116     | -0.012    | 1.000     | 15811    | NC              |                 |      | 109   |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.332 | 2.334     | -0.002    | 1.000     | 4598855  | 2.40            |                 | 95.9 | 65671 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                       | 2.332 | 2.345     | -0.013    | 1.000     | 98281    | 0.0506          |                 | 101  | 138   |       |
| 363.00 > 169.00                       | 2.332 | 2.345     | -0.013    | 1.000     | 38694    |                 | 2.54(1.13-3.40) |      | 197   |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.345 | 2.347     | -0.002    | 1.000     | 5155143  | 2.18            |                 | 92.0 | 50797 |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                        | 2.345 | 2.358     | -0.013    | 1.000     | 124090   | 0.0505          |                 | 111  | 729   |       |
| 399.00 > 99.00                        | 2.345 | 2.358     | -0.013    | 1.000     | 36262    |                 | 3.42(1.50-4.49) |      | 340   |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |       |       |
| 377.00 > 251.00                       | 2.384 | 2.395     | -0.011    | 1.000     | 268341   | NC              |                 |      | 4345  |       |
| 377.00 > 85.00                        | 2.384 | 2.395     | -0.011    | 1.000     | 160955   |                 | 1.67(0.84-2.53) |      | 3740  |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.667 | 2.668     | -0.001    | 1.000     | 981079   | 2.32            |                 | 97.6 | 22158 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |       |       |
| 427.00 > 407.00                       | 2.667 | 2.675     | -0.008    | 1.000     | 35972    | 0.0394          |                 | 83.1 | 701   |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.689 | 2.690     | -0.001    | 1.000     | 4623646  | 2.55            |                 | 102  | 53348 |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.689 | 2.705     | -0.016    |           | 4788739  | 2.50            |                 |      | 61980 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                       | 2.697 | 2.705     | -0.008    | 1.003     | 108400   | 0.0498          |                 | 99.6 | 40.7  |       |
| 413.00 > 169.00                       | 2.689 | 2.705     | -0.016    | 1.000     | 61033    |                 | 1.78(0.84-2.52) |      | 231   |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 449.00 > 80.00                        | 2.697 | 2.712     | -0.015    | 1.000     | 96053    | 0.0475          |                 | 99.7 | 1206  |       |
| 449.00 > 99.00                        | 2.697 | 2.712     | -0.015    | 1.000     | 26850    |                 | 3.58(1.94-5.82) |      | 968   |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.056 | 3.058     | -0.002    | 1.000     | 3669591  | 2.47            |                 | 98.9 | 58949 |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.056 | 3.058     | -0.002    | 1.000     | 3630273  | 2.23            |                 | 93.3 | 22277 |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                        | 3.056 | 3.068     | -0.012    | 1.000     | 82550    | 0.0462          |                 | 99.6 | 571   |       |
| 499.00 > 99.00                        | 3.056 | 3.068     | -0.012    | 1.000     | 19825    |                 | 4.16(2.31-6.93) |      | 219   |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |       | M     |
| 463.00 > 419.00                       | 3.056 | 3.074     | -0.018    | 1.000     | 70722    | 0.0455          |                 | 91.0 | 169   | M     |
| 463.00 > 169.00                       | 3.056 | 3.074     | -0.018    | 1.000     | 17024    |                 | 4.15(1.90-5.69) |      | 429   | M     |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |       |       |
| 531.00 > 351.00                       | 3.270 | 3.281     | -0.011    | 1.000     | 130868   | NC              |                 |      | 1972  |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.393 | 3.397     | -0.004    | 1.000     | 4816690  | 2.26            |                 | 90.4 | 37992 |       |
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 529.00 > 81.00                        | 3.402 | 3.406     | -0.004    | 1.000     | 1112174  | 2.31            |                 | 96.4 | 17586 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.393 | 3.408     | -0.015    | 1.000     | 98520    | 0.0525          |                 | 105  | 2464  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec  | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|-------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |       |       |       |
| 549.00 > 80.00                        | 3.402 | 3.417  | -0.015 | 1.000  | 55473    | 0.0482       |                 | 100   | 1217  |       |
| 549.00 > 99.00                        | 3.402 | 3.417  | -0.015 | 1.000  | 25623    |              | 2.16(1.33-3.97) |       | 600   |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |       |       |       |
| 515.00 > 470.00                       | 3.421 | 3.425  | -0.004 | 1.000  | 3033753  | 2.40         |                 | 96.2  | 73165 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |       |       |       |
| 527.00 > 507.00                       | 3.412 | 3.427  | -0.015 | 1.003  | 30803    | 0.0492       |                 | 103   | 1160  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |       |       |       |
| 513.00 > 469.00                       | 3.421 | 3.427  | -0.006 | 1.000  | 64065    | 0.0543       |                 | 109   | 317   |       |
| 513.00 > 169.00                       | 3.421 | 3.427  | -0.006 | 1.000  | 12167    |              | 5.27(2.36-7.09) |       | 315   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |       |       |       |
| 573.00 > 419.00                       | 3.570 | 3.574  | -0.004 | 1.000  | 1897403  | 2.73         |                 | 109   | 22116 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |       |       |       |
| 570.00 > 419.00                       | 3.570 | 3.586  | -0.016 | 1.000  | 39350    | 0.0511       |                 | 102   | 349   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |       |       |       |
| 589.00 > 419.00                       | 3.743 | 3.739  | 0.004  | 1.000  | 1986519  | 2.78         |                 | 111   | 22332 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |       |       |       |
| 599.00 > 80.00                        | 3.733 | 3.741  | -0.008 | 1.000  | 42429    | 0.0416       |                 | 86.3  | 681   |       |
| 599.00 > 99.00                        | 3.733 | 3.741  | -0.008 | 1.000  | 18689    |              | 2.27(1.39-4.16) |       | 863   |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |       |       |       |
| 565.00 > 520.00                       | 3.743 | 3.750  | -0.007 | 1.000  | 2446845  | 2.45         |                 | 98.0  | 63921 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |       |       |       |
| 563.00 > 519.00                       | 3.743 | 3.761  | -0.018 | 1.000  | 44078    | 0.0539       |                 | 108   | 261   |       |
| 563.00 > 169.00                       | 3.743 | 3.761  | -0.018 | 1.000  | 11275    |              | 3.91(2.12-6.36) |       | 355   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |       |       |       |
| 584.00 > 419.00                       | 3.743 | 3.761  | -0.018 | 1.000  | 41921    | 0.0561       |                 | 112   | 1257  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |       |       |       |
| 631.00 > 451.00                       | 3.900 | 3.918  | -0.018 | 1.000  | 205985   | NC           |                 |       | 3526  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |       |       |       |
| 615.00 > 570.00                       | 4.041 | 4.040  | 0.001  | 1.000  | 2627098  | 2.44         |                 | 97.7  | 18902 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |       |       |       |
| 613.00 > 569.00                       | 4.041 | 4.051  | -0.010 | 1.000  | 54820    | 0.0500       |                 | 100.0 | 68.5  |       |
| 613.00 > 169.00                       | 4.041 | 4.051  | -0.010 | 1.000  | 15724    |              | 3.49(2.13-6.40) |       | 215   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |       |       |       |
| 663.00 > 619.00                       | 4.300 | 4.319  | -0.019 | 1.000  | 64009    | 0.0532       |                 | 106   | 68.4  |       |
| 663.00 > 169.00                       | 4.300 | 4.319  | -0.019 | 1.000  | 22490    |              | 2.85(1.25-3.76) |       | 387   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |       |       |       |
| 715.00 > 670.00                       | 4.542 | 4.543  | -0.001 | 1.000  | 3348495  | 2.54         |                 | 101   | 16689 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |       |       |       |
| 713.00 > 169.00                       | 4.542 | 4.554  | -0.012 | 1.000  | 15471    | 0.0457       |                 | 91.5  | 186   |       |
| 713.00 > 219.00                       | 4.532 | 4.554  | -0.022 | 0.998  | 13474    |              | 1.15(0.71-2.13) |       | 362   |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |       |       |       |
| 815.00 > 770.00                       | 4.957 | 4.958  | -0.001 | 1.000  | 6342262  | 2.83         |                 | 113   | 15932 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |       |       |       |
| 813.00 > 769.00                       | 4.957 | 4.967  | -0.010 | 1.000  | 172488   | NC           |                 |       | 68.8  |       |
| 813.00 > 169.00                       | 4.957 | 4.967  | -0.010 | 1.000  | 28415    |              | 6.07(2.86-8.58) |       | 299   |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.314 | 5.329     | -0.015    | 1.000     | 131679   | NC              |                  |      | 33.3 |       |
| 913.00 > 169.00               | 5.314 | 5.329     | -0.015    | 1.000     | 16192    |                 | 8.13(3.83-11.48) |      | 182  |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

### Reagents:

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58482.b\2018.05.21LLQCA\_004.d

Injection Date: 21-May-2018 10:02:42

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

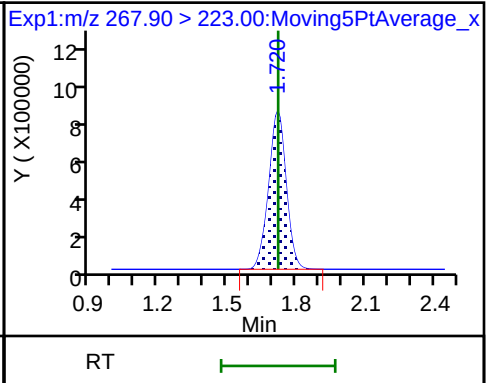
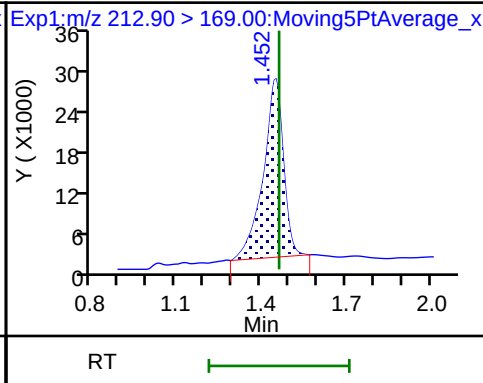
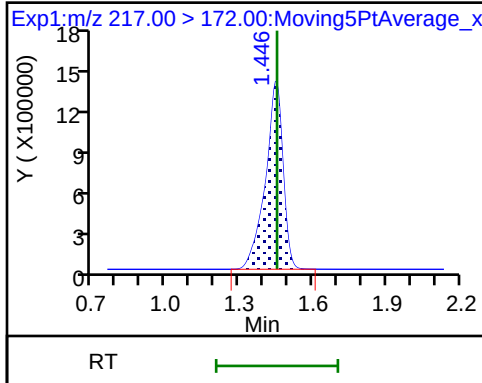
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

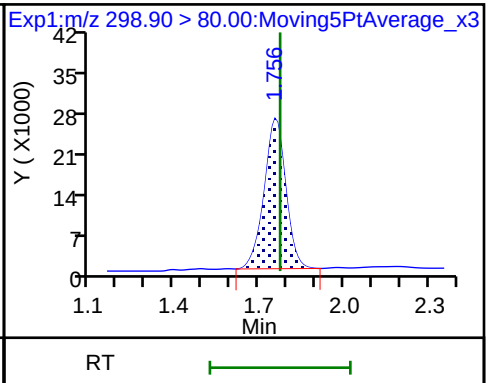
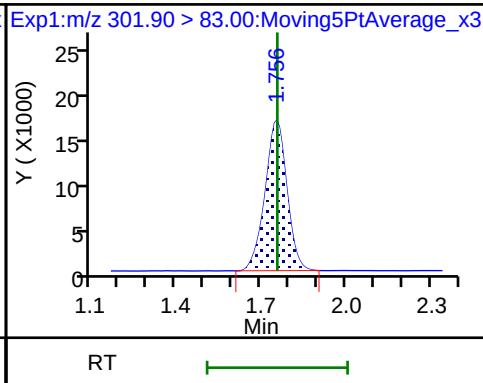
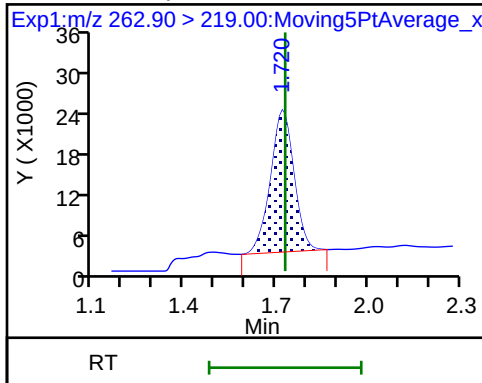
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

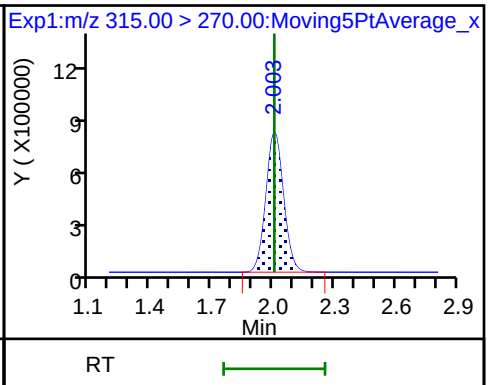
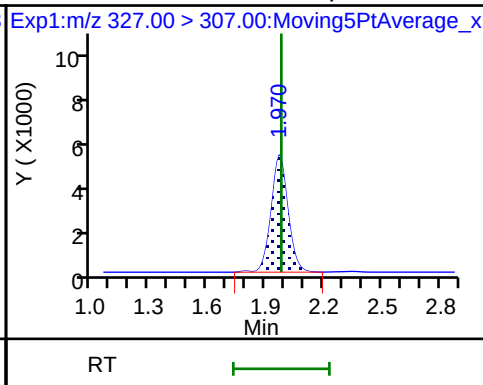
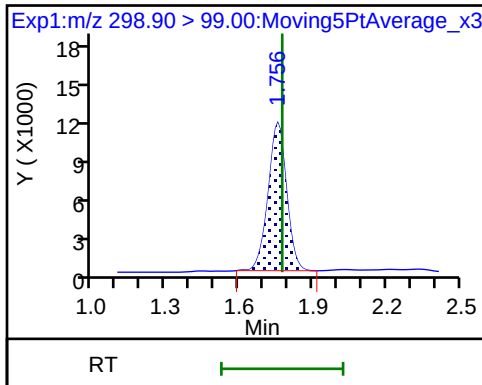
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

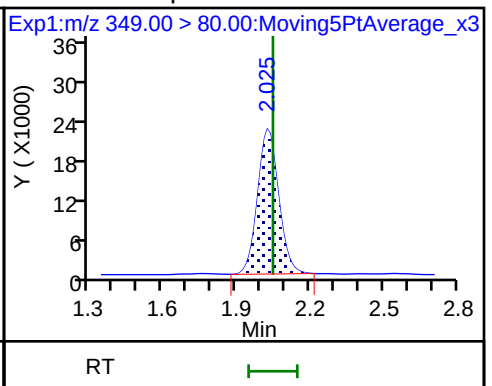
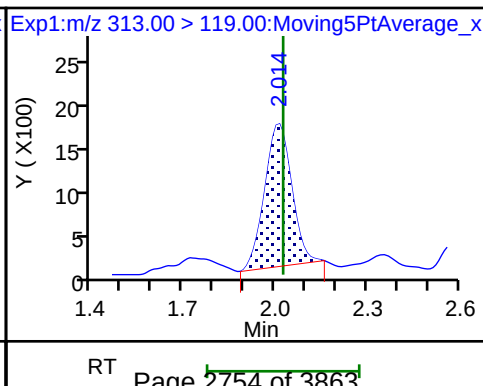
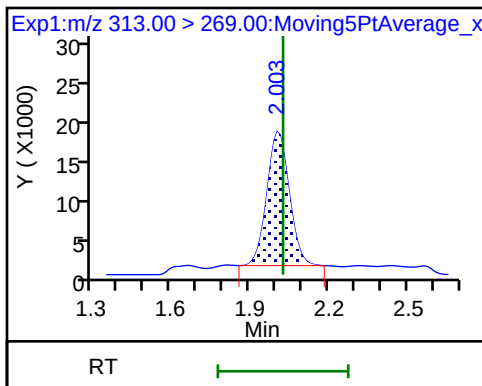
De 7 13C2 PFHxA

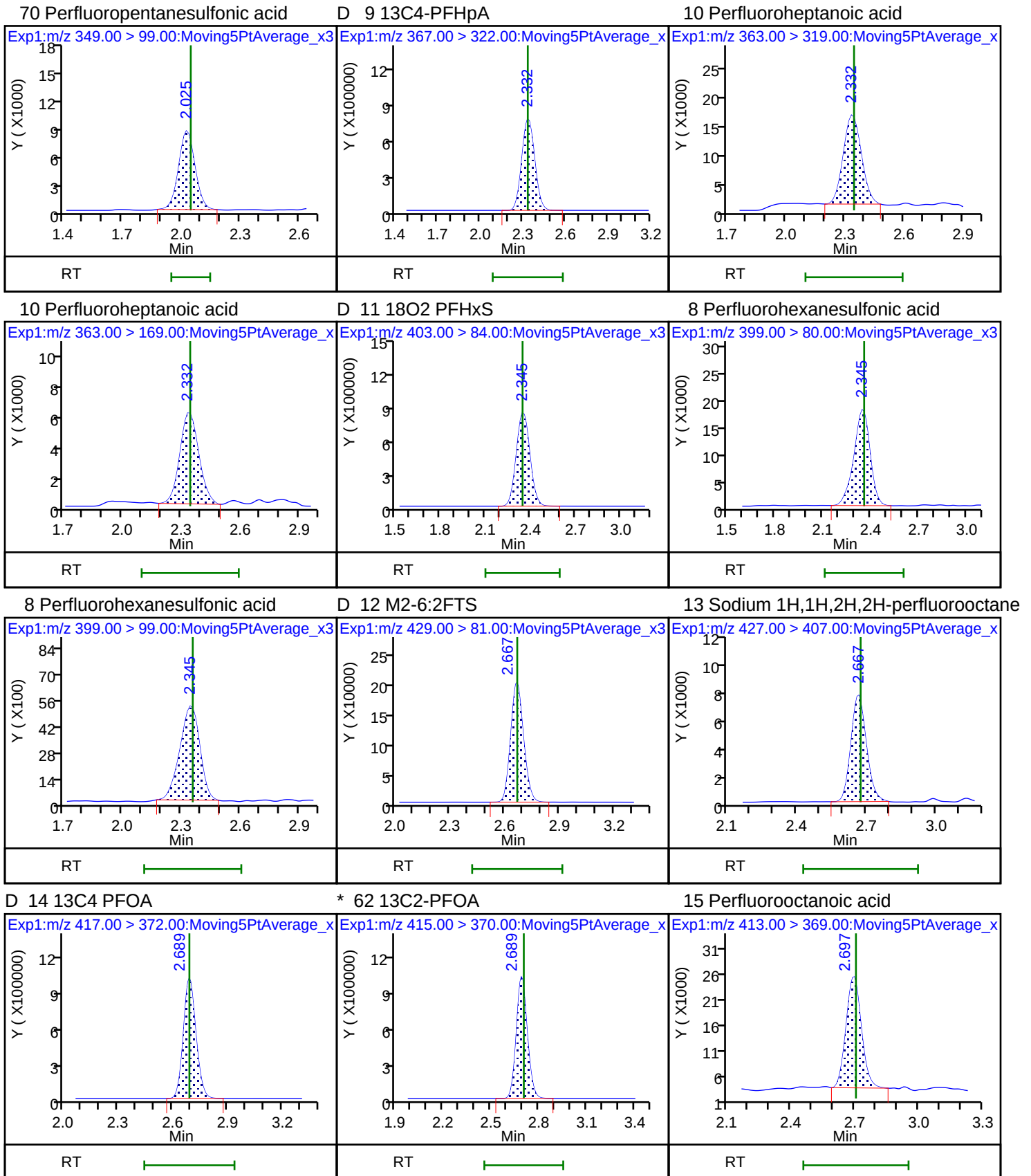


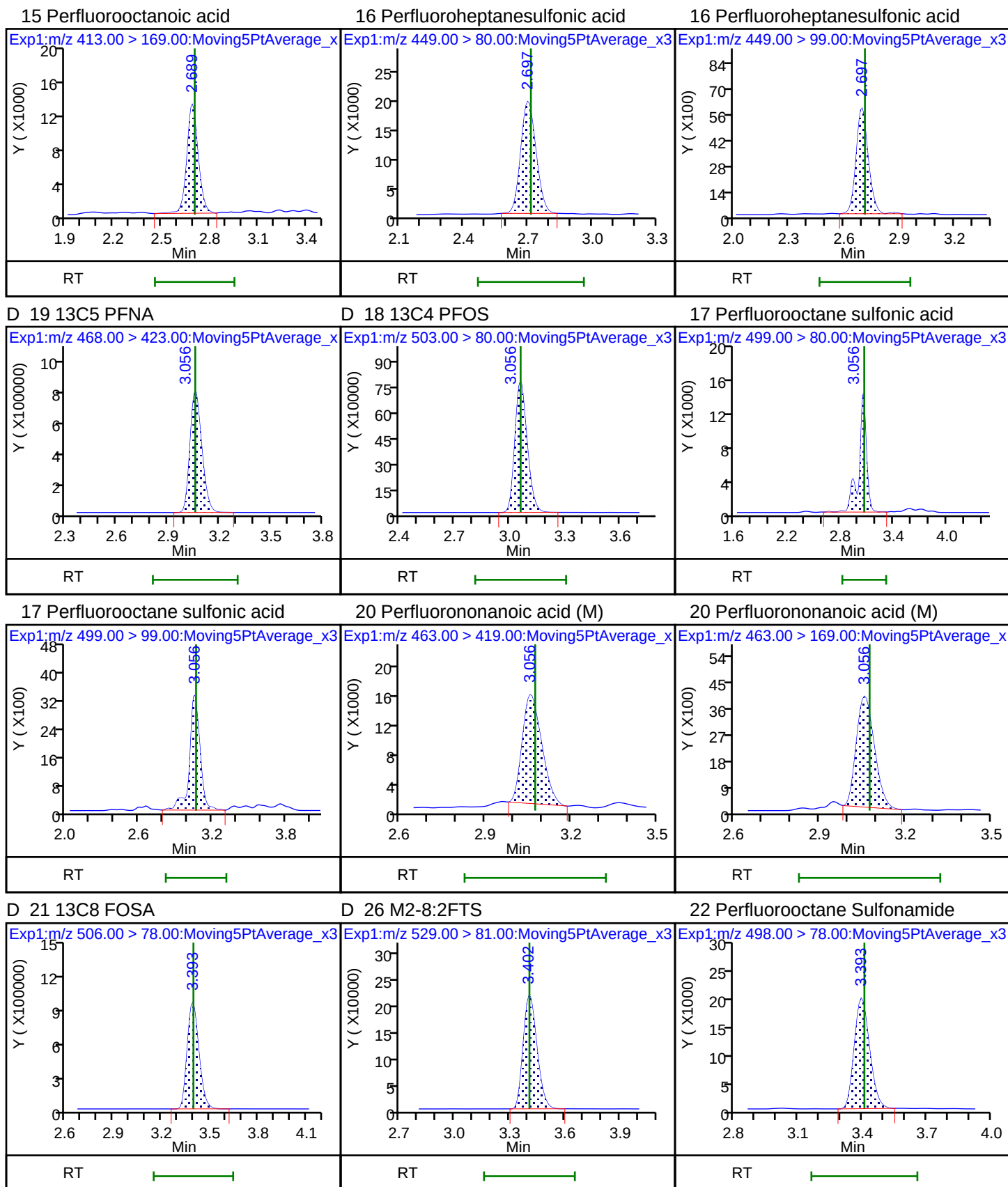
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid





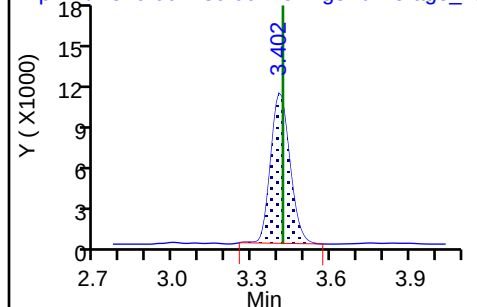


## 68 Perfluorononanesulfonic acid

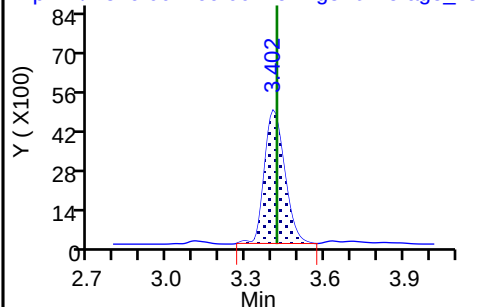
## 68 Perfluorononanesulfonic acid

## D 23 13C2 PFDA

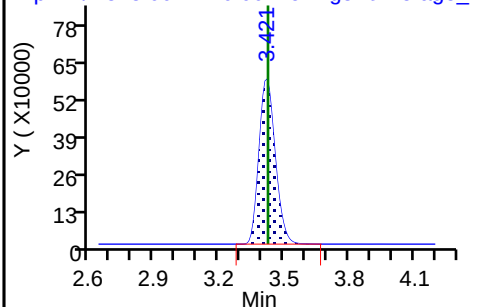
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Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3

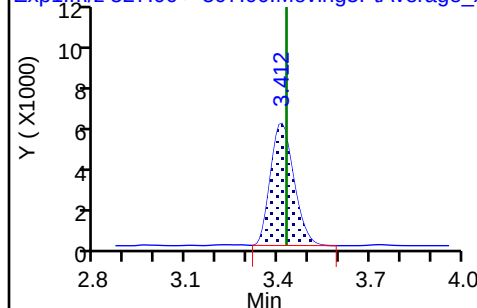


## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

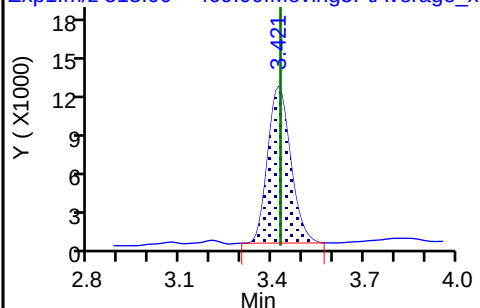
## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

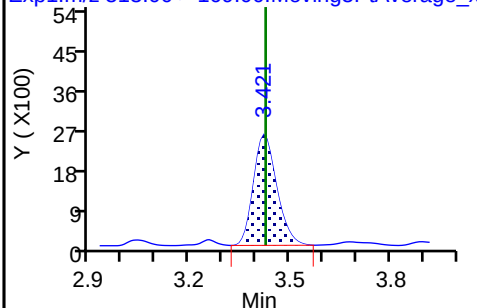
Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

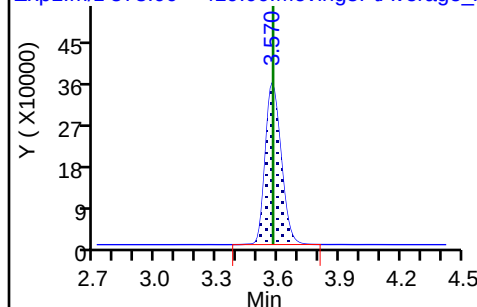


## D 27 d3-NMeFOSAA

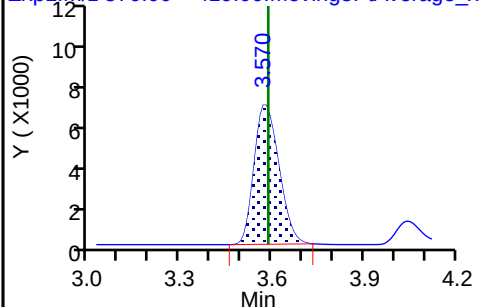
## 28 N-methyl perfluorooctane sulfonamide

## D 32 d5-NEtFOSAA

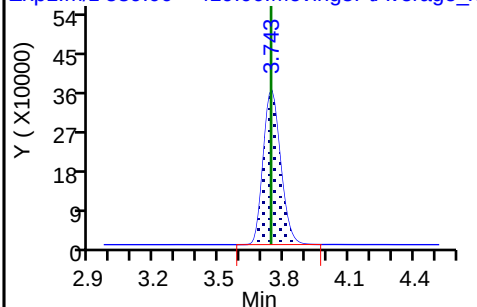
Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

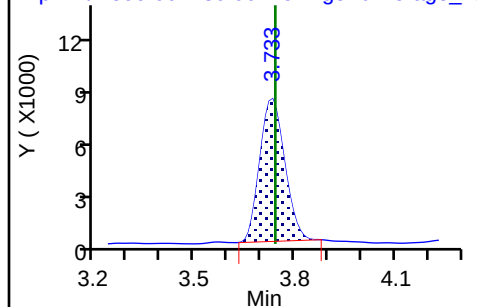


## 29 Perfluorodecane Sulfonic acid

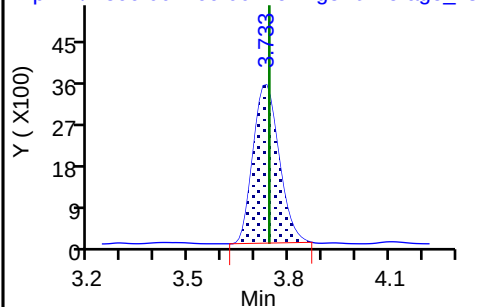
## 29 Perfluorodecane Sulfonic acid

## D 30 13C2 PFUnA

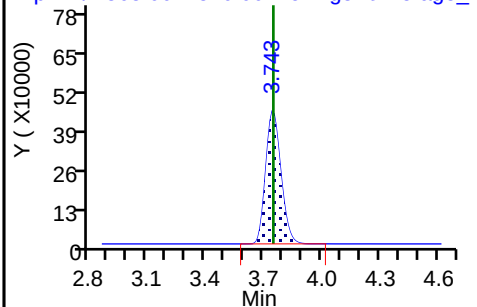
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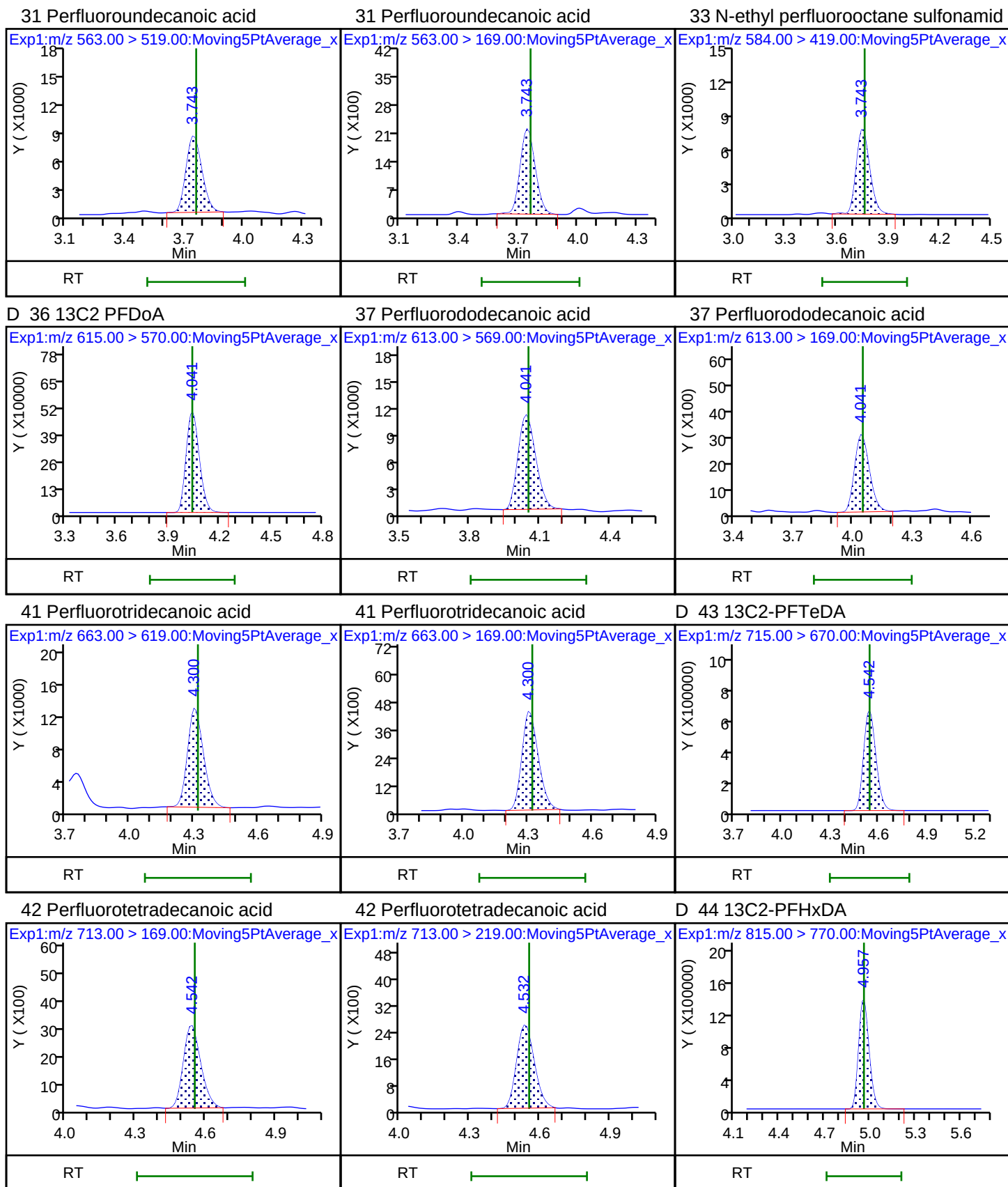


Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3









## TestAmerica Sacramento

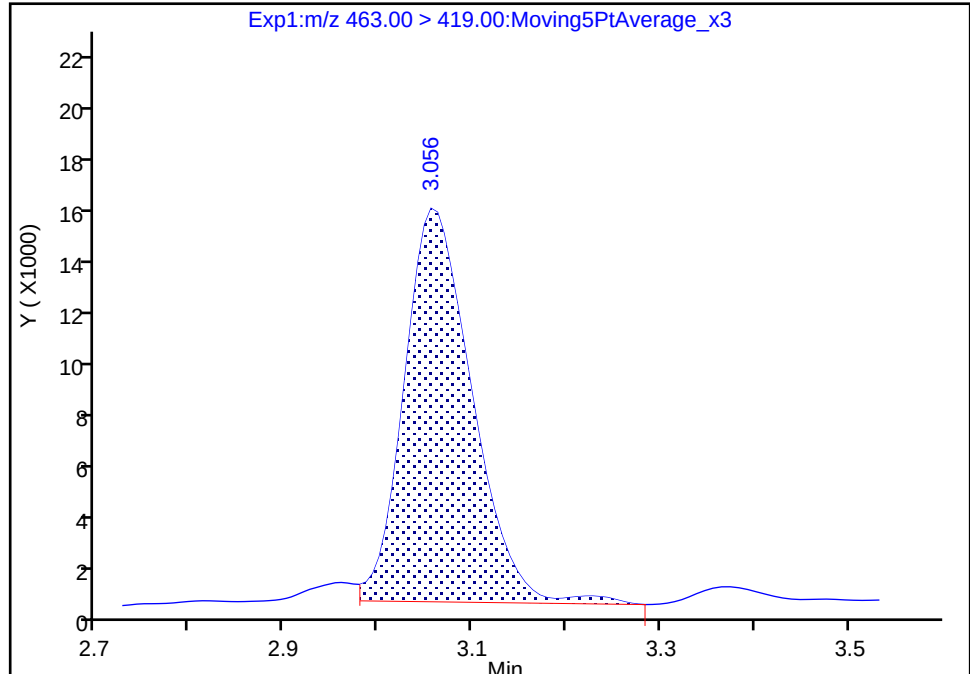
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Injection Date: 21-May-2018 10:02:42 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

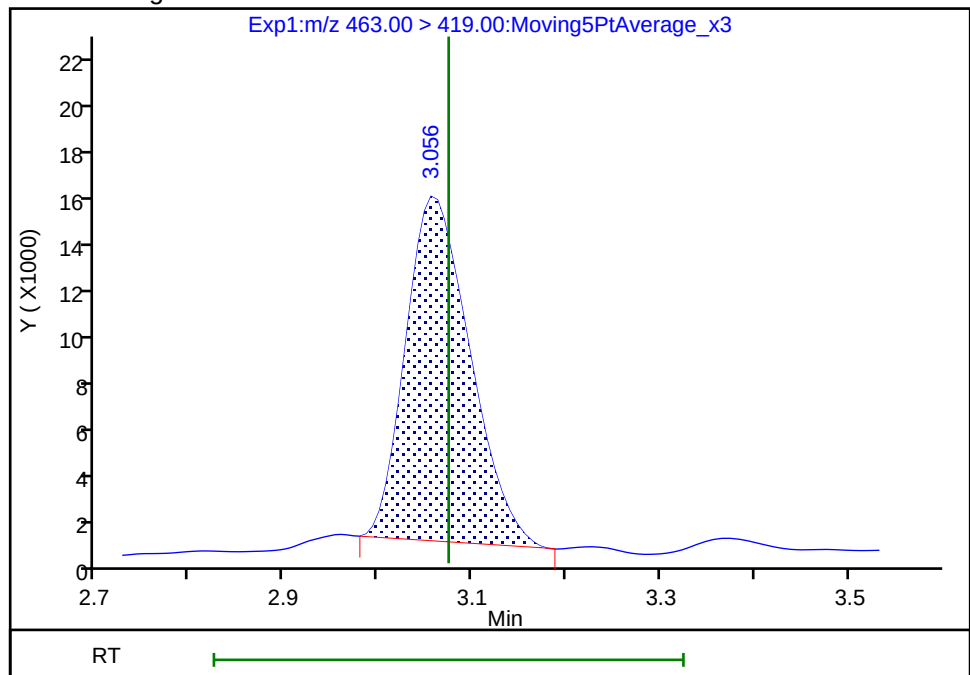
RT: 3.06  
Area: 77077  
Amount: 0.049576  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 70722  
Amount: 0.045489  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 21-May-2018 15:48:26  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2760 of 3863

## TestAmerica Sacramento

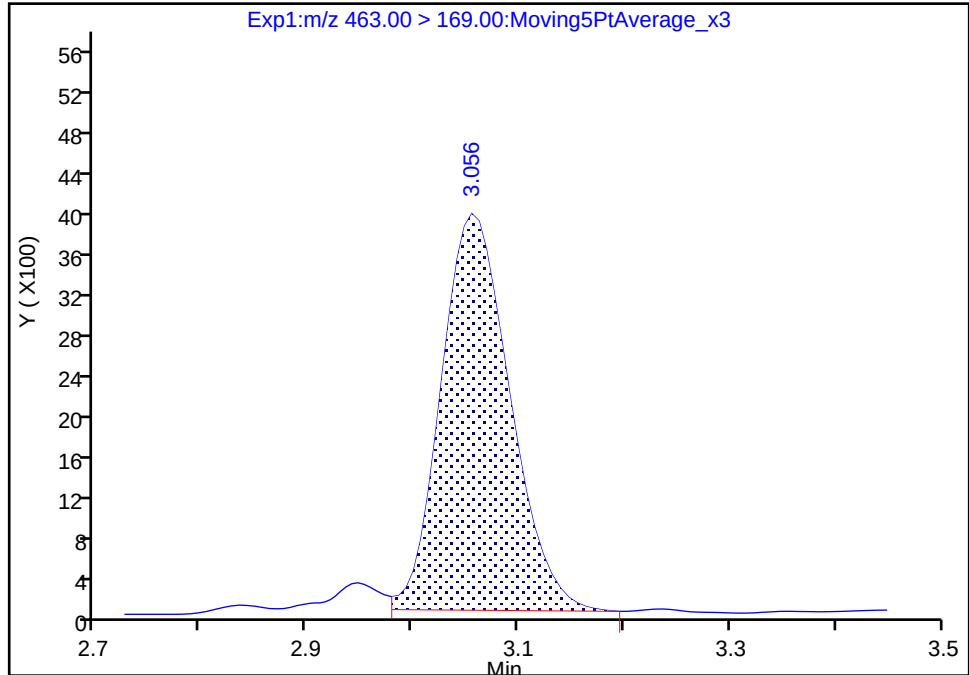
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Injection Date: 21-May-2018 10:02:42 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 2

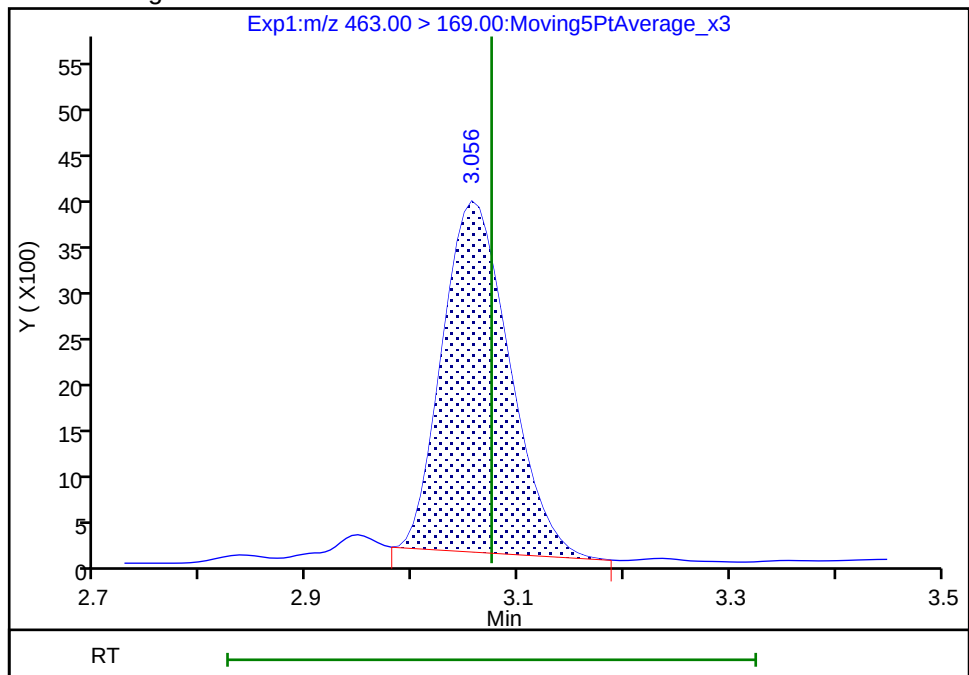
RT: 3.06  
Area: 17831  
Amount: 0.049576  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 17024  
Amount: 0.045489  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 21-May-2018 15:48:34

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-224461/3 Calibration Date: 05/21/2018 10:10

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.21LLBB\_021.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D   | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9542 |         | 2.57        | 2.50         | 2.6  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.189  |         | 2.52        | 2.50         | 0.7  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 81.20  |         | 2.30        | 2.21         | 4.0  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.83  |         | 2.65        | 2.34         | 13.6 | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.030  |         | 2.50        | 2.50         | 0.2  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 72.30  |         | 2.44        | 2.35         | 4.0  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.089  |         | 2.58        | 2.50         | 3.1  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.083  |         | 2.19        | 2.28         | -3.9 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.774  |         | 2.39        | 2.37         | 0.7  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.153  |         | 2.45        | 2.50         | -2.1 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.398  |         | 2.50        | 2.38         | 5.0  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.023  |         | 2.41        | 2.50         | -3.4 | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.101  |         | 2.17        | 2.32         | -6.3 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.067  |         | 2.74        | 2.50         | 9.6  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.255  |         | 2.23        | 2.40         | -7.0 | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7539 |         | 2.39        | 2.40         | -0.5 | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.018  |         | 2.62        | 2.50         | 4.7  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.030  |         | 2.54        | 2.50         | 1.5  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6659 |         | 2.39        | 2.41         | -0.8 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9604 |         | 2.55        | 2.50         | 2.2  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8067 |         | 2.41        | 2.50         | -3.4 | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.087  |         | 2.60        | 2.50         | 4.2  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.210  |         | 2.64        | 2.50         | 5.8  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2445 |         | 2.42        | 2.50         | -3.2 | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.478  |         | 2.42        | 2.50         | -3.3 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9481 |         | 2.42        | 2.50         | -3.2 | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0205 |         | 2.15        | 2.33         | -7.7 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.060  |         | 2.54        | 2.50         | 1.4  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9835 |         | 2.46        | 2.50         | -1.7 | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.161  |         | 2.22        | 2.37         | -6.2 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2135 |         | 2.30        | 2.38         | -3.4 | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-224461/3 Calibration Date: 05/21/2018 10:10  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.21LLBB\_021.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9534 |         | 2.52           | 2.50            | 0.7  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8123 |         | 2.28           | 2.39            | -4.5 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7997 |         | 2.58           | 2.50            | 3.3  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.012  |         | 2.27           | 2.50            | -9.0 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2520 |         | 2.40           | 2.40            | 0.2  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6490 |         | 2.46           | 2.50            | -1.5 | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4115 |         | 2.83           | 2.50            | 13.2 | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3886 |         | 2.61           | 2.50            | 4.2  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5077 |         | 2.43           | 2.50            | -2.7 | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5640 |         | 2.51           | 2.50            | 0.5  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7332 |         | 2.66           | 2.50            | 6.4  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.407  |         | 3.01           | 2.50            | 20.3 | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58482.b\2018.05.21LLBB\_021.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 21-May-2018 10:10:31 ALS Bottle#: 14 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58482.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 16:11:34 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK007

First Level Reviewer: barnettj

Date: 21-May-2018 15:27:49

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.453  | 0.0    | 1.000  | 6716756  | 2.42         |                   | 96.7 | 39899 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.452 | 1.452  | 0.0    | 1.000  | 6408892  | 2.57         |                   | 103  | 3923  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.720 | 1.721  | -0.001 | 0.563  | 4307597  | 2.42         |                   | 96.8 | 57797 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.720 | 1.720  | 0.0    | 1.000  | 5119648  | 2.52         |                   | 101  | 4084  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.756 | 1.757  | -0.001 | 1.000  | 86402    | 2.15         |                   | 92.3 | 734   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.756 | 1.756  | 0.0    | 1.000  | 6669191  | 2.30         |                   | 104  | 24153 |       |
| 298.90 > 99.00                        | 1.756 | 1.756  | 0.0    | 1.000  | 2780316  |              | 2.40(1.25-3.74)   |      | 27438 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.971  | -0.001 | 1.000  | 700134   | NC           |                   |      | 10810 |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 1633912  | 2.65         |                   | 114  | 93744 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 4813962  | 2.54         |                   | 101  | 73236 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 4958501  | 2.50         |                   | 100  | 11823 |       |
| 313.00 > 119.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 425161   |              | 11.66(5.03-15.10) |      | 6411  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 6300247  | 2.44         |                   | 104  | 55498 |       |
| 349.00 > 99.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 2334915  |              | 2.70(1.36-4.07)   |      | 38982 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.105 | 2.106  | -0.001 | 1.000  | 220606   | NC           |                   |      | 4604  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |        |       |
| 329.10 > 285.00                       | 2.105 | 2.105  | 0.0    | 1.000  | 750352   | NC           |                 |      | 5463   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                       | 2.333 | 2.334  | -0.001 | 1.000  | 4468642  | 2.46         |                 | 98.3 | 54068  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 4865557  | 2.58         |                 | 103  | 6953   |       |
| 363.00 > 169.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 1849071  |              | 2.63(1.13-3.40) |      | 11062  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.346 | 2.347  | -0.001 | 1.000  | 4989525  | 2.22         |                 | 93.8 | 43722  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 5196780  | 2.19         |                 | 96.1 | 18764  |       |
| 399.00 > 99.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 1679822  |              | 3.09(1.50-4.49) |      | 10412  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |        |       |
| 377.00 > 251.00                       | 2.385 | 2.385  | 0.0    | 1.000  | 13798802 | NC           |                 |      | 140033 |       |
| 377.00 > 85.00                        | 2.385 | 2.385  | 0.0    | 1.000  | 8447604  |              | 1.63(0.84-2.53) |      | 105883 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.668 | 2.668  | 0.0    | 1.000  | 921712   | 2.30         |                 | 96.6 | 13272  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.668 | 2.668  | 0.0    | 1.000  | 1632130  | 2.39         |                 | 101  | 36162  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.690 | 2.690  | 0.0    | 1.000  | 4331844  | 2.52         |                 | 101  | 64548  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.690 | 2.690  | 0.0    |        | 4543457  | 2.50         |                 |      | 54711  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.690 | 2.690  | 0.0    | 1.000  | 4992570  | 2.45         |                 | 97.9 | 2104   |       |
| 413.00 > 169.00                       | 2.690 | 2.690  | 0.0    | 1.000  | 2579071  |              | 1.94(0.84-2.52) |      | 10611  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.698 | 2.698  | 0.0    | 1.000  | 4913036  | 2.50         |                 | 105  | 27753  |       |
| 449.00 > 99.00                        | 2.698 | 2.698  | 0.0    | 1.000  | 1291060  |              | 3.81(1.94-5.82) |      | 33172  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.057 | 3.058  | -0.001 | 1.000  | 3633250  | 2.58         |                 | 103  | 54816  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.057 | 3.058  | -0.001 | 1.000  | 3528391  | 2.28         |                 | 95.5 | 18075  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.057 | 3.057  | 0.0    | 1.000  | 3771907  | 2.17         |                 | 93.7 | 17621  |       |
| 499.00 > 99.00                        | 3.057 | 3.057  | 0.0    | 1.000  | 818660   |              | 4.61(2.31-6.93) |      | 16772  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                       | 3.057 | 3.057  | 0.0    | 1.000  | 3716817  | 2.41         |                 | 96.6 | 12981  |       |
| 463.00 > 169.00                       | 3.057 | 3.057  | 0.0    | 1.000  | 921721   |              | 4.03(1.90-5.69) |      | 21488  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |        |       |
| 531.00 > 351.00                       | 3.265 | 3.265  | 0.0    | 1.000  | 6580934  | NC           |                 |      | 44589  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.396 | 3.397  | -0.001 | 1.000  | 4598943  | 2.27         |                 | 91.0 | 34257  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 529.00 > 81.00                        | 3.405 | 3.406  | -0.001 | 1.000  | 1096649  | 2.40         |                 | 100  | 19253  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 4906444  | 2.74         |                 | 110  | 60136  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.405 | 3.405  | 0.0    | 1.000  | 2671190  | 2.39         |                 | 99.5 | 22268 |       |
| 549.00 > 99.00                        | 3.405 | 3.405  | 0.0    | 1.000  | 971305   |              | 2.75(1.33-3.97) |      | 18770 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.415 | 3.425  | -0.010 | 1.000  | 2948851  | 2.46         |                 | 98.5 | 46892 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.405 | 3.405  | 0.0    | 1.000  | 1376813  | 2.23         |                 | 93.0 | 32691 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.415 | 3.415  | 0.0    | 1.000  | 3001943  | 2.62         |                 | 105  | 11597 |       |
| 513.00 > 169.00                       | 3.415 | 3.415  | 0.0    | 1.000  | 546386   |              | 5.49(2.36-7.09) |      | 11541 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.573 | 3.574  | -0.001 | 1.000  | 1869655  | 2.83         |                 | 113  | 28978 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.573 | 3.573  | 0.0    | 1.000  | 1926056  | 2.54         |                 | 102  | 14312 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.739 | 3.739  | 0.0    | 1.000  | 1765777  | 2.61         |                 | 104  | 16495 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.728 | 3.728  | 0.0    | 1.000  | 2369147  | 2.39         |                 | 99.2 | 26975 |       |
| 599.00 > 99.00                        | 3.728 | 3.728  | 0.0    | 1.000  | 776330   |              | 3.05(1.39-4.16) |      | 20193 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.749 | 3.750  | -0.001 | 1.000  | 2306699  | 2.43         |                 | 97.3 | 37770 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.749 | 3.749  | 0.0    | 1.000  | 1860764  | 2.41         |                 | 96.6 | 16006 |       |
| 563.00 > 169.00                       | 3.749 | 3.749  | 0.0    | 1.000  | 482098   |              | 3.86(2.12-6.36) |      | 14607 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.749 | 3.749  | 0.0    | 1.003  | 1695797  | 2.55         |                 | 102  | 24959 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.907 | 3.907  | 0.0    | 1.000  | 10633241 | NC           |                 |      | 64175 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.040 | 4.040  | 0.0    | 1.000  | 2562593  | 2.51         |                 | 100  | 19821 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.040 | 4.040  | 0.0    | 1.000  | 2786244  | 2.60         |                 | 104  | 3687  |       |
| 613.00 > 169.00                       | 4.040 | 4.040  | 0.0    | 1.000  | 686698   |              | 4.06(2.13-6.40) |      | 7957  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.299 | 4.299  | 0.0    | 1.000  | 3100567  | 2.64         |                 | 106  | 3199  |       |
| 663.00 > 169.00                       | 4.299 | 4.299  | 0.0    | 1.000  | 982004   |              | 3.16(1.25-3.76) |      | 10978 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.543 | 4.543  | 0.0    | 1.000  | 3331059  | 2.66         |                 | 106  | 14309 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.543 | 4.543  | 0.0    | 1.000  | 814539   | 2.42         |                 | 96.8 | 9592  |       |
| 713.00 > 219.00                       | 4.533 | 4.543  | -0.010 | 0.998  | 605324   |              | 1.35(0.71-2.13) |      | 11291 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.958 | 4.958  | 0.0    | 1.000  | 6394405  | 3.01         |                 | 120  | 13201 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.958 | 4.958  | 0.0    | 1.000  | 5785603  | NC           |                 |      | 2167  |       |
| 813.00 > 169.00                       | 4.958 | 4.958  | 0.0    | 1.000  | 927874   |              | 6.24(2.86-8.58) |      | 6431  |       |



| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.314 | 5.314     | 0.0       | 1.000     | 6355767  | NC              |                  |      | 1437 |       |
| 913.00 > 169.00               | 5.314 | 5.314     | 0.0       | 1.000     | 796174   |                 | 7.98(3.83-11.48) |      | 4748 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58482.b\2018.05.21LLBB\_021.d

Injection Date: 21-May-2018 10:10:31

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

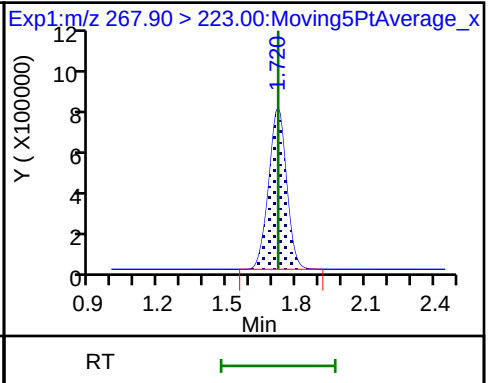
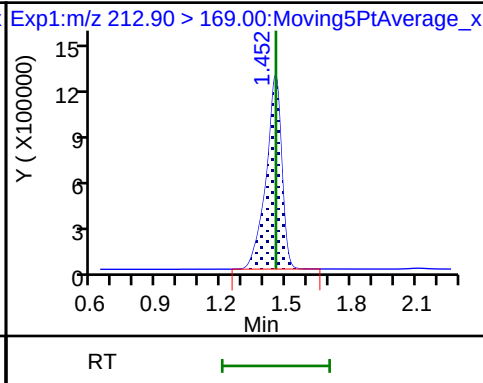
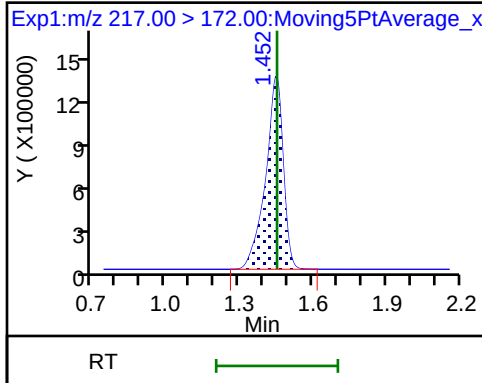
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

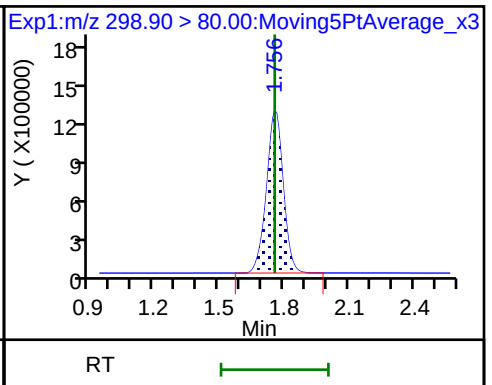
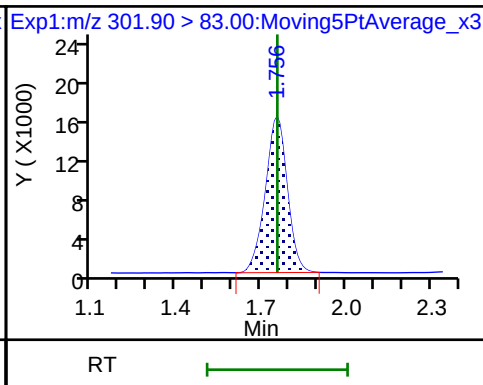
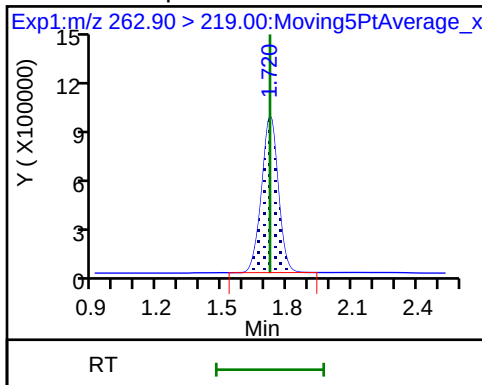
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

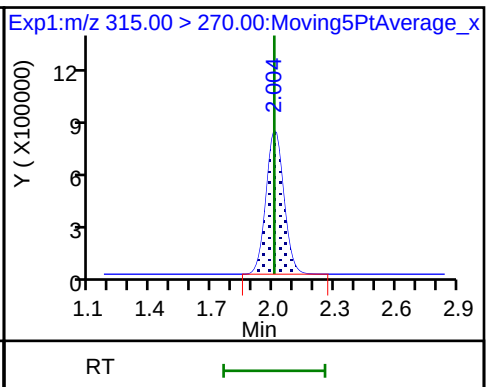
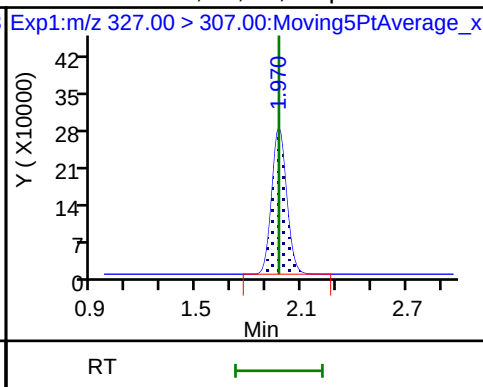
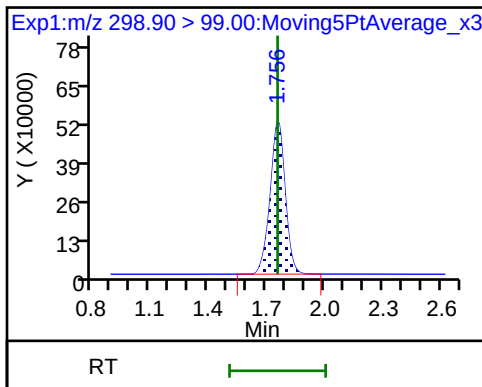
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

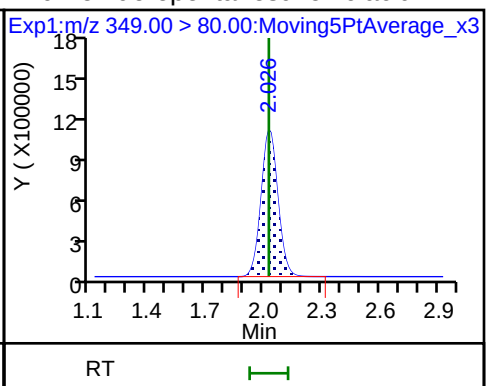
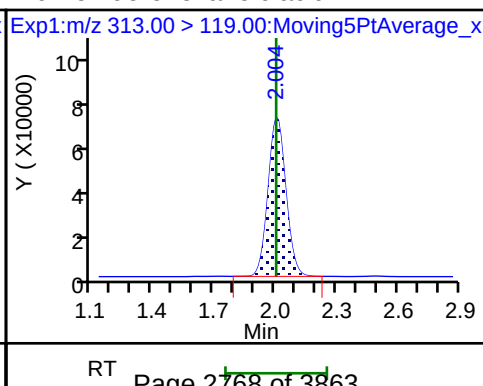
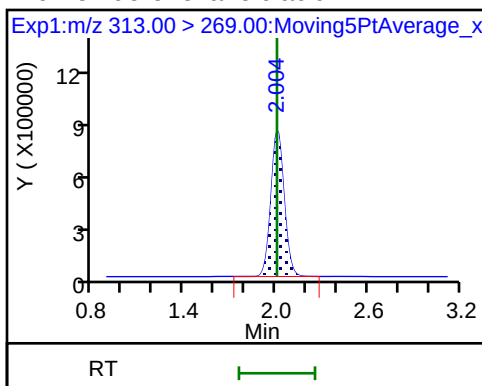
De 7 13C2 PFHxA



6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

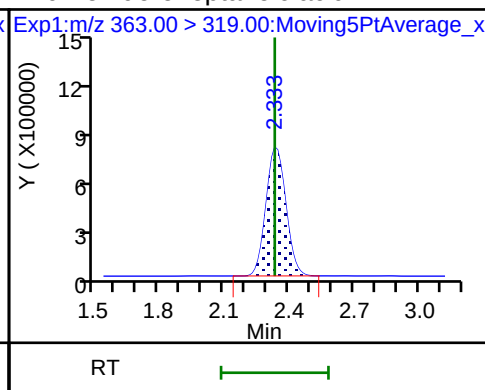
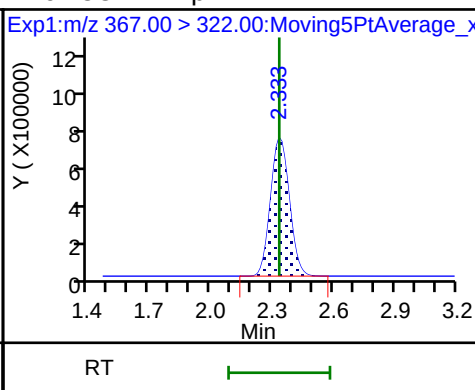
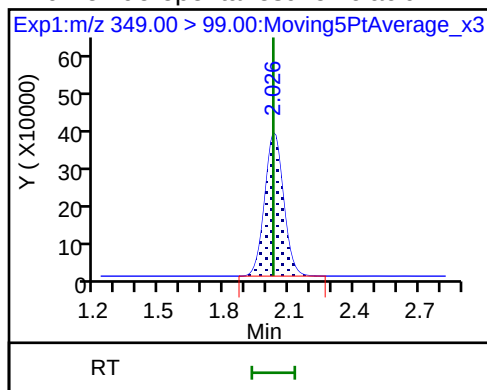
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

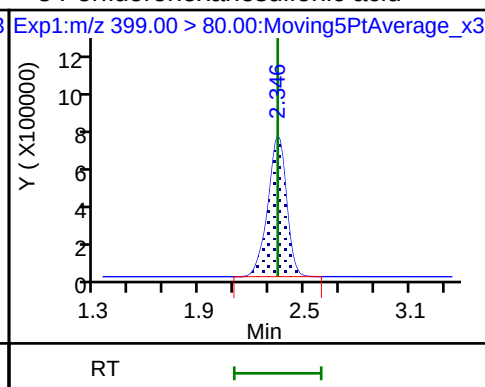
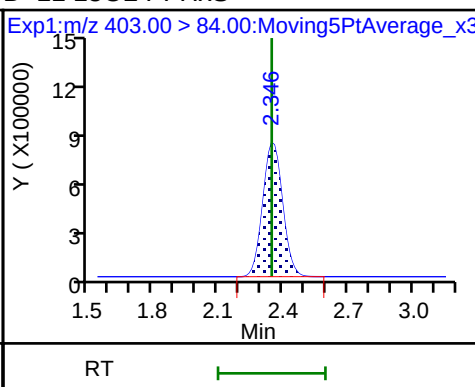
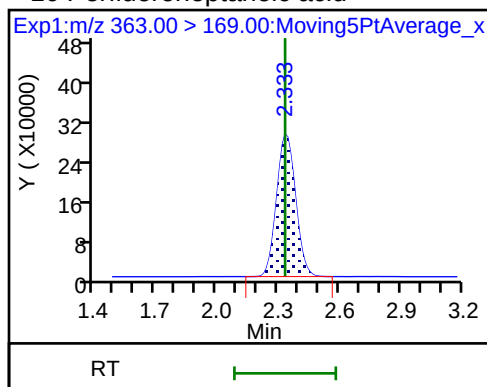
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## D 11 18O2 PFHxS

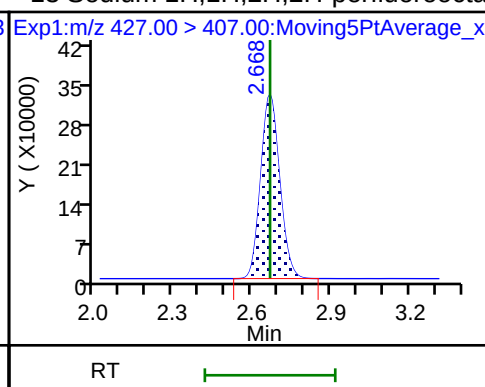
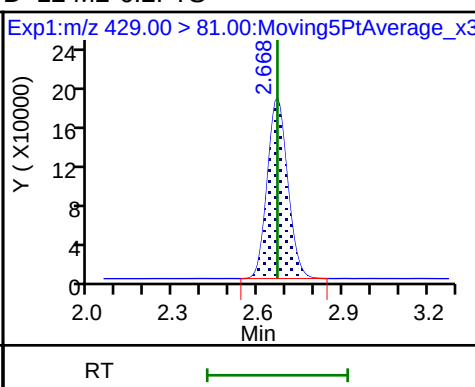
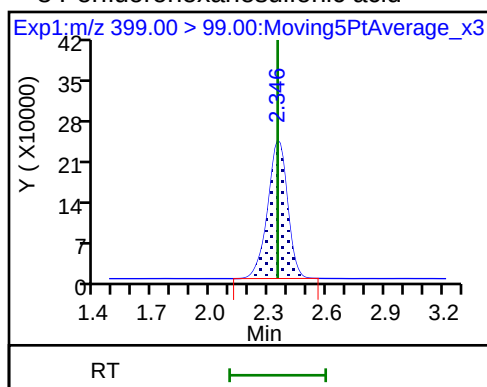
## 8 Perfluorohexanesulfonic acid



## 8 Perfluorohexanesulfonic acid

## D 12 M2-6:2FTS

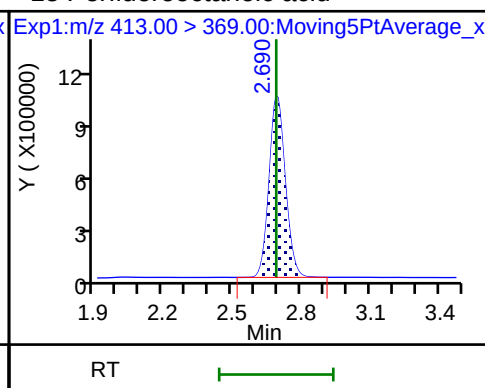
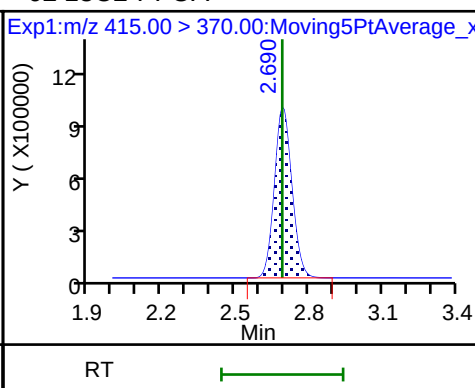
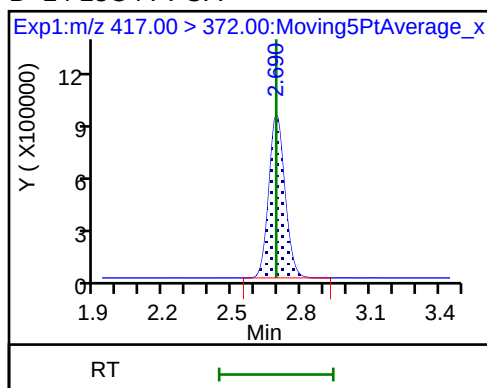
## 13 Sodium 1H,1H,2H,2H-perfluorooctane

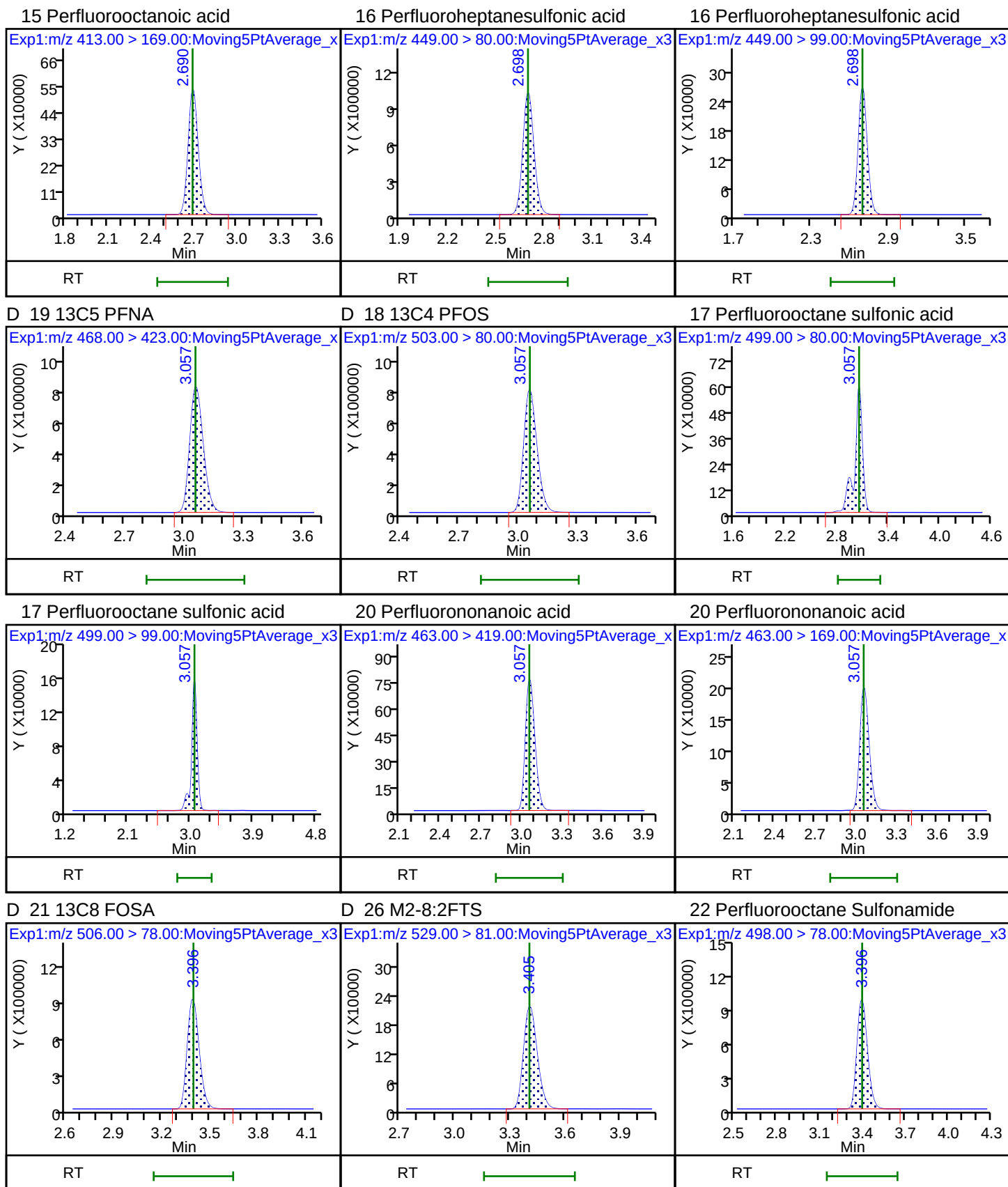


## D 14 13C4 PFOA

## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid



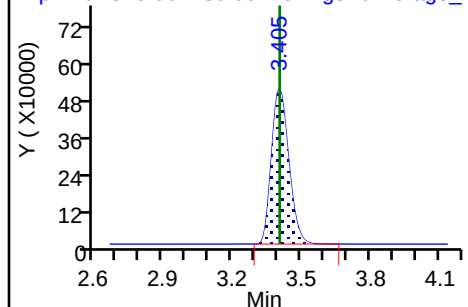


## 68 Perfluorononanesulfonic acid

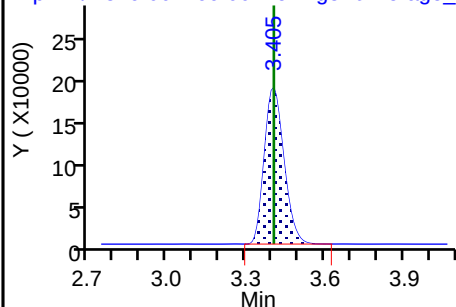
## 68 Perfluorononanesulfonic acid

## D 23 13C2 PFDA

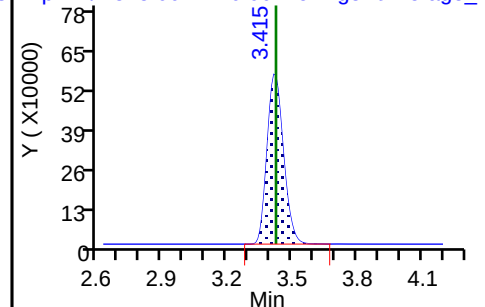
Exp1:m/z 549.00 &gt; 80.00:Moving5PtAverage\_x3



Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



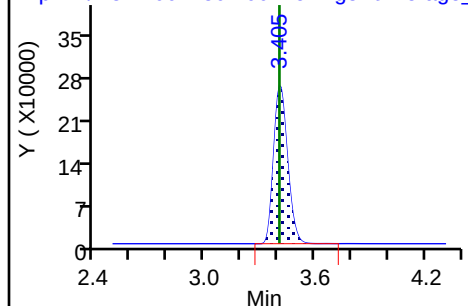
Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



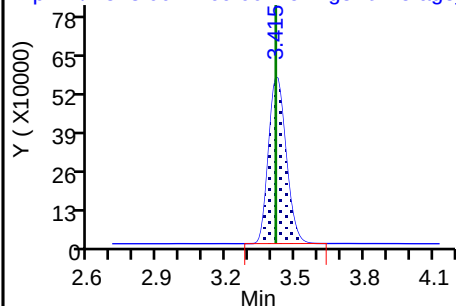
## 25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

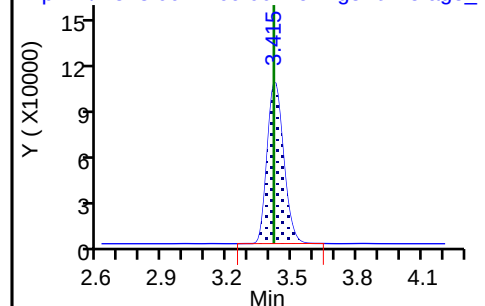
Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

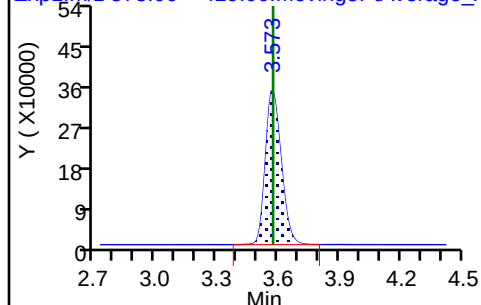


## D 27 d3-NMeFOSAA

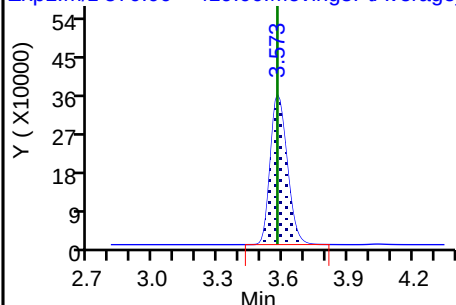
## 28 N-methyl perfluorooctane sulfonamide

## D 32 d5-NEtFOSAA

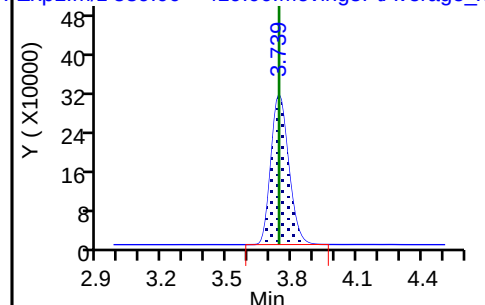
Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3

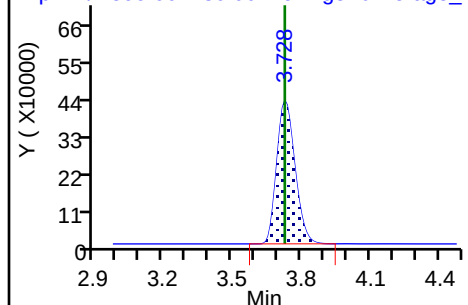


## 29 Perfluorodecane Sulfonic acid

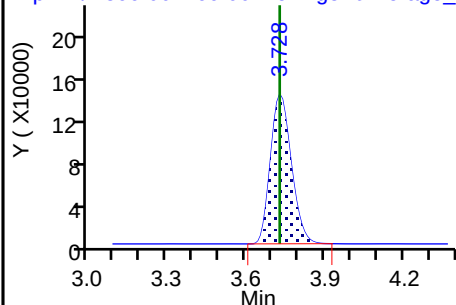
## 29 Perfluorodecane Sulfonic acid

## D 30 13C2 PFUnA

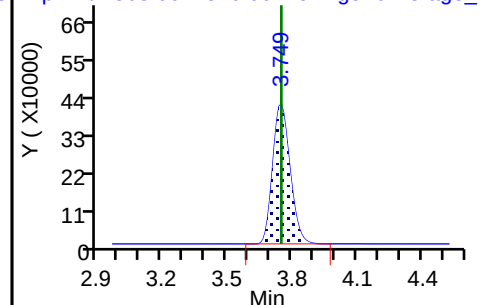
Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3

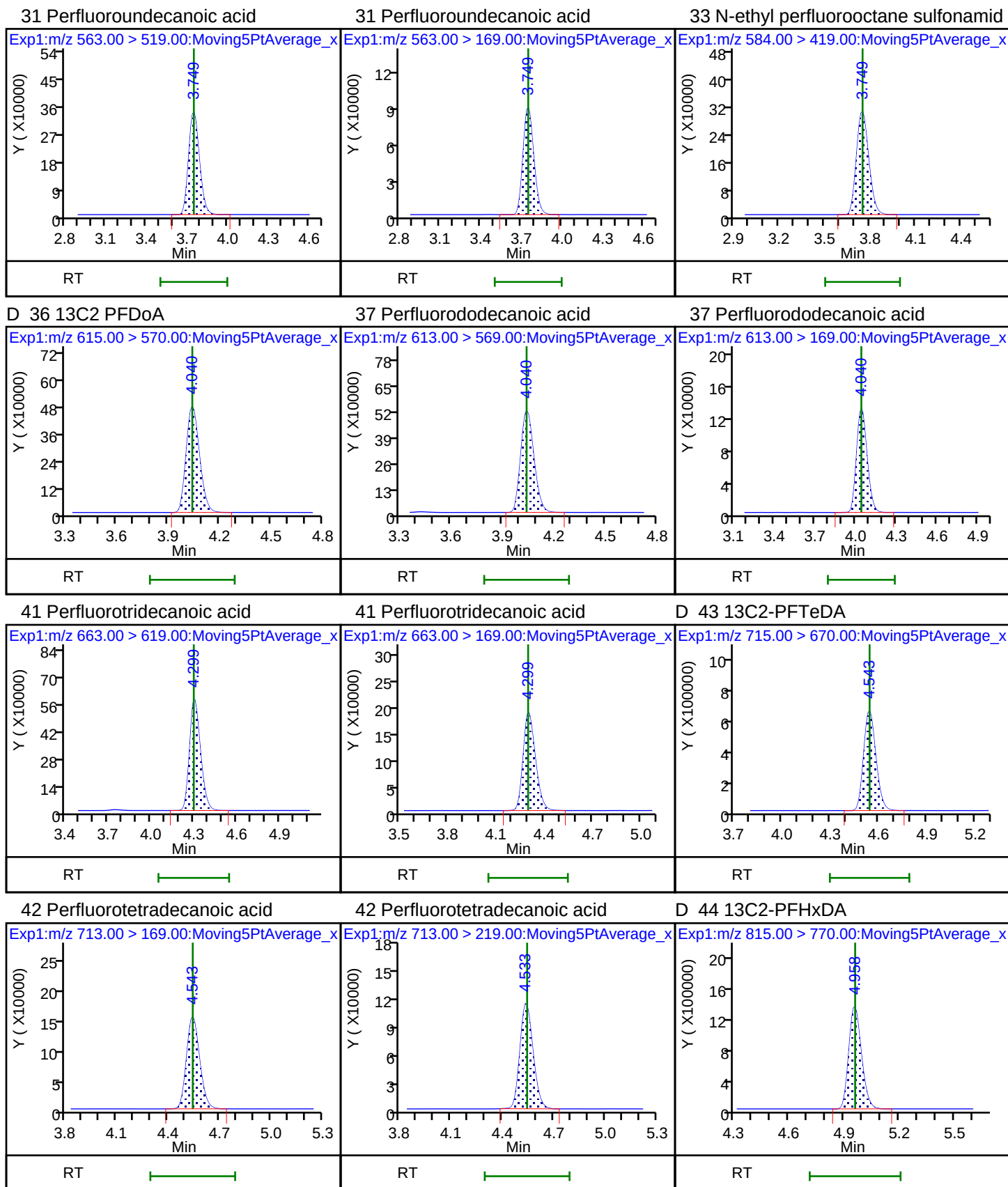


Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-224542/5 Calibration Date: 05/21/2018 13:55

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.21LLCX\_004.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9024 |         | 0.970       | 1.00         | -3.0  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.125  |         | 0.953       | 1.00         | -4.7  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 77.35  |         | 0.876       | 0.884        | -1.0  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.77  |         | 1.06        | 0.934        | 13.2  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.038  |         | 1.01        | 1.00         | 1.0   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 66.62  |         | 0.899       | 0.938        | -4.2  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.038  |         | 0.983       | 1.00         | -1.7  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.017  |         | 0.821       | 0.910        | -9.7  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.655  |         | 0.884       | 0.948        | -6.8  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.251  |         | 0.894       | 0.952        | -6.1  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.124  |         | 0.955       | 1.00         | -4.5  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.034  |         | 0.976       | 1.00         | -2.4  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.030  |         | 0.813       | 0.928        | -12.4 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 0.998  |         | 1.03        | 1.00         | 2.5   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.292  |         | 0.917       | 0.958        | -4.3  | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7057 |         | 0.894       | 0.960        | -6.8  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9549 |         | 0.982       | 1.00         | -1.8  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.044  |         | 1.03        | 1.00         | 2.9   | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6002 |         | 0.862       | 0.964        | -10.6 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.8859 |         | 0.942       | 1.00         | -5.8  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7800 |         | 0.934       | 1.00         | -6.6  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.015  |         | 0.972       | 1.00         | -2.8  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.109  |         | 0.970       | 1.00         | -3.0  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2346 |         | 0.929       | 1.00         | -7.1  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.389  |         | 2.27        | 2.50         | -9.1  | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9298 |         | 2.37        | 2.50         | -5.1  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0205 |         | 2.15        | 2.33         | -7.5  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9742 |         | 2.33        | 2.50         | -6.8  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9496 |         | 2.37        | 2.50         | -5.1  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.159  |         | 2.22        | 2.37         | -6.3  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2164 |         | 2.33        | 2.38         | -2.1  | 30.0   |



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-224542/5 Calibration Date: 05/21/2018 13:55  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.21LLCX\_004.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9201 |         | 2.43           | 2.50            | -2.8  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8143 |         | 2.29           | 2.39            | -4.2  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7836 |         | 2.53           | 2.50            | 1.2   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9904 |         | 2.22           | 2.50            | -11.0 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2389 |         | 2.28           | 2.40            | -5.0  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6330 |         | 2.40           | 2.50            | -3.9  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3653 |         | 2.51           | 2.50            | 0.5   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3893 |         | 2.61           | 2.50            | 4.4   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.4986 |         | 2.39           | 2.50            | -4.4  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5302 |         | 2.36           | 2.50            | -5.6  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6664 |         | 2.42           | 2.50            | -3.3  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.227  |         | 2.62           | 2.50            | 4.9   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\2018.05.21LLCX\_004.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 21-May-2018 13:55:46 ALS Bottle#: 13 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 15:28:41 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK027

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.458  | -0.006 | 1.000  | 6967030  | 2.27         |                   | 90.9 | 41574 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.458 | 1.458  | 0.0    | 1.004  | 2514816  | 0.9705       |                   | 97.0 | 1045  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.729 | 1.729  | 0.0    | 0.564  | 4662814  | 2.37         |                   | 94.9 | 59918 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.729 | 1.729  | 0.0    | 1.000  | 2097494  | 0.9526       |                   | 95.3 | 1694  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.756 | 1.765  | -0.009 | 1.000  | 95487    | 2.15         |                   | 92.5 | 952   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.005  | 2808145  | 0.8756       |                   | 99.0 | 14490 |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.005  | 1210772  |              | 2.32(1.25-3.74)   |      | 14389 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.981  | -0.011 | 1.000  | 747946   | NC           |                   |      | 9940  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 719808   | 1.06         |                   | 113  | 31005 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.025  | -0.011 | 1.000  | 4885645  | 2.33         |                   | 93.2 | 75480 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 2028720  | 1.01         |                   | 101  | 3790  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 197989   |              | 10.25(5.03-15.10) |      | 3071  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.037 | 2.037  | 0.0    | 1.000  | 2566588  | 0.8986       |                   | 95.8 | 21662 |       |
| 349.00 > 99.00                        | 2.037 | 2.037  | 0.0    | 1.000  | 979418   |              | 2.62(1.36-4.07)   |      | 15117 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.116 | 2.116  | 0.0    | 1.000  | 242215   | NC           |                   |      | 5750  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.116 | 2.116  | 0.0    | 1.000  | 298032   | NC           |                   |      | 1793  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 4762248  | 2.37         |                 | 94.9 | 58036 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 1977457  | 0.9827       |                 | 98.3 | 2607  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 795172   |              | 2.49(1.13-3.40) |      | 5267  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 5496691  | 2.22         |                 | 93.7 | 55496 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 2151095  | 0.8214       |                 | 90.3 | 7680  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 736979   |              | 2.92(1.50-4.49) |      | 4292  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.384 | 2.384  | 0.0    | 1.000  | 5894816  | NC           |                 |      | 64516 |       |
| 377.00 > 85.00                        | 2.384 | 2.384  | 0.0    | 1.000  | 3488131  |              | 1.69(0.84-2.53) |      | 47830 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.674 | 2.682  | -0.008 | 1.000  | 1030979  | 2.33         |                 | 97.9 | 14214 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.674 | 2.674  | 0.0    | 1.000  | 681213   | 0.8839       |                 | 93.2 | 12737 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.697 | 2.705  | -0.008 | 1.000  | 4614058  | 2.43         |                 | 97.2 | 52628 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.697 | 2.697  | 0.0    |        | 5014880  | 2.50         |                 |      | 64946 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.704 | 2.704  | 0.0    | 1.003  | 2073897  | 0.9547       |                 | 95.5 | 810   |       |
| 413.00 > 169.00                       | 2.704 | 2.704  | 0.0    | 1.003  | 1069853  |              | 1.94(0.84-2.52) |      | 4374  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 1944681  | 0.8939       |                 | 93.9 | 15458 |       |
| 449.00 > 99.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 547570   |              | 3.55(1.94-5.82) |      | 11252 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.066 | 3.068  | -0.002 | 1.000  | 3903728  | 2.29         |                 | 95.8 | 24745 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.066 | 3.074  | -0.008 | 1.000  | 3929722  | 2.53         |                 | 101  | 59893 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.066 | 3.066  | 0.0    | 1.000  | 1624914  | 0.9760       |                 | 97.6 | 4584  |       |
| 463.00 > 169.00                       | 3.066 | 3.066  | 0.0    | 1.000  | 363997   |              | 4.46(1.90-5.69) |      | 12636 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.066 | 3.066  | 0.0    | 1.000  | 1561068  | 0.8128       |                 | 87.6 | 8358  |       |
| 499.00 > 99.00                        | 3.066 | 3.066  | 0.0    | 1.000  | 350145   |              | 4.46(2.31-6.93) |      | 16033 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.280 | 3.280  | 0.0    | 1.000  | 2519488  | NC           |                 |      | 32420 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.399 | 3.399  | 0.0    | 1.000  | 1982612  | 1.03         |                 | 103  | 21660 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.399 | 3.408  | -0.009 | 1.000  | 4966526  | 2.22         |                 | 89.0 | 54357 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 1106596  | 0.8944       |                 | 93.2 | 15429 |       |
| 549.00 > 99.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 414671   |              | 2.67(1.33-3.97) |      | 8002  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.417 | 3.427  | -0.010 | 1.000  | 1147949  | 2.28         |                 | 95.0 | 19867 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.436 | 3.427  | 0.009  | 1.000  | 3174159  | 2.40         |                  | 96.1 | 55127 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.417 | 3.417  | 0.0    | 1.000  | 593079   | 0.9169       |                  | 95.7 | 22748 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.426 | 3.426  | 0.0    | 0.997  | 1212442  | 0.9822       |                  | 98.2 | 6040  |       |
| 513.00 > 169.00                       | 3.426 | 3.426  | 0.0    | 0.997  | 220857   |              | 5.49(2.36-7.09)  |      | 7098  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.586 | 3.586  | 0.0    | 1.000  | 1831950  | 2.51         |                  | 101  | 20965 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.586 | 3.586  | 0.0    | 1.000  | 765163   | 1.03         |                  | 103  | 6126  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.740 | 3.740  | 0.0    | 1.000  | 944969   | 0.8617       |                  | 89.4 | 11660 |       |
| 599.00 > 99.00                        | 3.740 | 3.740  | 0.0    | 1.000  | 322488   |              | 2.93(1.39-4.16)  |      | 14859 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.751 | 3.751  | 0.0    | 1.000  | 1952203  | 2.61         |                  | 104  | 15241 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.761 | 3.761  | 0.0    | 1.000  | 2500247  | 2.39         |                  | 95.6 | 51070 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.761 | 3.761  | 0.0    | 1.000  | 780025   | 0.9339       |                  | 93.4 | 4761  |       |
| 563.00 > 169.00                       | 3.761 | 3.761  | 0.0    | 1.000  | 200875   |              | 3.88(2.12-6.36)  |      | 5292  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.761 | 3.761  | 0.0    | 1.003  | 691807   | 0.9424       |                  | 94.2 | 15678 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.918 | 3.918  | 0.0    | 1.000  | 3923879  | NC           |                  |      | 41204 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.050 | 4.051  | -0.001 | 1.000  | 2658783  | 2.36         |                  | 94.4 | 27388 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.050 | 4.050  | 0.0    | 1.000  | 1078951  | 0.9721       |                  | 97.2 | 1298  |       |
| 613.00 > 169.00                       | 4.050 | 4.050  | 0.0    | 1.000  | 273339   |              | 3.95(2.13-6.40)  |      | 3352  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.318 | 4.318  | 0.0    | 1.000  | 1179699  | 0.9697       |                  | 97.0 | 1271  |       |
| 663.00 > 169.00                       | 4.318 | 4.318  | 0.0    | 1.000  | 378457   |              | 3.12(1.25-3.76)  |      | 3971  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.554  | -0.001 | 1.000  | 3341748  | 2.42         |                  | 96.7 | 16550 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 313585   | 0.9290       |                  | 92.9 | 3710  |       |
| 713.00 > 219.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 237970   |              | 1.32(0.71-2.13)  |      | 5028  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.976 | 4.967  | 0.009  | 1.000  | 6152377  | 2.62         |                  | 105  | 13456 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.976 | 4.976  | 0.0    | 1.000  | 2215736  | NC           |                  |      | 882   |       |
| 813.00 > 169.00                       | 4.976 | 4.976  | 0.0    | 1.000  | 375336   |              | 5.90(2.86-8.58)  |      | 3277  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.336 | 5.336  | 0.0    | 1.000  | 2453786  | NC           |                  |      | 649   |       |
| 913.00 > 169.00                       | 5.336 | 5.336  | 0.0    | 1.000  | 292036   |              | 8.40(3.83-11.48) |      | 2524  |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\2018.05.21LLCX\_004.d

Injection Date: 21-May-2018 13:55:46

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

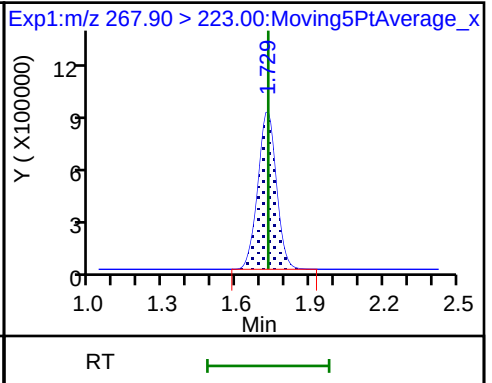
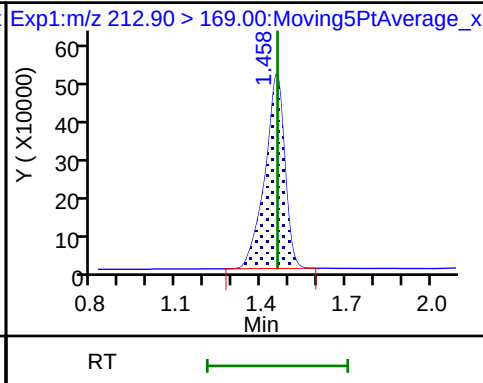
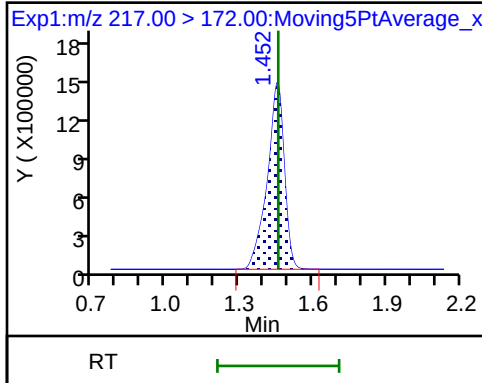
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

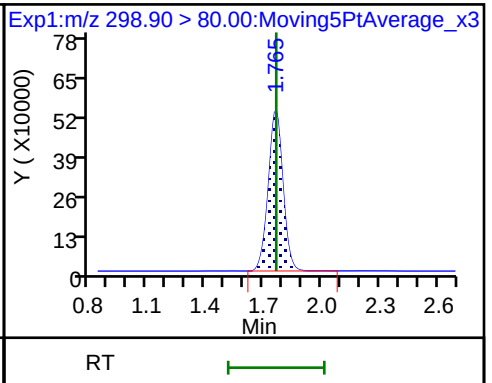
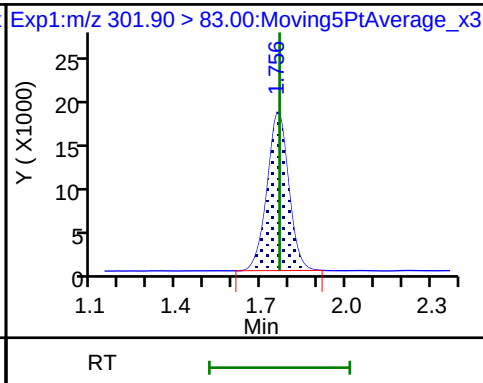
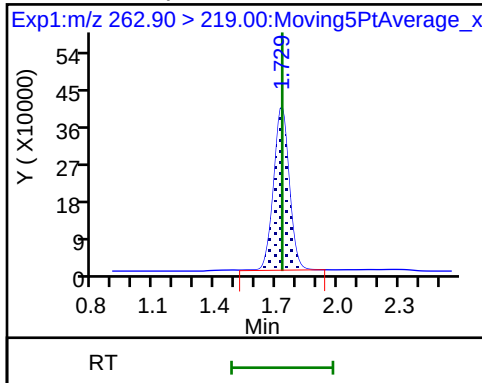
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

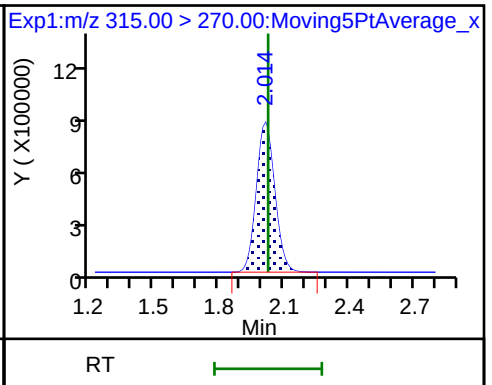
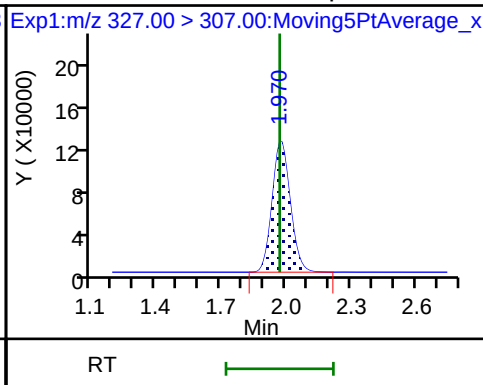
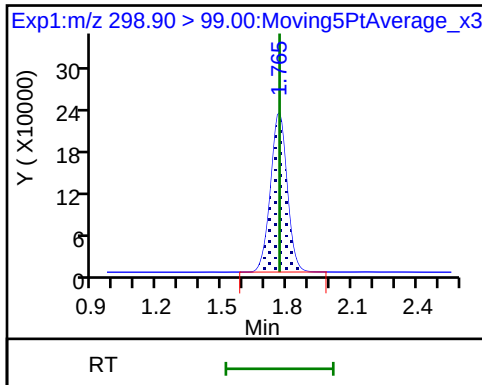
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

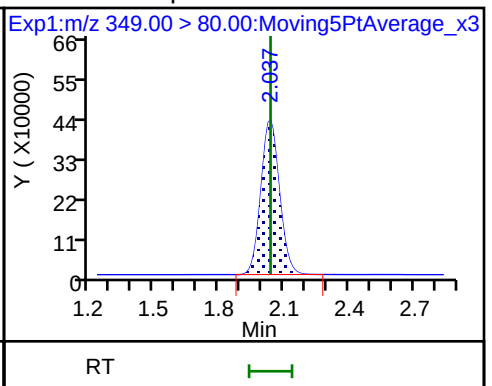
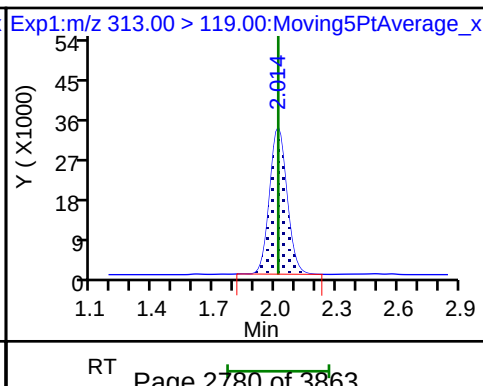
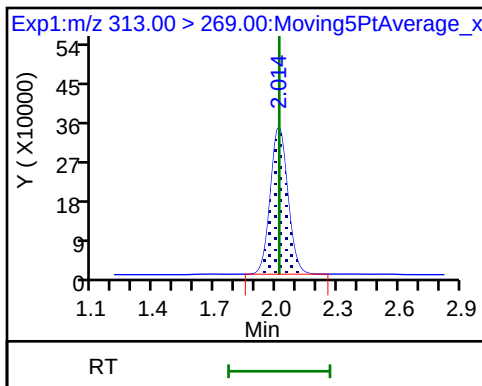
De 7 13C2 PFHxA

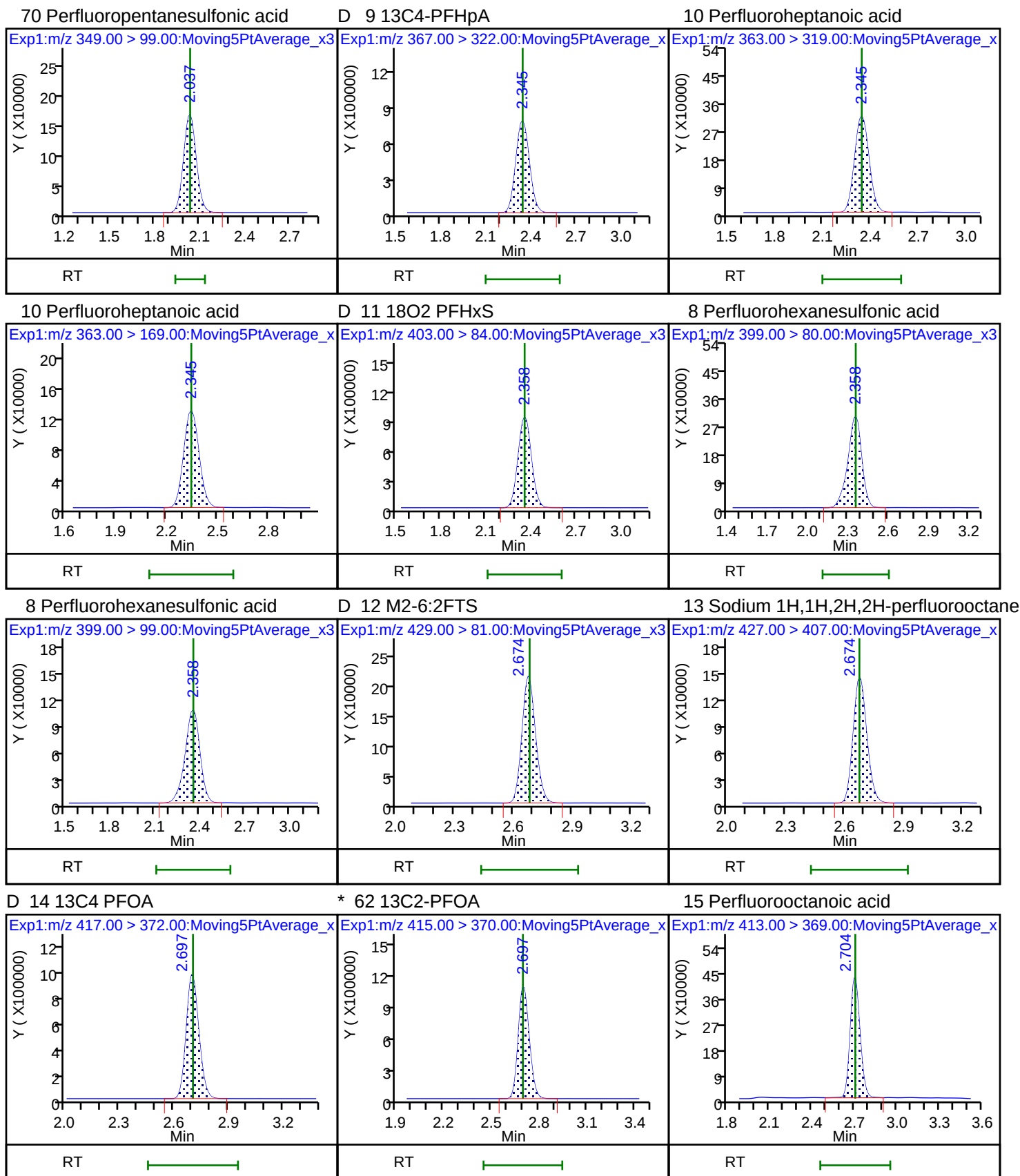


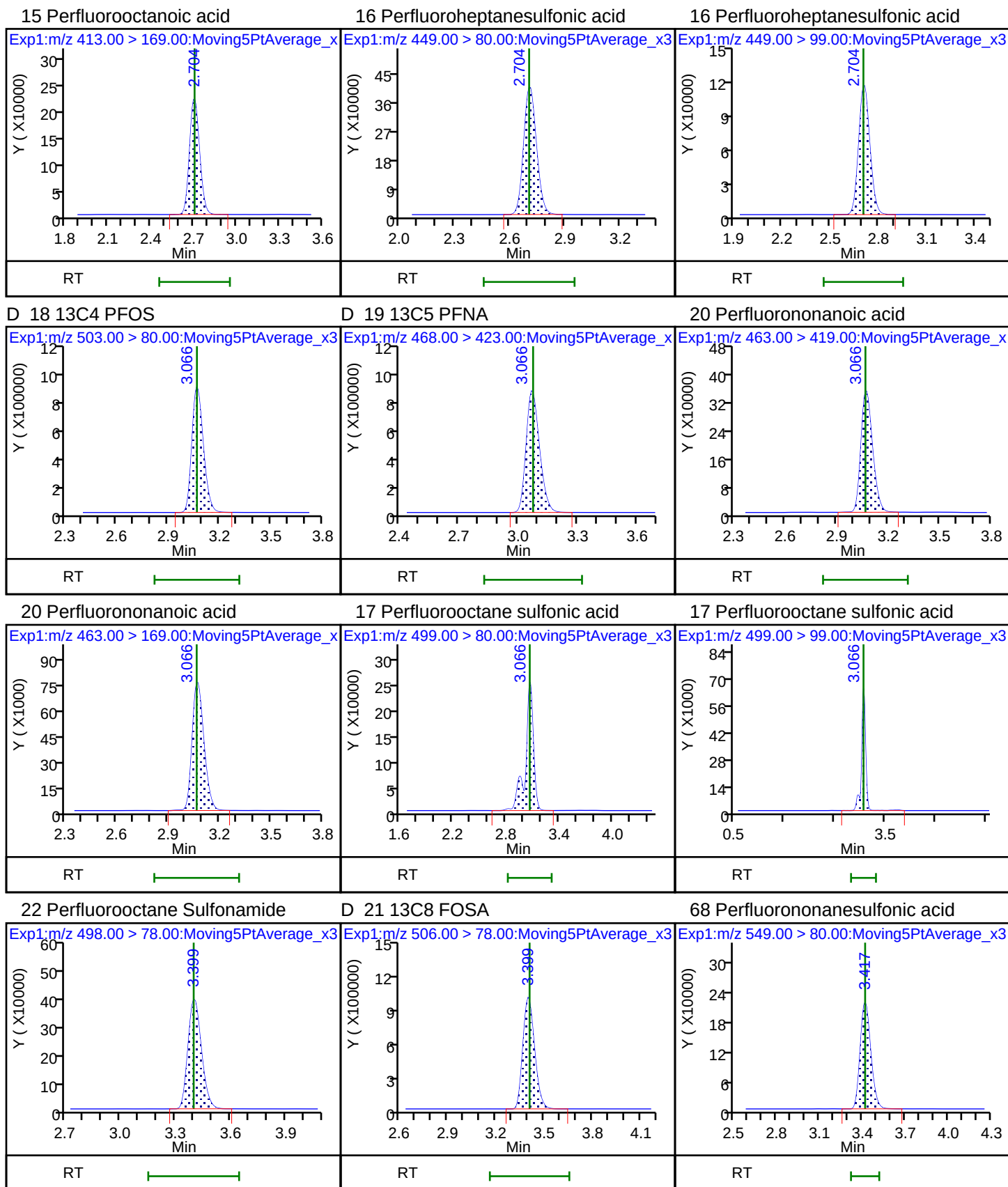
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid







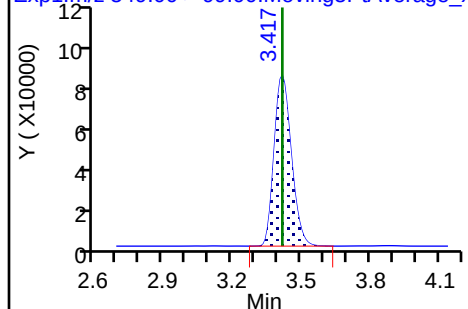


68 Perfluorononanesulfonic acid

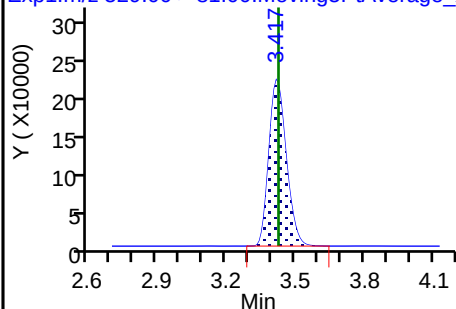
D 26 M2-8:2FTS

D 23 13C2 PFDA

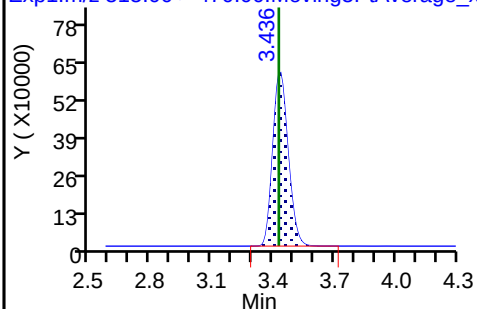
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Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



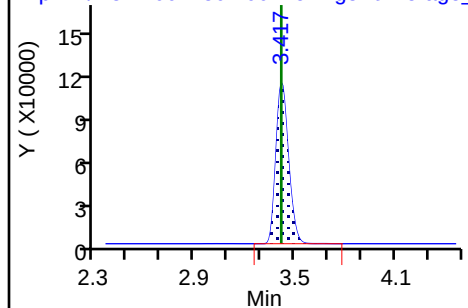
Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



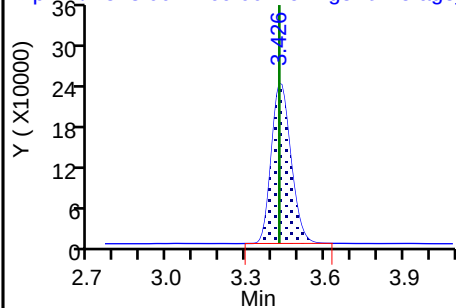
25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl sulfonate

24 Perfluorodecanoic acid

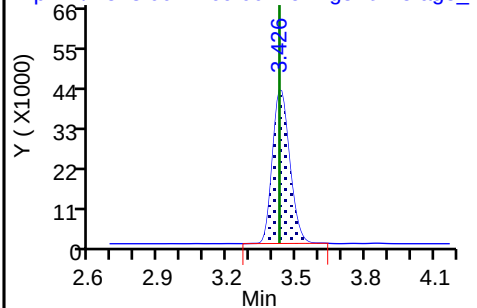
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Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

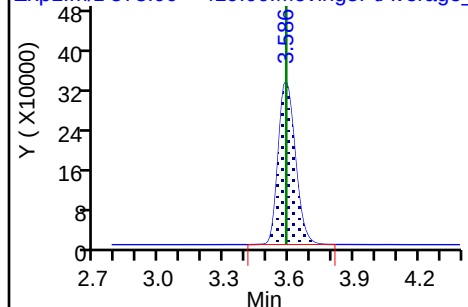


D 27 d3-NMeFOSAA

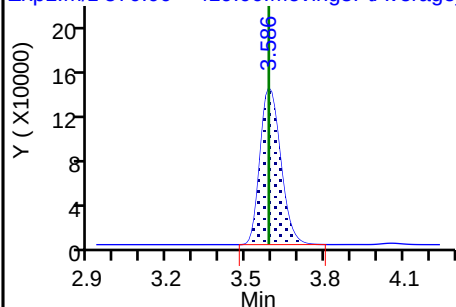
28 N-methyl perfluorooctane sulfonamide

29 Perfluorodecane Sulfonic acid

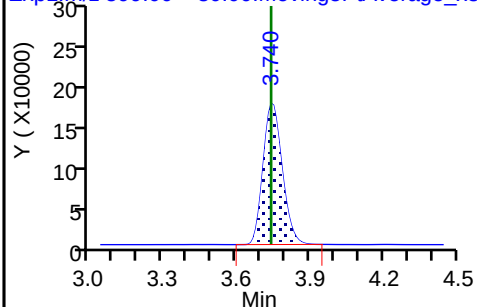
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Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3

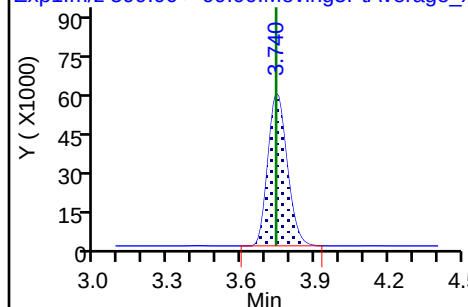


29 Perfluorodecane Sulfonic acid

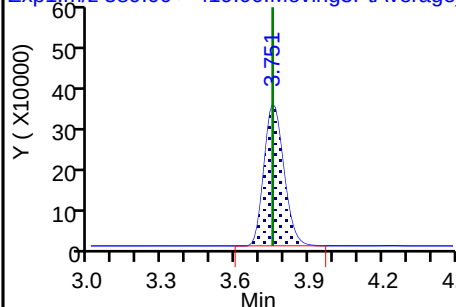
D 32 d5-NEtFOSAA

D 30 13C2 PFUnA

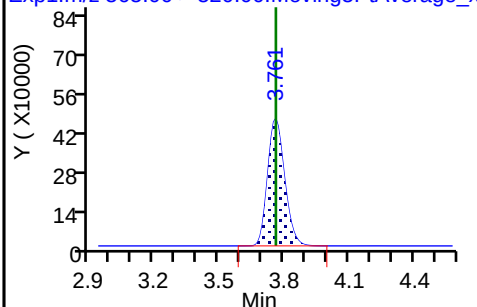
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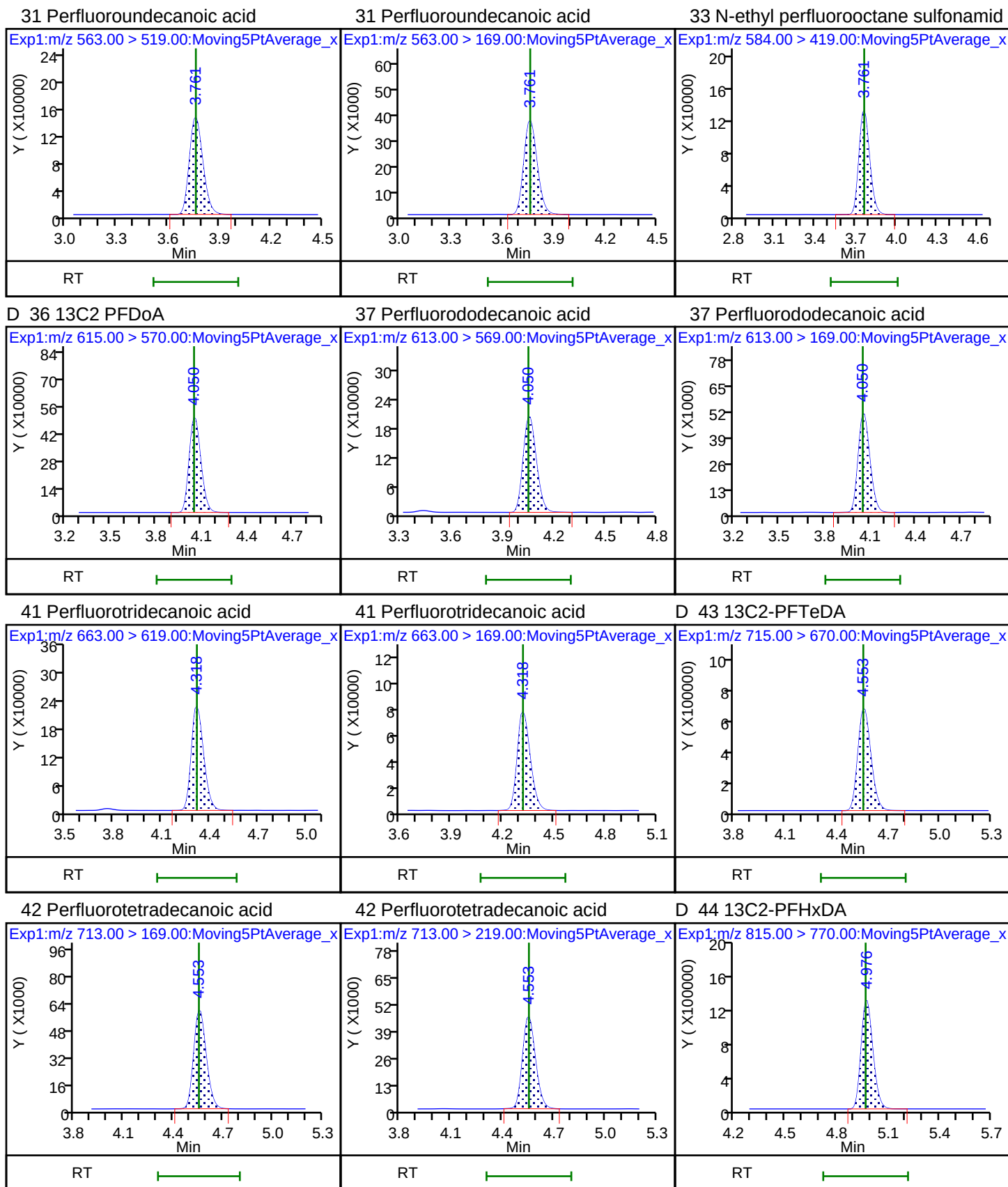


Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-224542/8 Calibration Date: 05/21/2018 14:19

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.21LLCX\_007.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D   | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9415 |         | 2.53        | 2.50         | 1.2  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.194  |         | 2.53        | 2.50         | 1.1  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 81.13  |         | 2.30        | 2.21         | 3.9  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 17.58  |         | 2.48        | 2.34         | 6.1  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.069  |         | 2.60        | 2.50         | 4.0  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 73.19  |         | 2.47        | 2.35         | 5.2  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.075  |         | 2.54        | 2.50         | 1.8  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.040  |         | 2.10        | 2.28         | -7.7 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.658  |         | 2.23        | 2.37         | -5.9 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.408  |         | 2.52        | 2.38         | 5.7  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.150  |         | 2.44        | 2.50         | -2.3 | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.041  |         | 2.46        | 2.50         | -1.7 | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.108  |         | 2.19        | 2.32         | -5.7 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.064  |         | 2.73        | 2.50         | 9.3  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.307  |         | 2.32        | 2.40         | -3.2 | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7534 |         | 2.39        | 2.40         | -0.5 | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9893 |         | 2.54        | 2.50         | 1.8  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.032  |         | 2.54        | 2.50         | 1.7  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6529 |         | 2.34        | 2.41         | -2.8 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 1.002  |         | 2.66        | 2.50         | 6.6  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7799 |         | 2.33        | 2.50         | -6.6 | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.084  |         | 2.60        | 2.50         | 3.8  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.204  |         | 2.63        | 2.50         | 5.2  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2613 |         | 2.59        | 2.50         | 3.5  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.404  |         | 2.30        | 2.50         | -8.1 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9395 |         | 2.40        | 2.50         | -4.1 | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0202 |         | 2.12        | 2.33         | -8.7 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9868 |         | 2.36        | 2.50         | -5.5 | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9662 |         | 2.41        | 2.50         | -3.5 | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.162  |         | 2.22        | 2.37         | -6.1 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2215 |         | 2.38        | 2.38         | 0.2  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-224542/8 Calibration Date: 05/21/2018 14:19  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.21LLCX\_007.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9425 |         | 2.49           | 2.50            | -0.5  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7684 |         | 2.16           | 2.39            | -9.6  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7922 |         | 2.56           | 2.50            | 2.3   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.995  |         | 2.24           | 2.50            | -10.6 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2418 |         | 2.30           | 2.40            | -3.9  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6575 |         | 2.50           | 2.50            | -0.2  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3772 |         | 2.59           | 2.50            | 3.8   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3728 |         | 2.50           | 2.50            | -0.0  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5064 |         | 2.43           | 2.50            | -2.9  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5392 |         | 2.40           | 2.50            | -3.9  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6464 |         | 2.34           | 2.50            | -6.2  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.270  |         | 2.71           | 2.50            | 8.6   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\2018.05.21LLCX\_007.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 21-May-2018 14:19:19 ALS Bottle#: 14 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 21-May-2018 15:28:46 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK027

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.458 | 1.458  | 0.0    | 1.000  | 6334038  | 2.53         |                   | 101  | 3168  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.458 | 1.458  | 0.0    | 1.000  | 6727968  | 2.30         |                   | 91.9 | 37664 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.729 | 1.729  | 0.0    | 1.000  | 5373122  | 2.53         |                   | 101  | 4066  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.729 | 1.729  | 0.0    | 0.563  | 4500710  | 2.40         |                   | 95.9 | 60938 |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 6944504  | 2.30         |                   | 104  | 37149 |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 2861664  |              | 2.43(1.25-3.74)   |      | 28351 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 90048    | 2.12         |                   | 91.3 | 777   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.981 | 1.981  | 0.0    | 1.000  | 1589769  | 2.48         |                   | 106  | 67203 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.981 | 1.981  | 0.0    | 1.000  | 720205   | NC           |                   |      | 9332  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.015 | 2.015  | 0.0    | 1.000  | 5053015  | 2.60         |                   | 104  | 8980  |       |
| 313.00 > 119.00                       | 2.015 | 2.015  | 0.0    | 1.000  | 462359   |              | 10.93(5.03-15.10) |      | 5234  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.015 | 2.025  | -0.010 | 1.000  | 4727677  | 2.36         |                   | 94.5 | 87964 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.038 | 2.038  | 0.0    | 1.000  | 6647616  | 2.47         |                   | 105  | 69713 |       |
| 349.00 > 99.00                        | 2.038 | 2.038  | 0.0    | 1.000  | 2421860  |              | 2.74(1.36-4.07)   |      | 40286 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.117 | 2.117  | 0.0    | 1.000  | 691509   | NC           |                   |      | 4137  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.117 | 2.116  | 0.001  | 1.000  | 231943   | NC           |                   |      | 5484  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.346 | 2.346  | 0.0    | 1.000  | 4974984  | 2.54         |                 | 102  | 7047  |       |
| 363.00 > 169.00                       | 2.346 | 2.346  | 0.0    | 1.000  | 1930058  |              | 2.58(1.13-3.40) |      | 12706 |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.346 | 2.345  | 0.001  | 1.000  | 4628735  | 2.41         |                 | 96.5 | 55952 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.359 | 2.359  | 0.0    | 1.000  | 5268563  | 2.10         |                 | 92.3 | 17179 |       |
| 399.00 > 99.00                        | 2.359 | 2.359  | 0.0    | 1.000  | 1759482  |              | 2.99(1.50-4.49) |      | 11008 |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.359 | 2.358  | 0.001  | 1.000  | 5265899  | 2.22         |                 | 93.9 | 56033 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.396 | 2.396  | 0.0    | 1.000  | 14769360 | NC           |                 |      | 93266 |       |
| 377.00 > 85.00                        | 2.385 | 2.396  | -0.011 | 0.995  | 8545087  |              | 1.73(0.84-2.53) |      | 60786 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.676 | 2.676  | 0.0    | 1.000  | 1668345  | 2.23         |                 | 94.1 | 24282 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.676 | 2.682  | -0.006 | 1.000  | 1008103  | 2.38         |                 | 100  | 13580 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.706 | 2.706  | 0.0    |        | 4790744  | 2.50         |                 |      | 52167 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.706 | 2.706  | 0.0    | 1.000  | 5191913  | 2.44         |                 | 97.7 | 2125  |       |
| 413.00 > 169.00                       | 2.706 | 2.706  | 0.0    | 1.000  | 2647210  |              | 1.96(0.84-2.52) |      | 10147 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.706 | 2.706  | 0.0    | 1.000  | 4936289  | 2.52         |                 | 106  | 27366 |       |
| 449.00 > 99.00                        | 2.706 | 2.706  | 0.0    | 1.000  | 1278081  |              | 3.86(1.94-5.82) |      | 25607 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.706 | 2.705  | 0.001  | 1.000  | 4515430  | 2.49         |                 | 99.5 | 62021 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.073 | 3.073  | 0.0    | 1.000  | 3786152  | 2.19         |                 | 94.3 | 18463 |       |
| 499.00 > 99.00                        | 3.066 | 3.073  | -0.007 | 0.998  | 835245   |              | 4.53(2.31-6.93) |      | 9516  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.073 | 3.073  | 0.0    | 1.000  | 3950253  | 2.46         |                 | 98.3 | 12889 |       |
| 463.00 > 169.00                       | 3.073 | 3.073  | 0.0    | 1.000  | 933301   |              | 4.23(1.90-5.69) |      | 19578 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.073 | 3.068  | 0.005  | 1.000  | 3519413  | 2.16         |                 | 90.4 | 25382 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.073 | 3.074  | -0.001 | 1.000  | 3795298  | 2.56         |                 | 102  | 50062 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.280 | 3.280  | 0.0    | 1.000  | 6308691  | NC           |                 |      | 45542 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.408 | 3.408  | 0.0    | 1.003  | 5072849  | 2.73         |                 | 109  | 49547 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.399 | 3.408  | -0.009 | 1.000  | 4767231  | 2.24         |                 | 89.4 | 48413 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 2662487  | 2.39         |                 | 99.5 | 36833 |       |
| 549.00 > 99.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 1007114  |              | 2.64(1.33-3.97) |      | 17668 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.417 | 3.417  | 0.0    | 1.000  | 1450046  | 2.32         |                 | 96.8 | 27659 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec  | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|-------|-------|-------|
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |       |       |       |
| 513.00 > 469.00                       | 3.436 | 3.436  | 0.0    | 1.000  | 3116122  | 2.54         |                  | 102   | 17889 |       |
| 513.00 > 169.00                       | 3.436 | 3.436  | 0.0    | 1.000  | 540630   |              | 5.76(2.36-7.09)  |       | 14765 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |       |       |       |
| 515.00 > 470.00                       | 3.436 | 3.427  | 0.009  | 1.000  | 3149994  | 2.50         |                  | 99.8  | 37667 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |       |       |       |
| 529.00 > 81.00                        | 3.417 | 3.427  | -0.010 | 1.000  | 1109558  | 2.30         |                  | 96.1  | 16147 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |       |       |       |
| 570.00 > 419.00                       | 3.586 | 3.586  | 0.0    | 1.000  | 1863890  | 2.54         |                  | 102   | 11012 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |       |       |       |
| 573.00 > 419.00                       | 3.586 | 3.586  | 0.0    | 1.000  | 1806925  | 2.59         |                  | 104   | 23636 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |       |       |       |
| 599.00 > 80.00                        | 3.741 | 3.741  | 0.0    | 1.000  | 2316889  | 2.34         |                  | 97.2  | 28054 |       |
| 599.00 > 99.00                        | 3.741 | 3.741  | 0.0    | 1.000  | 788596   |              | 2.94(1.39-4.16)  |       | 17855 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |       |       |       |
| 589.00 > 419.00                       | 3.751 | 3.751  | 0.0    | 1.000  | 1786122  | 2.50         |                  | 100.0 | 17341 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |       |       |       |
| 584.00 > 419.00                       | 3.762 | 3.762  | 0.0    | 1.003  | 1789203  | 2.66         |                  | 107   | 29439 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |       |       |       |
| 563.00 > 519.00                       | 3.762 | 3.762  | 0.0    | 1.000  | 1891920  | 2.33         |                  | 93.4  | 10189 |       |
| 563.00 > 169.00                       | 3.762 | 3.762  | 0.0    | 1.000  | 501479   |              | 3.77(2.12-6.36)  |       | 13013 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |       |       |       |
| 565.00 > 520.00                       | 3.762 | 3.761  | 0.001  | 1.000  | 2425934  | 2.43         |                  | 97.1  | 29473 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |       |       |       |
| 631.00 > 451.00                       | 3.920 | 3.920  | 0.0    | 1.000  | 9810923  | NC           |                  |       | 68890 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |       |       |       |
| 613.00 > 569.00                       | 4.061 | 4.061  | 0.0    | 1.003  | 2799736  | 2.60         |                  | 104   | 3185  |       |
| 613.00 > 169.00                       | 4.051 | 4.061  | -0.010 | 1.000  | 672064   |              | 4.17(2.13-6.40)  |       | 8698  |       |
| D 36 13C2 PFDoA                       |       |        |        |        |          |              |                  |       |       |       |
| 615.00 > 570.00                       | 4.051 | 4.051  | 0.0    | 1.000  | 2583308  | 2.40         |                  | 96.1  | 17643 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |       |       |       |
| 663.00 > 619.00                       | 4.319 | 4.319  | 0.0    | 1.000  | 3109915  | 2.63         |                  | 105   | 3032  |       |
| 663.00 > 169.00                       | 4.319 | 4.319  | 0.0    | 1.000  | 923646   |              | 3.37(1.25-3.76)  |       | 10771 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |       |       |       |
| 713.00 > 169.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 809069   | 2.59         |                  | 103   | 8916  |       |
| 713.00 > 219.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 568757   |              | 1.42(0.71-2.13)  |       | 8855  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |       |       |       |
| 715.00 > 670.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 3096576  | 2.34         |                  | 93.8  | 15203 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |       |       |       |
| 815.00 > 770.00                       | 4.976 | 4.967  | 0.009  | 1.000  | 6082283  | 2.71         |                  | 109   | 13758 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |       |       |       |
| 813.00 > 769.00                       | 4.976 | 4.976  | 0.0    | 1.000  | 5897426  | NC           |                  |       | 2156  |       |
| 813.00 > 169.00                       | 4.976 | 4.976  | 0.0    | 1.000  | 946103   |              | 6.23(2.86-8.58)  |       | 6520  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |       |       |       |
| 913.00 > 869.00                       | 5.337 | 5.337  | 0.0    | 1.000  | 6492176  | NC           |                  |       | 1567  |       |
| 913.00 > 169.00                       | 5.337 | 5.337  | 0.0    | 1.000  | 785090   |              | 8.27(3.83-11.48) |       | 4722  |       |



[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180521-58511.b\2018.05.21LLCX\_007.d

Injection Date: 21-May-2018 14:19:19

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

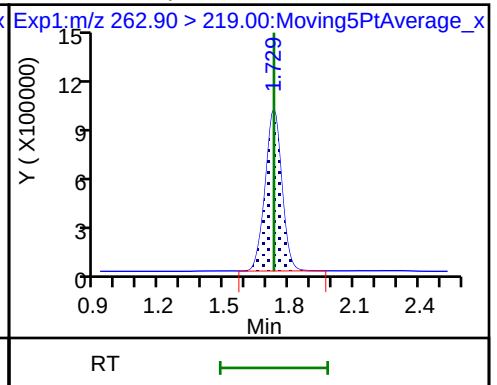
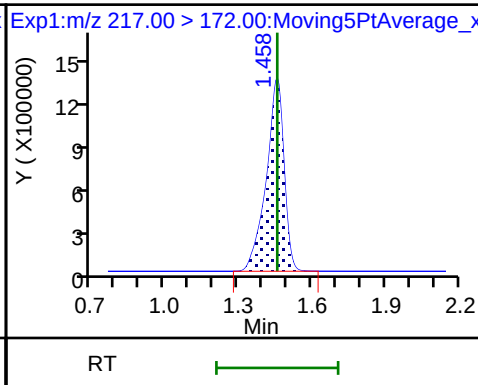
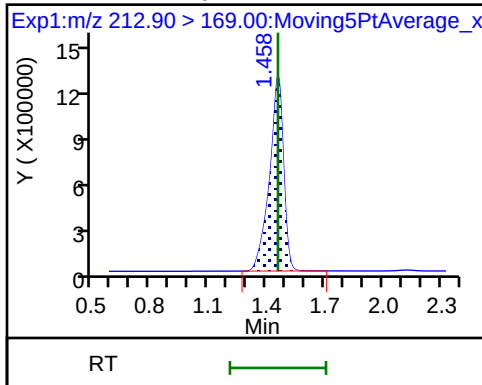
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

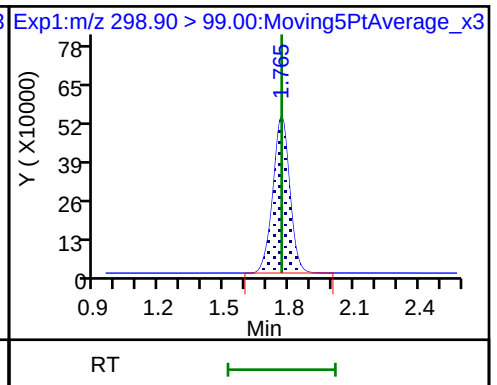
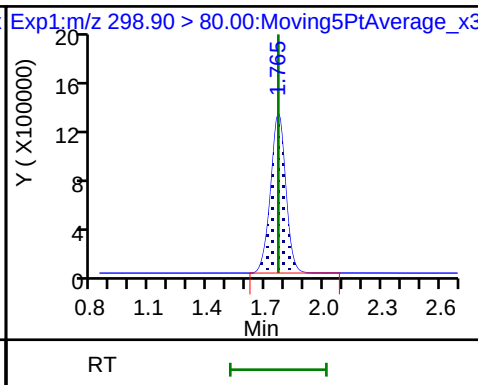
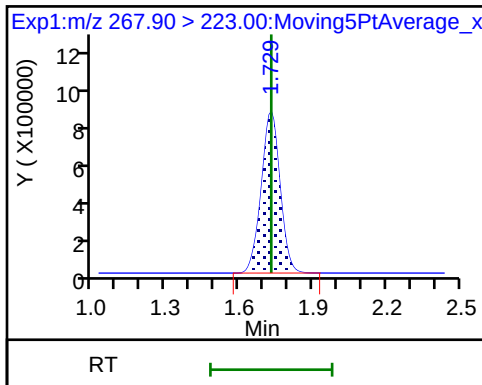
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

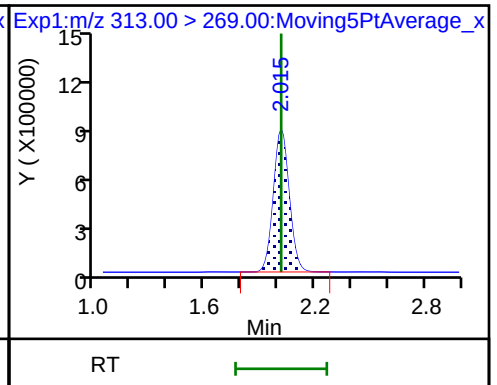
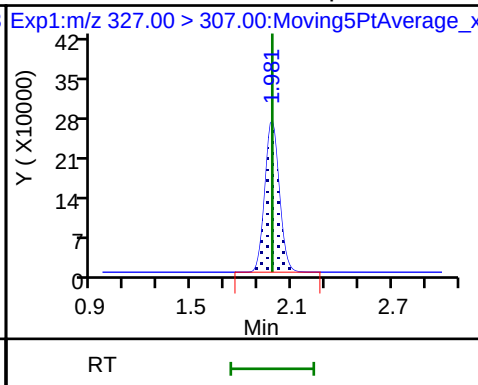
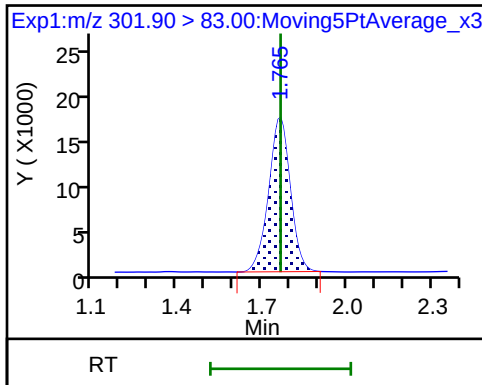
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

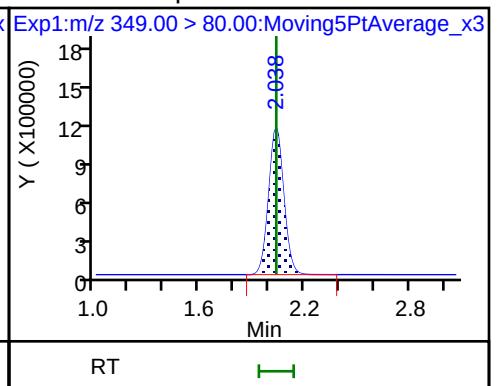
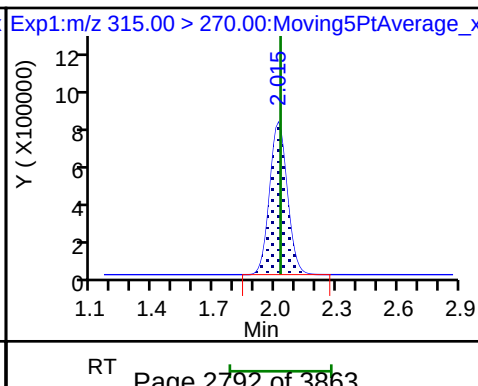
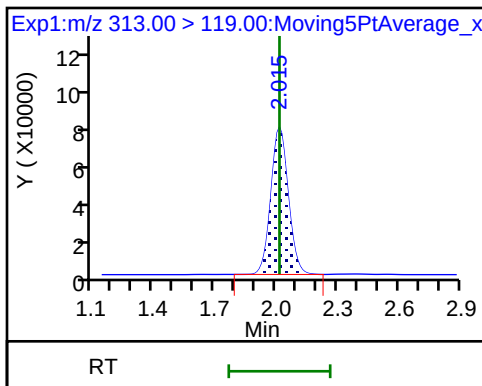
## 6 Perfluorohexanoic acid

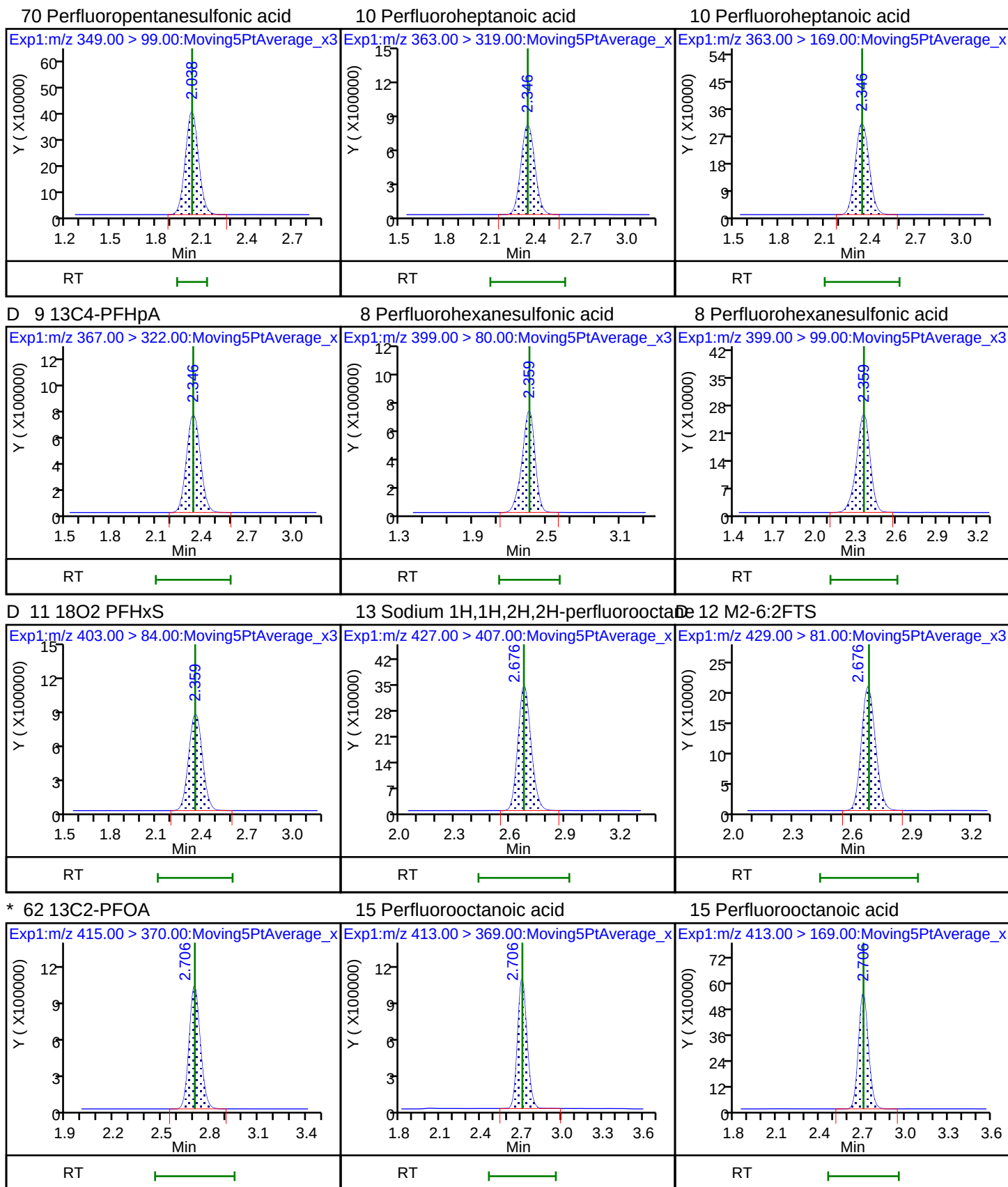


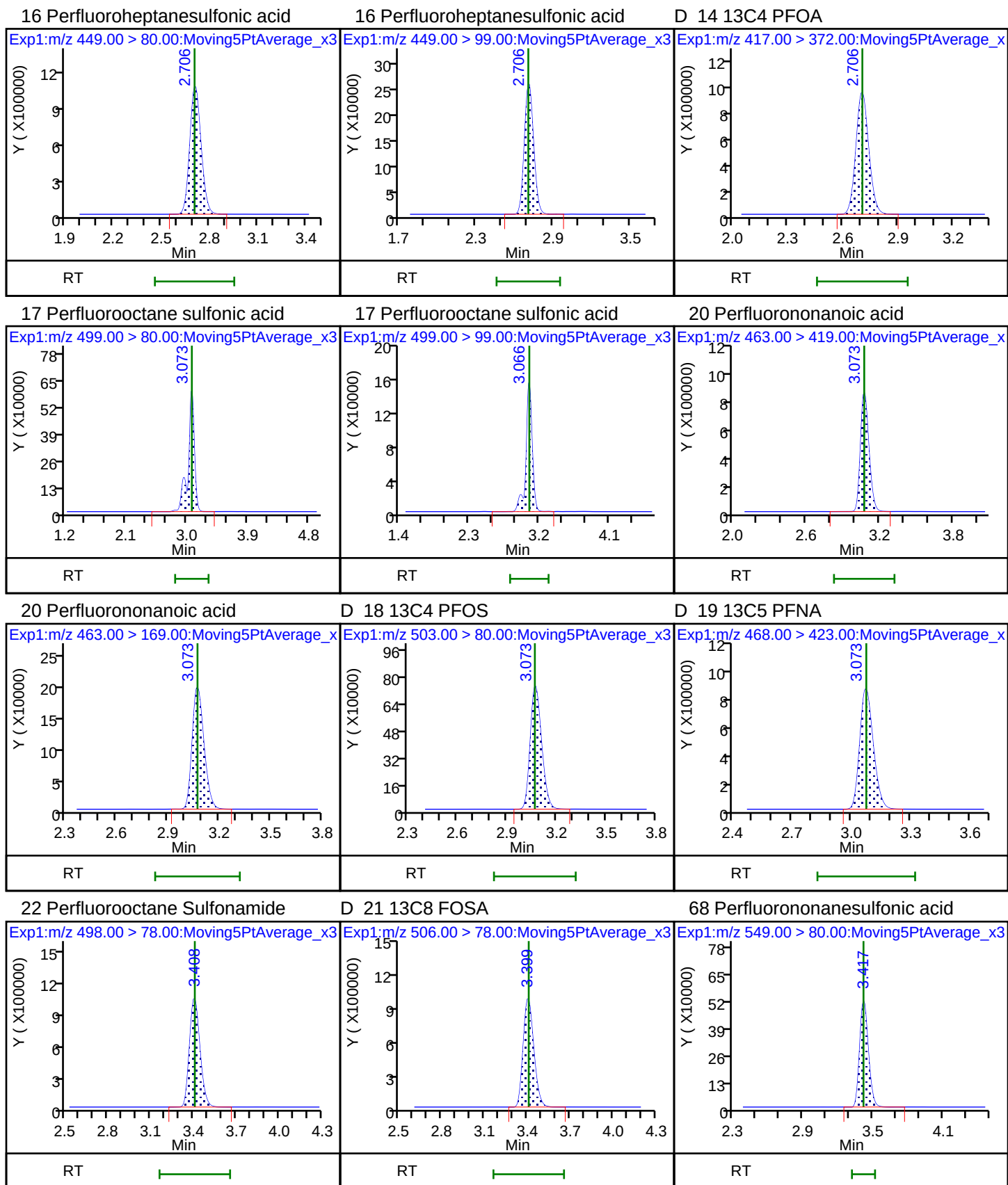
## 6 Perfluorohexanoic acid

## D 7 13C2 PFHxA

## 70 Perfluoropentanesulfonic acid



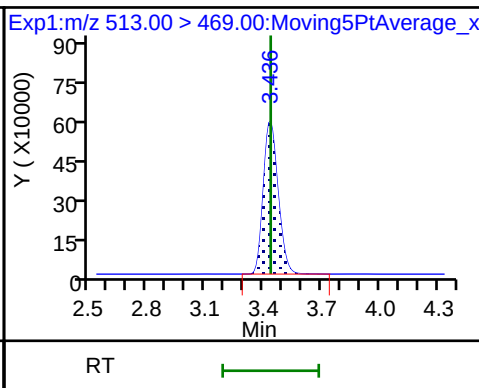
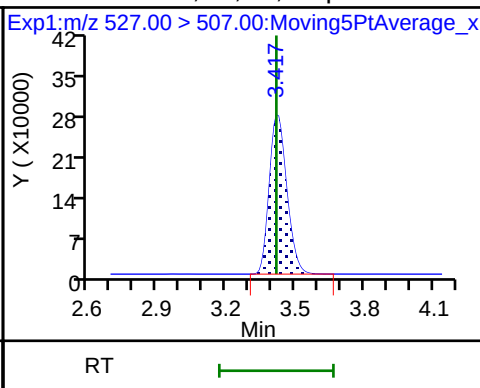
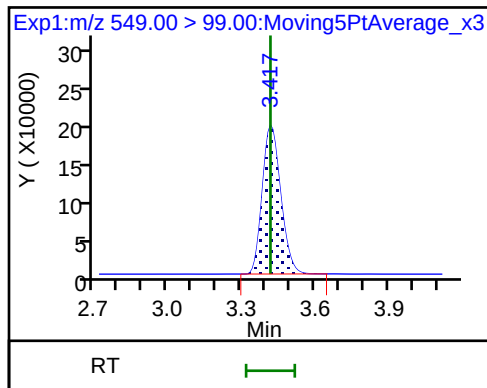




68 Perfluorononanesulfonic acid

25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl sulfonate

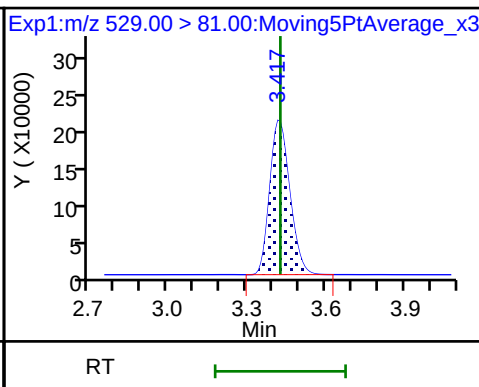
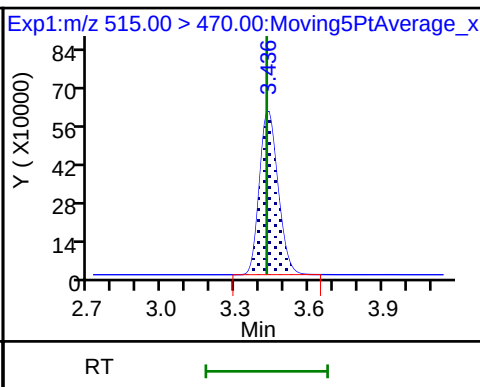
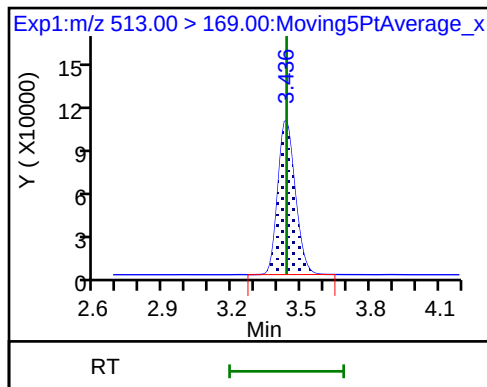
24 Perfluorodecanoic acid



24 Perfluorodecanoic acid

D 23 13C2 PFDA

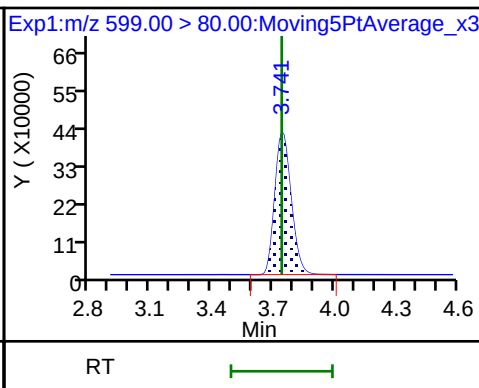
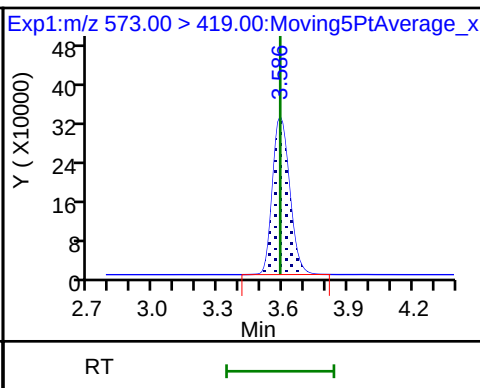
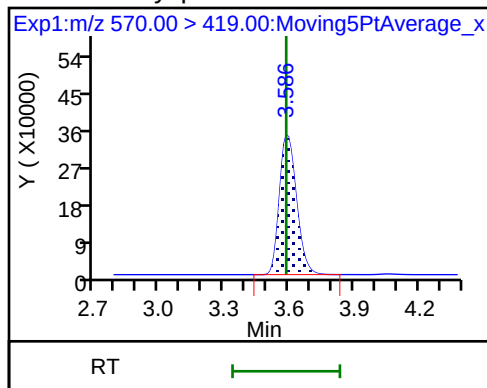
D 26 M2-8:2FTS



28 N-methyl perfluorooctane sulfonamid

D 27 d3-NMeFOSAA

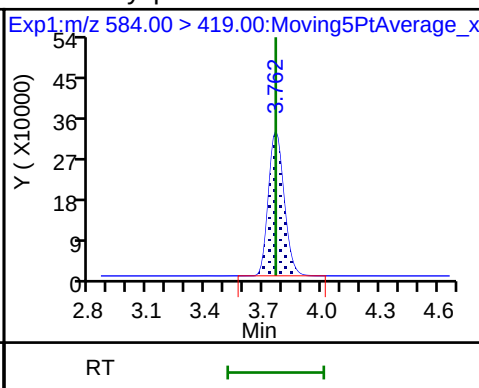
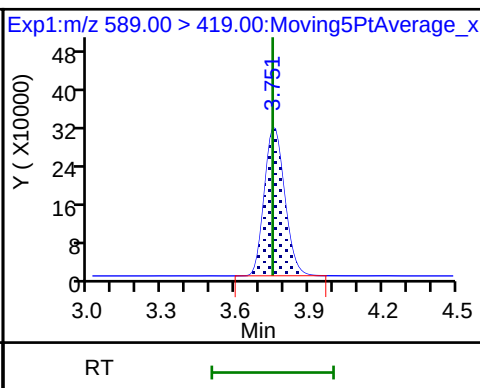
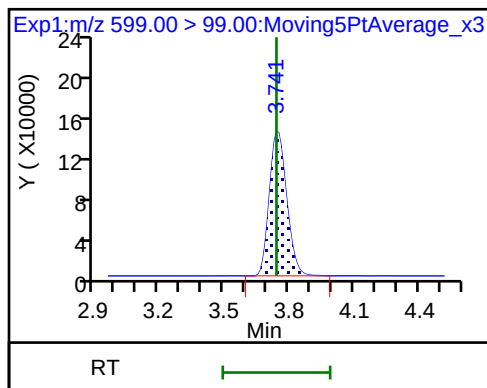
29 Perfluorodecane Sulfonic acid

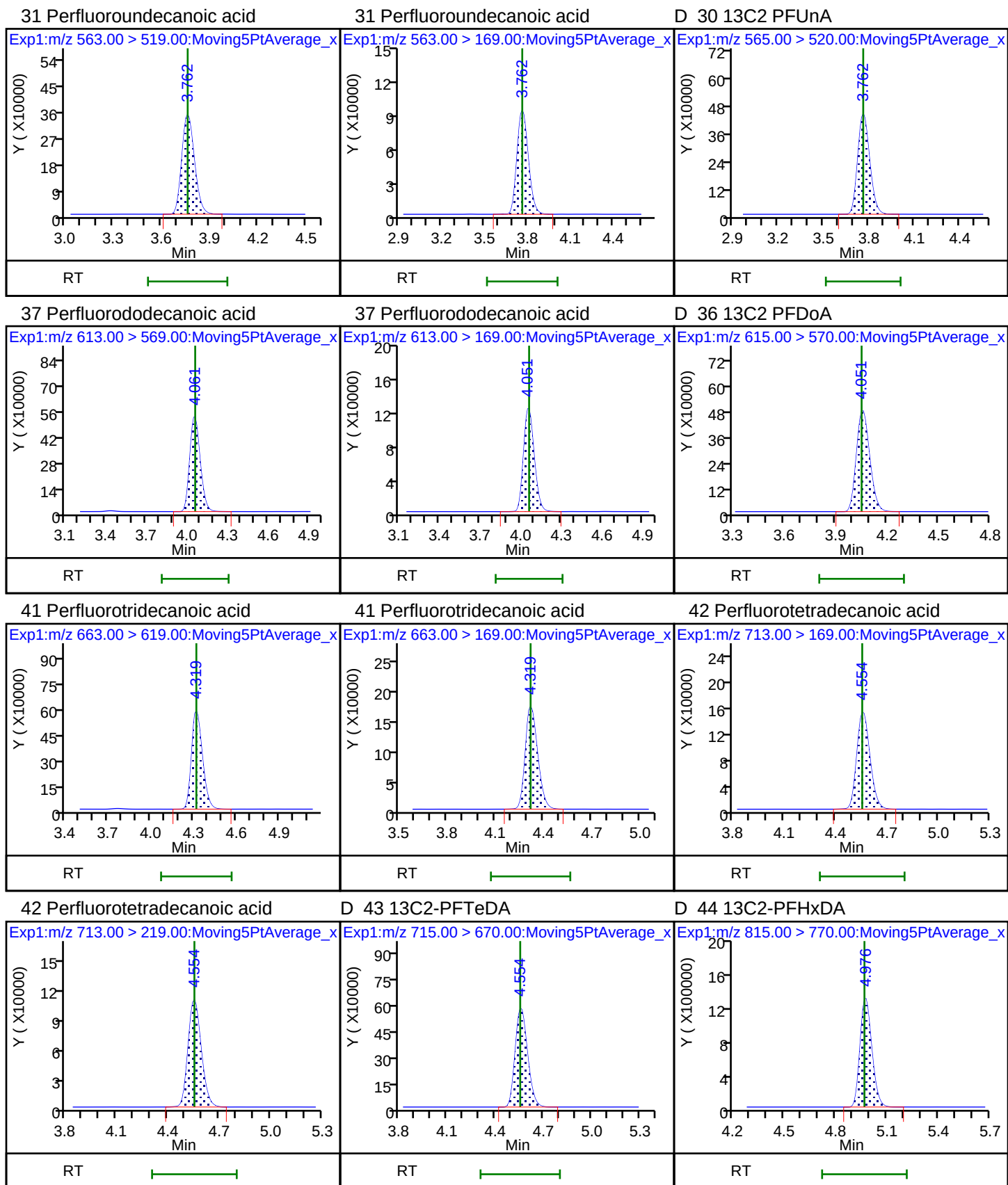


29 Perfluorodecane Sulfonic acid

D 32 d5-NEtFOSAA

33 N-ethyl perfluorooctane sulfonamid







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVL 320-225690/2 Calibration Date: 05/25/2018 22:33

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.25LLAAXX\_004.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9563 |         | 0.0514      | 0.0500       | 2.8   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.204  |         | 0.0510      | 0.0500       | 2.0   | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 85.07  |         | 0.0482      | 0.0442       | 8.9   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 20.33  |         | 0.400       | 0.0467       | 22.6  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.053  |         | 0.0512      | 0.0500       | 2.4   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 72.69  |         | 0.0490      | 0.0469       | 4.5   | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.012  |         | 0.0479      | 0.0500       | -4.2  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.190  |         | 0.0481      | 0.0455       | 5.6   | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.945  |         | 0.400       | 0.0474       | -10.8 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.343  |         | 0.0570      | 0.0500       | 14.1  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.246  |         | 0.0445      | 0.0476       | -6.4  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.088  |         | 0.0514      | 0.0500       | 2.7   | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.134  |         | 0.0448      | 0.0464       | -3.5  | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7571 |         | 0.0480      | 0.0480       | -0.0  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.090  |         | 0.400       | 0.0479       | -19.2 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 0.9916 |         | 0.0509      | 0.0500       | 1.9   | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.035  |         | 0.0532      | 0.0500       | 6.4   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 0.9207 |         | 0.400       | 0.0500       | -9.3  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.5493 |         | 0.0394      | 0.0482       | -18.2 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9340 |         | 0.0497      | 0.0500       | -0.6  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.9101 |         | 0.0545      | 0.0500       | 9.0   | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.091  |         | 0.0523      | 0.0500       | 4.5   | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.182  |         | 0.0517      | 0.0500       | 3.4   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2523 |         | 0.0500      | 0.0500       | -0.0  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.365  |         | 2.23        | 2.50         | -10.7 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9346 |         | 2.38        | 2.50         | -4.6  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0201 |         | 2.11        | 2.33         | -9.1  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9839 |         | 2.35        | 2.50         | -5.8  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9627 |         | 2.40        | 2.50         | -3.8  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.129  |         | 2.16        | 2.37         | -8.7  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2157 |         | 2.32        | 2.38         | -2.4  | 30.0   |



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-225690/2 Calibration Date: 05/25/2018 22:33  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.25LLAAXX\_004.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9157 |         | 2.42           | 2.50            | -3.3  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7687 |         | 2.16           | 2.39            | -9.6  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7903 |         | 2.55           | 2.50            | 2.0   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9769 |         | 2.19           | 2.50            | -12.2 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2543 |         | 2.42           | 2.40            | 1.1   | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6058 |         | 2.30           | 2.50            | -8.0  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4058 |         | 2.79           | 2.50            | 11.7  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.4935 |         | 2.36           | 2.50            | -5.4  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3857 |         | 2.59           | 2.50            | 3.4   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5087 |         | 2.27           | 2.50            | -9.4  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6320 |         | 2.29           | 2.50            | -8.3  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.188  |         | 2.54           | 2.50            | 1.6   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_004.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 25-May-2018 22:33:24 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 28-May-2018 09:31:50 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK008

First Level Reviewer: ruangyotsakul

Date: 28-May-2018 09:31:50

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                  |      |       |       |
| 212.90 > 169.00                       | 1.453 | 1.452  | 0.001  | 1.000  | 127021   | 0.0514       |                  | 103  | 82.8  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                  |      |       |       |
| 217.00 > 172.00                       | 1.453 | 1.460  | -0.007 | 1.000  | 6641118  | 2.23         |                  | 89.3 | 45316 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 262.90 > 219.00                       | 1.721 | 1.720  | 0.001  | 1.005  | 109520   | 0.0510       |                  | 102  | 72.1  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                  |      |       |       |
| 267.90 > 223.00                       | 1.712 | 1.724  | -0.012 | 0.563  | 4547011  | 2.38         |                  | 95.4 | 66867 |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                  |      |       |       |
| 298.90 > 80.00                        | 1.757 | 1.756  | 0.001  | 1.005  | 147212   | 0.0482       |                  | 109  | 865   |       |
| 298.90 > 99.00                        | 1.757 | 1.756  | 0.001  | 1.005  | 61253    |              | 2.40(1.25-3.74)  |      | 973   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                  |      |       |       |
| 301.90 > 83.00                        | 1.748 | 1.760  | -0.012 | 1.000  | 91026    | 2.11         |                  | 90.9 | 904   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                  |      |       |       |
| 327.00 > 307.00                       | 1.961 | 1.970  | -0.009 | 1.000  | 37164    | 0.0573       |                  | 123  | 2072  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 329.00 > 81.00                        | 1.961 | 1.975  | -0.014 | 1.000  | 765222   | NC           |                  |      | 9966  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                  |      |       |       |
| 313.00 > 269.00                       | 2.005 | 2.003  | 0.002  | 1.006  | 100784   | 0.0512       |                  | 102  | 213   |       |
| 313.00 > 119.00                       | 2.005 | 2.003  | 0.002  | 1.006  | 10248    |              | 9.83(5.03-15.10) |      | 138   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                  |      |       |       |
| 315.00 > 270.00                       | 1.993 | 2.020  | -0.027 | 1.000  | 4787015  | 2.35         |                  | 94.2 | 89539 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 349.00 > 80.00                        | 2.016 | 2.026  | -0.010 | 1.000  | 133471   | 0.0490       |                  | 105  | 1507  |       |
| 349.00 > 99.00                        | 2.016 | 2.026  | -0.010 | 1.000  | 42340    |              | 3.15(1.36-4.07)  |      | 1043  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                  |      |       |       |
| 329.10 > 285.00                       | 2.095 | 2.105  | -0.010 | 1.000  | 15258    | NC           |                  |      | 101   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.095 | 2.110  | -0.015 | 1.000  | 210807   | NC           |                 |      | 4280  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.334 | 2.333  | 0.001  | 1.006  | 94846    | 0.0479       |                 | 95.8 | 148   |       |
| 363.00 > 169.00                       | 2.321 | 2.333  | -0.012 | 1.000  | 37290    |              | 2.54(1.13-3.40) |      | 215   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.321 | 2.339  | -0.018 | 1.000  | 4683855  | 2.40         |                 | 96.2 | 61327 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.334 | 2.346  | -0.012 | 0.994  | 118968   | 0.0481       |                 | 106  | 855   |       |
| 399.00 > 99.00                        | 2.347 | 2.346  | 0.001  | 1.000  | 41431    |              | 2.87(1.50-4.49) |      | 289   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.347 | 2.366  | -0.019 | 1.000  | 5196396  | 2.16         |                 | 91.3 | 43155 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.372 | 2.372  | 0.0    | 1.000  | 288693   | NC           |                 |      | 3927  |       |
| 377.00 > 85.00                        | 2.372 | 2.372  | 0.0    | 1.000  | 154970   |              | 1.86(0.84-2.53) |      | 3164  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.653 | 2.660  | -0.007 | 1.000  | 38703    | 0.0423       |                 | 89.2 | 1305  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.653 | 2.675  | -0.022 | 1.000  | 996864   | 2.32         |                 | 97.6 | 20180 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.683 | 2.683  | 0.0    |        | 4865170  | 2.50         |                 |      | 50773 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.675 | 2.683  | -0.008 | 1.000  | 119630   | 0.0570       |                 | 114  | 43.1  |       |
| 413.00 > 169.00                       | 2.683 | 2.683  | 0.0    | 1.003  | 57890    |              | 2.07(0.84-2.52) |      | 217   |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.683 | 2.690  | -0.007 | 1.000  | 88748    | 0.0445       |                 | 93.6 | 892   |       |
| 449.00 > 99.00                        | 2.683 | 2.690  | -0.007 | 1.000  | 26299    |              | 3.37(1.94-5.82) |      | 868   |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.675 | 2.698  | -0.023 | 1.000  | 4454896  | 2.42         |                 | 96.7 | 51579 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.043 | 3.050  | -0.007 | 1.000  | 78726    | 0.0448       |                 | 96.5 | 770   |       |
| 499.00 > 99.00                        | 3.043 | 3.050  | -0.007 | 1.000  | 17663    |              | 4.46(2.31-6.93) |      | 272   |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.043 | 3.050  | -0.007 | 1.000  | 83652    | 0.0514       |                 | 103  | 279   |       |
| 463.00 > 169.00                       | 3.049 | 3.050  | -0.001 | 1.002  | 19300    |              | 4.33(1.90-5.69) |      | 300   |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.043 | 3.065  | -0.022 | 1.000  | 3575165  | 2.16         |                 | 90.4 | 26241 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.043 | 3.065  | -0.022 | 1.000  | 3844826  | 2.55         |                 | 102  | 70050 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.257 | 3.258  | -0.001 | 1.000  | 119167   | NC           |                 |      | 2378  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.395 | 3.387  | 0.008  | 1.000  | 94265    | 0.0509       |                 | 102  | 1828  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.385 | 3.396  | -0.011 | 1.000  | 54358    | 0.0480       |                 | 99.9 | 1197  |       |
| 549.00 > 99.00                        | 3.385 | 3.396  | -0.011 | 1.000  | 18727    |              | 2.90(1.33-3.97) |      | 750   |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.395 | 3.396  | -0.001 | 1.000  | 25837    | 0.0387       |                 | 80.8 | 982   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                  |      |       |       |
| 506.00 > 78.00                        | 3.395 | 3.397  | -0.002 | 1.000  | 4752984  | 2.19         |                  | 87.8 | 46508 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.404 | 3.415  | -0.011 | 1.000  | 60992    | 0.0532       |                  | 106  | 378   |       |
| 513.00 > 169.00                       | 3.404 | 3.415  | -0.011 | 1.000  | 12907    |              | 4.73(2.36-7.09)  |      | 337   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.395 | 3.416  | -0.021 | 1.000  | 1185040  | 2.42         |                  | 101  | 25123 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.404 | 3.425  | -0.021 | 1.000  | 2947224  | 2.30         |                  | 92.0 | 43896 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.562 | 3.564  | -0.002 | 1.003  | 36352    | 0.0454       |                  | 90.7 | 403   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.553 | 3.574  | -0.021 | 1.000  | 1974092  | 2.79         |                  | 112  | 26688 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.716 | 3.717  | -0.001 | 1.000  | 39602    | 0.0394       |                  | 81.8 | 557   |       |
| 599.00 > 99.00                        | 3.716 | 3.717  | -0.001 | 1.000  | 14486    |              | 2.73(1.39-4.16)  |      | 465   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.726 | 3.738  | -0.012 | 1.000  | 35051    | 0.0497       |                  | 99.4 | 767   |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.726 | 3.738  | -0.012 | 1.000  | 43696    | 0.0545       |                  | 109  | 293   |       |
| 563.00 > 169.00                       | 3.726 | 3.738  | -0.012 | 1.000  | 11030    |              | 3.96(2.12-6.36)  |      | 277   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.726 | 3.750  | -0.024 | 1.000  | 1876467  | 2.59         |                  | 103  | 19587 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.726 | 3.750  | -0.024 | 1.000  | 2400743  | 2.36         |                  | 94.6 | 62889 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.883 | 3.896  | -0.013 | 1.000  | 194767   | NC           |                  |      | 4514  |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.026 | 4.029  | -0.003 | 1.000  | 53998    | 0.0523       |                  | 105  | 77.0  |       |
| 613.00 > 169.00                       | 4.026 | 4.029  | -0.003 | 1.000  | 12252    |              | 4.41(2.13-6.40)  |      | 264   |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.026 | 4.051  | -0.025 | 1.000  | 2474836  | 2.27         |                  | 90.6 | 17045 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.279 | 4.292  | -0.013 | 1.000  | 58523    | 0.0517       |                  | 103  | 66.4  |       |
| 663.00 > 169.00                       | 4.279 | 4.292  | -0.013 | 1.000  | 18783    |              | 3.12(1.25-3.76)  |      | 367   |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.520 | 4.534  | -0.014 | 1.000  | 15517    | 0.0500       |                  | 99.9 | 247   |       |
| 713.00 > 219.00                       | 4.520 | 4.534  | -0.014 | 1.000  | 11261    |              | 1.38(0.71-2.13)  |      | 447   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.520 | 4.554  | -0.034 | 1.000  | 3074601  | 2.29         |                  | 91.7 | 15757 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.929 | 4.950  | -0.021 | 1.000  | 149519   | NC           |                  |      | 68.6  |       |
| 813.00 > 169.00                       | 4.929 | 4.950  | -0.021 | 1.000  | 25037    |              | 5.97(2.86-8.58)  |      | 332   |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.929 | 4.967  | -0.038 | 1.000  | 5780156  | 2.54         |                  | 102  | 13812 |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.283 | 5.307  | -0.024 | 1.000  | 121360   | NC           |                  |      | 39.6  |       |
| 913.00 > 169.00                       | 5.283 | 5.307  | -0.024 | 1.000  | 14525    |              | 8.36(3.83-11.48) |      | 221   |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_004.d

Injection Date: 25-May-2018 22:33:24

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

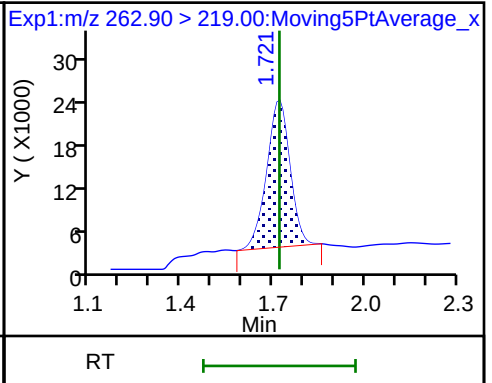
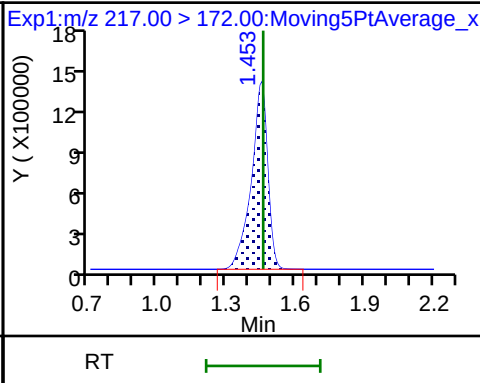
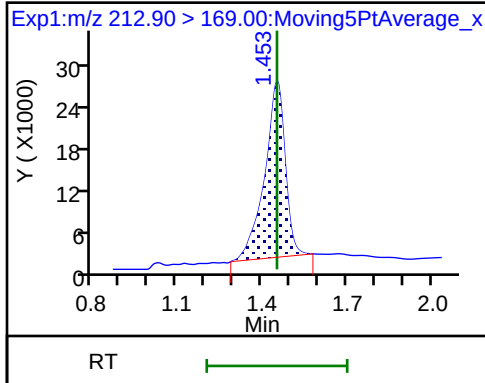
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

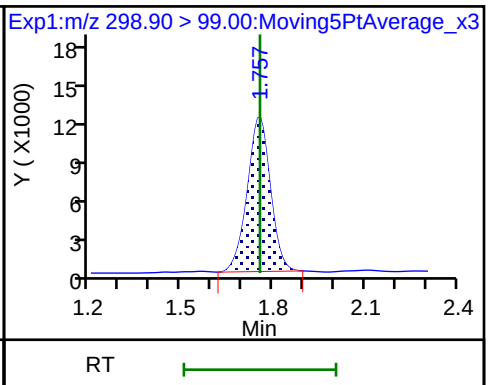
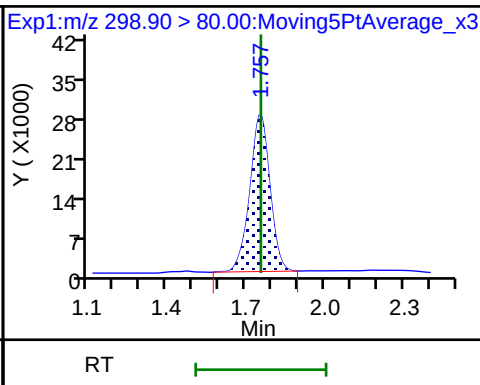
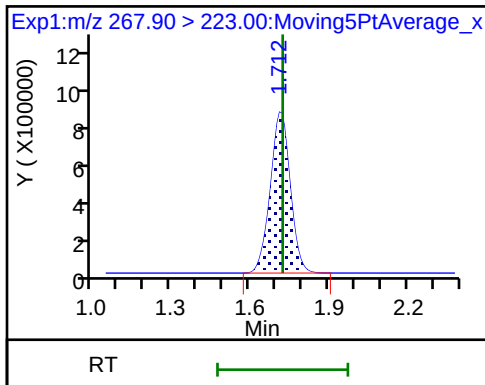
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

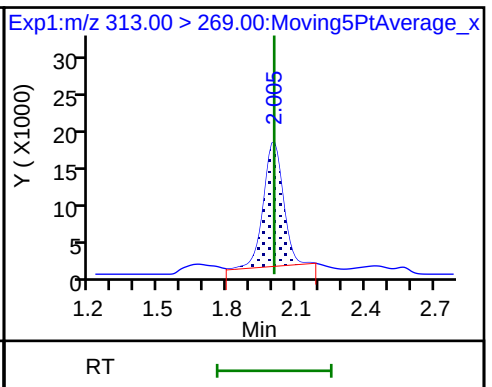
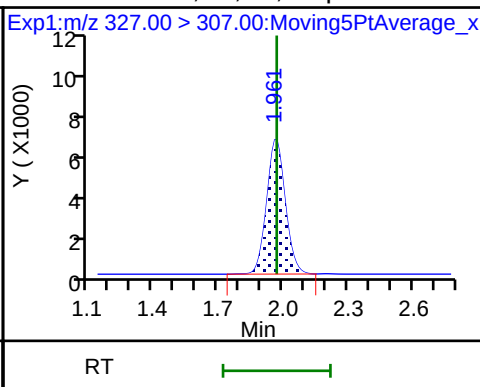
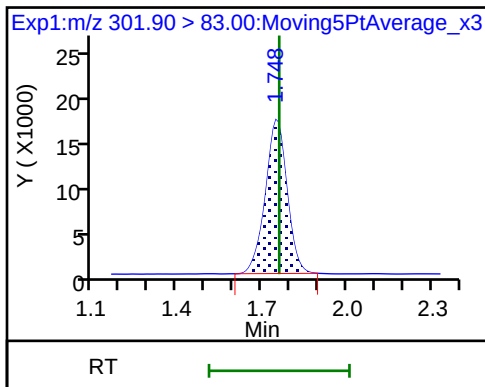
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoate

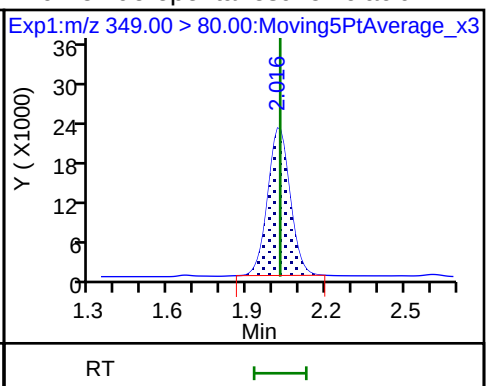
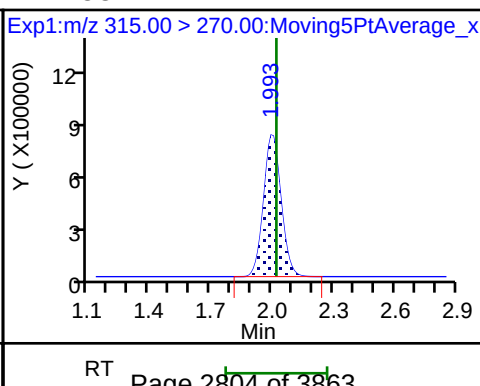
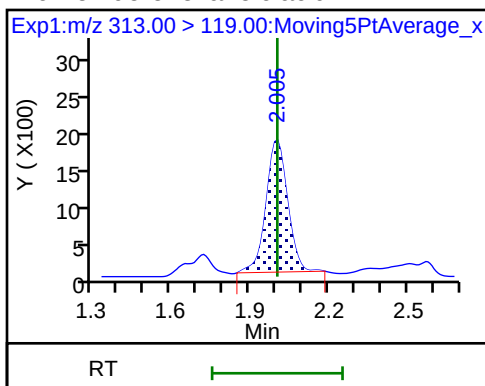
## 6 Perfluorohexanoic acid

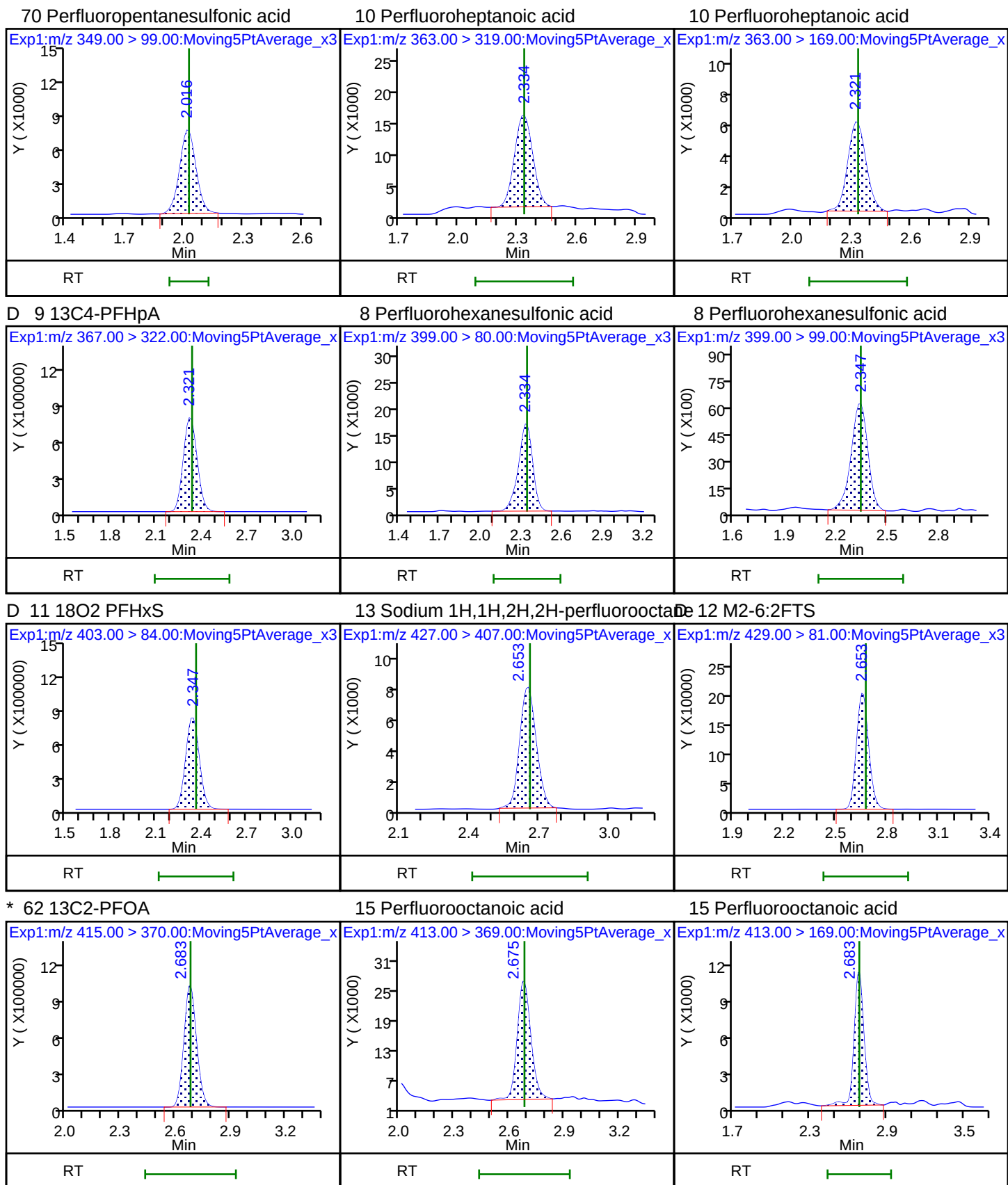


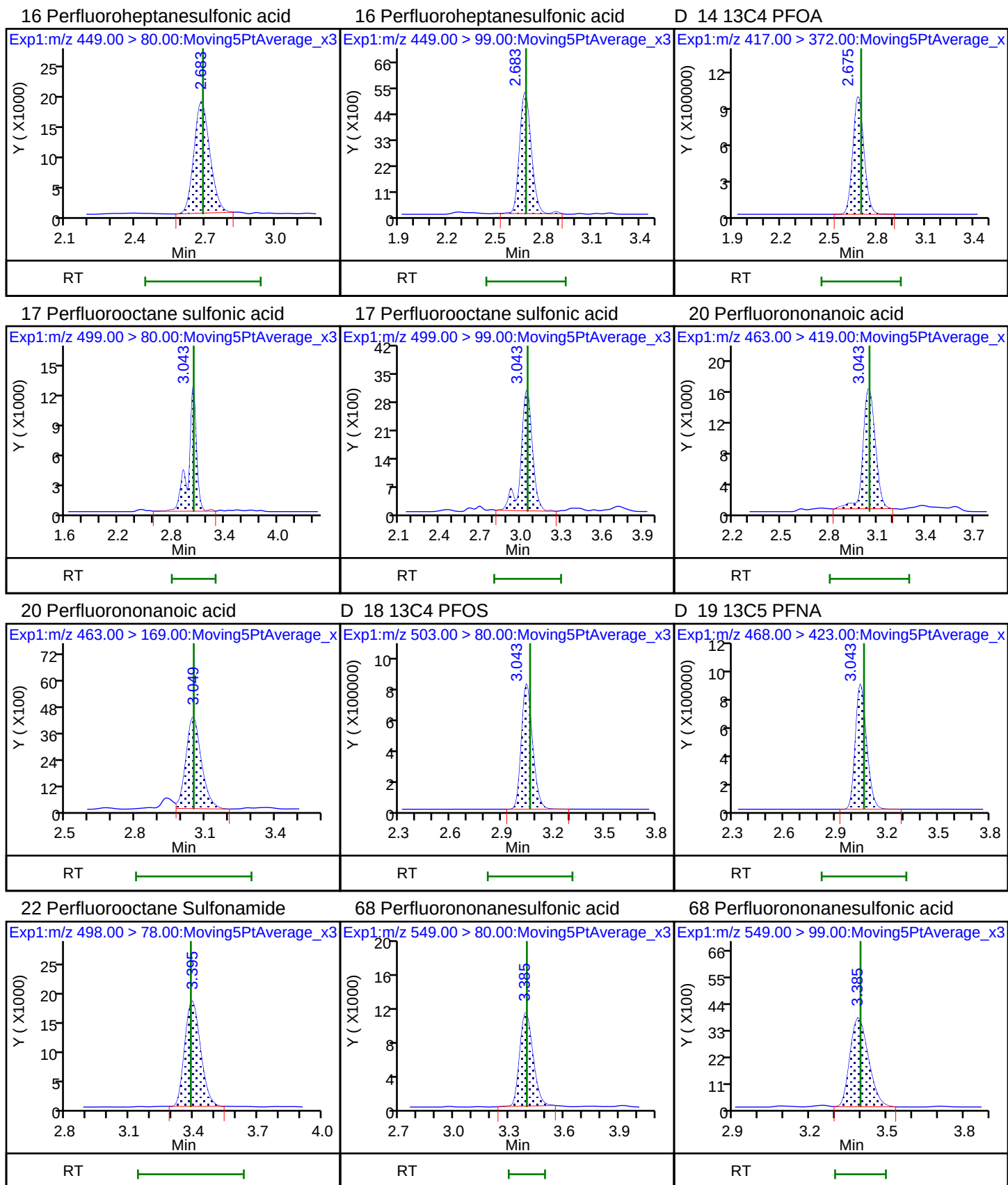
## 6 Perfluorohexanoic acid

## D 7 13C2 PFHxA

## 70 Perfluoropentanesulfonic acid









## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

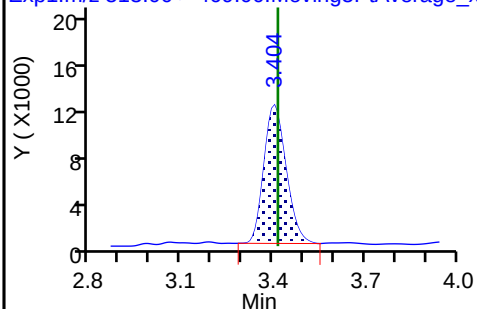
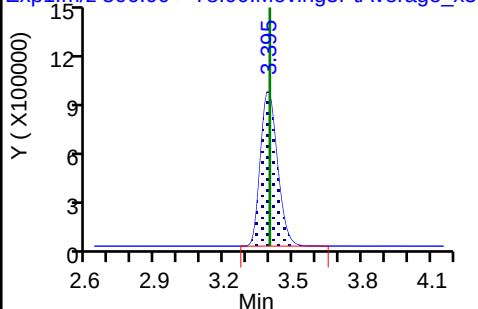
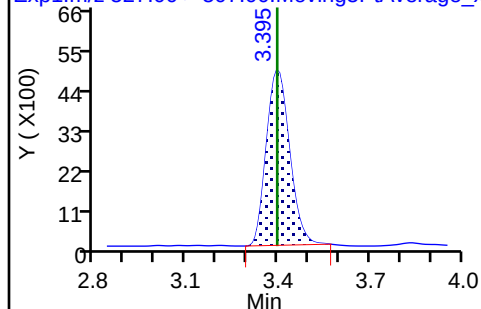
D 21 13C8 FOSA

## 24 Perfluorodecanoic acid

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x

Exp1:m/z 506.00 &gt; 78.00:Moving5PtAverage\_x3

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x



## 24 Perfluorodecanoic acid

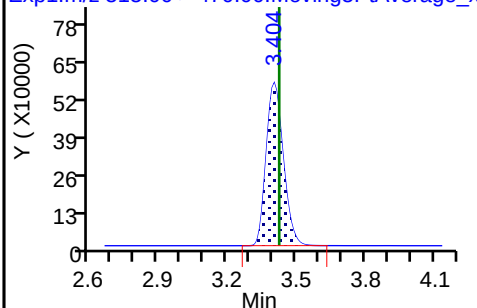
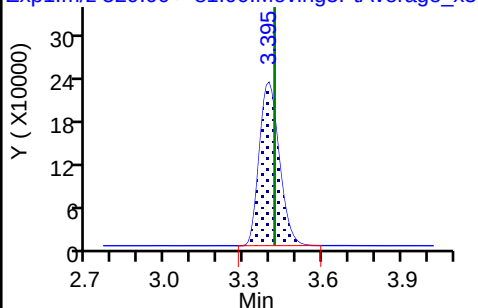
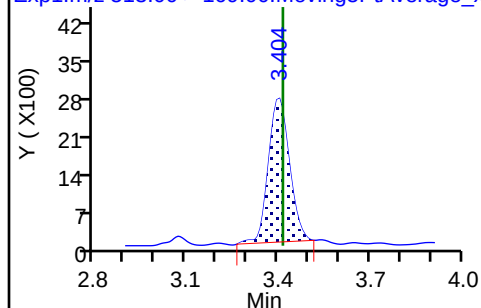
D 26 M2-8:2FTS

D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x



## 28 N-methyl perfluorooctane sulfonamid

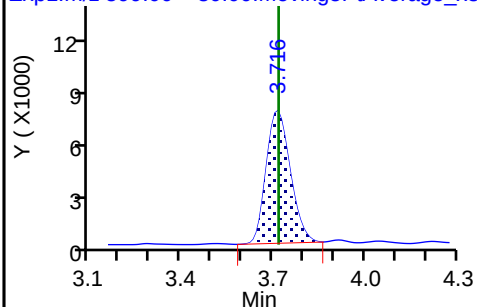
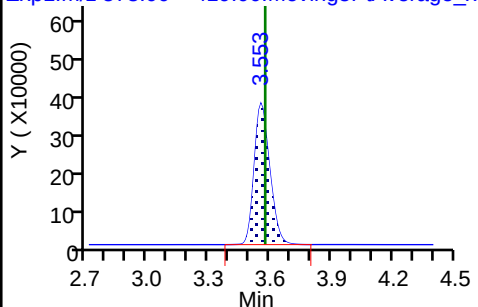
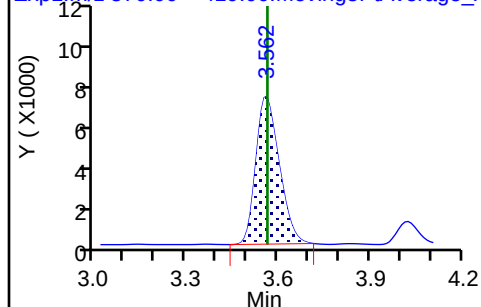
D 27 d3-NMeFOSAA

## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



## 29 Perfluorodecane Sulfonic acid

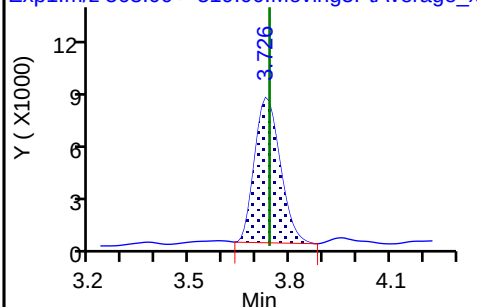
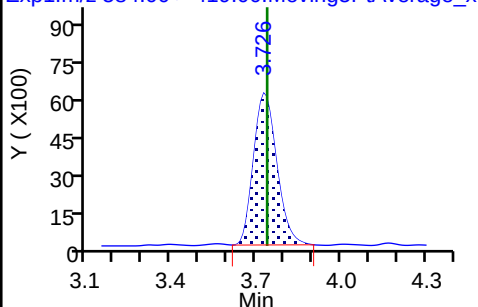
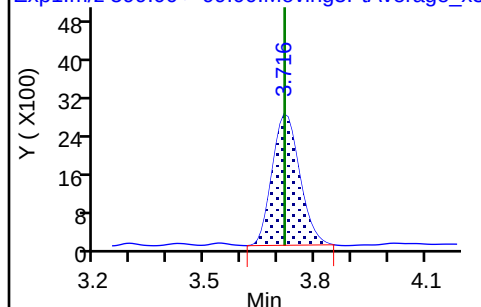
33 N-ethyl perfluorooctane sulfonamid

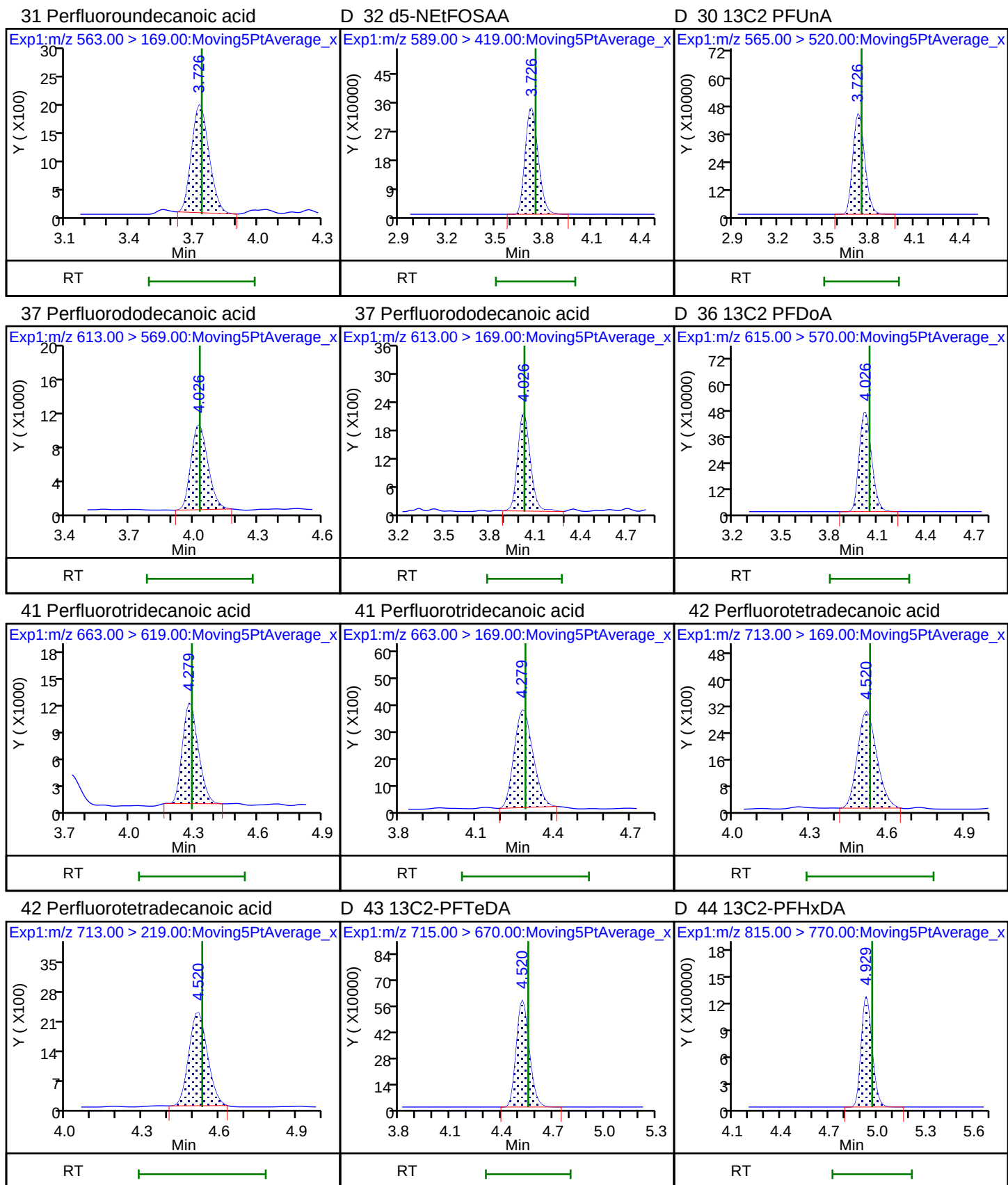
## 31 Perfluoroundecanoic acid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x

Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225690/3 Calibration Date: 05/25/2018 22:41

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.25LLAAXX\_030.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|------------------------------------------------------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| Perfluorobutanoic acid (PFBA)                              | AveID         | 0.9298  | 0.9562 |         | 2.57           | 2.50            | 2.8  | 30.0      |
| Perfluoropentanoic acid (PFPeA)                            | AveID         | 1.181   | 1.193  |         | 2.53           | 2.50            | 1.1  | 30.0      |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID         | 78.09   | 82.96  |         | 2.35           | 2.21            | 6.2  | 30.0      |
| 4:2 FTS                                                    | AveID         | 16.57   | 19.17  |         | 2.70           | 2.34            | 15.7 | 30.0      |
| Perfluorohexanoic acid (PFHxA)                             | AveID         | 1.028   | 1.006  |         | 2.45           | 2.50            | -2.1 | 30.0      |
| Perfluoropentanesulfonic acid                              | AveID         | 69.55   | 70.68  |         | 2.38           | 2.35            | 1.6  | 30.0      |
| Perfluoroheptanoic acid (PFHpA)                            | AveID         | 1.056   | 1.054  |         | 2.50           | 2.50            | -0.2 | 30.0      |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID         | 1.127   | 1.076  |         | 2.17           | 2.28            | -4.5 | 30.0      |
| 6:2FTS                                                     | L2ID          |         | 1.673  |         | 2.25           | 2.37            | -5.1 | 30.0      |
| Perfluorooctanoic acid (PFOA)                              | AveID         | 1.177   | 1.095  |         | 2.33           | 2.50            | -6.9 | 30.0      |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID         | 1.332   | 1.410  |         | 2.52           | 2.38            | 5.9  | 30.0      |
| Perfluorononanoic acid (PFNA)                              | AveID         | 1.059   | 1.051  |         | 2.48           | 2.50            | -0.7 | 30.0      |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID         | 1.176   | 1.118  |         | 2.21           | 2.32            | -4.9 | 30.0      |
| 8:2FTS                                                     | AveID         | 1.349   | 1.328  |         | 2.36           | 2.40            | -1.6 | 30.0      |
| Perfluorononanesulfonic acid                               | AveID         | 0.7575  | 0.7617 |         | 2.41           | 2.40            | 0.5  | 30.0      |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID         | 0.9736  | 1.048  |         | 2.69           | 2.50            | 7.6  | 30.0      |
| Perfluorodecanoic acid (PFDA)                              | AveID         | 0.9722  | 1.018  |         | 2.62           | 2.50            | 4.7  | 30.0      |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID         | 1.015   | 1.038  |         | 2.56           | 2.50            | 2.3  | 30.0      |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID         | 0.6714  | 0.6317 |         | 2.27           | 2.41            | -5.9 | 30.0      |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID         | 0.9400  | 0.9007 |         | 2.40           | 2.50            | -4.2 | 30.0      |
| Perfluoroundecanoic acid (PFUnA)                           | AveID         | 0.8352  | 0.8021 |         | 2.40           | 2.50            | -4.0 | 30.0      |
| Perfluorododecanoic acid (PFDoA)                           | AveID         | 1.044   | 1.097  |         | 2.63           | 2.50            | 5.1  | 30.0      |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID         | 1.144   | 1.214  |         | 2.65           | 2.50            | 6.1  | 30.0      |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID         | 0.2525  | 0.2642 |         | 2.62           | 2.50            | 4.6  | 30.0      |
| 13C4 PFBA                                                  | Ave           | 1.528   | 1.461  |         | 2.39           | 2.50            | -4.4 | 30.0      |
| 13C5-PFPeA                                                 | Ave           | 0.9798  | 0.9694 |         | 2.47           | 2.50            | -1.1 | 30.0      |
| 13C3-PFBS                                                  | Ave           | 0.0221  | 0.0213 |         | 2.24           | 2.33            | -3.7 | 30.0      |
| 13C2 PFHxA                                                 | Ave           | 1.045   | 1.058  |         | 2.53           | 2.50            | 1.2  | 30.0      |
| 13C4-PFHpA                                                 | Ave           | 1.001   | 0.9784 |         | 2.44           | 2.50            | -2.3 | 30.0      |
| 18O2 PFHxS                                                 | Ave           | 1.237   | 1.182  |         | 2.26           | 2.37            | -4.5 | 30.0      |
| M2-6:2FTS                                                  | Ave           | 0.2210  | 0.2298 |         | 2.47           | 2.38            | 4.0  | 30.0      |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225690/3 Calibration Date: 05/25/2018 22:41  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.25LLAAXX\_030.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9668 |         | 2.55           | 2.50            | 2.1  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8086 |         | 2.27           | 2.39            | -4.9 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7953 |         | 2.57           | 2.50            | 2.7  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.014  |         | 2.28           | 2.50            | -8.8 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2483 |         | 2.36           | 2.40            | -1.3 | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6384 |         | 2.42           | 2.50            | -3.1 | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4065 |         | 2.80           | 2.50            | 11.9 | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4127 |         | 2.77           | 2.50            | 10.7 | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5109 |         | 2.45           | 2.50            | -2.1 | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5277 |         | 2.35           | 2.50            | -6.0 | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6487 |         | 2.35           | 2.50            | -5.9 | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.241  |         | 2.65           | 2.50            | 6.1  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_030.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 25-May-2018 22:41:12 ALS Bottle#: 14 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 26-May-2018 13:21:46 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK022

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.458 | 1.460  | -0.002 | 1.000  | 7387694  | 2.39         |                   | 95.6 | 41881  |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.458 | 1.458  | 0.0    | 1.000  | 7063850  | 2.57         |                   | 103  | 4446   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.720 | 1.724  | -0.004 | 0.564  | 4903385  | 2.47         |                   | 98.9 | 78019  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.729 | 1.729  | 0.0    | 1.005  | 5849518  | 2.53         |                   | 101  | 4625   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.756 | 1.760  | -0.004 | 1.000  | 100301   | 2.24         |                   | 96.3 | 1066   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.005  | 7909557  | 2.35         |                   | 106  | 43948  |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.005  | 3259099  |              | 2.43(1.25-3.74)   |      | 47646  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 1930913  | 2.70         |                   | 116  | 112297 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.970 | 1.975  | -0.005 | 1.000  | 843836   | NC           |                   |      | 8655   |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 5383230  | 2.45         |                   | 97.9 | 12361  |       |
| 313.00 > 119.00                       | 2.004 | 2.004  | 0.0    | 1.000  | 490706   |              | 10.97(5.03-15.10) |      | 8249   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.004 | 2.020  | -0.016 | 1.000  | 5349991  | 2.53         |                   | 101  | 70385  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 7150281  | 2.38         |                   | 102  | 86798  |       |
| 349.00 > 99.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 2763520  |              | 2.59(1.36-4.07)   |      | 52459  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |        |       |
| 329.10 > 285.00                       | 2.105 | 2.105  | 0.0    | 1.000  | 787924   | NC           |                   |      | 5538   |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |        |       |
| 332.10 > 287.00                       | 2.105 | 2.110  | -0.005 | 1.000  | 223926   | NC           |                   |      | 4155   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 5217126  | 2.50         |                 | 99.8 | 7815  |       |
| 363.00 > 169.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 2114451  |              | 2.47(1.13-3.40) |      | 10266 |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.333 | 2.339  | -0.006 | 1.000  | 4948790  | 2.44         |                 | 97.7 | 78862 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 5852231  | 2.17         |                 | 95.5 | 20725 |       |
| 399.00 > 99.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 1939286  |              | 3.02(1.50-4.49) |      | 10731 |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.346 | 2.366  | -0.020 | 1.000  | 5653891  | 2.26         |                 | 95.5 | 64242 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.385 | 2.385  | 0.0    | 1.000  | 15526505 | NC           |                 |      | 97375 |       |
| 377.00 > 85.00                        | 2.373 | 2.385  | -0.012 | 0.995  | 9686328  |              | 1.60(0.84-2.53) |      | 88059 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.660 | 2.660  | 0.0    | 1.000  | 1843038  | 2.25         |                 | 94.9 | 38475 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.660 | 2.675  | -0.015 | 1.000  | 1104231  | 2.47         |                 | 104  | 22886 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.683 | 2.683  | 0.0    |        | 5057959  | 2.50         |                 |      | 45608 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.683 | 2.683  | 0.0    | 1.000  | 5356365  | 2.33         |                 | 93.1 | 2062  |       |
| 413.00 > 169.00                       | 2.683 | 2.683  | 0.0    | 1.000  | 2878998  |              | 1.86(0.84-2.52) |      | 13196 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.690 | 2.690  | 0.0    | 1.000  | 5491091  | 2.52         |                 | 106  | 30442 |       |
| 449.00 > 99.00                        | 2.690 | 2.690  | 0.0    | 1.000  | 1444286  |              | 3.80(1.94-5.82) |      | 30233 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.683 | 2.698  | -0.015 | 1.000  | 4889963  | 2.55         |                 | 102  | 53802 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.050 | 3.050  | 0.0    | 1.000  | 4244211  | 2.21         |                 | 95.1 | 25154 |       |
| 499.00 > 99.00                        | 3.050 | 3.050  | 0.0    | 1.000  | 904119   |              | 4.69(2.31-6.93) |      | 15394 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.050 | 3.050  | 0.0    | 1.000  | 4229204  | 2.48         |                 | 99.3 | 17155 |       |
| 463.00 > 169.00                       | 3.057 | 3.050  | 0.007  | 1.002  | 1001302  |              | 4.22(1.90-5.69) |      | 42473 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.050 | 3.065  | -0.015 | 1.000  | 3909978  | 2.27         |                 | 95.1 | 27258 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.050 | 3.065  | -0.015 | 1.000  | 4022351  | 2.57         |                 | 103  | 61083 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.258 | 3.258  | 0.0    | 1.000  | 7339096  | NC           |                 |      | 50663 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 5377530  | 2.69         |                 | 108  | 43786 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.396 | 3.397  | -0.001 | 1.000  | 5131099  | 2.28         |                 | 91.2 | 45689 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 2990481  | 2.41         |                 | 101  | 29442 |       |
| 549.00 > 99.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 1098541  |              | 2.72(1.33-3.97) |      | 30318 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.396 | 3.396  | 0.0    | 1.000  | 1597614  | 2.36         |                 | 98.4 | 37713 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.405 | 3.405  | 0.0    | 1.000  | 3287585  | 2.62         |                  | 105  | 15177 |       |
| 513.00 > 169.00                       | 3.415 | 3.405  | 0.010  | 1.003  | 599033   |              | 5.49(2.36-7.09)  |      | 19443 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.396 | 3.416  | -0.020 | 1.000  | 1203013  | 2.36         |                  | 98.7 | 18980 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.405 | 3.425  | -0.020 | 1.000  | 3228761  | 2.42         |                  | 96.9 | 41411 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.564 | 3.564  | 0.0    | 1.000  | 2133995  | 2.56         |                  | 102  | 13644 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.564 | 3.574  | -0.010 | 1.000  | 2056180  | 2.80         |                  | 112  | 27405 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.717 | 3.717  | 0.0    | 1.000  | 2490566  | 2.27         |                  | 94.1 | 26705 |       |
| 599.00 > 99.00                        | 3.717 | 3.717  | 0.0    | 1.000  | 838024   |              | 2.97(1.39-4.16)  |      | 17034 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.738 | 3.738  | 0.0    | 1.003  | 1880006  | 2.40         |                  | 95.8 | 33832 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.738 | 3.738  | 0.0    | 1.000  | 2072712  | 2.40         |                  | 96.0 | 14973 |       |
| 563.00 > 169.00                       | 3.738 | 3.738  | 0.0    | 1.000  | 539972   |              | 3.84(2.12-6.36)  |      | 13843 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.728 | 3.750  | -0.022 | 1.000  | 2087185  | 2.77         |                  | 111  | 26575 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.738 | 3.750  | -0.012 | 1.000  | 2584157  | 2.45         |                  | 97.9 | 46468 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.896 | 3.896  | 0.0    | 1.000  | 10831286 | NC           |                  |      | 91685 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.029 | 4.029  | 0.0    | 1.000  | 2928882  | 2.63         |                  | 105  | 3600  |       |
| 613.00 > 169.00                       | 4.029 | 4.029  | 0.0    | 1.000  | 702452   |              | 4.17(2.13-6.40)  |      | 11044 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.029 | 4.051  | -0.022 | 1.000  | 2669070  | 2.35         |                  | 94.0 | 17773 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.290 | 4.290  | 0.0    | 1.000  | 3239678  | 2.65         |                  | 106  | 3224  |       |
| 663.00 > 169.00                       | 4.290 | 4.290  | 0.0    | 1.000  | 1017799  |              | 3.18(1.25-3.76)  |      | 12211 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.532 | 4.532  | 0.0    | 1.002  | 866759   | 2.62         |                  | 105  | 9548  |       |
| 713.00 > 219.00                       | 4.522 | 4.532  | -0.010 | 1.000  | 619546   |              | 1.40(0.71-2.13)  |      | 12966 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.522 | 4.554  | -0.032 | 1.000  | 3281146  | 2.35         |                  | 94.1 | 17519 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.940 | 4.940  | 0.0    | 1.000  | 5886651  | NC           |                  |      | 2278  |       |
| 813.00 > 169.00                       | 4.940 | 4.940  | 0.0    | 1.000  | 937355   |              | 6.28(2.86-8.58)  |      | 7334  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.940 | 4.967  | -0.027 | 1.000  | 6274497  | 2.65         |                  | 106  | 14677 |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.292 | 5.292  | 0.0    | 1.000  | 6824336  | NC           |                  |      | 1698  |       |
| 913.00 > 169.00                       | 5.292 | 5.292  | 0.0    | 1.000  | 835460   |              | 8.17(3.83-11.48) |      | 5119  |       |



[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_030.d

Injection Date: 25-May-2018 22:41:12

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

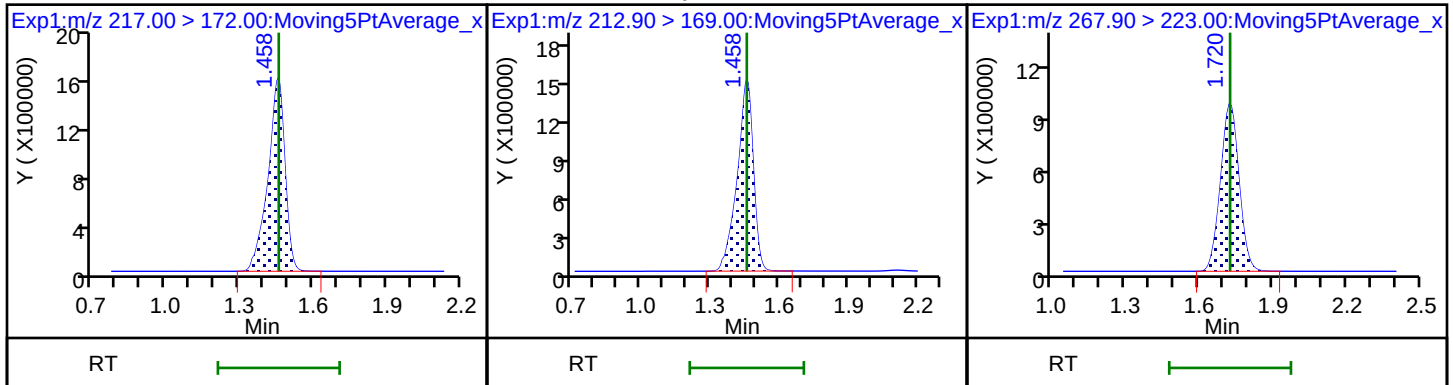
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

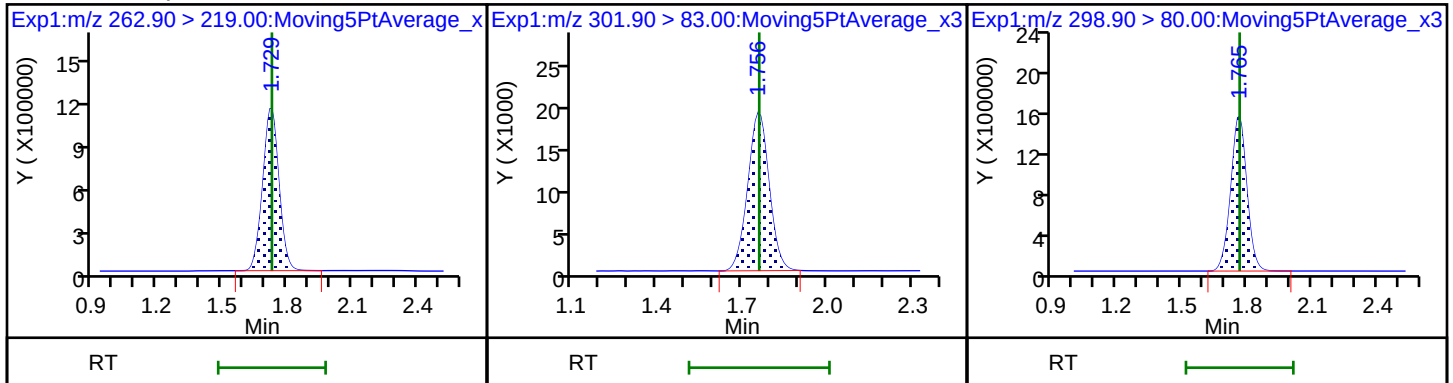
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

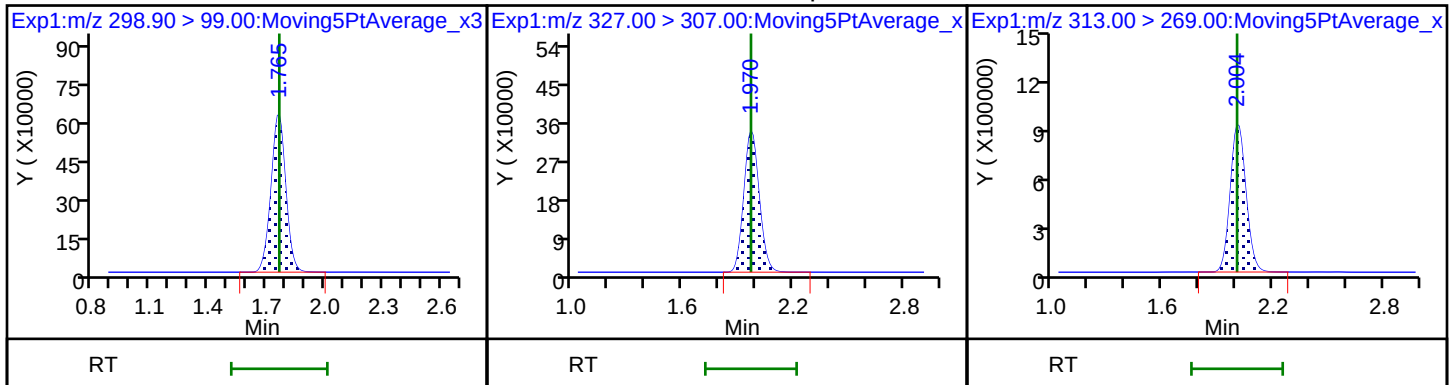
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

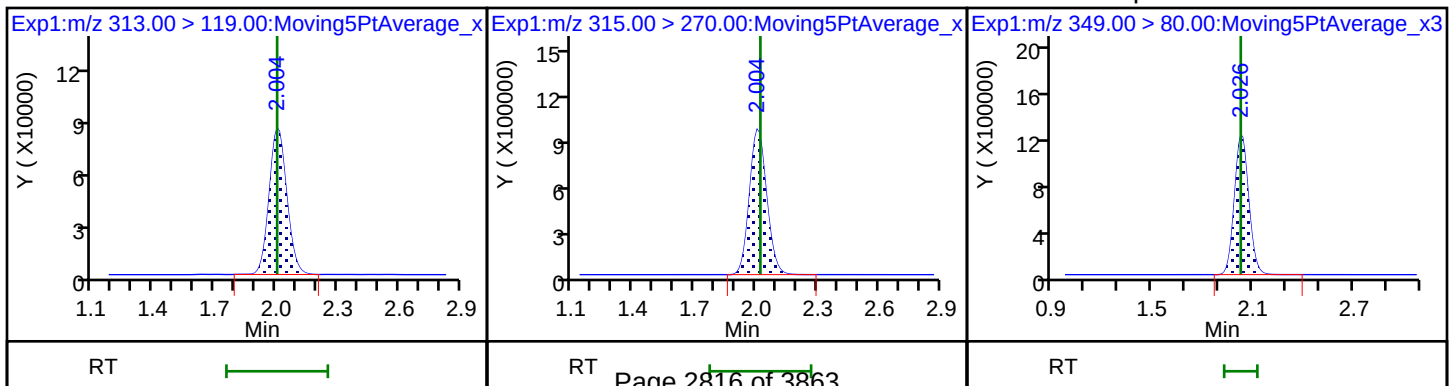
6 Perfluorohexanoic acid

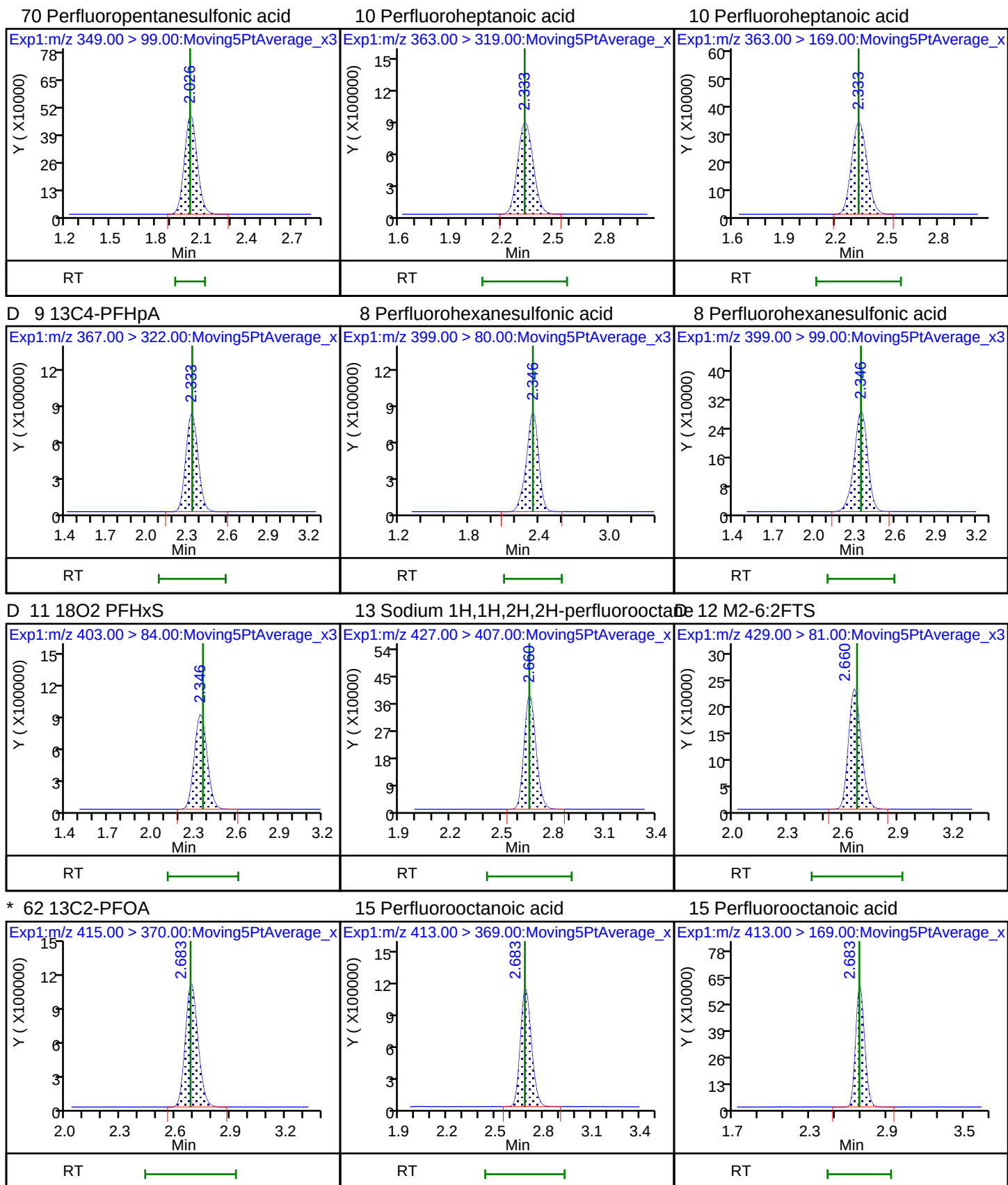


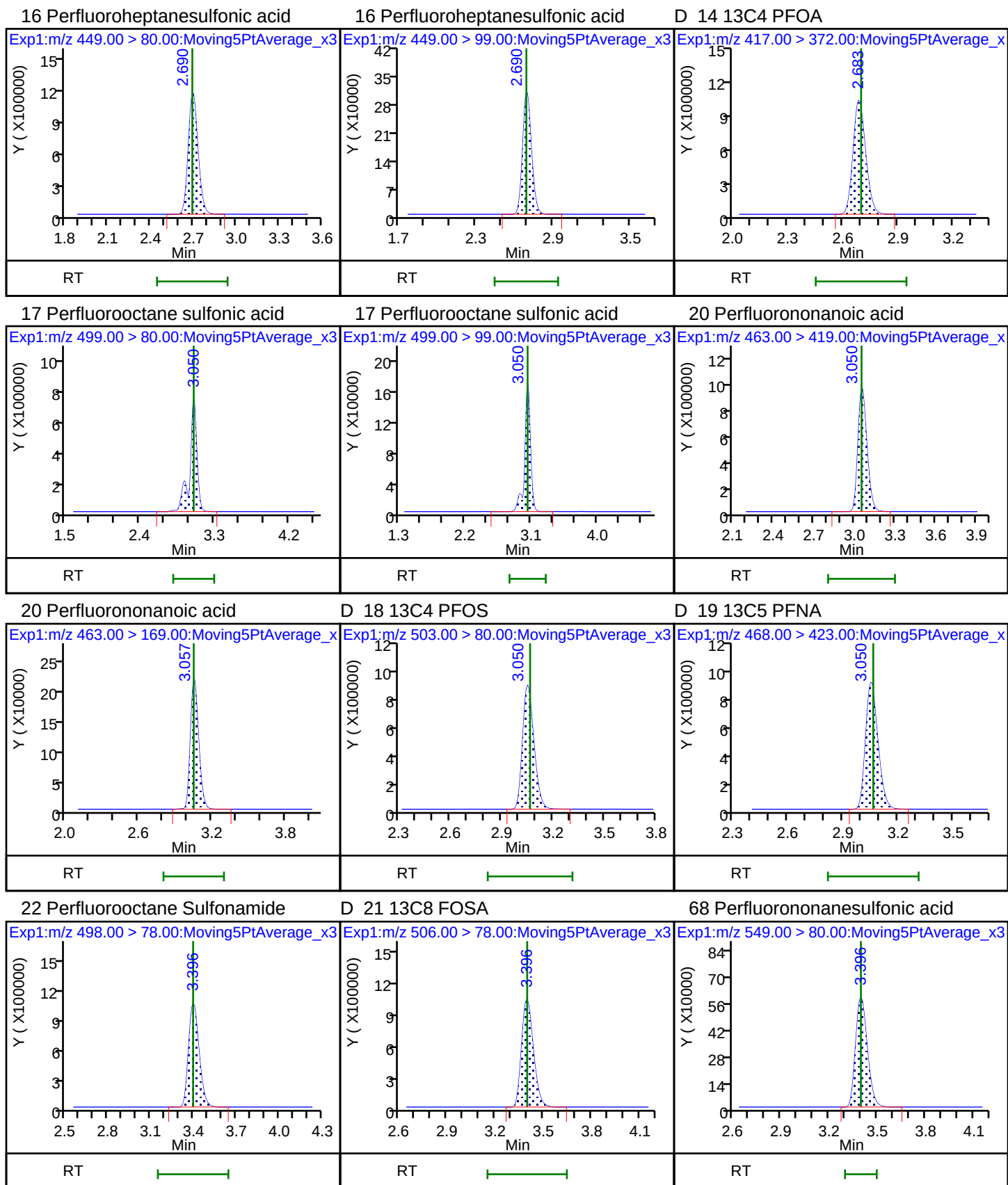
6 Perfluorohexanoic acid

D 7 13C2 PFHxA

70 Perfluoropentanesulfonic acid







68 Perfluorononanesulfonic acid

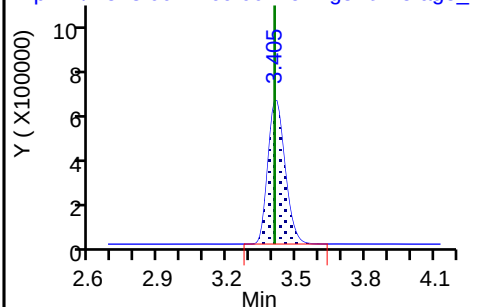
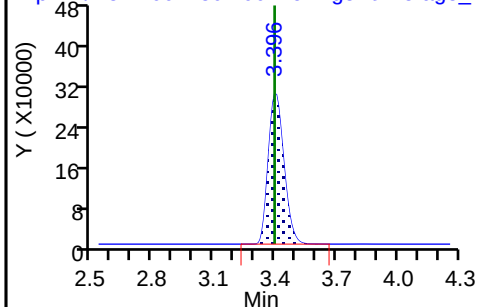
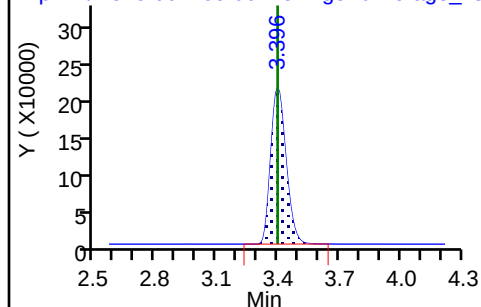
25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl sulfonate

24 Perfluorodecanoic acid

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



24 Perfluorodecanoic acid

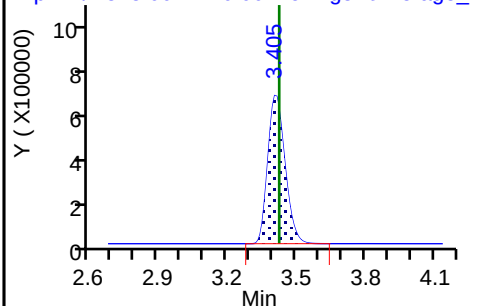
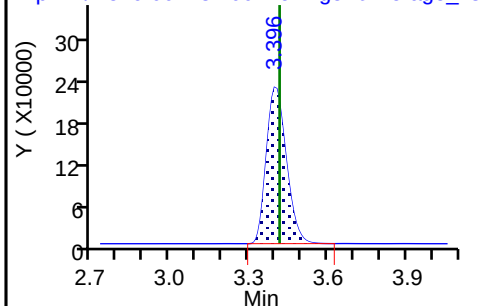
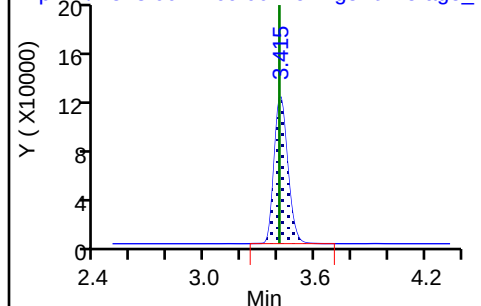
D 26 M2-8:2FTS

D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



28 N-methyl perfluorooctane sulfonamid

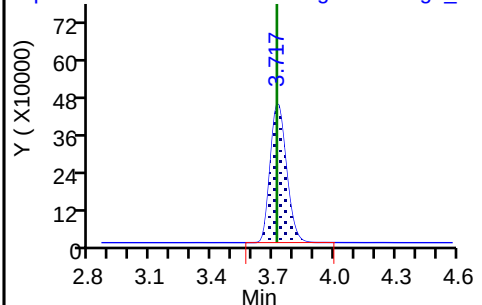
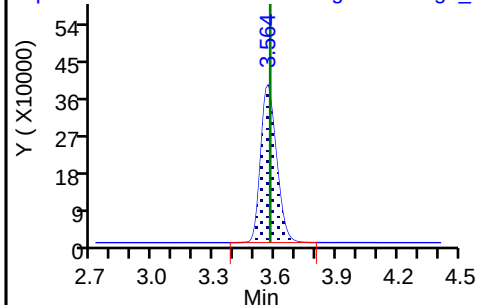
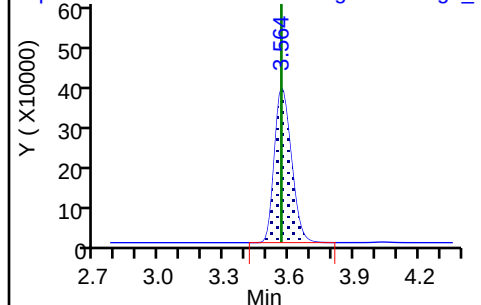
D 27 d3-NMeFOSAA

29 Perfluorodecane Sulfonic acid

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



29 Perfluorodecane Sulfonic acid

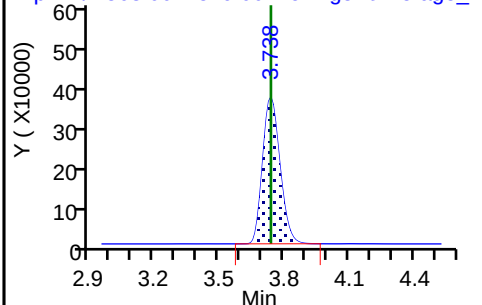
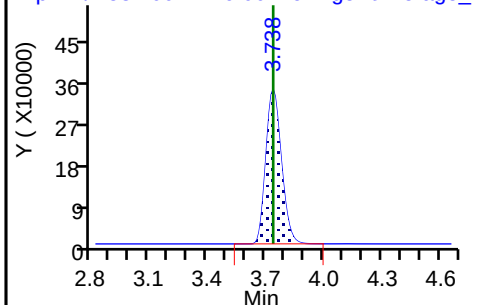
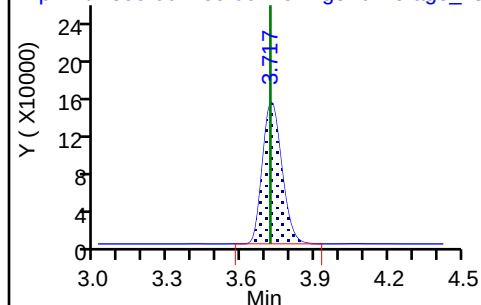
33 N-ethyl perfluorooctane sulfonamid

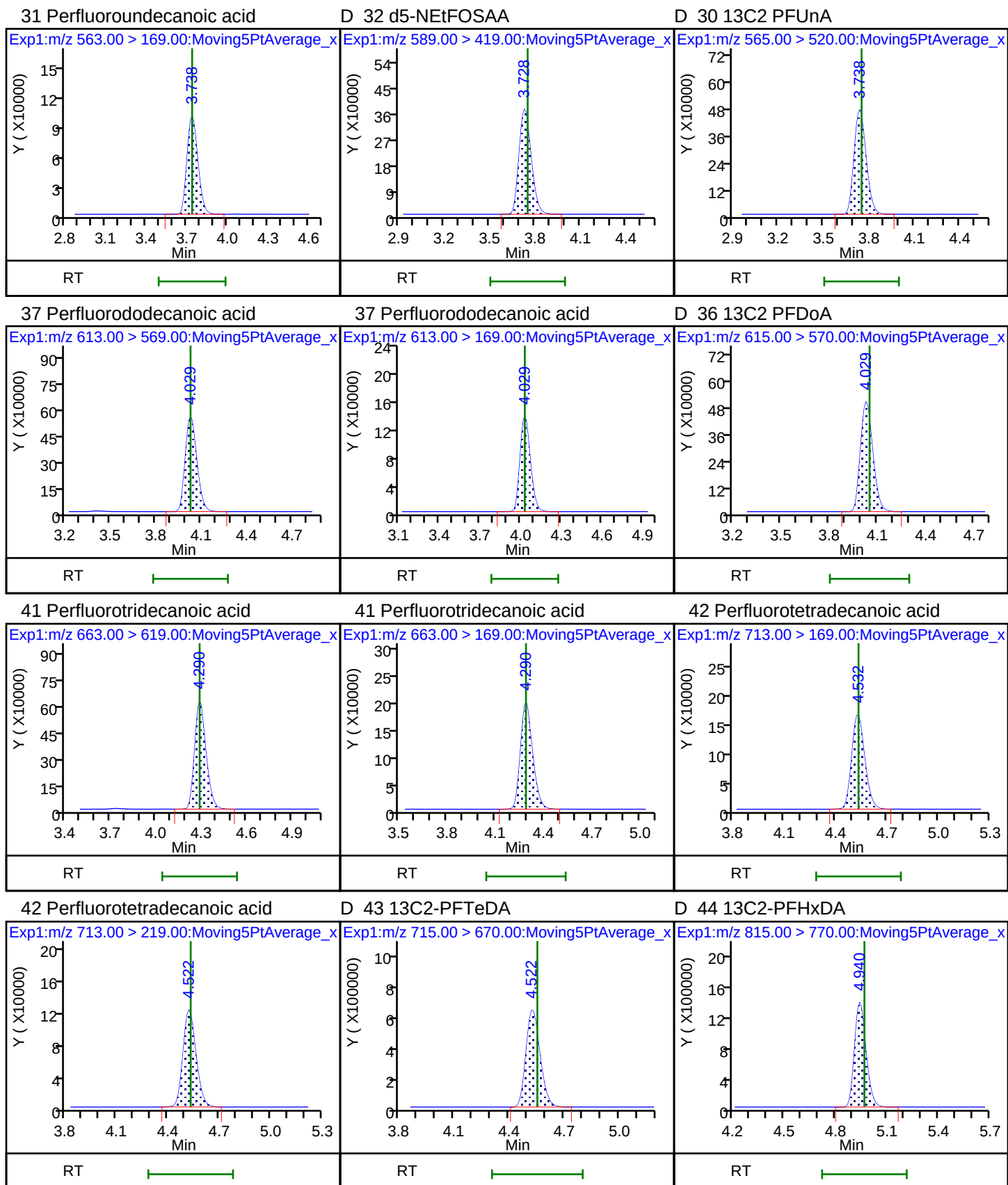
31 Perfluoroundecanoic acid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x3







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225690/14 Calibration Date: 05/26/2018 00:07

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.25LLAAXX\_041.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9119 |         | 0.981       | 1.00         | -1.9  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.118  |         | 0.947       | 1.00         | -5.3  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 78.31  |         | 0.886       | 0.884        | 0.3   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 17.70  |         | 0.997       | 0.934        | 6.8   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.034  |         | 1.01        | 1.00         | 0.6   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 68.18  |         | 0.920       | 0.938        | -2.0  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.020  |         | 0.965       | 1.00         | -3.5  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.017  |         | 0.822       | 0.910        | -9.7  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.600  |         | 0.854       | 0.948        | -9.9  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.071  |         | 0.910       | 1.00         | -9.0  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.325  |         | 0.947       | 0.952        | -0.5  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.014  |         | 0.957       | 1.00         | -4.3  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.048  |         | 0.827       | 0.928        | -10.8 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.009  |         | 1.04        | 1.00         | 3.7   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.174  |         | 0.834       | 0.958        | -13.0 | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7334 |         | 0.929       | 0.960        | -3.2  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9752 |         | 1.00        | 1.00         | 0.3   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.032  |         | 1.02        | 1.00         | 1.7   | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.5958 |         | 0.855       | 0.964        | -11.3 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9241 |         | 0.983       | 1.00         | -1.7  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7997 |         | 0.957       | 1.00         | -4.3  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.003  |         | 0.961       | 1.00         | -3.9  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.163  |         | 1.02        | 1.00         | 1.7   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2646 |         | 1.05        | 1.00         | 4.8   | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.372  |         | 2.24        | 2.50         | -10.2 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9170 |         | 2.34        | 2.50         | -6.4  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0198 |         | 2.08        | 2.33         | -10.7 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9909 |         | 2.37        | 2.50         | -5.2  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9259 |         | 2.31        | 2.50         | -7.5  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.125  |         | 2.15        | 2.37         | -9.1  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2237 |         | 2.40        | 2.38         | 1.3   | 30.0   |



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225690/14 Calibration Date: 05/26/2018 00:07  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.25LLAAXX\_041.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9076 |         | 2.40           | 2.50            | -4.1  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7776 |         | 2.19           | 2.39            | -8.5  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7608 |         | 2.46           | 2.50            | -1.8  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9673 |         | 2.17           | 2.50            | -13.1 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2410 |         | 2.29           | 2.40            | -4.2  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6081 |         | 2.31           | 2.50            | -7.7  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3730 |         | 2.57           | 2.50            | 2.7   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3736 |         | 2.50           | 2.50            | 0.2   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.4807 |         | 2.30           | 2.50            | -7.8  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5223 |         | 2.33           | 2.50            | -7.0  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6338 |         | 2.30           | 2.50            | -8.0  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.208  |         | 2.58           | 2.50            | 3.3   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_041.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 26-May-2018 00:07:15 ALS Bottle#: 13 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 26-May-2018 13:22:13 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK022

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.463 | 1.463  | 0.0    | 1.004  | 2619905  | 0.9807       |                   | 98.1 | 1688  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.457 | 1.460  | -0.003 | 1.000  | 7182973  | 2.24         |                   | 89.8 | 38487 |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.729 | 1.724  | 0.005  | 0.566  | 4799112  | 2.34         |                   | 93.6 | 70342 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.729 | 1.729  | 0.0    | 1.000  | 2145764  | 0.9469       |                   | 94.7 | 1492  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.756 | 1.760  | -0.004 | 1.000  | 96228    | 2.08         |                   | 89.3 | 909   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.005  | 2865093  | 0.8865       |                   | 100  | 18756 |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.005  | 1191048  |              | 2.41(1.25-3.74)   |      | 14957 |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 684191   | 1.00         |                   | 107  | 39127 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.975  | -0.005 | 1.000  | 796677   | NC           |                   |      | 7978  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 2145557  | 1.01         |                   | 101  | 4915  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 185372   |              | 11.57(5.03-15.10) |      | 3155  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.020  | -0.006 | 1.000  | 5185909  | 2.37         |                   | 94.8 | 73533 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.037 | 2.037  | 0.0    | 1.000  | 2646828  | 0.9196       |                   | 98.0 | 31917 |       |
| 349.00 > 99.00                        | 2.025 | 2.037  | -0.012 | 0.994  | 1018701  |              | 2.60(1.36-4.07)   |      | 24468 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.104 | 2.104  | 0.0    | 1.000  | 284050   | NC           |                   |      | 2159  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.104 | 2.110  | -0.006 | 1.000  | 229224   | NC           |                   |      | 6393  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.332 | 2.332  | 0.0    | 1.000  | 1976104  | 0.9652       |                 | 96.5 | 2782  |       |
| 363.00 > 169.00                       | 2.332 | 2.332  | 0.0    | 1.000  | 763440   |              | 2.59(1.13-3.40) |      | 4271  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.332 | 2.339  | -0.007 | 1.000  | 4845504  | 2.31         |                 | 92.5 | 69719 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.345 | 2.345  | 0.0    | 1.000  | 2180359  | 0.8215       |                 | 90.3 | 11577 |       |
| 399.00 > 99.00                        | 2.345 | 2.345  | 0.0    | 1.000  | 752333   |              | 2.90(1.50-4.49) |      | 5702  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.345 | 2.366  | -0.021 | 1.000  | 5570367  | 2.15         |                 | 90.9 | 55126 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.384 | 2.384  | 0.0    | 1.000  | 6030848  | NC           |                 |      | 55603 |       |
| 377.00 > 85.00                        | 2.384 | 2.384  | 0.0    | 1.000  | 3560018  |              | 1.69(0.84-2.53) |      | 49011 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.667 | 2.667  | 0.0    | 1.000  | 710281   | 0.8539       |                 | 90.1 | 14631 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.667 | 2.675  | -0.008 | 1.000  | 1112345  | 2.40         |                 | 101  | 20910 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.690 | 2.690  | 0.0    |        | 5233525  | 2.50         |                 |      | 65054 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.690 | 2.690  | 0.0    | 1.000  | 2034712  | 0.9099       |                 | 91.0 | 912   |       |
| 413.00 > 169.00                       | 2.690 | 2.690  | 0.0    | 1.000  | 1124579  |              | 1.81(0.84-2.52) |      | 4402  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.697 | 2.697  | 0.0    | 1.000  | 2053877  | 0.9473       |                 | 99.5 | 15867 |       |
| 449.00 > 99.00                        | 2.697 | 2.697  | 0.0    | 1.000  | 575238   |              | 3.57(1.94-5.82) |      | 13069 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.690 | 2.698  | -0.008 | 1.000  | 4749905  | 2.40         |                 | 95.9 | 54553 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.055 | 3.055  | 0.0    | 1.000  | 1583806  | 0.8275       |                 | 89.2 | 15943 |       |
| 499.00 > 99.00                        | 3.055 | 3.055  | 0.0    | 1.000  | 366374   |              | 4.32(2.31-6.93) |      | 9716  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.055 | 3.055  | 0.0    | 1.000  | 1614255  | 0.9569       |                 | 95.7 | 5517  |       |
| 463.00 > 169.00                       | 3.055 | 3.055  | 0.0    | 1.000  | 390331   |              | 4.14(1.90-5.69) |      | 10471 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.055 | 3.065  | -0.010 | 1.000  | 3890579  | 2.19         |                 | 91.5 | 24783 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.055 | 3.065  | -0.010 | 1.000  | 3981552  | 2.46         |                 | 98.2 | 52880 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.261 | 3.261  | 0.0    | 1.000  | 2760705  | NC           |                 |      | 51542 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.391 | 3.391  | 0.0    | 1.000  | 2044155  | 1.04         |                 | 104  | 36127 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.401 | 3.401  | 0.0    | 1.000  | 567487   | 0.8337       |                 | 87.0 | 17787 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.401 | 3.401  | 0.0    | 1.000  | 1146033  | 0.9294       |                 | 96.8 | 24862 |       |
| 549.00 > 99.00                        | 3.401 | 3.401  | 0.0    | 1.000  | 423041   |              | 2.71(1.33-3.97) |      | 11887 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.391 | 3.397  | -0.006 | 1.000  | 5062579  | 2.17         |                 | 86.9 | 42998 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.410 | 3.410  | 0.0    | 1.000  | 1241353  | 1.00         |                  | 100  | 6818  |       |
| 513.00 > 169.00                       | 3.410 | 3.410  | 0.0    | 1.000  | 227900   |              | 5.45(2.36-7.09)  |      | 6130  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.401 | 3.416  | -0.015 | 1.000  | 1208056  | 2.29         |                  | 95.8 | 21012 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.410 | 3.425  | -0.015 | 1.000  | 3182472  | 2.31         |                  | 92.3 | 44331 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.568 | 3.568  | 0.0    | 1.000  | 805715   | 1.02         |                  | 102  | 5184  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.568 | 3.574  | -0.006 | 1.000  | 1952306  | 2.57         |                  | 103  | 17284 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.722 | 3.722  | 0.0    | 1.000  | 934927   | 0.8554       |                  | 88.7 | 10104 |       |
| 599.00 > 99.00                        | 3.722 | 3.722  | 0.0    | 1.000  | 336484   |              | 2.78(1.39-4.16)  |      | 8866  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.743 | 3.743  | 0.0    | 1.003  | 722773   | 0.9830       |                  | 98.3 | 18651 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.743 | 3.743  | 0.0    | 1.000  | 804779   | 0.9575       |                  | 95.7 | 5496  |       |
| 563.00 > 169.00                       | 3.743 | 3.743  | 0.0    | 1.000  | 208251   |              | 3.86(2.12-6.36)  |      | 7563  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.732 | 3.750  | -0.018 | 1.000  | 1955428  | 2.50         |                  | 100  | 17499 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.743 | 3.750  | -0.007 | 1.000  | 2515941  | 2.30         |                  | 92.2 | 51435 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.899 | 3.899  | 0.0    | 1.000  | 4013751  | NC           |                  |      | 68409 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.030 | 4.030  | 0.0    | 1.000  | 1096855  | 0.9612       |                  | 96.1 | 1471  |       |
| 613.00 > 169.00                       | 4.030 | 4.030  | 0.0    | 1.000  | 276568   |              | 3.97(2.13-6.40)  |      | 4655  |       |
| D 36 13C2 PFDoA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.030 | 4.051  | -0.021 | 1.000  | 2733541  | 2.33         |                  | 93.0 | 22140 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.300 | 4.300  | 0.0    | 1.000  | 1271612  | 1.02         |                  | 102  | 1489  |       |
| 663.00 > 169.00                       | 4.300 | 4.300  | 0.0    | 1.000  | 403316   |              | 3.15(1.25-3.76)  |      | 4876  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.533 | 4.533  | 0.0    | 1.000  | 351092   | 1.05         |                  | 105  | 4418  |       |
| 713.00 > 219.00                       | 4.533 | 4.533  | 0.0    | 1.000  | 237774   |              | 1.48(0.71-2.13)  |      | 6411  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.533 | 4.554  | -0.021 | 1.000  | 3317055  | 2.30         |                  | 92.0 | 17396 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.949 | 4.949  | 0.0    | 1.000  | 2293828  | NC           |                  |      | 935   |       |
| 813.00 > 169.00                       | 4.949 | 4.949  | 0.0    | 1.000  | 401082   |              | 5.72(2.86-8.58)  |      | 3168  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.949 | 4.967  | -0.018 | 1.000  | 6320713  | 2.58         |                  | 103  | 14961 |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.307 | 5.307  | 0.0    | 1.000  | 2403857  | NC           |                  |      | 663   |       |
| 913.00 > 169.00                       | 5.307 | 5.307  | 0.0    | 1.000  | 302560   |              | 7.95(3.83-11.48) |      | 2743  |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

**Reagents:**

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_041.d

Injection Date: 26-May-2018 00:07:15

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

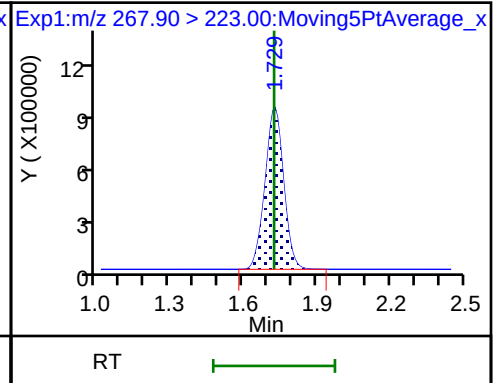
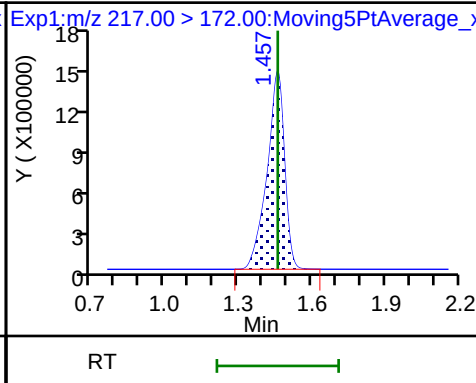
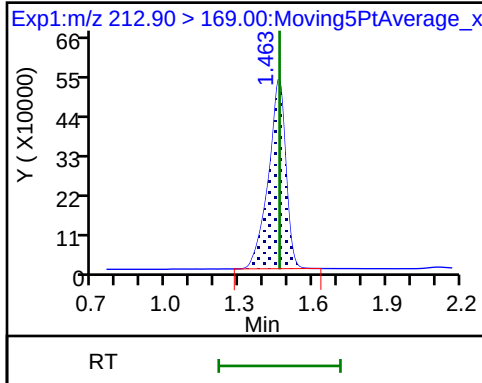
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

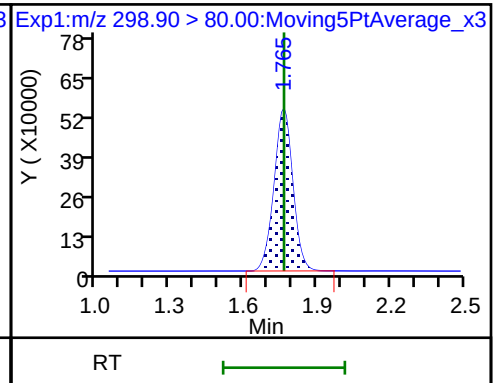
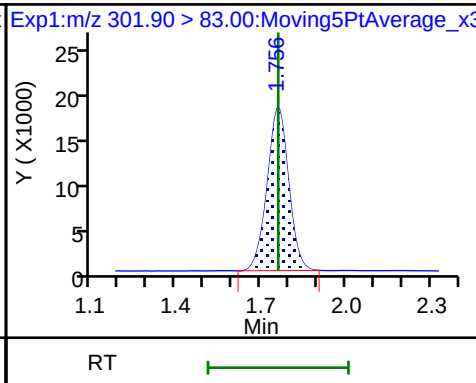
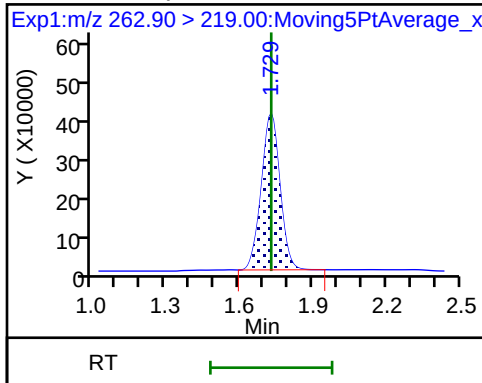
## D 3 13C5-PFPeA



## 4 Perfluoropentanoic acid

## D 47 13C3-PFBS

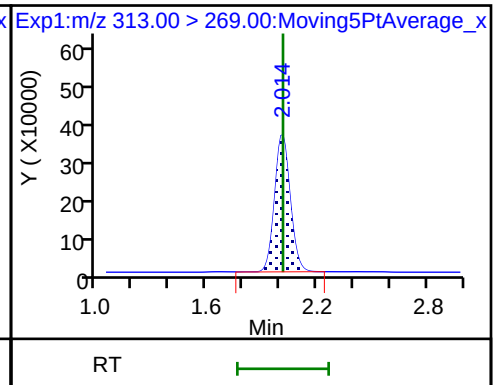
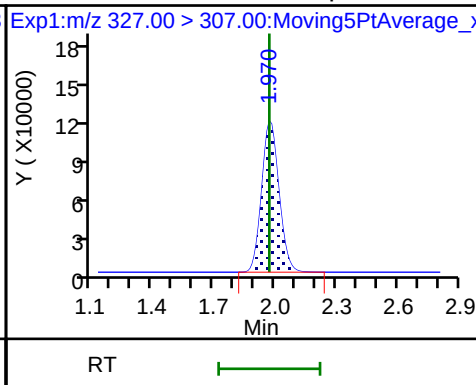
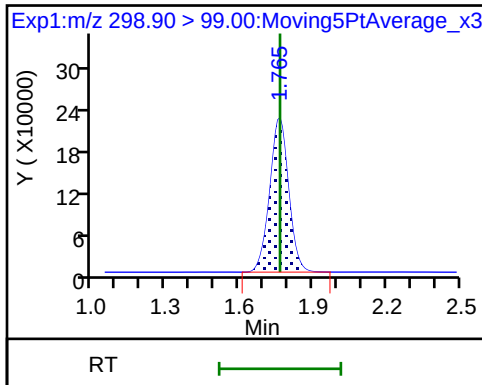
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

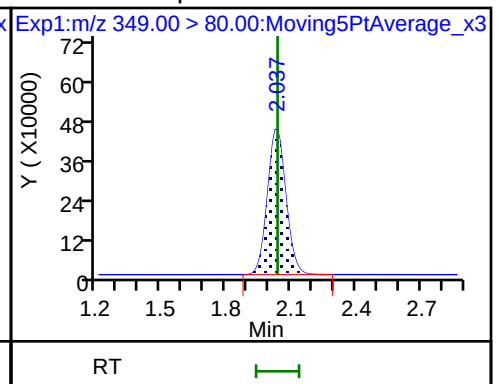
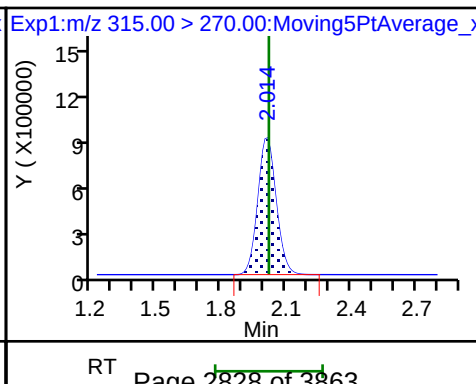
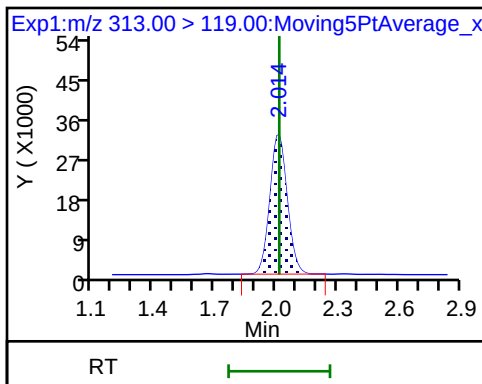
## 6 Perfluorohexanoic acid

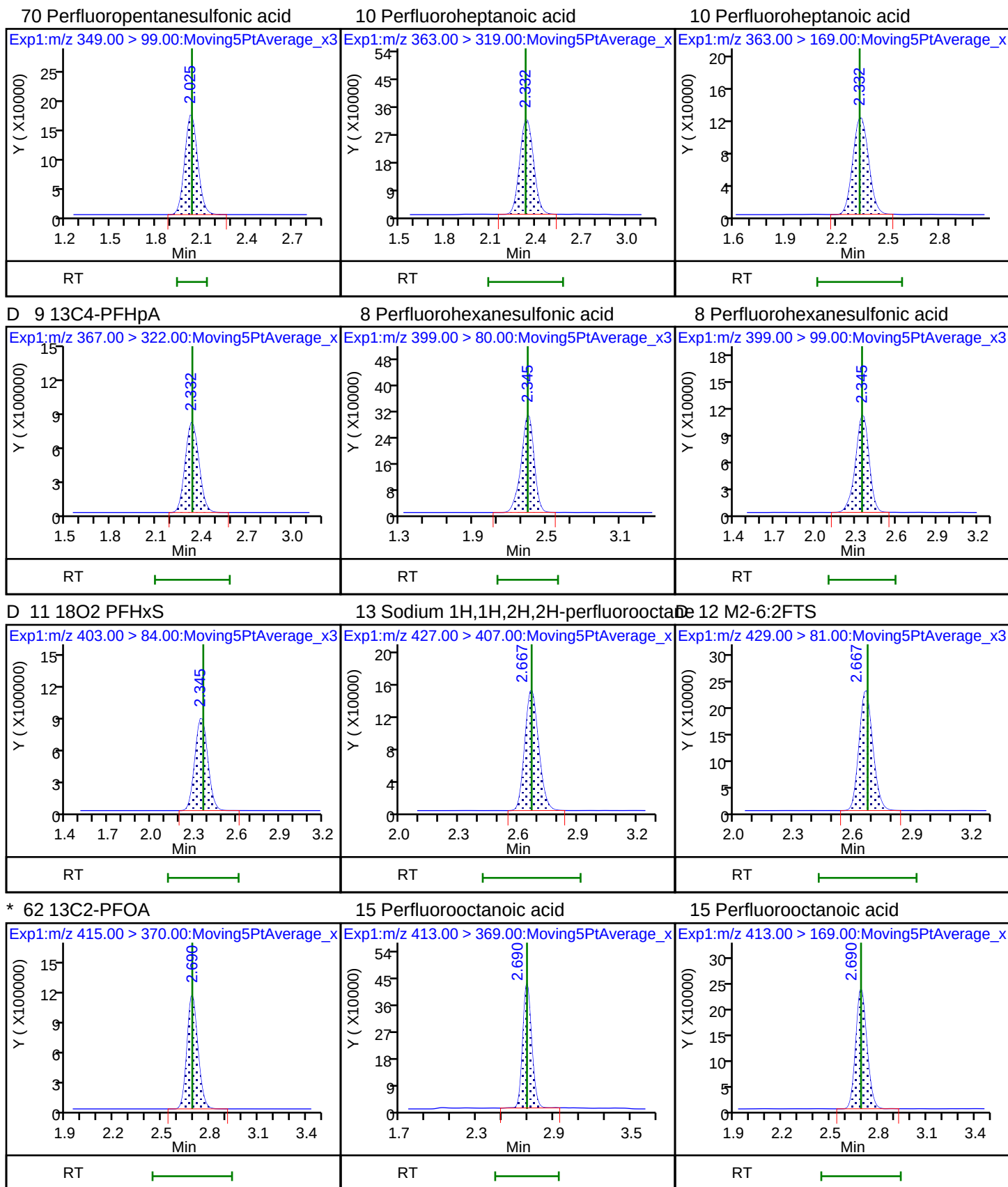


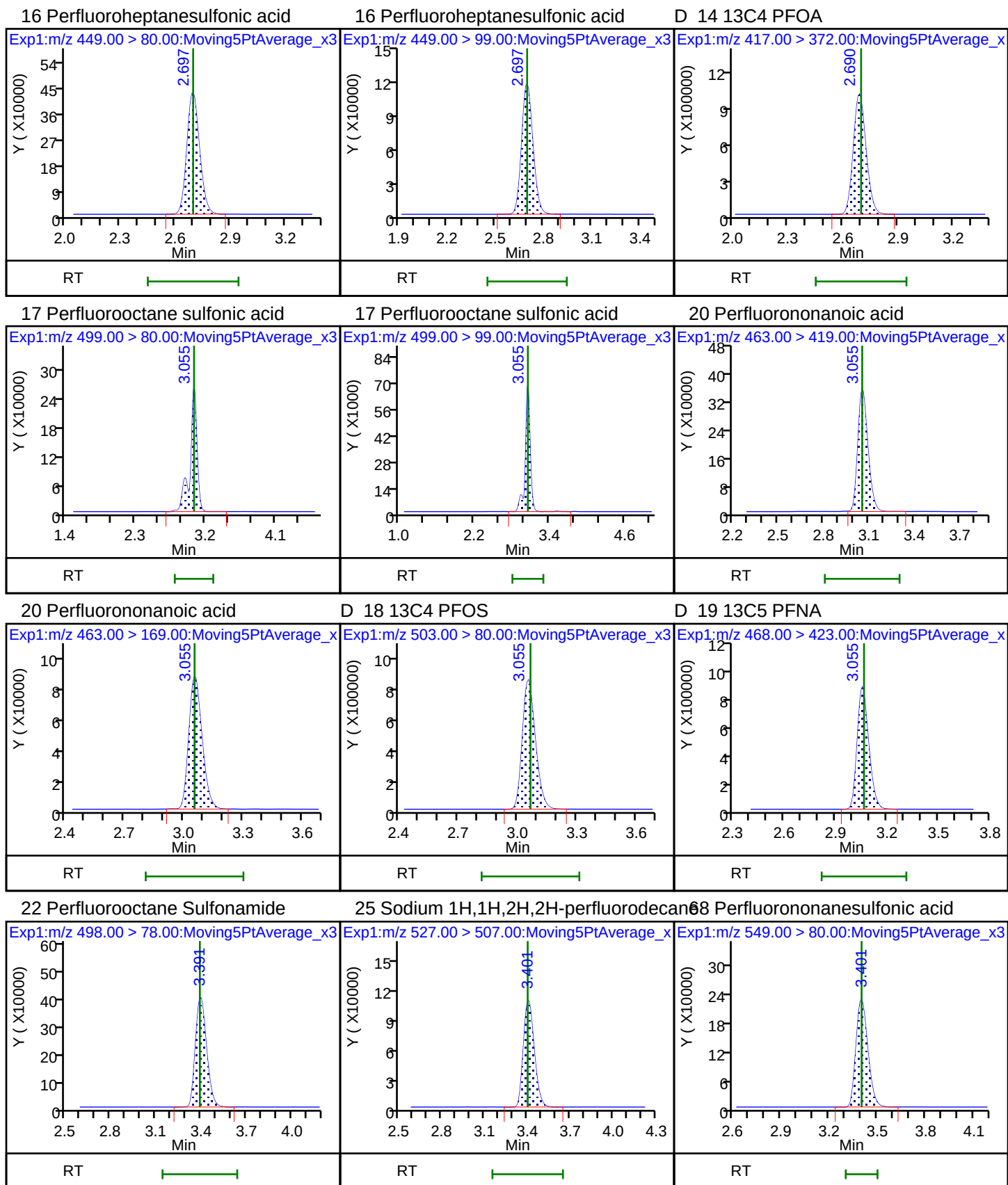
## 6 Perfluorohexanoic acid

## D 7 13C2 PFHxA

## 70 Perfluoropentanesulfonic acid







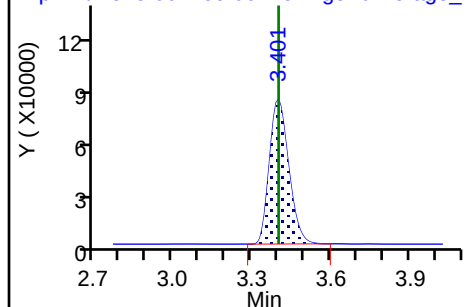


68 Perfluorononanesulfonic acid

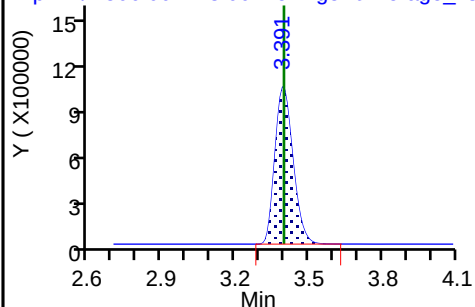
D 21 13C8 FOSA

24 Perfluorodecanoic acid

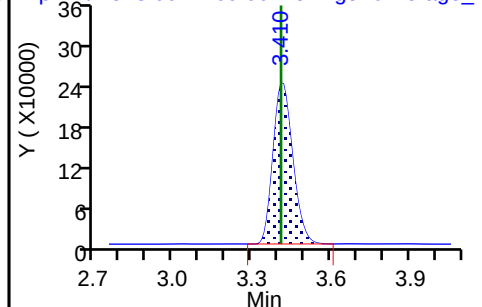
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Exp1:m/z 506.00 &gt; 78.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3

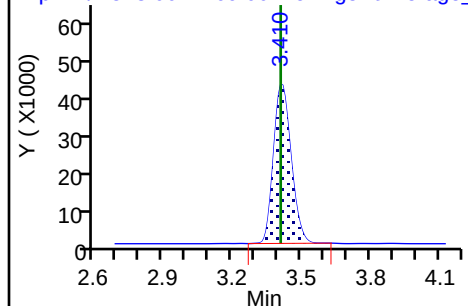


24 Perfluorodecanoic acid

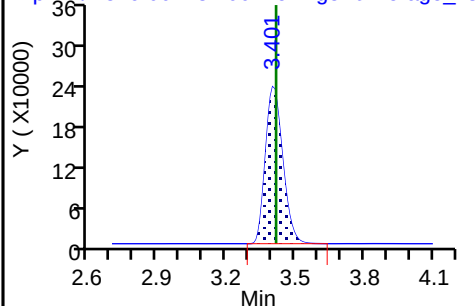
D 26 M2-8:2FTS

D 23 13C2 PFDA

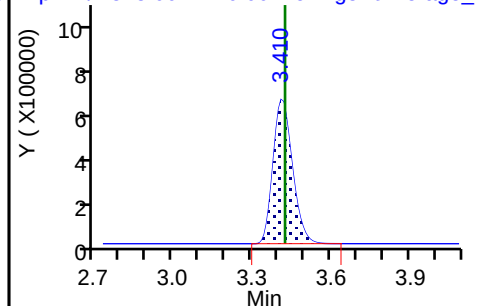
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Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3

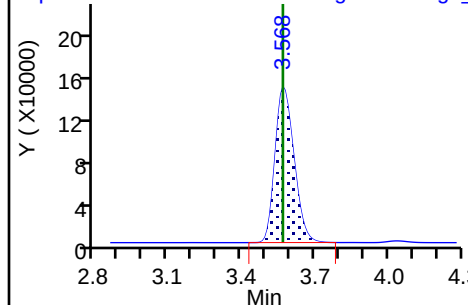


28 N-methyl perfluorooctane sulfonamid

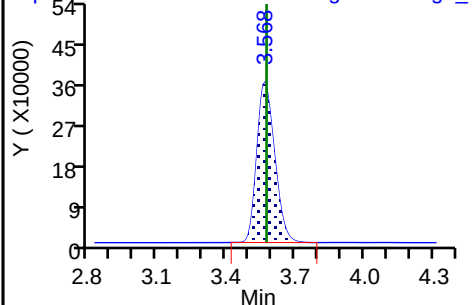
D 27 d3-NMeFOSA

29 Perfluorodecane Sulfonic acid

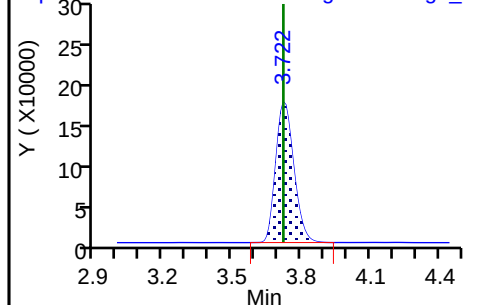
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Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3

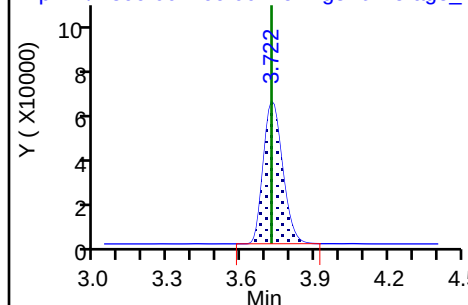


29 Perfluorodecane Sulfonic acid

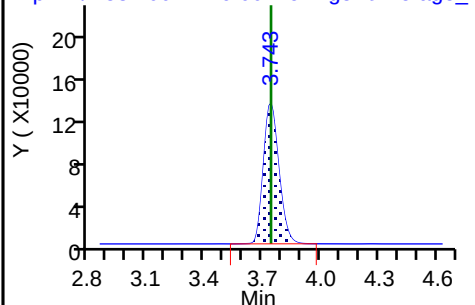
33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

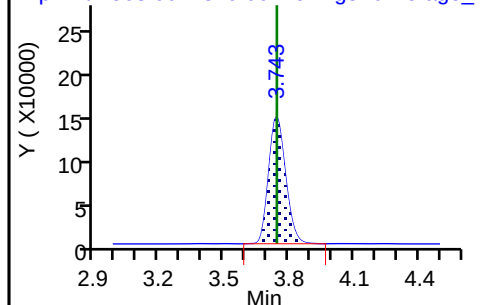
Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

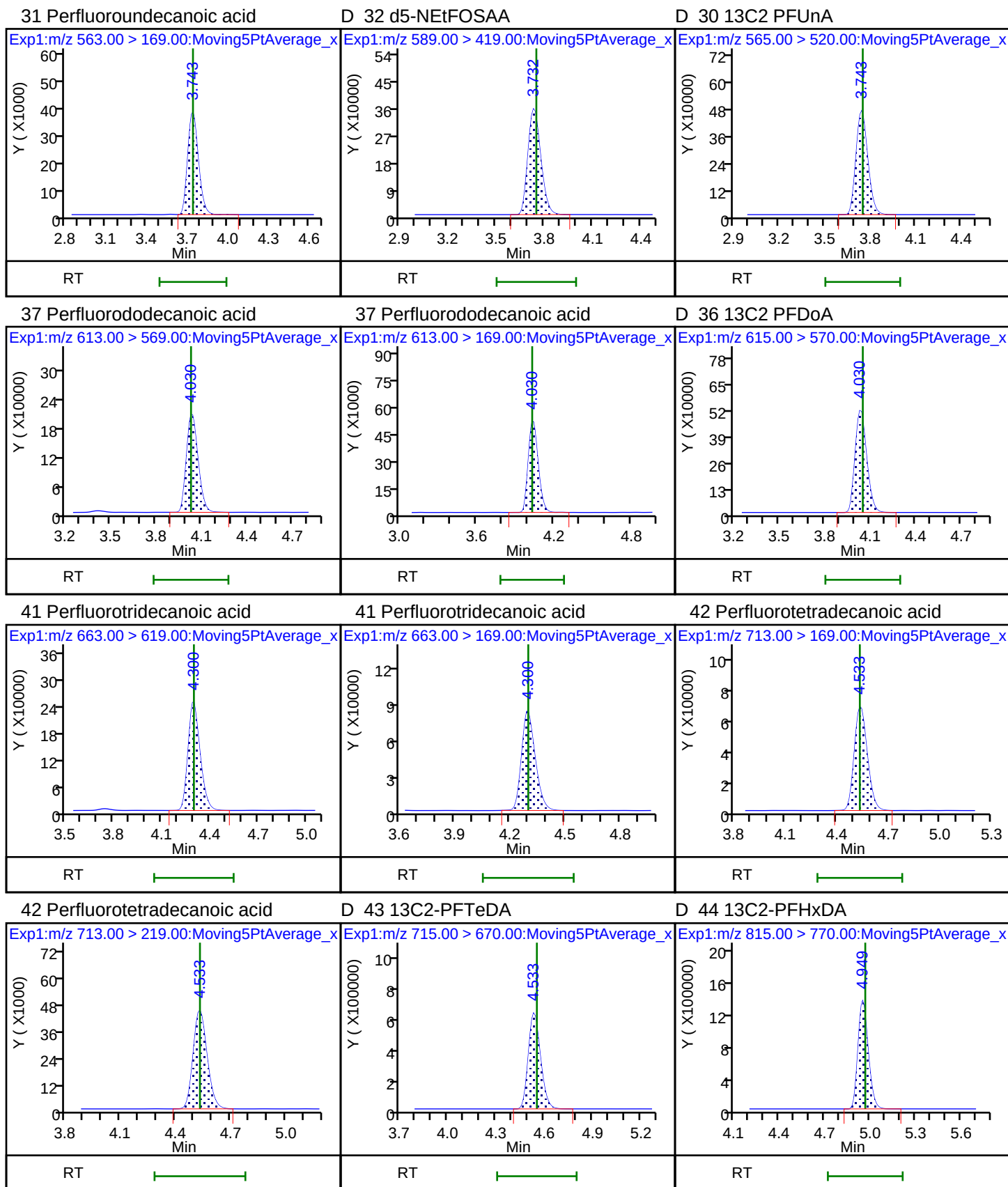


Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x3







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225690/24 Calibration Date: 05/26/2018 01:25

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.25LLAAXX\_051.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D   | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9610 |         | 2.58        | 2.50         | 3.3  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.183  |         | 2.50        | 2.50         | 0.2  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 84.16  |         | 2.38        | 2.21         | 7.8  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 19.53  |         | 2.75        | 2.34         | 17.9 | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 0.9912 |         | 2.41        | 2.50         | -3.6 | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 73.73  |         | 2.49        | 2.35         | 6.0  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.073  |         | 2.54        | 2.50         | 1.6  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.099  |         | 2.22        | 2.28         | -2.5 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.728  |         | 2.32        | 2.37         | -2.0 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.139  |         | 2.42        | 2.50         | -3.3 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.386  |         | 2.48        | 2.38         | 4.0  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.055  |         | 2.49        | 2.50         | -0.4 | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.109  |         | 2.19        | 2.32         | -5.7 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.052  |         | 2.70        | 2.50         | 8.0  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.289  |         | 2.29        | 2.40         | -4.5 | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7682 |         | 2.43        | 2.40         | 1.4  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9658 |         | 2.48        | 2.50         | -0.7 | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.019  |         | 2.51        | 2.50         | 0.5  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6324 |         | 2.27        | 2.41         | -5.8 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9288 |         | 2.47        | 2.50         | -1.2 | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8442 |         | 2.53        | 2.50         | 1.1  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.059  |         | 2.54        | 2.50         | 1.5  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.178  |         | 2.57        | 2.50         | 3.0  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2517 |         | 2.49        | 2.50         | -0.3 | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.510  |         | 2.47        | 2.50         | -1.2 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9925 |         | 2.53        | 2.50         | 1.3  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0210 |         | 2.20        | 2.33         | -5.3 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.059  |         | 2.53        | 2.50         | 1.4  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 1.002  |         | 2.50        | 2.50         | 0.1  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.185  |         | 2.27        | 2.37         | -4.2 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2377 |         | 2.55        | 2.38         | 7.6  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225690/24 Calibration Date: 05/26/2018 01:25  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.25LLAAXX\_051.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.998  |         | 2.64           | 2.50            | 5.4  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8249 |         | 2.32           | 2.39            | -3.0 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.8025 |         | 2.59           | 2.50            | 3.6  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.036  |         | 2.33           | 2.50            | -6.9 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2547 |         | 2.43           | 2.40            | 1.3  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6786 |         | 2.58           | 2.50            | 3.0  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4239 |         | 2.92           | 2.50            | 16.7 | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4104 |         | 2.75           | 2.50            | 10.1 | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5355 |         | 2.57           | 2.50            | 2.6  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5662 |         | 2.52           | 2.50            | 0.9  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6722 |         | 2.44           | 2.50            | -2.5 | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.358  |         | 2.90           | 2.50            | 16.1 | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_051.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 26-May-2018 01:25:29 ALS Bottle#: 14 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 10:26:46 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 31-May-2018 10:26:27

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.452 | 1.452  | 0.0    | 1.000  | 7155147  | 2.58         |                   | 103  | 4884   |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.452 | 1.460  | -0.008 | 1.000  | 7445908  | 2.47         |                   | 98.8 | 40970  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.720 | 1.720  | 0.0    | 1.000  | 5787616  | 2.50         |                   | 100  | 4647   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.720 | 1.724  | -0.004 | 0.564  | 4893953  | 2.53         |                   | 101  | 68477  |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.756 | 1.756  | 0.0    | 1.000  | 7690492  | 2.38         |                   | 108  | 46426  |       |
| 298.90 > 99.00                        | 1.756 | 1.756  | 0.0    | 1.000  | 3126659  |              | 2.46(1.25-3.74)   |      | 49922  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.756 | 1.760  | -0.004 | 1.000  | 96132    | 2.20         |                   | 94.7 | 798    |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 1885943  | 2.75         |                   | 118  | 109330 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.970 | 1.975  | -0.005 | 1.000  | 777600   | NC           |                   |      | 8376   |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.003 | 2.003  | 0.0    | 1.000  | 5175980  | 2.41         |                   | 96.4 | 9481   |       |
| 313.00 > 119.00                       | 2.003 | 2.003  | 0.0    | 1.000  | 475371   |              | 10.89(5.03-15.10) |      | 5802   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.003 | 2.020  | -0.017 | 1.000  | 5222119  | 2.53         |                   | 101  | 90709  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 7149027  | 2.49         |                   | 106  | 53194  |       |
| 349.00 > 99.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 2615833  |              | 2.73(1.36-4.07)   |      | 40708  |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |        |       |
| 329.10 > 285.00                       | 2.105 | 2.105  | 0.0    | 1.000  | 811227   | NC           |                   |      | 5362   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.105 | 2.110  | -0.005 | 1.000  | 265283   | NC           |                 |      | 5690  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 5304493  | 2.54         |                 | 102  | 8017  |       |
| 363.00 > 169.00                       | 2.333 | 2.333  | 0.0    | 1.000  | 1981073  |              | 2.68(1.13-3.40) |      | 11549 |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.333 | 2.339  | -0.006 | 1.000  | 4941662  | 2.50         |                 | 100  | 60788 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 5841199  | 2.22         |                 | 97.5 | 20542 |       |
| 399.00 > 99.00                        | 2.346 | 2.346  | 0.0    | 1.000  | 1950457  |              | 2.99(1.50-4.49) |      | 12351 |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.346 | 2.366  | -0.020 | 1.000  | 5527687  | 2.27         |                 | 95.8 | 40159 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.372 | 2.372  | 0.0    | 1.000  | 16202252 | NC           |                 |      | 98306 |       |
| 377.00 > 85.00                        | 2.372 | 2.372  | 0.0    | 1.000  | 9440034  |              | 1.72(0.84-2.53) |      | 91051 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.660 | 2.660  | 0.0    | 1.000  | 1920123  | 2.32         |                 | 98.0 | 25201 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.660 | 2.675  | -0.015 | 1.000  | 1113384  | 2.55         |                 | 108  | 19468 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.683 | 2.683  | 0.0    |        | 4930872  | 2.50         |                 |      | 50592 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.683 | 2.683  | 0.0    | 1.000  | 5604048  | 2.42         |                 | 96.7 | 1936  |       |
| 413.00 > 169.00                       | 2.683 | 2.683  | 0.0    | 1.000  | 2881418  |              | 1.94(0.84-2.52) |      | 12312 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.690 | 2.690  | 0.0    | 1.000  | 5365547  | 2.48         |                 | 104  | 30317 |       |
| 449.00 > 99.00                        | 2.690 | 2.690  | 0.0    | 1.000  | 1418805  |              | 3.78(1.94-5.82) |      | 24516 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.683 | 2.698  | -0.015 | 1.000  | 4922237  | 2.64         |                 | 105  | 64114 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.050 | 3.050  | 0.0    | 1.000  | 4187123  | 2.19         |                 | 94.3 | 19623 | M     |
| 499.00 > 99.00                        | 3.050 | 3.050  | 0.0    | 1.000  | 909006   |              | 4.61(2.31-6.93) |      | 19003 | M     |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.050 | 3.050  | 0.0    | 1.000  | 4174562  | 2.49         |                 | 99.6 | 12698 |       |
| 463.00 > 169.00                       | 3.050 | 3.050  | 0.0    | 1.000  | 1023336  |              | 4.08(1.90-5.69) |      | 15660 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.050 | 3.065  | -0.015 | 1.000  | 3888679  | 2.32         |                 | 97.0 | 25025 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.050 | 3.065  | -0.015 | 1.000  | 3957062  | 2.59         |                 | 104  | 71239 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.258 | 3.258  | 0.0    | 1.000  | 7196884  | NC           |                 |      | 62107 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.387 | 3.387  | 0.0    | 1.000  | 5372801  | 2.70         |                 | 108  | 55242 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 2999726  | 2.43         |                 | 101  | 25786 |       |
| 549.00 > 99.00                        | 3.396 | 3.396  | 0.0    | 1.000  | 1133538  |              | 2.65(1.33-3.97) |      | 19879 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.396 | 3.396  | 0.0    | 1.000  | 1551343  | 2.29         |                 | 95.5 | 29774 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                  |      |       |       |
| 506.00 > 78.00                        | 3.387 | 3.397  | -0.010 | 1.000  | 5109150  | 2.33         |                  | 93.1 | 41956 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.415 | 3.415  | 0.0    | 1.000  | 3231339  | 2.48         |                  | 99.3 | 17701 |       |
| 513.00 > 169.00                       | 3.415 | 3.415  | 0.0    | 1.000  | 596674   |              | 5.42(2.36-7.09)  |      | 23192 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.396 | 3.416  | -0.020 | 1.000  | 1203169  | 2.43         |                  | 101  | 16460 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.415 | 3.425  | -0.010 | 1.000  | 3345834  | 2.58         |                  | 103  | 53598 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.564 | 3.564  | 0.0    | 1.000  | 2131135  | 2.51         |                  | 100  | 15778 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.564 | 3.574  | -0.010 | 1.000  | 2090400  | 2.92         |                  | 117  | 26304 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.717 | 3.717  | 0.0    | 1.000  | 2479596  | 2.27         |                  | 94.2 | 28264 |       |
| 599.00 > 99.00                        | 3.717 | 3.717  | 0.0    | 1.000  | 836776   |              | 2.96(1.39-4.16)  |      | 21750 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.738 | 3.738  | 0.0    | 1.003  | 1879484  | 2.47         |                  | 98.8 | 32977 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.738 | 3.738  | 0.0    | 1.000  | 2228752  | 2.53         |                  | 101  | 13208 |       |
| 563.00 > 169.00                       | 3.738 | 3.738  | 0.0    | 1.000  | 555962   |              | 4.01(2.12-6.36)  |      | 20066 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.728 | 3.750  | -0.022 | 1.000  | 2023601  | 2.75         |                  | 110  | 18018 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.738 | 3.750  | -0.012 | 1.000  | 2640236  | 2.57         |                  | 103  | 47615 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.896 | 3.896  | 0.0    | 1.000  | 10964756 | NC           |                  |      | 68322 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.029 | 4.029  | 0.0    | 1.000  | 2956343  | 2.54         |                  | 101  | 3739  |       |
| 613.00 > 169.00                       | 4.029 | 4.029  | 0.0    | 1.000  | 703379   |              | 4.20(2.13-6.40)  |      | 10803 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.029 | 4.051  | -0.022 | 1.000  | 2791689  | 2.52         |                  | 101  | 19884 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.292 | 4.292  | 0.0    | 1.000  | 3287847  | 2.57         |                  | 103  | 3385  |       |
| 663.00 > 169.00                       | 4.292 | 4.292  | 0.0    | 1.000  | 1025412  |              | 3.21(1.25-3.76)  |      | 11550 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.534 | 4.534  | 0.0    | 1.000  | 834112   | 2.49         |                  | 99.7 | 9197  |       |
| 713.00 > 219.00                       | 4.523 | 4.534  | -0.011 | 0.998  | 582437   |              | 1.43(0.71-2.13)  |      | 10871 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.534 | 4.554  | -0.020 | 1.000  | 3314573  | 2.44         |                  | 97.5 | 19104 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.950 | 4.950  | 0.0    | 1.000  | 6262179  | NC           |                  |      | 2410  |       |
| 813.00 > 169.00                       | 4.950 | 4.950  | 0.0    | 1.000  | 1026417  |              | 6.10(2.86-8.58)  |      | 7362  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.950 | 4.967  | -0.017 | 1.000  | 6696956  | 2.90         |                  | 116  | 16827 |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.307 | 5.307  | 0.0    | 1.000  | 7000790  | NC           |                  |      | 1748  |       |
| 913.00 > 169.00                       | 5.307 | 5.307  | 0.0    | 1.000  | 862240   |              | 8.12(3.83-11.48) |      | 5508  |       |



[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

[Reagents:](#)

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_051.d

Injection Date: 26-May-2018 01:25:29

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

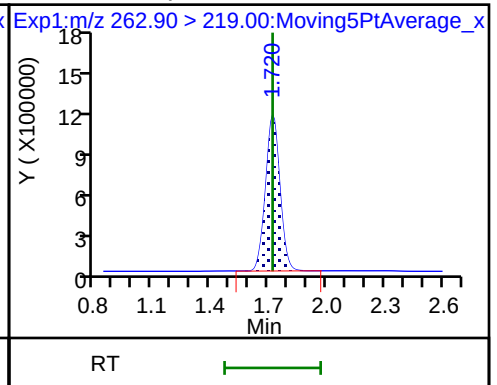
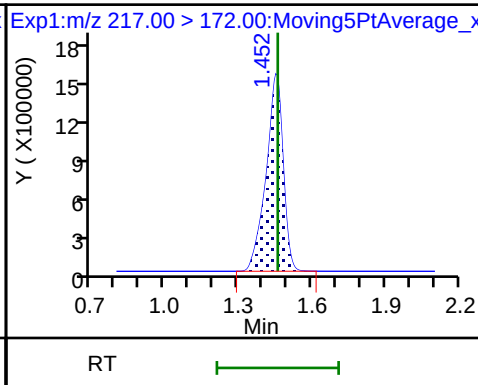
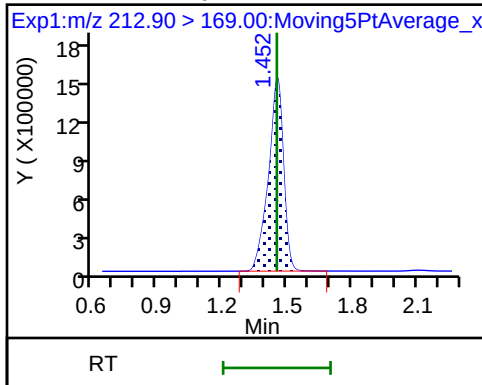
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

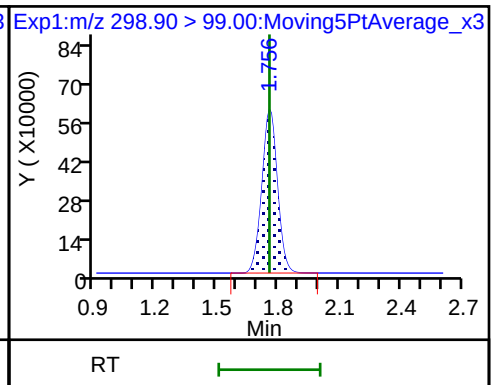
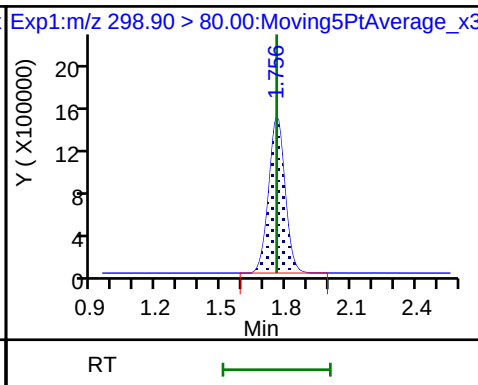
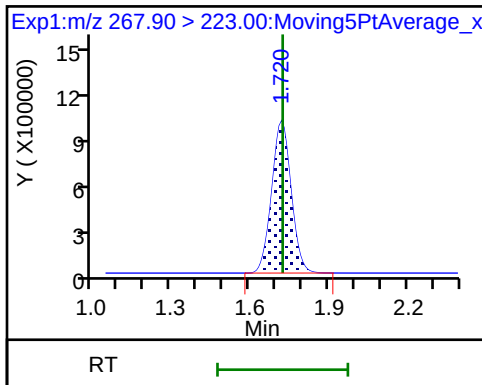
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

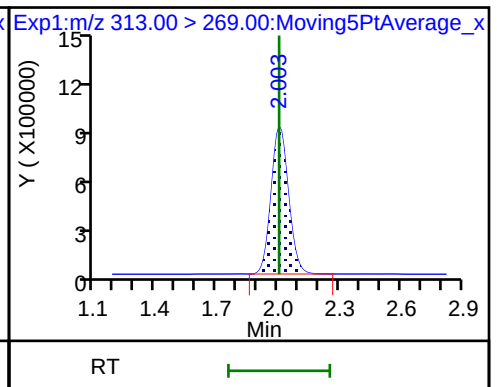
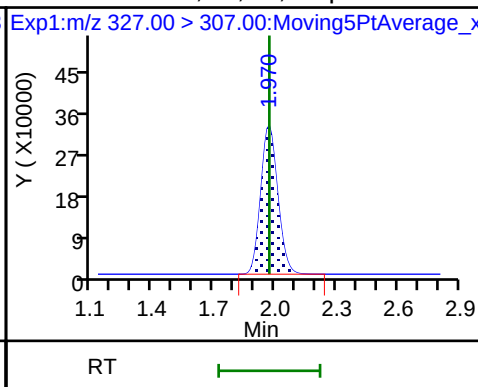
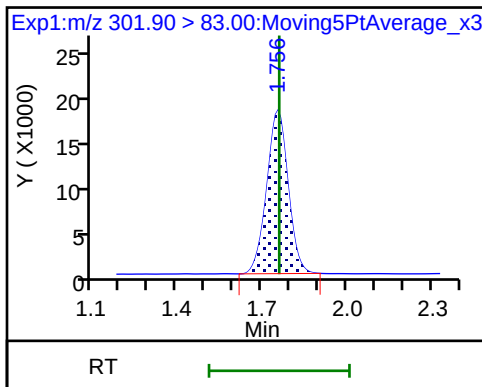
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

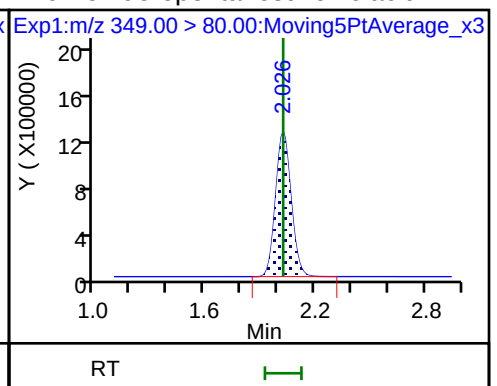
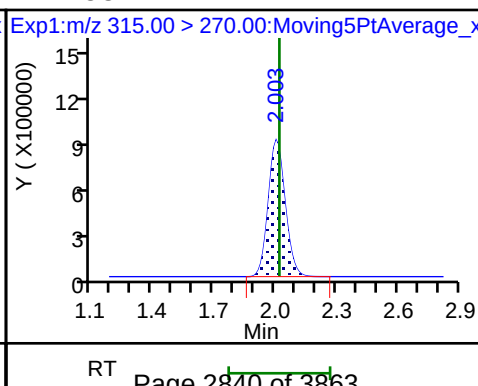
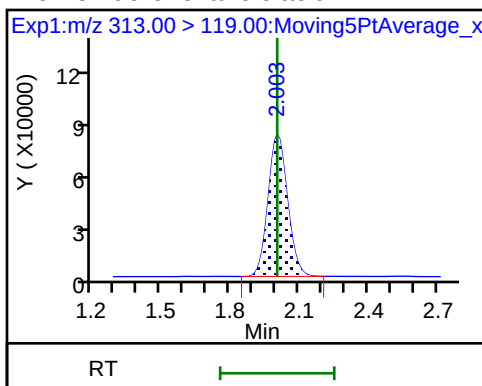
## 6 Perfluorohexanoic acid

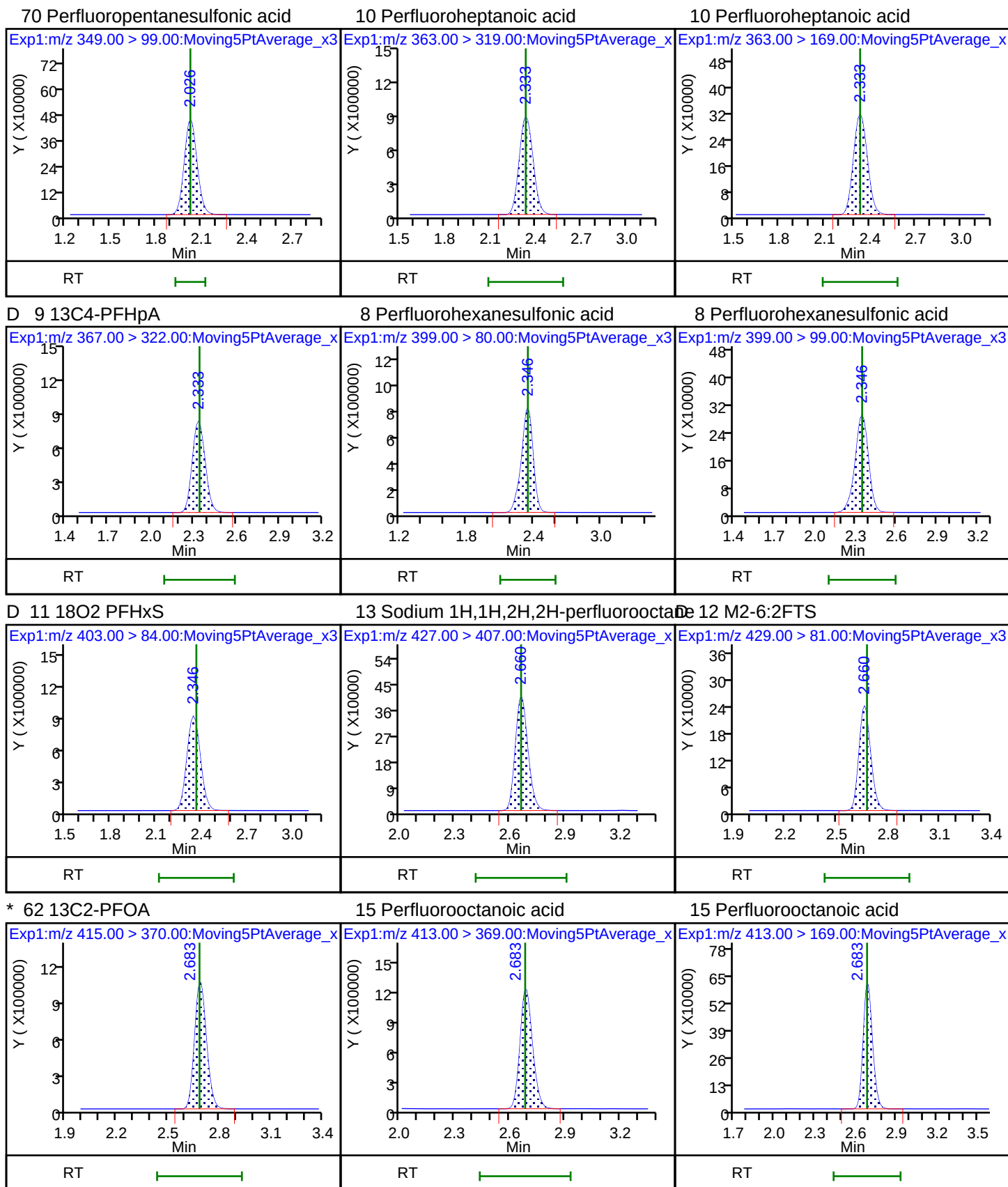


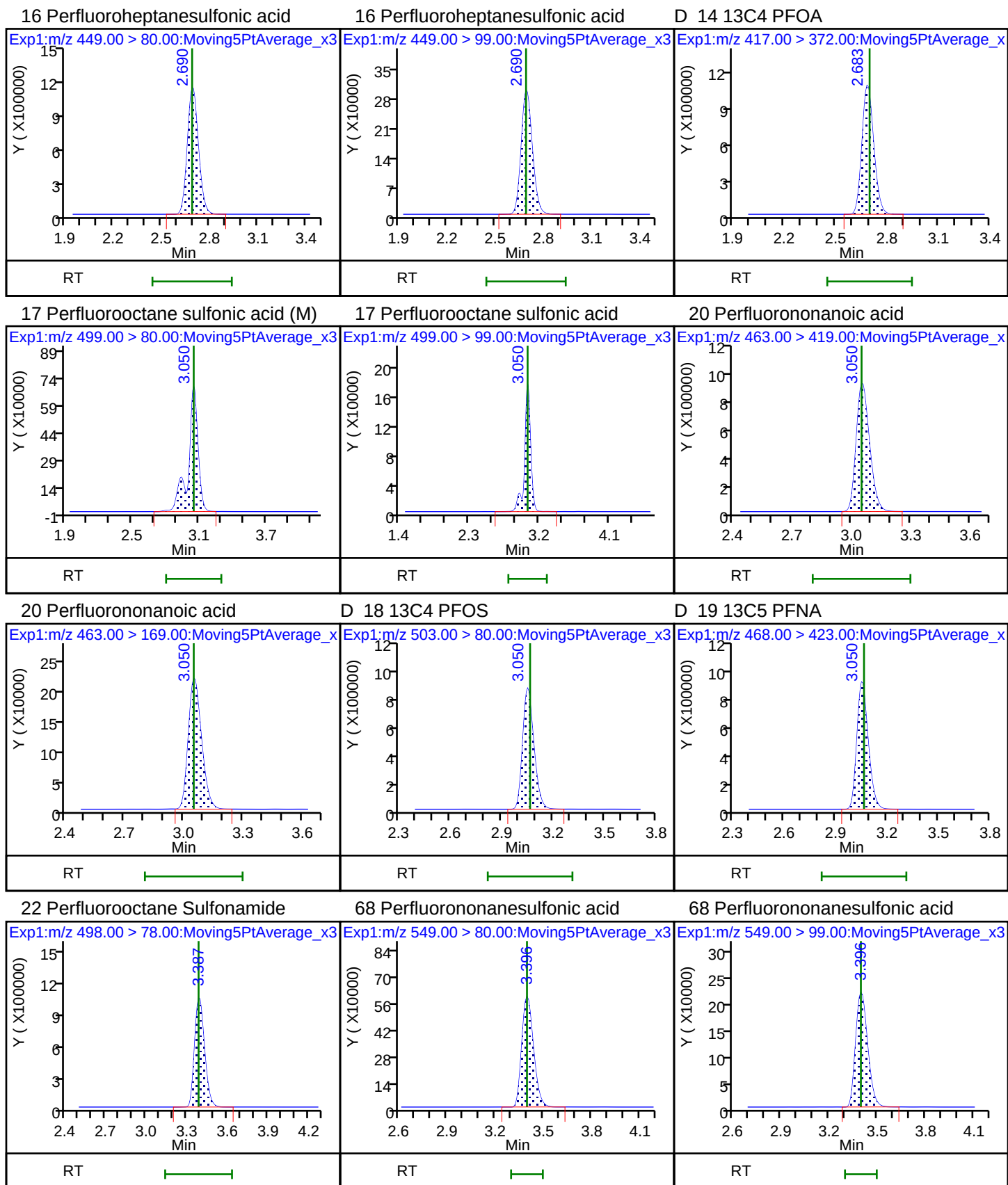
## 6 Perfluorohexanoic acid

## D 7 13C2 PFHxA

## 70 Perfluoropentanesulfonic acid





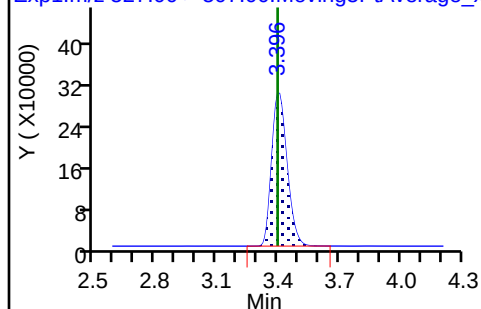


## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

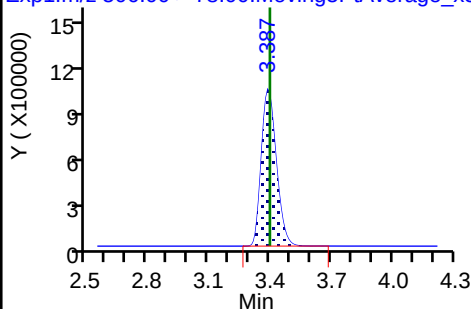
De21 13C8 FOSA

## 24 Perfluorodecanoic acid

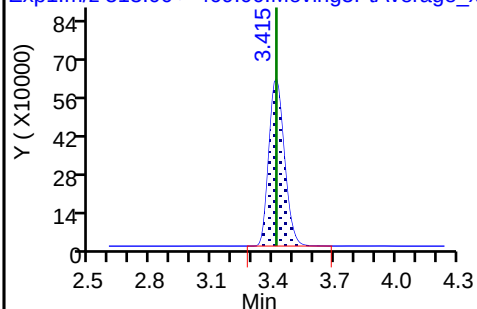
Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x



Exp1:m/z 506.00 &gt; 78.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x

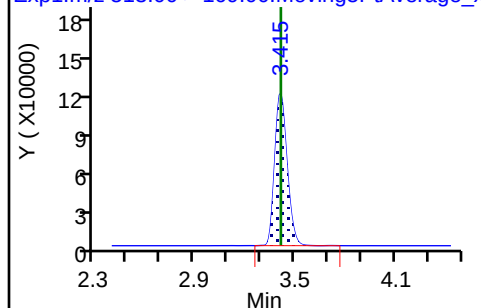


## 24 Perfluorodecanoic acid

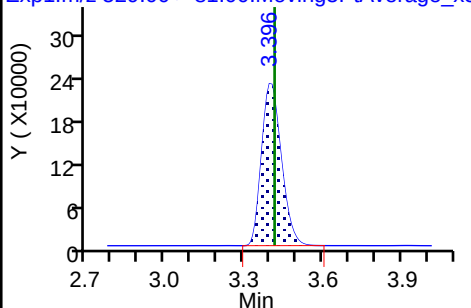
## D 26 M2-8:2FTS

## D 23 13C2 PFDA

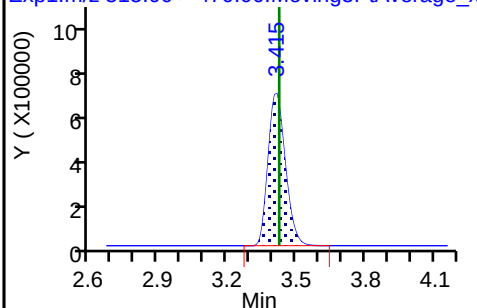
Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x



Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x

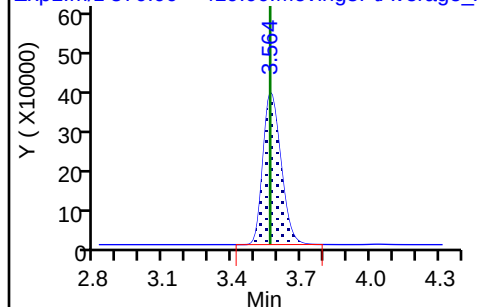


## 28 N-methyl perfluorooctane sulfonamid

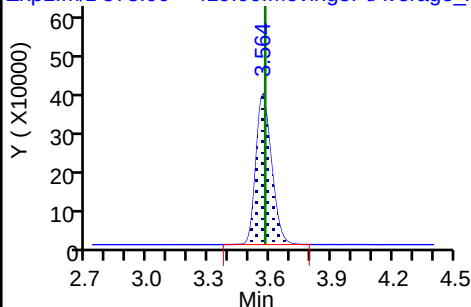
D 27 d3-NMeFOSAA

## 29 Perfluorodecane Sulfonic acid

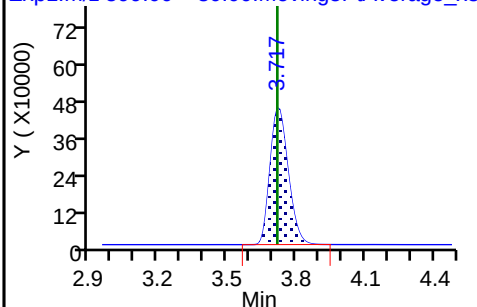
Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3

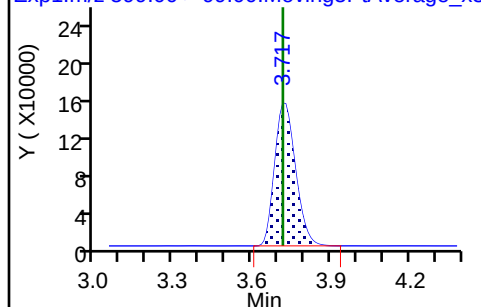


## 29 Perfluorodecane Sulfonic acid

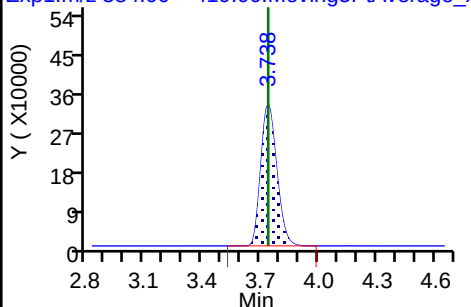
## 33 N-ethyl perfluorooctane sulfonamid

## 31 Perfluoroundecanoic acid

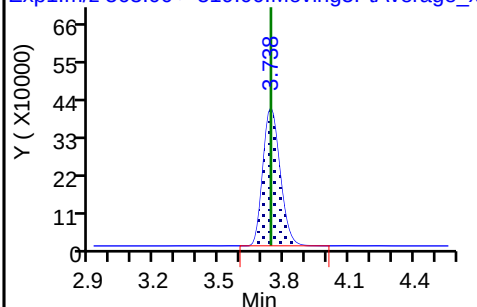
Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3

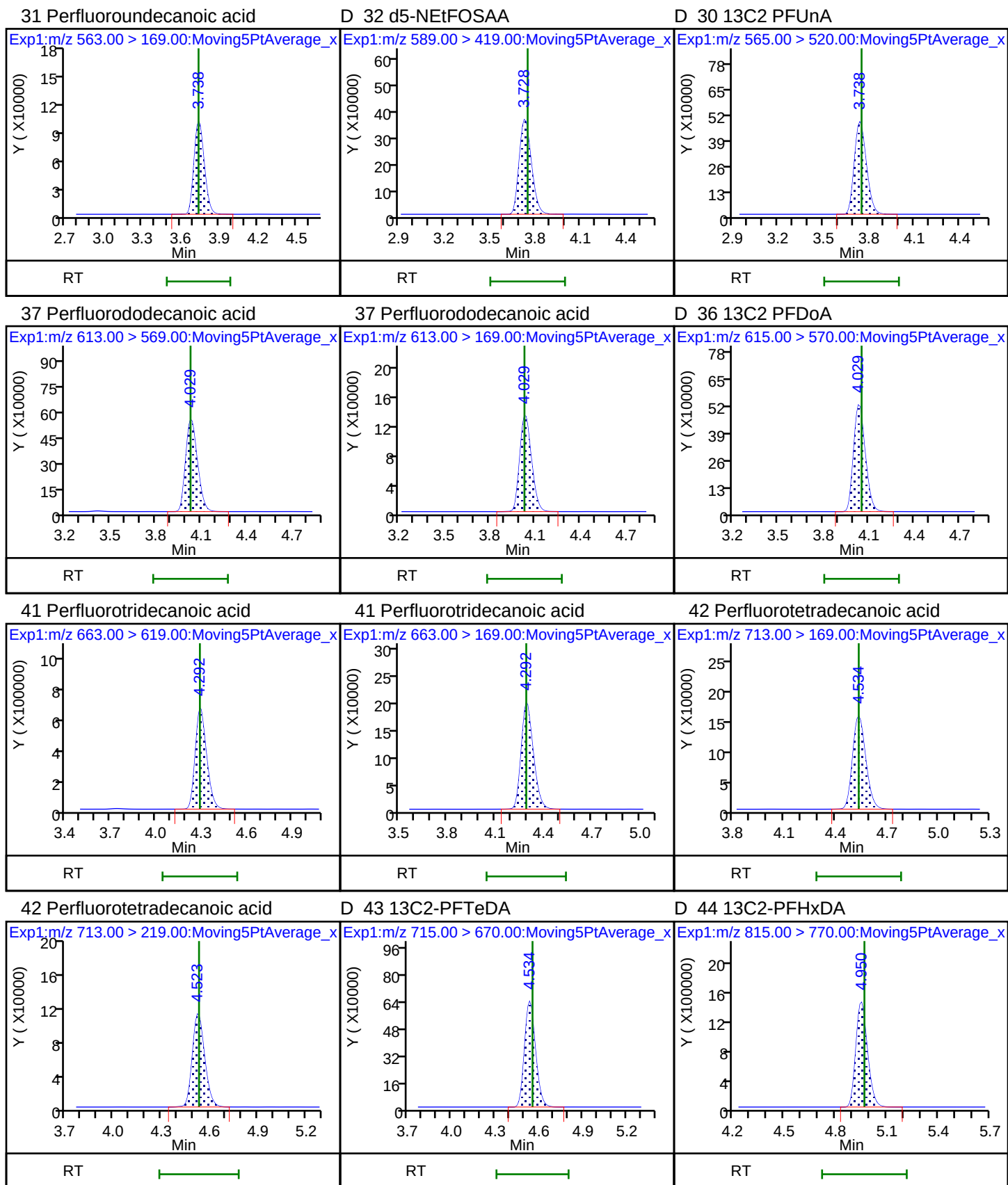


Exp1:m/z 584.00 &gt; 419.00:Moving5PtAverage\_x



Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x







## TestAmerica Sacramento

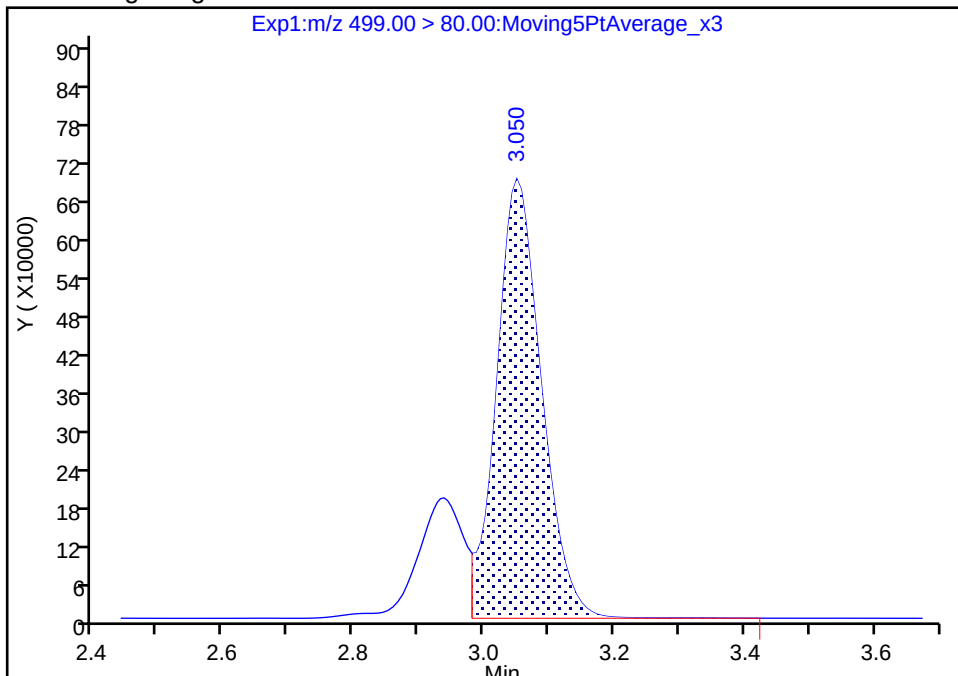
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180526-58795.b\2018.05.25LLAAXX\_051.d  
Injection Date: 26-May-2018 01:25:29 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 24  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

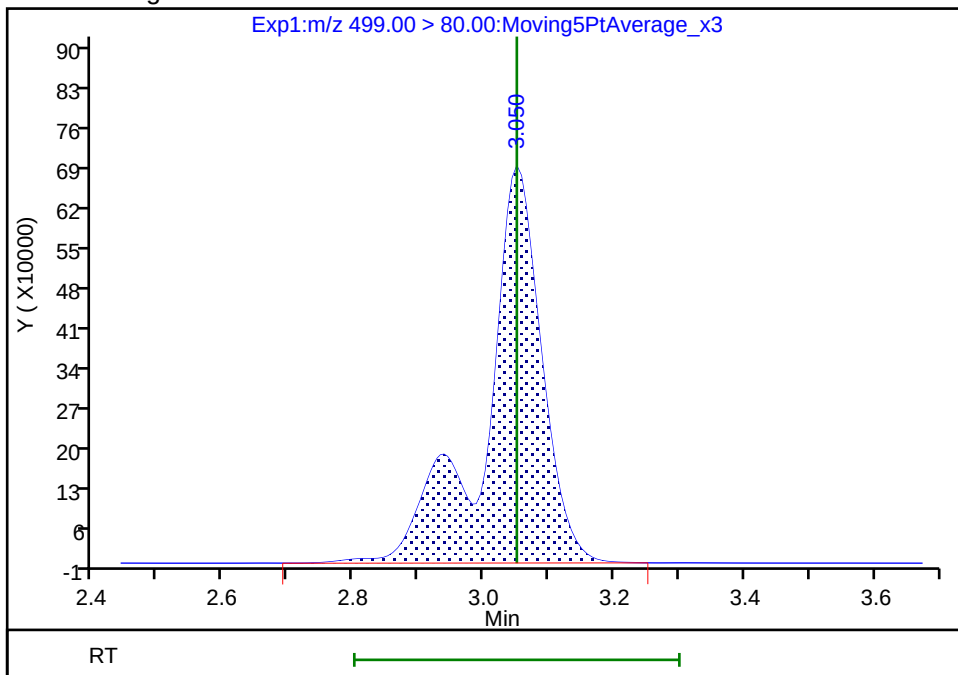
RT: 3.05  
Area: 3281250  
Amount: 1.715156  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.05  
Area: 4187123  
Amount: 2.188669  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: barnettj, 31-May-2018 10:25:45  
Audit Action: Manually Integrated

Audit Reason: Isomers  
Page 2846 of 3863



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVL 320-225818/2 Calibration Date: 05/28/2018 07:08

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_002.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 1.012  |         | 0.0544      | 0.0500       | 8.9   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.288  |         | 0.0545      | 0.0500       | 9.1   | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 79.49  |         | 0.0450      | 0.0442       | 1.8   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 19.27  |         | 0.400       | 0.0467       | 16.3  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.040  |         | 0.0506      | 0.0500       | 1.2   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 70.14  |         | 0.0473      | 0.0469       | 0.9   | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.146  |         | 0.0543      | 0.0500       | 8.5   | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.182  |         | 0.0477      | 0.0455       | 4.9   | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.719  |         | 0.400       | 0.0474       | -23.7 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.274  |         | 0.0541      | 0.0500       | 8.2   | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.308  |         | 0.0468      | 0.0476       | -1.8  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 0.9395 |         | 0.0444      | 0.0500       | -11.3 | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.117  |         | 0.0441      | 0.0464       | -5.0  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.030  |         | 0.0529      | 0.0500       | 5.8   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.417  |         | 0.0503      | 0.0479       | 5.0   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7926 |         | 0.0502      | 0.0480       | 4.6   | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.103  |         | 0.0567      | 0.0500       | 13.5  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.056  |         | 0.400       | 0.0500       | 4.1   | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.7927 |         | 0.0569      | 0.0482       | 18.1  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9911 |         | 0.0527      | 0.0500       | 5.4   | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8276 |         | 0.0495      | 0.0500       | -0.9  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.031  |         | 0.0494      | 0.0500       | -1.2  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.310  |         | 0.0573      | 0.0500       | 14.5  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2293 |         | 0.0454      | 0.0500       | -9.2  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.372  |         | 2.24        | 2.50         | -10.2 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9936 |         | 2.54        | 2.50         | 1.4   | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0202 |         | 2.12        | 2.33         | -8.8  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.043  |         | 2.50        | 2.50         | -0.1  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9269 |         | 2.31        | 2.50         | -7.4  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.166  |         | 2.23        | 2.37         | -5.7  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2443 |         | 2.63        | 2.38         | 10.5  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-225818/2 Calibration Date: 05/28/2018 07:08  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_002.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9576 |         | 2.53           | 2.50            | 1.1   | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7883 |         | 2.22           | 2.39            | -7.3  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.8026 |         | 2.59           | 2.50            | 3.6   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.999  |         | 2.24           | 2.50            | -10.2 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2504 |         | 2.39           | 2.40            | -0.4  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6778 |         | 2.57           | 2.50            | 2.9   | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4035 |         | 2.78           | 2.50            | 11.0  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4189 |         | 2.81           | 2.50            | 12.3  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5244 |         | 2.51           | 2.50            | 0.5   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5893 |         | 2.62           | 2.50            | 5.0   | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7280 |         | 2.64           | 2.50            | 5.6   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.325  |         | 2.83           | 2.50            | 13.3  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_002.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 28-May-2018 07:08:03 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 10:57:42 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: ruangyotsakuld

Date: 30-May-2018 10:57:42

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                  |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.455  | -0.003 | 1.000  | 6826300  | 2.24         |                  | 89.8 | 36220 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                  |      |       |       |
| 212.90 > 169.00                       | 1.452 | 1.463  | -0.011 | 1.000  | 138212   | 0.0544       |                  | 109  | 66.8  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                  |      |       |       |
| 267.90 > 223.00                       | 1.720 | 1.725  | -0.005 | 0.562  | 4942428  | 2.54         |                  | 101  | 56013 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 262.90 > 219.00                       | 1.729 | 1.728  | 0.001  | 1.005  | 127310   | 0.0545       |                  | 109  | 85.0  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                  |      |       |       |
| 301.90 > 83.00                        | 1.756 | 1.761  | -0.005 | 1.000  | 93435    | 2.12         |                  | 91.2 | 884   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                  |      |       |       |
| 298.90 > 80.00                        | 1.756 | 1.764  | -0.008 | 1.000  | 141197   | 0.0450       |                  | 102  | 694   |       |
| 298.90 > 99.00                        | 1.756 | 1.764  | -0.008 | 1.000  | 62282    |              | 2.27(1.25-3.74)  |      | 734   |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.977  | -0.007 | 1.000  | 801467   | NC           |                  |      | 8721  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                  |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.980  | -0.010 | 1.000  | 36163    | 0.0543       |                  | 116  | 2176  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                  |      |       |       |
| 315.00 > 270.00                       | 2.003 | 2.011  | -0.008 | 1.000  | 5190130  | 2.50         |                  | 99.9 | 88393 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                  |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.006  | 107959   | 0.0506       |                  | 101  | 229   |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.006  | 11706    |              | 9.22(5.03-15.10) |      | 135   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 349.00 > 80.00                        | 2.025 | 2.036  | -0.011 | 1.000  | 132196   | 0.0473       |                  | 101  | 1492  |       |
| 349.00 > 99.00                        | 2.025 | 2.036  | -0.011 | 1.000  | 52946    |              | 2.50(1.36-4.07)  |      | 1014  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                  |      |       |       |
| 332.10 > 287.00                       | 2.105 | 2.112  | -0.007 | 1.000  | 229443   | NC           |                  |      | 4753  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.116 | 2.115  | 0.001  | 1.005  | 16918    | NC           |                 |      | 99.3  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.342  | 0.003  | 1.000  | 4610526  | 2.31         |                 | 92.6 | 51749 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 105700   | 0.0543       |                 | 109  | 141   |       |
| 363.00 > 169.00                       | 2.332 | 2.345  | -0.013 | 0.994  | 41185    |              | 2.57(1.13-3.40) |      | 225   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.355  | 0.003  | 1.000  | 5488462  | 2.23         |                 | 94.3 | 55166 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.345 | 2.358  | -0.013 | 0.994  | 124834   | 0.0477       |                 | 105  | 604   |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 40438    |              | 3.09(1.50-4.49) |      | 248   |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.384 | 2.395  | -0.011 | 1.000  | 301463   | NC           |                 |      | 4969  |       |
| 377.00 > 85.00                        | 2.384 | 2.395  | -0.011 | 1.000  | 174376   |              | 1.73(0.84-2.53) |      | 3225  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.667 | 2.665  | 0.002  | 1.000  | 1154234  | 2.63         |                 | 111  | 16033 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.667 | 2.682  | -0.015 | 1.000  | 39596    | 0.0362       |                 | 76.3 | 1217  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.697 | 2.695  | 0.002  | 1.000  | 4763005  | 2.53         |                 | 101  | 47496 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.697 | 2.704  | -0.007 | 1.000  | 121325   | 0.0541       |                 | 108  | 39.9  |       |
| 413.00 > 169.00                       | 2.697 | 2.704  | -0.007 | 1.000  | 57885    |              | 2.10(0.84-2.52) |      | 212   |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.697 | 2.704  | -0.007 |        | 4974159  | 2.50         |                 |      | 57719 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.705 | 2.712  | -0.007 | 1.000  | 97676    | 0.0468       |                 | 98.2 | 1318  |       |
| 449.00 > 99.00                        | 2.697 | 2.712  | -0.015 | 0.997  | 27914    |              | 3.50(1.94-5.82) |      | 615   |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.063 | 3.063  | 0.0    | 1.000  | 3992452  | 2.59         |                 | 104  | 57713 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.063 | 3.063  | 0.0    | 1.000  | 3748344  | 2.22         |                 | 92.7 | 22009 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.063 | 3.069  | -0.006 | 1.000  | 81296    | 0.0441       |                 | 95.0 | 640   |       |
| 499.00 > 99.00                        | 3.063 | 3.069  | -0.006 | 1.000  | 19013    |              | 4.28(2.31-6.93) |      | 295   |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.063 | 3.076  | -0.013 | 1.000  | 75021    | 0.0444       |                 | 88.7 | 206   |       |
| 463.00 > 169.00                       | 3.063 | 3.076  | -0.013 | 1.000  | 22506    |              | 3.33(1.90-5.69) |      | 418   |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.276 | 3.283  | -0.007 | 1.000  | 133551   | NC           |                 |      | 2416  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.393 | 3.395  | -0.002 | 1.000  | 4968127  | 2.24         |                 | 89.8 | 36041 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.402 | 3.411  | -0.009 | 1.003  | 102392   | 0.0529       |                 | 106  | 1846  |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.412 | 3.413  | -0.001 | 1.000  | 1193319  | 2.39         |                 | 99.6 | 16574 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.412 | 3.421  | -0.009 | 1.000  | 59665    | 0.0502       |                 | 105  | 1178  |       |
| 549.00 > 99.00                        | 3.412 | 3.421  | -0.009 | 1.000  | 20980    |              | 2.84(1.33-3.97) |      | 613   |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.421 | 3.422  | -0.001 | 1.000  | 3371365  | 2.57         |                 | 103  | 47058 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.412 | 3.430  | -0.018 | 1.000  | 33830    | 0.0503       |                 | 105  | 1450  |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.421 | 3.439  | -0.018 | 1.000  | 74372    | 0.0567       |                 | 113  | 357   |       |
| 513.00 > 169.00                       | 3.430 | 3.439  | -0.009 | 1.003  | 11171    |              | 6.66(2.36-7.09) |      | 407   |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.579 | 3.572  | 0.007  | 1.000  | 2006970  | 2.78         |                 | 111  | 33636 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.579 | 3.590  | -0.011 | 1.000  | 42401    | 0.0520       |                 | 104  | 423   |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.733 | 3.743  | -0.010 | 1.000  | 59926    | 0.0569       |                 | 118  | 598   |       |
| 599.00 > 99.00                        | 3.733 | 3.743  | -0.010 | 1.000  | 21221    |              | 2.82(1.39-4.16) |      | 828   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.743 | 3.748  | -0.005 | 1.000  | 2083653  | 2.81         |                 | 112  | 23564 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.753 | 3.748  | 0.005  | 1.000  | 2608525  | 2.51         |                 | 101  | 43446 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.753 | 3.764  | -0.011 | 1.003  | 41304    | 0.0527       |                 | 105  | 937   |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.753 | 3.764  | -0.011 | 1.000  | 43178    | 0.0495       |                 | 99.1 | 286   |       |
| 563.00 > 169.00                       | 3.753 | 3.764  | -0.011 | 1.000  | 12141    |              | 3.56(2.12-6.36) |      | 287   |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.910 | 3.920  | -0.010 | 1.000  | 215695   | NC           |                 |      | 4478  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.041 | 4.048  | -0.007 | 1.000  | 2931279  | 2.62         |                 | 105  | 23784 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.041 | 4.061  | -0.020 | 1.000  | 60433    | 0.0494       |                 | 98.8 | 74.9  |       |
| 613.00 > 169.00                       | 4.051 | 4.061  | -0.010 | 1.003  | 13931    |              | 4.34(2.13-6.40) |      | 234   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.308 | 4.319  | -0.011 | 1.000  | 76787    | 0.0573       |                 | 115  | 78.1  |       |
| 663.00 > 169.00                       | 4.308 | 4.319  | -0.011 | 1.000  | 20723    |              | 3.71(1.25-3.76) |      | 326   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.542 | 4.542  | 0.0    | 1.000  | 3621313  | 2.64         |                 | 106  | 18015 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.552 | 4.554  | -0.002 | 1.002  | 16610    | 0.0454       |                 | 90.8 | 207   |       |
| 713.00 > 219.00                       | 4.542 | 4.554  | -0.012 | 1.000  | 14295    |              | 1.16(0.71-2.13) |      | 306   |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.965 | 4.966  | -0.001 | 1.000  | 6591601  | 2.83         |                 | 113  | 14420 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.965 | 4.976  | -0.011 | 1.000  | 176830   | NC           |                 |      | 74.9  |       |
| 813.00 > 169.00                       | 4.965 | 4.976  | -0.011 | 1.000  | 30342    |              | 5.83(2.86-8.58) |      | 262   |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.320 | 5.336     | -0.016    | 1.000     | 145803   | NC              |                  |      | 43.7 |       |
| 913.00 > 169.00               | 5.320 | 5.336     | -0.016    | 1.000     | 17864    |                 | 8.16(3.83-11.48) |      | 243  |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_002.d

Injection Date: 28-May-2018 07:08:03

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

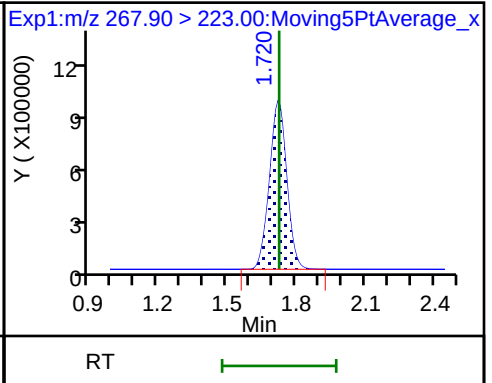
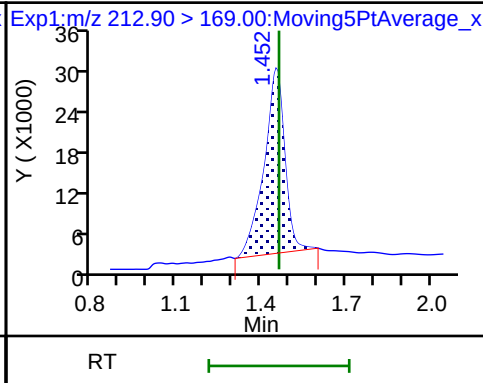
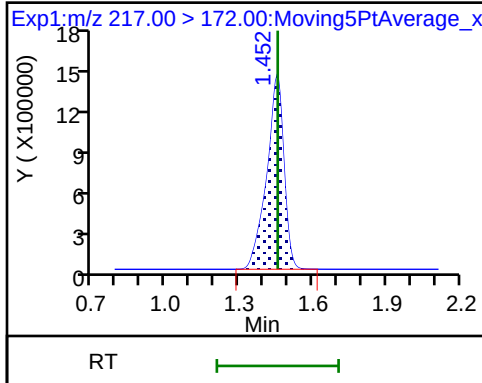
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

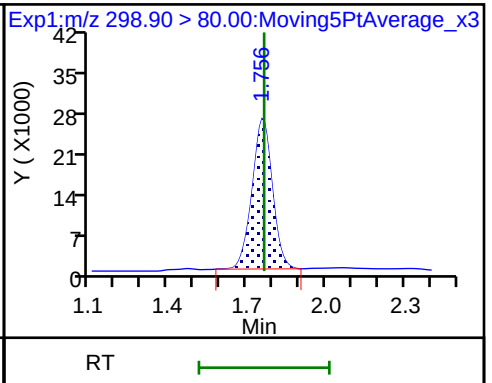
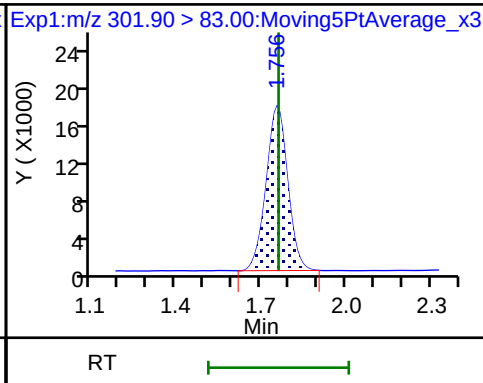
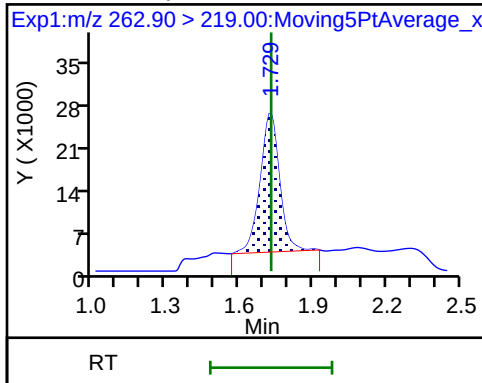
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

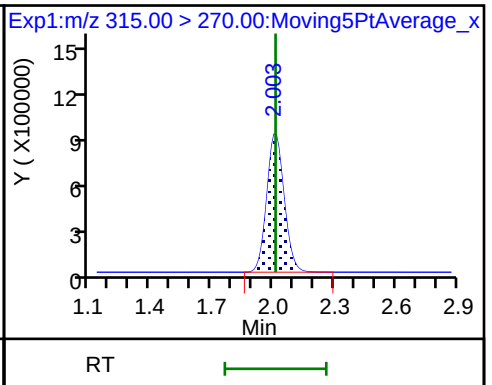
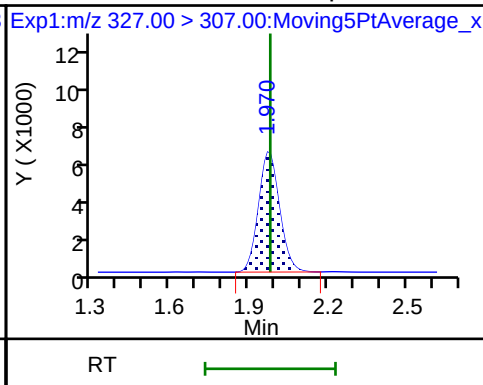
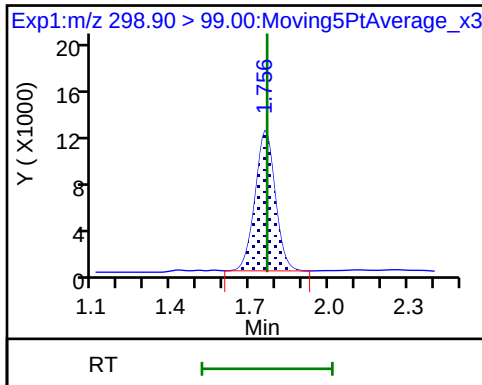
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexanoate

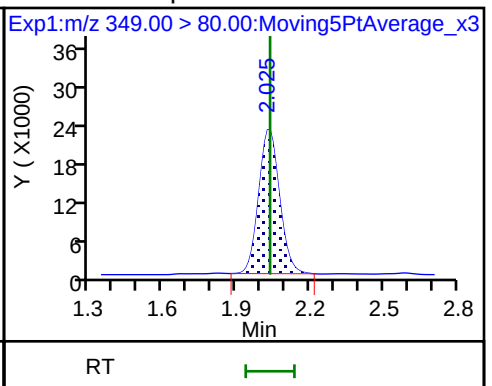
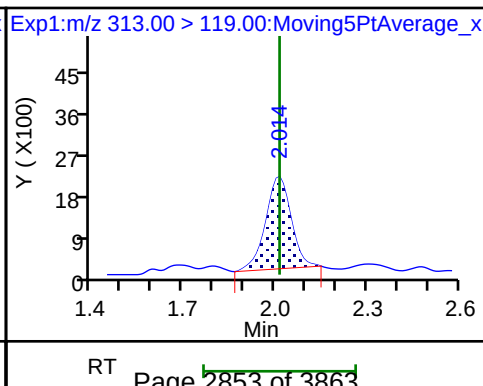
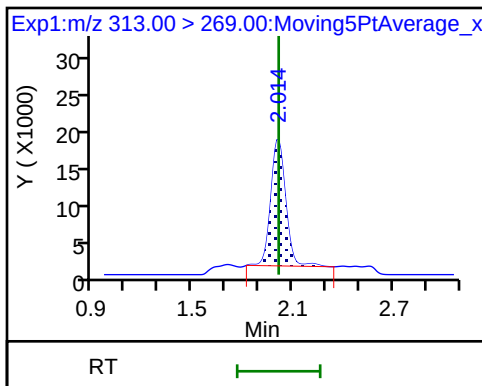
De 7 13C2 PFHxA

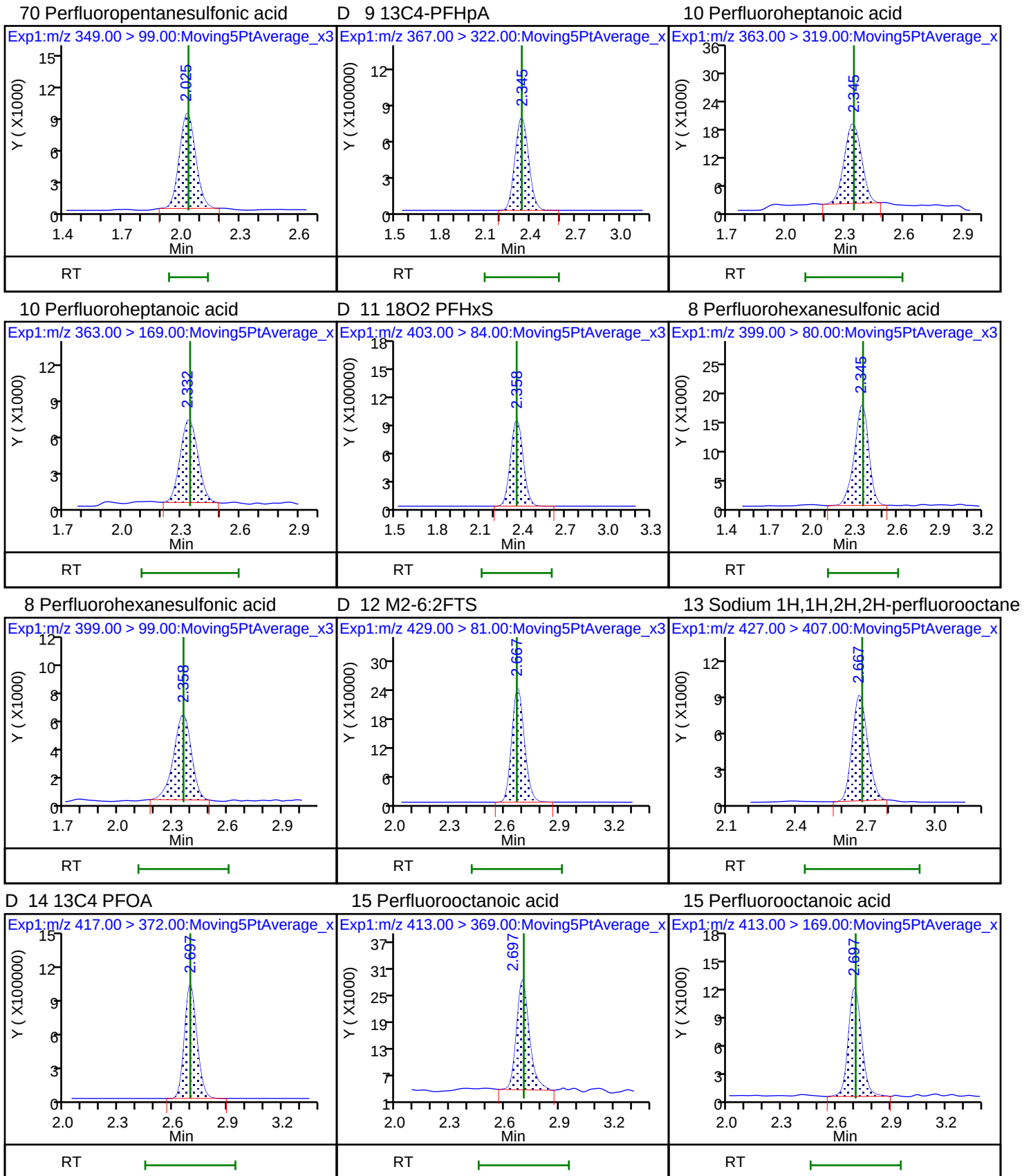


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid



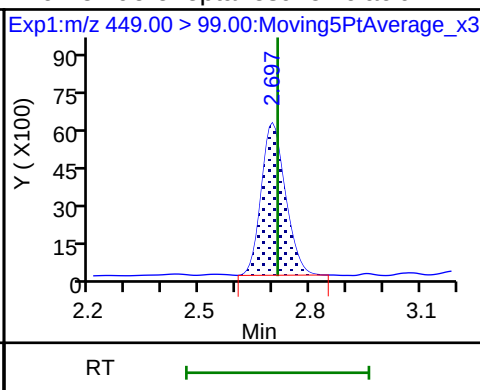
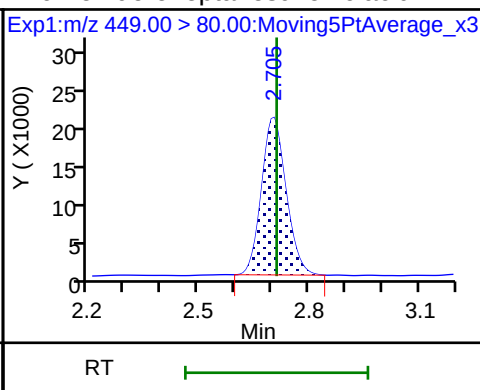
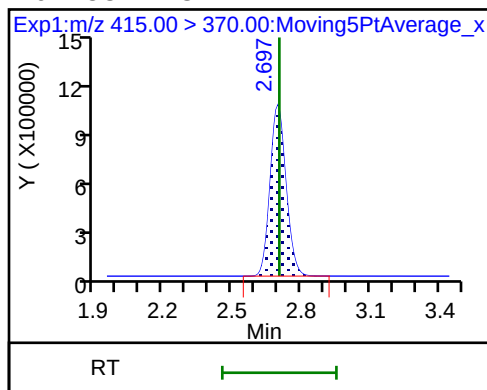




\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

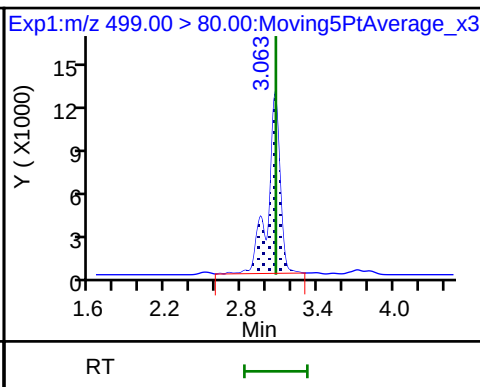
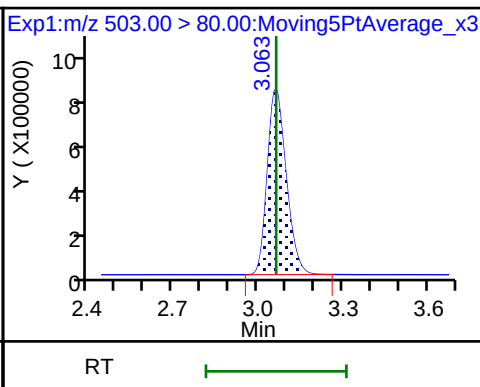
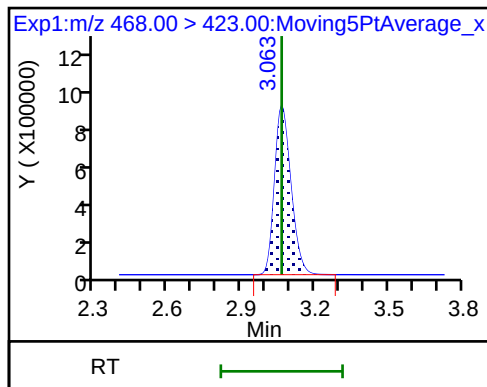
16 Perfluoroheptanesulfonic acid



D 19 13C5 PFNA

D 18 13C4 PFOS

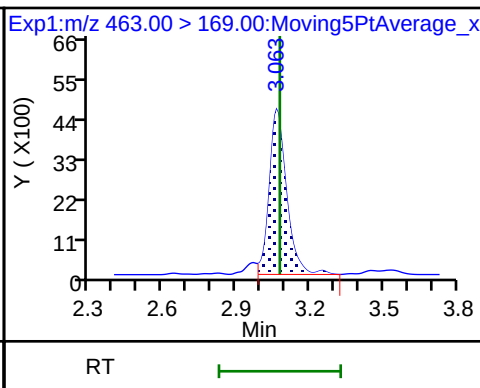
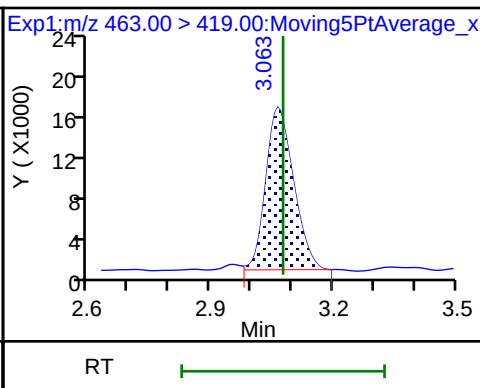
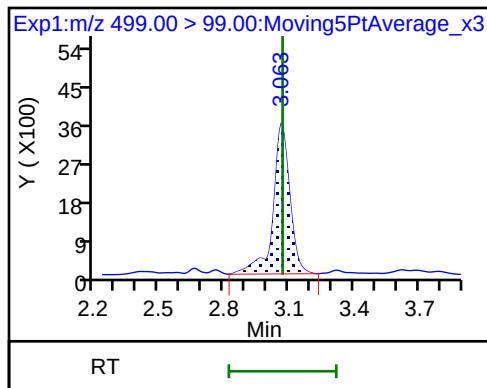
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid

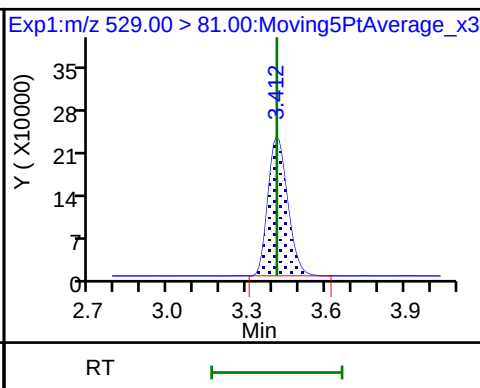
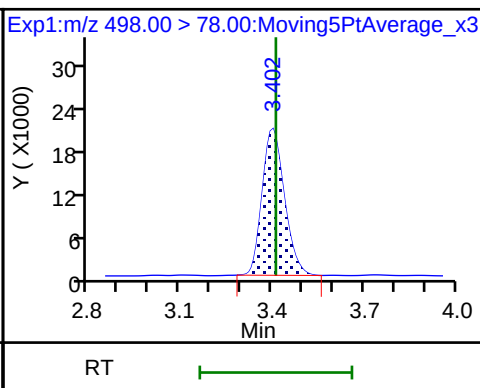
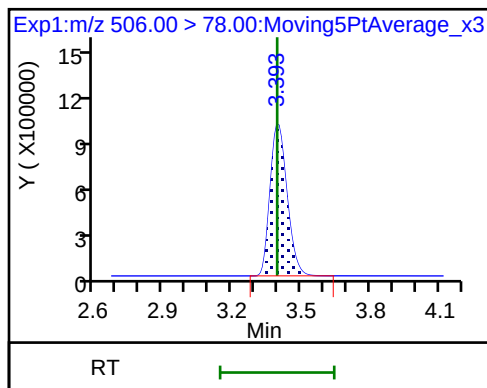
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

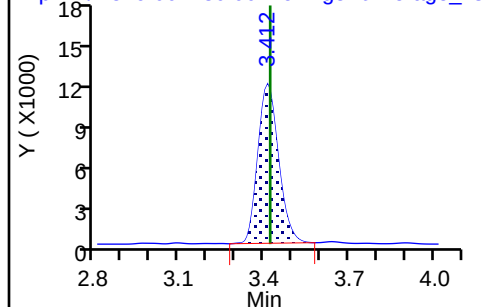


## 68 Perfluorononanesulfonic acid

## 68 Perfluorononanesulfonic acid

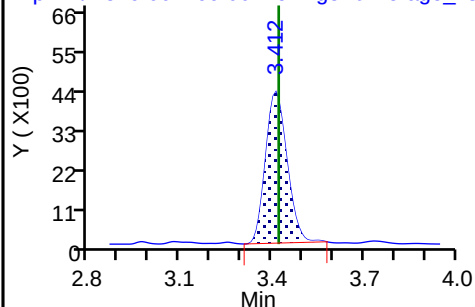
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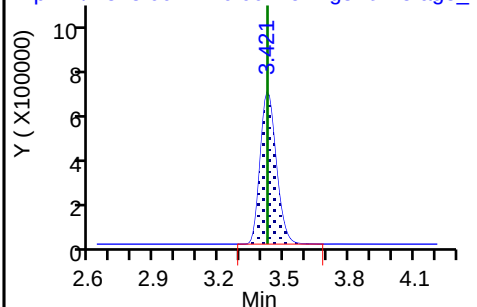
RT

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



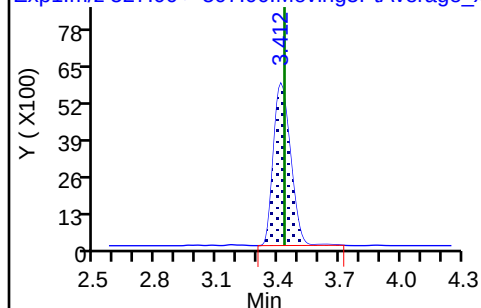
RT

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

## 24 Perfluorodecanoic acid

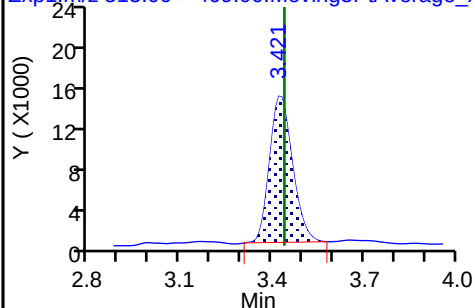
## 24 Perfluorodecanoic acid

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



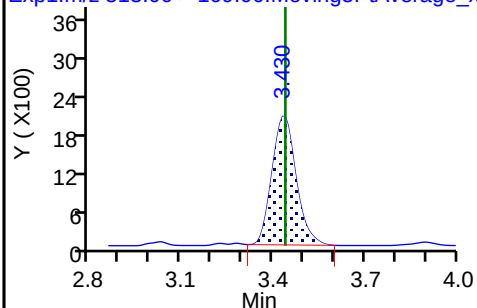
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Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



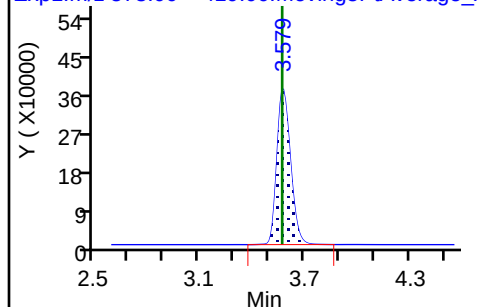
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## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

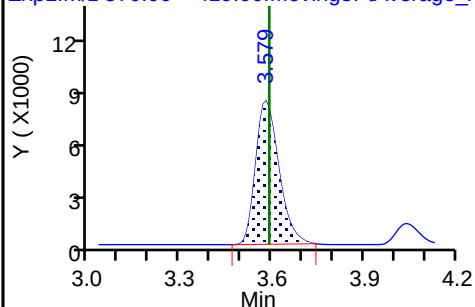
## 29 Perfluorodecane Sulfonic acid

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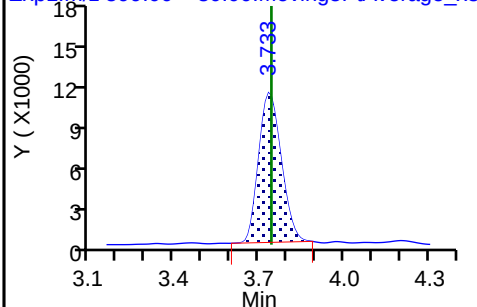
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



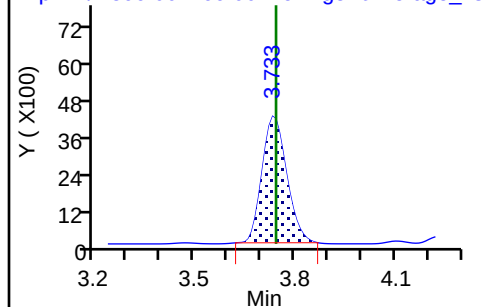
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

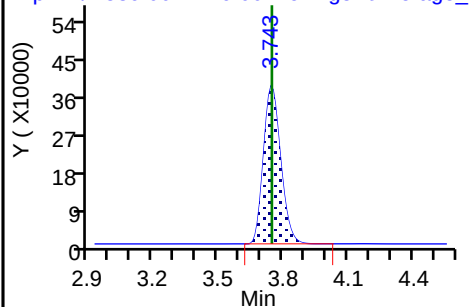
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Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



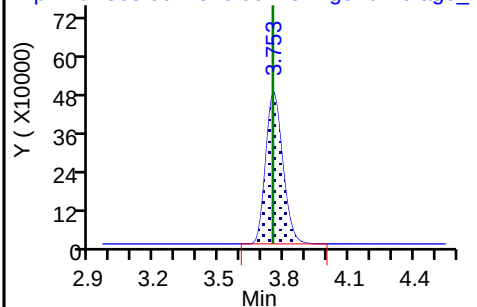
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3

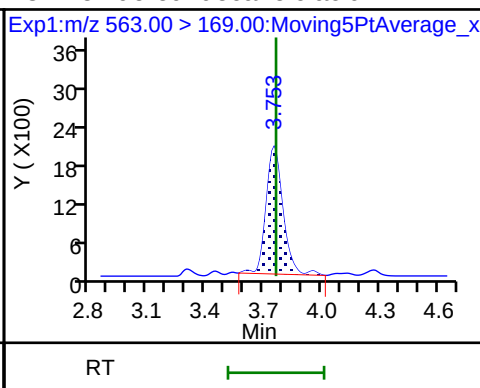
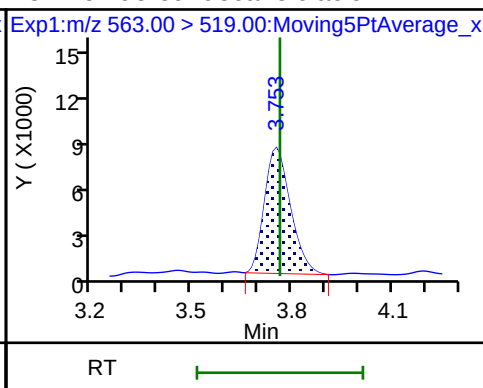
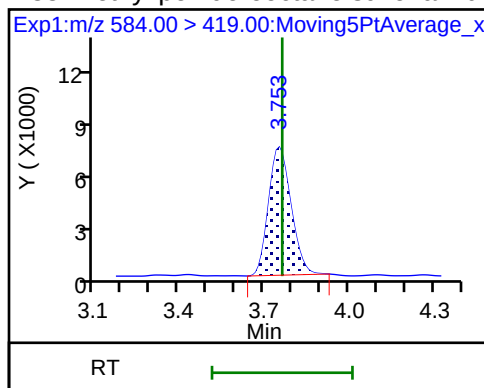


RT

33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

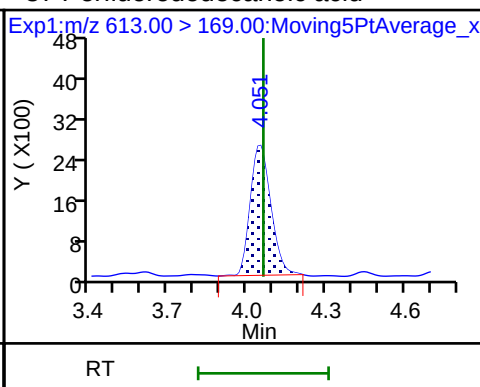
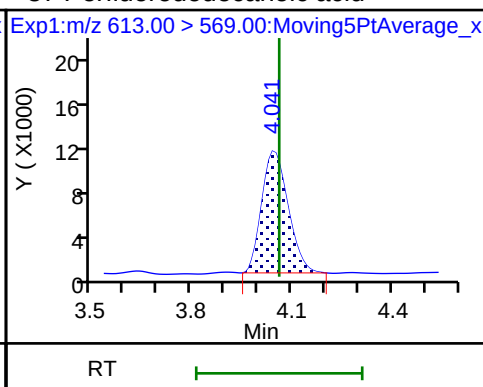
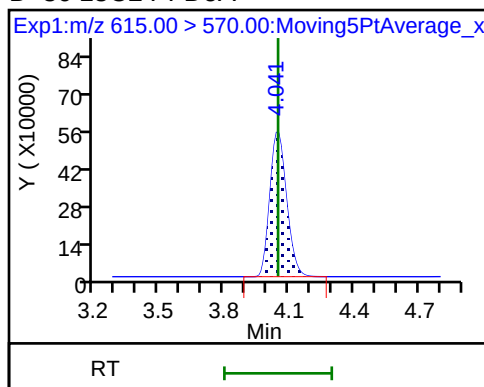
31 Perfluoroundecanoic acid



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

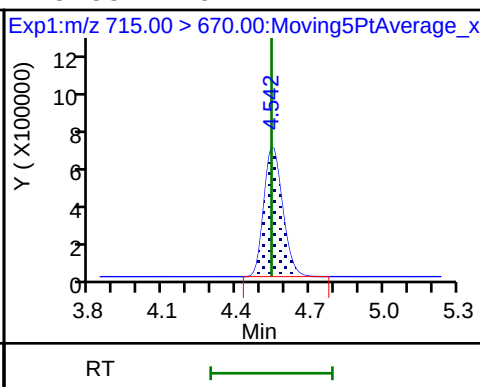
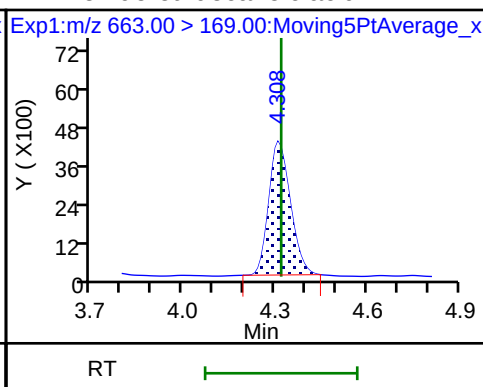
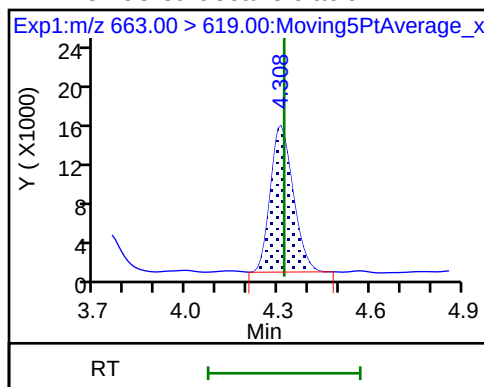
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

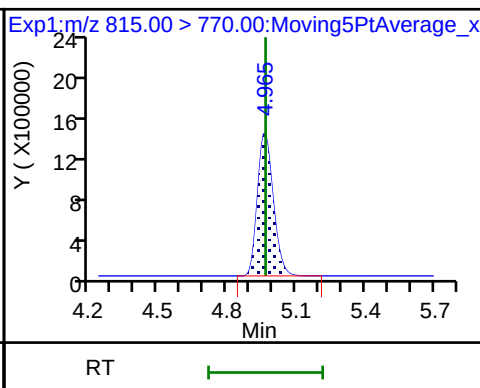
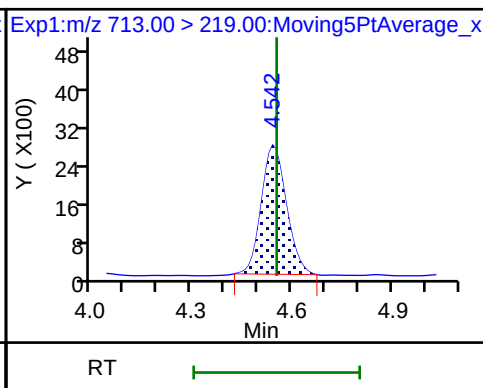
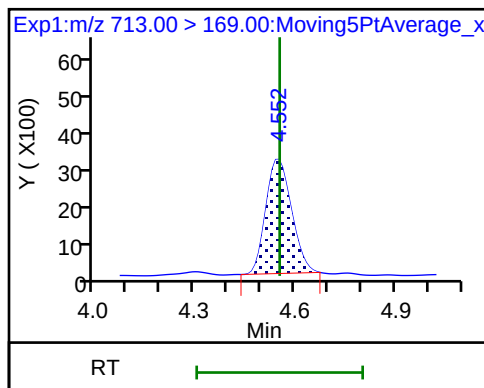
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225818/3 Calibration Date: 05/28/2018 07:15

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_003.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9291 |         | 0.999       | 1.00         | -0.0  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.119  |         | 0.948       | 1.00         | -5.2  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 76.60  |         | 0.867       | 0.884        | -1.9  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.15  |         | 1.02        | 0.934        | 9.5   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.019  |         | 0.991       | 1.00         | -0.9  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 69.26  |         | 0.934       | 0.938        | -0.4  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.035  |         | 0.980       | 1.00         | -2.0  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.042  |         | 0.841       | 0.910        | -7.6  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.642  |         | 0.877       | 0.948        | -7.5  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.048  |         | 0.891       | 1.00         | -10.9 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.298  |         | 0.928       | 0.952        | -2.5  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 0.9653 |         | 0.911       | 1.00         | -8.9  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.061  |         | 0.838       | 0.928        | -9.7  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 0.9937 |         | 1.02        | 1.00         | 2.1   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7865 |         | 0.997       | 0.960        | 3.8   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.230  |         | 0.873       | 0.958        | -8.8  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.011  |         | 1.04        | 1.00         | 4.0   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.011  |         | 0.996       | 1.00         | -0.4  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6428 |         | 0.923       | 0.964        | -4.3  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9432 |         | 1.00        | 1.00         | 0.3   | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7734 |         | 0.926       | 1.00         | -7.4  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.048  |         | 1.00        | 1.00         | 0.4   | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.210  |         | 1.06        | 1.00         | 5.8   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2496 |         | 0.988       | 1.00         | -1.2  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.354  |         | 2.21        | 2.50         | -11.4 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9501 |         | 2.42        | 2.50         | -3.0  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0199 |         | 2.09        | 2.33         | -10.0 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.996  |         | 2.38        | 2.50         | -4.6  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9333 |         | 2.33        | 2.50         | -6.8  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.097  |         | 2.10        | 2.37         | -11.3 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2283 |         | 2.45        | 2.38         | 3.3   | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225818/3 Calibration Date: 05/28/2018 07:15  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_003.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9588 |         | 2.53           | 2.50            | 1.3   | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7852 |         | 2.21           | 2.39            | -7.6  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.8005 |         | 2.58           | 2.50            | 3.4   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9489 |         | 2.13           | 2.50            | -14.7 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2409 |         | 2.29           | 2.40            | -4.2  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6306 |         | 2.39           | 2.50            | -4.3  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4027 |         | 2.77           | 2.50            | 10.8  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5248 |         | 2.51           | 2.50            | 0.6   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3926 |         | 2.63           | 2.50            | 5.3   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5473 |         | 2.44           | 2.50            | -2.5  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6769 |         | 2.46           | 2.50            | -1.8  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.212  |         | 2.59           | 2.50            | 3.6   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_003.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-May-2018 07:15:55 ALS Bottle#: 37 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 10:58:18 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: ruangyotsakuld

Date: 30-May-2018 10:58:17

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.455  | -0.003 | 1.000  | 6974118  | 2.21         |                   | 88.6 | 34206 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.452 | 1.452  | 0.0    | 1.000  | 2591838  | 1.00         |                   | 99.9 | 1500  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.720 | 1.725  | -0.005 | 0.560  | 4894111  | 2.42         |                   | 97.0 | 67211 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.720 | 1.720  | 0.0    | 1.000  | 2189779  | 0.9475       |                   | 94.8 | 1420  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.756 | 1.761  | -0.005 | 1.000  | 95437    | 2.09         |                   | 90.0 | 955   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.756 | 1.756  | 0.0    | 1.000  | 2779725  | 0.8672       |                   | 98.1 | 13003 |       |
| 298.90 > 99.00                        | 1.756 | 1.756  | 0.0    | 1.000  | 1165470  |              | 2.39(1.25-3.74)   |      | 14882 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.977  | -0.007 | 1.000  | 779142   | NC           |                   |      | 8008  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 695708   | 1.02         |                   | 109  | 40243 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.004 | 2.011  | -0.007 | 1.000  | 5132156  | 2.38         |                   | 95.4 | 96461 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.015 | 2.015  | 0.0    | 1.006  | 2091143  | 0.99         |                   | 99.1 | 3831  |       |
| 313.00 > 119.00                       | 2.004 | 2.015  | -0.011 | 1.000  | 191022   |              | 10.95(5.03-15.10) |      | 2330  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 2666587  | 0.9341       |                   | 99.6 | 25260 |       |
| 349.00 > 99.00                        | 2.026 | 2.026  | 0.0    | 1.000  | 991133   |              | 2.69(1.36-4.07)   |      | 18576 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.105 | 2.112  | -0.007 | 1.000  | 281722   | NC           |                   |      | 6870  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.105 | 2.105  | 0.0    | 1.000  | 299591   | NC           |                 |      | 1755  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.346 | 2.342  | 0.004  | 1.000  | 4807564  | 2.33         |                 | 93.2 | 54193 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.346 | 2.346  | 0.0    | 1.000  | 1989745  | 0.9795       |                 | 98.0 | 2567  |       |
| 363.00 > 169.00                       | 2.346 | 2.346  | 0.0    | 1.000  | 783489   |              | 2.54(1.13-3.40) |      | 4831  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.359 | 2.355  | 0.004  | 1.000  | 5345335  | 2.10         |                 | 88.7 | 45086 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.359 | 2.359  | 0.0    | 1.000  | 2142296  | 0.8412       |                 | 92.4 | 8191  |       |
| 399.00 > 99.00                        | 2.359 | 2.359  | 0.0    | 1.000  | 737456   |              | 2.90(1.50-4.49) |      | 4506  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.385 | 2.385  | 0.0    | 1.000  | 6062609  | NC           |                 |      | 56027 |       |
| 377.00 > 85.00                        | 2.385 | 2.385  | 0.0    | 1.000  | 3439303  |              | 1.76(0.84-2.53) |      | 38028 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.675 | 2.665  | 0.010  | 1.000  | 1117005  | 2.45         |                 | 103  | 17882 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.675 | 2.675  | 0.0    | 1.000  | 732093   | 0.8767       |                 | 92.5 | 17139 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.698 | 2.695  | 0.003  | 1.000  | 4938707  | 2.53         |                 | 101  | 49367 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.698 | 2.698  | 0.0    | 1.000  | 2071167  | 0.8907       |                 | 89.1 | 857   |       |
| 413.00 > 169.00                       | 2.698 | 2.698  | 0.0    | 1.000  | 1072996  |              | 1.93(0.84-2.52) |      | 4839  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.698 | 2.698  | 0.0    |        | 5150922  | 2.50         |                 |      | 57320 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.705 | 2.705  | 0.0    | 1.000  | 1999338  | 0.9278       |                 | 97.5 | 15785 |       |
| 449.00 > 99.00                        | 2.705 | 2.705  | 0.0    | 1.000  | 538940   |              | 3.71(1.94-5.82) |      | 8819  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.070 | 3.063  | 0.007  | 1.000  | 4123402  | 2.58         |                 | 103  | 98138 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.070 | 3.063  | 0.007  | 1.000  | 3866673  | 2.21         |                 | 92.4 | 18810 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.070 | 3.070  | 0.0    | 1.000  | 1593564  | 0.8377       |                 | 90.3 | 8891  |       |
| 499.00 > 99.00                        | 3.070 | 3.070  | 0.0    | 1.000  | 348538   |              | 4.57(2.31-6.93) |      | 5679  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.070 | 3.070  | 0.0    | 1.000  | 1592127  | 0.9114       |                 | 91.1 | 4865  |       |
| 463.00 > 169.00                       | 3.070 | 3.070  | 0.0    | 1.000  | 387123   |              | 4.11(1.90-5.69) |      | 13791 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.276 | 3.276  | 0.0    | 1.000  | 2710849  | NC           |                 |      | 49626 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.402 | 3.395  | 0.007  | 1.000  | 4887724  | 2.13         |                 | 85.3 | 35503 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.402 | 3.402  | 0.0    | 1.000  | 1942707  | 1.02         |                 | 102  | 47920 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.421 | 3.413  | 0.008  | 1.000  | 1188741  | 2.29         |                 | 95.8 | 17641 |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.412 | 3.412  | 0.0    | 1.000  | 1221497  | 1.00         |                 | 104  | 21708 |       |
| 549.00 > 99.00                        | 3.412 | 3.412  | 0.0    | 1.000  | 457909   |              | 2.67(1.33-3.97) |      | 11198 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.430 | 3.422  | 0.008  | 1.000  | 3247997  | 2.39         |                 | 95.7 | 42049 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.421 | 3.421  | 0.0    | 1.000  | 585008   | 0.8734       |                 | 91.2 | 15891 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.430 | 3.430  | 0.0    | 1.000  | 1313904  | 1.04         |                 | 104  | 6225  |       |
| 513.00 > 169.00                       | 3.430 | 3.430  | 0.0    | 1.000  | 219405   |              | 5.99(2.36-7.09) |      | 5299  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.579 | 3.572  | 0.007  | 1.000  | 2074054  | 2.77         |                 | 111  | 16324 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.590 | 3.590  | 0.0    | 1.003  | 838929   | 1.00         |                 | 99.6 | 5187  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.743 | 3.743  | 0.0    | 1.000  | 1002506  | 0.9229       |                 | 95.7 | 14103 |       |
| 599.00 > 99.00                        | 3.743 | 3.743  | 0.0    | 1.000  | 351550   |              | 2.85(1.39-4.16) |      | 10896 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.753 | 3.748  | 0.005  | 1.000  | 2022109  | 2.63         |                 | 105  | 19051 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.753 | 3.748  | 0.005  | 1.000  | 2702997  | 2.51         |                 | 101  | 45103 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.753 | 3.753  | 0.0    | 1.000  | 762926   | 1.00         |                 | 100  | 15240 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.753 | 3.753  | 0.0    | 1.000  | 836165   | 0.9260       |                 | 92.6 | 4569  |       |
| 563.00 > 169.00                       | 3.753 | 3.753  | 0.0    | 1.000  | 207308   |              | 4.03(2.12-6.36) |      | 7407  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.910 | 3.910  | 0.0    | 1.000  | 4197243  | NC           |                 |      | 46675 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.051 | 4.048  | 0.003  | 1.000  | 2819291  | 2.44         |                 | 97.5 | 20984 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.051 | 4.051  | 0.0    | 1.000  | 1181822  | 1.00         |                 | 100  | 1500  |       |
| 613.00 > 169.00                       | 4.051 | 4.051  | 0.0    | 1.000  | 282809   |              | 4.18(2.13-6.40) |      | 4109  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.308 | 4.308  | 0.0    | 1.000  | 1364274  | 1.06         |                 | 106  | 1299  |       |
| 663.00 > 169.00                       | 4.308 | 4.308  | 0.0    | 1.000  | 409249   |              | 3.33(1.25-3.76) |      | 5954  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.554 | 4.542  | 0.012  | 1.000  | 3486518  | 2.46         |                 | 98.2 | 16886 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 348018   | 0.9882       |                 | 98.8 | 4105  |       |
| 713.00 > 219.00                       | 4.544 | 4.554  | -0.010 | 0.998  | 254835   |              | 1.37(0.71-2.13) |      | 5379  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.967 | 4.966  | 0.001  | 1.000  | 6242783  | 2.59         |                 | 104  | 12879 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.967 | 4.967  | 0.0    | 1.000  | 2264676  | NC           |                 |      | 878   |       |
| 813.00 > 169.00                       | 4.967 | 4.967  | 0.0    | 1.000  | 380452   |              | 5.95(2.86-8.58) |      | 2890  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.329 | 5.329     | 0.0       | 1.000     | 2568923  | NC              |                  |      | 725  |       |
| 913.00 > 169.00               | 5.329 | 5.329     | 0.0       | 1.000     | 303213   |                 | 8.47(3.83-11.48) |      | 2544 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_003.d

Injection Date: 28-May-2018 07:15:55

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

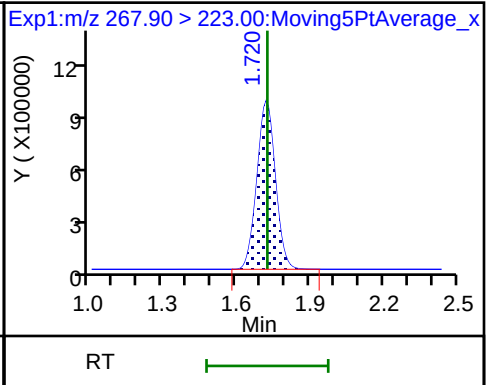
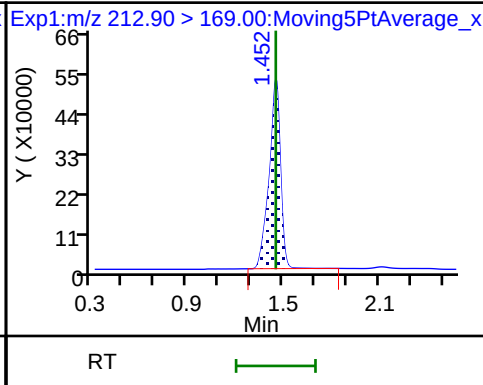
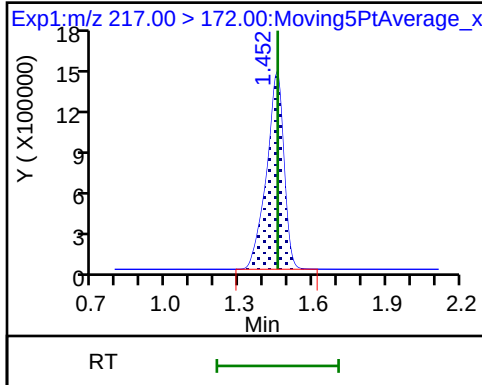
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

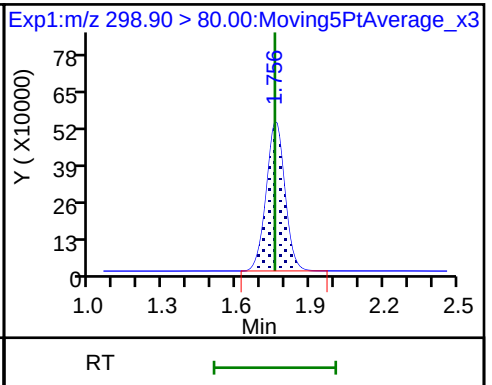
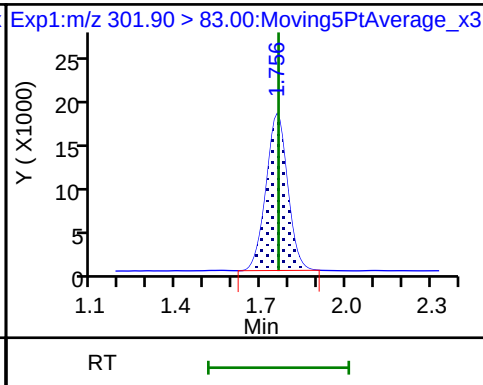
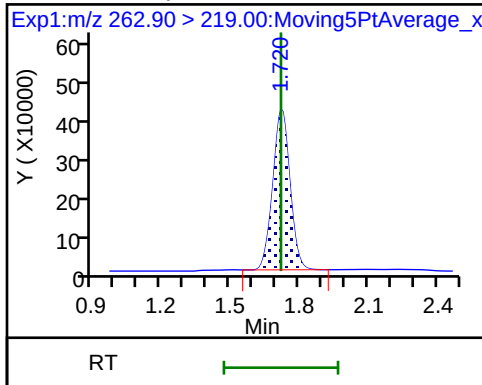
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

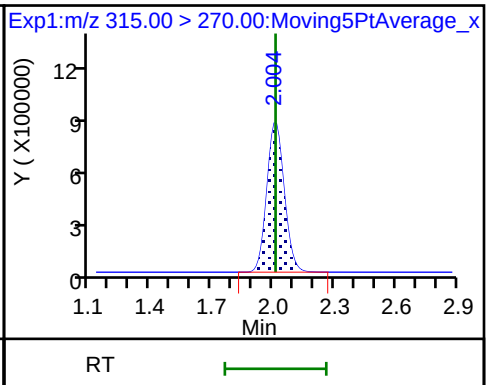
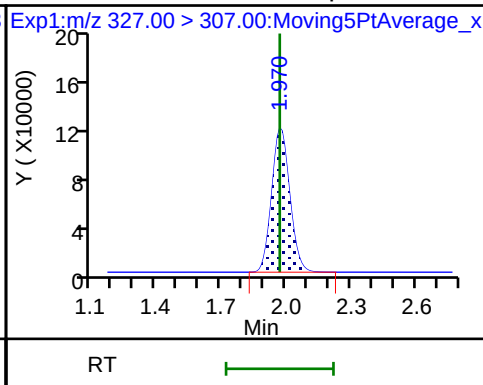
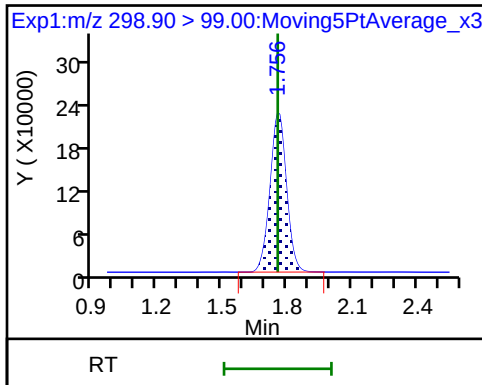
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

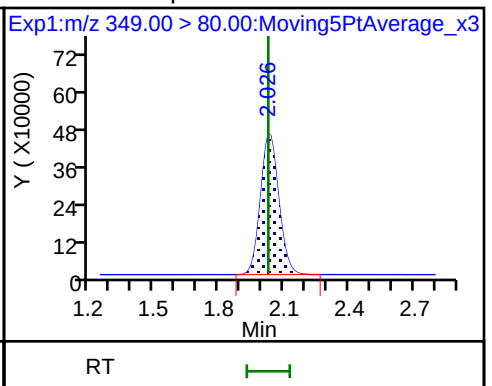
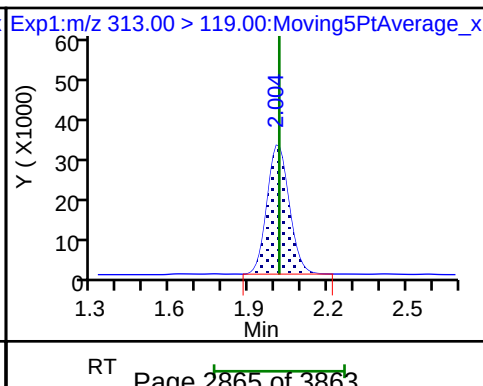
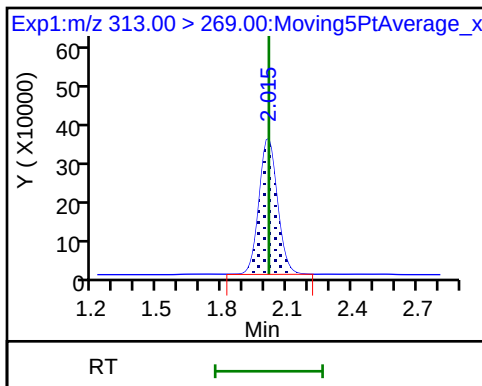
De 7 13C2 PFHxA

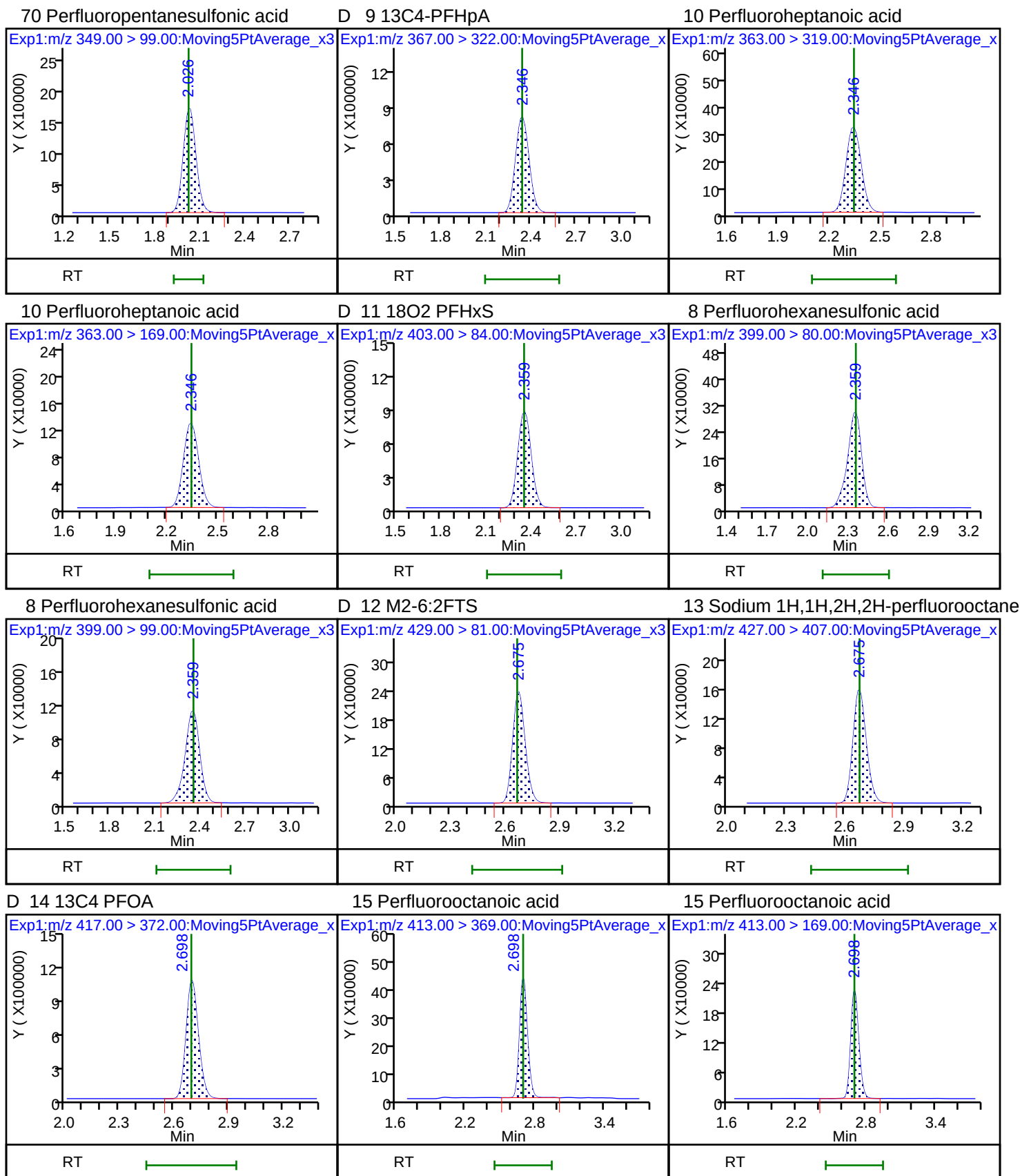


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid

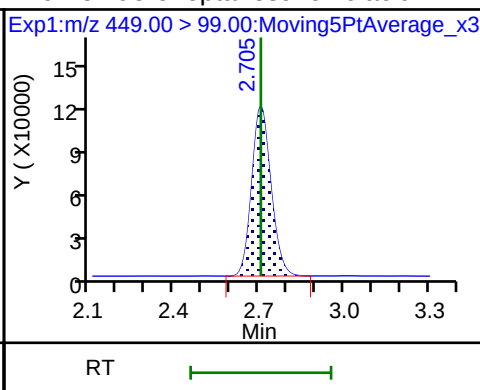
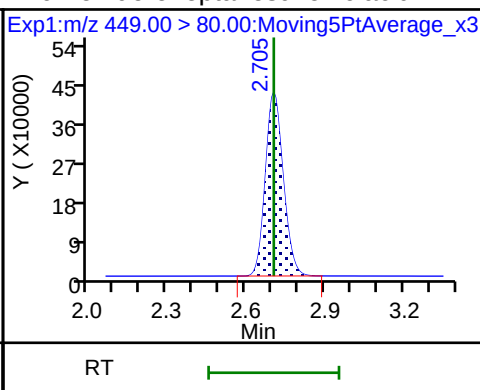
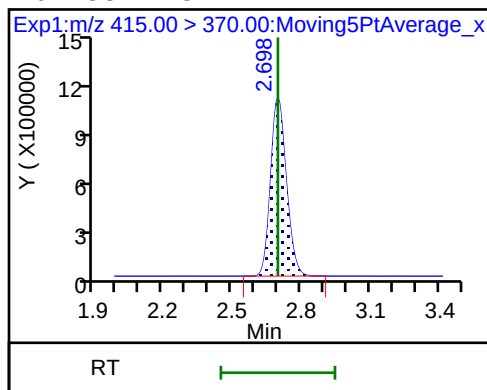




\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

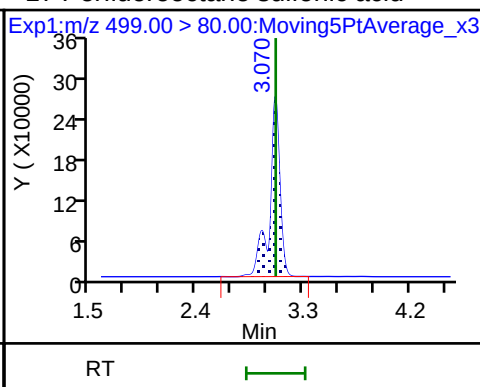
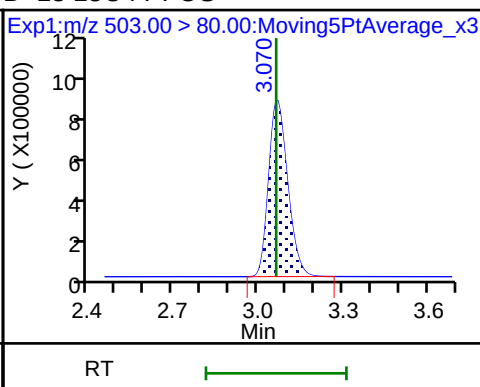
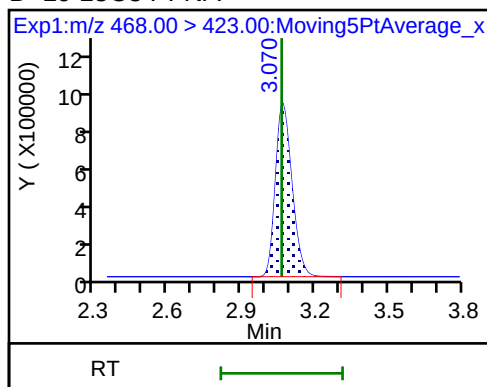
16 Perfluoroheptanesulfonic acid



D 19 13C5 PFNA

D 18 13C4 PFOS

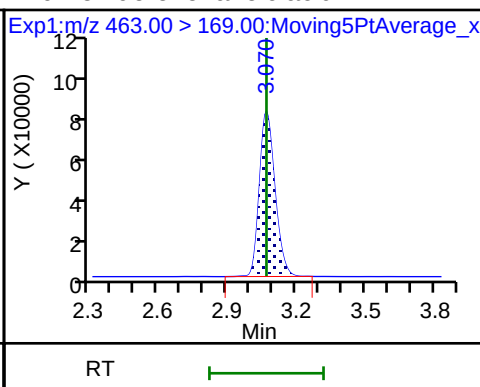
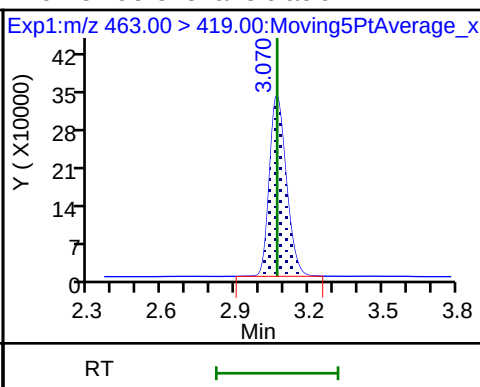
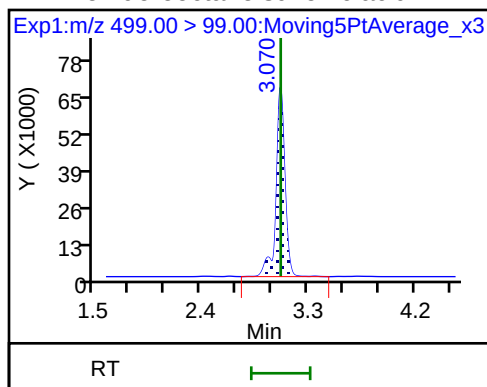
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid

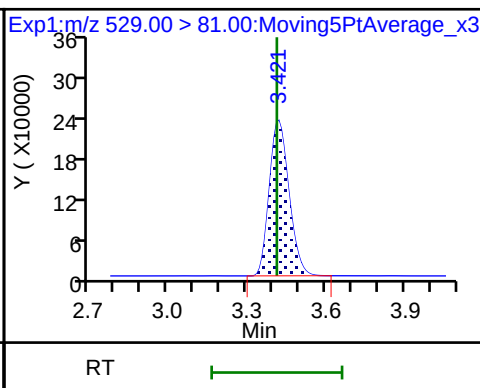
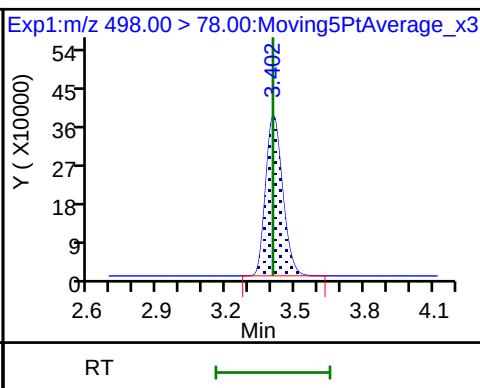
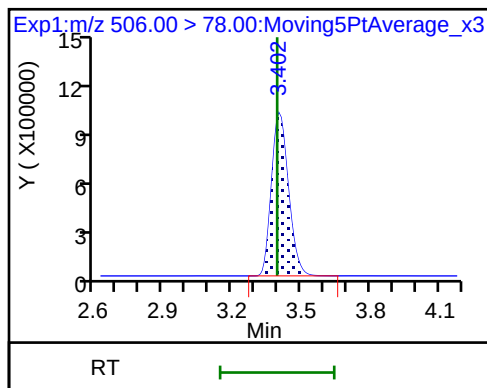
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

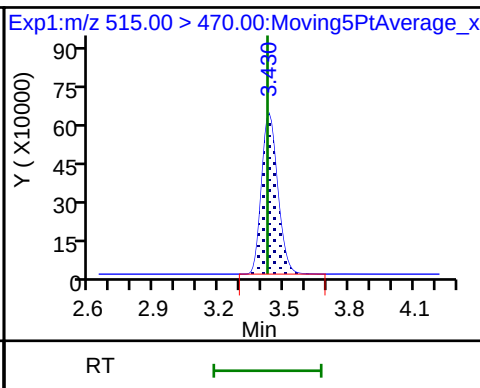
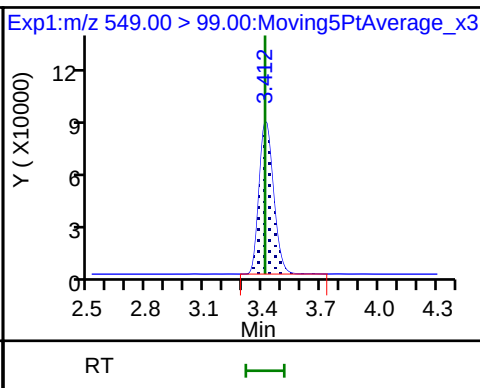
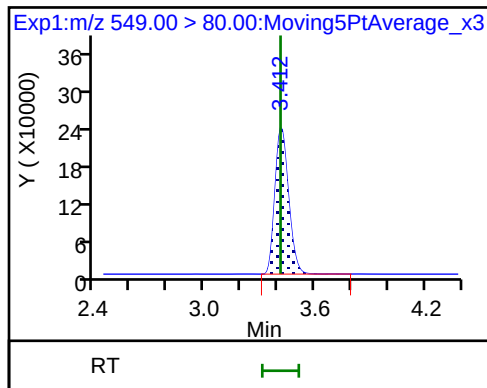
D 26 M2-8:2FTS



## 68 Perfluorononanesulfonic acid

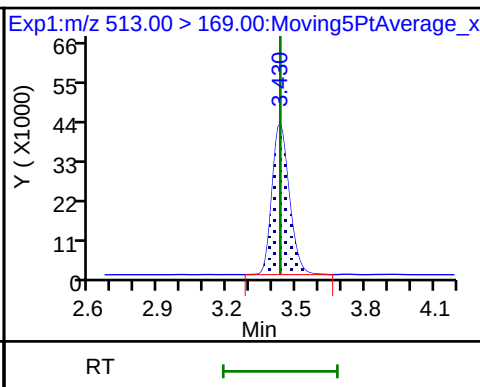
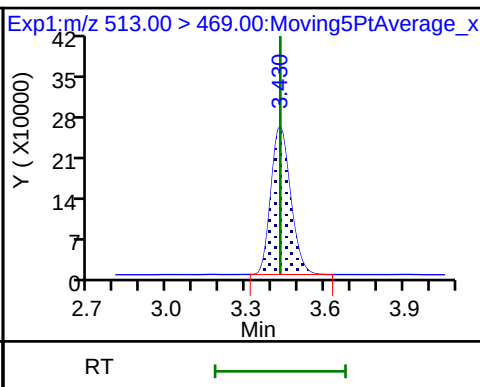
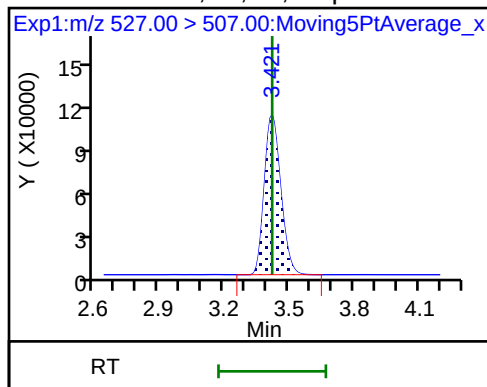
## 68 Perfluorononanesulfonic acid

## D 23 13C2 PFDA



## 25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl 24 Perfluorodecanoic acid

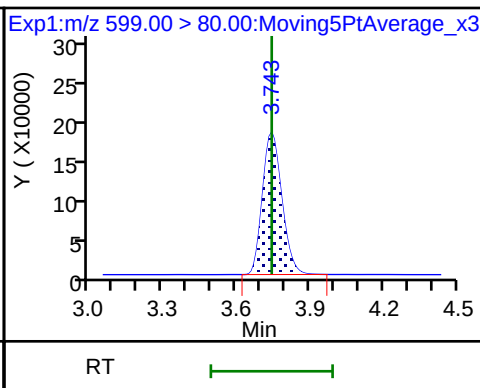
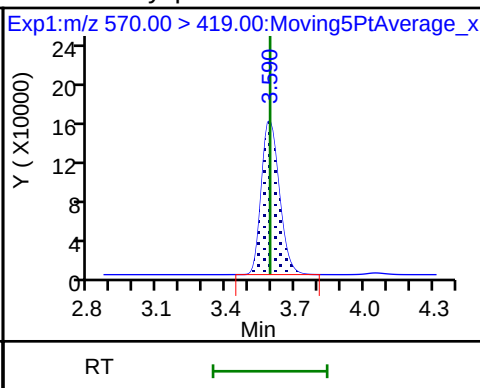
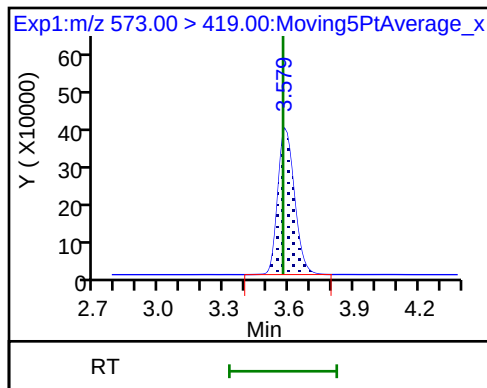
## 24 Perfluorodecanoic acid



## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

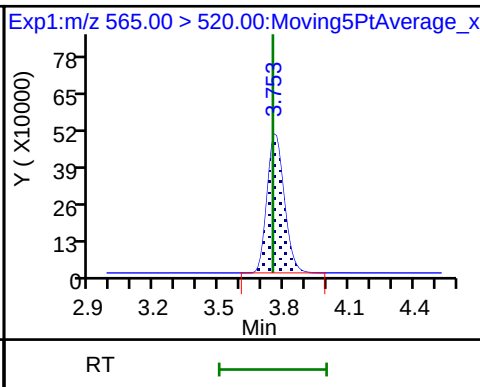
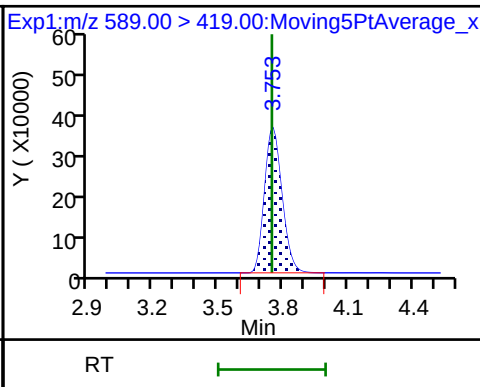
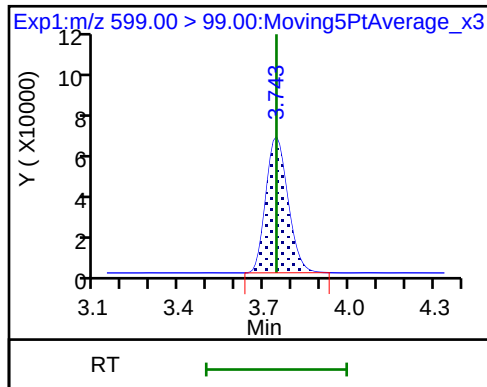
## 29 Perfluorodecane Sulfonic acid



## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

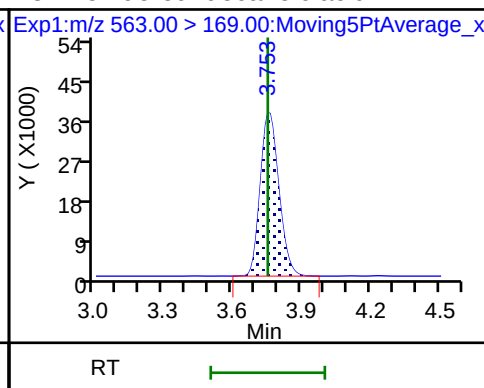
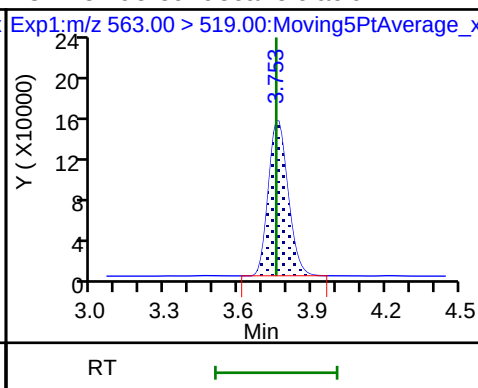
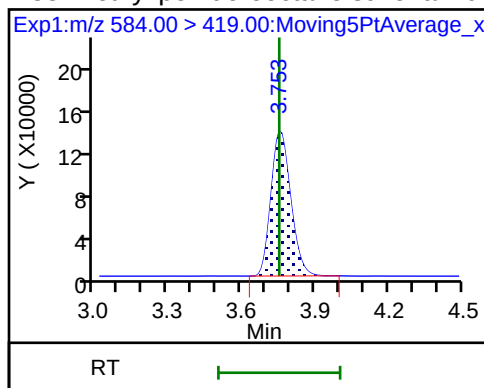
## D 30 13C2 PFUnA



33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

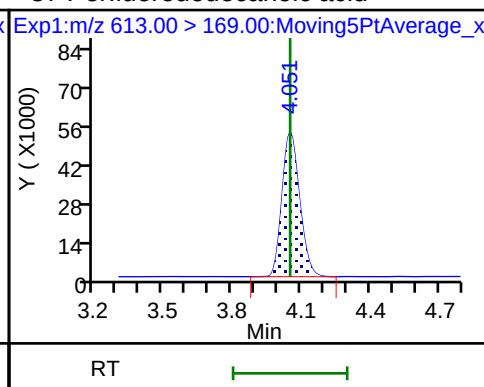
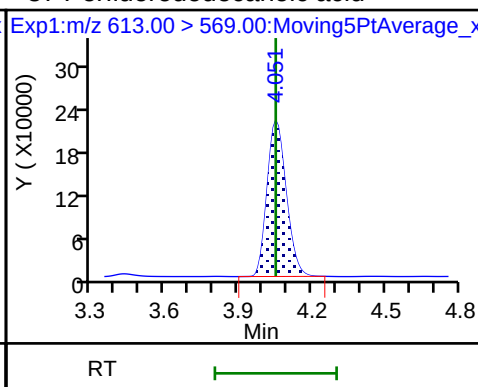
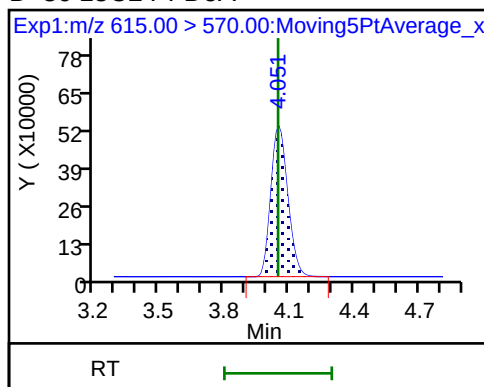
31 Perfluoroundecanoic acid



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

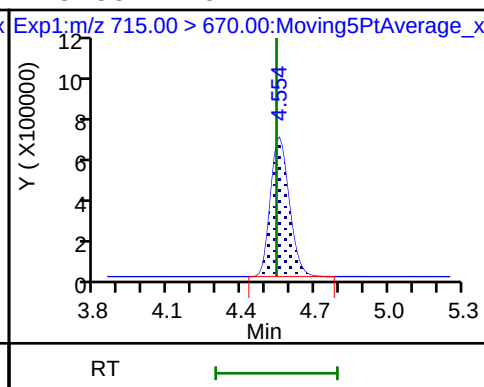
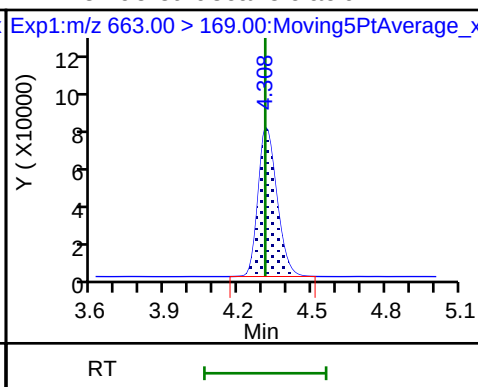
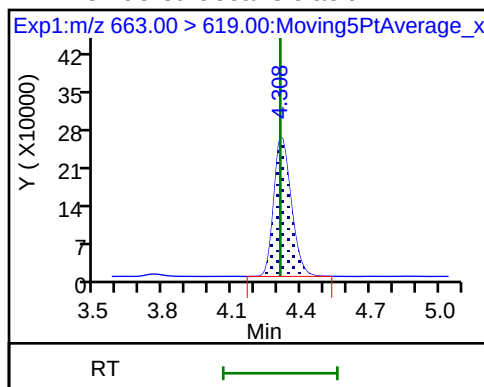
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

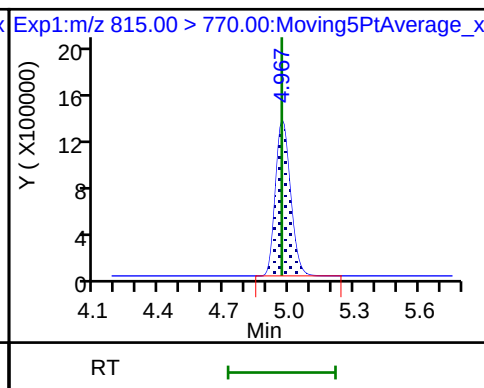
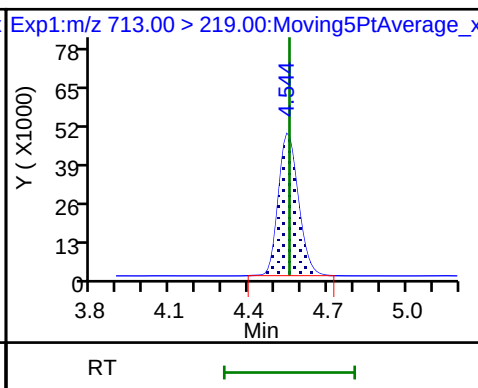
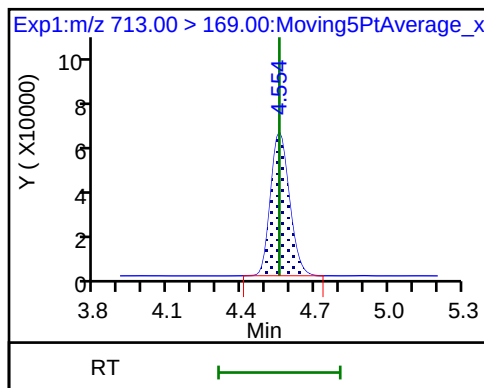
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225818/14 Calibration Date: 05/28/2018 08:42

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_014.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D   | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9726 |         | 2.61        | 2.50         | 4.6  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.175  |         | 2.49        | 2.50         | -0.4 | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 80.78  |         | 2.29        | 2.21         | 3.4  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.52  |         | 2.61        | 2.34         | 11.7 | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.016  |         | 2.47        | 2.50         | -1.2 | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 72.10  |         | 2.43        | 2.35         | 3.7  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.031  |         | 2.44        | 2.50         | -2.4 | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.047  |         | 2.11        | 2.28         | -7.1 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.633  |         | 2.19        | 2.37         | -7.4 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.131  |         | 2.40        | 2.50         | -3.9 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.349  |         | 2.41        | 2.38         | 1.3  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.047  |         | 2.47        | 2.50         | -1.2 | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.111  |         | 2.19        | 2.32         | -5.5 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.048  |         | 2.69        | 2.50         | 7.7  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.223  |         | 2.17        | 2.40         | -9.4 | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.8135 |         | 2.58        | 2.40         | 7.4  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9761 |         | 2.51        | 2.50         | 0.4  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.071  |         | 2.64        | 2.50         | 5.5  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6547 |         | 2.35        | 2.41         | -2.5 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9594 |         | 2.55        | 2.50         | 2.1  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8086 |         | 2.42        | 2.50         | -3.2 | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.043  |         | 2.50        | 2.50         | -0.0 | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.164  |         | 2.54        | 2.50         | 1.8  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2482 |         | 2.46        | 2.50         | -1.7 | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.383  |         | 2.26        | 2.50         | -9.5 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9537 |         | 2.43        | 2.50         | -2.7 | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0203 |         | 2.13        | 2.33         | -8.3 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.035  |         | 2.48        | 2.50         | -1.0 | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9774 |         | 2.44        | 2.50         | -2.4 | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.160  |         | 2.22        | 2.37         | -6.2 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2320 |         | 2.49        | 2.38         | 5.0  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225818/14 Calibration Date: 05/28/2018 08:42  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_014.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9508 |         | 2.51           | 2.50            | 0.4   | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7945 |         | 2.23           | 2.39            | -6.6  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7916 |         | 2.56           | 2.50            | 2.2   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9755 |         | 2.19           | 2.50            | -12.3 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2576 |         | 2.45           | 2.40            | 2.4   | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6660 |         | 2.53           | 2.50            | 1.1   | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4033 |         | 2.77           | 2.50            | 11.0  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5372 |         | 2.57           | 2.50            | 3.0   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3995 |         | 2.68           | 2.50            | 7.1   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5817 |         | 2.59           | 2.50            | 3.6   | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7079 |         | 2.57           | 2.50            | 2.7   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.392  |         | 2.98           | 2.50            | 19.0  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_014.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 28-May-2018 08:42:10 ALS Bottle#: 38 Worklist Smp#: 14  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 11:15:35 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: ruangyotsakul

Date: 30-May-2018 11:15:35

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.457 | 1.457  | 0.0    | 1.000  | 6989458  | 2.61         |                   | 105  | 4321  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.457 | 1.455  | 0.002  | 1.000  | 7186475  | 2.26         |                   | 90.5 | 36124 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.728 | 1.728  | 0.0    | 1.000  | 5823630  | 2.49         |                   | 99.6 | 4314  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.728 | 1.725  | 0.003  | 0.564  | 4954961  | 2.43         |                   | 97.3 | 59648 |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 7536460  | 2.29         |                   | 103  | 41645 |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 3155802  |              | 2.39(1.25-3.74)   |      | 35878 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.765 | 1.761  | 0.004  | 1.000  | 98150    | 2.13         |                   | 91.7 | 900   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.980 | 1.980  | 0.0    | 1.000  | 1825366  | 2.61         |                   | 112  | 79263 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.980 | 1.977  | 0.003  | 1.000  | 761400   | NC           |                   |      | 6904  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.011  | 0.003  | 1.000  | 5375250  | 2.48         |                   | 99.0 | 84963 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 5462587  | 2.47         |                   | 98.8 | 10059 |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 484961   |              | 11.26(5.03-15.10) |      | 6354  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 7137208  | 2.43         |                   | 104  | 55944 |       |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 2615194  |              | 2.73(1.36-4.07)   |      | 37262 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.115 | 2.115  | 0.0    | 1.000  | 865450   | NC           |                   |      | 4935  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |        |       |
| 332.10 > 287.00                       | 2.115 | 2.112  | 0.003  | 1.000  | 288714   | NC           |                 |      | 5541   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                       | 2.345 | 2.342  | 0.003  | 1.000  | 5078118  | 2.44         |                 | 97.6 | 63006  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 5237348  | 2.44         |                 | 97.6 | 6579   |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 2051281  |              | 2.55(1.13-3.40) |      | 11770  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.358 | 2.355  | 0.003  | 1.000  | 5703440  | 2.22         |                 | 93.8 | 57697  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 5741524  | 2.11         |                 | 92.9 | 16263  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 1906077  |              | 3.01(1.50-4.49) |      | 9180   |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |        |       |
| 377.00 > 251.00                       | 2.384 | 2.384  | 0.0    | 1.000  | 15531381 | NC           |                 |      | 113014 |       |
| 377.00 > 85.00                        | 2.384 | 2.384  | 0.0    | 1.000  | 9811723  |              | 1.58(0.84-2.53) |      | 91227  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.674 | 2.665  | 0.009  | 1.000  | 1144904  | 2.49         |                 | 105  | 16047  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.674 | 2.674  | 0.0    | 1.000  | 1865662  | 2.19         |                 | 92.6 | 35940  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.697 | 2.695  | 0.002  | 1.000  | 4939823  | 2.51         |                 | 100  | 48053  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 5587606  | 2.40         |                 | 96.1 | 2050   |       |
| 413.00 > 169.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 2861512  |              | 1.95(0.84-2.52) |      | 10088  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.697 | 2.697  | 0.0    |        | 5195418  | 2.50         |                 |      | 47874  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 5300300  | 2.41         |                 | 101  | 24747  |       |
| 449.00 > 99.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 1455705  |              | 3.64(1.94-5.82) |      | 30653  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.064 | 3.063  | 0.001  | 1.000  | 4112817  | 2.56         |                 | 102  | 63909  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.064 | 3.063  | 0.001  | 1.000  | 3946255  | 2.23         |                 | 93.4 | 20385  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.064 | 3.064  | 0.0    | 1.000  | 4255349  | 2.19         |                 | 94.5 | 28089  |       |
| 499.00 > 99.00                        | 3.064 | 3.064  | 0.0    | 1.000  | 929782   |              | 4.58(2.31-6.93) |      | 28913  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                       | 3.064 | 3.064  | 0.0    | 1.000  | 4304613  | 2.47         |                 | 98.8 | 10330  |       |
| 463.00 > 169.00                       | 3.064 | 3.064  | 0.0    | 1.000  | 995680   |              | 4.32(1.90-5.69) |      | 19322  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |        |       |
| 531.00 > 351.00                       | 3.271 | 3.271  | 0.0    | 1.000  | 7212139  | NC           |                 |      | 56208  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.396 | 3.395  | 0.001  | 1.000  | 5068186  | 2.19         |                 | 87.7 | 41396  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.405 | 3.405  | 0.0    | 1.003  | 5313503  | 2.69         |                 | 108  | 45390  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.415 | 3.415  | 0.0    | 1.000  | 3223652  | 2.58         |                 | 107  | 25121  |       |
| 549.00 > 99.00                        | 3.415 | 3.415  | 0.0    | 1.000  | 1152682  |              | 2.80(1.33-3.97) |      | 18860  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.415 | 3.413  | 0.002  | 1.000  | 1282109  | 2.45         |                  | 102  | 20721 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.415 | 3.415  | 0.0    | 1.000  | 1567718  | 2.17         |                  | 90.6 | 37185 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.424 | 3.422  | 0.002  | 1.000  | 3460096  | 2.53         |                  | 101  | 48308 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.424 | 3.424  | 0.0    | 1.000  | 3377242  | 2.51         |                  | 100  | 13070 |       |
| 513.00 > 169.00                       | 3.424 | 3.424  | 0.0    | 1.000  | 605819   |              | 5.57(2.36-7.09)  |      | 11671 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.573 | 3.572  | 0.001  | 1.000  | 2095239  | 2.77         |                  | 111  | 22819 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.584 | 3.584  | 0.0    | 1.003  | 2243093  | 2.64         |                  | 105  | 13436 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.738 | 3.738  | 0.0    | 1.000  | 2605356  | 2.35         |                  | 97.5 | 27964 |       |
| 599.00 > 99.00                        | 3.738 | 3.738  | 0.0    | 1.000  | 847119   |              | 3.08(1.39-4.16)  |      | 17044 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.749 | 3.748  | 0.001  | 1.000  | 2075734  | 2.68         |                  | 107  | 20740 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.749 | 3.748  | 0.001  | 1.000  | 2791162  | 2.57         |                  | 103  | 31080 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.749 | 3.749  | 0.0    | 1.000  | 1991457  | 2.55         |                  | 102  | 32117 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.749 | 3.749  | 0.0    | 1.000  | 2256849  | 2.42         |                  | 96.8 | 10313 |       |
| 563.00 > 169.00                       | 3.749 | 3.749  | 0.0    | 1.000  | 546497   |              | 4.13(2.12-6.36)  |      | 12579 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.907 | 3.907  | 0.0    | 1.000  | 11051134 | NC           |                  |      | 62881 |       |
| D 36 13C2 PFDoA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.050 | 4.048  | 0.002  | 1.000  | 3021973  | 2.59         |                  | 104  | 19610 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.050 | 4.050  | 0.0    | 1.000  | 3151432  | 2.50         |                  | 99.9 | 3584  |       |
| 613.00 > 169.00                       | 4.050 | 4.050  | 0.0    | 1.000  | 713614   |              | 4.42(2.13-6.40)  |      | 9407  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.307 | 4.307  | 0.0    | 1.000  | 3518728  | 2.54         |                  | 102  | 3376  |       |
| 663.00 > 169.00                       | 4.307 | 4.307  | 0.0    | 1.000  | 1076002  |              | 3.27(1.25-3.76)  |      | 10199 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.552 | 4.542  | 0.010  | 1.000  | 3677976  | 2.57         |                  | 103  | 14923 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.552 | 4.552  | 0.0    | 1.000  | 912725   | 2.46         |                  | 98.3 | 9493  |       |
| 713.00 > 219.00                       | 4.542 | 4.552  | -0.010 | 0.998  | 653194   |              | 1.40(0.71-2.13)  |      | 10190 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.966 | 4.966  | 0.0    | 1.000  | 7232730  | 2.98         |                  | 119  | 15297 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.966 | 4.966  | 0.0    | 1.000  | 6725362  | NC           |                  |      | 2460  |       |
| 813.00 > 169.00                       | 4.966 | 4.966  | 0.0    | 1.000  | 1090785  |              | 6.17(2.86-8.58)  |      | 6584  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.328 | 5.328  | 0.0    | 1.000  | 7656217  | NC           |                  |      | 1765  |       |
| 913.00 > 169.00                       | 5.328 | 5.328  | 0.0    | 1.000  | 903674   |              | 8.47(3.83-11.48) |      | 4983  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_014.d

Injection Date: 28-May-2018 08:42:10

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 14

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

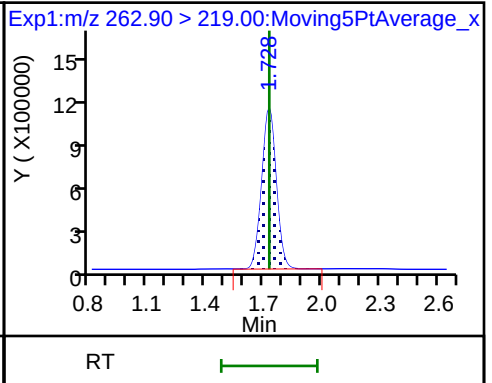
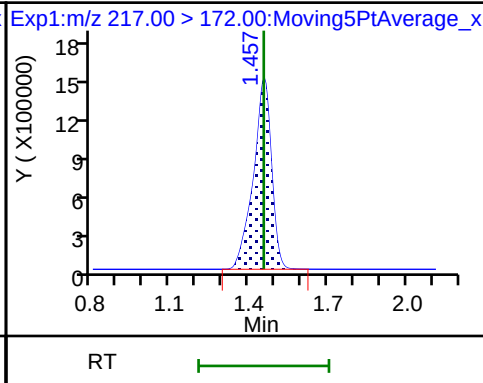
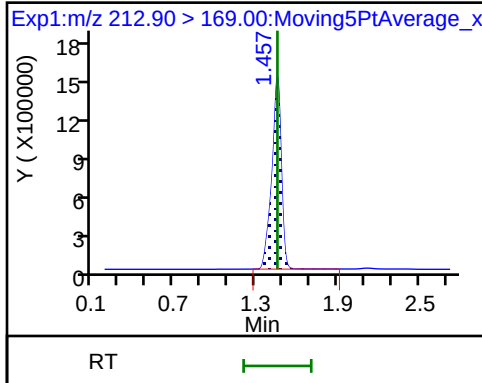
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

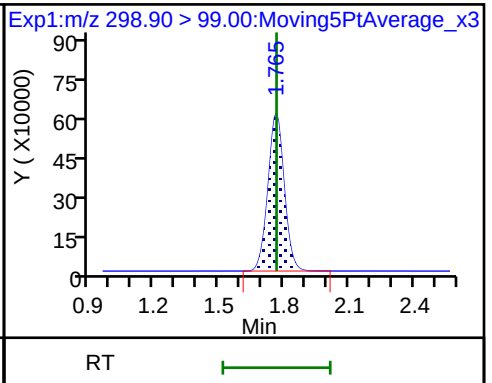
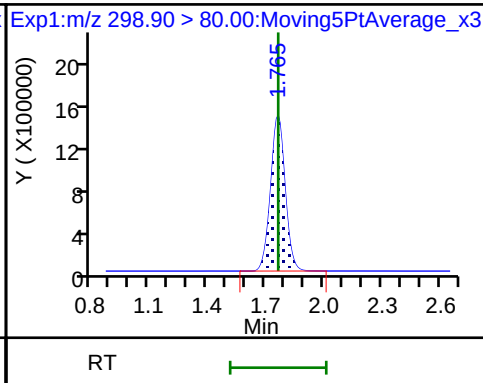
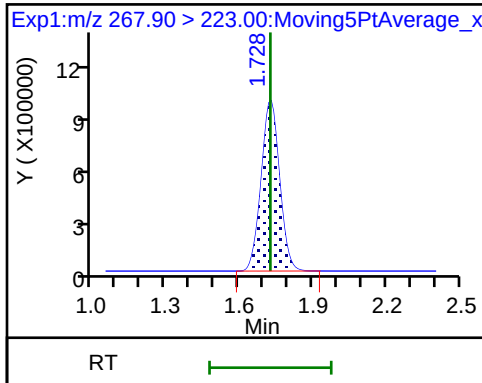
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

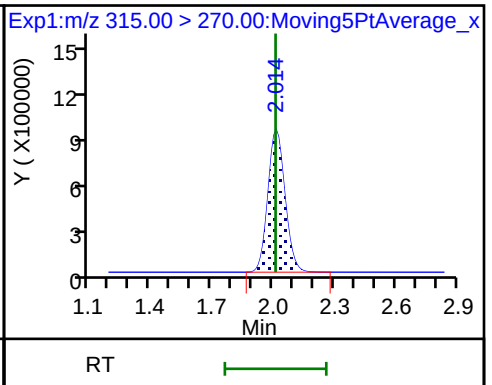
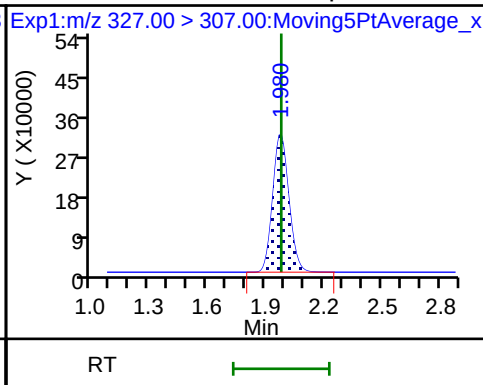
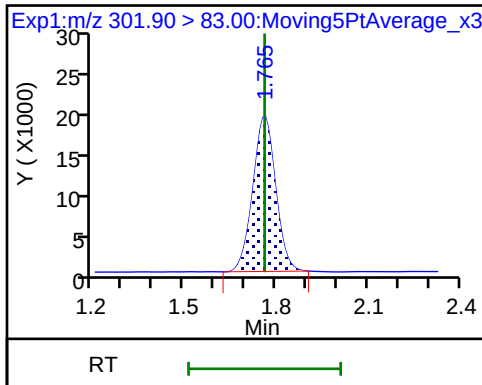
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

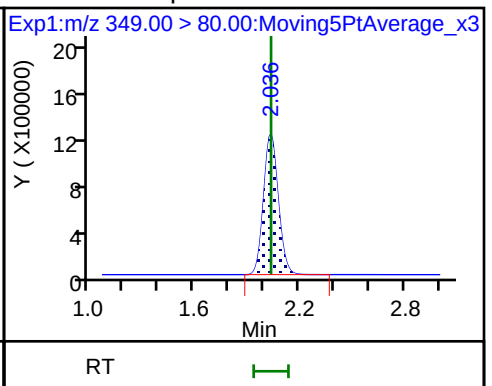
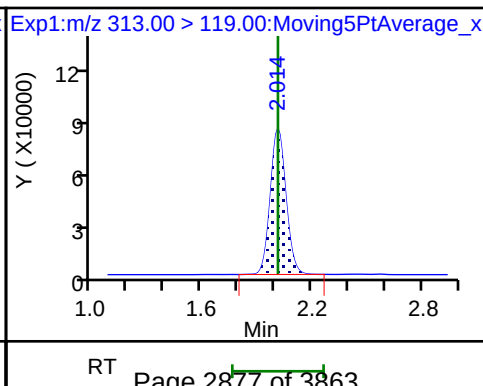
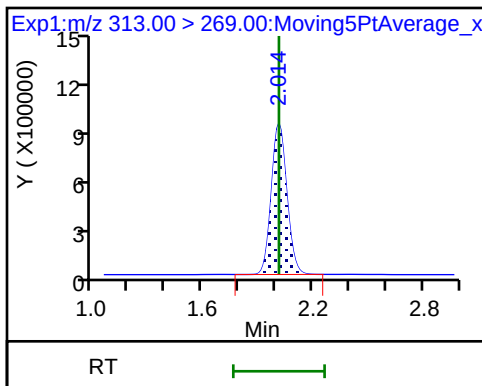
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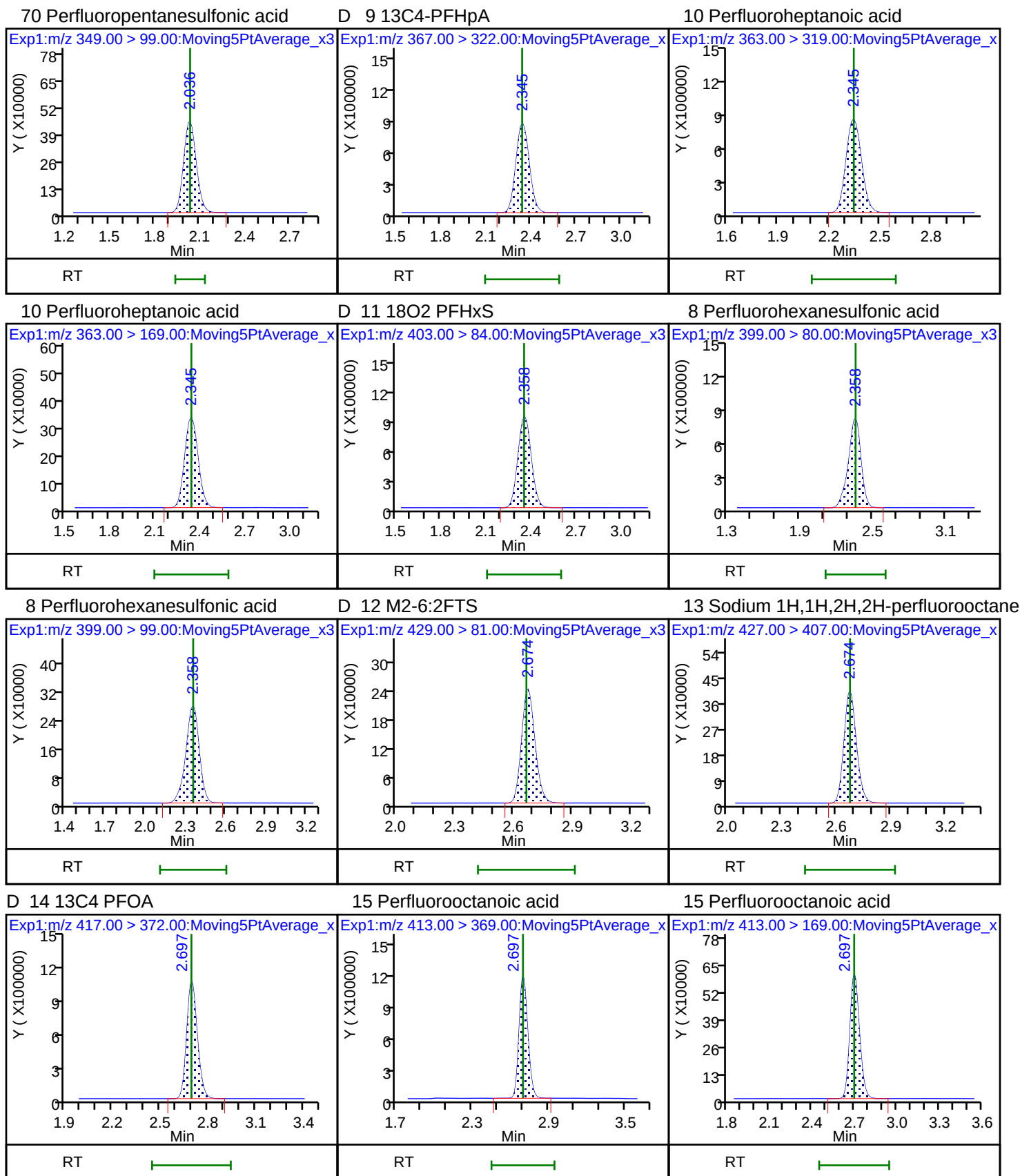


## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid



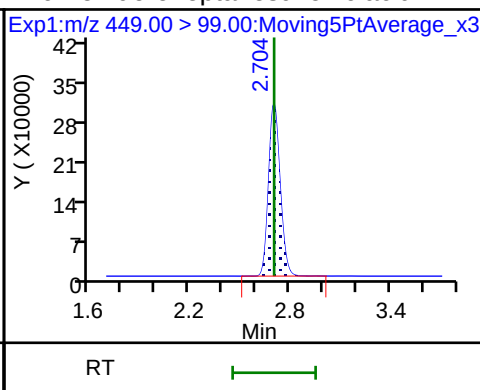
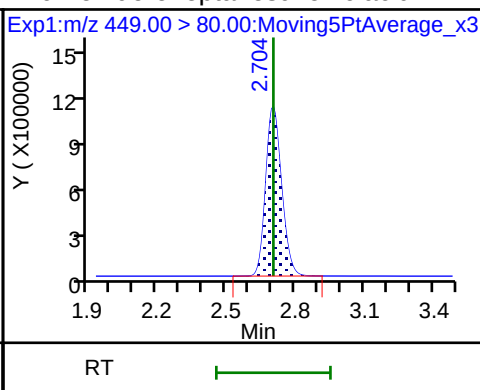
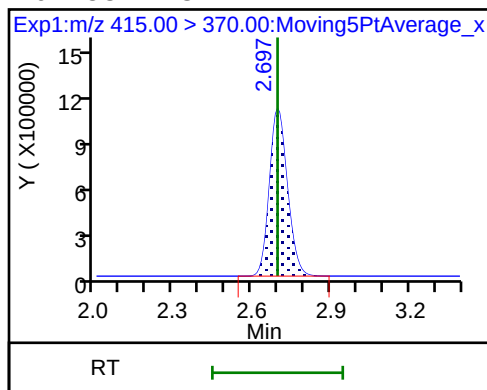




\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

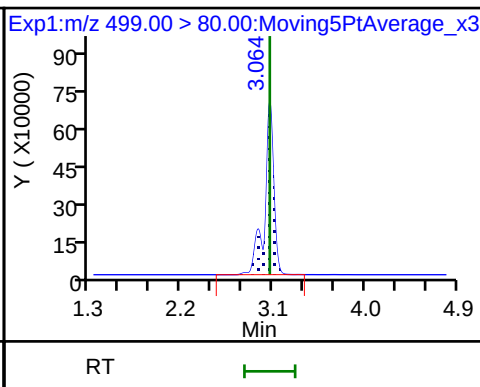
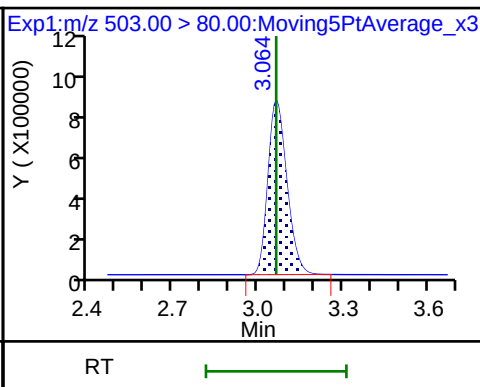
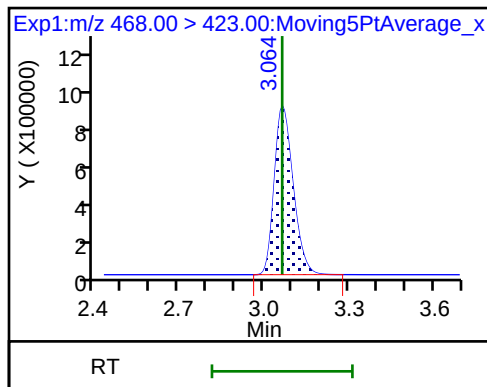
16 Perfluoroheptanesulfonic acid



D 19 13C5 PFNA

D 18 13C4 PFOS

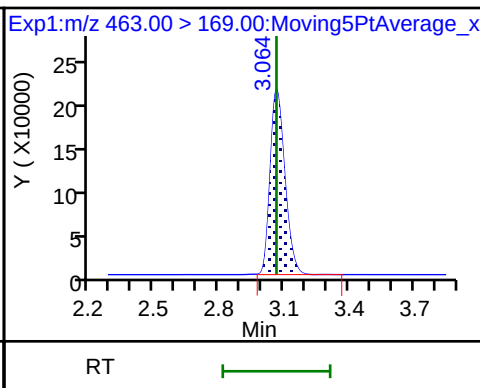
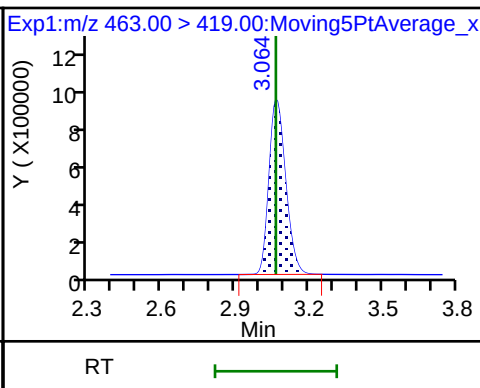
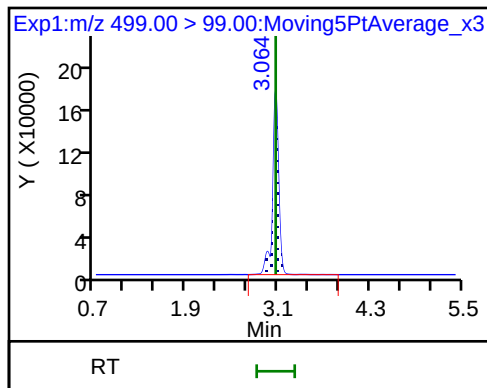
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid

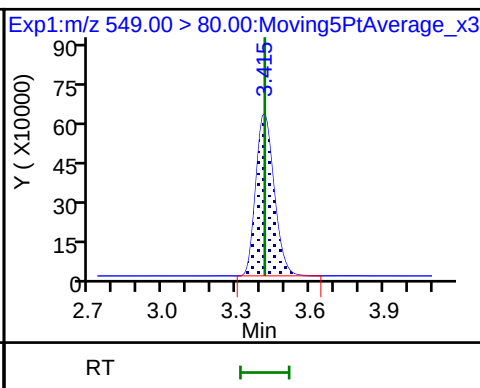
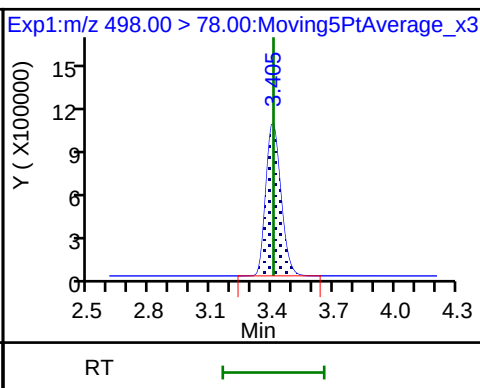
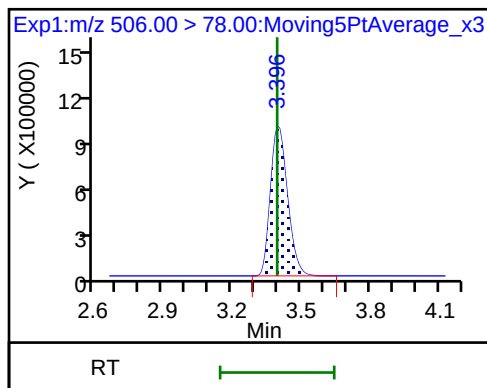
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

68 Perfluorononanesulfonic acid

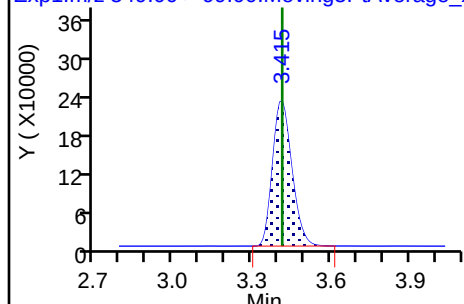


68 Perfluorononanesulfonic acid

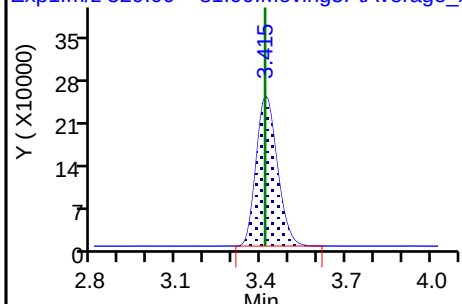
D 26 M2-8:2FTS

25 Sodium 1H,1H,2H,2H-perfluorodecane

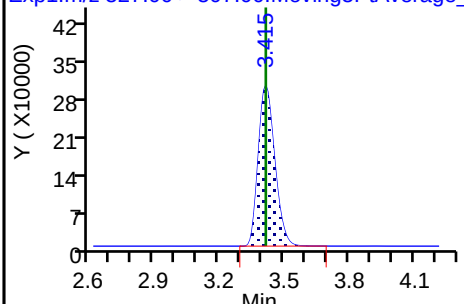
Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3

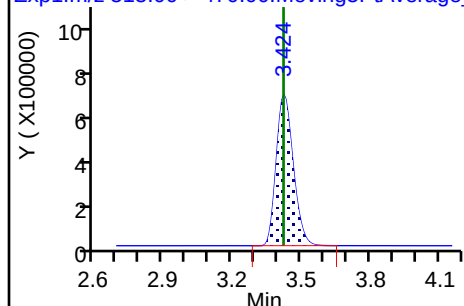


D 23 13C2 PFDA

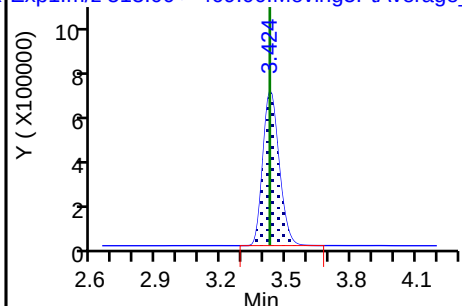
24 Perfluorodecanoic acid

24 Perfluorodecanoic acid

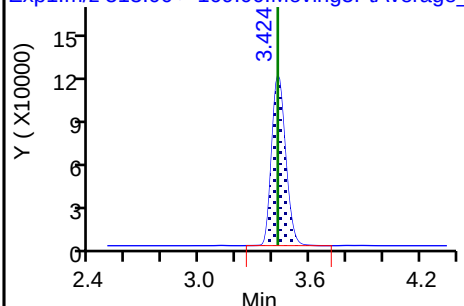
Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3

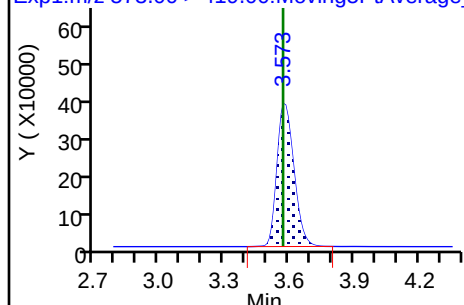


D 27 d3-NMeFOSAA

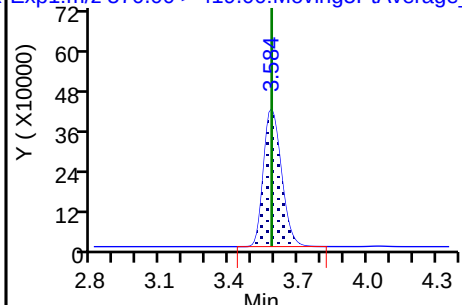
28 N-methyl perfluorooctane sulfonami

29 Perfluorodecane Sulfonic acid

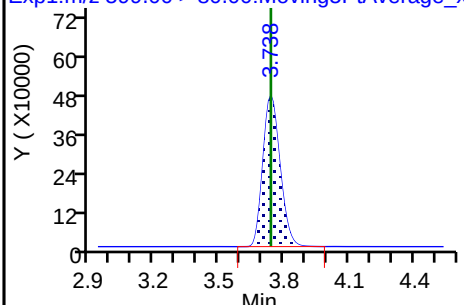
Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3

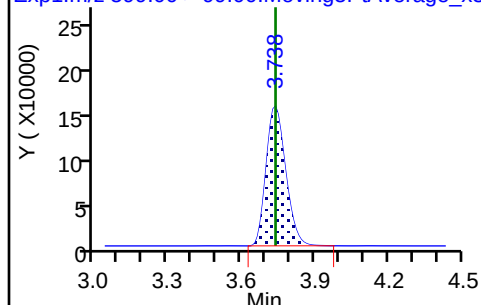


29 Perfluorodecane Sulfonic acid

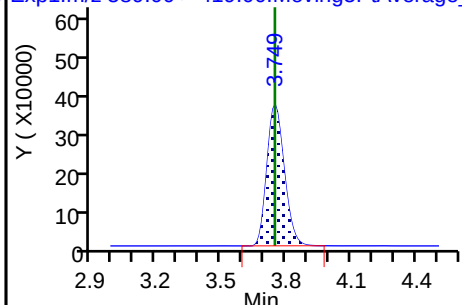
D 32 d5-NEtFOSAA

D 30 13C2 PFUnA

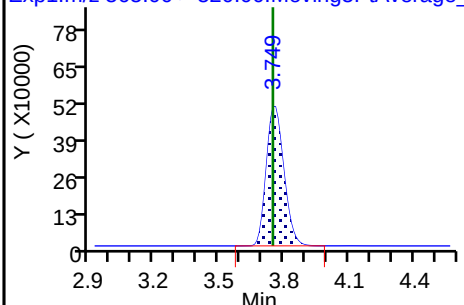
Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



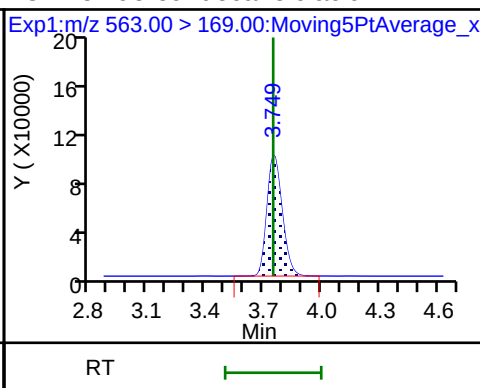
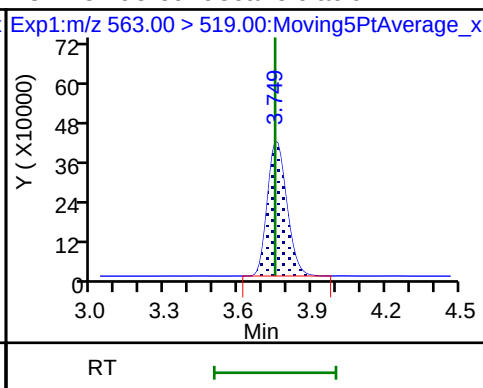
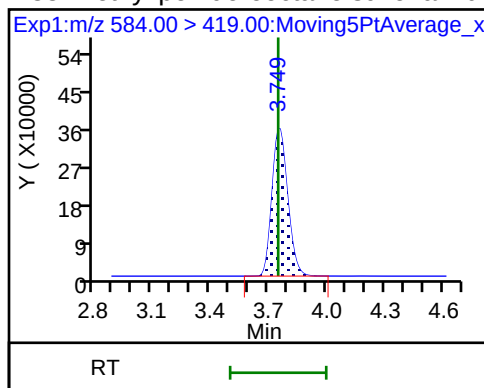
Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3



33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

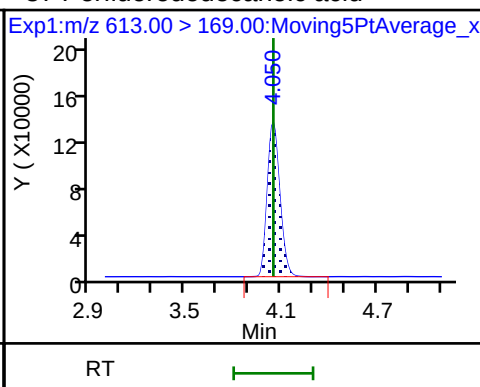
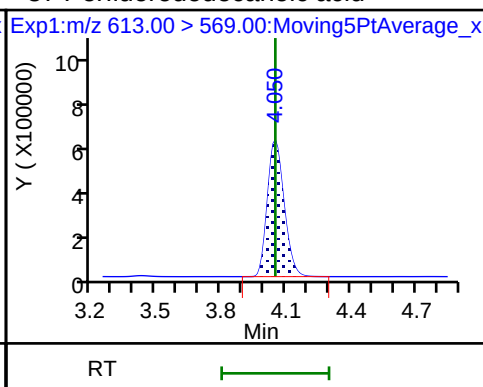
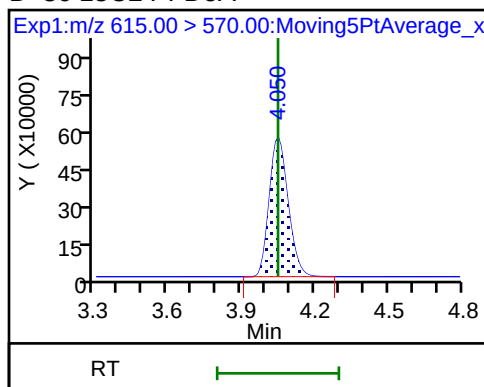
31 Perfluoroundecanoic acid



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

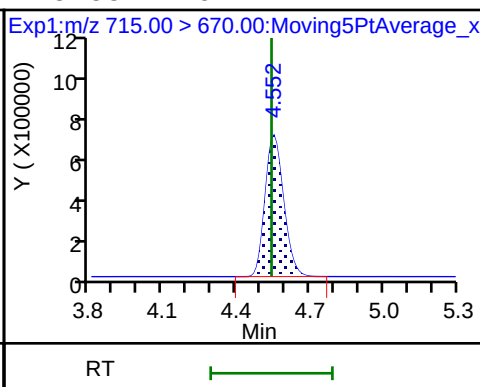
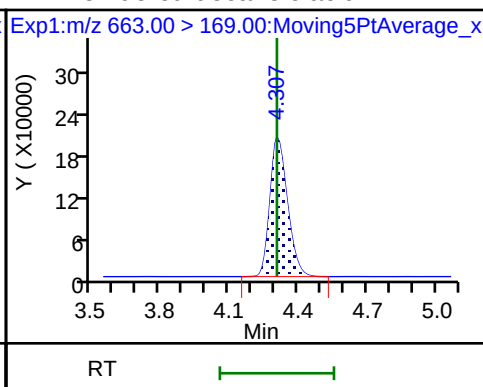
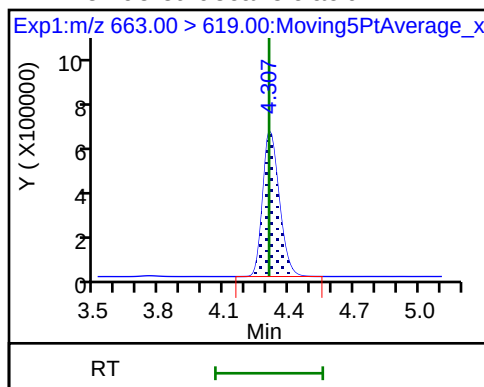
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

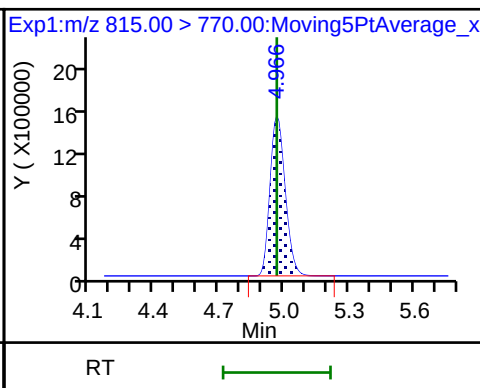
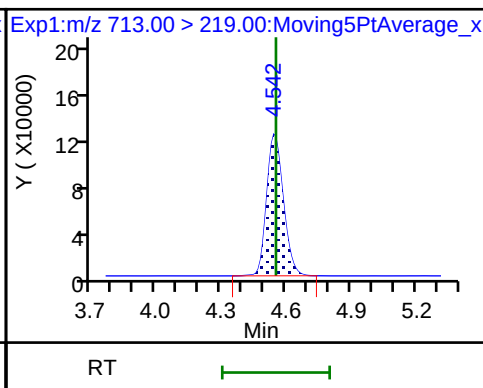
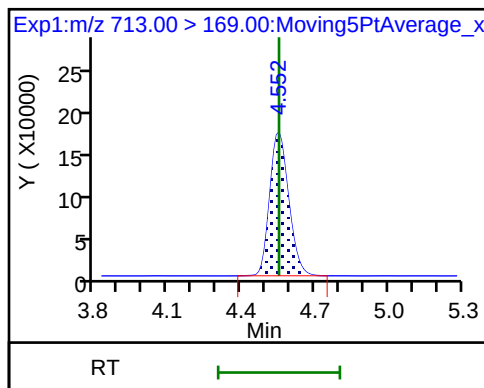
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225818/25 Calibration Date: 05/28/2018 10:08

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_025.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9146 |         | 0.984       | 1.00         | -1.6  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.162  |         | 0.985       | 1.00         | -1.5  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 77.98  |         | 0.883       | 0.884        | -0.1  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 17.77  |         | 1.00        | 0.934        | 7.2   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 0.9882 |         | 0.961       | 1.00         | -3.9  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 68.47  |         | 0.923       | 0.938        | -1.5  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 0.9746 |         | 0.923       | 1.00         | -7.7  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.012  |         | 0.817       | 0.910        | -10.2 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.566  |         | 0.836       | 0.948        | -11.8 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.095  |         | 0.930       | 1.00         | -7.0  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.303  |         | 0.931       | 0.952        | -2.2  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.024  |         | 0.809       | 0.928        | -12.9 | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.022  |         | 0.965       | 1.00         | -3.5  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.005  |         | 1.03        | 1.00         | 3.3   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7439 |         | 0.943       | 0.960        | -1.8  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.310  |         | 0.930       | 0.958        | -2.9  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9159 |         | 0.942       | 1.00         | -5.8  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.028  |         | 1.01        | 1.00         | 1.3   | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6428 |         | 0.923       | 0.964        | -4.3  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.8820 |         | 0.938       | 1.00         | -6.2  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7914 |         | 0.948       | 1.00         | -5.2  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.045  |         | 1.00        | 1.00         | 0.2   | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.104  |         | 0.965       | 1.00         | -3.5  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2499 |         | 0.990       | 1.00         | -1.0  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.362  |         | 2.23        | 2.50         | -10.9 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9218 |         | 2.35        | 2.50         | -5.9  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0200 |         | 2.10        | 2.33         | -9.8  | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9709 |         | 2.32        | 2.50         | -7.1  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9581 |         | 2.39        | 2.50         | -4.3  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.152  |         | 2.20        | 2.37         | -6.9  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2245 |         | 2.41        | 2.38         | 1.6   | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225818/25 Calibration Date: 05/28/2018 10:08  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_025.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9067 |         | 2.39           | 2.50            | -4.2  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7876 |         | 2.21           | 2.39            | -7.4  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7748 |         | 2.50           | 2.50            | 0.0   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9488 |         | 2.13           | 2.50            | -14.7 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2344 |         | 2.23           | 2.40            | -6.8  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6437 |         | 2.44           | 2.50            | -2.3  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3932 |         | 2.70           | 2.50            | 8.2   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4067 |         | 2.73           | 2.50            | 9.0   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5182 |         | 2.48           | 2.50            | -0.7  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5603 |         | 2.50           | 2.50            | -0.2  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6920 |         | 2.51           | 2.50            | 0.4   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.249  |         | 2.67           | 2.50            | 6.8   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_025.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 28-May-2018 10:08:25 ALS Bottle#: 37 Worklist Smp#: 25  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 11:28:52 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: ruangyotsakul

Date: 30-May-2018 11:28:52

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.457 | 1.455  | 0.002  | 1.000  | 6790061  | 2.23         |                   | 89.1 | 36133 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.463 | 1.463  | 0.0    | 1.004  | 2483980  | 0.9836       |                   | 98.4 | 945   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.728 | 1.725  | 0.003  | 0.562  | 4594311  | 2.35         |                   | 94.1 | 52026 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.728 | 1.728  | 0.0    | 1.000  | 2136146  | 0.9847       |                   | 98.5 | 1432  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.764 | 1.761  | 0.003  | 1.000  | 92537    | 2.10         |                   | 90.2 | 668   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.764 | 1.764  | 0.0    | 1.000  | 2743556  | 0.8827       |                   | 99.9 | 13740 |       |
| 298.90 > 99.00                        | 1.764 | 1.764  | 0.0    | 1.000  | 1165917  |              | 2.35(1.25-3.74)   |      | 7943  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.980 | 1.977  | 0.003  | 1.000  | 762441   | NC           |                   |      | 10152 |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.980 | 1.980  | 0.0    | 1.000  | 660500   | 1.00         |                   | 107  | 37882 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.011  | 0.003  | 1.000  | 4838752  | 2.32         |                   | 92.9 | 82351 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 1912609  | 0.9611       |                   | 96.1 | 3369  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 173173   |              | 11.04(5.03-15.10) |      | 1977  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 2556163  | 0.9235       |                   | 98.5 | 23967 |       |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 939168   |              | 2.72(1.36-4.07)   |      | 15978 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.115 | 2.112  | 0.003  | 1.000  | 284478   | NC           |                   |      | 5522  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.115 | 2.115  | 0.0    | 1.000  | 297036   | NC           |                 |      | 1585  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.342  | 0.003  | 1.000  | 4774907  | 2.39         |                 | 95.7 | 69709 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 1861518  | 0.9227       |                 | 92.3 | 2383  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 747668   |              | 2.49(1.13-3.40) |      | 4282  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.355  | 0.003  | 1.000  | 5430049  | 2.20         |                 | 93.1 | 45820 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 2114622  | 0.8174       |                 | 89.8 | 8459  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 708368   |              | 2.99(1.50-4.49) |      | 3722  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.395 | 2.395  | 0.0    | 1.000  | 5775205  | NC           |                 |      | 53528 |       |
| 377.00 > 85.00                        | 2.395 | 2.395  | 0.0    | 1.000  | 3338902  |              | 1.73(0.84-2.53) |      | 43388 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.682 | 2.665  | 0.017  | 1.000  | 1062975  | 2.41         |                 | 102  | 16022 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.682 | 2.682  | 0.0    | 1.000  | 664597   | 0.8359       |                 | 88.2 | 8698  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.704 | 2.695  | 0.009  | 1.000  | 4518946  | 2.39         |                 | 95.8 | 52695 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.704 | 2.704  | 0.0    | 1.000  | 1979582  | 0.9304       |                 | 93.0 | 724   |       |
| 413.00 > 169.00                       | 2.704 | 2.704  | 0.0    | 1.000  | 1023214  |              | 1.93(0.84-2.52) |      | 3355  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.704 | 2.704  | 0.0    |        | 4983990  | 2.50         |                 |      | 57352 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.712 | 2.712  | 0.0    | 1.000  | 1947346  | 0.9311       |                 | 97.8 | 17002 |       |
| 449.00 > 99.00                        | 2.712 | 2.712  | 0.0    | 1.000  | 524719   |              | 3.71(1.94-5.82) |      | 10993 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.076 | 3.063  | 0.013  | 1.000  | 3861793  | 2.50         |                 | 100  | 69006 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.076 | 3.063  | 0.013  | 1.000  | 3752575  | 2.21         |                 | 92.6 | 21935 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.069 | 3.069  | 0.0    | 0.998  | 1492750  | 0.8086       |                 | 87.1 | 10360 |       |
| 499.00 > 99.00                        | 3.069 | 3.069  | 0.0    | 0.998  | 344244   |              | 4.34(2.31-6.93) |      | 4105  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.076 | 3.076  | 0.0    | 1.000  | 1578276  | 0.9646       |                 | 96.5 | 5966  |       |
| 463.00 > 169.00                       | 3.076 | 3.076  | 0.0    | 1.000  | 378801   |              | 4.17(1.90-5.69) |      | 15735 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.283 | 3.283  | 0.0    | 1.000  | 2521148  | NC           |                 |      | 45909 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.411 | 3.395  | 0.016  | 1.000  | 4728805  | 2.13         |                 | 85.3 | 43969 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.411 | 3.411  | 0.0    | 1.000  | 1901551  | 1.03         |                 | 103  | 37537 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.421 | 3.413  | 0.008  | 1.000  | 1119081  | 2.23         |                 | 93.2 | 14247 |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.421 | 3.421  | 0.0    | 1.000  | 1121346  | 0.9428       |                 | 98.2 | 15804 |       |
| 549.00 > 99.00                        | 3.421 | 3.421  | 0.0    | 1.000  | 416221   |              | 2.69(1.33-3.97) |      | 10168 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.430 | 3.430  | 0.0    | 1.003  | 586416   | 0.9300       |                 | 97.1 | 14008 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.439 | 3.422  | 0.017  | 1.000  | 3208110  | 2.44         |                 | 97.7 | 61953 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.439 | 3.439  | 0.0    | 1.000  | 1175338  | 0.9421       |                 | 94.2 | 5239  |       |
| 513.00 > 169.00                       | 3.439 | 3.439  | 0.0    | 1.000  | 216264   |              | 5.43(2.36-7.09) |      | 6756  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.590 | 3.572  | 0.018  | 1.000  | 1959534  | 2.70         |                 | 108  | 21361 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.590 | 3.590  | 0.0    | 1.000  | 805645   | 1.01         |                 | 101  | 6232  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.743 | 3.743  | 0.0    | 1.000  | 972933   | 0.9229       |                 | 95.7 | 13539 |       |
| 599.00 > 99.00                        | 3.743 | 3.743  | 0.0    | 1.000  | 322025   |              | 3.02(1.39-4.16) |      | 9828  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.753 | 3.748  | 0.005  | 1.000  | 2026733  | 2.73         |                 | 109  | 14170 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.764 | 3.748  | 0.016  | 1.000  | 2582463  | 2.48         |                 | 99.3 | 47803 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.764 | 3.764  | 0.0    | 1.003  | 714999   | 0.9382       |                 | 93.8 | 11779 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.764 | 3.764  | 0.0    | 1.000  | 817501   | 0.9476       |                 | 94.8 | 4450  |       |
| 563.00 > 169.00                       | 3.764 | 3.764  | 0.0    | 1.000  | 199979   |              | 4.09(2.12-6.36) |      | 5190  |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.920 | 3.920  | 0.0    | 1.000  | 4008794  | NC           |                 |      | 58739 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.051 | 4.048  | 0.003  | 1.000  | 2792652  | 2.50         |                 | 99.8 | 26107 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.061 | 4.061  | 0.0    | 1.003  | 1167729  | 1.00         |                 | 100  | 1366  |       |
| 613.00 > 169.00                       | 4.061 | 4.061  | 0.0    | 1.003  | 280568   |              | 4.16(2.13-6.40) |      | 3427  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.319 | 4.319  | 0.0    | 1.000  | 1233628  | 0.9654       |                 | 96.5 | 1288  |       |
| 663.00 > 169.00                       | 4.319 | 4.319  | 0.0    | 1.000  | 387143   |              | 3.19(1.25-3.76) |      | 4643  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.554 | 4.542  | 0.012  | 1.000  | 3448649  | 2.51         |                 | 100  | 17738 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 344728   | 0.9896       |                 | 99.0 | 4707  |       |
| 713.00 > 219.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 231523   |              | 1.49(0.71-2.13) |      | 4814  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.967 | 4.966  | 0.001  | 1.000  | 6226580  | 2.67         |                 | 107  | 12869 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.976 | 4.976  | 0.0    | 1.002  | 2211884  | NC           |                 |      | 912   |       |
| 813.00 > 169.00                       | 4.976 | 4.976  | 0.0    | 1.002  | 380343   |              | 5.82(2.86-8.58) |      | 3087  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.336 | 5.336     | 0.0       | 1.000     | 2436000  | NC              |                  |      | 744  |       |
| 913.00 > 169.00               | 5.328 | 5.336     | -0.008    | 0.999     | 290854   |                 | 8.38(3.83-11.48) |      | 2736 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58835.b\2018.05.27LLADX\_025.d

Injection Date: 28-May-2018 10:08:25

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

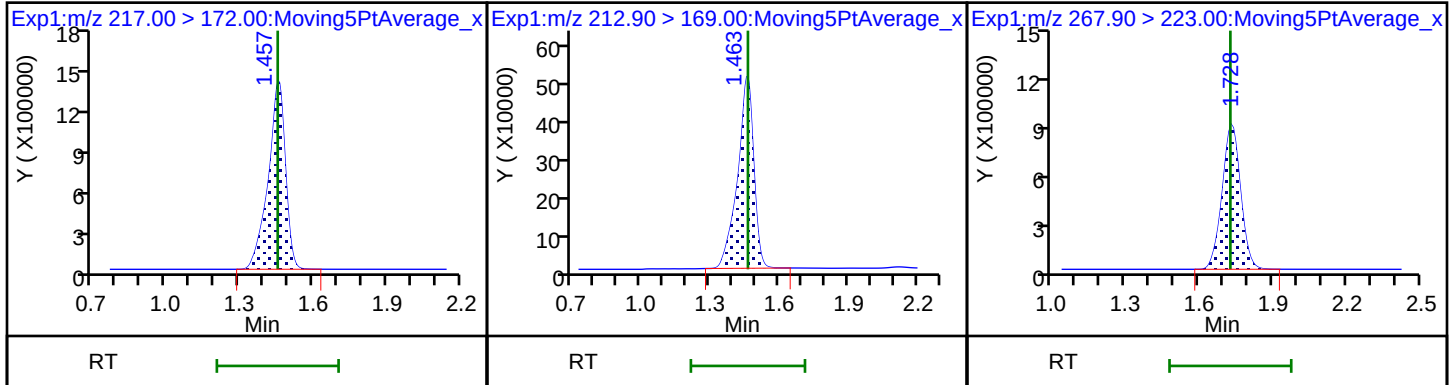
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

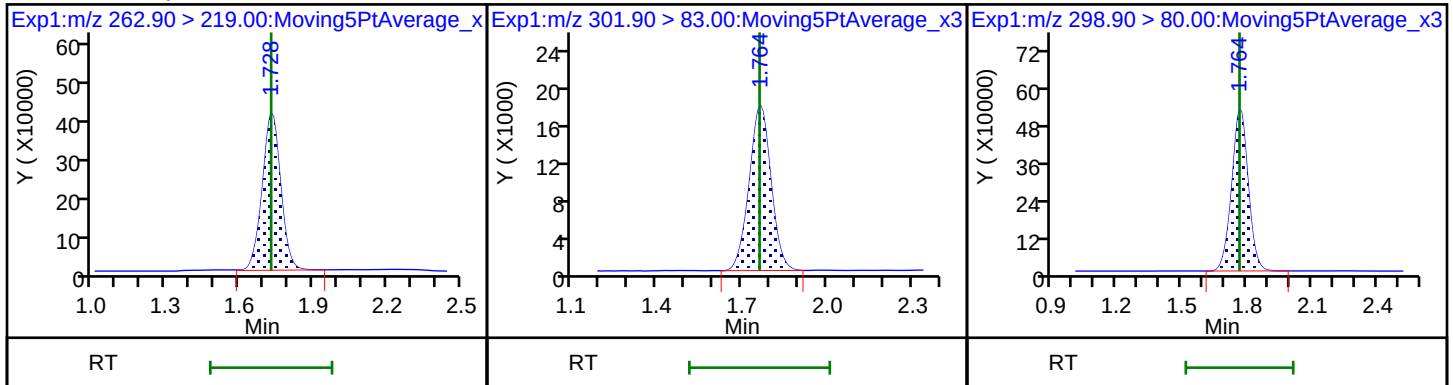
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

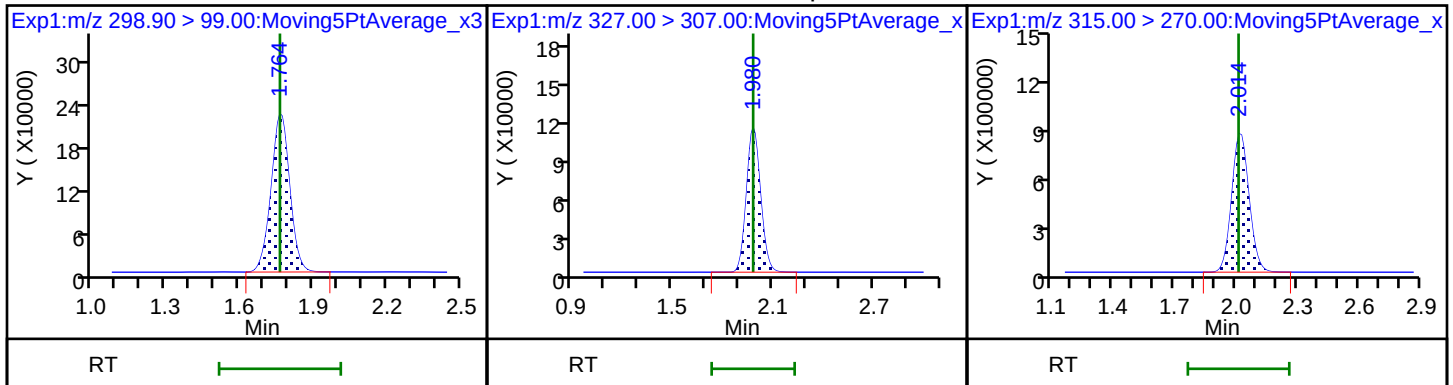
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

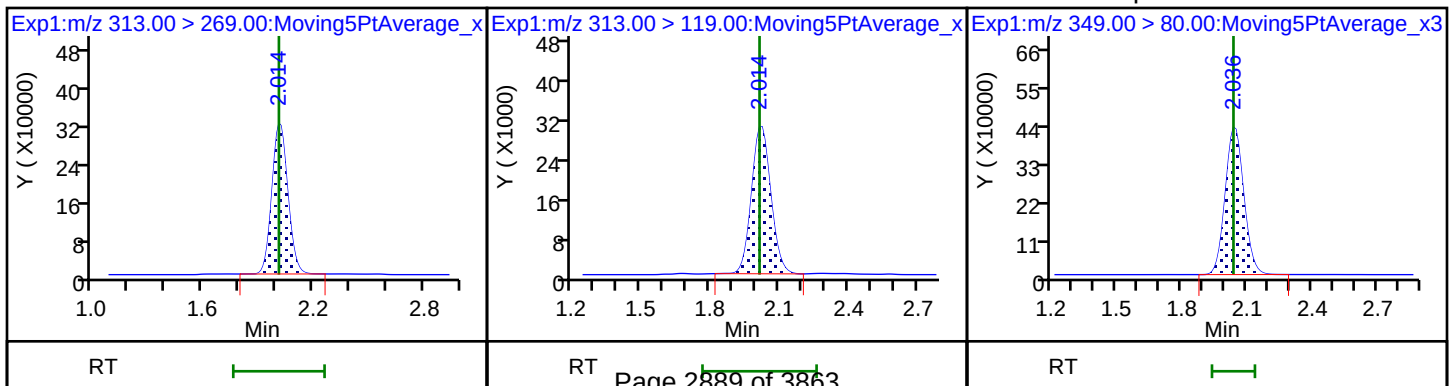
De 7 13C2 PFHxA

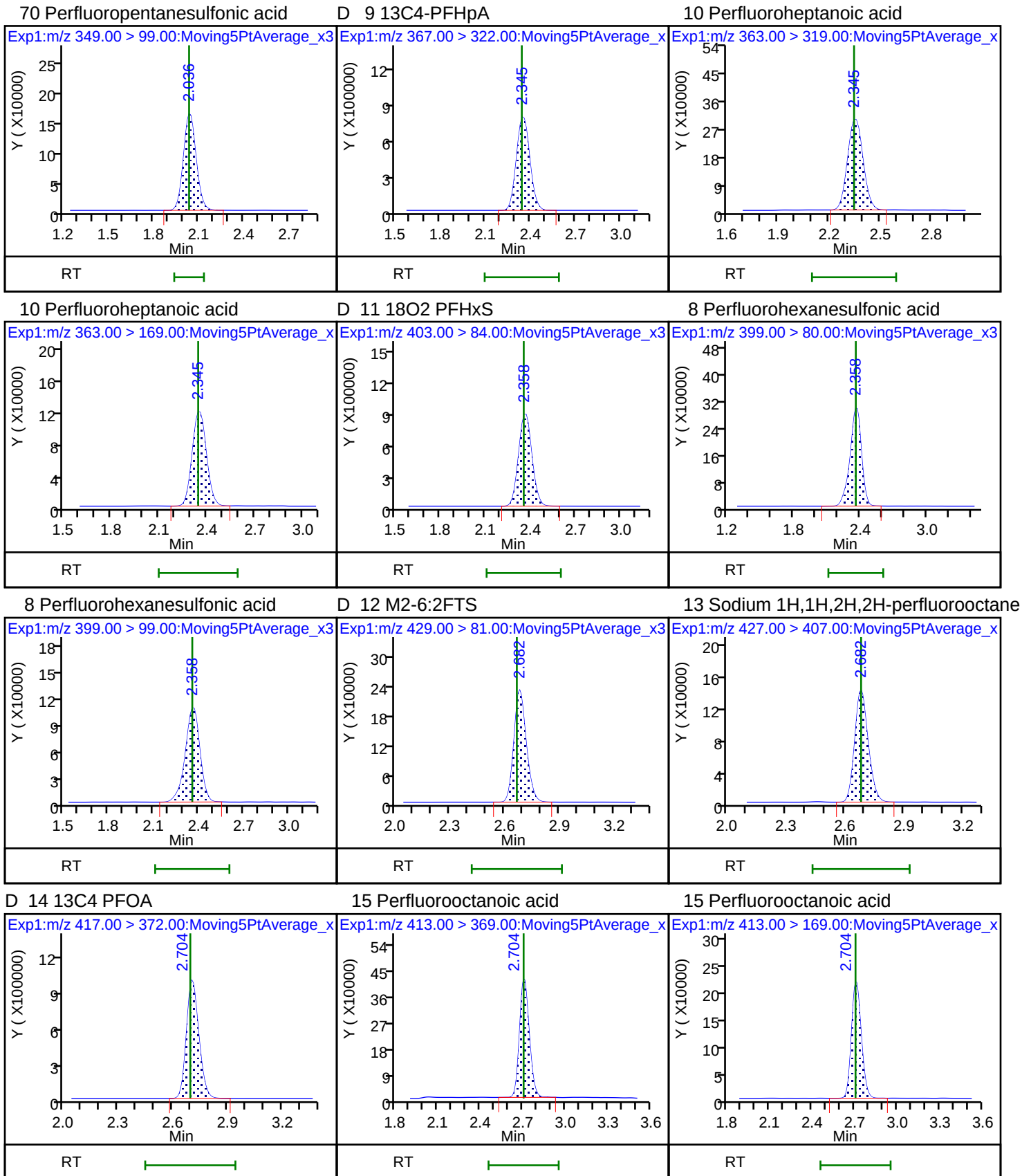


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid

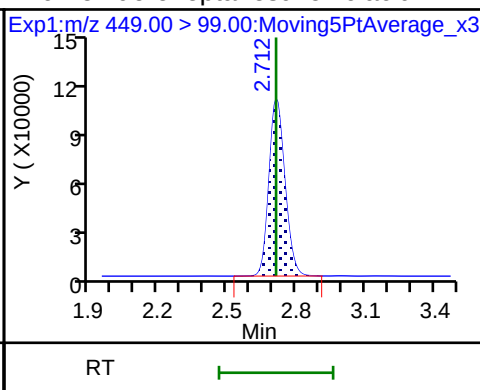
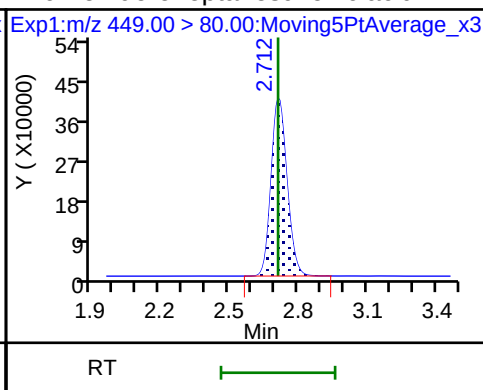
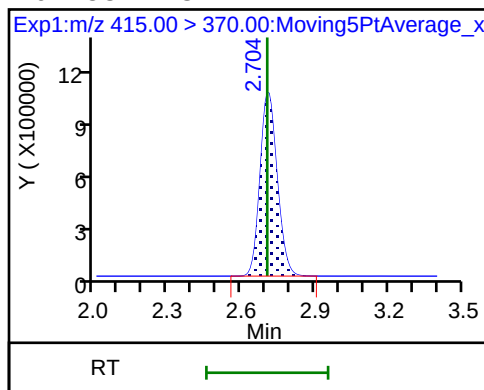




## \* 62 13C2-PFOA

## 16 Perfluoroheptanesulfonic acid

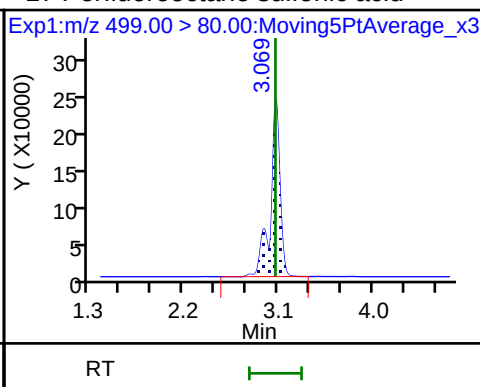
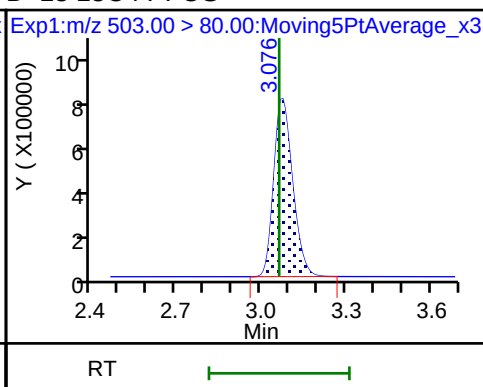
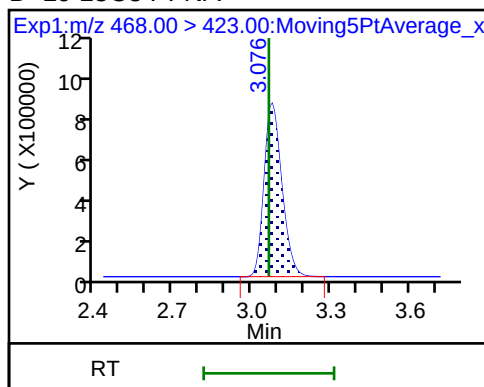
## 16 Perfluoroheptanesulfonic acid



## D 19 13C5 PFNA

## D 18 13C4 PFOS

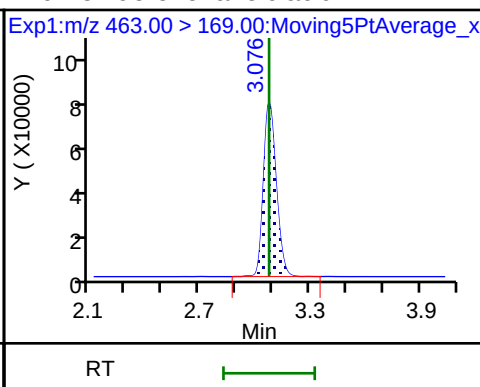
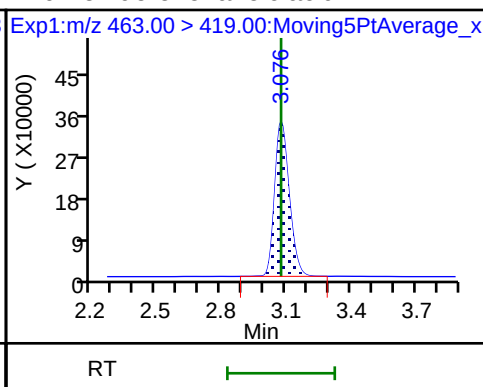
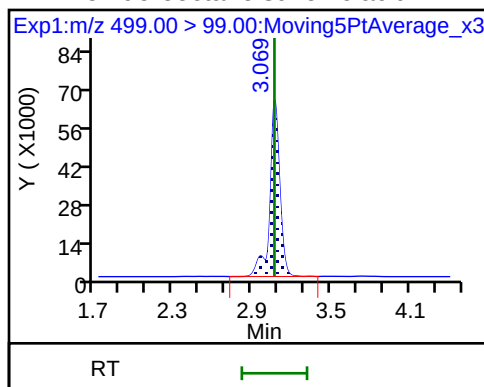
## 17 Perfluorooctane sulfonic acid



## 17 Perfluorooctane sulfonic acid

## 20 Perfluorononanoic acid

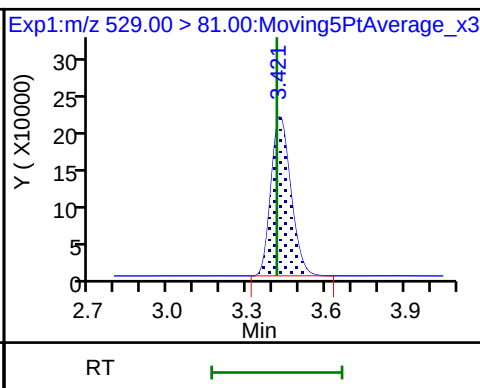
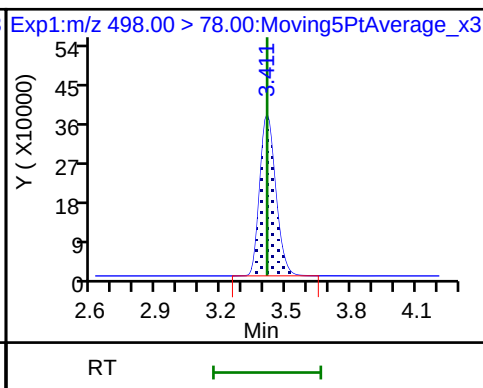
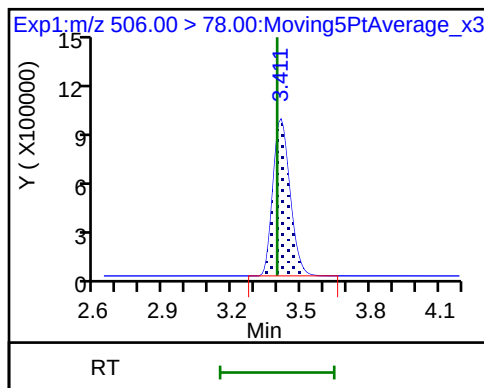
## 20 Perfluorononanoic acid

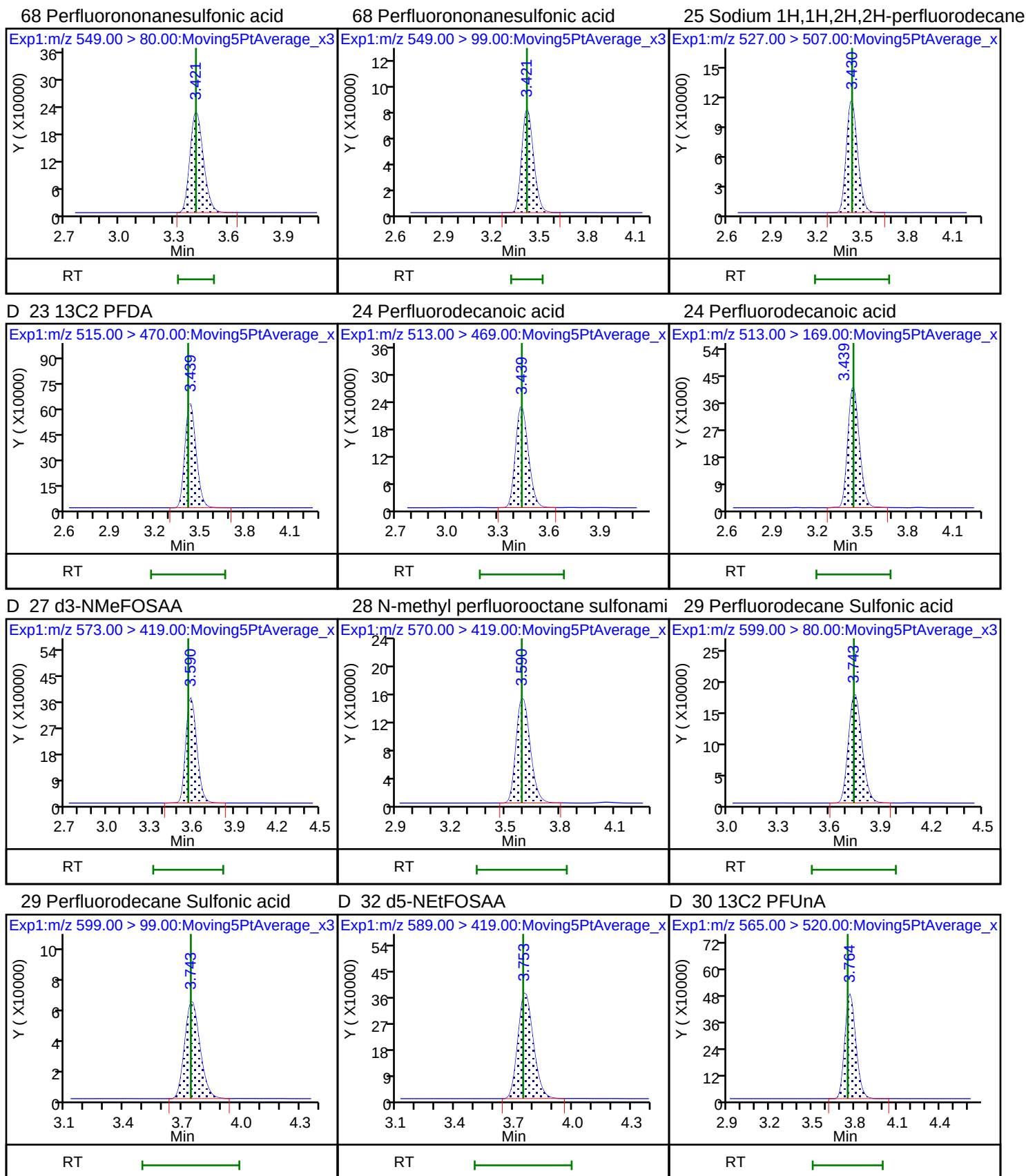


## D 21 13C8 FOSA

## 22 Perfluorooctane Sulfonamide

## D 26 M2-8:2FTS

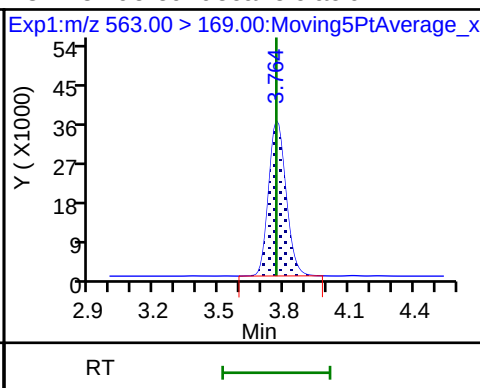
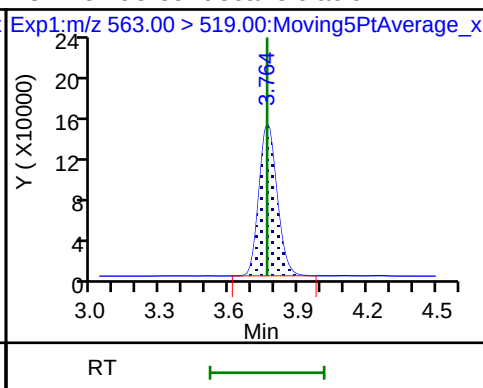
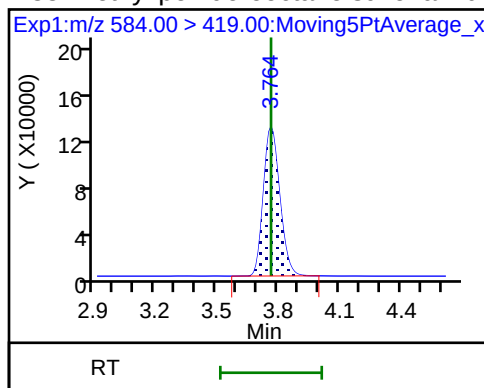




33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

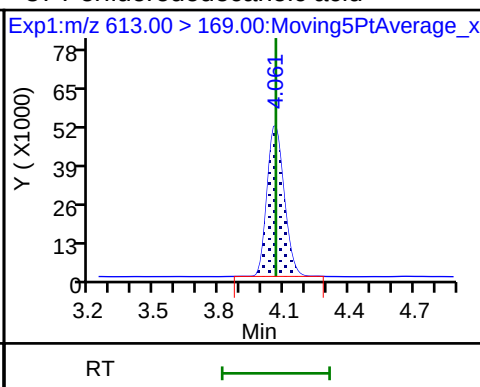
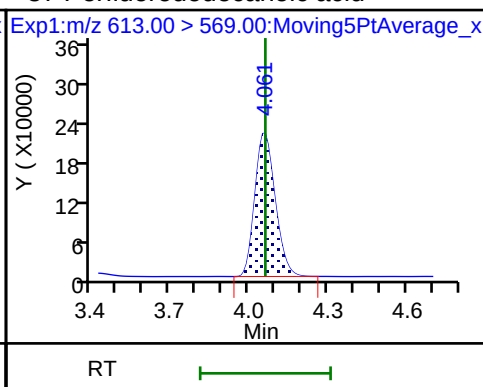
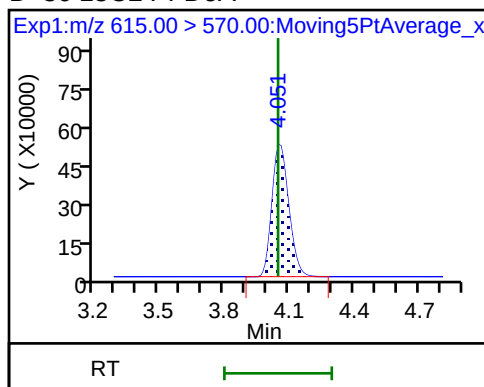
31 Perfluoroundecanoic acid



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

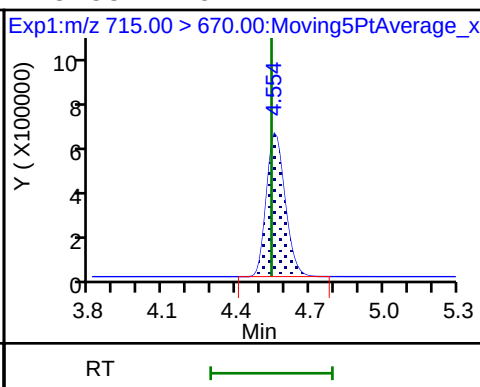
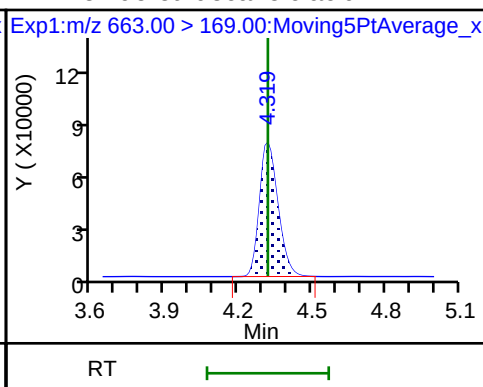
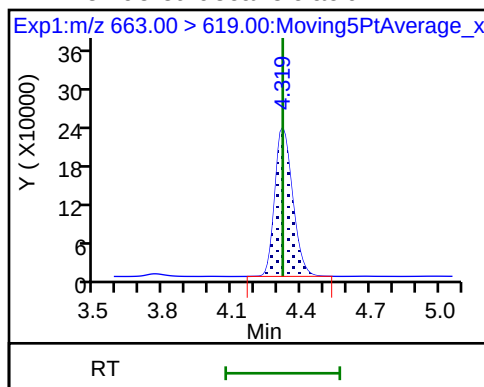
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

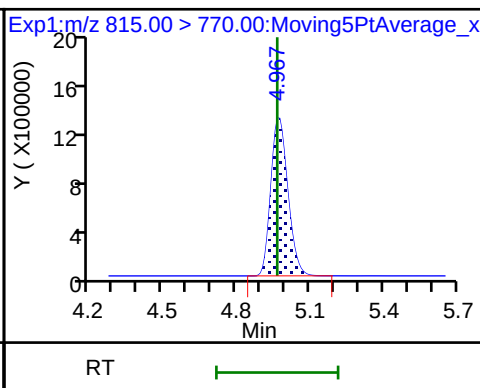
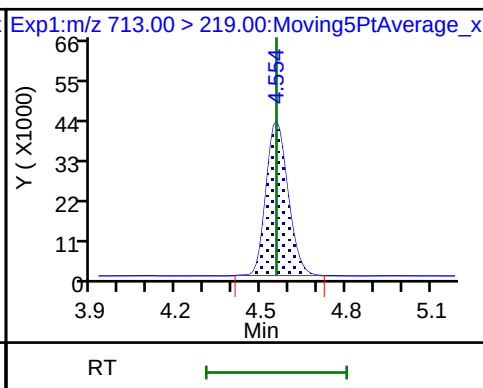
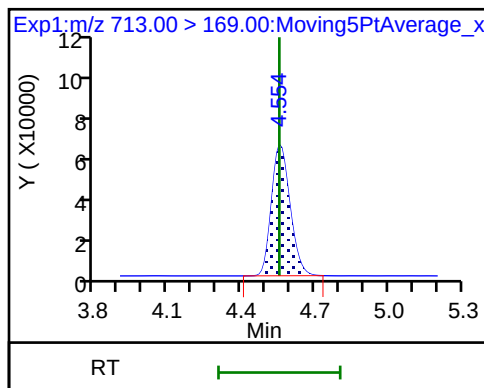
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225820/1 Calibration Date: 05/28/2018 10:55

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_031.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|------------------------------------------------------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| Perfluorobutanoic acid (PFBA)                              | AveID         | 0.9298  | 0.9614 |         | 2.58           | 2.50            | 3.4  | 30.0      |
| Perfluoropentanoic acid (PFPeA)                            | AveID         | 1.181   | 1.176  |         | 2.49           | 2.50            | -0.3 | 30.0      |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID         | 78.09   | 82.61  |         | 2.34           | 2.21            | 5.8  | 30.0      |
| 4:2 FTS                                                    | AveID         | 16.57   | 17.98  |         | 2.53           | 2.34            | 8.5  | 30.0      |
| Perfluorohexanoic acid (PFHxA)                             | AveID         | 1.028   | 0.9922 |         | 2.41           | 2.50            | -3.5 | 30.0      |
| Perfluoropentanesulfonic acid                              | AveID         | 69.55   | 74.18  |         | 2.50           | 2.35            | 6.7  | 30.0      |
| Perfluoroheptanoic acid (PFHpA)                            | AveID         | 1.056   | 1.031  |         | 2.44           | 2.50            | -2.4 | 30.0      |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID         | 1.127   | 1.086  |         | 2.19           | 2.28            | -3.6 | 30.0      |
| 6:2FTS                                                     | L2ID          |         | 1.638  |         | 2.20           | 2.37            | -7.1 | 30.0      |
| Perfluorooctanoic acid (PFOA)                              | AveID         | 1.177   | 1.137  |         | 2.42           | 2.50            | -3.4 | 30.0      |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID         | 1.332   | 1.372  |         | 2.45           | 2.38            | 3.0  | 30.0      |
| Perfluorononanoic acid (PFNA)                              | AveID         | 1.059   | 0.998  |         | 2.35           | 2.50            | -5.8 | 30.0      |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID         | 1.176   | 1.144  |         | 2.26           | 2.32            | -2.7 | 30.0      |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID         | 0.9736  | 1.043  |         | 2.68           | 2.50            | 7.2  | 30.0      |
| 8:2FTS                                                     | AveID         | 1.349   | 1.327  |         | 2.36           | 2.40            | -1.6 | 30.0      |
| Perfluorononanesulfonic acid                               | AveID         | 0.7575  | 0.8304 |         | 2.63           | 2.40            | 9.6  | 30.0      |
| Perfluorodecanoic acid (PFDA)                              | AveID         | 0.9722  | 0.9447 |         | 2.43           | 2.50            | -2.8 | 30.0      |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID         | 1.015   | 1.051  |         | 2.59           | 2.50            | 3.6  | 30.0      |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID         | 0.6714  | 0.6939 |         | 2.49           | 2.41            | 3.3  | 30.0      |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID         | 0.9400  | 0.9012 |         | 2.40           | 2.50            | -4.1 | 30.0      |
| Perfluoroundecanoic acid (PFUnA)                           | AveID         | 0.8352  | 0.7938 |         | 2.38           | 2.50            | -5.0 | 30.0      |
| Perfluorododecanoic acid (PFDoA)                           | AveID         | 1.044   | 1.086  |         | 2.60           | 2.50            | 4.1  | 30.0      |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID         | 1.144   | 1.206  |         | 2.64           | 2.50            | 5.5  | 30.0      |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID         | 0.2525  | 0.2581 |         | 2.56           | 2.50            | 2.2  | 30.0      |
| 13C4 PFBA                                                  | Ave           | 1.528   | 1.389  |         | 2.27           | 2.50            | -9.2 | 30.0      |
| 13C5-PFPeA                                                 | Ave           | 0.9798  | 0.9536 |         | 2.43           | 2.50            | -2.7 | 30.0      |
| 13C3-PFBS                                                  | Ave           | 0.0221  | 0.0201 |         | 2.11           | 2.33            | -9.3 | 30.0      |
| 13C2 PFHxA                                                 | Ave           | 1.045   | 1.040  |         | 2.49           | 2.50            | -0.5 | 30.0      |
| 13C4-PFHpA                                                 | Ave           | 1.001   | 0.9749 |         | 2.43           | 2.50            | -2.6 | 30.0      |
| 18O2 PFHxS                                                 | Ave           | 1.237   | 1.124  |         | 2.15           | 2.37            | -9.1 | 30.0      |
| M2-6:2FTS                                                  | Ave           | 0.2210  | 0.2236 |         | 2.40           | 2.38            | 1.2  | 30.0      |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225820/1 Calibration Date: 05/28/2018 10:55  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_031.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9270 |         | 2.45           | 2.50            | -2.1  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7772 |         | 2.18           | 2.39            | -8.6  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.8138 |         | 2.63           | 2.50            | 5.1   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.000  |         | 2.25           | 2.50            | -10.2 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2383 |         | 2.27           | 2.40            | -5.2  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6790 |         | 2.58           | 2.50            | 3.1   | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4028 |         | 2.77           | 2.50            | 10.8  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5603 |         | 2.69           | 2.50            | 7.4   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3955 |         | 2.65           | 2.50            | 6.1   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5726 |         | 2.55           | 2.50            | 2.0   | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6976 |         | 2.53           | 2.50            | 1.2   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.396  |         | 2.99           | 2.50            | 19.4  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_031.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 28-May-2018 10:55:25 ALS Bottle#: 38 Worklist Smp#: 1  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:17:29 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:17:29

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.456  | -0.004 | 1.000  | 7041873  | 2.27         |                   | 90.8 | 37878 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.452 | 1.452  | 0.0    | 1.000  | 6769867  | 2.58         |                   | 103  | 2867  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.719 | 1.725  | -0.006 | 0.560  | 4836321  | 2.43         |                   | 97.3 | 62854 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.719 | 1.719  | 0.0    | 1.000  | 5689771  | 2.49         |                   | 99.7 | 3848  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.755 | 1.761  | -0.006 | 1.000  | 94701    | 2.11         |                   | 90.7 | 1139  |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.764 | 1.764  | 0.0    | 1.005  | 7436562  | 2.34         |                   | 106  | 31099 |       |
| 298.90 > 99.00                        | 1.764 | 1.764  | 0.0    | 1.005  | 3108192  |              | 2.39(1.25-3.74)   |      | 24873 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.980 | 1.977  | 0.003  | 1.000  | 759104   | NC           |                   |      | 9350  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.980 | 1.980  | 0.0    | 1.000  | 1709699  | 2.53         |                   | 108  | 74076 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.011  | 0.003  | 1.000  | 5271997  | 2.49         |                   | 99.5 | 90698 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 5231103  | 2.41         |                   | 96.5 | 8769  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 460331   |              | 11.36(5.03-15.10) |      | 7132  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 7085033  | 2.50         |                   | 107  | 52780 |       |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 2561319  |              | 2.77(1.36-4.07)   |      | 39659 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.115 | 2.112  | 0.003  | 1.000  | 312326   | NC           |                   |      | 5980  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.115 | 2.115  | 0.0    | 1.000  | 859083   | NC           |                 |      | 5104  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.342  | 0.003  | 1.000  | 4943936  | 2.43         |                 | 97.4 | 66589 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 5098597  | 2.44         |                 | 97.6 | 6316  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 1994615  |              | 2.56(1.13-3.40) |      | 11434 |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.368  | -0.010 | 1.000  | 5392023  | 2.15         |                 | 90.9 | 39499 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 5631493  | 2.19         |                 | 96.4 | 17448 |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 1900768  |              | 2.96(1.50-4.49) |      | 9179  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.395 | 2.395  | 0.0    | 1.000  | 15054986 | NC           |                 |      | 85994 |       |
| 377.00 > 85.00                        | 2.395 | 2.395  | 0.0    | 1.000  | 9432276  |              | 1.60(0.84-2.53) |      | 63138 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.674 | 2.680  | -0.006 | 1.000  | 1077232  | 2.40         |                 | 101  | 17317 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.674 | 2.674  | 0.0    | 1.000  | 1760706  | 2.20         |                 | 92.9 | 26154 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.704 | 2.703  | 0.001  | 1.000  | 4701447  | 2.45         |                 | 97.9 | 42602 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.704 | 2.704  | 0.0    | 1.000  | 5345961  | 2.42         |                 | 96.6 | 1964  |       |
| 413.00 > 169.00                       | 2.704 | 2.704  | 0.0    | 1.000  | 2753388  |              | 1.94(0.84-2.52) |      | 8714  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.704 | 2.704  | 0.0    |        | 5071434  | 2.50         |                 |      | 70613 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.712 | 2.712  | 0.0    | 1.000  | 5147682  | 2.45         |                 | 103  | 30056 |       |
| 449.00 > 99.00                        | 2.712 | 2.712  | 0.0    | 1.000  | 1400668  |              | 3.68(1.94-5.82) |      | 18311 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.071 | 3.072  | -0.001 | 1.000  | 4127061  | 2.63         |                 | 105  | 59228 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.071 | 3.072  | -0.001 | 1.000  | 3768099  | 2.18         |                 | 91.4 | 20251 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.071 | 3.071  | 0.0    | 1.000  | 4184150  | 2.26         |                 | 97.3 | 24479 |       |
| 499.00 > 99.00                        | 3.071 | 3.071  | 0.0    | 1.000  | 932184   |              | 4.49(2.31-6.93) |      | 11873 |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.071 | 3.071  | 0.0    | 1.000  | 4116724  | 2.35         |                 | 94.2 | 14449 |       |
| 463.00 > 169.00                       | 3.071 | 3.071  | 0.0    | 1.000  | 996059   |              | 4.13(1.90-5.69) |      | 30353 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.278 | 3.278  | 0.0    | 1.000  | 6979269  | NC           |                 |      | 62549 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.405 | 3.406  | -0.001 | 1.000  | 5069149  | 2.25         |                 | 89.8 | 52339 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.405 | 3.405  | 0.0    | 1.000  | 5289450  | 2.68         |                 | 107  | 64761 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.424 | 3.424  | 0.0    | 1.000  | 1157833  | 2.27         |                 | 94.8 | 15597 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.424 | 3.424  | 0.0    | 1.000  | 3142074  | 2.63         |                 | 110  | 29240 |       |
| 549.00 > 99.00                        | 3.424 | 3.424  | 0.0    | 1.000  | 1130056  |              | 2.78(1.33-3.97) |      | 24496 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.433 | 3.434  | -0.001 | 1.000  | 3443474  | 2.58         |                 | 103  | 35187 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.424 | 3.424  | 0.0    | 1.000  | 1536881  | 2.36         |                 | 98.4 | 32432 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.433 | 3.433  | 0.0    | 1.000  | 3253036  | 2.43         |                 | 97.2 | 17159 |       |
| 513.00 > 169.00                       | 3.433 | 3.433  | 0.0    | 1.000  | 592865   |              | 5.49(2.36-7.09) |      | 16475 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.583 | 3.584  | -0.001 | 1.000  | 2042677  | 2.77         |                 | 111  | 21982 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.594 | 3.594  | 0.0    | 1.003  | 2147772  | 2.59         |                 | 104  | 12779 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.749 | 3.749  | 0.0    | 1.000  | 2636440  | 2.49         |                 | 103  | 30212 |       |
| 599.00 > 99.00                        | 3.749 | 3.749  | 0.0    | 1.000  | 893740   |              | 2.95(1.39-4.16) |      | 18179 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.759 | 3.760  | -0.001 | 1.000  | 2005847  | 2.65         |                 | 106  | 19712 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.759 | 3.760  | -0.001 | 1.000  | 2841644  | 2.69         |                 | 107  | 39667 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.759 | 3.759  | 0.0    | 1.000  | 1807620  | 2.40         |                 | 95.9 | 24627 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.759 | 3.759  | 0.0    | 1.000  | 2255673  | 2.38         |                 | 95.0 | 12024 |       |
| 563.00 > 169.00                       | 3.759 | 3.759  | 0.0    | 1.000  | 542700   |              | 4.16(2.12-6.36) |      | 16460 |       |
| 66 11-Chloroeicosafluoro-3-oxaundecan |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.917 | 3.917  | 0.0    | 1.000  | 11103477 | NC           |                 |      | 91431 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.060 | 4.060  | 0.0    | 1.000  | 3153664  | 2.60         |                 | 104  | 3959  |       |
| 613.00 > 169.00                       | 4.060 | 4.060  | 0.0    | 1.000  | 718695   |              | 4.39(2.13-6.40) |      | 9601  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.060 | 4.061  | -0.001 | 1.000  | 2904096  | 2.55         |                 | 102  | 20639 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.318 | 4.318  | 0.0    | 1.000  | 3503516  | 2.64         |                 | 105  | 3329  |       |
| 663.00 > 169.00                       | 4.318 | 4.318  | 0.0    | 1.000  | 1028535  |              | 3.41(1.25-3.76) |      | 10121 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.559  | -0.006 | 1.000  | 3537875  | 2.53         |                 | 101  | 17990 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 913096   | 2.56         |                 | 102  | 8242  |       |
| 713.00 > 219.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 638389   |              | 1.43(0.71-2.13) |      | 10900 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.966 | 4.971  | -0.005 | 1.000  | 7081895  | 2.99         |                 | 119  | 15152 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.975 | 4.975  | 0.0    | 1.002  | 6444910  | NC           |                 |      | 2352  |       |
| 813.00 > 169.00                       | 4.966 | 4.975  | -0.009 | 1.000  | 1057863  |              | 6.09(2.86-8.58) |      | 6326  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.328 | 5.328     | 0.0       | 1.000     | 7843502  | NC              |                  |      | 1769 |       |
| 913.00 > 169.00               | 5.328 | 5.328     | 0.0       | 1.000     | 916530   |                 | 8.56(3.83-11.48) |      | 4846 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_031.d

Injection Date: 28-May-2018 10:55:25

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

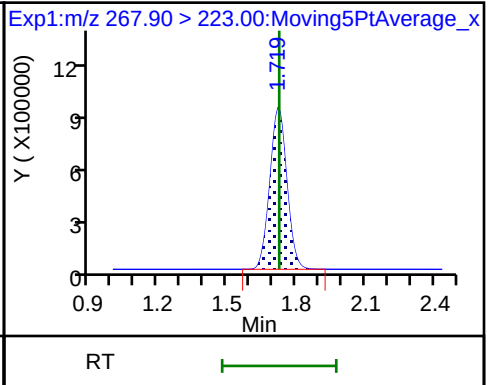
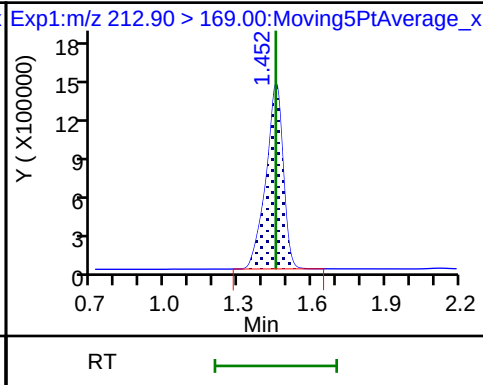
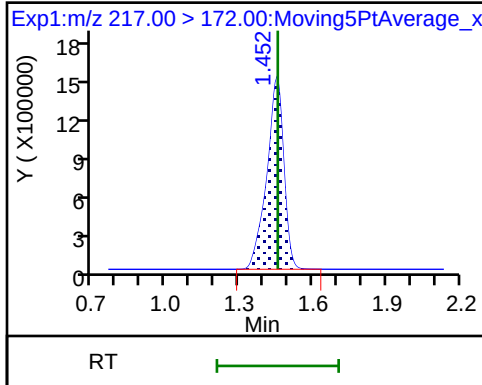
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

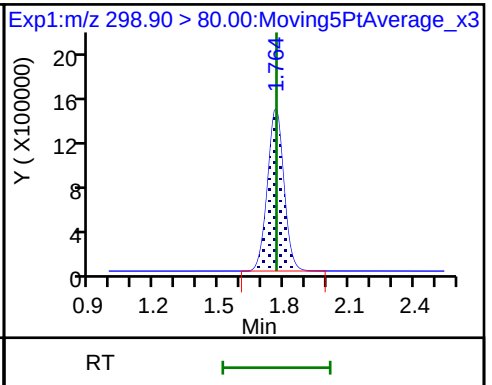
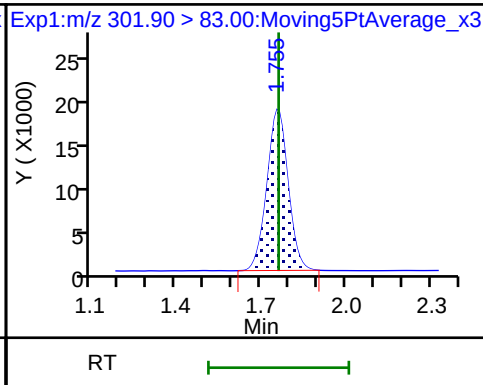
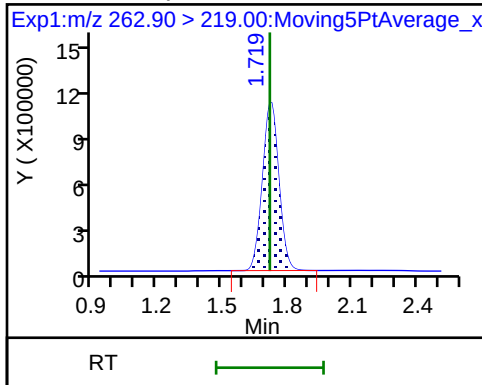
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

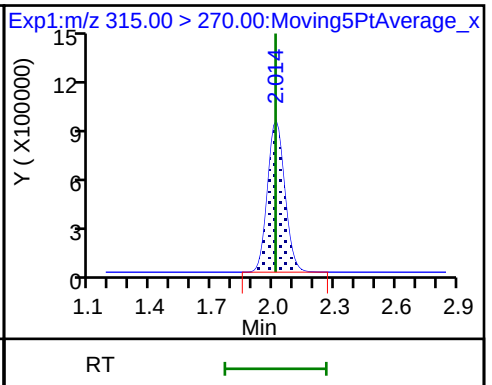
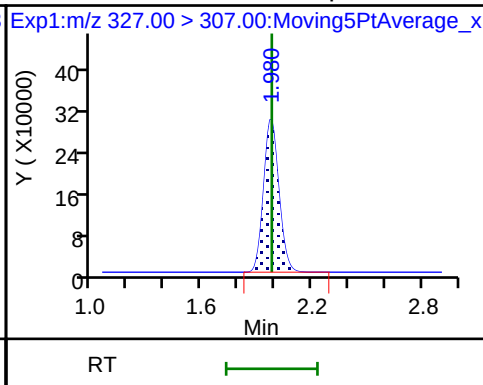
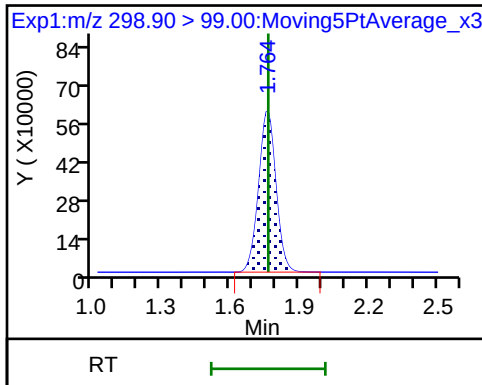
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

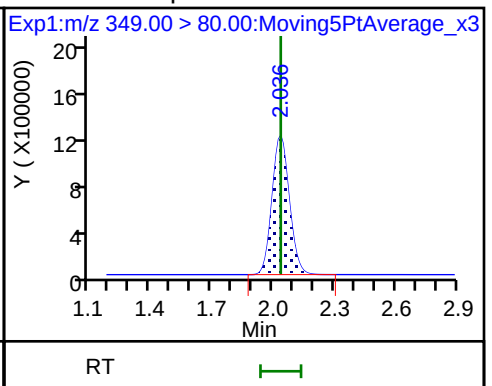
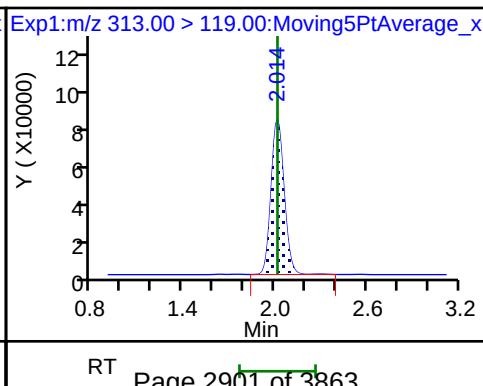
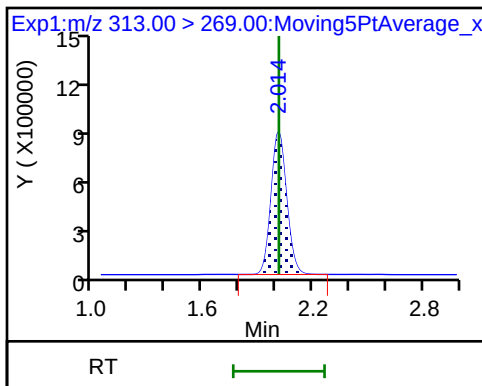
De 7 13C2 PFHxA

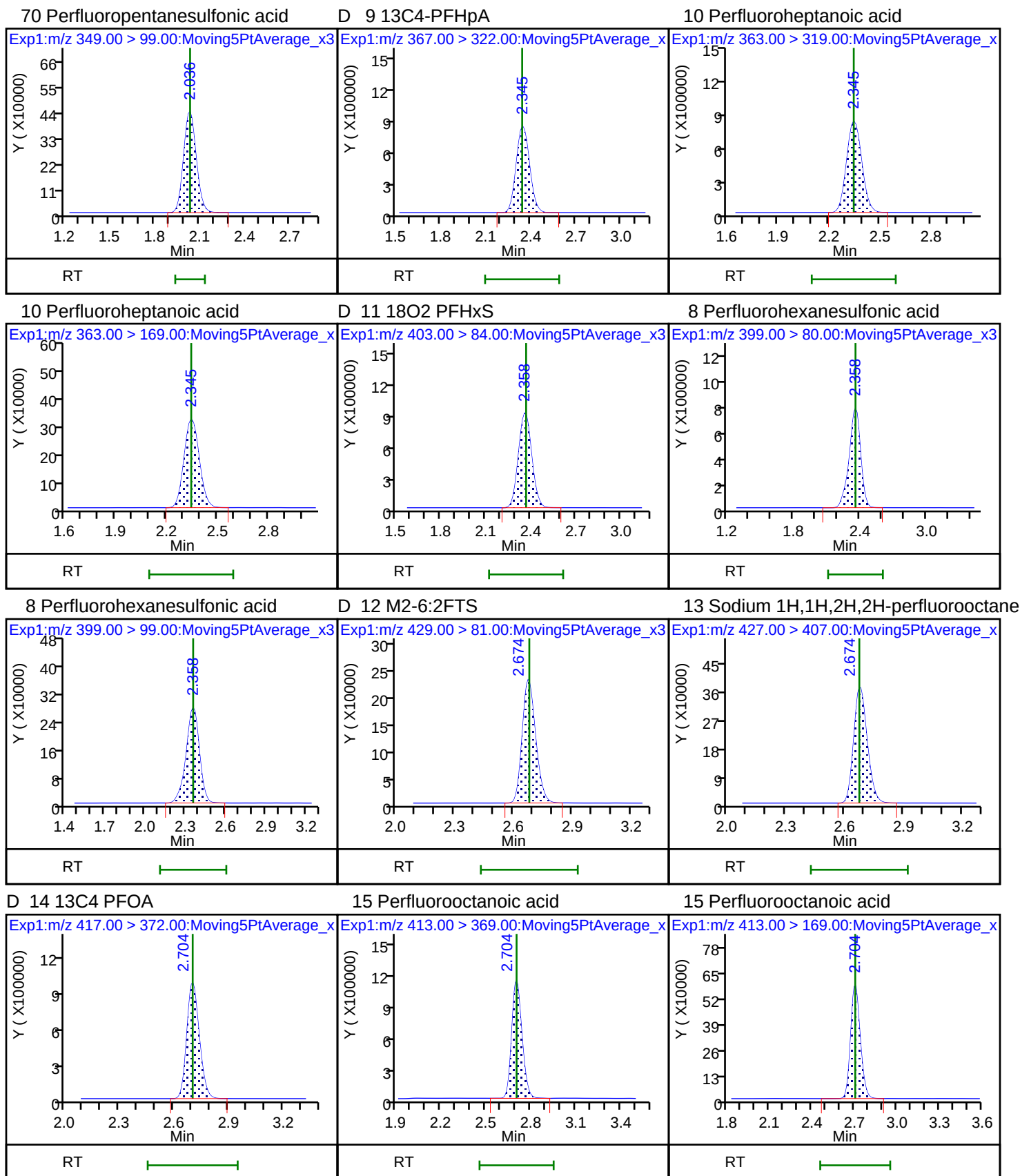


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid



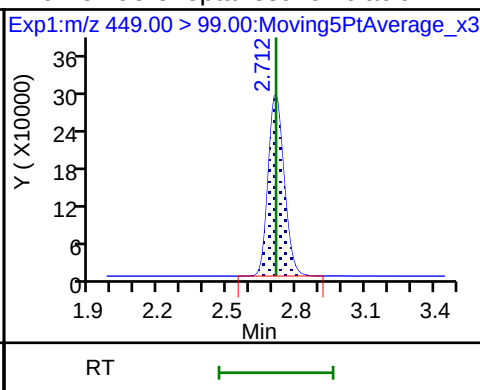
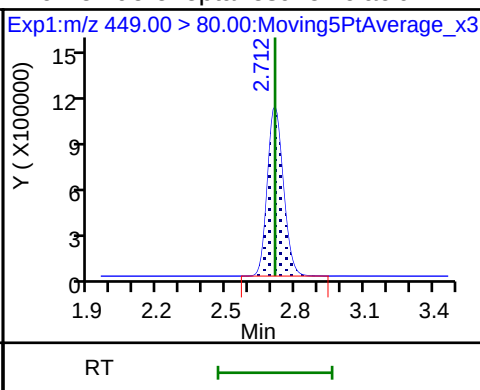
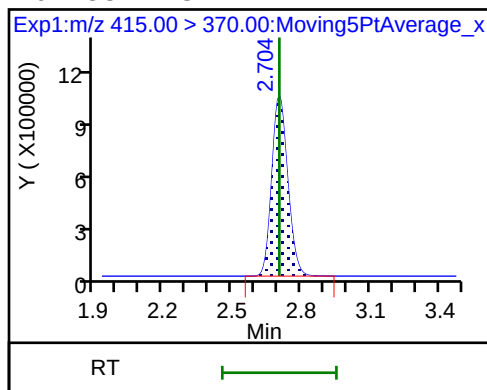




\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

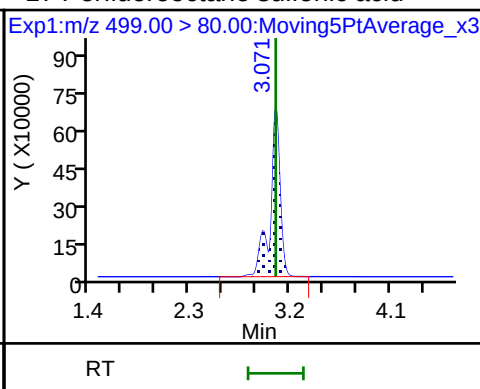
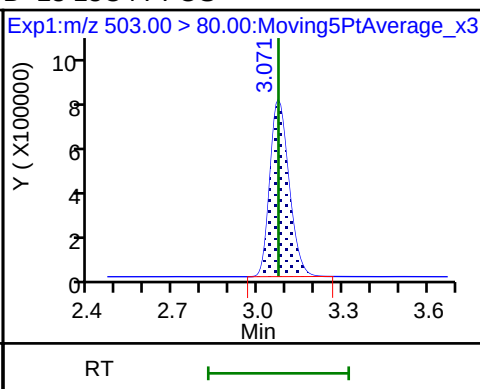
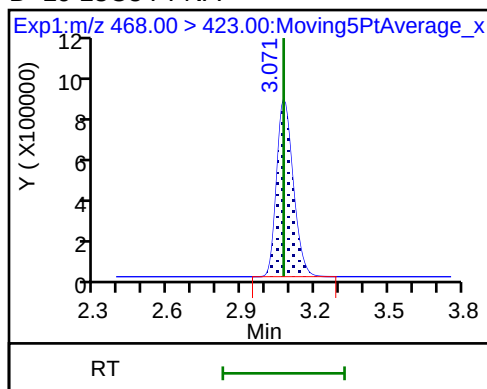
16 Perfluoroheptanesulfonic acid



D 19 13C5 PFNA

D 18 13C4 PFOS

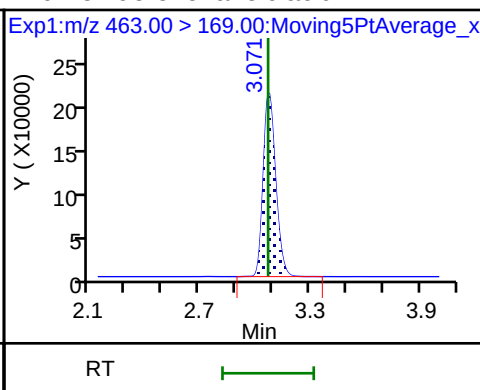
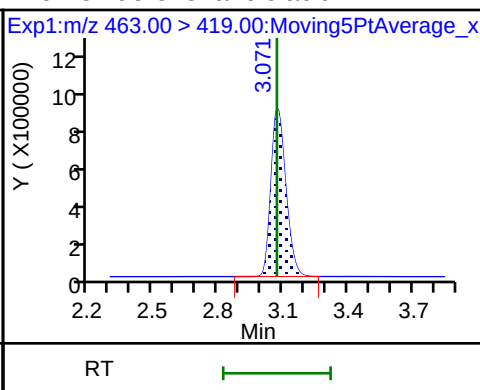
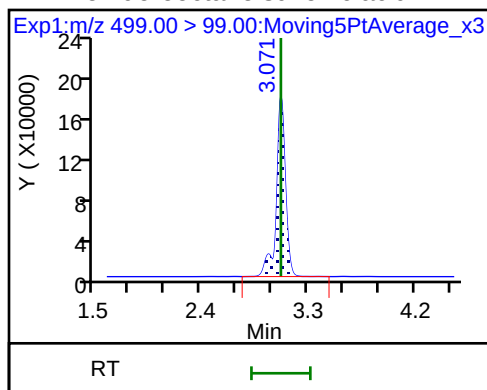
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid

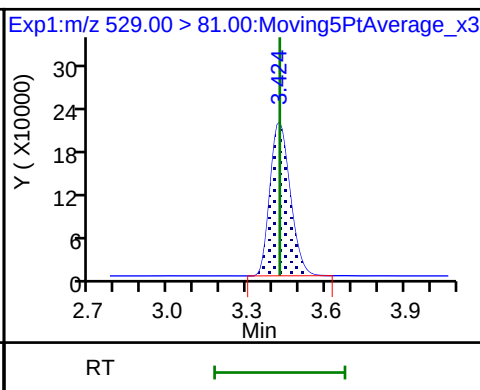
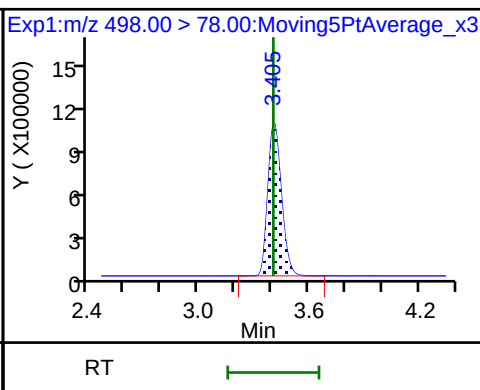
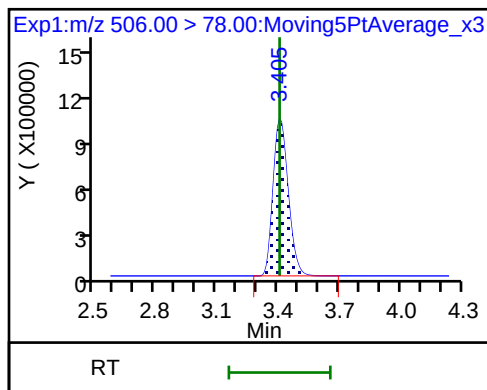
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

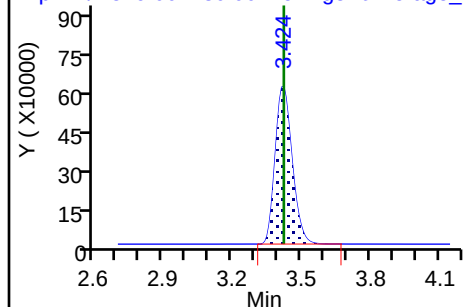


## 68 Perfluorononanesulfonic acid

## 68 Perfluorononanesulfonic acid

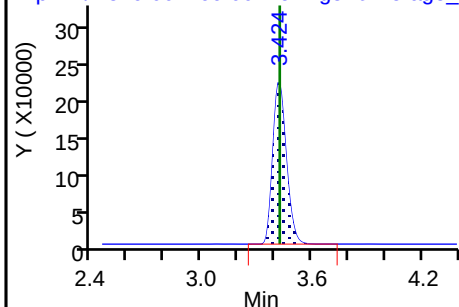
## D 23 13C2 PFDA

Exp1:m/z 549.00 &gt; 80.00:Moving5PtAverage\_x3



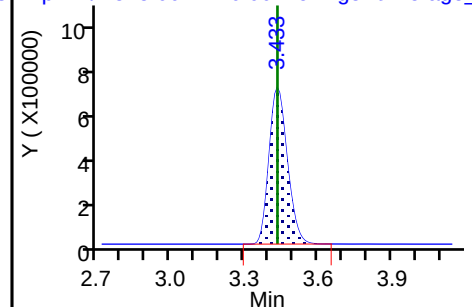
RT

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3

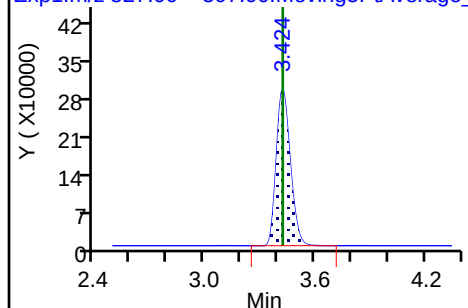


RT

## 25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl Perfluorodecanoic acid

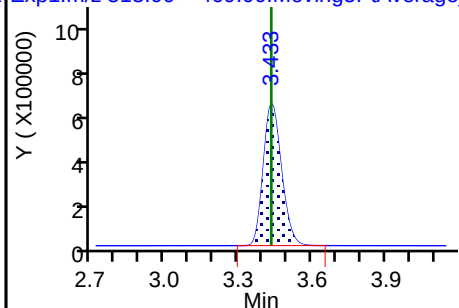
## 24 Perfluorodecanoic acid

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



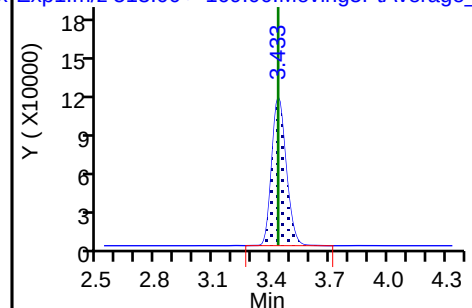
RT

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



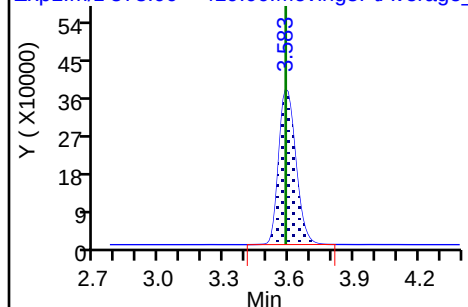
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

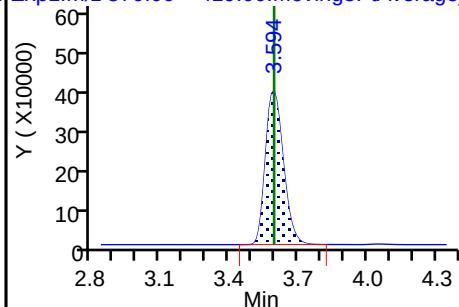
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



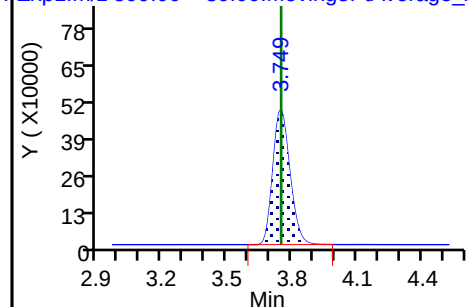
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



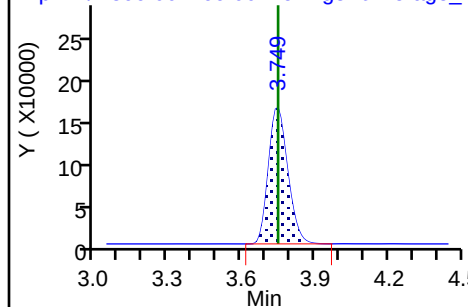
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

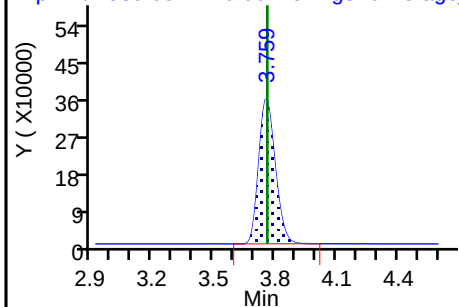
## D 30 13C2 PFUnA

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



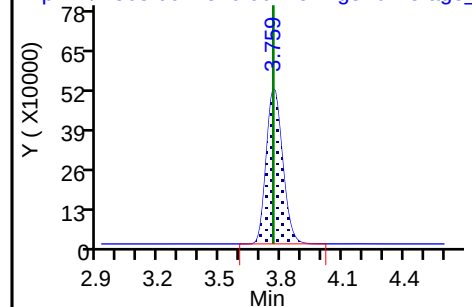
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3

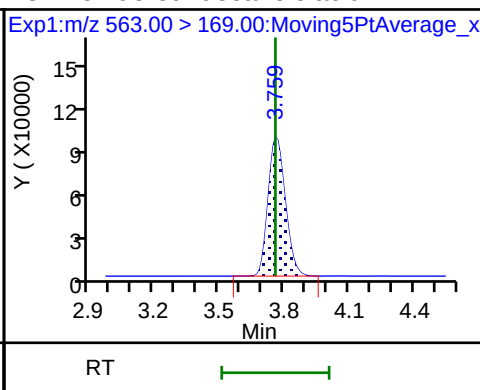
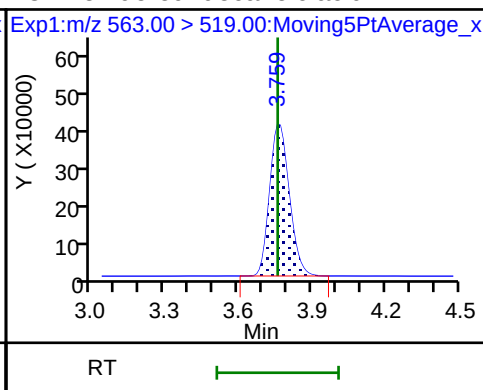
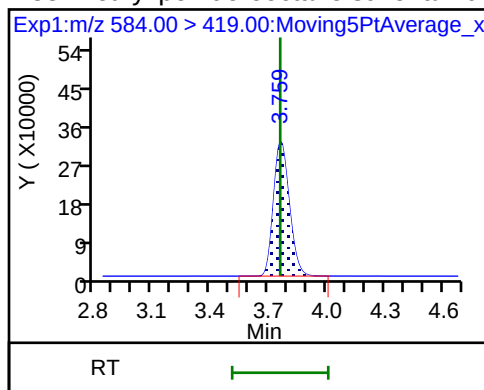


RT

33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

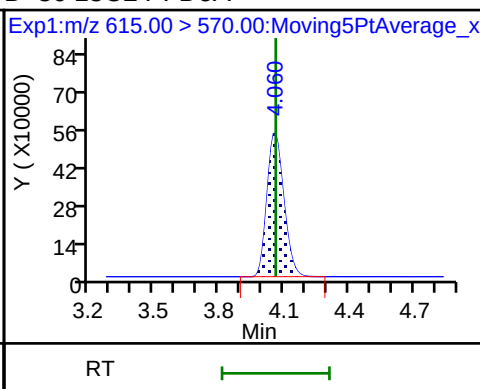
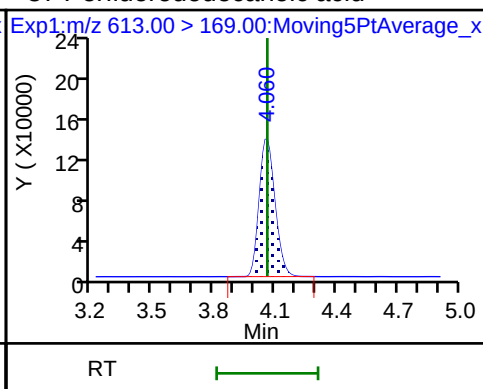
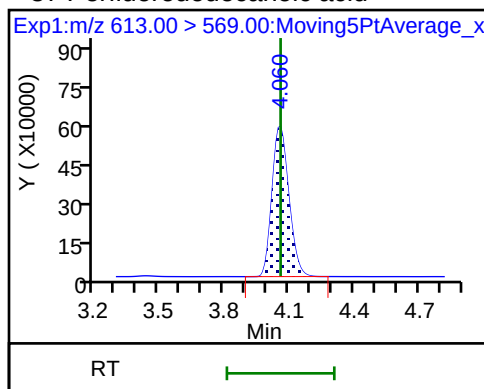
31 Perfluoroundecanoic acid



37 Perfluorododecanoic acid

37 Perfluorododecanoic acid

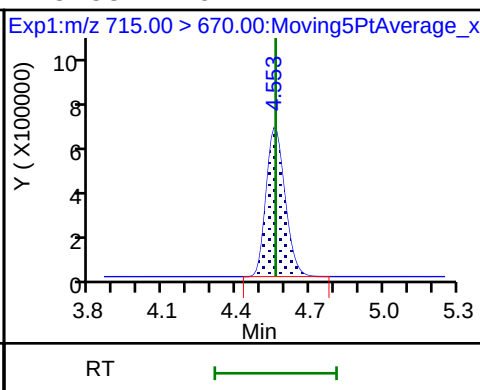
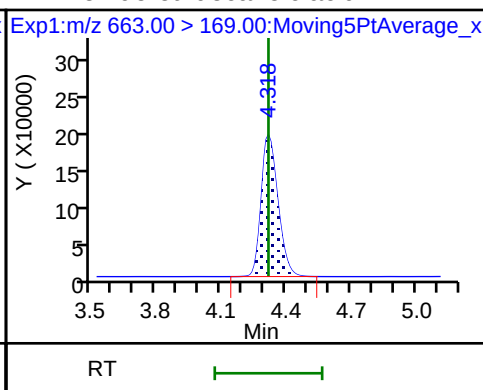
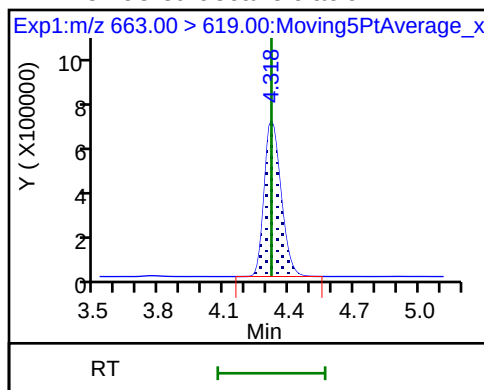
D 36 13C2 PFDaA



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

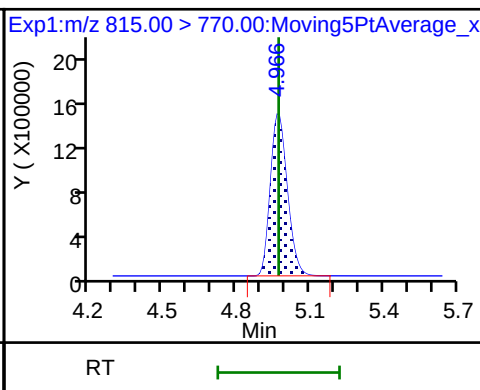
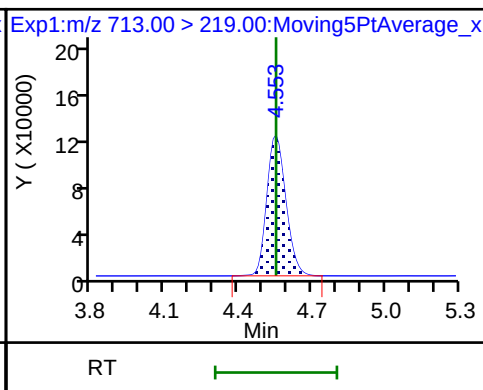
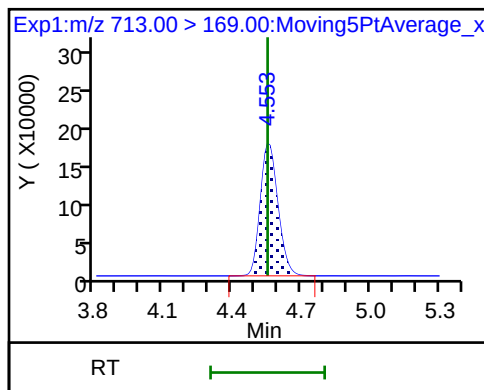
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225820/12 Calibration Date: 05/28/2018 12:21

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_042.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9103 |         | 0.979       | 1.00         | -2.1  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.162  |         | 0.984       | 1.00         | -1.6  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 79.78  |         | 0.903       | 0.884        | 2.2   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 19.21  |         | 1.08        | 0.934        | 15.9  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 0.9906 |         | 0.963       | 1.00         | -3.7  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 74.65  |         | 1.01        | 0.938        | 7.3   | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.004  |         | 0.950       | 1.00         | -5.0  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.067  |         | 0.861       | 0.910        | -5.3  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.673  |         | 0.894       | 0.948        | -5.7  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.150  |         | 0.977       | 1.00         | -2.3  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.338  |         | 0.956       | 0.952        | 0.4   | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 0.9857 |         | 0.931       | 1.00         | -6.9  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.202  |         | 0.949       | 0.928        | 2.3   | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 0.9740 |         | 1.00        | 1.00         | 0.0   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7845 |         | 0.994       | 0.960        | 3.6   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.295  |         | 0.919       | 0.958        | -4.0  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9515 |         | 0.979       | 1.00         | -2.1  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 0.9770 |         | 0.963       | 1.00         | -3.7  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6563 |         | 0.942       | 0.964        | -2.3  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9016 |         | 0.959       | 1.00         | -4.1  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.7713 |         | 0.923       | 1.00         | -7.7  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.015  |         | 0.973       | 1.00         | -2.7  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.106  |         | 0.967       | 1.00         | -3.3  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2329 |         | 0.922       | 1.00         | -7.8  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.343  |         | 2.20        | 2.50         | -12.1 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9187 |         | 2.34        | 2.50         | -6.2  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0193 |         | 2.03        | 2.33         | -12.7 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9805 |         | 2.35        | 2.50         | -6.2  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9495 |         | 2.37        | 2.50         | -5.1  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.138  |         | 2.18        | 2.37         | -8.0  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2145 |         | 2.31        | 2.38         | -2.9  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225820/12 Calibration Date: 05/28/2018 12:21  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_042.d Conc. Units: ng/mL

| ANALYTE      | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|--------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA    | Ave           | 0.9468  | 0.8872 |         | 2.34           | 2.50            | -6.3  | 30.0      |
| 13C4 PFOS    | Ave           | 0.8503  | 0.7576 |         | 2.13           | 2.39            | -10.9 | 30.0      |
| 13C5 PFNA    | Ave           | 0.7745  | 0.7927 |         | 2.56           | 2.50            | 2.4   | 30.0      |
| 13C8 FOSA    | Ave           | 1.113   | 0.9430 |         | 2.12           | 2.50            | -15.3 | 30.0      |
| M2-8:2FTS    | Ave           | 0.2515  | 0.2290 |         | 2.18           | 2.40            | -8.9  | 30.0      |
| 13C2 PFDA    | Ave           | 0.6587  | 0.6450 |         | 2.45           | 2.50            | -2.1  | 30.0      |
| d3-NMeFOSAA  | Ave           | 0.3634  | 0.3784 |         | 2.60           | 2.50            | 4.1   | 30.0      |
| d5-NEtFOSAA  | Ave           | 0.3729  | 0.3913 |         | 2.62           | 2.50            | 4.9   | 30.0      |
| 13C2 PFUnA   | Ave           | 0.5216  | 0.5142 |         | 2.46           | 2.50            | -1.4  | 30.0      |
| 13C2 PFDoA   | Ave           | 0.5613  | 0.5468 |         | 2.44           | 2.50            | -2.6  | 30.0      |
| 13C2-PFTEtDA | Ave           | 0.6891  | 0.6709 |         | 2.43           | 2.50            | -2.7  | 30.0      |
| 13C2-PFHxDA  | Ave           | 1.170   | 1.175  |         | 2.51           | 2.50            | 0.5   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_042.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 28-May-2018 12:21:29 ALS Bottle#: 37 Worklist Smp#: 12  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:33:52 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:33:52

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.463 | 1.463  | 0.0    | 1.000  | 2376375  | 0.9790       |                   | 97.9 | 863   |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.463 | 1.456  | 0.007  | 1.000  | 6526605  | 2.20         |                   | 87.9 | 32544 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.738 | 1.738  | 0.0    | 1.000  | 2075567  | 0.9844       |                   | 98.4 | 1243  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.738 | 1.725  | 0.013  | 0.564  | 4464936  | 2.34         |                   | 93.8 | 50161 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.774 | 1.761  | 0.013  | 1.000  | 87376    | 2.03         |                   | 87.3 | 755   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.774 | 1.774  | 0.0    | 1.000  | 2650323  | 0.9031       |                   | 102  | 10924 |       |
| 298.90 > 99.00                        | 1.774 | 1.774  | 0.0    | 1.000  | 1115181  |              | 2.38(1.25-3.74)   |      | 8887  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.980 | 1.977  | 0.003  | 1.000  | 793447   | NC           |                   |      | 9043  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.980 | 1.980  | 0.0    | 1.000  | 674325   | 1.08         |                   | 116  | 38620 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.025 | 2.011  | 0.014  | 1.000  | 4765404  | 2.35         |                   | 93.8 | 73823 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.025 | 2.025  | 0.0    | 1.000  | 1888153  | 0.9634       |                   | 96.3 | 2178  |       |
| 313.00 > 119.00                       | 2.025 | 2.025  | 0.0    | 1.000  | 169963   |              | 11.11(5.03-15.10) |      | 1533  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.048 | 2.048  | 0.0    | 1.000  | 2631375  | 1.01         |                   | 107  | 18670 |       |
| 349.00 > 99.00                        | 2.048 | 2.048  | 0.0    | 1.000  | 935751   |              | 2.81(1.36-4.07)   |      | 14580 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.127 | 2.112  | 0.015  | 1.000  | 223057   | NC           |                   |      | 4131  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.127 | 2.127  | 0.0    | 1.000  | 292100   | NC           |                 |      | 1777  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.358 | 2.342  | 0.016  | 1.000  | 4614469  | 2.37         |                 | 94.9 | 56788 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 1852374  | 0.9501       |                 | 95.0 | 2302  |       |
| 363.00 > 169.00                       | 2.358 | 2.358  | 0.0    | 1.000  | 694157   |              | 2.67(1.13-3.40) |      | 3545  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.372 | 2.372  | 0.0    | 1.000  | 2146858  | 0.8614       |                 | 94.7 | 4140  |       |
| 399.00 > 99.00                        | 2.372 | 2.372  | 0.0    | 1.000  | 776755   |              | 2.76(1.50-4.49) |      | 2626  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.372 | 2.368  | 0.004  | 1.000  | 5230957  | 2.18         |                 | 92.0 | 45026 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.395 | 2.395  | 0.0    | 1.000  | 5623318  | NC           |                 |      | 44862 |       |
| 377.00 > 85.00                        | 2.395 | 2.395  | 0.0    | 1.000  | 3339921  |              | 1.68(0.84-2.53) |      | 51230 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.689 | 2.689  | 0.0    | 1.000  | 661406   | 0.8936       |                 | 94.3 | 11242 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.689 | 2.680  | 0.009  | 1.000  | 990318   | 2.31         |                 | 97.1 | 11882 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.712 | 2.703  | 0.009  | 1.000  | 4311952  | 2.34         |                 | 93.7 | 47148 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.712 | 2.712  | 0.0    | 1.000  | 1983422  | 0.9770       |                 | 97.7 | 830   |       |
| 413.00 > 169.00                       | 2.712 | 2.712  | 0.0    | 1.000  | 1017380  |              | 1.95(0.84-2.52) |      | 3825  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.712 | 2.712  | 0.0    |        | 4860082  | 2.50         |                 |      | 79231 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.719 | 2.719  | 0.0    | 1.000  | 1875873  | 0.9562       |                 | 100  | 15837 |       |
| 449.00 > 99.00                        | 2.719 | 2.719  | 0.0    | 1.000  | 497650   |              | 3.77(1.94-5.82) |      | 8033  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.081 | 3.081  | 0.0    | 1.000  | 1519113  | 0.9307       |                 | 93.1 | 4439  |       |
| 463.00 > 169.00                       | 3.081 | 3.081  | 0.0    | 1.000  | 376103   |              | 4.04(1.90-5.69) |      | 7250  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.081 | 3.081  | 0.0    | 1.000  | 1643312  | 0.9489       |                 | 102  | 2541  |       |
| 499.00 > 99.00                        | 3.081 | 3.081  | 0.0    | 1.000  | 355442   |              | 4.62(2.31-6.93) |      | 1795  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.081 | 3.072  | 0.009  | 1.000  | 3520104  | 2.13         |                 | 89.1 | 22186 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.081 | 3.072  | 0.009  | 1.000  | 3852704  | 2.56         |                 | 102  | 51195 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.295 | 3.295  | 0.0    | 1.000  | 2450915  | NC           |                 |      | 29367 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.417 | 3.417  | 0.0    | 1.000  | 1785541  | 1.00         |                 | 100  | 25155 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.417 | 3.406  | 0.010  | 1.000  | 4582842  | 2.12         |                 | 84.7 | 47415 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.426 | 3.426  | 0.0    | 1.000  | 1109199  | 0.99         |                 | 104  | 18239 |       |
| 549.00 > 99.00                        | 3.426 | 3.426  | 0.0    | 1.000  | 413685   |              | 2.68(1.33-3.97) |      | 8945  |       |



| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.435 | 3.435  | 0.0    | 1.000  | 552443   | 0.9195       |                  | 96.0 | 17535 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.435 | 3.424  | 0.011  | 1.000  | 1066340  | 2.18         |                  | 91.1 | 18379 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.444 | 3.444  | 0.0    | 1.000  | 1193044  | 0.9786       |                  | 97.9 | 5963  |       |
| 513.00 > 169.00                       | 3.444 | 3.444  | 0.0    | 1.000  | 203901   |              | 5.85(2.36-7.09)  |      | 6624  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.444 | 3.434  | 0.010  | 1.000  | 3134800  | 2.45         |                  | 97.9 | 51218 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.596 | 3.584  | 0.012  | 1.000  | 1839236  | 2.60         |                  | 104  | 21083 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.596 | 3.596  | 0.0    | 1.000  | 718751   | 0.9627       |                  | 96.3 | 6543  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.750 | 3.750  | 0.0    | 1.000  | 931846   | 0.9423       |                  | 97.7 | 10049 |       |
| 599.00 > 99.00                        | 3.750 | 3.750  | 0.0    | 1.000  | 317649   |              | 2.93(1.39-4.16)  |      | 8341  |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.771 | 3.771  | 0.0    | 1.000  | 770914   | 0.9234       |                  | 92.3 | 4134  |       |
| 563.00 > 169.00                       | 3.771 | 3.771  | 0.0    | 1.000  | 199156   |              | 3.87(2.12-6.36)  |      | 5069  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.771 | 3.771  | 0.0    | 1.003  | 685926   | 0.9591       |                  | 95.9 | 11339 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.771 | 3.760  | 0.011  | 1.000  | 2498895  | 2.46         |                  | 98.6 | 42005 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.761 | 3.760  | 0.001  | 1.000  | 1901921  | 2.62         |                  | 105  | 20201 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.928 | 3.928  | 0.0    | 1.000  | 3865769  | NC           |                  |      | 38838 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.060 | 4.060  | 0.0    | 1.000  | 1079090  | 0.9727       |                  | 97.3 | 1401  |       |
| 613.00 > 169.00                       | 4.060 | 4.060  | 0.0    | 1.000  | 256428   |              | 4.21(2.13-6.40)  |      | 4295  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.060 | 4.061  | -0.001 | 1.000  | 2657322  | 2.44         |                  | 97.4 | 22549 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.329 | 4.329  | 0.0    | 1.000  | 1175833  | 0.9671       |                  | 96.7 | 1268  |       |
| 663.00 > 169.00                       | 4.329 | 4.329  | 0.0    | 1.000  | 370611   |              | 3.17(1.25-3.76)  |      | 5305  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.563 | 4.563  | 0.0    | 1.000  | 303776   | 0.9224       |                  | 92.2 | 3592  |       |
| 713.00 > 219.00                       | 4.563 | 4.563  | 0.0    | 1.000  | 232670   |              | 1.31(0.71-2.13)  |      | 4433  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.563 | 4.559  | 0.004  | 1.000  | 3260397  | 2.43         |                  | 97.3 | 17244 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.983 | 4.971  | 0.012  | 1.000  | 5710550  | 2.51         |                  | 100  | 15644 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.983 | 4.983  | 0.0    | 1.000  | 2123573  | NC           |                  |      | 941   |       |
| 813.00 > 169.00                       | 4.983 | 4.983  | 0.0    | 1.000  | 328608   |              | 6.46(2.86-8.58)  |      | 2870  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.343 | 5.343  | 0.0    | 1.000  | 2305946  | NC           |                  |      | 736   |       |
| 913.00 > 169.00                       | 5.336 | 5.343  | -0.007 | 0.999  | 282618   |              | 8.16(3.83-11.48) |      | 2862  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_042.d

Injection Date: 28-May-2018 12:21:29

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

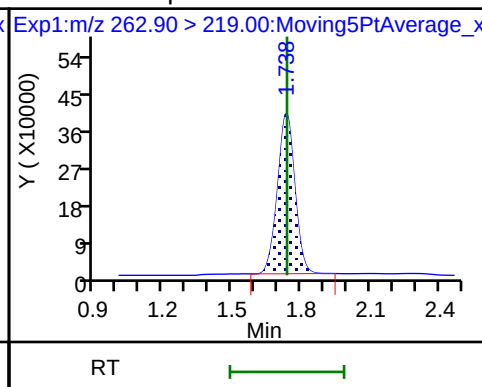
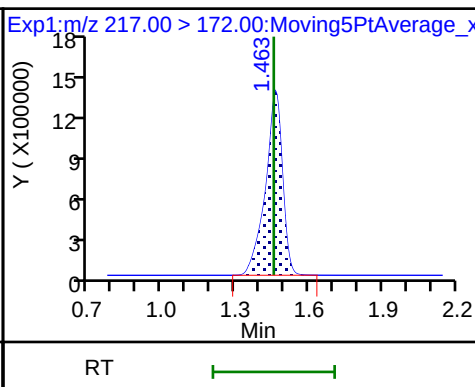
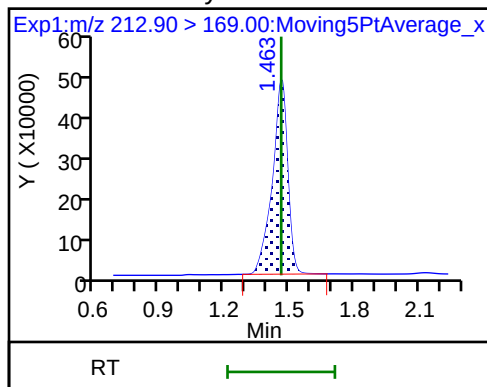
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

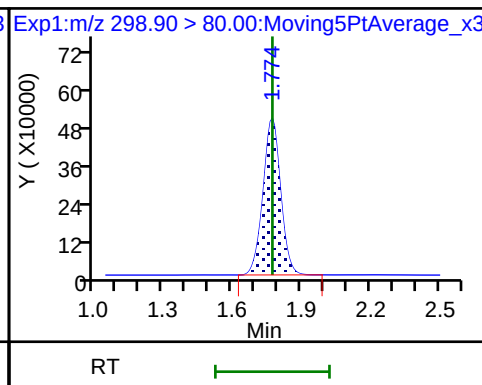
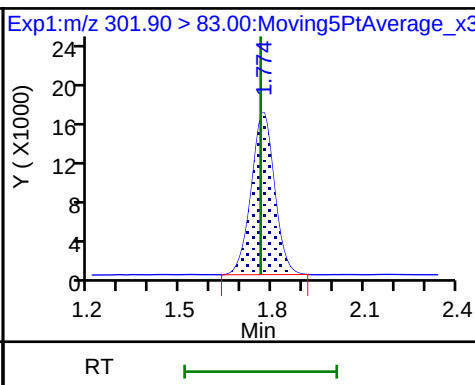
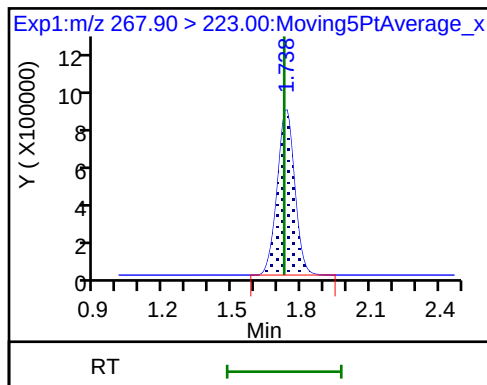
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## D 47 13C3-PFBS

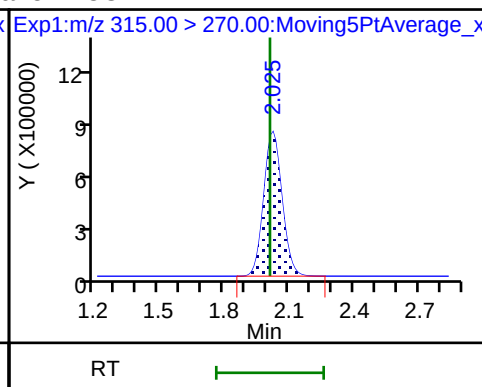
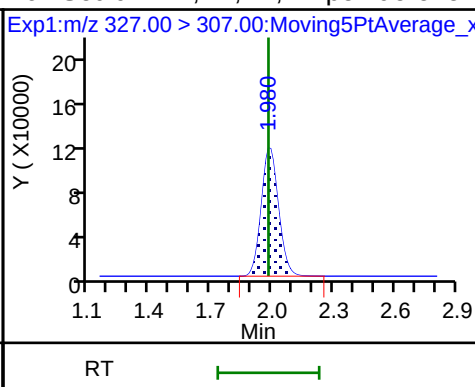
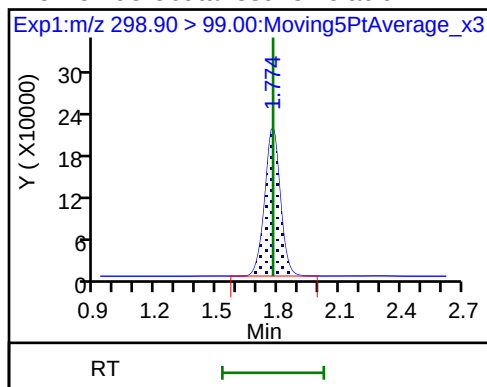
## 5 Perfluorobutanesulfonic acid



## 5 Perfluorobutanesulfonic acid

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

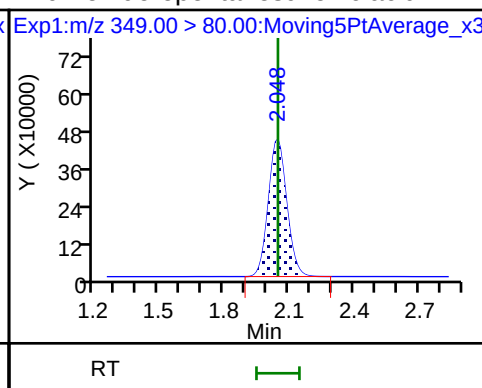
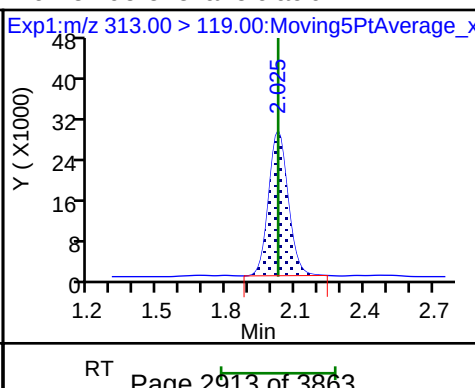
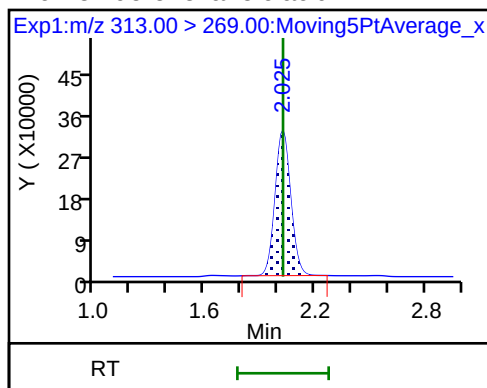
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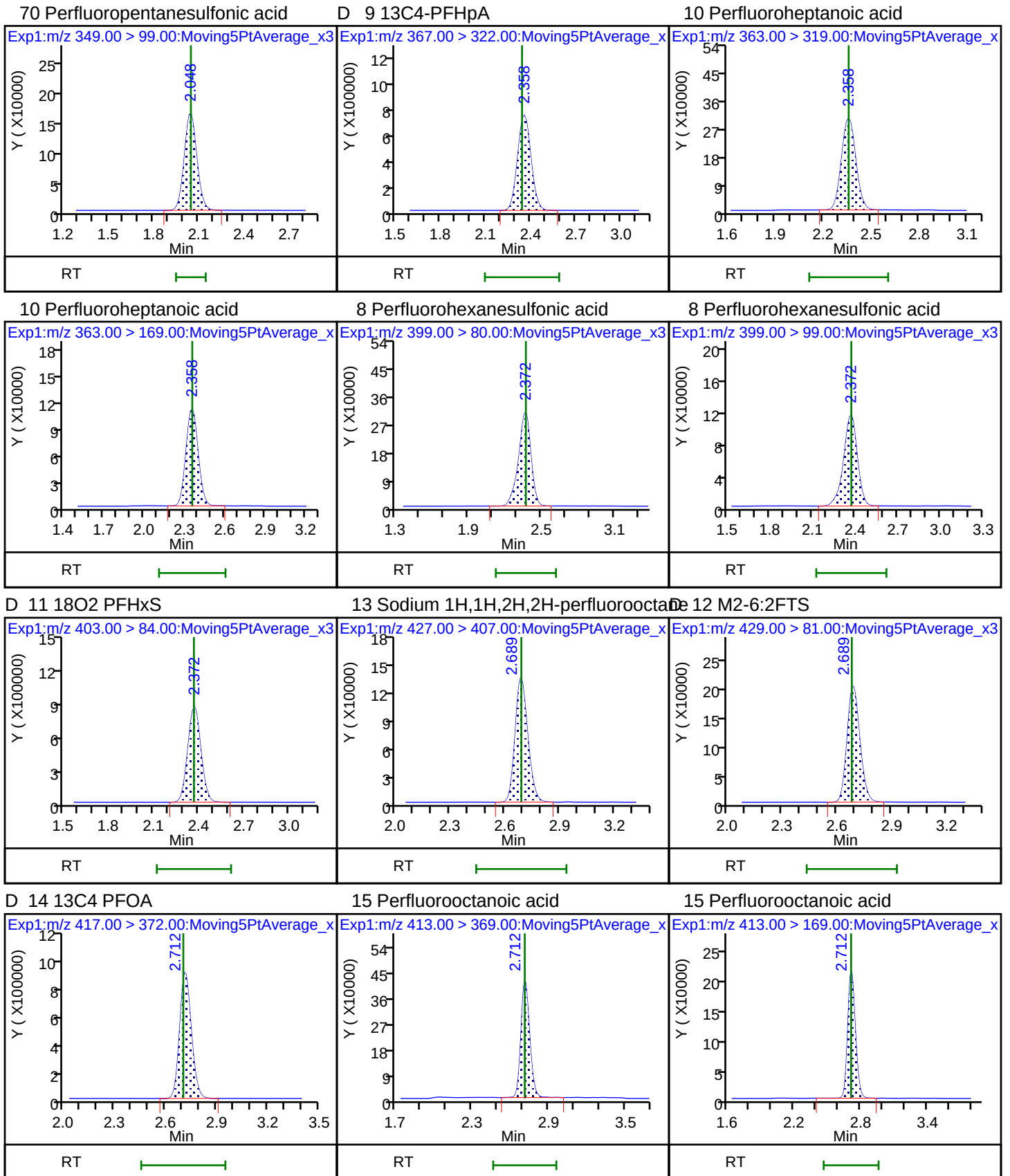


## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

## 70 Perfluoropentanesulfonic acid





\* 62 13C2-PFOA

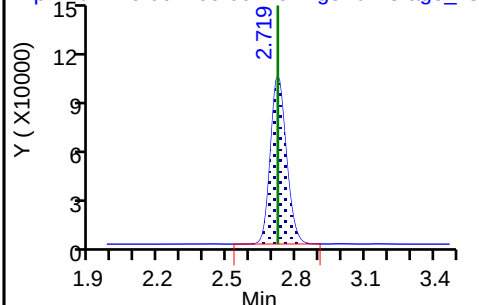
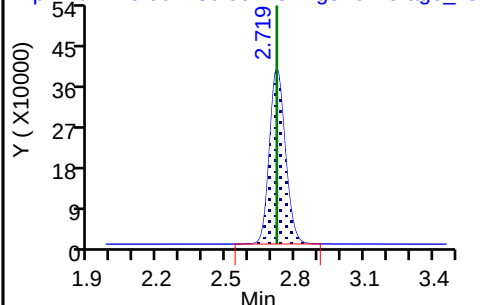
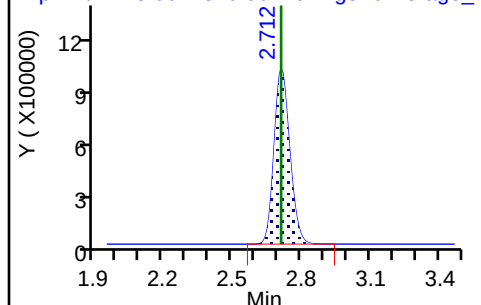
16 Perfluoroheptanesulfonic acid

16 Perfluoroheptanesulfonic acid

Exp1:m/z 415.00 &gt; 370.00:Moving5PtAverage\_x3

Exp1:m/z 449.00 &gt; 80.00:Moving5PtAverage\_x3

Exp1:m/z 449.00 &gt; 99.00:Moving5PtAverage\_x3



20 Perfluorononanoic acid

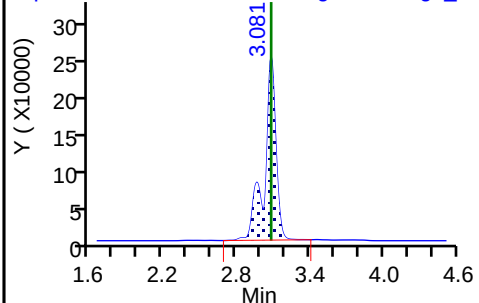
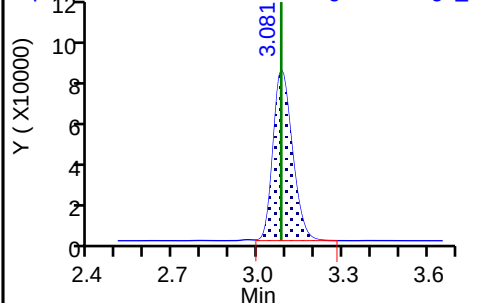
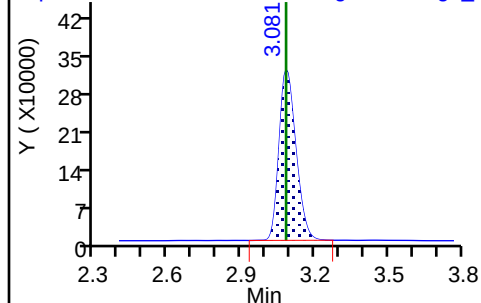
20 Perfluorononanoic acid

17 Perfluorooctane sulfonic acid

Exp1:m/z 463.00 &gt; 419.00:Moving5PtAverage\_x3

Exp1:m/z 463.00 &gt; 169.00:Moving5PtAverage\_x3

Exp1:m/z 499.00 &gt; 80.00:Moving5PtAverage\_x3



17 Perfluorooctane sulfonic acid

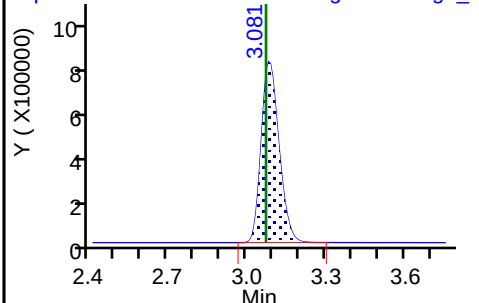
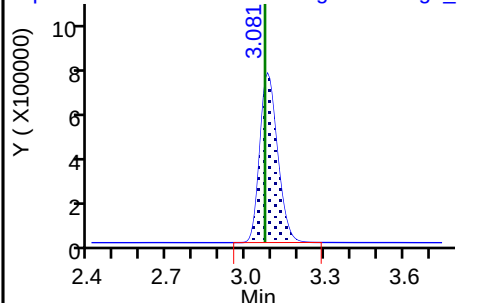
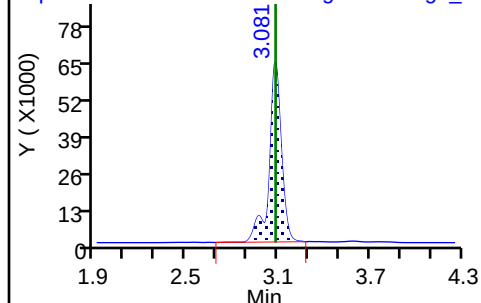
D 18 13C4 PFOS

D 19 13C5 PFNA

Exp1:m/z 499.00 &gt; 99.00:Moving5PtAverage\_x3

Exp1:m/z 503.00 &gt; 80.00:Moving5PtAverage\_x3

Exp1:m/z 468.00 &gt; 423.00:Moving5PtAverage\_x3



22 Perfluorooctane Sulfonamide

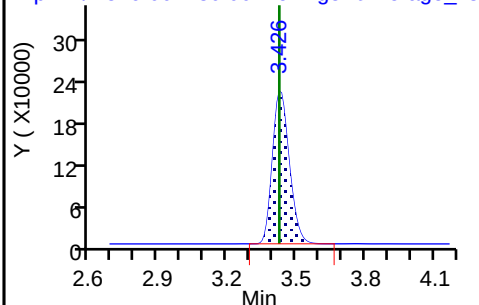
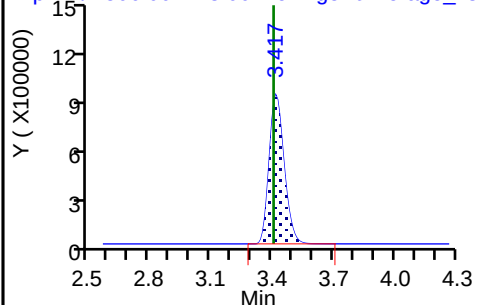
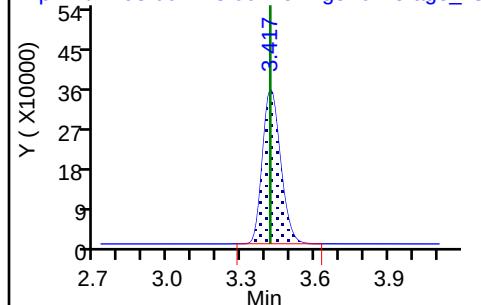
D 21 13C8 FOSA

68 Perfluorononanesulfonic acid

Exp1:m/z 498.00 &gt; 78.00:Moving5PtAverage\_x3

Exp1:m/z 506.00 &gt; 78.00:Moving5PtAverage\_x3

Exp1:m/z 549.00 &gt; 80.00:Moving5PtAverage\_x3

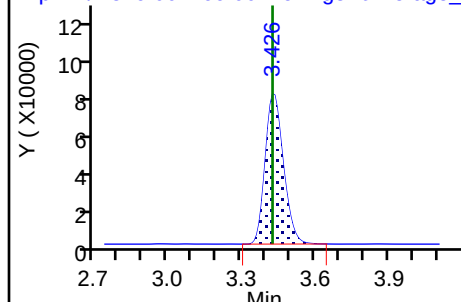


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

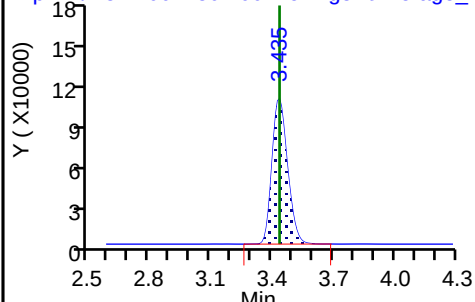
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



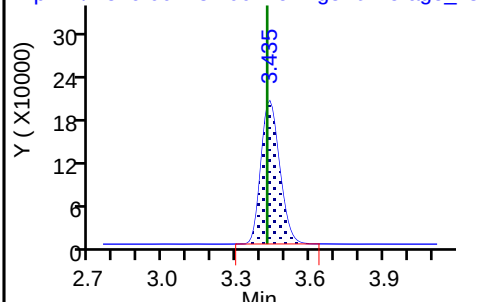
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



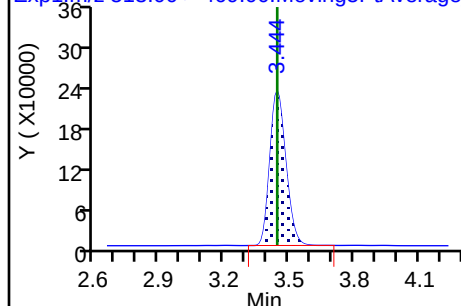
RT

## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

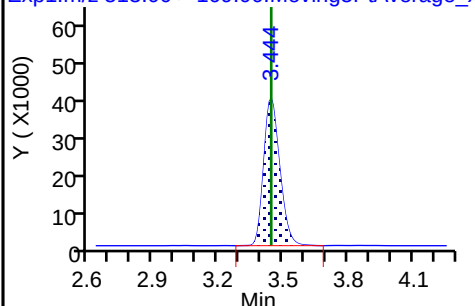
## D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



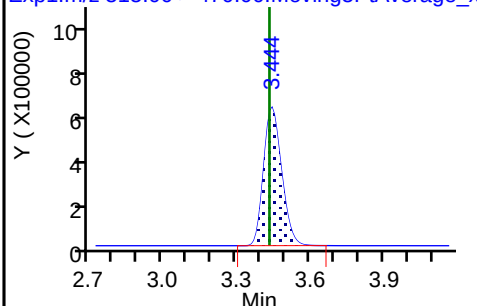
RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



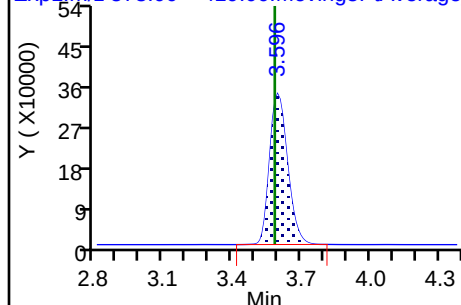
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

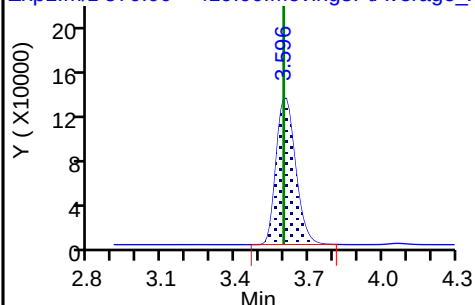
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



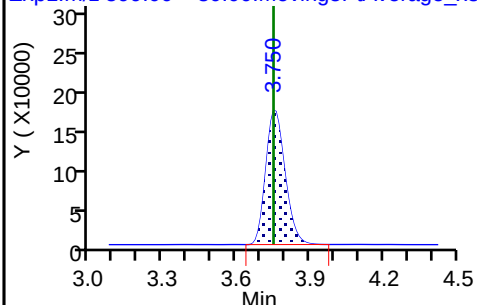
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



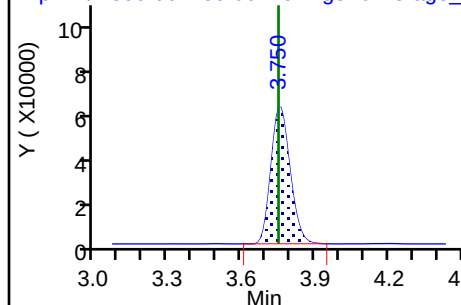
RT

## 29 Perfluorodecane Sulfonic acid

## 31 Perfluoroundecanoic acid

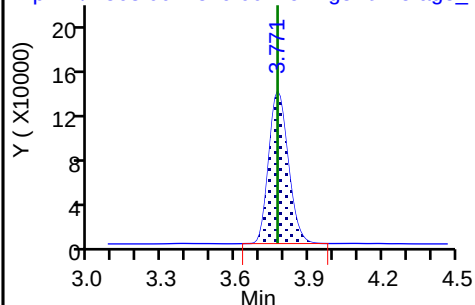
## 31 Perfluoroundecanoic acid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



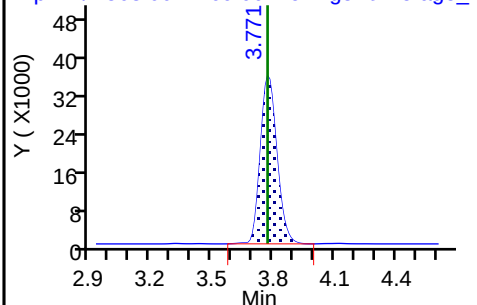
RT

Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x3



RT

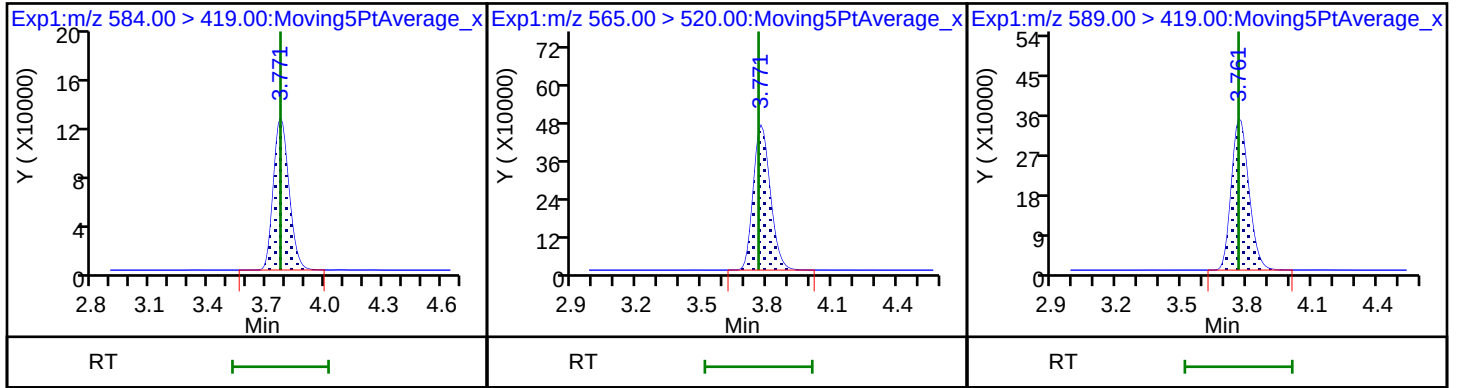
Exp1:m/z 563.00 &gt; 169.00:Moving5PtAverage\_x3



RT

33 N-ethyl perfluorooctane sulfonamid D 30 13C2 PFUnA

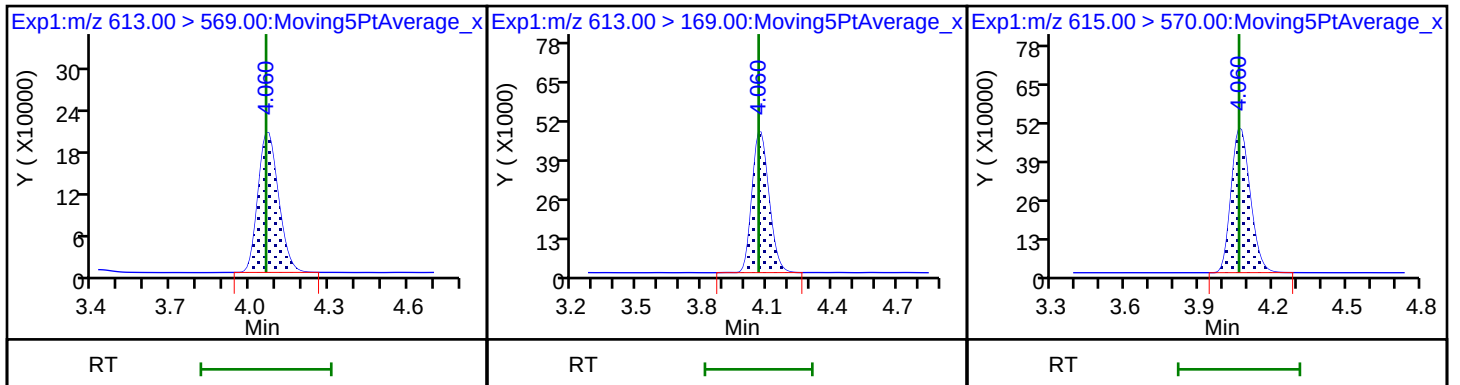
D 32 d5-NEtFOSAA



37 Perfluorododecanoic acid

37 Perfluorododecanoic acid

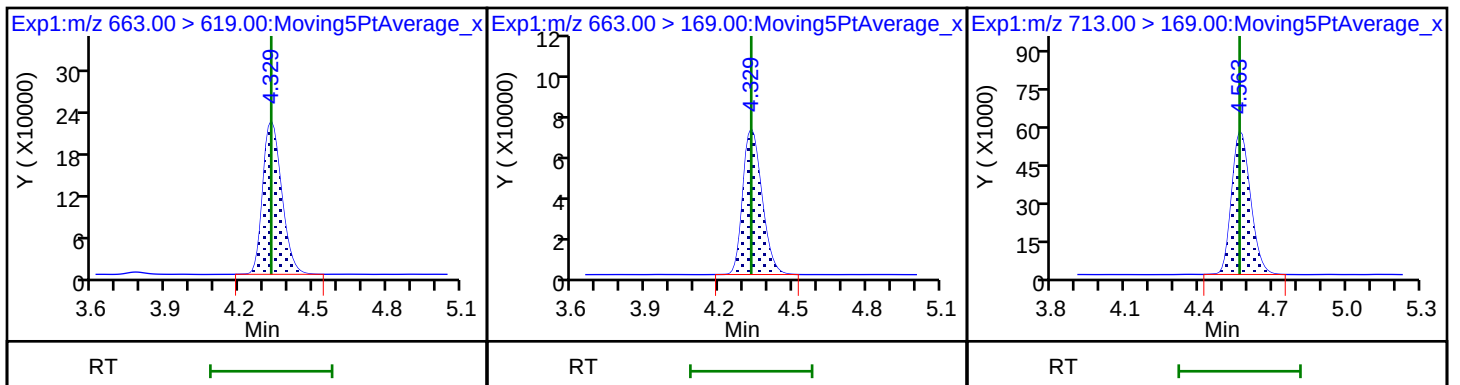
D 36 13C2 PFDaA



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

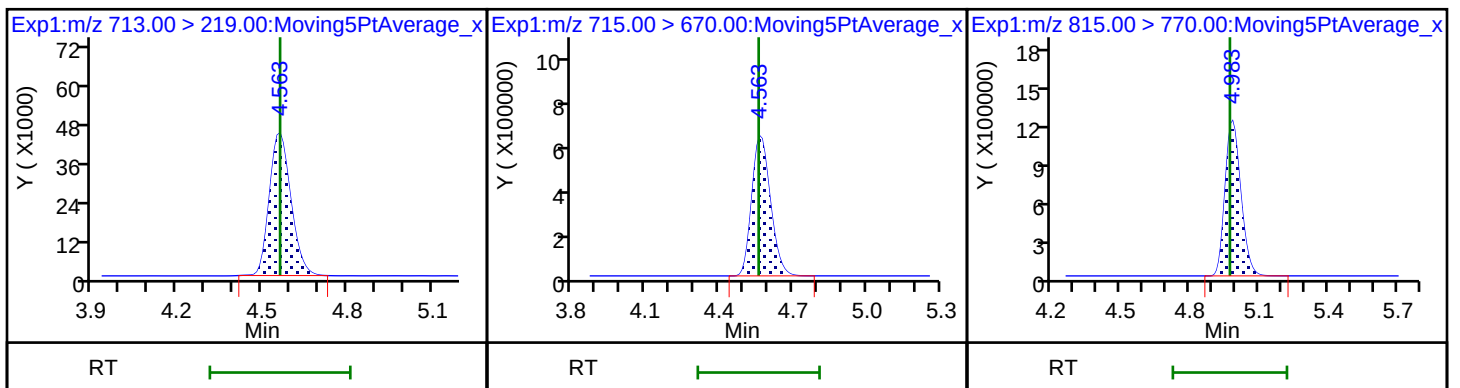
42 Perfluorotetradecanoic acid



42 Perfluorotetradecanoic acid

D 43 13C2-PFTeDA

D 44 13C2-PFHxDA







FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225820/16 Calibration Date: 05/28/2018 12:52

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.27LLADX\_046.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D   | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9523 |         | 2.56        | 2.50         | 2.4  | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.158  |         | 2.45        | 2.50         | -1.9 | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 79.94  |         | 2.26        | 2.21         | 2.4  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 17.85  |         | 2.51        | 2.34         | 7.7  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.017  |         | 2.47        | 2.50         | -1.1 | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 71.25  |         | 2.40        | 2.35         | 2.4  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.140  |         | 2.70        | 2.50         | 7.9  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.115  |         | 2.25        | 2.28         | -1.0 | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.724  |         | 2.32        | 2.37         | -2.2 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.116  |         | 2.37        | 2.50         | -5.2 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.379  |         | 2.46        | 2.38         | 3.5  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.081  |         | 2.55        | 2.50         | 2.1  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.132  |         | 2.23        | 2.32         | -3.7 | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.006  |         | 2.58        | 2.50         | 3.3  | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7979 |         | 2.53        | 2.40         | 5.3  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.288  |         | 2.29        | 2.40         | -4.6 | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9764 |         | 2.51        | 2.50         | 0.4  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.047  |         | 2.58        | 2.50         | 3.1  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6800 |         | 2.44        | 2.41         | 1.3  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9659 |         | 2.57        | 2.50         | 2.8  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8381 |         | 2.51        | 2.50         | 0.3  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.040  |         | 2.49        | 2.50         | -0.4 | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.145  |         | 2.50        | 2.50         | 0.0  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2469 |         | 2.44        | 2.50         | -2.2 | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.395  |         | 2.28        | 2.50         | -8.7 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9635 |         | 2.46        | 2.50         | -1.7 | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0209 |         | 2.20        | 2.33         | -5.4 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.020  |         | 2.44        | 2.50         | -2.4 | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9430 |         | 2.36        | 2.50         | -5.8 | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.126  |         | 2.15        | 2.37         | -9.0 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2194 |         | 2.36        | 2.38         | -0.7 | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225820/16 Calibration Date: 05/28/2018 12:52  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.27LLADX\_046.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9607 |         | 2.54           | 2.50            | 1.5   | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7961 |         | 2.24           | 2.39            | -6.4  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7855 |         | 2.54           | 2.50            | 1.4   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9942 |         | 2.23           | 2.50            | -10.7 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2457 |         | 2.34           | 2.40            | -2.3  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6888 |         | 2.61           | 2.50            | 4.6   | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3923 |         | 2.70           | 2.50            | 8.0   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4019 |         | 2.69           | 2.50            | 7.8   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5323 |         | 2.55           | 2.50            | 2.0   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5914 |         | 2.63           | 2.50            | 5.4   | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7412 |         | 2.69           | 2.50            | 7.6   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.371  |         | 2.93           | 2.50            | 17.2  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_046.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 28-May-2018 12:52:43 ALS Bottle#: 38 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 14:41:24 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 14:41:23

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.452 | 1.456  | -0.004 | 1.000  | 6833564  | 2.28         |                   | 91.3 | 30393 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.458 | 1.458  | 0.0    | 1.004  | 6507749  | 2.56         |                   | 102  | 3227  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.729 | 1.725  | 0.004  | 0.561  | 4719699  | 2.46         |                   | 98.3 | 60487 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.729 | 1.729  | 0.0    | 1.000  | 5464971  | 2.45         |                   | 98.1 | 4246  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.765 | 1.761  | 0.004  | 1.000  | 95409    | 2.20         |                   | 94.6 | 824   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 7249725  | 2.26         |                   | 102  | 34908 |       |
| 298.90 > 99.00                        | 1.765 | 1.765  | 0.0    | 1.000  | 2983466  |              | 2.43(1.25-3.74)   |      | 24157 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.981 | 1.977  | 0.004  | 1.000  | 729933   | NC           |                   |      | 9043  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.981 | 1.981  | 0.0    | 1.000  | 1709971  | 2.51         |                   | 108  | 99613 |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.011  | 0.003  | 1.000  | 4996149  | 2.44         |                   | 97.6 | 71562 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 5082323  | 2.47         |                   | 98.9 | 6324  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 465445   |              | 10.92(5.03-15.10) |      | 4412  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 6856303  | 2.40         |                   | 102  | 49268 |       |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 2536488  |              | 2.70(1.36-4.07)   |      | 26940 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.116 | 2.112  | 0.004  | 1.000  | 239333   | NC           |                   |      | 6724  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.116 | 2.116  | 0.0    | 1.000  | 799898   | NC           |                 |      | 6011  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.342  | 0.003  | 1.000  | 4619644  | 2.36         |                 | 94.2 | 67328 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 5266133  | 2.70         |                 | 108  | 6208  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 1836337  |              | 2.87(1.13-3.40) |      | 8792  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.368  | -0.010 | 1.000  | 5216016  | 2.15         |                 | 91.0 | 52313 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 5595459  | 2.25         |                 | 99.0 | 9233  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 1895744  |              | 2.95(1.50-4.49) |      | 5927  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.395 | 2.395  | 0.0    | 1.000  | 14763995 | NC           |                 |      | 91511 |       |
| 377.00 > 85.00                        | 2.395 | 2.395  | 0.0    | 1.000  | 8315052  |              | 1.78(0.84-2.53) |      | 70494 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.682 | 2.680  | 0.002  | 1.000  | 1021072  | 2.36         |                 | 99.3 | 16360 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.682 | 2.682  | 0.0    | 1.000  | 1756983  | 2.32         |                 | 97.8 | 21715 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.704 | 2.703  | 0.001  | 1.000  | 4706005  | 2.54         |                 | 101  | 76622 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.704 | 2.704  | 0.0    | 1.000  | 5253231  | 2.37         |                 | 94.8 | 2245  |       |
| 413.00 > 169.00                       | 2.712 | 2.704  | 0.008  | 1.003  | 2689620  |              | 1.95(0.84-2.52) |      | 8843  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.704 | 2.704  | 0.0    |        | 4898728  | 2.50         |                 |      | 59862 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.712 | 2.712  | 0.0    | 1.000  | 5119105  | 2.46         |                 | 104  | 30725 |       |
| 449.00 > 99.00                        | 2.712 | 2.712  | 0.0    | 1.000  | 1373868  |              | 3.73(1.94-5.82) |      | 23808 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.079 | 3.072  | 0.007  | 1.000  | 3848084  | 2.54         |                 | 101  | 57252 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.079 | 3.072  | 0.007  | 1.000  | 3728042  | 2.24         |                 | 93.6 | 20237 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.079 | 3.079  | 0.0    | 1.000  | 4097197  | 2.23         |                 | 96.3 | 8656  |       |
| 499.00 > 99.00                        | 3.079 | 3.079  | 0.0    | 1.000  | 906246   |              | 4.52(2.31-6.93) |      | 6433  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.079 | 3.079  | 0.0    | 1.000  | 4159496  | 2.55         |                 | 102  | 14051 |       |
| 463.00 > 169.00                       | 3.079 | 3.079  | 0.0    | 1.000  | 995216   |              | 4.18(1.90-5.69) |      | 23485 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.286 | 3.286  | 0.0    | 1.000  | 6848185  | NC           |                 |      | 51330 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.415 | 3.406  | 0.009  | 1.000  | 4870261  | 2.23         |                 | 89.3 | 50648 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.415 | 3.415  | 0.0    | 1.000  | 4899800  | 2.58         |                 | 103  | 20471 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.424 | 3.424  | 0.0    | 1.000  | 1153155  | 2.34         |                 | 97.7 | 15796 |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.424 | 3.424  | 0.0    | 1.000  | 2987102  | 2.53         |                 | 105  | 29399 |       |
| 549.00 > 99.00                        | 3.424 | 3.424  | 0.0    | 1.000  | 1103764  |              | 2.71(1.33-3.97) |      | 16633 |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.434 | 3.434  | 0.0    | 1.000  | 3374421  | 2.61         |                 | 105  | 43277 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                 |      |       |       |
| 527.00 > 507.00                       | 3.434 | 3.434  | 0.0    | 1.003  | 1484703  | 2.29         |                 | 95.4 | 25757 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.443 | 3.443  | 0.0    | 1.003  | 3294750  | 2.51         |                 | 100  | 12553 |       |
| 513.00 > 169.00                       | 3.443 | 3.443  | 0.0    | 1.003  | 563453   |              | 5.85(2.36-7.09) |      | 11933 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.595 | 3.584  | 0.011  | 1.000  | 1921620  | 2.70         |                 | 108  | 23473 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.595 | 3.595  | 0.0    | 1.000  | 2011232  | 2.58         |                 | 103  | 14164 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.749 | 3.749  | 0.0    | 1.000  | 2556278  | 2.44         |                 | 101  | 26050 |       |
| 599.00 > 99.00                        | 3.749 | 3.749  | 0.0    | 1.000  | 872762   |              | 2.93(1.39-4.16) |      | 14500 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.760 | 3.760  | 0.0    | 1.000  | 1968993  | 2.69         |                 | 108  | 26802 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.770 | 3.760  | 0.010  | 1.000  | 2607348  | 2.55         |                 | 102  | 33668 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.770 | 3.770  | 0.0    | 1.003  | 1901895  | 2.57         |                 | 103  | 27906 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.770 | 3.770  | 0.0    | 1.000  | 2185257  | 2.51         |                 | 100  | 12680 |       |
| 563.00 > 169.00                       | 3.770 | 3.770  | 0.0    | 1.000  | 542443   |              | 4.03(2.12-6.36) |      | 14178 |       |
| 66 11-Chloroeicosafluoro-3-oxaundecan |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.918 | 3.918  | 0.0    | 1.000  | 10674339 | NC           |                 |      | 51153 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.061 | 4.061  | 0.0    | 1.000  | 3012124  | 2.49         |                 | 99.6 | 3631  |       |
| 613.00 > 169.00                       | 4.061 | 4.061  | 0.0    | 1.000  | 735996   |              | 4.09(2.13-6.40) |      | 13774 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.061 | 4.061  | 0.0    | 1.000  | 2897074  | 2.63         |                 | 105  | 24677 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.318 | 4.318  | 0.0    | 1.000  | 3317097  | 2.50         |                 | 100  | 3519  |       |
| 663.00 > 169.00                       | 4.318 | 4.318  | 0.0    | 1.000  | 1007376  |              | 3.29(1.25-3.76) |      | 11815 |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.559  | -0.006 | 1.000  | 3630714  | 2.69         |                 | 108  | 20149 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 896538   | 2.44         |                 | 97.8 | 9336  |       |
| 713.00 > 219.00                       | 4.553 | 4.553  | 0.0    | 1.000  | 642351   |              | 1.40(0.71-2.13) |      | 12162 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.975 | 4.971  | 0.004  | 1.000  | 6717050  | 2.93         |                 | 117  | 15740 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.975 | 4.975  | 0.0    | 1.000  | 6562742  | NC           |                 |      | 2427  |       |
| 813.00 > 169.00                       | 4.975 | 4.975  | 0.0    | 1.000  | 1015176  |              | 6.46(2.86-8.58) |      | 6432  |       |

| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.336 | 5.336     | 0.0       | 1.000     | 7677674  | NC              |                  |      | 1928 |       |
| 913.00 > 169.00               | 5.336 | 5.336     | 0.0       | 1.000     | 900408   |                 | 8.53(3.83-11.48) |      | 5375 |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

### Reagents:

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180527-58836.b\2018.05.27LLADX\_046.d

Injection Date: 28-May-2018 12:52:43

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

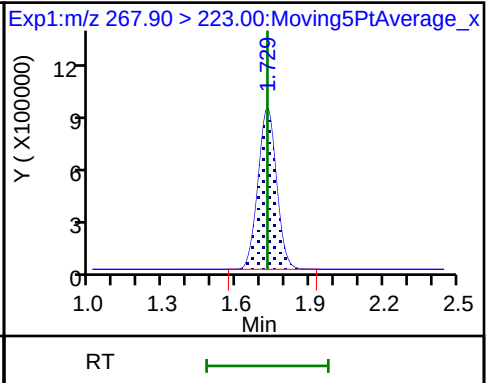
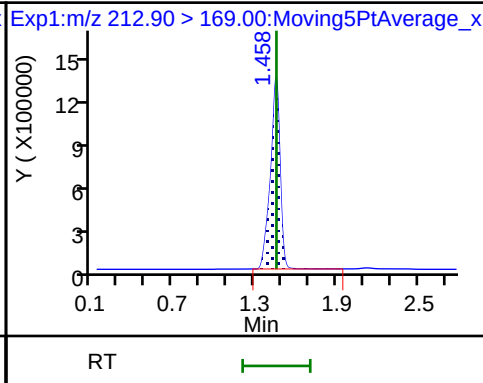
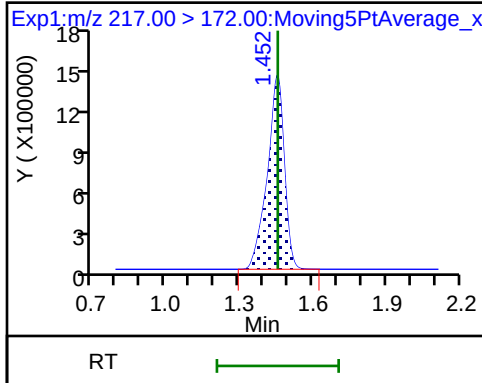
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

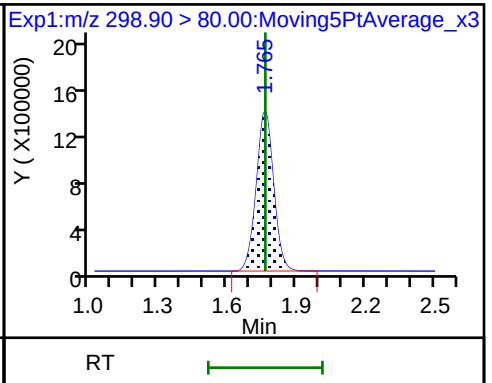
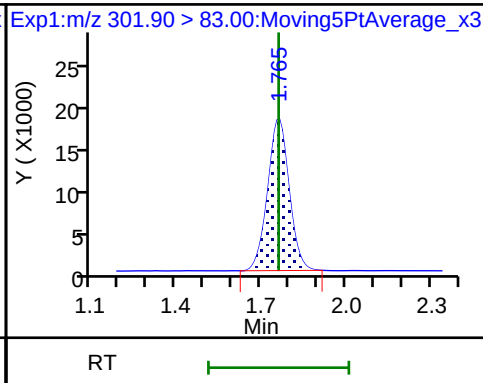
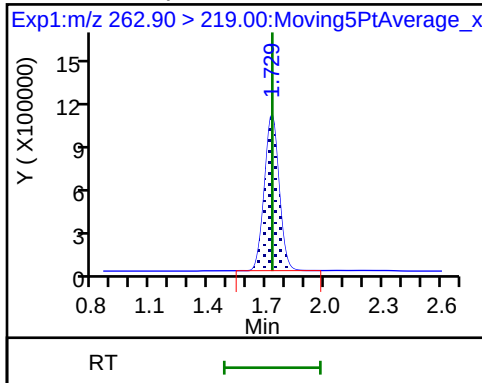
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

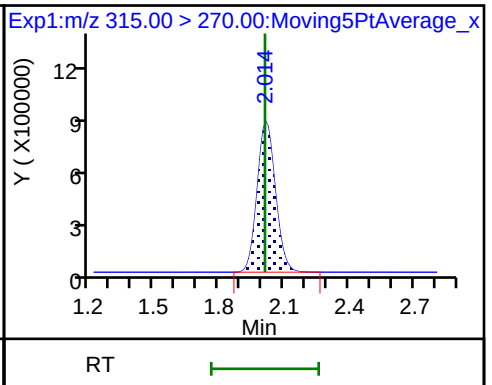
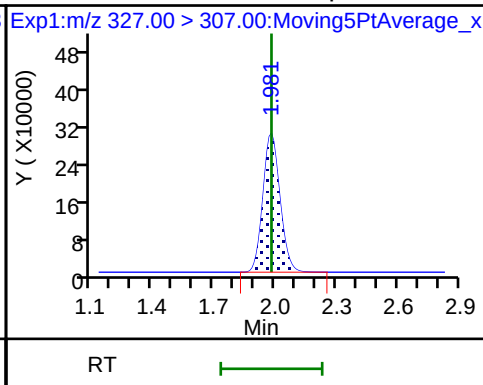
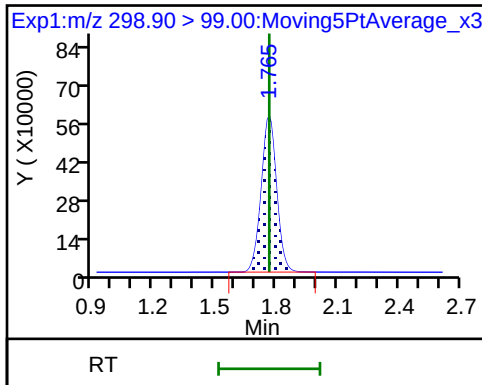
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

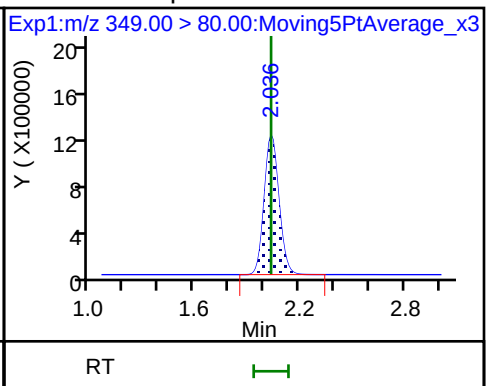
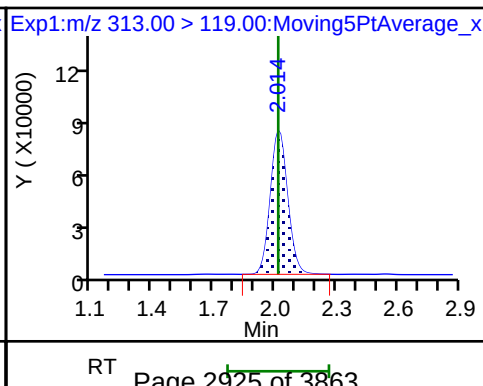
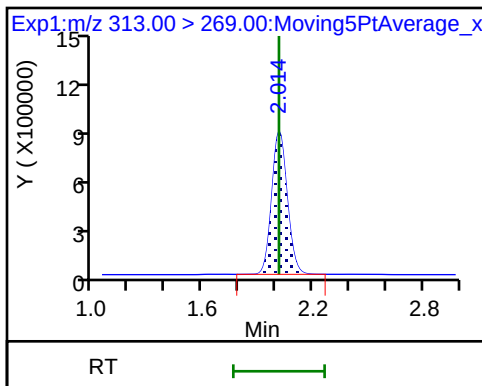
De 7 13C2 PFHxA

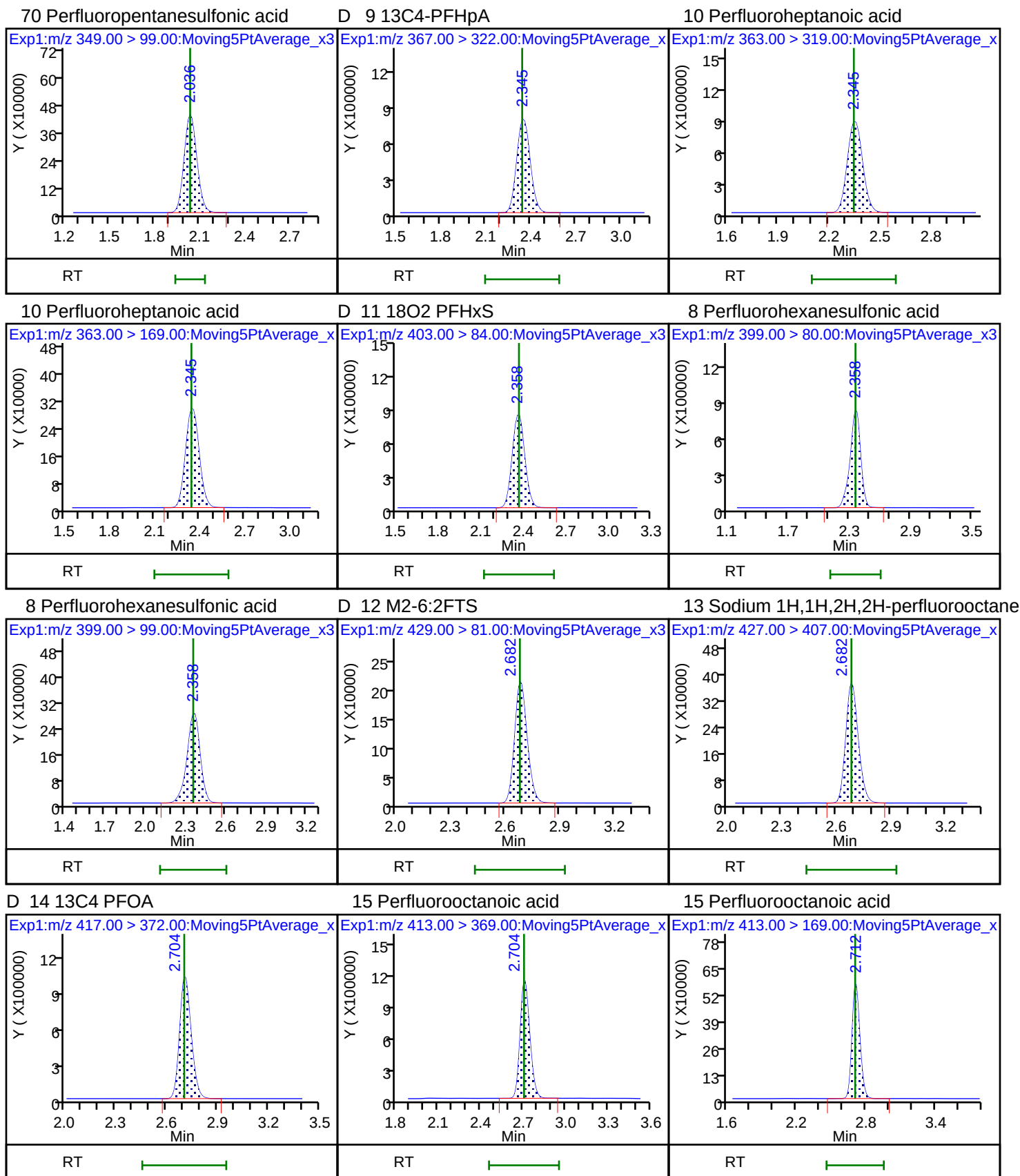


6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid



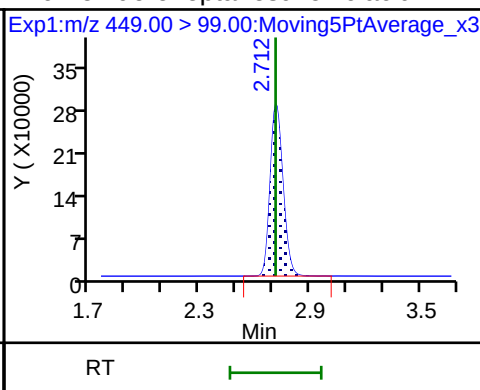
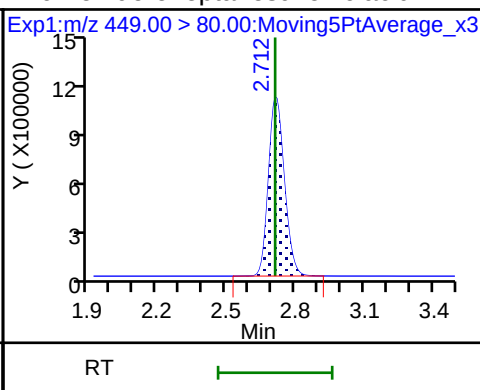
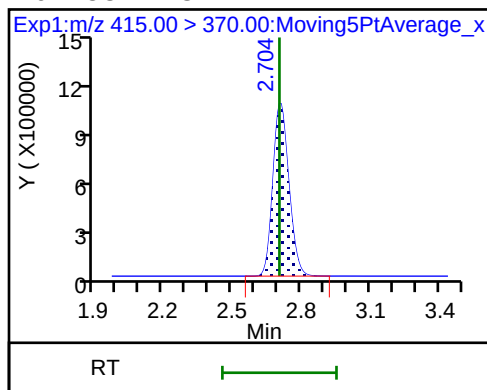




\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

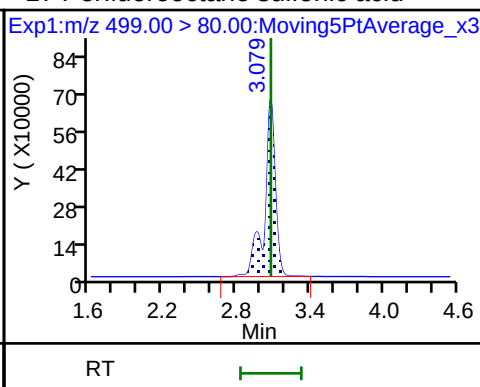
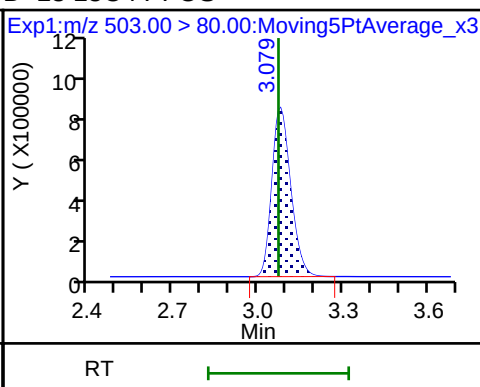
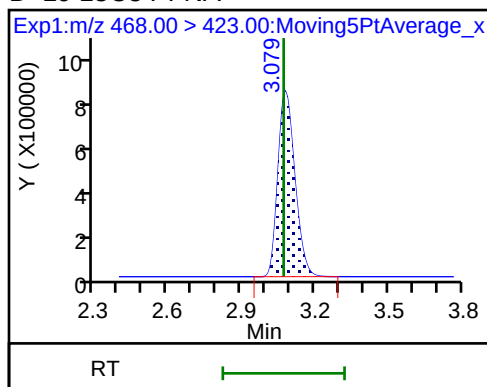
16 Perfluoroheptanesulfonic acid



D 19 13C5 PFNA

D 18 13C4 PFOS

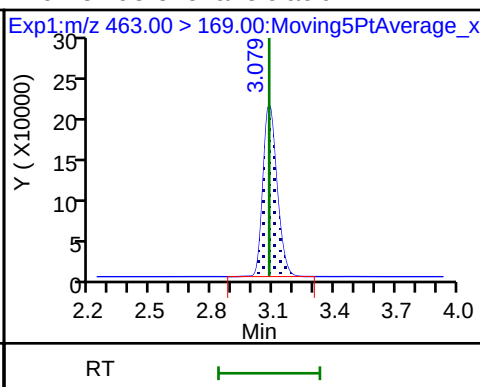
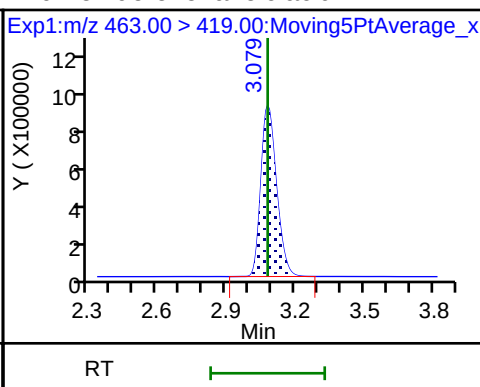
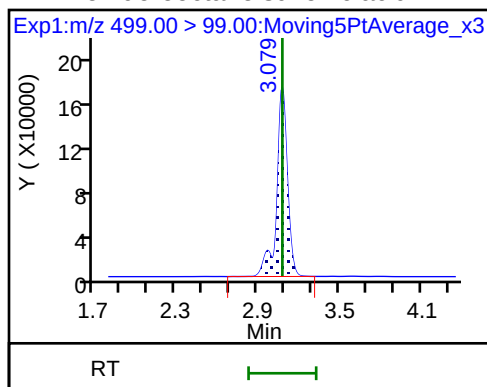
17 Perfluorooctane sulfonic acid



17 Perfluorooctane sulfonic acid

20 Perfluorononanoic acid

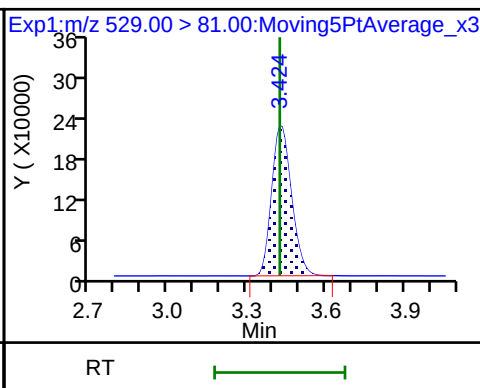
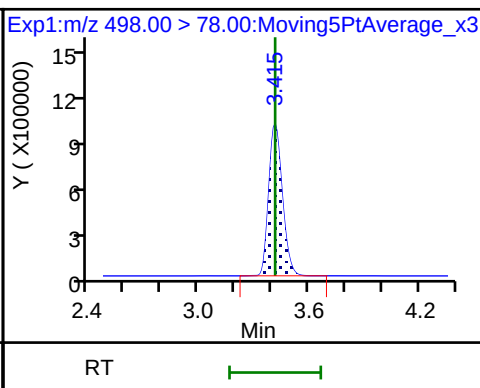
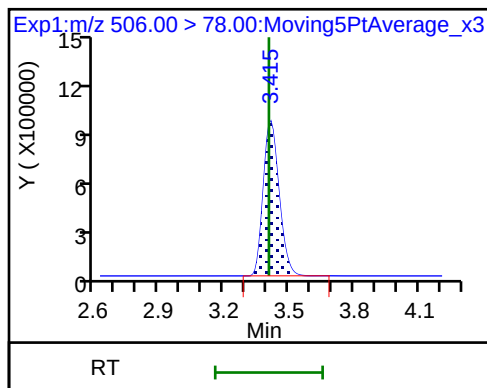
20 Perfluorononanoic acid



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

D 26 M2-8:2FTS

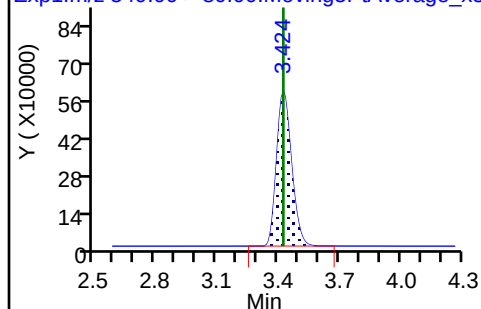


## 68 Perfluorononanesulfonic acid

## 68 Perfluorononanesulfonic acid

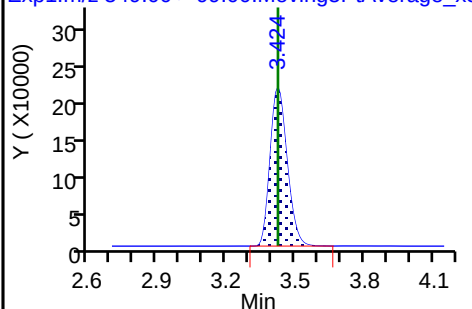
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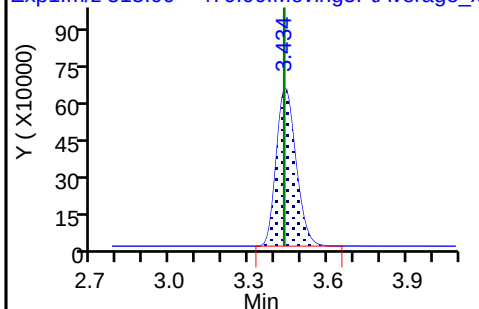
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RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3

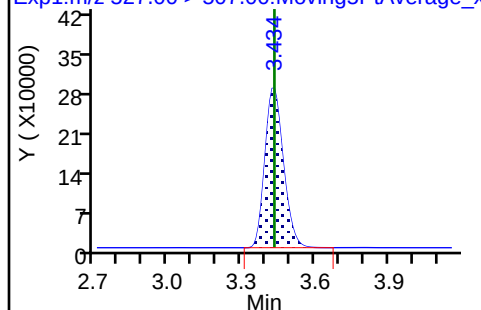


RT

## 25 Sodium 1H,1H,2H,2H-perfluorodecan-2-yl Perfluorodecanoic acid

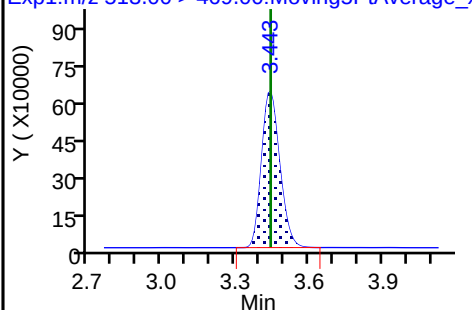
## 24 Perfluorodecanoic acid

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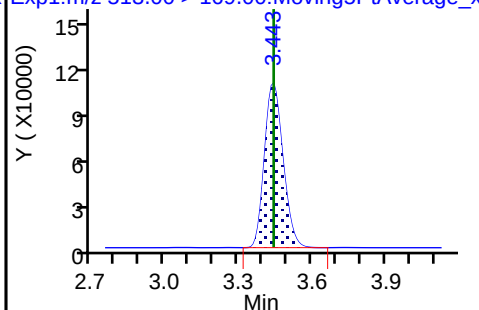
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Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



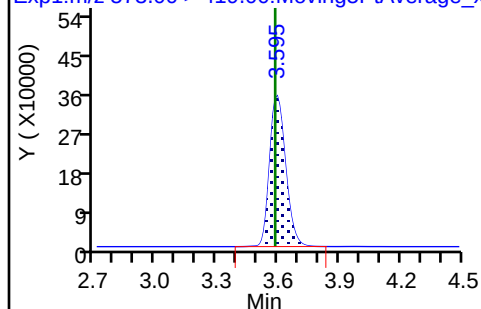
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

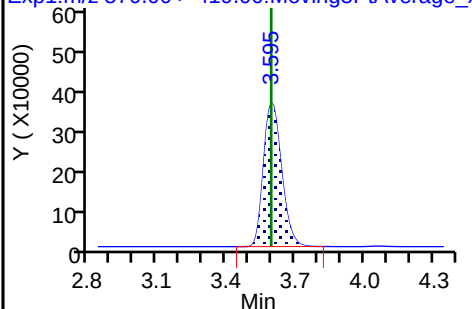
## 29 Perfluorodecane Sulfonic acid

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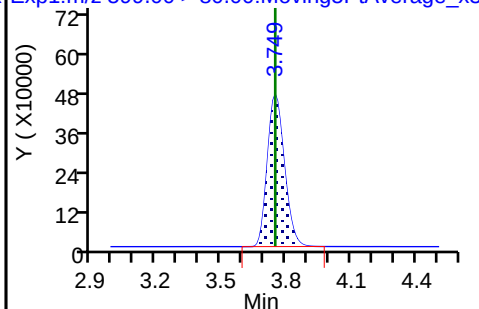
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Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



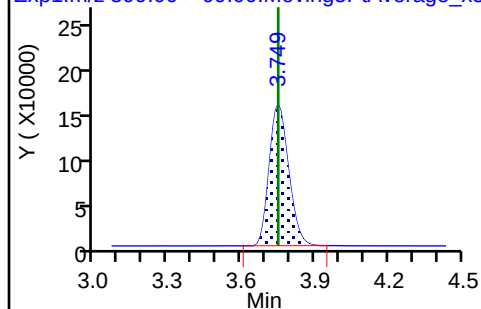
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## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

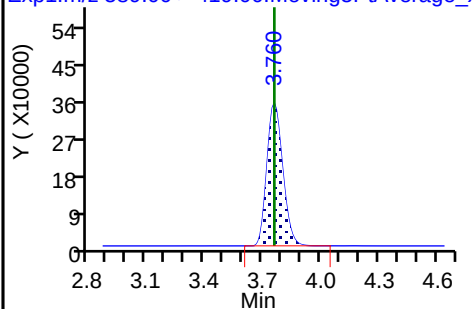
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Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



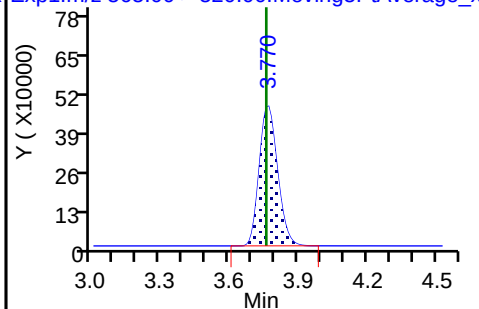
RT

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RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3

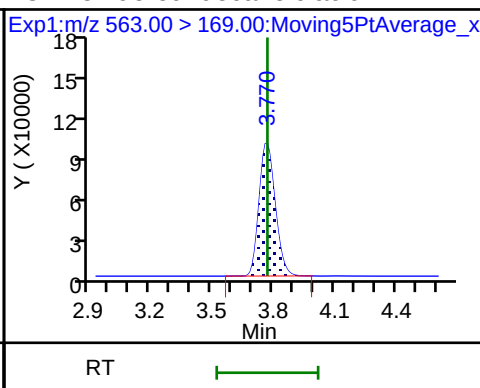
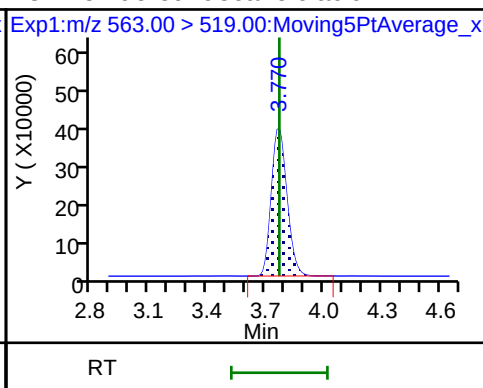
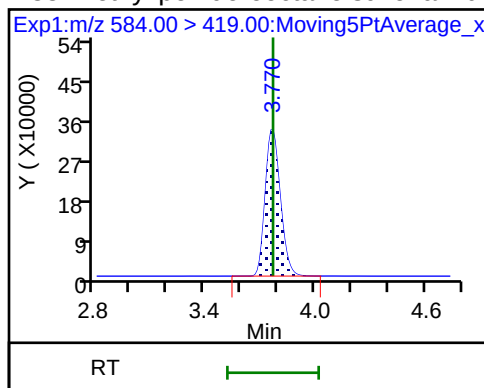


RT

33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

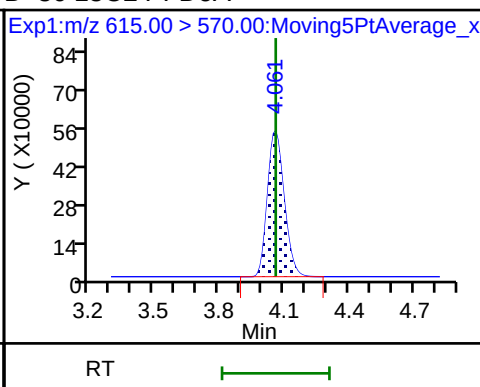
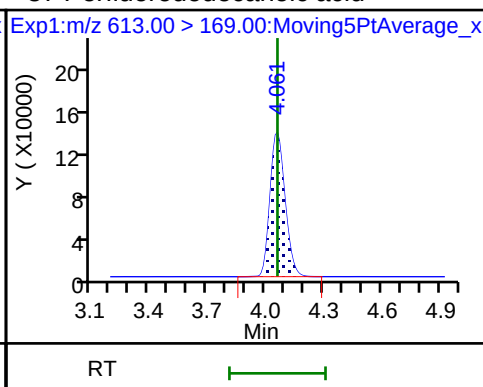
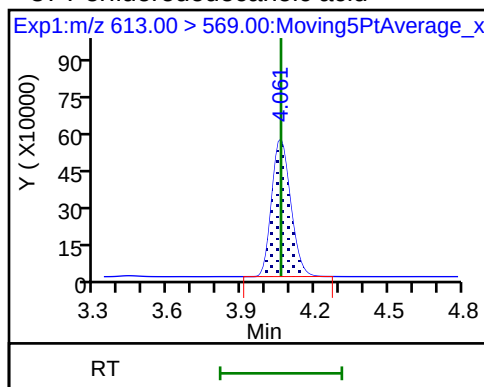
31 Perfluoroundecanoic acid



37 Perfluorododecanoic acid

37 Perfluorododecanoic acid

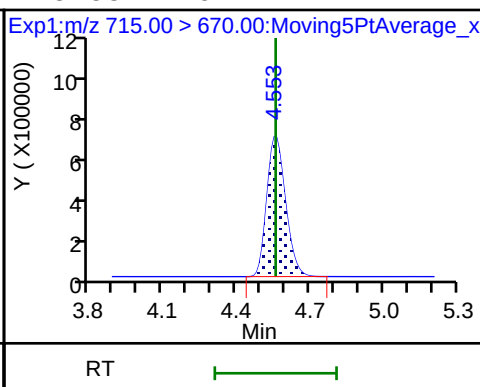
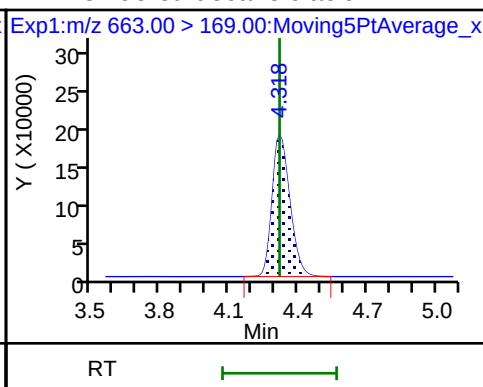
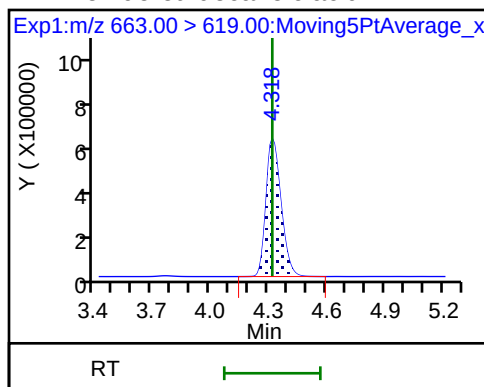
D 36 13C2 PFDaA



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

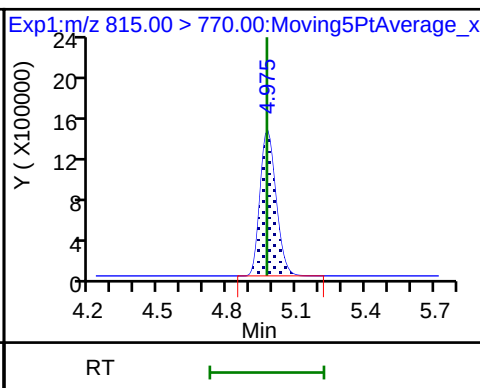
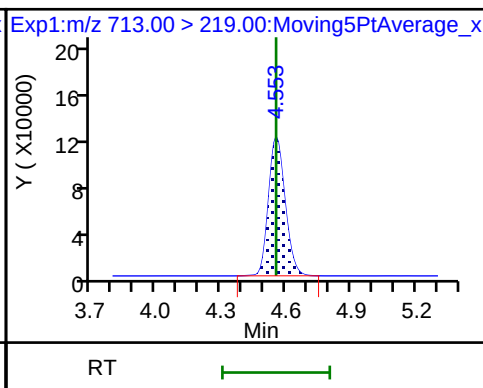
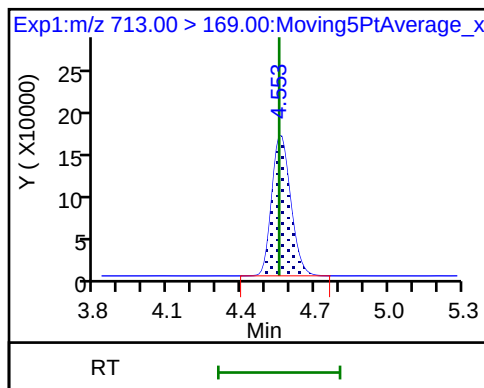
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVL 320-225873/2 Calibration Date: 05/28/2018 17:22

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.28LLA\_004.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 1.009  |         | 0.0543      | 0.0500       | 8.5   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.249  |         | 0.0529      | 0.0500       | 5.8   | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 82.26  |         | 0.0466      | 0.0442       | 5.3   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.32  |         | 0.400       | 0.0467       | 10.5  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.025  |         | 0.0498      | 0.0500       | -0.3  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 69.25  |         | 0.0467      | 0.0469       | -0.4  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 0.9483 |         | 0.0449      | 0.0500       | -10.2 | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.249  |         | 0.0504      | 0.0455       | 10.8  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.655  |         | 0.400       | 0.0474       | -27.3 | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.275  |         | 0.0456      | 0.0476       | -4.2  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.261  |         | 0.0536      | 0.0500       | 7.1   | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.097  |         | 0.0518      | 0.0500       | 3.6   | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.130  |         | 0.0446      | 0.0464       | -3.9  | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7594 |         | 0.0481      | 0.0480       | 0.3   | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 0.9560 |         | 0.0491      | 0.0500       | -1.8  | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.380  |         | 0.400       | 0.0479       | 2.3   | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 1.048  |         | 0.0539      | 0.0500       | 7.8   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 0.9473 |         | 0.400       | 0.0500       | -6.6  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.5872 |         | 0.0422      | 0.0482       | -12.5 | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.9778 |         | 0.0520      | 0.0500       | 4.0   | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.9397 |         | 0.0563      | 0.0500       | 12.5  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.182  |         | 0.0566      | 0.0500       | 13.3  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.300  |         | 0.0568      | 0.0500       | 13.7  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2783 |         | 0.0551      | 0.0500       | 10.2  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.350  |         | 2.21        | 2.50         | -11.7 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9386 |         | 2.39        | 2.50         | -4.2  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0196 |         | 2.06        | 2.33         | -11.6 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.023  |         | 2.45        | 2.50         | -2.1  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9885 |         | 2.47        | 2.50         | -1.2  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.153  |         | 2.20        | 2.37         | -6.8  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2325 |         | 2.50        | 2.38         | 5.2   | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-225873/2 Calibration Date: 05/28/2018 17:22  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.28LLA\_004.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9417 |         | 2.49           | 2.50            | -0.5  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8013 |         | 2.25           | 2.39            | -5.8  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7749 |         | 2.50           | 2.50            | 0.0   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9836 |         | 2.21           | 2.50            | -11.6 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2452 |         | 2.34           | 2.40            | -2.5  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6390 |         | 2.42           | 2.50            | -3.0  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4219 |         | 2.90           | 2.50            | 16.1  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5307 |         | 2.54           | 2.50            | 1.7   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4045 |         | 2.71           | 2.50            | 8.5   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5296 |         | 2.36           | 2.50            | -5.7  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6803 |         | 2.47           | 2.50            | -1.3  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.257  |         | 2.69           | 2.50            | 7.5   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 28-May-2018 17:22:11 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 09:32:27 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 09:32:27

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.450 | 1.458  | -0.008 | 1.000  | 6643975  | 2.21         |                   | 88.3 | 39175 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       | M     |
| 212.90 > 169.00                       | 1.456 | 1.464  | -0.008 | 1.004  | 134081   | 0.0543       |                   | 109  | 60.0  | M     |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.716 | 1.730  | -0.014 | 0.561  | 4619488  | 2.39         |                   | 95.8 | 73967 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.725 | 1.739  | -0.014 | 1.005  | 115421   | 0.0529       |                   | 106  | 71.4  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.753 | 1.766  | -0.013 | 1.000  | 89626    | 2.06         |                   | 88.4 | 767   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.762 | 1.775  | -0.013 | 1.005  | 140159   | 0.0466       |                   | 105  | 829   |       |
| 298.90 > 99.00                        | 1.762 | 1.775  | -0.013 | 1.005  | 59342    |              | 2.36(1.25-3.74)   |      | 483   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.982  | -0.012 | 1.000  | 32979    | 0.0516       |                   | 111  | 1953  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.982  | -0.012 | 1.000  | 754406   | NC           |                   |      | 8155  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.003 | 2.015  | -0.012 | 1.000  | 5032671  | 2.45         |                   | 97.9 | 86273 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       | M     |
| 313.00 > 269.00                       | 2.014 | 2.027  | -0.013 | 1.006  | 103162   | 0.0498       |                   | 99.7 | 148   | M     |
| 313.00 > 119.00                       | 2.014 | 2.027  | -0.013 | 1.006  | 10090    |              | 10.22(5.03-15.10) |      | 89.5  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.025 | 2.049  | -0.024 | 1.000  | 125191   | 0.0467       |                   | 99.6 | 1528  |       |
| 349.00 > 99.00                        | 2.025 | 2.049  | -0.024 | 1.000  | 51132    |              | 2.45(1.36-4.07)   |      | 788   |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.116 | 2.117  | -0.001 | 1.000  | 233089   | NC           |                   |      | 3867  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.104 | 2.117  | -0.013 | 0.995  | 14040    | NC           |                 |      | 82.0  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.332 | 2.347  | -0.015 | 1.000  | 4865020  | 2.47         |                 | 98.8 | 70196 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.360  | -0.015 | 1.006  | 92273    | 0.0449       |                 | 89.8 | 118   |       |
| 363.00 > 169.00                       | 2.345 | 2.360  | -0.015 | 1.006  | 35638    |              | 2.59(1.13-3.40) |      | 211   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.360  | -0.002 | 1.000  | 5366037  | 2.20         |                 | 93.2 | 50271 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.345 | 2.373  | -0.028 | 0.994  | 128925   | 0.0504       |                 | 111  | 461   |       |
| 399.00 > 99.00                        | 2.345 | 2.373  | -0.028 | 0.994  | 39957    |              | 3.23(1.50-4.49) |      | 197   |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.384 | 2.397  | -0.013 | 1.000  | 289867   | NC           |                 |      | 4378  |       |
| 377.00 > 85.00                        | 2.384 | 2.397  | -0.013 | 1.000  | 159105   |              | 1.82(0.84-2.53) |      | 3755  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.674 | 2.683  | -0.009 | 1.003  | 35918    | 0.0345       |                 | 72.7 | 734   |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.667 | 2.683  | -0.016 | 1.000  | 1087163  | 2.50         |                 | 105  | 20542 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.689 | 2.706  | -0.017 | 1.000  | 4634918  | 2.49         |                 | 99.5 | 53963 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.697 | 2.713  | -0.016 |        | 4921629  | 2.50         |                 |      | 45281 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       | M     |
| 413.00 > 369.00                       | 2.697 | 2.713  | -0.016 | 1.003  | 116905   | 0.0536       |                 | 107  | 41.5  |       |
| 413.00 > 169.00                       | 2.697 | 2.713  | -0.016 | 1.003  | 58580    |              | 2.00(0.84-2.52) |      | 178   | M     |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.697 | 2.721  | -0.024 | 1.000  | 95767    | 0.0456       |                 | 95.8 | 1356  |       |
| 449.00 > 99.00                        | 2.704 | 2.721  | -0.017 | 1.003  | 24126    |              | 3.97(1.94-5.82) |      | 427   |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.062 | 3.074  | -0.012 | 1.000  | 3813830  | 2.50         |                 | 100  | 63430 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.062 | 3.074  | -0.012 | 1.000  | 3770022  | 2.25         |                 | 94.2 | 26768 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       | M     |
| 499.00 > 80.00                        | 3.062 | 3.076  | -0.014 | 1.000  | 82675    | 0.0446       |                 | 96.1 | 313   | M     |
| 499.00 > 99.00                        | 3.062 | 3.076  | -0.014 | 1.000  | 17296    |              | 4.78(2.31-6.93) |      | 161   | M     |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       | M     |
| 463.00 > 419.00                       | 3.062 | 3.084  | -0.022 | 1.000  | 83703    | 0.0518       |                 | 104  | 199   | M     |
| 463.00 > 169.00                       | 3.062 | 3.084  | -0.022 | 1.000  | 20826    |              | 4.02(1.90-5.69) |      | 380   |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.269 | 3.291  | -0.022 | 1.000  | 137652   | NC           |                 |      | 3097  |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.402 | 3.412  | -0.010 | 1.000  | 4841027  | 2.21         |                 | 88.4 | 45479 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.402 | 3.420  | -0.018 | 1.000  | 92559    | 0.0491       |                 | 98.2 | 1195  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.402 | 3.430  | -0.028 | 1.000  | 57502    | 0.0481       |                 | 100  | 1130  |       |
| 549.00 > 99.00                        | 3.411 | 3.430  | -0.019 | 1.003  | 17670    |              | 3.25(1.33-3.97) |      | 437   |       |



| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                  |      |       |       |
| 527.00 > 507.00                       | 3.411 | 3.430     | -0.019    | 1.000     | 31907    | 0.0490          |                  | 102  | 905   |       |
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                  |      |       |       |
| 529.00 > 81.00                        | 3.411 | 3.430     | -0.019    | 1.000     | 1155950  | 2.34            |                  | 97.5 | 16076 |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                  |      |       |       |
| 513.00 > 469.00                       | 3.421 | 3.439     | -0.018    | 1.000     | 65931    | 0.0539          |                  | 108  | 319   |       |
| 513.00 > 169.00                       | 3.421 | 3.439     | -0.018    | 1.000     | 10860    |                 | 6.07(2.36-7.09)  |      | 209   |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                  |      |       |       |
| 515.00 > 470.00                       | 3.421 | 3.439     | -0.018    | 1.000     | 3144729  | 2.42            |                  | 97.0 | 47491 |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 573.00 > 419.00                       | 3.570 | 3.590     | -0.020    | 1.000     | 2076286  | 2.90            |                  | 116  | 20469 |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                  |      |       |       |
| 570.00 > 419.00                       | 3.579 | 3.600     | -0.021    | 1.003     | 39338    | 0.0467          |                  | 93.4 | 302   |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                  |      |       |       |
| 599.00 > 80.00                        | 3.732 | 3.753     | -0.021    | 1.000     | 44644    | 0.0422          |                  | 87.5 | 688   |       |
| 599.00 > 99.00                        | 3.732 | 3.753     | -0.021    | 1.000     | 14907    |                 | 2.99(1.39-4.16)  |      | 483   |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 589.00 > 419.00                       | 3.743 | 3.754     | -0.011    | 1.000     | 1990962  | 2.71            |                  | 108  | 23854 |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 563.00 > 519.00                       | 3.743 | 3.764     | -0.021    | 1.000     | 49088    | 0.0563          |                  | 113  | 267   |       |
| 563.00 > 169.00                       | 3.753 | 3.764     | -0.011    | 1.003     | 12872    |                 | 3.81(2.12-6.36)  |      | 398   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                  |      |       |       |
| 584.00 > 419.00                       | 3.743 | 3.764     | -0.021    | 1.000     | 38934    | 0.0520          |                  | 104  | 695   |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                  |      |       |       |
| 565.00 > 520.00                       | 3.743 | 3.765     | -0.022    | 1.000     | 2611946  | 2.54            |                  | 102  | 48708 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                  |      |       |       |
| 631.00 > 451.00                       | 3.899 | 3.922     | -0.023    | 1.000     | 219253   | NC              |                  |      | 4229  |       |
| D 36 13C2 PFDaA                       |       |           |           |           |          |                 |                  |      |       |       |
| 615.00 > 570.00                       | 4.041 | 4.055     | -0.014    | 1.000     | 2606447  | 2.36            |                  | 94.3 | 20282 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                  |      |       | M     |
| 613.00 > 569.00                       | 4.041 | 4.065     | -0.024    | 1.000     | 61630    | 0.0566          |                  | 113  | 72.2  |       |
| 613.00 > 169.00                       | 4.041 | 4.065     | -0.024    | 1.000     | 13082    |                 | 4.71(2.13-6.40)  |      | 170   | M     |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                  |      |       |       |
| 663.00 > 619.00                       | 4.299 | 4.325     | -0.026    | 1.000     | 67780    | 0.0568          |                  | 114  | 67.8  |       |
| 663.00 > 169.00                       | 4.299 | 4.325     | -0.026    | 1.000     | 21846    |                 | 3.10(1.25-3.76)  |      | 284   |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 715.00 > 670.00                       | 4.531 | 4.550     | -0.019    | 1.000     | 3348355  | 2.47            |                  | 98.7 | 16370 |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                  |      |       |       |
| 713.00 > 169.00                       | 4.531 | 4.560     | -0.029    | 1.000     | 18638    | 0.0551          |                  | 110  | 250   |       |
| 713.00 > 219.00                       | 4.531 | 4.560     | -0.029    | 1.000     | 11517    |                 | 1.62(0.71-2.13)  |      | 333   |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 815.00 > 770.00                       | 4.948 | 4.964     | -0.016    | 1.000     | 6187658  | 2.69            |                  | 108  | 12992 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 813.00 > 769.00                       | 4.948 | 4.972     | -0.024    | 1.000     | 173769   | NC              |                  |      | 72.9  |       |
| 813.00 > 169.00                       | 4.948 | 4.972     | -0.024    | 1.000     | 27203    |                 | 6.39(2.86-8.58)  |      | 345   |       |
| 46 Perfluorooctadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 913.00 > 869.00                       | 5.298 | 5.326     | -0.028    | 1.000     | 127008   | NC              |                  |      | 39.8  |       |
| 913.00 > 169.00                       | 5.298 | 5.326     | -0.028    | 1.000     | 15733    |                 | 8.07(3.83-11.48) |      | 234   |       |

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d

Injection Date: 28-May-2018 17:22:11

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

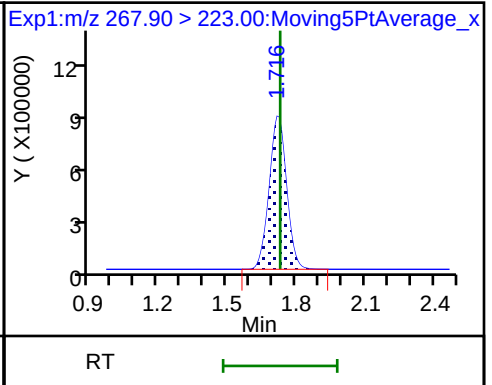
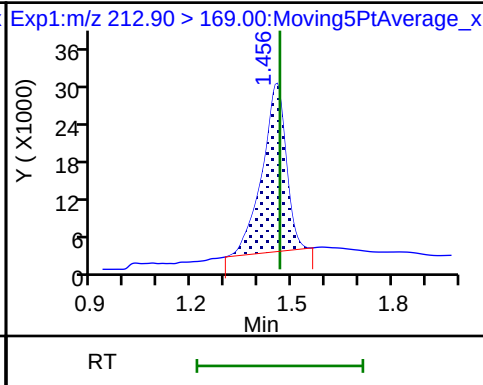
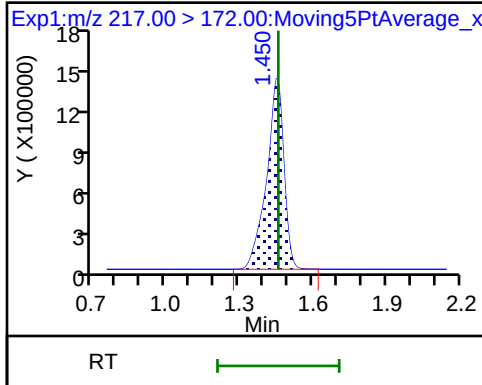
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid (M)

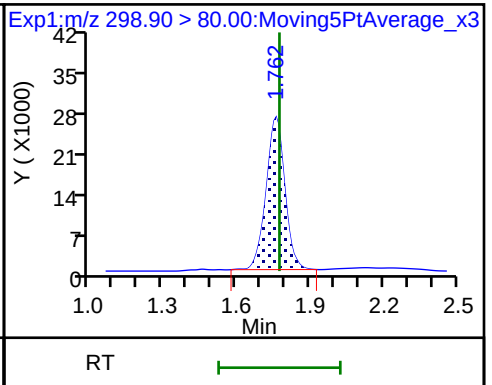
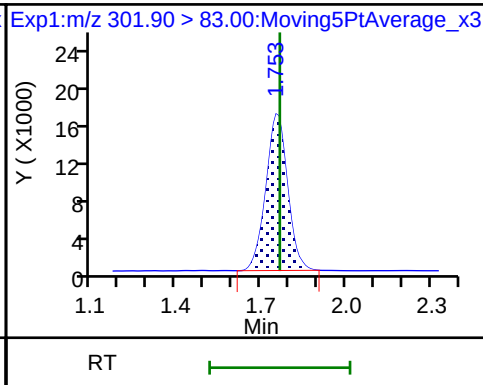
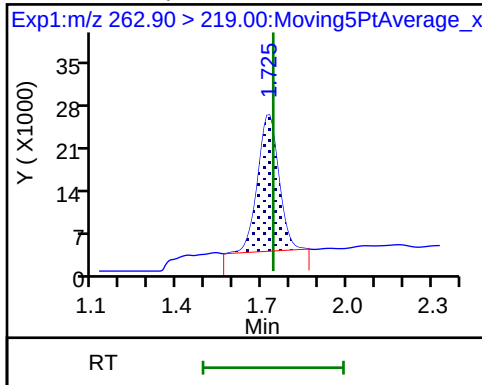
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

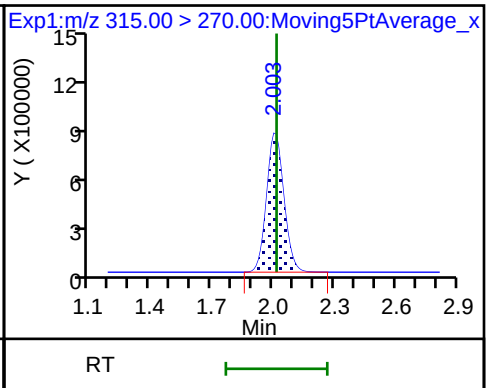
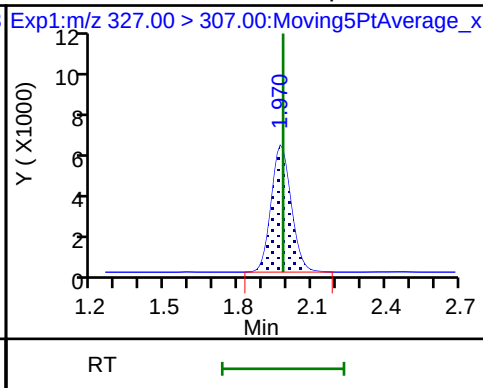
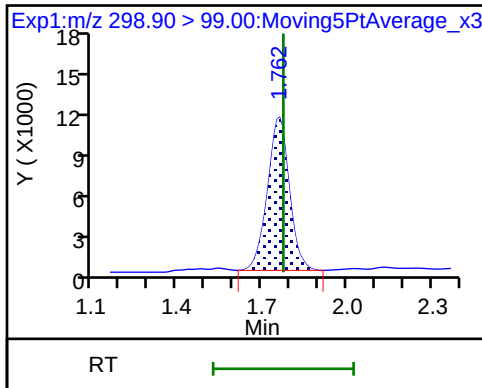
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

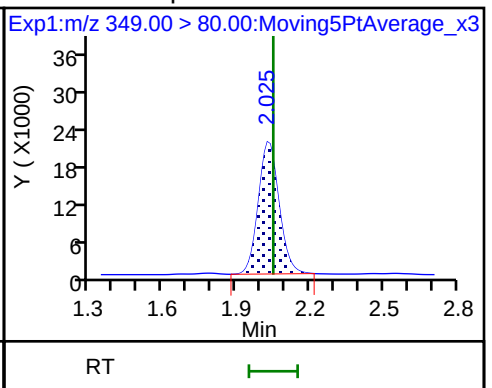
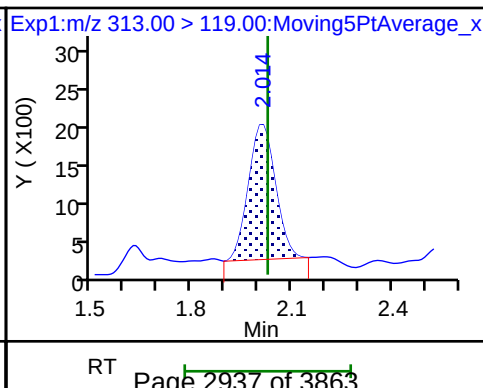
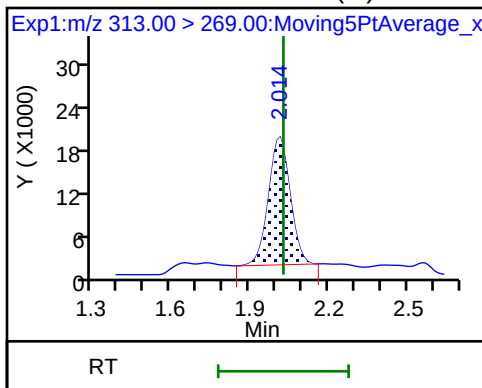
De 7 13C2 PFHxA



6 Perfluorohexanoic acid (M)

6 Perfluorohexanoic acid

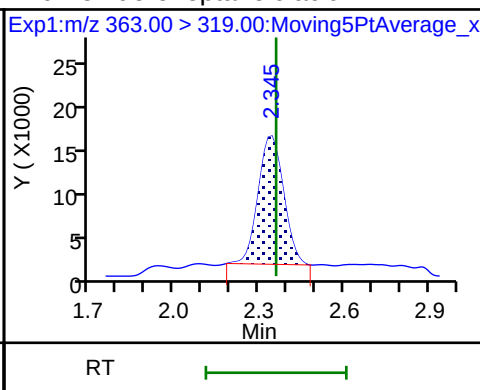
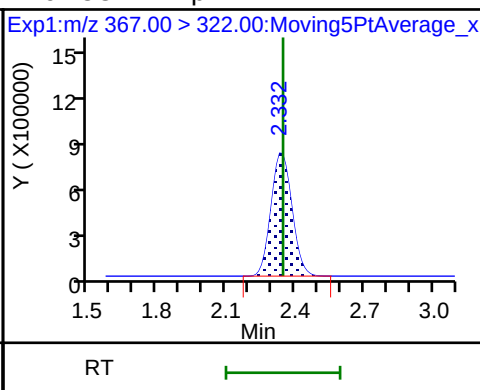
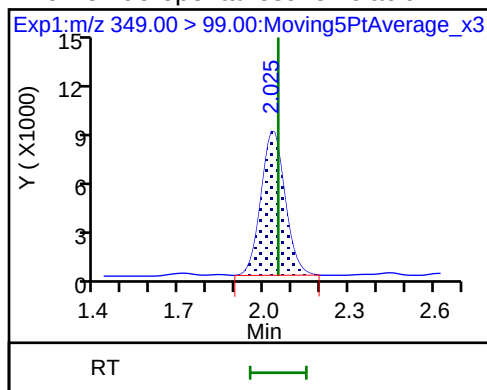
70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

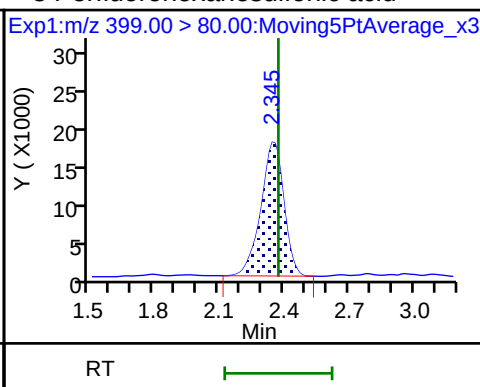
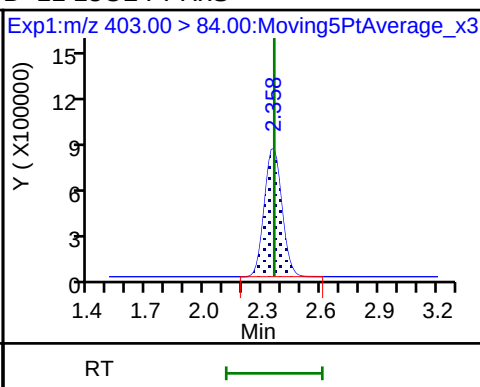
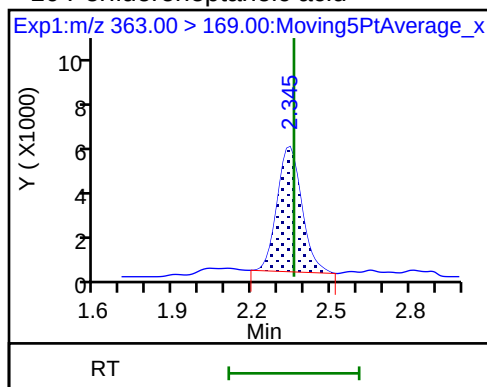
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## D 11 18O2 PFHxS

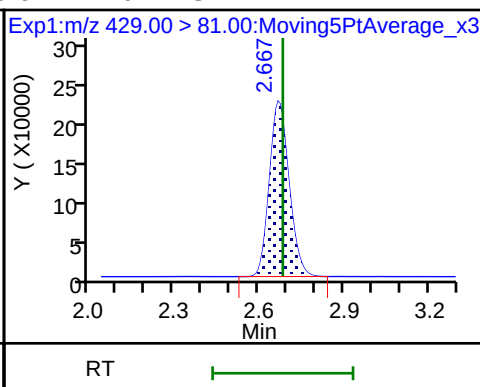
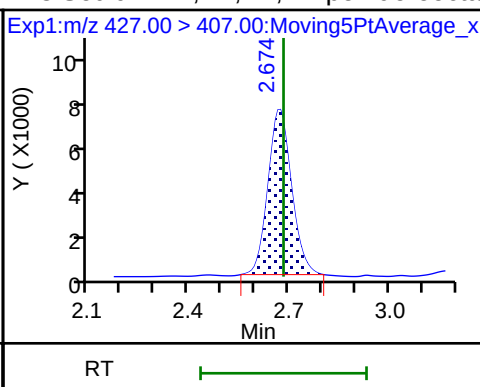
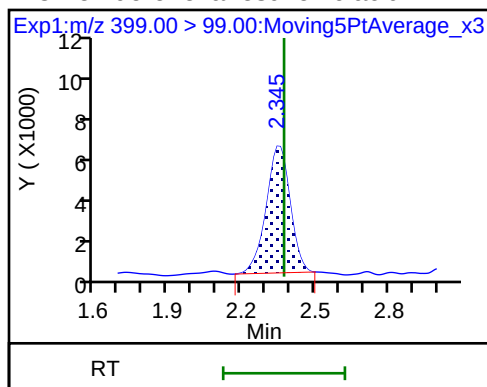
## 8 Perfluorohexanesulfonic acid



## 8 Perfluorohexanesulfonic acid

## 13 Sodium 1H,1H,2H,2H-perfluorooctadec-12-ynoate

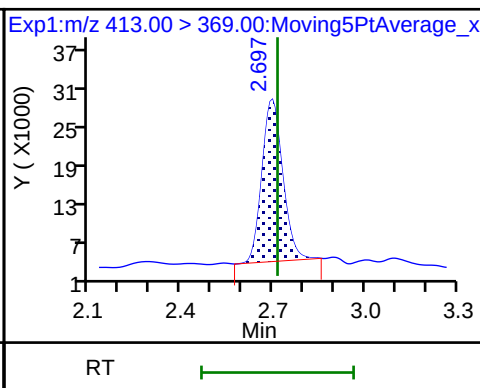
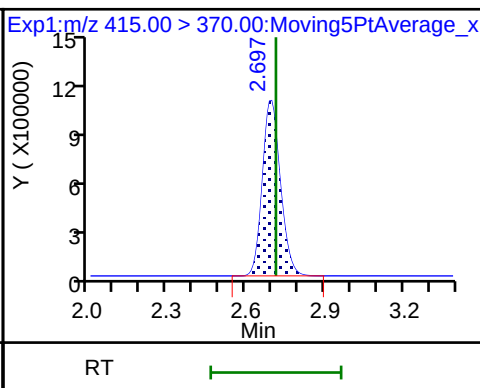
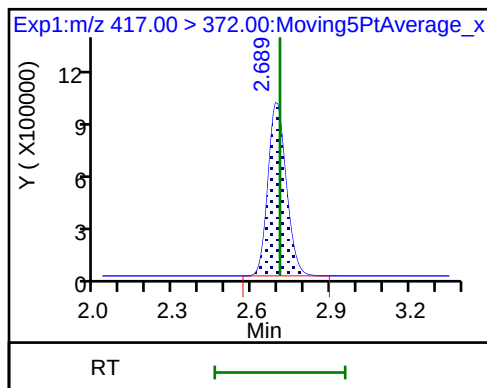
## D 12 M2-6:2FTS

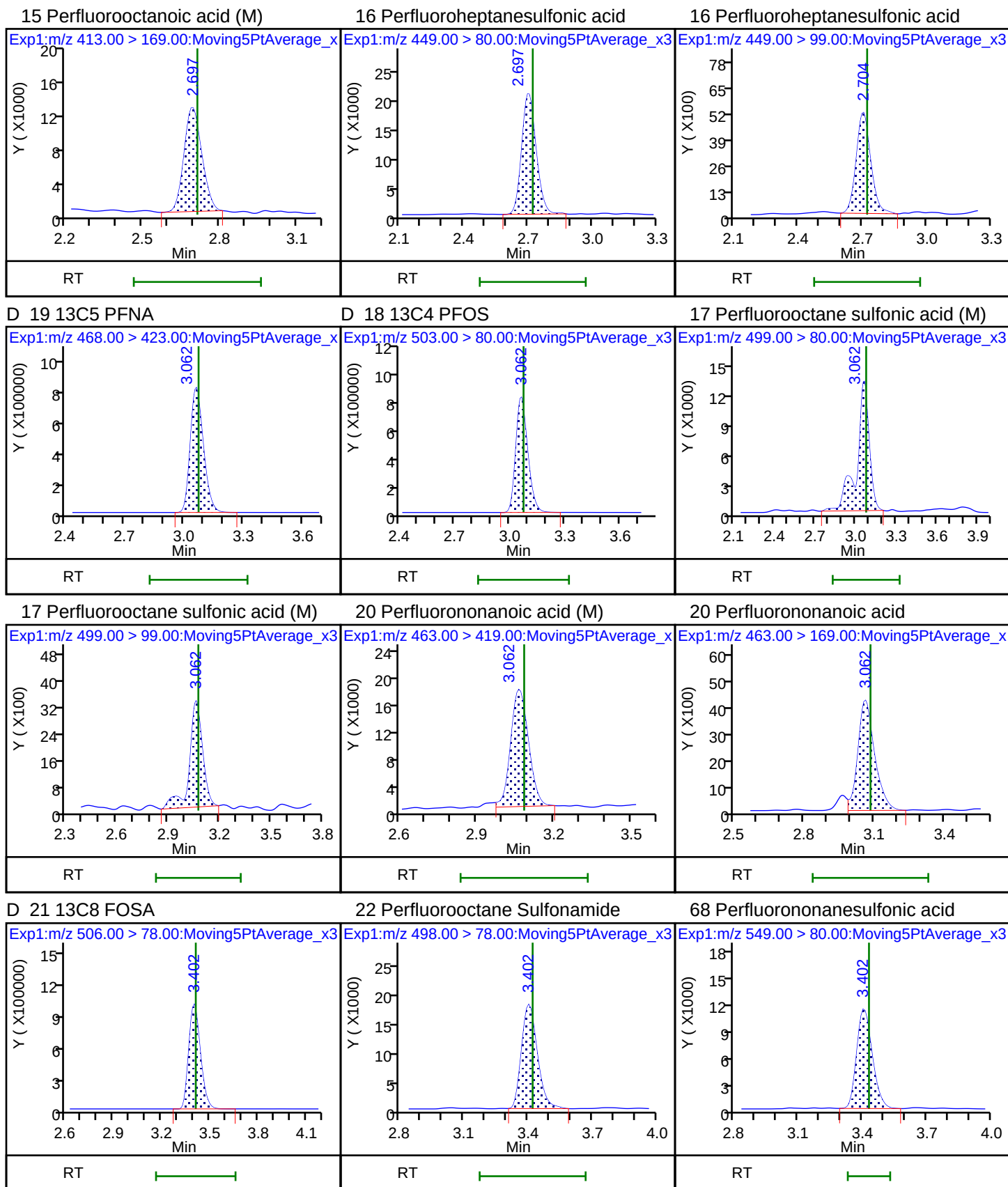


## D 14 13C4 PFOA

## \* 62 13C2-PFOA

## 15 Perfluorooctanoic acid



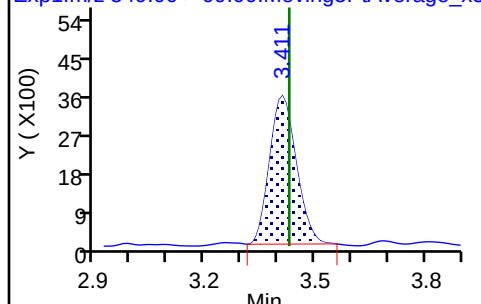


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

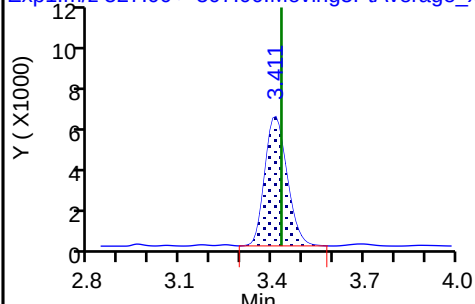
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



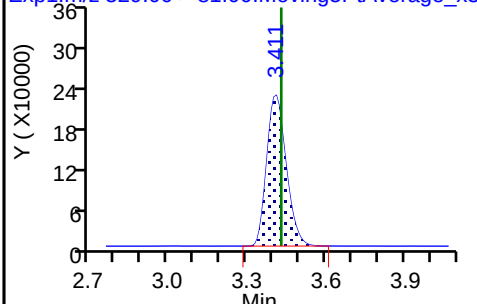
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



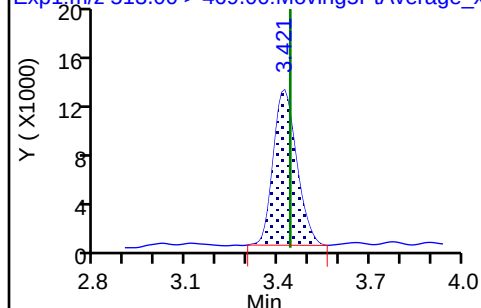
RT

## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

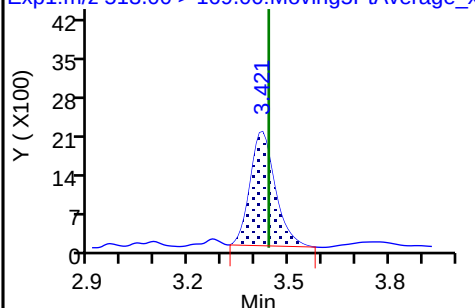
## D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



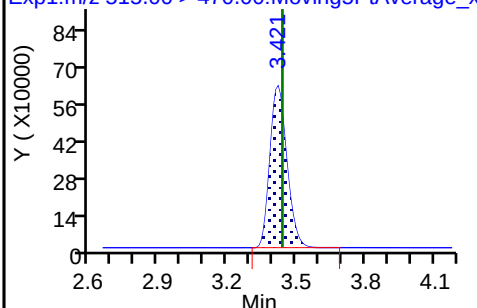
RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



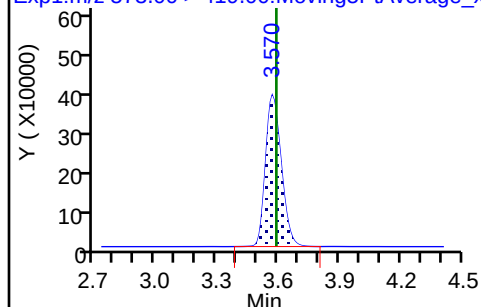
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

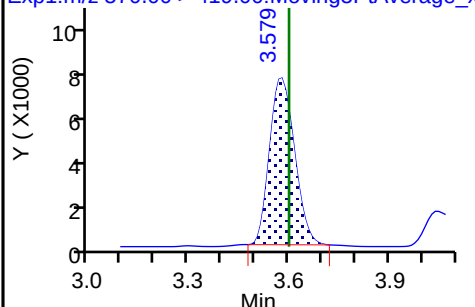
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



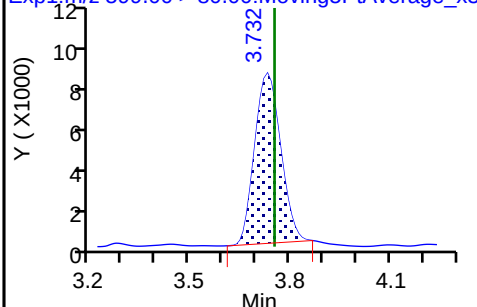
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



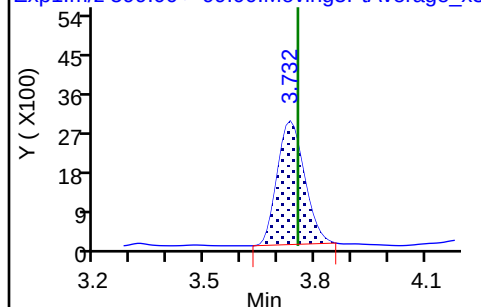
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

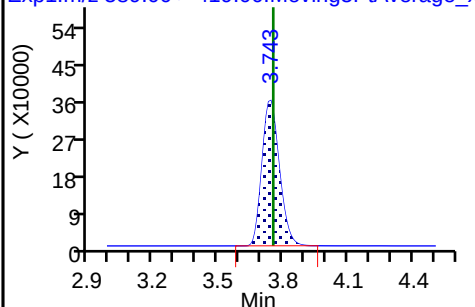
## 31 Perfluoroundecanoic acid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



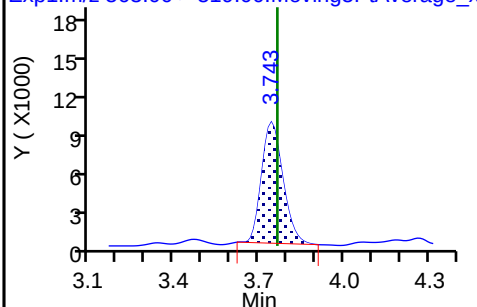
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



RT

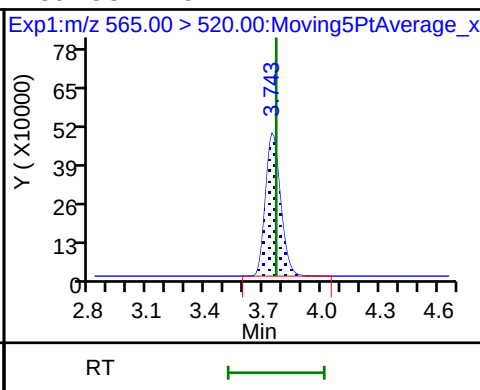
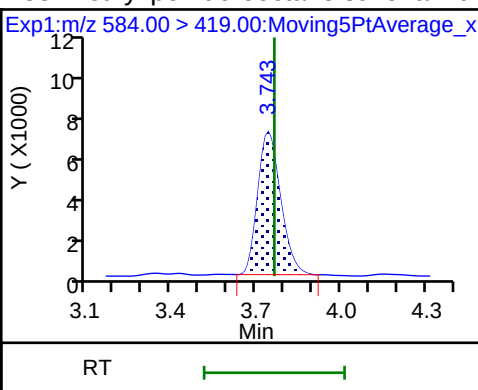
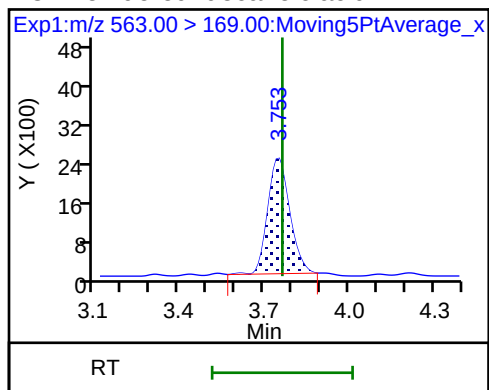
Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x3



RT

## 31 Perfluoroundecanoic acid

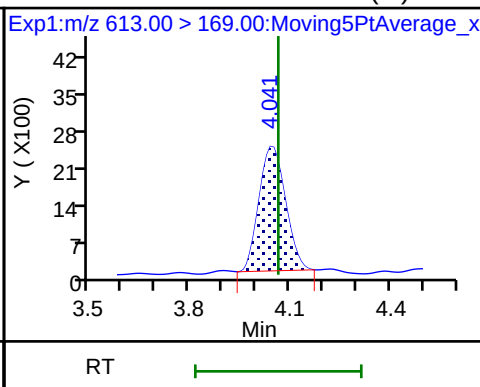
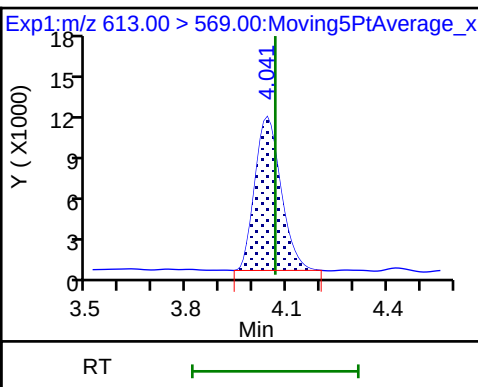
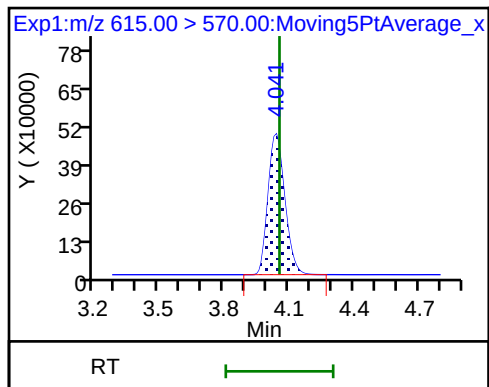
## 33 N-ethyl perfluorooctane sulfonamid D 30 13C2 PFUnA



## D 36 13C2 PFDaA

## 37 Perfluorododecanoic acid

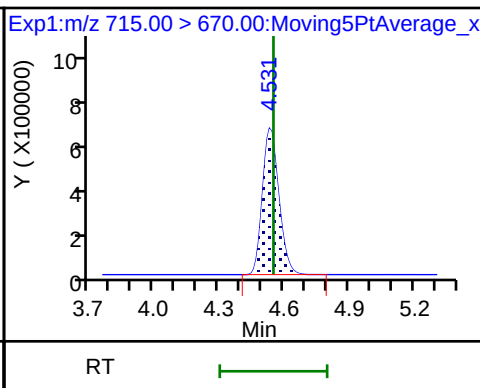
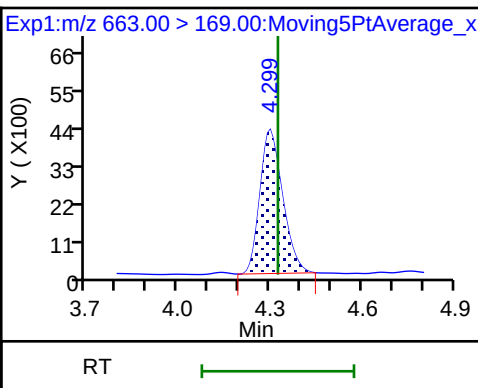
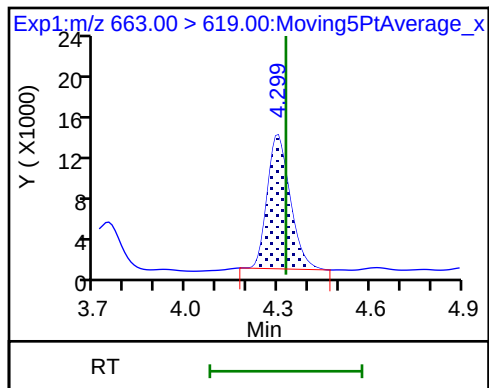
## 37 Perfluorododecanoic acid (M)



## 41 Perfluorotridecanoic acid

## 41 Perfluorotridecanoic acid

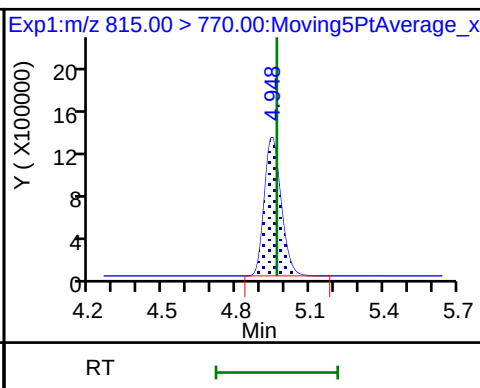
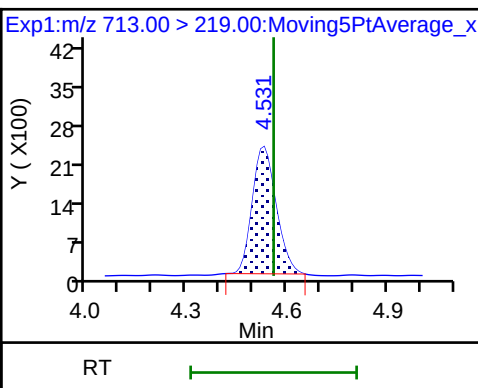
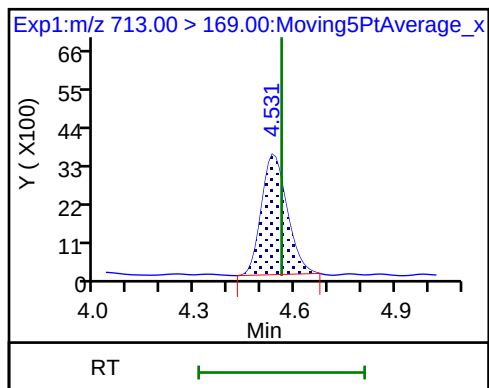
## D 43 13C2-PFTeDA



## 42 Perfluorotetradecanoic acid

## 42 Perfluorotetradecanoic acid

## D 44 13C2-PFHxDA







## TestAmerica Sacramento

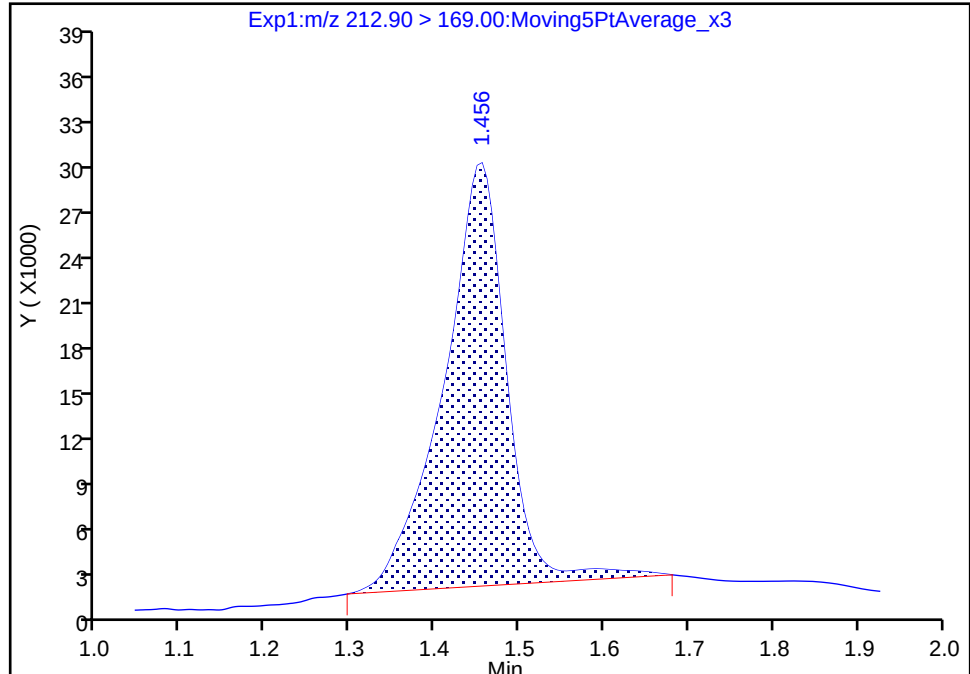
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
Injection Date: 28-May-2018 17:22:11 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**2 Perfluorobutyric acid, CAS: 375-22-4**

Signal: 1

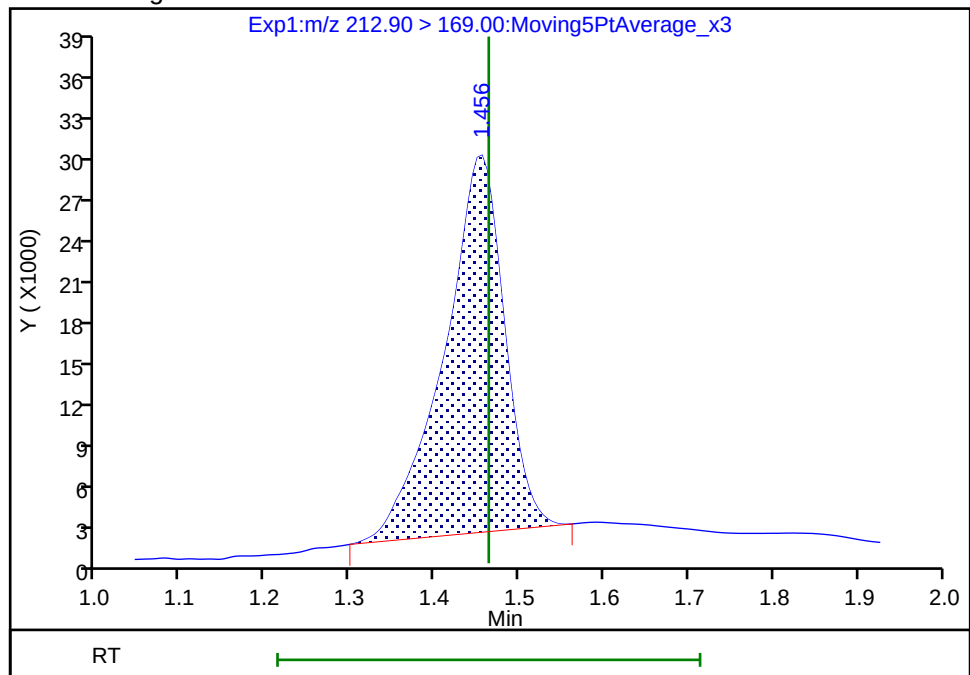
RT: 1.46  
Area: 142442  
Amount: 0.057643  
Amount Units: ng/ml

## Processing Integration Results



RT: 1.46  
Area: 134081  
Amount: 0.054259  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:30:15

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

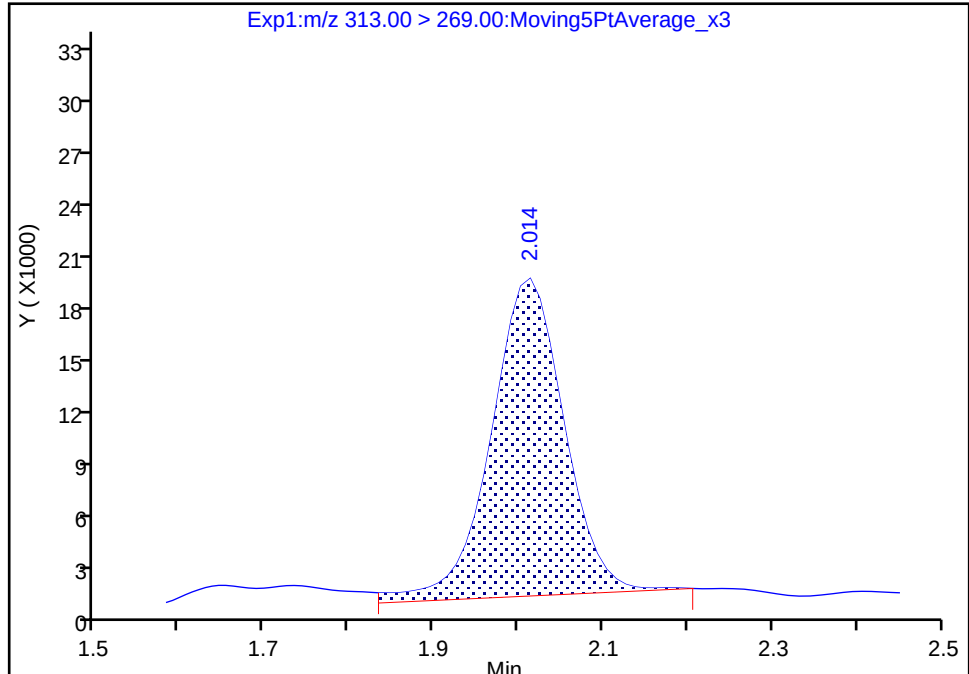
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
Injection Date: 28-May-2018 17:22:11 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**6 Perfluorohexanoic acid, CAS: 307-24-4**

Signal: 1

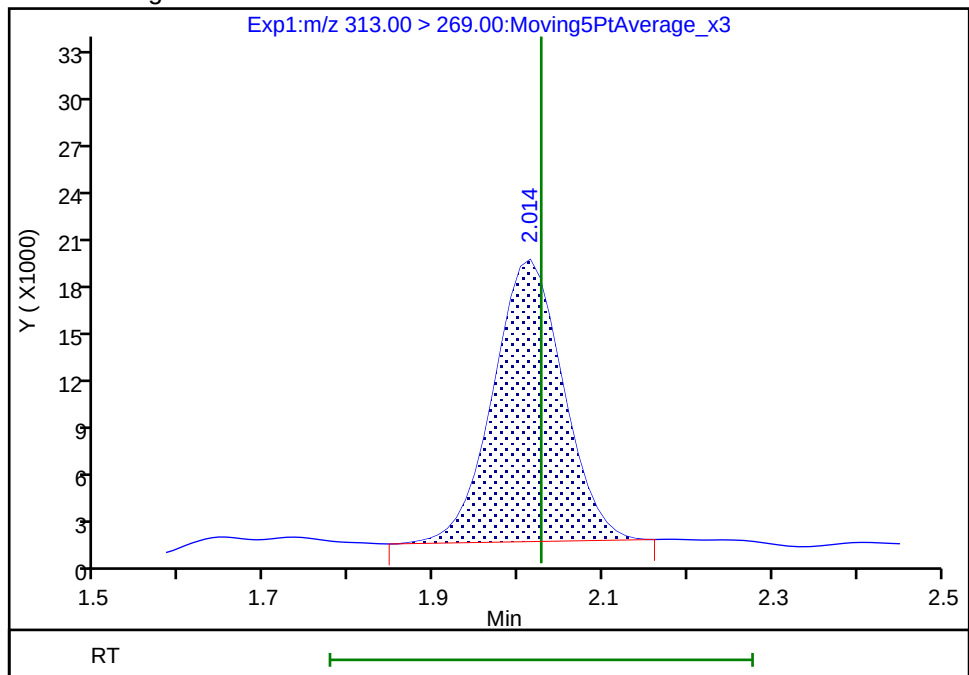
RT: 2.01  
Area: 110046  
Amount: 0.053169  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.01  
Area: 103162  
Amount: 0.049843  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:30:25  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2944 of 3863

## TestAmerica Sacramento

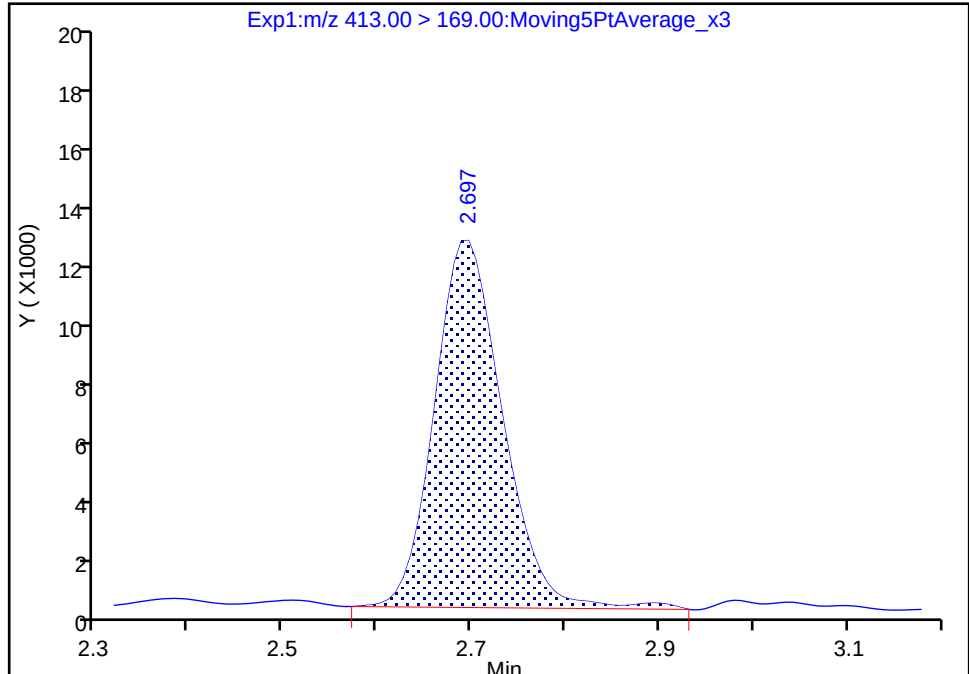
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
Injection Date: 28-May-2018 17:22:11 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**15 Perfluorooctanoic acid, CAS: 335-67-1**

Signal: 2

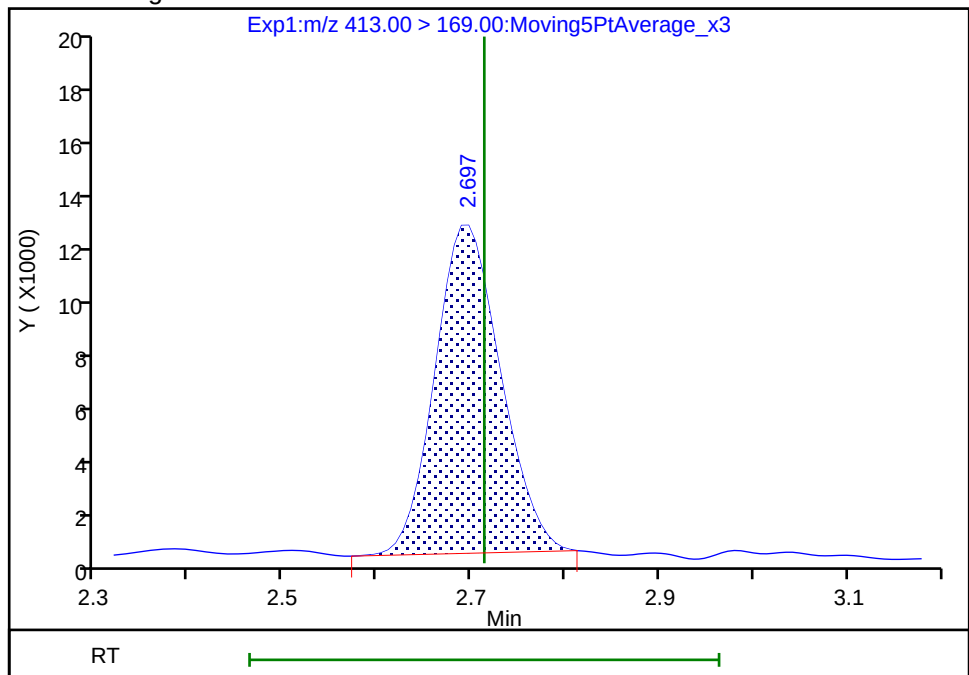
RT: 2.70  
Area: 61619  
Amount: 0.053573  
Amount Units: ng/ml

## Processing Integration Results



RT: 2.70  
Area: 58580  
Amount: 0.053573  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:30:42  
Audit Action: Manually Integrated

Audit Reason: Baseline  
Page 2945 of 3863

## TestAmerica Sacramento

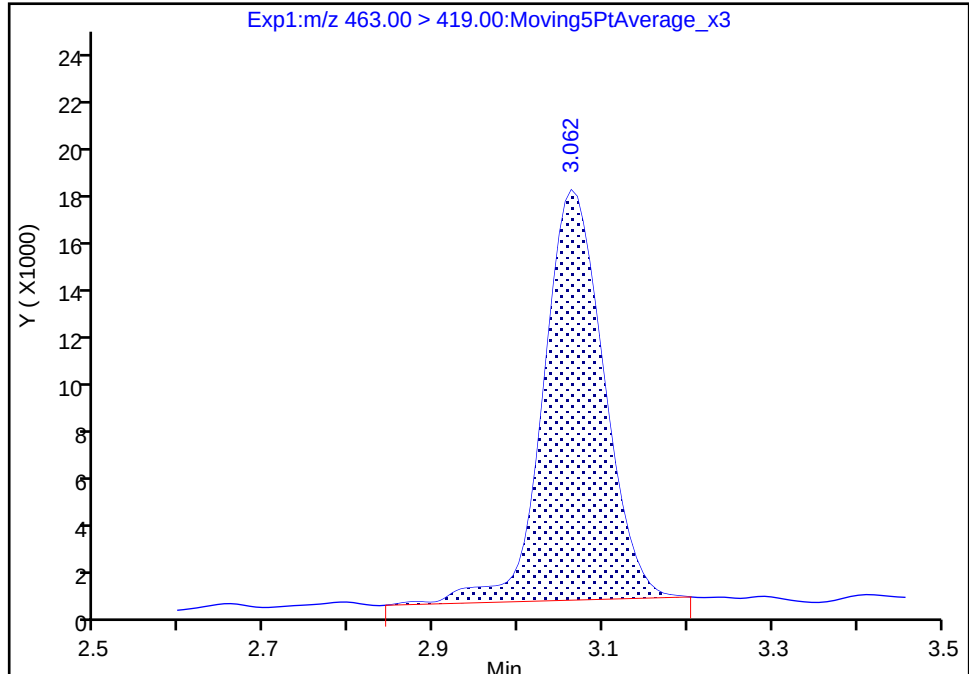
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
Injection Date: 28-May-2018 17:22:11 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**20 Perfluorononanoic acid, CAS: 375-95-1**

Signal: 1

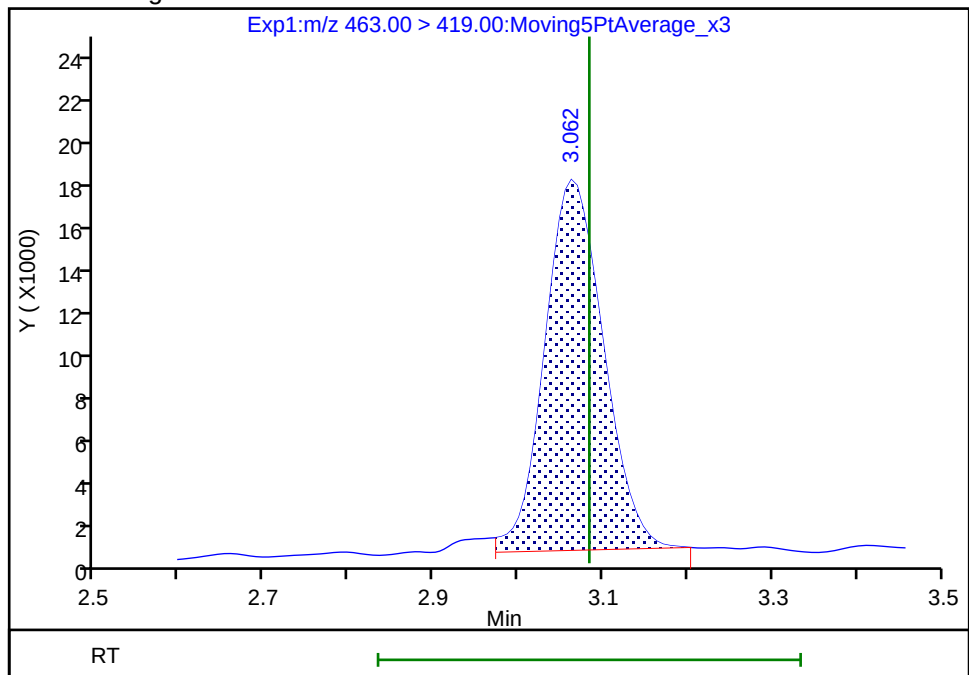
RT: 3.06  
Area: 86156  
Amount: 0.053320  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 83703  
Amount: 0.051802  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:31:22  
Audit Action: Manually Integrated

Audit Reason: Split Peak  
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## TestAmerica Sacramento

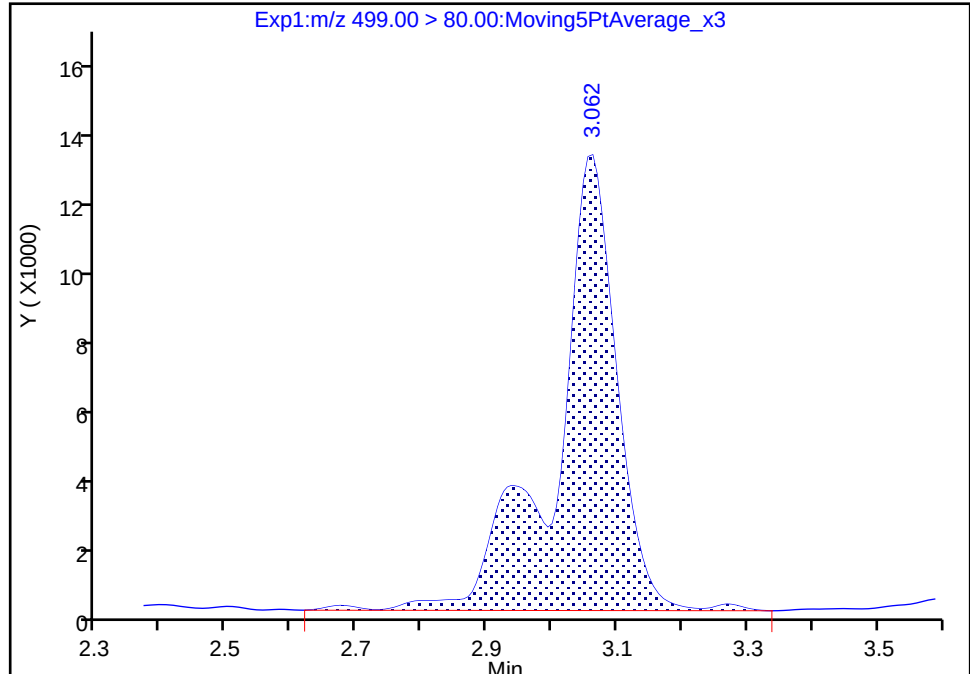
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
Injection Date: 28-May-2018 17:22:11 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 1

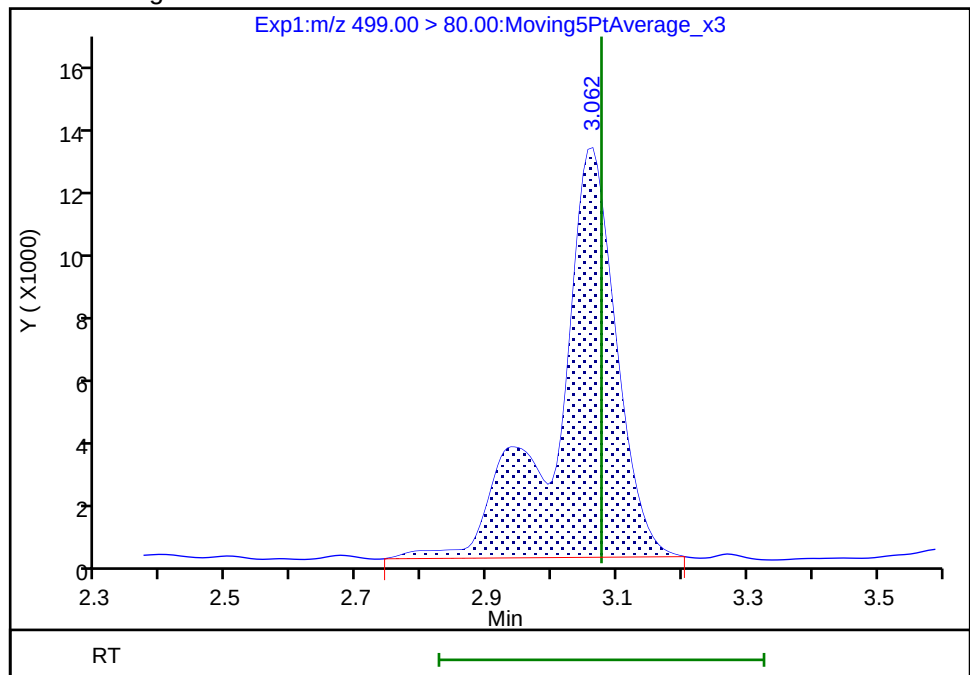
RT: 3.06  
Area: 85540  
Amount: 0.046120  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 82675  
Amount: 0.044576  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:30:51  
Audit Action: Manually Integrated

Audit Reason: Baseline  
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## TestAmerica Sacramento

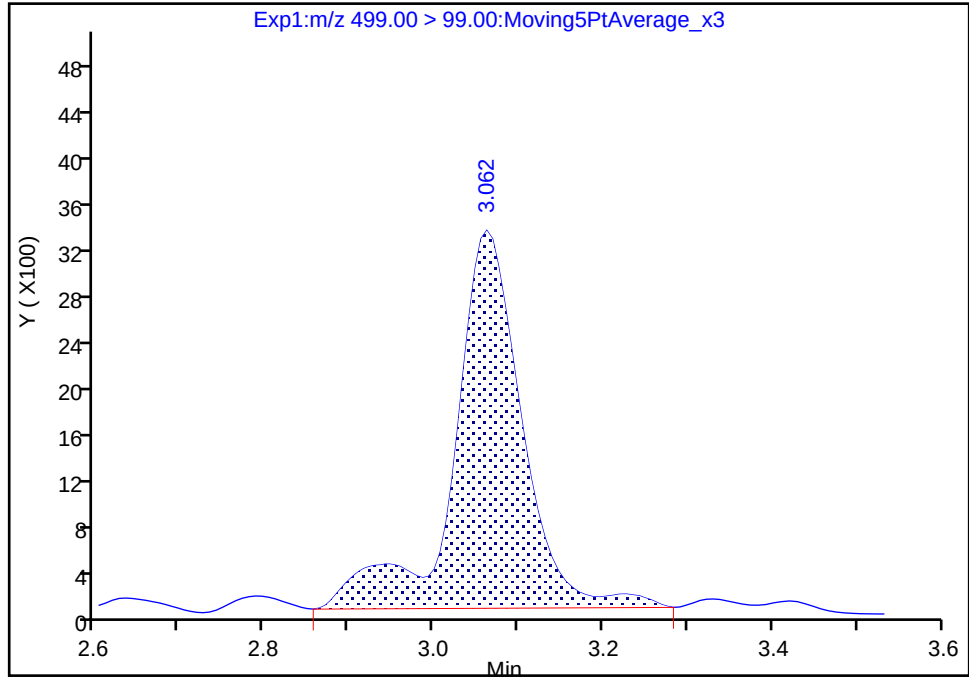
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d  
Injection Date: 28-May-2018 17:22:11 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 21 Worklist Smp#: 2  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: A8\_N Limit Group: LC PFC\_QSM5-1 ICAL  
Column: Detector EXP1

**17 Perfluorooctane sulfonic acid, CAS: 1763-23-1**

Signal: 2

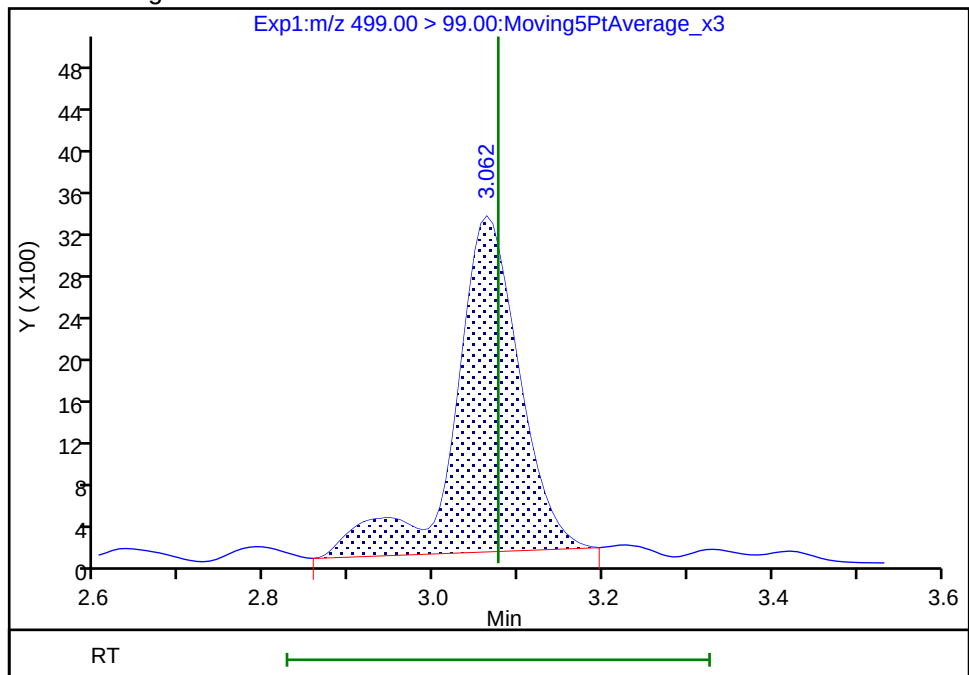
RT: 3.06  
Area: 18650  
Amount: 0.046120  
Amount Units: ng/ml

## Processing Integration Results



RT: 3.06  
Area: 17296  
Amount: 0.044576  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:31:10

Audit Action: Manually Integrated

Audit Reason: Baseline

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_004.d

Injection Date: 28-May-2018 17:22:11

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

Column:

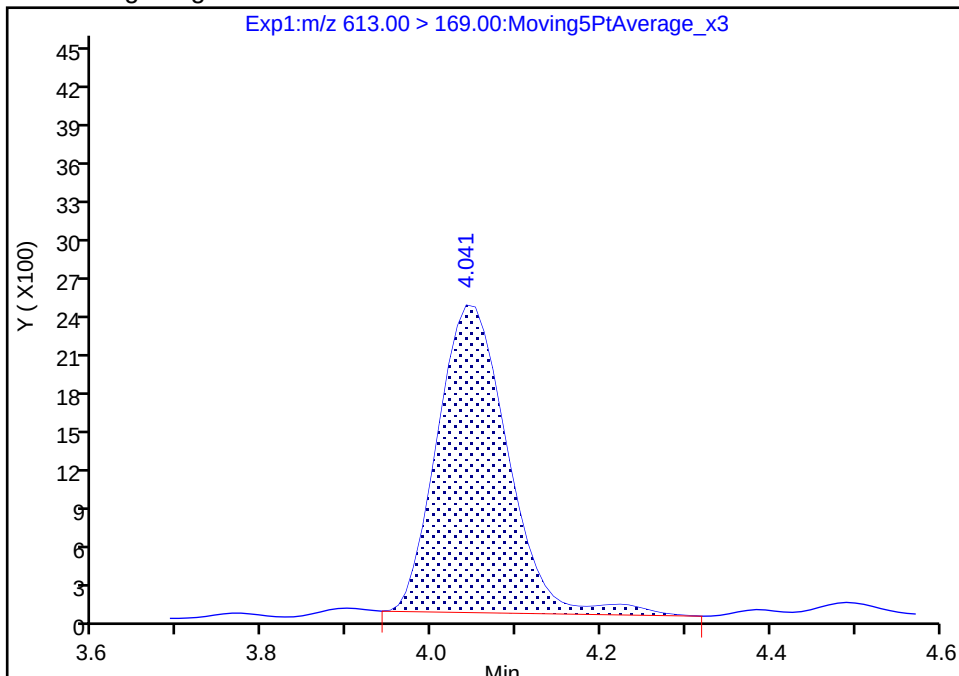
Detector: EXP1

**37 Perfluorododecanoic acid, CAS: 307-55-1**

Signal: 2

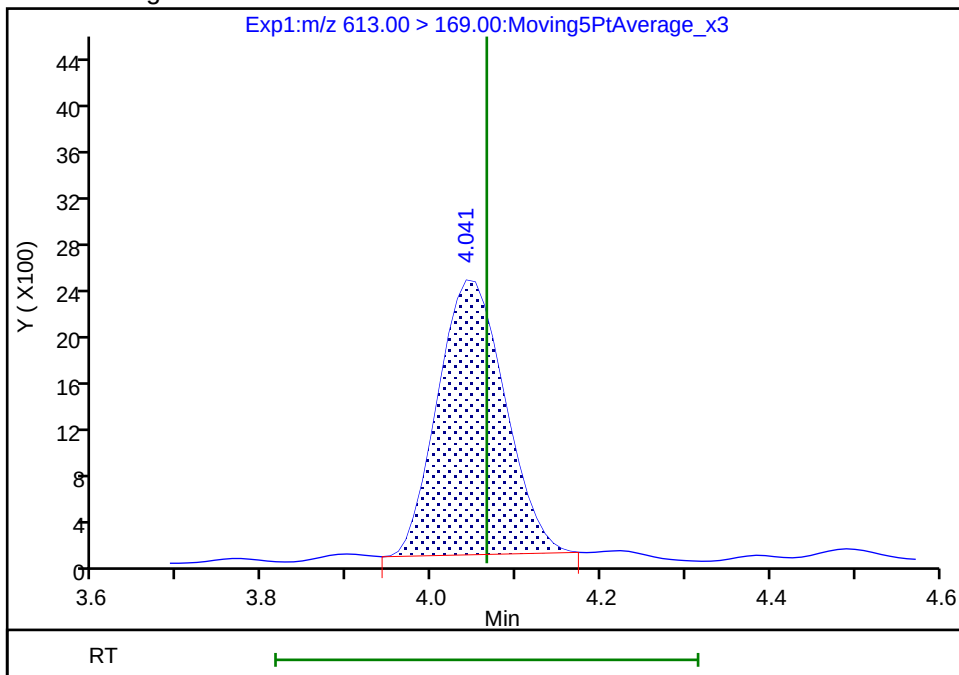
RT: 4.04  
Area: 13902  
Amount: 0.056641  
Amount Units: ng/ml

## Processing Integration Results



RT: 4.04  
Area: 13082  
Amount: 0.056641  
Amount Units: ng/ml

## Manual Integration Results



Reviewer: mongkols, 30-May-2018 09:31:48

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225873/3 Calibration Date: 05/28/2018 17:30

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.28LLA\_005.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|------------------------------------------------------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| Perfluorobutanoic acid (PFBA)                              | AveID         | 0.9298  | 0.9419 |         | 1.01           | 1.00            | 1.3   | 30.0      |
| Perfluoropentanoic acid (PFPeA)                            | AveID         | 1.181   | 1.125  |         | 0.953          | 1.00            | -4.7  | 30.0      |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID         | 78.09   | 78.42  |         | 0.888          | 0.884           | 0.4   | 30.0      |
| 4:2 FTS                                                    | AveID         | 16.57   | 18.56  |         | 1.05           | 0.934           | 12.0  | 30.0      |
| Perfluorohexanoic acid (PFHxA)                             | AveID         | 1.028   | 0.997  |         | 0.970          | 1.00            | -3.0  | 30.0      |
| Perfluoropentanesulfonic acid                              | AveID         | 69.55   | 67.96  |         | 0.917          | 0.938           | -2.3  | 30.0      |
| Perfluoroheptanoic acid (PFHpA)                            | AveID         | 1.056   | 1.039  |         | 0.984          | 1.00            | -1.6  | 30.0      |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID         | 1.127   | 1.043  |         | 0.842          | 0.910           | -7.4  | 30.0      |
| 6:2FTS                                                     | L2ID          |         | 1.647  |         | 0.879          | 0.948           | -7.2  | 30.0      |
| Perfluorooctanoic acid (PFOA)                              | AveID         | 1.177   | 1.057  |         | 0.898          | 1.00            | -10.2 | 30.0      |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID         | 1.332   | 1.295  |         | 0.926          | 0.952           | -2.8  | 30.0      |
| Perfluorononanoic acid (PFNA)                              | AveID         | 1.059   | 1.055  |         | 0.996          | 1.00            | -0.4  | 30.0      |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID         | 1.176   | 1.048  |         | 0.827          | 0.928           | -10.9 | 30.0      |
| Perfluorononanesulfonic acid                               | AveID         | 0.7575  | 0.7578 |         | 0.960          | 0.960           | 0.0   | 30.0      |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID         | 0.9736  | 0.9707 |         | 0.997          | 1.00            | -0.3  | 30.0      |
| 8:2FTS                                                     | AveID         | 1.349   | 1.236  |         | 0.878          | 0.958           | -8.4  | 30.0      |
| Perfluorodecanoic acid (PFDA)                              | AveID         | 0.9722  | 0.9747 |         | 1.00           | 1.00            | 0.3   | 30.0      |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID         | 1.015   | 1.055  |         | 1.04           | 1.00            | 4.0   | 30.0      |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID         | 0.6714  | 0.6091 |         | 0.874          | 0.964           | -9.3  | 30.0      |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID         | 0.9400  | 0.9258 |         | 0.985          | 1.00            | -1.5  | 30.0      |
| Perfluoroundecanoic acid (PFUnA)                           | AveID         | 0.8352  | 0.7741 |         | 0.927          | 1.00            | -7.3  | 30.0      |
| Perfluorododecanoic acid (PFDoA)                           | AveID         | 1.044   | 1.077  |         | 1.03           | 1.00            | 3.2   | 30.0      |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID         | 1.144   | 1.288  |         | 1.13           | 1.00            | 12.6  | 30.0      |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID         | 0.2525  | 0.2313 |         | 0.916          | 1.00            | -8.4  | 30.0      |
| 13C4 PFBA                                                  | Ave           | 1.528   | 1.413  |         | 2.31           | 2.50            | -7.6  | 30.0      |
| 13C5-PFPeA                                                 | Ave           | 0.9798  | 0.9888 |         | 2.52           | 2.50            | 0.9   | 30.0      |
| 13C3-PFBS                                                  | Ave           | 0.0221  | 0.0206 |         | 2.16           | 2.33            | -7.0  | 30.0      |
| 13C2 PFHxA                                                 | Ave           | 1.045   | 1.053  |         | 2.52           | 2.50            | 0.8   | 30.0      |
| 13C4-PFHpA                                                 | Ave           | 1.001   | 0.9608 |         | 2.40           | 2.50            | -4.0  | 30.0      |
| 18O2 PFHxS                                                 | Ave           | 1.237   | 1.167  |         | 2.23           | 2.37            | -5.6  | 30.0      |
| M2-6:2FTS                                                  | Ave           | 0.2210  | 0.2323 |         | 2.50           | 2.38            | 5.1   | 30.0      |



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225873/3 Calibration Date: 05/28/2018 17:30  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.28LLA\_005.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9838 |         | 2.60           | 2.50            | 3.9  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.8097 |         | 2.28           | 2.39            | -4.8 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.8005 |         | 2.58           | 2.50            | 3.4  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 1.014  |         | 2.28           | 2.50            | -8.9 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2620 |         | 2.50           | 2.40            | 4.2  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6601 |         | 2.51           | 2.50            | 0.2  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3955 |         | 2.72           | 2.50            | 8.8  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4156 |         | 2.79           | 2.50            | 11.4 | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5467 |         | 2.62           | 2.50            | 4.8  | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5482 |         | 2.44           | 2.50            | -2.3 | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7248 |         | 2.63           | 2.50            | 5.2  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.213  |         | 2.59           | 2.50            | 3.7  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_005.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 28-May-2018 17:30:02 ALS Bottle#: 13 Worklist Smp#: 3  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 09:33:11 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 09:33:11

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.457 | 1.458  | -0.001 | 1.000  | 6827808  | 2.31         |                   | 92.4 | 38154 |       |
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.457 | 1.457  | 0.0    | 1.000  | 2572522  | 1.01         |                   | 101  | 1289  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.728 | 1.730  | -0.002 | 0.563  | 4779432  | 2.52         |                   | 101  | 76809 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.728 | 1.728  | 0.0    | 1.000  | 2150619  | 0.9529       |                   | 95.3 | 1368  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.755 | 1.766  | -0.011 | 1.000  | 92543    | 2.16         |                   | 93.0 | 847   |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.764 | 1.764  | 0.0    | 1.005  | 2759239  | 0.8877       |                   | 100  | 15237 |       |
| 298.90 > 99.00                        | 1.764 | 1.764  | 0.0    | 1.005  | 1134064  |              | 2.43(1.25-3.74)   |      | 9456  |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.970 | 1.970  | 0.0    | 1.000  | 690010   | 1.05         |                   | 112  | 29668 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.970 | 1.982  | -0.012 | 1.000  | 799629   | NC           |                   |      | 8150  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.014 | 2.015  | -0.001 | 1.000  | 5091151  | 2.52         |                   | 101  | 79485 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 2030297  | 0.9697       |                   | 97.0 | 3597  |       |
| 313.00 > 119.00                       | 2.014 | 2.014  | 0.0    | 1.000  | 185451   |              | 10.95(5.03-15.10) |      | 2377  |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 2537180  | 0.9166       |                   | 97.7 | 28997 |       |
| 349.00 > 99.00                        | 2.036 | 2.036  | 0.0    | 1.000  | 967884   |              | 2.62(1.36-4.07)   |      | 13736 |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |       |       |
| 332.10 > 287.00                       | 2.104 | 2.117  | -0.013 | 1.000  | 242918   | NC           |                   |      | 5108  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |       |       |
| 329.10 > 285.00                       | 2.104 | 2.104  | 0.0    | 1.000  | 323920   | NC           |                 |      | 1744  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.345 | 2.347  | -0.002 | 1.000  | 4644037  | 2.40         |                 | 96.0 | 57061 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 1930601  | 0.9839       |                 | 98.4 | 2768  |       |
| 363.00 > 169.00                       | 2.345 | 2.345  | 0.0    | 1.000  | 749041   |              | 2.58(1.13-3.40) |      | 5002  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.358 | 2.360  | -0.002 | 1.000  | 5336916  | 2.23         |                 | 94.4 | 57080 |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 2141728  | 0.8423       |                 | 92.6 | 6573  |       |
| 399.00 > 99.00                        | 2.358 | 2.358  | 0.0    | 1.000  | 730067   |              | 2.93(1.50-4.49) |      | 3685  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.383 | 2.383  | 0.0    | 1.000  | 5756713  | NC           |                 |      | 68115 |       |
| 377.00 > 85.00                        | 2.383 | 2.383  | 0.0    | 1.000  | 3446016  |              | 1.67(0.84-2.53) |      | 44428 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.674 | 2.674  | 0.0    | 1.000  | 701116   | 0.8793       |                 | 92.8 | 13156 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.674 | 2.683  | -0.009 | 1.000  | 1066622  | 2.50         |                 | 105  | 14684 |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.697 | 2.706  | -0.009 | 1.000  | 4755028  | 2.60         |                 | 104  | 52989 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.697 | 2.697  | 0.0    |        | 4833381  | 2.50         |                 |      | 53307 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 2010729  | 0.8982       |                 | 89.8 | 764   |       |
| 413.00 > 169.00                       | 2.697 | 2.697  | 0.0    | 1.000  | 1058378  |              | 1.90(0.84-2.52) |      | 3483  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 1929987  | 0.9256       |                 | 97.2 | 17549 |       |
| 449.00 > 99.00                        | 2.704 | 2.704  | 0.0    | 1.000  | 523743   |              | 3.68(1.94-5.82) |      | 9102  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.069 | 3.074  | -0.005 | 1.000  | 3869198  | 2.58         |                 | 103  | 52873 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.062 | 3.074  | -0.012 | 1.000  | 3741444  | 2.28         |                 | 95.2 | 24065 |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.069 | 3.069  | 0.0    | 1.002  | 1522193  | 0.8270       |                 | 89.1 | 7139  |       |
| 499.00 > 99.00                        | 3.062 | 3.069  | -0.007 | 1.000  | 348134   |              | 4.37(2.31-6.93) |      | 3996  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.069 | 3.069  | 0.0    | 1.000  | 1632987  | 1.00         |                 | 99.6 | 4536  |       |
| 463.00 > 169.00                       | 3.069 | 3.069  | 0.0    | 1.000  | 378569   |              | 4.31(1.90-5.69) |      | 9153  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.276 | 3.276  | 0.0    | 1.000  | 2617428  | NC           |                 |      | 27622 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.411 | 3.412  | -0.001 | 1.000  | 4900493  | 2.28         |                 | 91.1 | 50730 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.411 | 3.411  | 0.0    | 1.000  | 1902843  | 1.00         |                 | 99.7 | 18644 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.411 | 3.411  | 0.0    | 1.000  | 1138899  | 0.9604       |                 | 100  | 22417 |       |
| 549.00 > 99.00                        | 3.411 | 3.411  | 0.0    | 1.000  | 421640   |              | 2.70(1.33-3.97) |      | 7522  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |      |       |       |
| 527.00 > 507.00                       | 3.420 | 3.420  | 0.0    | 1.003  | 599899   | 0.8777       |                  | 91.6 | 16466 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 529.00 > 81.00                        | 3.411 | 3.430  | -0.019 | 1.000  | 1213076  | 2.50         |                  | 104  | 16586 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 513.00 > 469.00                       | 3.430 | 3.430  | 0.0    | 1.000  | 1243818  | 1.00         |                  | 100  | 6493  |       |
| 513.00 > 169.00                       | 3.430 | 3.430  | 0.0    | 1.000  | 208117   |              | 5.98(2.36-7.09)  |      | 3598  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |      |       |       |
| 515.00 > 470.00                       | 3.430 | 3.439  | -0.009 | 1.000  | 3190268  | 2.51         |                  | 100  | 34451 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 573.00 > 419.00                       | 3.578 | 3.590  | -0.012 | 1.000  | 1911393  | 2.72         |                  | 109  | 18679 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |      |       |       |
| 570.00 > 419.00                       | 3.578 | 3.578  | 0.0    | 1.000  | 806713   | 1.04         |                  | 104  | 8410  |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 599.00 > 80.00                        | 3.732 | 3.732  | 0.0    | 1.000  | 919131   | 0.8745       |                  | 90.7 | 9978  |       |
| 599.00 > 99.00                        | 3.732 | 3.732  | 0.0    | 1.000  | 344722   |              | 2.67(1.39-4.16)  |      | 9042  |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |      |       |       |
| 589.00 > 419.00                       | 3.742 | 3.754  | -0.012 | 1.000  | 2008526  | 2.79         |                  | 111  | 15766 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 563.00 > 519.00                       | 3.753 | 3.753  | 0.0    | 1.000  | 818060   | 0.9268       |                  | 92.7 | 4761  |       |
| 563.00 > 169.00                       | 3.753 | 3.753  | 0.0    | 1.000  | 200856   |              | 4.07(2.12-6.36)  |      | 7438  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |      |       |       |
| 584.00 > 419.00                       | 3.753 | 3.753  | 0.0    | 1.003  | 743801   | 0.9849       |                  | 98.5 | 13660 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |      |       |       |
| 565.00 > 520.00                       | 3.753 | 3.765  | -0.012 | 1.000  | 2642154  | 2.62         |                  | 105  | 48919 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |      |       |       |
| 631.00 > 451.00                       | 3.909 | 3.909  | 0.0    | 1.000  | 4095519  | NC           |                  |      | 51780 |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |      |       |       |
| 615.00 > 570.00                       | 4.040 | 4.055  | -0.015 | 1.000  | 2649868  | 2.44         |                  | 97.7 | 20786 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |      |       |       |
| 613.00 > 569.00                       | 4.040 | 4.040  | 0.0    | 1.000  | 1141175  | 1.03         |                  | 103  | 1196  |       |
| 613.00 > 169.00                       | 4.040 | 4.040  | 0.0    | 1.000  | 277090   |              | 4.12(2.13-6.40)  |      | 4779  |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |      |       |       |
| 663.00 > 619.00                       | 4.299 | 4.299  | 0.0    | 1.000  | 1364928  | 1.13         |                  | 113  | 1322  |       |
| 663.00 > 169.00                       | 4.299 | 4.299  | 0.0    | 1.000  | 404751   |              | 3.37(1.25-3.76)  |      | 5981  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |      |       |       |
| 715.00 > 670.00                       | 4.543 | 4.550  | -0.007 | 1.000  | 3503125  | 2.63         |                  | 105  | 16732 |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |      |       |       |
| 713.00 > 169.00                       | 4.543 | 4.543  | 0.0    | 1.000  | 324081   | 0.9159       |                  | 91.6 | 3577  |       |
| 713.00 > 219.00                       | 4.533 | 4.543  | -0.010 | 0.998  | 231668   |              | 1.40(0.71-2.13)  |      | 5523  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |      |       |       |
| 815.00 > 770.00                       | 4.949 | 4.964  | -0.015 | 1.000  | 5861738  | 2.59         |                  | 104  | 13990 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 813.00 > 769.00                       | 4.949 | 4.949  | 0.0    | 1.000  | 2271567  | NC           |                  |      | 883   |       |
| 813.00 > 169.00                       | 4.949 | 4.949  | 0.0    | 1.000  | 345920   |              | 6.57(2.86-8.58)  |      | 3425  |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |      |       |       |
| 913.00 > 869.00                       | 5.307 | 5.307  | 0.0    | 1.000  | 2308953  | NC           |                  |      | 628   |       |
| 913.00 > 169.00                       | 5.307 | 5.307  | 0.0    | 1.000  | 283754   |              | 8.14(3.83-11.48) |      | 2557  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58844.b\2018.05.28LLA\_005.d

Injection Date: 28-May-2018 17:30:02

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

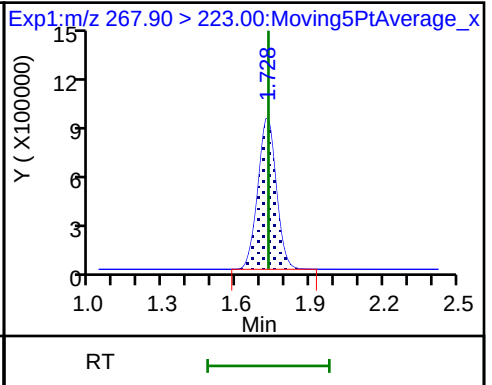
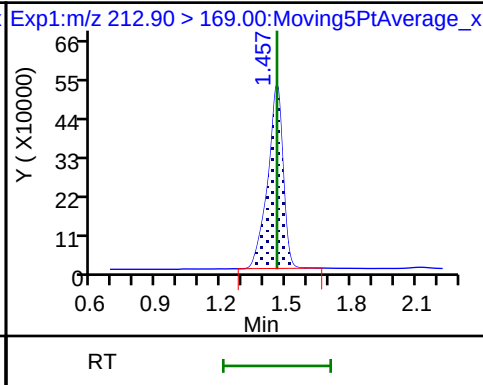
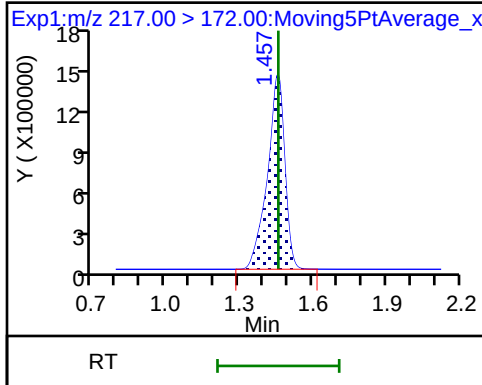
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

D 1 13C4 PFBA

2 Perfluorobutyric acid

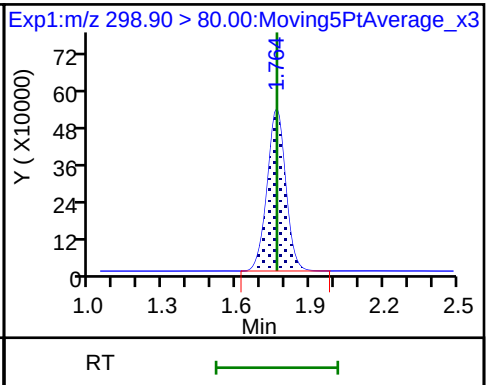
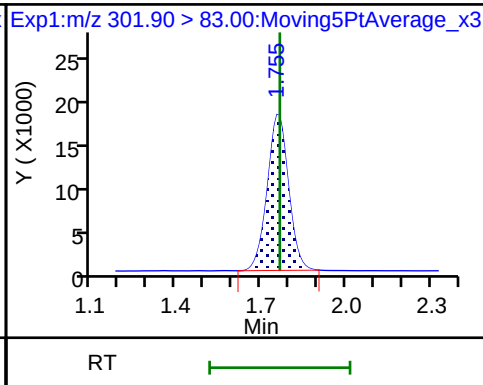
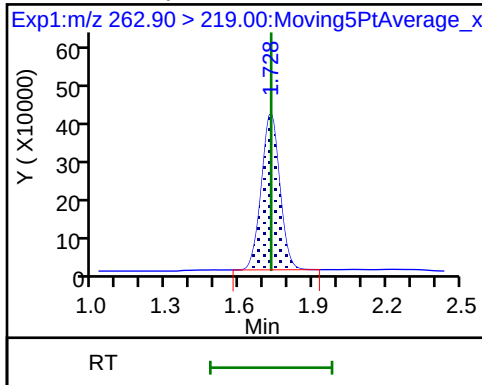
D 3 13C5-PFPeA



4 Perfluoropentanoic acid

D 47 13C3-PFBS

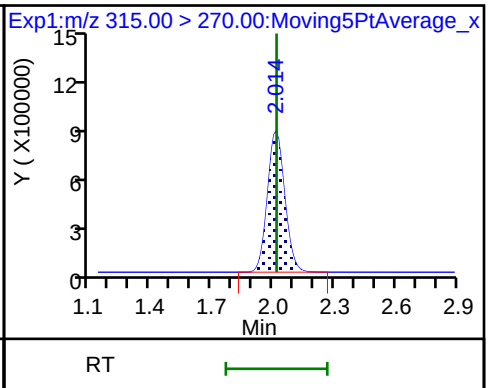
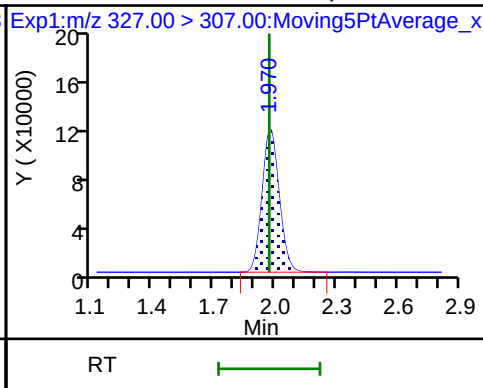
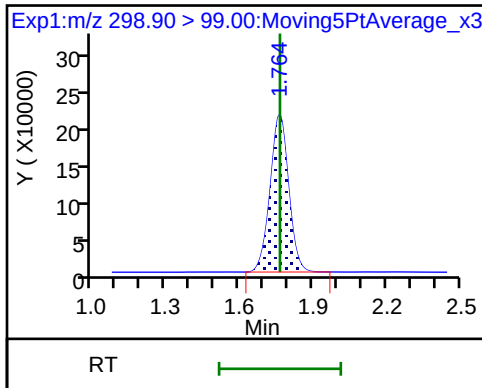
5 Perfluorobutanesulfonic acid



5 Perfluorobutanesulfonic acid

61 Sodium 1H,1H,2H,2H-perfluorohexa

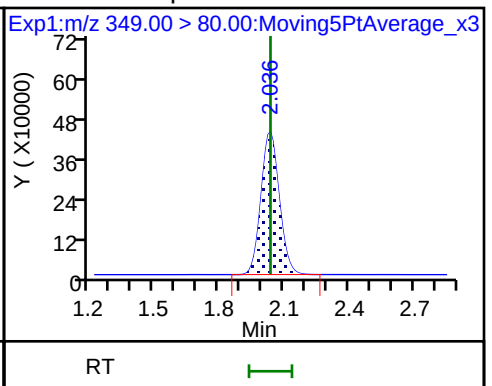
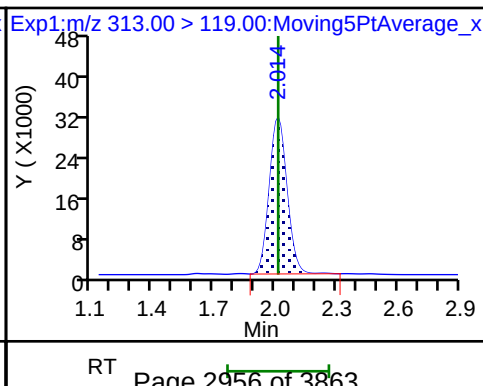
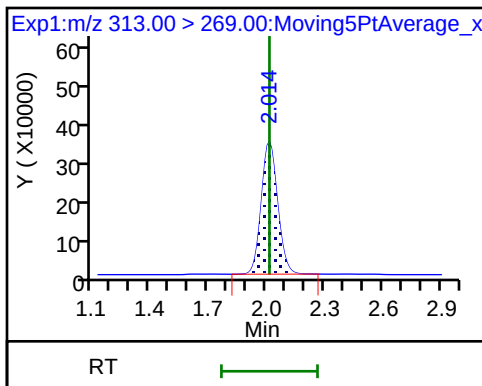
De 7 13C2 PFHxA

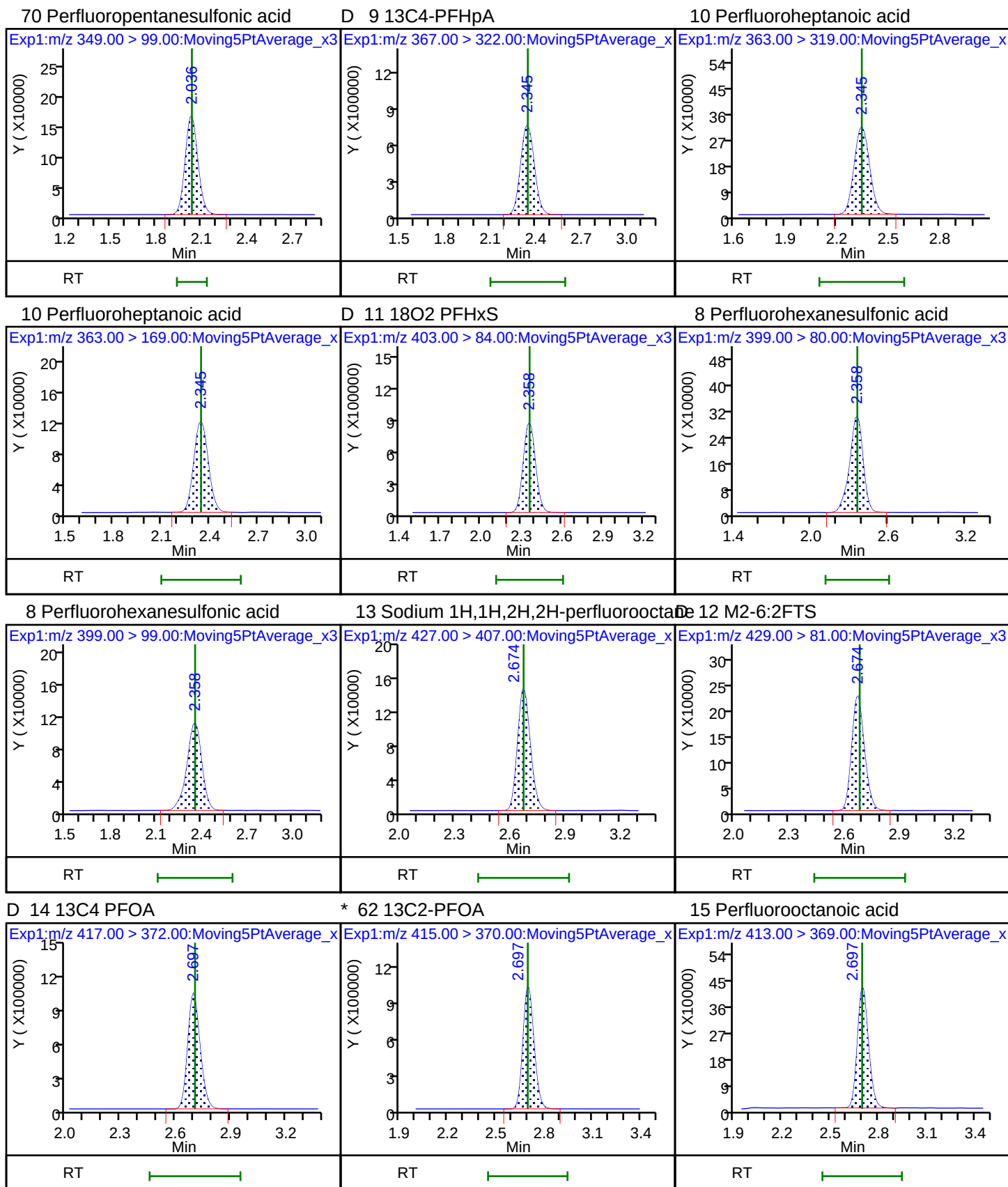


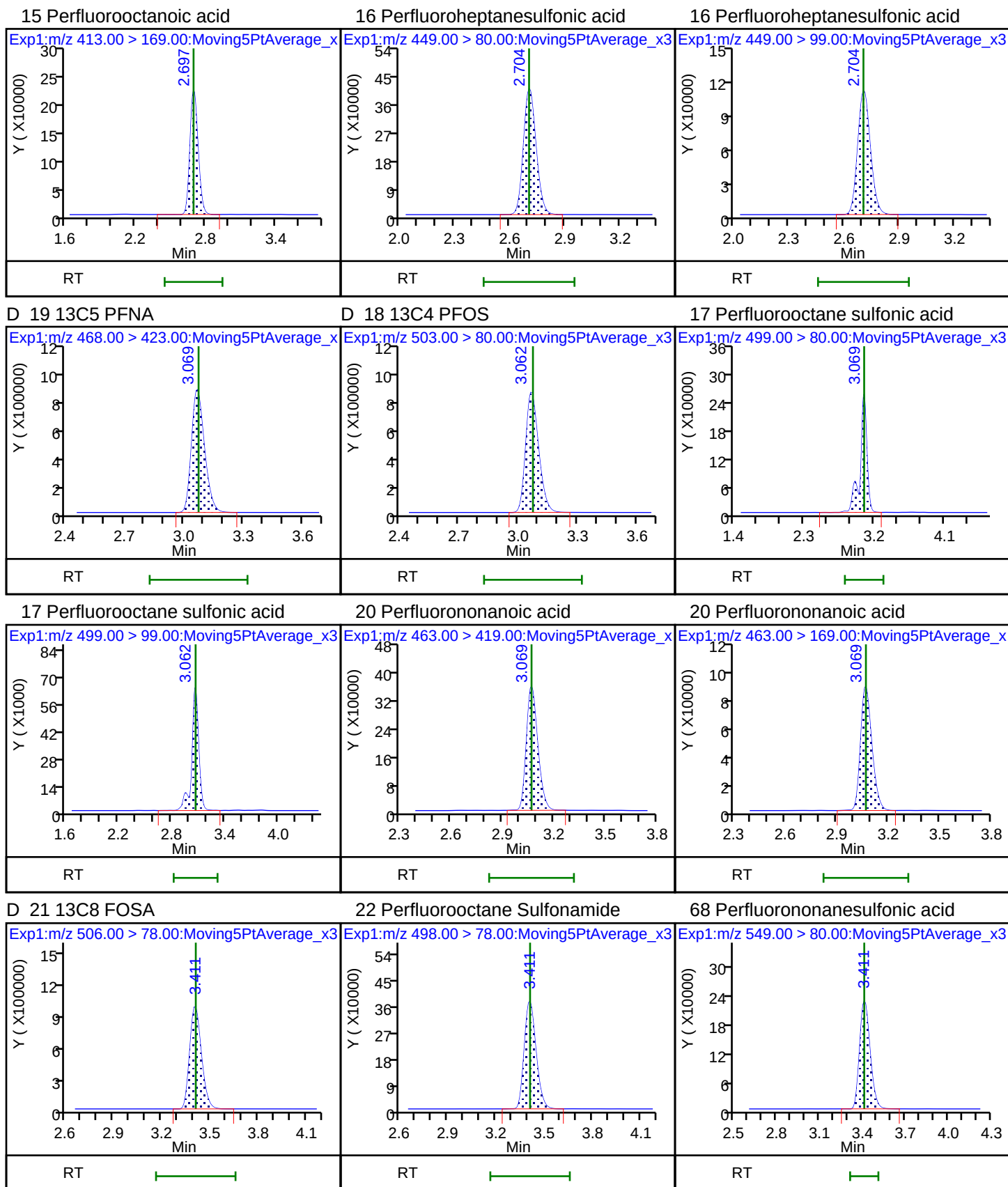
6 Perfluorohexanoic acid

6 Perfluorohexanoic acid

70 Perfluoropentanesulfonic acid







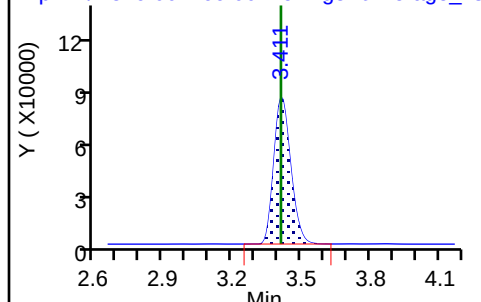


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodeca

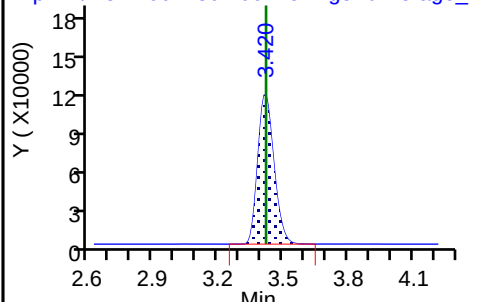
## De26 M2-8:2FTS

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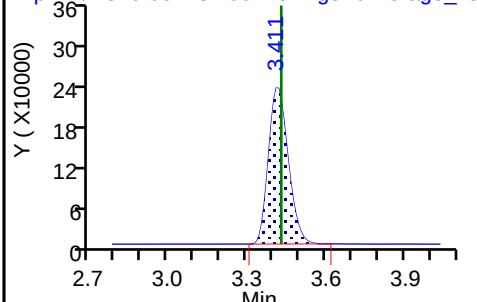
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



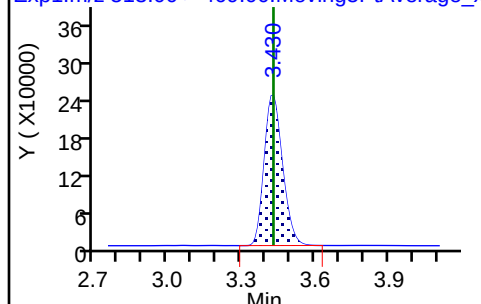
RT

## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

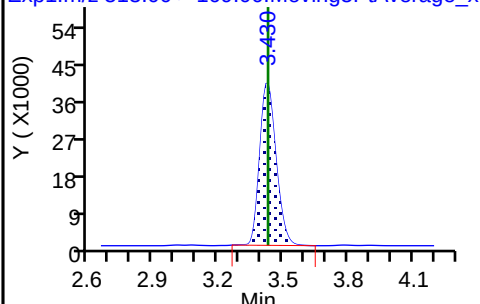
## D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x



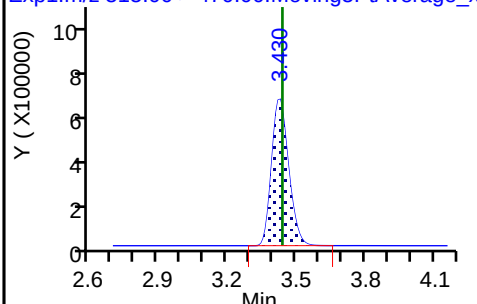
RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x



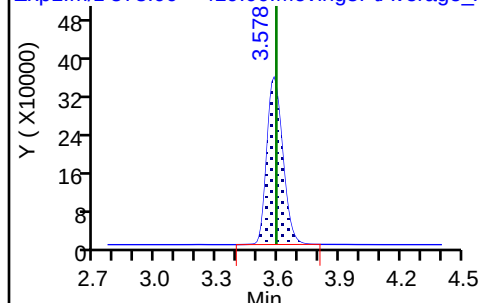
RT

## D 27 d3-NMeFOSAA

## 28 N-methyl perfluorooctane sulfonami

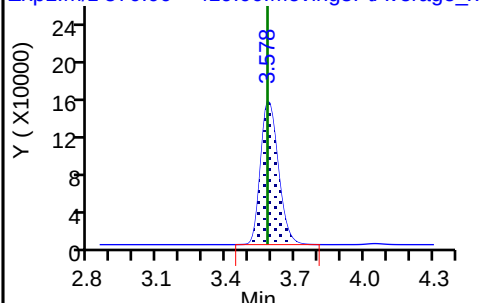
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x



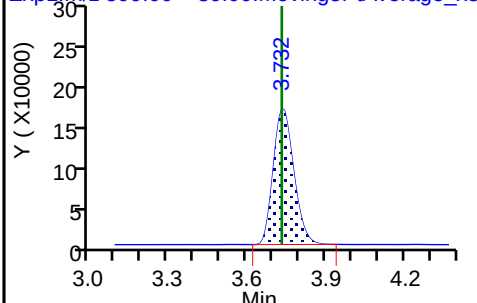
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



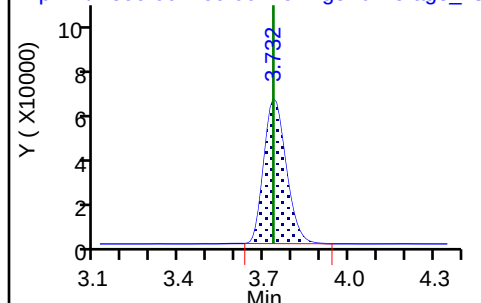
RT

## 29 Perfluorodecane Sulfonic acid

## D 32 d5-NEtFOSAA

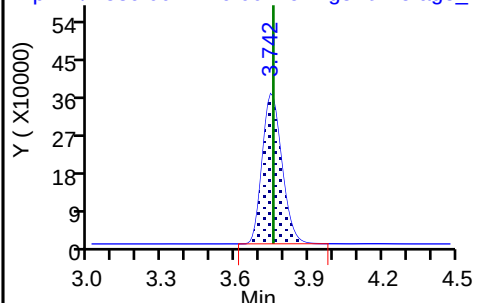
## 31 Perfluoroundecanoic acid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



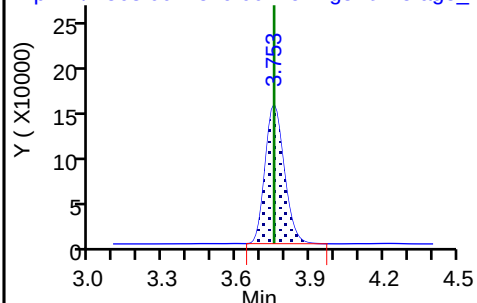
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x



RT

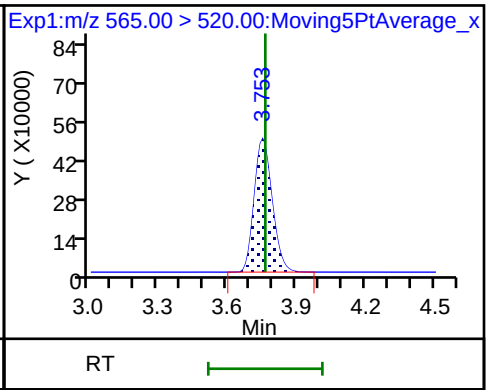
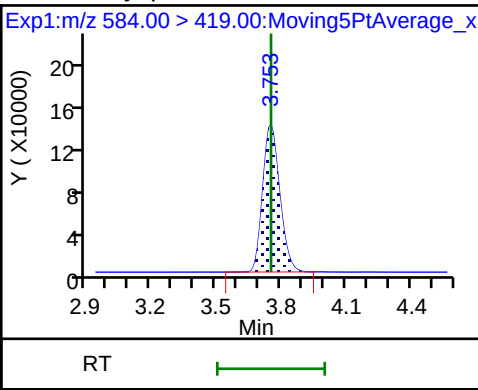
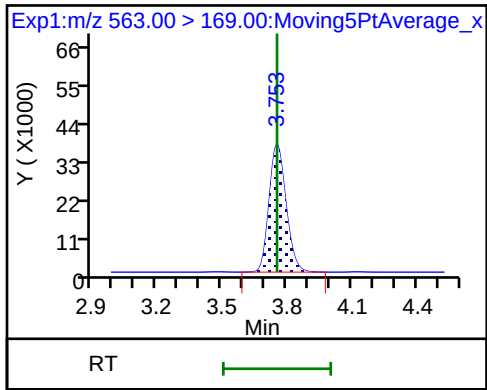
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RT

## 31 Perfluoroundecanoic acid

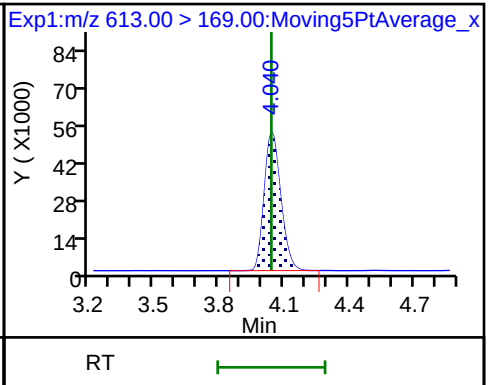
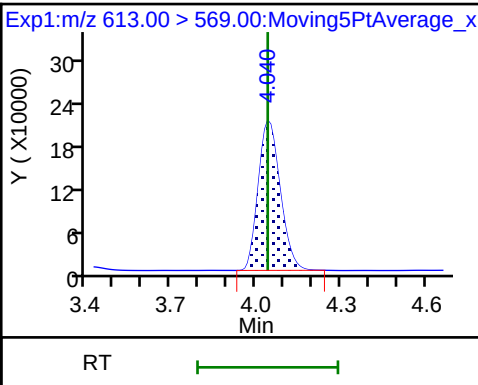
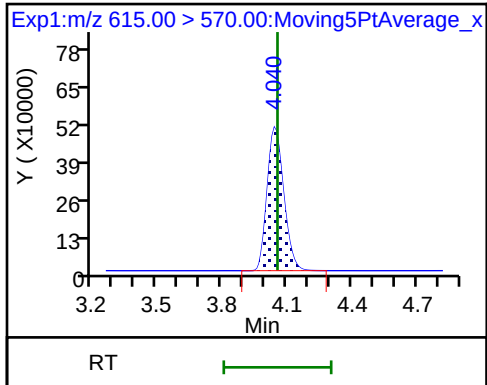
## 33 N-ethyl perfluorooctane sulfonamid D 30 13C2 PFUnA



## D 36 13C2 PFDaA

## 37 Perfluorododecanoic acid

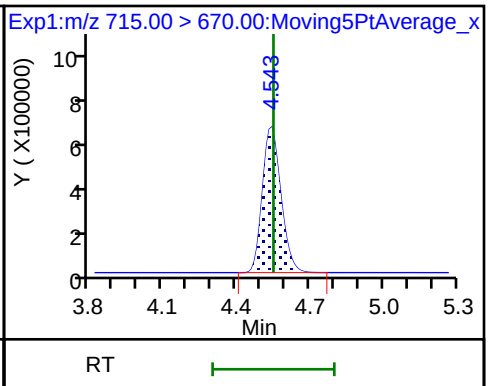
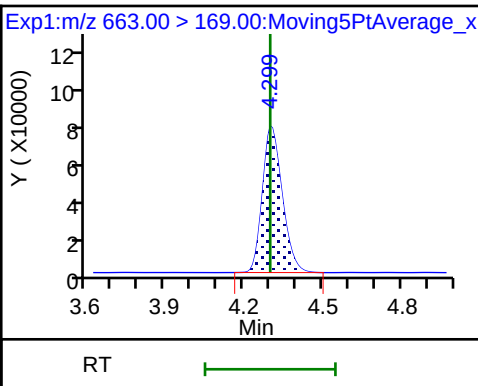
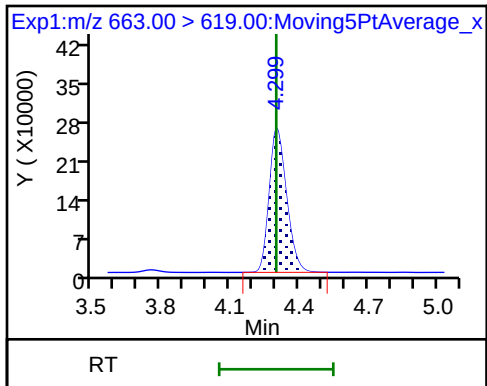
## 37 Perfluorododecanoic acid



## 41 Perfluorotridecanoic acid

## 41 Perfluorotridecanoic acid

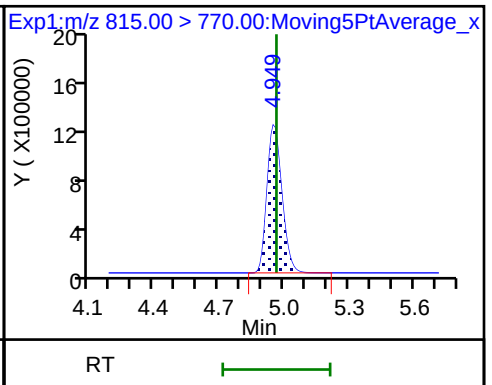
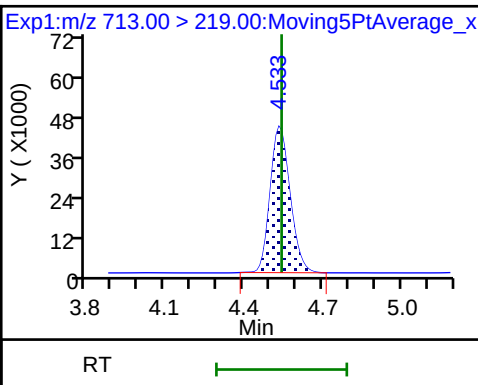
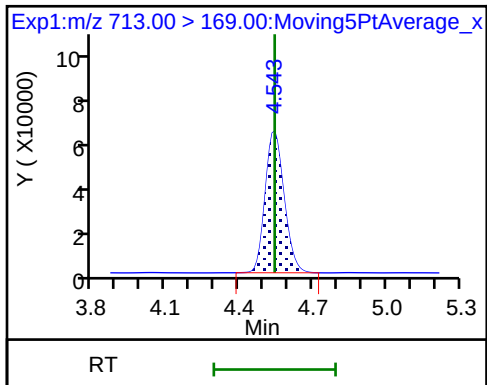
## D 43 13C2-PFTeDA



## 42 Perfluorotetradecanoic acid

## 42 Perfluorotetradecanoic acid

## D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225894/1 Calibration Date: 05/29/2018 03:09

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.28LLB\_005.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9300 |         | 1.00        | 1.00         | 0.0   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.182  |         | 1.00        | 1.00         | 0.2   | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 77.82  |         | 0.881       | 0.884        | -0.4  | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 18.81  |         | 1.06        | 0.934        | 13.5  | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 0.9935 |         | 0.966       | 1.00         | -3.4  | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 69.16  |         | 0.933       | 0.938        | -0.6  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.025  |         | 0.970       | 1.00         | -3.0  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.016  |         | 0.820       | 0.910        | -9.9  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.633  |         | 0.872       | 0.948        | -8.0  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.331  |         | 0.951       | 0.952        | -0.0  | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.081  |         | 0.919       | 1.00         | -8.1  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.033  |         | 0.975       | 1.00         | -2.5  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.061  |         | 0.837       | 0.928        | -9.8  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.007  |         | 1.03        | 1.00         | 3.5   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7713 |         | 0.977       | 0.960        | 1.8   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.300  |         | 0.923       | 0.958        | -3.7  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9846 |         | 1.01        | 1.00         | 1.3   | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 1.011  |         | 0.996       | 1.00         | -0.4  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6740 |         | 0.968       | 0.964        | 0.4   | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.8664 |         | 0.922       | 1.00         | -7.8  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8050 |         | 0.964       | 1.00         | -3.6  | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.041  |         | 0.998       | 1.00         | -0.2  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.188  |         | 1.04        | 1.00         | 3.9   | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2502 |         | 0.991       | 1.00         | -0.9  | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.376  |         | 2.25        | 2.50         | -10.0 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.9253 |         | 2.36        | 2.50         | -5.6  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0199 |         | 2.09        | 2.33         | -10.2 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 1.020  |         | 2.44        | 2.50         | -2.4  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.9556 |         | 2.39        | 2.50         | -4.5  | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.129  |         | 2.16        | 2.37         | -8.7  | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2241 |         | 2.41        | 2.38         | 1.4   | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225894/1 Calibration Date: 05/29/2018 03:09  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.28LLB\_005.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9393 |         | 2.48           | 2.50            | -0.8  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7759 |         | 2.18           | 2.39            | -8.7  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7941 |         | 2.56           | 2.50            | 2.5   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9686 |         | 2.18           | 2.50            | -13.0 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2451 |         | 2.33           | 2.40            | -2.5  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6586 |         | 2.50           | 2.50            | -0.0  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4055 |         | 2.79           | 2.50            | 11.6  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4403 |         | 2.95           | 2.50            | 18.1  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5416 |         | 2.60           | 2.50            | 3.8   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5709 |         | 2.54           | 2.50            | 1.7   | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7032 |         | 2.55           | 2.50            | 2.0   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.336  |         | 2.86           | 2.50            | 14.2  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_005.d  
 Lims ID: CCV L4  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 29-May-2018 03:09:19 ALS Bottle#: 28 Worklist Smp#: 1  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L4  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:20:15 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:20:15

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |       |       |
| 212.90 > 169.00                       | 1.456 | 1.456  | 0.0    | 1.000  | 2531084  | 1.00         |                   | 100  | 1280  |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |       |       |
| 217.00 > 172.00                       | 1.456 | 1.457  | -0.001 | 1.000  | 6803874  | 2.25         |                   | 90.0 | 38076 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |       |       |
| 262.90 > 219.00                       | 1.725 | 1.725  | 0.0    | 1.000  | 2163977  | 1.00         |                   | 100  | 1435  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |       |       |
| 267.90 > 223.00                       | 1.725 | 1.729  | -0.004 | 0.561  | 4575231  | 2.36         |                   | 94.4 | 67683 |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |       |       |
| 298.90 > 80.00                        | 1.762 | 1.762  | 0.0    | 1.000  | 2705341  | 0.8809       |                   | 99.6 | 14267 |       |
| 298.90 > 99.00                        | 1.762 | 1.762  | 0.0    | 1.000  | 1146880  |              | 2.36(1.25-3.74)   |      | 10408 |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |       |       |
| 301.90 > 83.00                        | 1.762 | 1.765  | -0.003 | 1.000  | 91436    | 2.09         |                   | 89.8 | 919   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |       |       |
| 327.00 > 307.00                       | 1.977 | 1.977  | 0.0    | 1.000  | 690953   | 1.06         |                   | 113  | 40369 |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |       |       |
| 329.00 > 81.00                        | 1.977 | 1.981  | -0.004 | 1.000  | 782049   | NC           |                   |      | 8579  |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |       |       |
| 313.00 > 269.00                       | 2.022 | 2.022  | 0.0    | 1.000  | 2004506  | 0.9663       |                   | 96.6 | 4028  |       |
| 313.00 > 119.00                       | 2.011 | 2.022  | -0.011 | 0.994  | 186001   |              | 10.78(5.03-15.10) |      | 2230  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |       |       |
| 315.00 > 270.00                       | 2.022 | 2.014  | 0.008  | 1.000  | 5043856  | 2.44         |                   | 97.6 | 61089 |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |       |       |
| 349.00 > 80.00                        | 2.033 | 2.033  | 0.0    | 1.000  | 2551200  | 0.9328       |                   | 99.4 | 26991 |       |
| 349.00 > 99.00                        | 2.045 | 2.033  | 0.012  | 1.006  | 988890   |              | 2.58(1.36-4.07)   |      | 12940 |       |
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                   |      |       |       |
| 329.10 > 285.00                       | 2.124 | 2.124  | 0.0    | 1.005  | 318646   | NC           |                   |      | 1814  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                 |      |       |       |
| 332.10 > 287.00                       | 2.112 | 2.116  | -0.004 | 1.000  | 242786   | NC           |                 |      | 4564  |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |       |       |
| 367.00 > 322.00                       | 2.355 | 2.345  | 0.010  | 1.000  | 4724919  | 2.39         |                 | 95.5 | 44332 |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |       |       |
| 363.00 > 319.00                       | 2.355 | 2.355  | 0.0    | 1.000  | 1937130  | 0.9703       |                 | 97.0 | 2840  |       |
| 363.00 > 169.00                       | 2.355 | 2.355  | 0.0    | 1.000  | 754625   |              | 2.57(1.13-3.40) |      | 4284  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |       |       |
| 399.00 > 80.00                        | 2.368 | 2.368  | 0.0    | 1.000  | 2064588  | 0.8203       |                 | 90.1 | 7987  |       |
| 399.00 > 99.00                        | 2.368 | 2.368  | 0.0    | 1.000  | 712747   |              | 2.90(1.50-4.49) |      | 4205  |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |       |       |
| 403.00 > 84.00                        | 2.368 | 2.372  | -0.004 | 1.000  | 5282741  | 2.16         |                 | 91.3 | 35773 |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |       |       |
| 377.00 > 251.00                       | 2.392 | 2.392  | 0.0    | 1.000  | 5824388  | NC           |                 |      | 70049 |       |
| 377.00 > 85.00                        | 2.392 | 2.392  | 0.0    | 1.000  | 3430341  |              | 1.70(0.84-2.53) |      | 48200 |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |       |       |
| 427.00 > 407.00                       | 2.681 | 2.681  | 0.0    | 1.000  | 686285   | 0.8721       |                 | 92.0 | 14616 |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 429.00 > 81.00                        | 2.681 | 2.682  | -0.001 | 1.000  | 1052626  | 2.41         |                 | 101  | 15981 |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 415.00 > 370.00                       | 2.711 | 2.711  | 0.0    |        | 4944362  | 2.50         |                 |      | 57074 |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 413.00 > 369.00                       | 2.711 | 2.711  | 0.0    | 1.003  | 2008463  | 0.9186       |                 | 91.9 | 735   |       |
| 413.00 > 169.00                       | 2.711 | 2.711  | 0.0    | 1.003  | 1057423  |              | 1.90(0.84-2.52) |      | 4085  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |       |       |
| 417.00 > 372.00                       | 2.703 | 2.704  | -0.001 | 1.000  | 4644150  | 2.48         |                 | 99.2 | 48222 |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 449.00 > 80.00                        | 2.711 | 2.711  | 0.0    | 1.000  | 1944325  | 0.9513       |                 | 99.9 | 16221 |       |
| 449.00 > 99.00                        | 2.711 | 2.711  | 0.0    | 1.000  | 511717   |              | 3.80(1.94-5.82) |      | 8713  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 499.00 > 80.00                        | 3.076 | 3.076  | 0.0    | 1.000  | 1511101  | 0.8375       |                 | 90.2 | 8148  |       |
| 499.00 > 99.00                        | 3.076 | 3.076  | 0.0    | 1.000  | 356172   |              | 4.24(2.31-6.93) |      | 4366  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 463.00 > 419.00                       | 3.076 | 3.076  | 0.0    | 1.000  | 1622380  | 0.9753       |                 | 97.5 | 5845  |       |
| 463.00 > 169.00                       | 3.076 | 3.076  | 0.0    | 1.000  | 367064   |              | 4.42(1.90-5.69) |      | 15363 |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |       |       |
| 503.00 > 80.00                        | 3.076 | 3.074  | 0.002  | 1.000  | 3667565  | 2.18         |                 | 91.3 | 19826 |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |       |       |
| 468.00 > 423.00                       | 3.076 | 3.081  | -0.005 | 1.000  | 3926168  | 2.56         |                 | 103  | 57048 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |       |       |
| 531.00 > 351.00                       | 3.283 | 3.283  | 0.0    | 1.000  | 2517559  | NC           |                 |      | 36892 |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |       |       |
| 498.00 > 78.00                        | 3.411 | 3.411  | 0.0    | 1.000  | 1929620  | 1.03         |                 | 103  | 29077 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |       |       |
| 506.00 > 78.00                        | 3.411 | 3.407  | 0.004  | 1.000  | 4789249  | 2.18         |                 | 87.0 | 33315 |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.421 | 3.421  | 0.0    | 1.000  | 1136190  | 0.9775       |                 | 102  | 20028 |       |
| 549.00 > 99.00                        | 3.421 | 3.421  | 0.0    | 1.000  | 403830   |              | 2.81(1.33-3.97) |      | 9772  |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec  | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|-------|-------|-------|
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |        |        |        |          |              |                  |       |       |       |
| 527.00 > 507.00                       | 3.430 | 3.430  | 0.0    | 1.000  | 603712   | 0.9229       |                  | 96.3  | 16335 |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                  |       |       |       |
| 529.00 > 81.00                        | 3.430 | 3.426  | 0.004  | 1.000  | 1160985  | 2.33         |                  | 97.5  | 14590 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                  |       |       |       |
| 513.00 > 469.00                       | 3.439 | 3.439  | 0.0    | 1.000  | 1282488  | 1.01         |                  | 101   | 6613  |       |
| 513.00 > 169.00                       | 3.439 | 3.439  | 0.0    | 1.000  | 232279   |              | 5.52(2.36-7.09)  |       | 5775  |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                  |       |       |       |
| 515.00 > 470.00                       | 3.439 | 3.435  | 0.004  | 1.000  | 3256461  | 2.50         |                  | 100.0 | 39520 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                  |       |       |       |
| 570.00 > 419.00                       | 3.590 | 3.590  | 0.0    | 1.000  | 810493   | 1.00         |                  | 99.6  | 7404  |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                  |       |       |       |
| 573.00 > 419.00                       | 3.590 | 3.585  | 0.005  | 1.000  | 2004895  | 2.79         |                  | 112   | 17694 |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                  |       |       |       |
| 599.00 > 80.00                        | 3.743 | 3.743  | 0.0    | 1.000  | 997067   | 0.9677       |                  | 100   | 12276 |       |
| 599.00 > 99.00                        | 3.743 | 3.743  | 0.0    | 1.000  | 331422   |              | 3.01(1.39-4.16)  |       | 10172 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                  |       |       |       |
| 563.00 > 519.00                       | 3.764 | 3.764  | 0.0    | 1.000  | 862240   | 0.9639       |                  | 96.4  | 6829  |       |
| 563.00 > 169.00                       | 3.764 | 3.764  | 0.0    | 1.000  | 198723   |              | 4.34(2.12-6.36)  |       | 5156  |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                  |       |       |       |
| 584.00 > 419.00                       | 3.764 | 3.764  | 0.0    | 1.003  | 754457   | 0.9216       |                  | 92.2  | 13897 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                  |       |       |       |
| 565.00 > 520.00                       | 3.764 | 3.761  | 0.003  | 1.000  | 2677680  | 2.60         |                  | 104   | 60894 |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                  |       |       |       |
| 589.00 > 419.00                       | 3.753 | 3.761  | -0.008 | 1.000  | 2177043  | 2.95         |                  | 118   | 24803 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                  |       |       |       |
| 631.00 > 451.00                       | 3.920 | 3.920  | 0.0    | 1.000  | 3939514  | NC           |                  |       | 53419 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                  |       |       |       |
| 613.00 > 569.00                       | 4.061 | 4.061  | 0.0    | 1.000  | 1175881  | 1.00         |                  | 99.8  | 1352  |       |
| 613.00 > 169.00                       | 4.061 | 4.061  | 0.0    | 1.000  | 281352   |              | 4.18(2.13-6.40)  |       | 4406  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                  |       |       |       |
| 615.00 > 570.00                       | 4.061 | 4.060  | 0.001  | 1.000  | 2822853  | 2.54         |                  | 102   | 18759 |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                  |       |       |       |
| 663.00 > 619.00                       | 4.319 | 4.319  | 0.0    | 1.000  | 1341757  | 1.04         |                  | 104   | 1316  |       |
| 663.00 > 169.00                       | 4.319 | 4.319  | 0.0    | 1.000  | 411657   |              | 3.26(1.25-3.76)  |       | 5210  |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                  |       |       |       |
| 713.00 > 169.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 347940   | 0.99         |                  | 99.1  | 4382  |       |
| 713.00 > 219.00                       | 4.554 | 4.554  | 0.0    | 1.000  | 243178   |              | 1.43(0.71-2.13)  |       | 5126  |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                  |       |       |       |
| 715.00 > 670.00                       | 4.554 | 4.553  | 0.001  | 1.000  | 3477058  | 2.55         |                  | 102   | 16525 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                  |       |       |       |
| 813.00 > 769.00                       | 4.976 | 4.976  | 0.0    | 1.002  | 2520408  | NC           |                  |       | 986   |       |
| 813.00 > 169.00                       | 4.976 | 4.976  | 0.0    | 1.002  | 396734   |              | 6.35(2.86-8.58)  |       | 3614  |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                  |       |       |       |
| 815.00 > 770.00                       | 4.967 | 4.975  | -0.008 | 1.000  | 6606398  | 2.86         |                  | 114   | 13849 |       |
| 46 Perfluorooctadecanoic acid         |       |        |        |        |          |              |                  |       |       |       |
| 913.00 > 869.00                       | 5.328 | 5.328  | 0.0    | 1.000  | 2797977  | NC           |                  |       | 698   |       |
| 913.00 > 169.00                       | 5.328 | 5.328  | 0.0    | 1.000  | 329573   |              | 8.49(3.83-11.48) |       | 2572  |       |



[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL4\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_005.d

Injection Date: 29-May-2018 03:09:19

Instrument ID: A8\_N

Lims ID: CCV L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

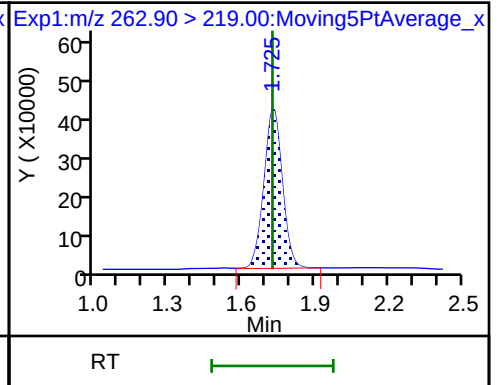
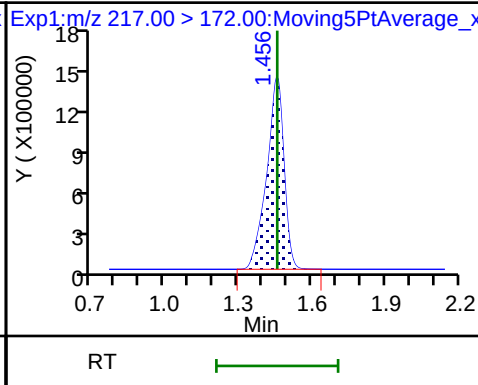
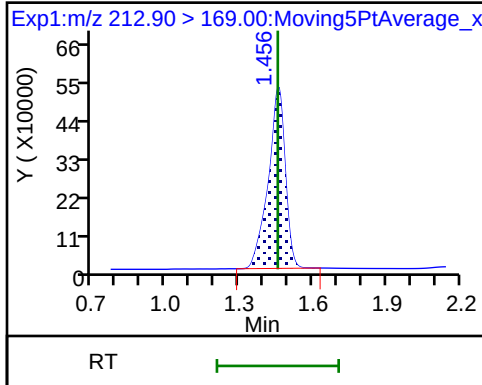
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

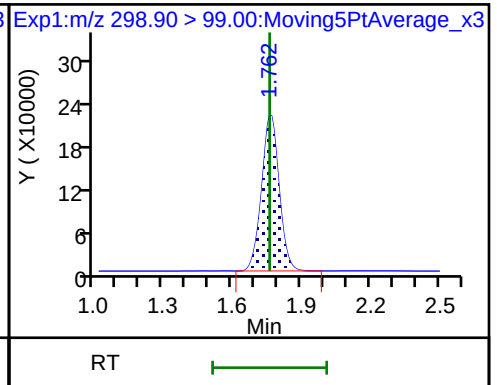
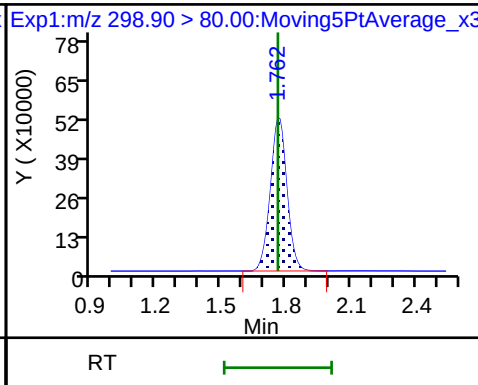
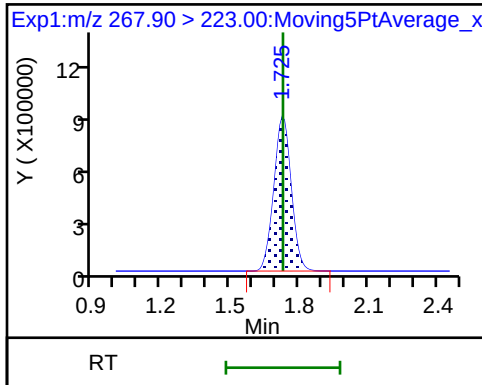
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

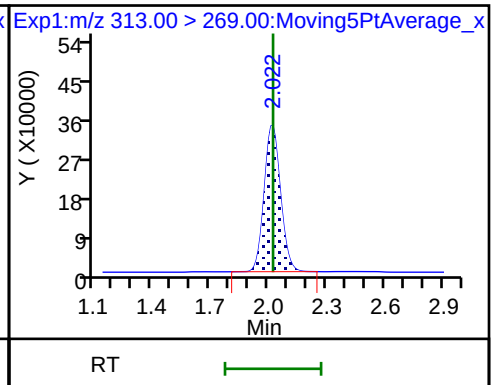
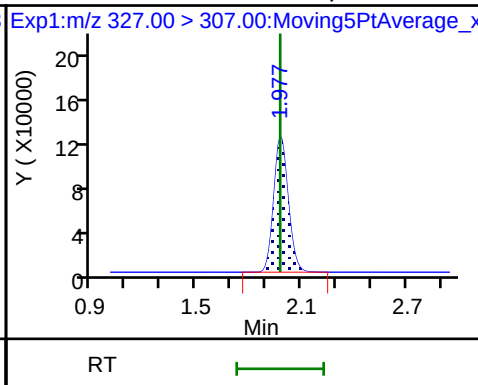
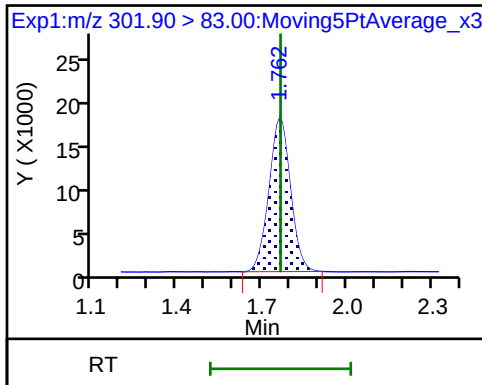
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoic acid

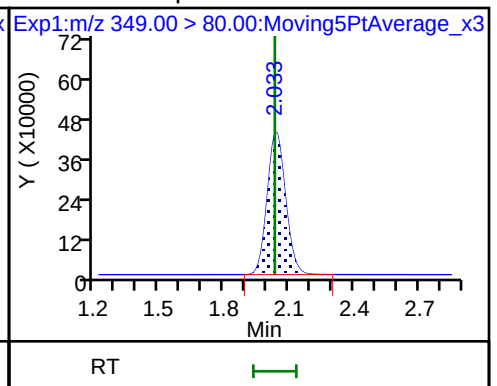
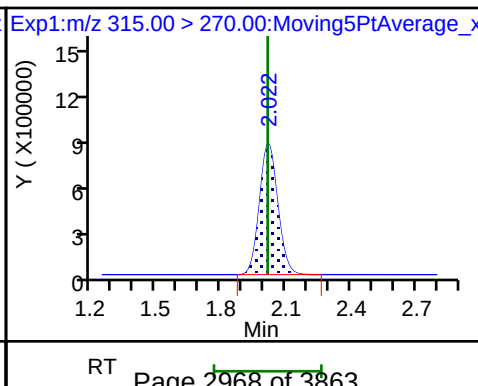
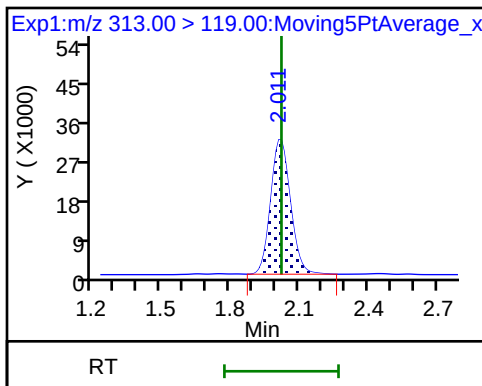
## 6 Perfluorohexanoic acid

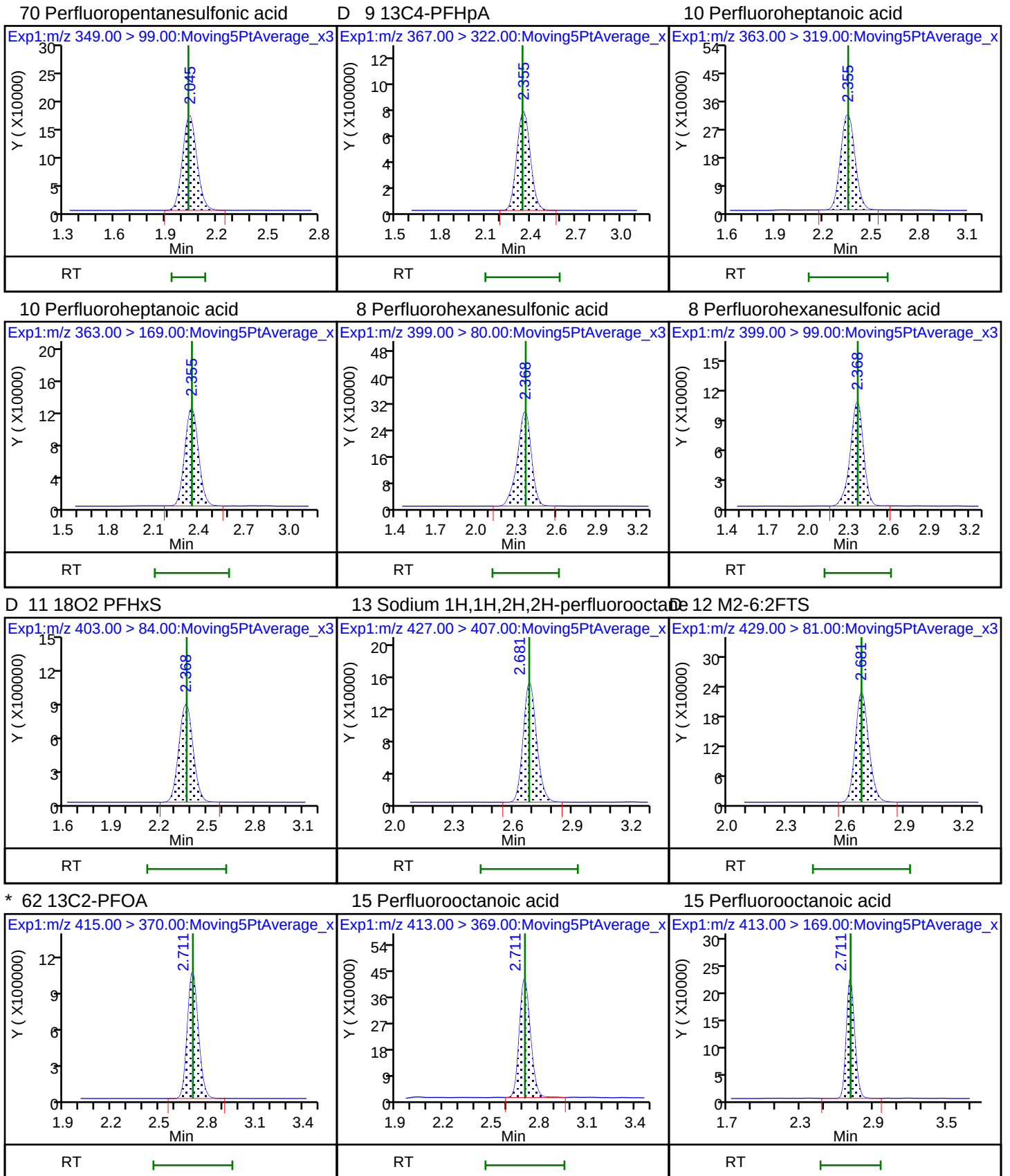


## 6 Perfluorohexanoic acid

## D 7 13C2 PFHxA

## 70 Perfluoropentanesulfonic acid

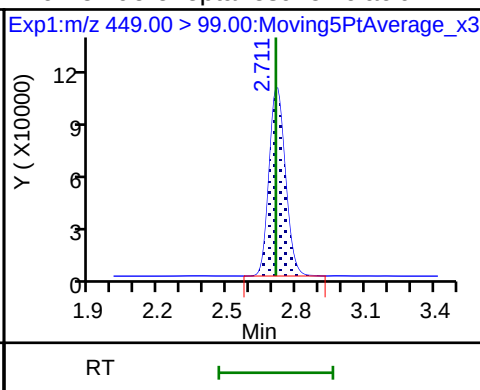
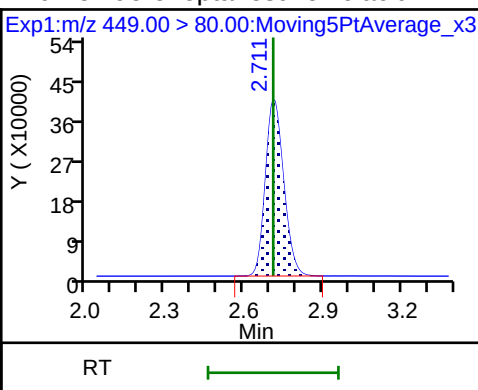
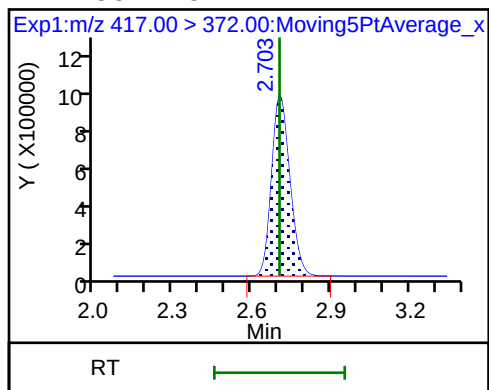




## D 14 13C4 PFOA

## 16 Perfluoroheptanesulfonic acid

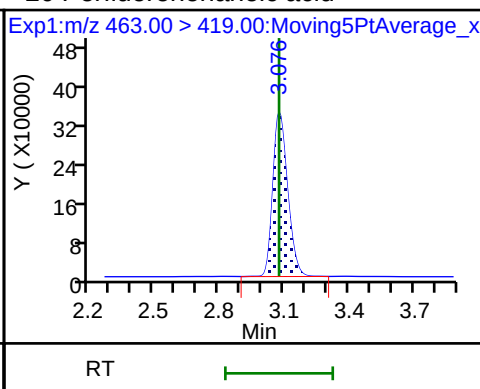
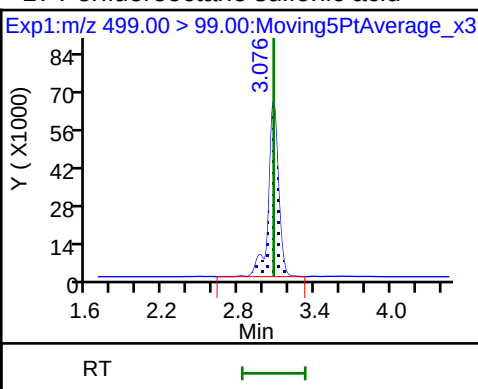
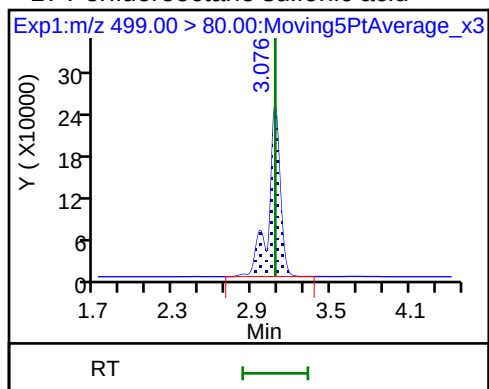
## 16 Perfluoroheptanesulfonic acid



## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

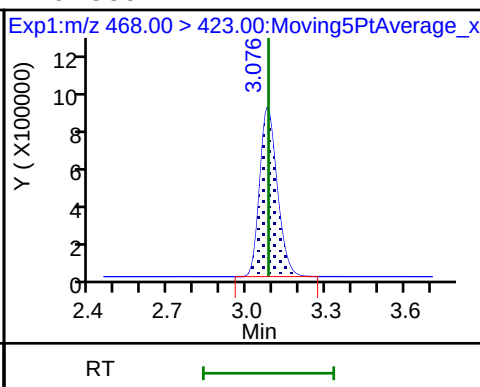
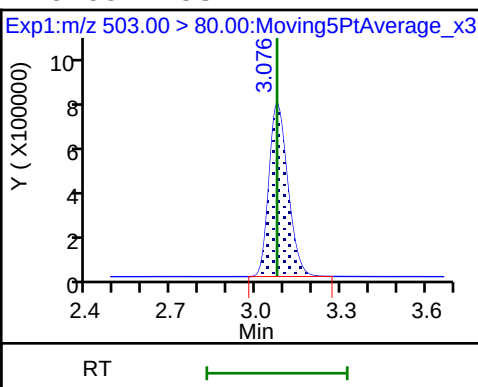
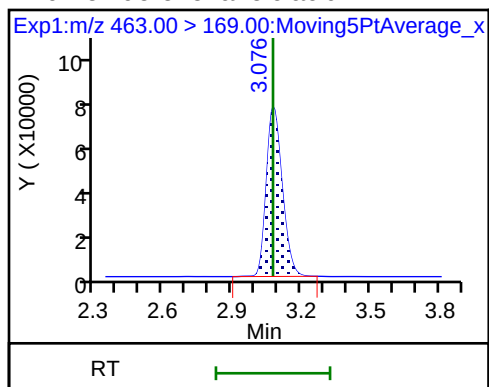
## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid

## D 18 13C4 PFOS

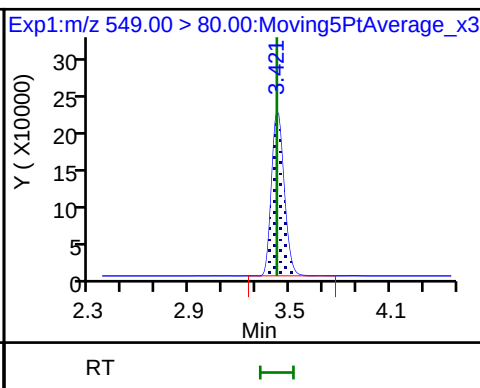
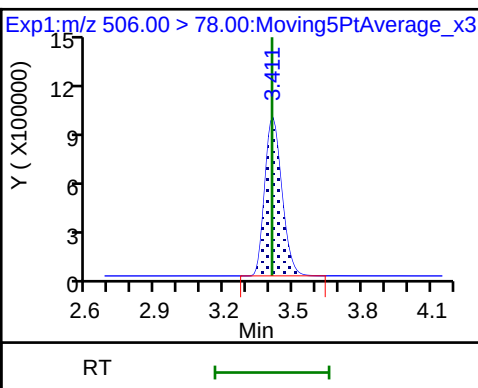
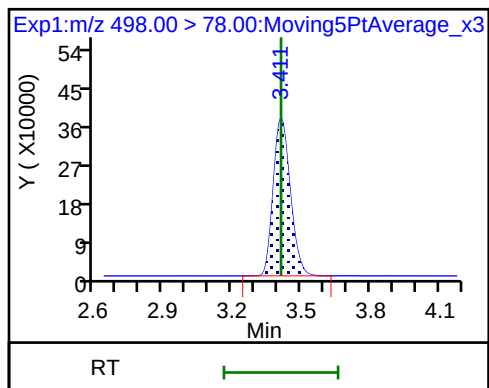
## D 19 13C5 PFNA



## 22 Perfluorooctane Sulfonamide

## D 21 13C8 FOSA

## 68 Perfluorononanesulfonic acid

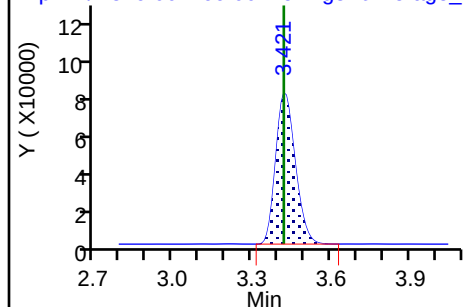


## 68 Perfluorononanesulfonic acid

## 25 Sodium 1H,1H,2H,2H-perfluorodecanoate

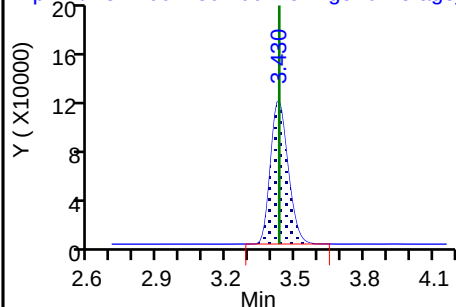
## De26 M2-8:2FTS

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



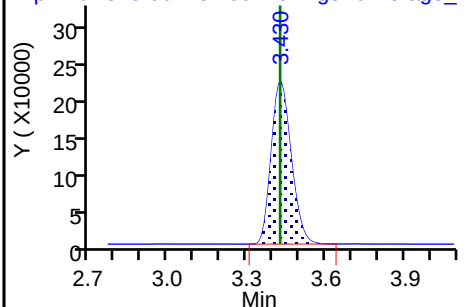
RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



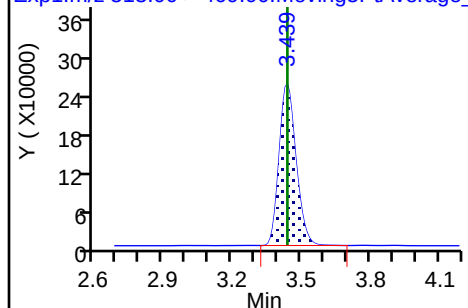
RT

## 24 Perfluorodecanoic acid

## 24 Perfluorodecanoic acid

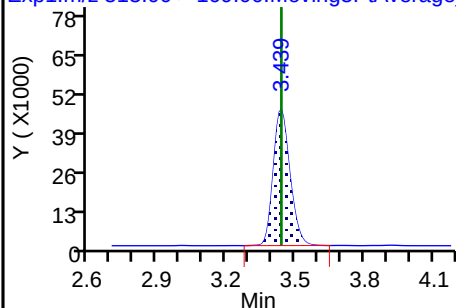
## D 23 13C2 PFDA

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



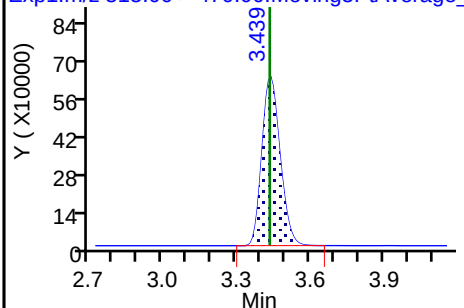
RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



RT

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



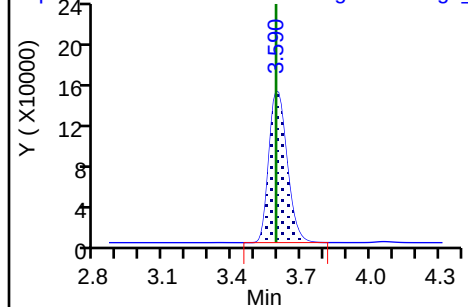
RT

## 28 N-methyl perfluorooctane sulfonamide

## 27 d3-NMeFOSAA

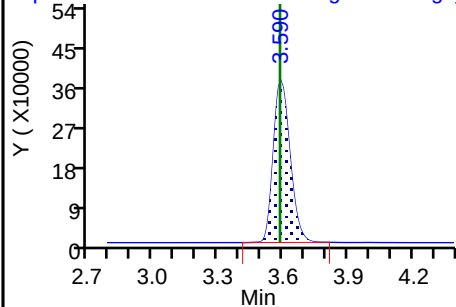
## 29 Perfluorodecane Sulfonic acid

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



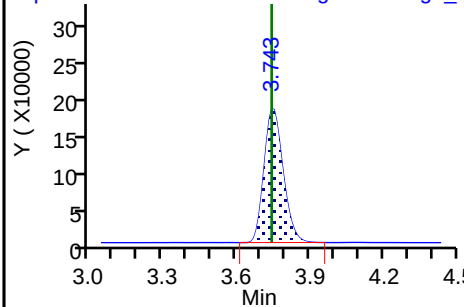
RT

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



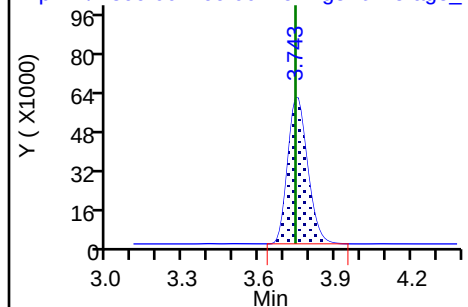
RT

## 29 Perfluorodecane Sulfonic acid

## 31 Perfluoroundecanoic acid

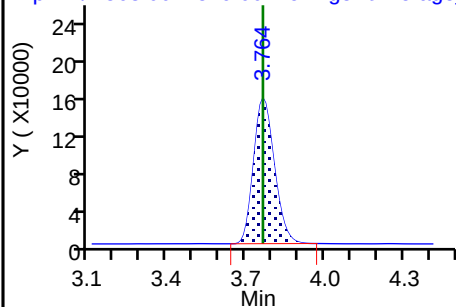
## 31 Perfluoroundecanoic acid

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



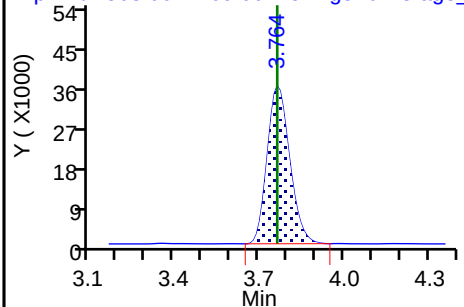
RT

Exp1:m/z 563.00 &gt; 519.00:Moving5PtAverage\_x3



RT

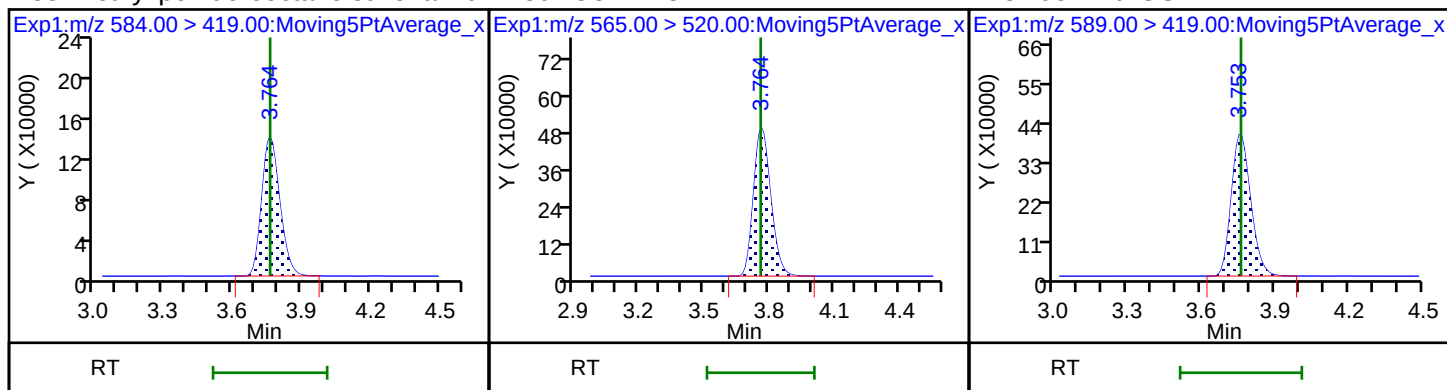
Exp1:m/z 563.00 &gt; 169.00:Moving5PtAverage\_x3



RT

## 33 N-ethyl perfluorooctane sulfonamid D 30 13C2 PFUnA

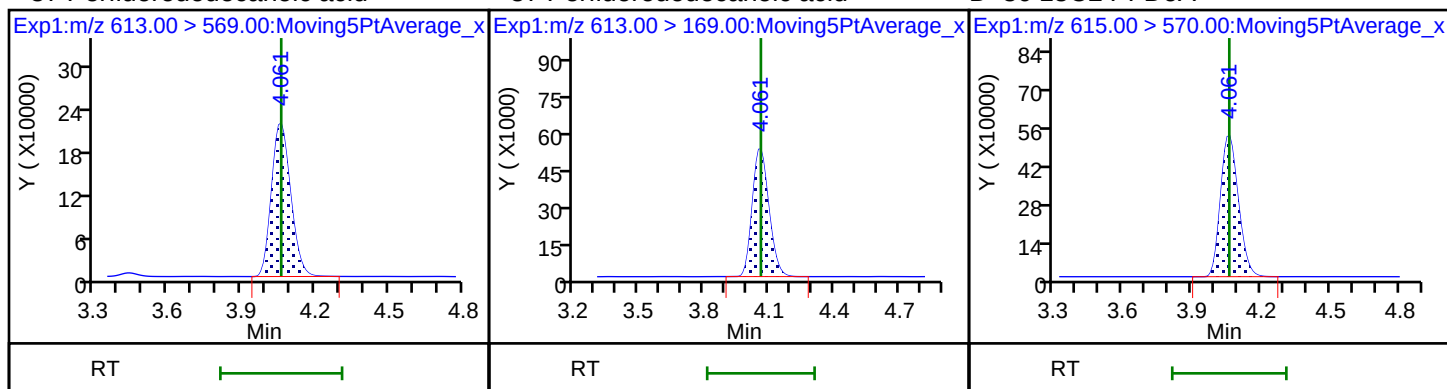
## D 32 d5-NEtFOSAA



## 37 Perfluorododecanoic acid

## 37 Perfluorododecanoic acid

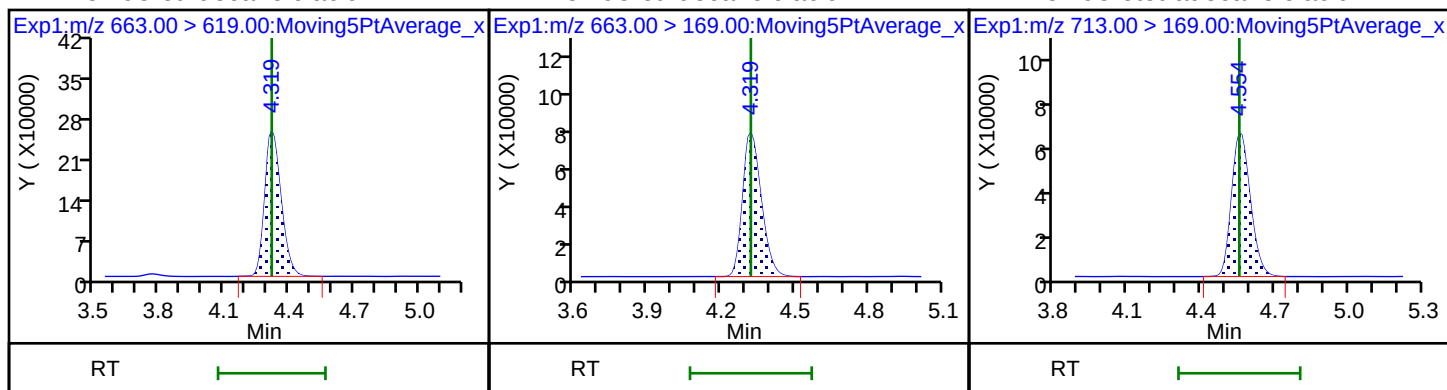
## D 36 13C2 PFDaA



## 41 Perfluorotridecanoic acid

## 41 Perfluorotridecanoic acid

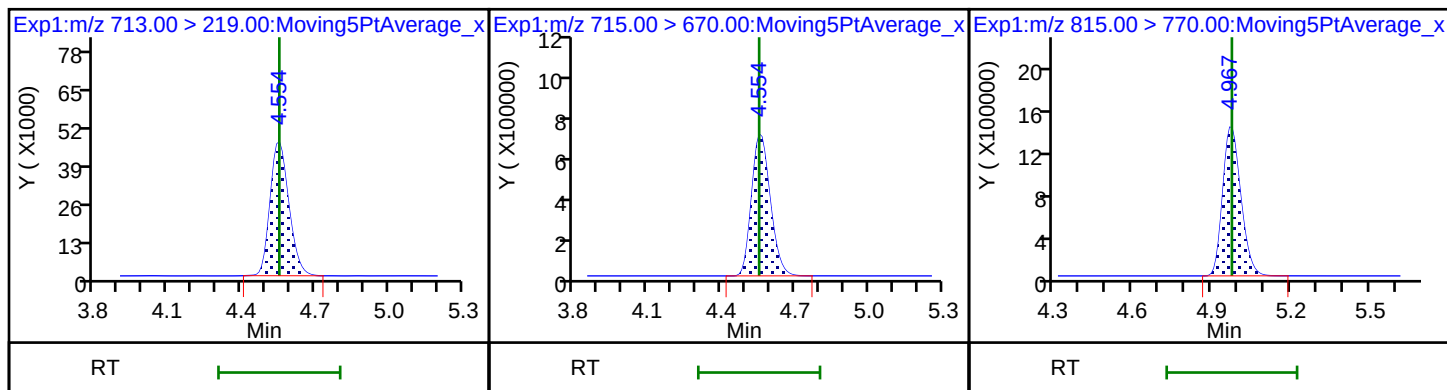
## 42 Perfluorotetradecanoic acid



## 42 Perfluorotetradecanoic acid

## D 43 13C2-PFTeDA

## D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCV 320-225894/12 Calibration Date: 05/29/2018 04:35

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.28LLB\_016.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D   | MAX<br>%D |
|------------------------------------------------------------|---------------|---------|--------|---------|----------------|-----------------|------|-----------|
| Perfluorobutanoic acid (PFBA)                              | AveID         | 0.9298  | 0.9577 |         | 2.57           | 2.50            | 3.0  | 30.0      |
| Perfluoropentanoic acid (PFPeA)                            | AveID         | 1.181   | 1.151  |         | 2.44           | 2.50            | -2.5 | 30.0      |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID         | 78.09   | 79.85  |         | 2.26           | 2.21            | 2.3  | 30.0      |
| 4:2 FTS                                                    | AveID         | 16.57   | 18.22  |         | 2.57           | 2.34            | 10.0 | 30.0      |
| Perfluorohexanoic acid (PFHxA)                             | AveID         | 1.028   | 1.066  |         | 2.59           | 2.50            | 3.7  | 30.0      |
| Perfluoropentanesulfonic acid                              | AveID         | 69.55   | 69.77  |         | 2.35           | 2.35            | 0.3  | 30.0      |
| Perfluoroheptanoic acid (PFHpA)                            | AveID         | 1.056   | 1.041  |         | 2.46           | 2.50            | -1.4 | 30.0      |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID         | 1.127   | 1.039  |         | 2.10           | 2.28            | -7.8 | 30.0      |
| 6:2FTS                                                     | L2ID          |         | 1.682  |         | 2.26           | 2.37            | -4.6 | 30.0      |
| Perfluorooctanoic acid (PFOA)                              | AveID         | 1.177   | 1.115  |         | 2.37           | 2.50            | -5.3 | 30.0      |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID         | 1.332   | 1.409  |         | 2.52           | 2.38            | 5.8  | 30.0      |
| Perfluorononanoic acid (PFNA)                              | AveID         | 1.059   | 1.041  |         | 2.46           | 2.50            | -1.7 | 30.0      |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID         | 1.176   | 1.101  |         | 2.17           | 2.32            | -6.4 | 30.0      |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID         | 0.9736  | 1.030  |         | 2.65           | 2.50            | 5.8  | 30.0      |
| Perfluorononanesulfonic acid                               | AveID         | 0.7575  | 0.7604 |         | 2.41           | 2.40            | 0.4  | 30.0      |
| 8:2FTS                                                     | AveID         | 1.349   | 1.256  |         | 2.23           | 2.40            | -6.9 | 30.0      |
| Perfluorodecanoic acid (PFDA)                              | AveID         | 0.9722  | 1.010  |         | 2.60           | 2.50            | 3.9  | 30.0      |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID         | 1.015   | 1.040  |         | 2.56           | 2.50            | 2.5  | 30.0      |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID         | 0.6714  | 0.6558 |         | 2.35           | 2.41            | -2.3 | 30.0      |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID         | 0.9400  | 0.9319 |         | 2.48           | 2.50            | -0.9 | 30.0      |
| Perfluoroundecanoic acid (PFUnA)                           | AveID         | 0.8352  | 0.8013 |         | 2.40           | 2.50            | -4.1 | 30.0      |
| Perfluorododecanoic acid (PFDoA)                           | AveID         | 1.044   | 1.063  |         | 2.55           | 2.50            | 1.8  | 30.0      |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID         | 1.144   | 1.192  |         | 2.61           | 2.50            | 4.2  | 30.0      |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID         | 0.2525  | 0.2532 |         | 2.51           | 2.50            | 0.3  | 30.0      |
| 13C4 PFBA                                                  | Ave           | 1.528   | 1.411  |         | 2.31           | 2.50            | -7.7 | 30.0      |
| 13C5-PFPeA                                                 | Ave           | 0.9798  | 0.9703 |         | 2.48           | 2.50            | -1.0 | 30.0      |
| 13C3-PFBS                                                  | Ave           | 0.0221  | 0.0207 |         | 2.17           | 2.33            | -6.6 | 30.0      |
| 13C2 PFHxA                                                 | Ave           | 1.045   | 1.002  |         | 2.40           | 2.50            | -4.1 | 30.0      |
| 13C4-PFHpA                                                 | Ave           | 1.001   | 0.9517 |         | 2.38           | 2.50            | -4.9 | 30.0      |
| 18O2 PFHxS                                                 | Ave           | 1.237   | 1.171  |         | 2.24           | 2.37            | -5.4 | 30.0      |
| M2-6:2FTS                                                  | Ave           | 0.2210  | 0.2314 |         | 2.49           | 2.38            | 4.7  | 30.0      |



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-225894/12 Calibration Date: 05/29/2018 04:35  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.28LLB\_016.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9698 |         | 2.56           | 2.50            | 2.4   | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7928 |         | 2.23           | 2.39            | -6.8  | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.8126 |         | 2.62           | 2.50            | 4.9   | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9806 |         | 2.20           | 2.50            | -11.9 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2404 |         | 2.29           | 2.40            | -4.4  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6490 |         | 2.46           | 2.50            | -1.5  | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.4064 |         | 2.80           | 2.50            | 11.8  | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.4107 |         | 2.75           | 2.50            | 10.1  | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5312 |         | 2.55           | 2.50            | 1.8   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5819 |         | 2.59           | 2.50            | 3.7   | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.7020 |         | 2.55           | 2.50            | 1.9   | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.369  |         | 2.93           | 2.50            | 17.1  | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_016.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 29-May-2018 04:35:29 ALS Bottle#: 29 Worklist Smp#: 12  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 30-May-2018 16:24:59 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK014

First Level Reviewer: mongkols

Date: 30-May-2018 16:24:59

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)     | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-------------------|------|--------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                   |      |        |       |
| 212.90 > 169.00                       | 1.461 | 1.461  | 0.0    | 1.000  | 6500162  | 2.57         |                   | 103  | 3554   |       |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                   |      |        |       |
| 217.00 > 172.00                       | 1.461 | 1.457  | 0.004  | 1.000  | 6787561  | 2.31         |                   | 92.3 | 36894  |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                   |      |        |       |
| 262.90 > 219.00                       | 1.734 | 1.734  | 0.0    | 1.005  | 5369240  | 2.44         |                   | 97.5 | 4244   |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                   |      |        |       |
| 267.90 > 223.00                       | 1.725 | 1.729  | -0.004 | 0.562  | 4665766  | 2.48         |                   | 99.0 | 63839  |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                   |      |        |       |
| 298.90 > 80.00                        | 1.770 | 1.770  | 0.0    | 1.005  | 7017690  | 2.26         |                   | 102  | 36166  |       |
| 298.90 > 99.00                        | 1.770 | 1.770  | 0.0    | 1.005  | 2926814  |              | 2.40(1.25-3.74)   |      | 26704  |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                   |      |        |       |
| 301.90 > 83.00                        | 1.761 | 1.765  | -0.004 | 1.000  | 92457    | 2.17         |                   | 93.4 | 923    |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                   |      |        |       |
| 327.00 > 307.00                       | 1.977 | 1.977  | 0.0    | 1.000  | 1692124  | 2.57         |                   | 110  | 96827  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                   |      |        |       |
| 329.00 > 81.00                        | 1.977 | 1.981  | -0.004 | 1.000  | 758055   | NC           |                   |      | 8164   |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                   |      |        |       |
| 315.00 > 270.00                       | 2.022 | 2.014  | 0.008  | 1.000  | 4820376  | 2.40         |                   | 95.9 | 115689 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                   |      |        |       |
| 313.00 > 269.00                       | 2.022 | 2.022  | 0.0    | 1.000  | 5137015  | 2.59         |                   | 104  | 10026  |       |
| 313.00 > 119.00                       | 2.022 | 2.022  | 0.0    | 1.000  | 457342   |              | 11.23(5.03-15.10) |      | 5958   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                   |      |        |       |
| 349.00 > 80.00                        | 2.044 | 2.044  | 0.0    | 1.000  | 6505947  | 2.35         |                   | 100  | 51996  |       |
| 349.00 > 99.00                        | 2.044 | 2.044  | 0.0    | 1.000  | 2392657  |              | 2.72(1.36-4.07)   |      | 33409  |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                   |      |        |       |
| 332.10 > 287.00                       | 2.112 | 2.116  | -0.004 | 1.000  | 236631   | NC           |                   |      | 4854   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N    | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|--------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |        |        |        |          |              |                 |      |        |       |
| 329.10 > 285.00                       | 2.112 | 2.112  | 0.0    | 1.000  | 832839   | NC           |                 |      | 5447   |       |
| D 9 13C4-PFHpA                        |       |        |        |        |          |              |                 |      |        |       |
| 367.00 > 322.00                       | 2.355 | 2.345  | 0.010  | 1.000  | 4576510  | 2.38         |                 | 95.1 | 55956  |       |
| 10 Perfluoroheptanoic acid            |       |        |        |        |          |              |                 |      |        |       |
| 363.00 > 319.00                       | 2.355 | 2.355  | 0.0    | 1.000  | 4764711  | 2.46         |                 | 98.6 | 6414   |       |
| 363.00 > 169.00                       | 2.355 | 2.355  | 0.0    | 1.000  | 1837840  |              | 2.59(1.13-3.40) |      | 10884  |       |
| 8 Perfluorohexanesulfonic acid        |       |        |        |        |          |              |                 |      |        |       |
| 399.00 > 80.00                        | 2.368 | 2.368  | 0.0    | 1.000  | 5321903  | 2.10         |                 | 92.2 | 14917  |       |
| 399.00 > 99.00                        | 2.368 | 2.368  | 0.0    | 1.000  | 1884876  |              | 2.82(1.50-4.49) |      | 8838   |       |
| D 11 18O2 PFHxS                       |       |        |        |        |          |              |                 |      |        |       |
| 403.00 > 84.00                        | 2.368 | 2.372  | -0.004 | 1.000  | 5325159  | 2.24         |                 | 94.6 | 50339  |       |
| 65 Adona                              |       |        |        |        |          |              |                 |      |        |       |
| 377.00 > 251.00                       | 2.392 | 2.392  | 0.0    | 1.000  | 14763216 | NC           |                 |      | 137675 |       |
| 377.00 > 85.00                        | 2.392 | 2.392  | 0.0    | 1.000  | 8671627  |              | 1.70(0.84-2.53) |      | 63194  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |        |        |        |          |              |                 |      |        |       |
| 427.00 > 407.00                       | 2.680 | 2.680  | 0.0    | 1.000  | 1774060  | 2.26         |                 | 95.4 | 19990  |       |
| D 12 M2-6:2FTS                        |       |        |        |        |          |              |                 |      |        |       |
| 429.00 > 81.00                        | 2.680 | 2.682  | -0.002 | 1.000  | 1057153  | 2.49         |                 | 105  | 16946  |       |
| D 14 13C4 PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 417.00 > 372.00                       | 2.703 | 2.704  | -0.001 | 1.000  | 4663377  | 2.56         |                 | 102  | 53810  |       |
| 15 Perfluorooctanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 413.00 > 369.00                       | 2.703 | 2.703  | 0.0    | 1.000  | 5199067  | 2.37         |                 | 94.7 | 1725   |       |
| 413.00 > 169.00                       | 2.703 | 2.703  | 0.0    | 1.000  | 2638961  |              | 1.97(0.84-2.52) |      | 10215  |       |
| * 62 13C2-PFOA                        |       |        |        |        |          |              |                 |      |        |       |
| 415.00 > 370.00                       | 2.703 | 2.703  | 0.0    |        | 4808780  | 2.50         |                 |      | 58535  |       |
| 16 Perfluoroheptanesulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 449.00 > 80.00                        | 2.710 | 2.710  | 0.0    | 1.000  | 5112299  | 2.52         |                 | 106  | 31770  |       |
| 449.00 > 99.00                        | 2.710 | 2.710  | 0.0    | 1.000  | 1316724  |              | 3.88(1.94-5.82) |      | 15328  |       |
| D 18 13C4 PFOS                        |       |        |        |        |          |              |                 |      |        |       |
| 503.00 > 80.00                        | 3.071 | 3.074  | -0.003 | 1.000  | 3644600  | 2.23         |                 | 93.2 | 20907  |       |
| 20 Perfluorononanoic acid             |       |        |        |        |          |              |                 |      |        |       |
| 463.00 > 419.00                       | 3.071 | 3.071  | 0.0    | 1.000  | 4068825  | 2.46         |                 | 98.3 | 12653  |       |
| 463.00 > 169.00                       | 3.071 | 3.071  | 0.0    | 1.000  | 939434   |              | 4.33(1.90-5.69) |      | 22141  |       |
| 17 Perfluorooctane sulfonic acid      |       |        |        |        |          |              |                 |      |        |       |
| 499.00 > 80.00                        | 3.071 | 3.071  | 0.0    | 1.000  | 3893746  | 2.17         |                 | 93.6 | 15175  |       |
| 499.00 > 99.00                        | 3.071 | 3.071  | 0.0    | 1.000  | 849937   |              | 4.58(2.31-6.93) |      | 13089  |       |
| D 19 13C5 PFNA                        |       |        |        |        |          |              |                 |      |        |       |
| 468.00 > 423.00                       | 3.071 | 3.081  | -0.010 | 1.000  | 3907369  | 2.62         |                 | 105  | 59176  |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |        |        |        |          |              |                 |      |        |       |
| 531.00 > 351.00                       | 3.279 | 3.279  | 0.0    | 1.000  | 6651243  | NC           |                 |      | 110600 |       |
| D 21 13C8 FOSA                        |       |        |        |        |          |              |                 |      |        |       |
| 506.00 > 78.00                        | 3.405 | 3.407  | -0.002 | 1.000  | 4715302  | 2.20         |                 | 88.1 | 35779  |       |
| 22 Perfluorooctane Sulfonamide        |       |        |        |        |          |              |                 |      |        |       |
| 498.00 > 78.00                        | 3.405 | 3.405  | 0.0    | 1.000  | 4857634  | 2.65         |                 | 106  | 63277  |       |
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |        |       |
| 549.00 > 80.00                        | 3.415 | 3.415  | 0.0    | 1.000  | 2783050  | 2.41         |                 | 100  | 33470  |       |
| 549.00 > 99.00                        | 3.415 | 3.415  | 0.0    | 1.000  | 1037402  |              | 2.68(1.33-3.97) |      | 24983  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|-------|-------|
| D 26 M2-8:2FTS                        |       |           |           |           |          |                 |                  |      |       |       |
| 529.00 > 81.00                        | 3.424 | 3.426     | -0.002    | 1.000     | 1107523  | 2.29            |                  | 95.6 | 19073 |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                  |      |       |       |
| 527.00 > 507.00                       | 3.424 | 3.424     | 0.0       | 1.000     | 1391462  | 2.23            |                  | 93.1 | 37367 |       |
| D 23 13C2 PFDA                        |       |           |           |           |          |                 |                  |      |       |       |
| 515.00 > 470.00                       | 3.433 | 3.435     | -0.002    | 1.000     | 3120697  | 2.46            |                  | 98.5 | 46386 |       |
| 24 Perfluorodecanoic acid             |       |           |           |           |          |                 |                  |      |       |       |
| 513.00 > 469.00                       | 3.433 | 3.433     | 0.0       | 1.000     | 3151684  | 2.60            |                  | 104  | 16055 |       |
| 513.00 > 169.00                       | 3.433 | 3.433     | 0.0       | 1.000     | 549706   |                 | 5.73(2.36-7.09)  |      | 21258 |       |
| D 27 d3-NMeFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 573.00 > 419.00                       | 3.584 | 3.585     | -0.001    | 1.000     | 1954244  | 2.80            |                  | 112  | 14387 |       |
| 28 N-methyl perfluorooctane sulfonami |       |           |           |           |          |                 |                  |      |       |       |
| 570.00 > 419.00                       | 3.584 | 3.584     | 0.0       | 1.000     | 2031749  | 2.56            |                  | 102  | 14123 |       |
| 29 Perfluorodecane Sulfonic acid      |       |           |           |           |          |                 |                  |      |       |       |
| 599.00 > 80.00                        | 3.738 | 3.738     | 0.0       | 1.000     | 2410199  | 2.35            |                  | 97.7 | 18894 |       |
| 599.00 > 99.00                        | 3.738 | 3.738     | 0.0       | 1.000     | 819137   |                 | 2.94(1.39-4.16)  |      | 18374 |       |
| D 32 d5-NEtFOSAA                      |       |           |           |           |          |                 |                  |      |       |       |
| 589.00 > 419.00                       | 3.749 | 3.761     | -0.012    | 1.000     | 1975109  | 2.75            |                  | 110  | 23246 |       |
| D 30 13C2 PFUnA                       |       |           |           |           |          |                 |                  |      |       |       |
| 565.00 > 520.00                       | 3.760 | 3.761     | -0.001    | 1.000     | 2554369  | 2.55            |                  | 102  | 50947 |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |           |           |           |          |                 |                  |      |       |       |
| 584.00 > 419.00                       | 3.760 | 3.760     | 0.0       | 1.003     | 1840674  | 2.48            |                  | 99.1 | 32873 |       |
| 31 Perfluoroundecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 563.00 > 519.00                       | 3.760 | 3.760     | 0.0       | 1.000     | 2046730  | 2.40            |                  | 95.9 | 12760 |       |
| 563.00 > 169.00                       | 3.760 | 3.760     | 0.0       | 1.000     | 501330   |                 | 4.08(2.12-6.36)  |      | 15149 |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |           |           |           |          |                 |                  |      |       |       |
| 631.00 > 451.00                       | 3.917 | 3.917     | 0.0       | 1.000     | 10447311 | NC              |                  |      | 89654 |       |
| D 36 13C2 PFDoA                       |       |           |           |           |          |                 |                  |      |       |       |
| 615.00 > 570.00                       | 4.050 | 4.060     | -0.010    | 1.000     | 2798033  | 2.59            |                  | 104  | 24849 |       |
| 37 Perfluorododecanoic acid           |       |           |           |           |          |                 |                  |      |       |       |
| 613.00 > 569.00                       | 4.050 | 4.050     | 0.0       | 1.000     | 2973457  | 2.55            |                  | 102  | 3008  |       |
| 613.00 > 169.00                       | 4.050 | 4.050     | 0.0       | 1.000     | 722097   |                 | 4.12(2.13-6.40)  |      | 11218 |       |
| 41 Perfluorotridecanoic acid          |       |           |           |           |          |                 |                  |      |       |       |
| 663.00 > 619.00                       | 4.318 | 4.318     | 0.0       | 1.000     | 3336410  | 2.61            |                  | 104  | 3084  |       |
| 663.00 > 169.00                       | 4.318 | 4.318     | 0.0       | 1.000     | 1014456  |                 | 3.29(1.25-3.76)  |      | 11124 |       |
| D 43 13C2-PFTeDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 715.00 > 670.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 3375525  | 2.55            |                  | 102  | 15257 |       |
| 42 Perfluorotetradecanoic acid        |       |           |           |           |          |                 |                  |      |       |       |
| 713.00 > 169.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 854741   | 2.51            |                  | 100  | 9420  |       |
| 713.00 > 219.00                       | 4.553 | 4.553     | 0.0       | 1.000     | 609395   |                 | 1.40(0.71-2.13)  |      | 10340 |       |
| D 44 13C2-PFHxDA                      |       |           |           |           |          |                 |                  |      |       |       |
| 815.00 > 770.00                       | 4.967 | 4.975     | -0.009    | 1.000     | 6583042  | 2.93            |                  | 117  | 14533 |       |
| 45 Perfluorohexadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 813.00 > 769.00                       | 4.967 | 4.967     | 0.0       | 1.000     | 6203103  | NC              |                  |      | 2269  |       |
| 813.00 > 169.00                       | 4.967 | 4.967     | 0.0       | 1.000     | 969770   |                 | 6.40(2.86-8.58)  |      | 5982  |       |
| 46 Perfluorooctadecanoic acid         |       |           |           |           |          |                 |                  |      |       |       |
| 913.00 > 869.00                       | 5.329 | 5.329     | 0.0       | 1.000     | 6845009  | NC              |                  |      | 1785  |       |
| 913.00 > 169.00                       | 5.329 | 5.329     | 0.0       | 1.000     | 819919   |                 | 8.35(3.83-11.48) |      | 5525  |       |

[QC Flag Legend](#)

Processing Flags

NC - Not Calibrated

[Reagents:](#)

LCPFC\_LL5\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58852.b\2018.05.28LLB\_016.d

Injection Date: 29-May-2018 04:35:29

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

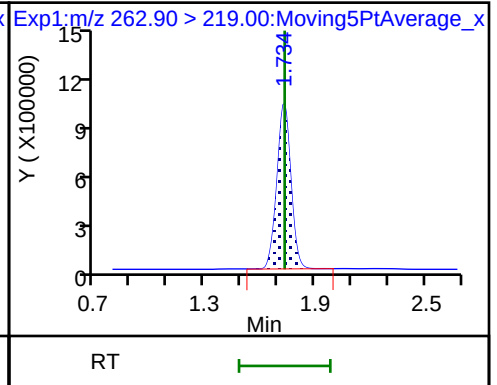
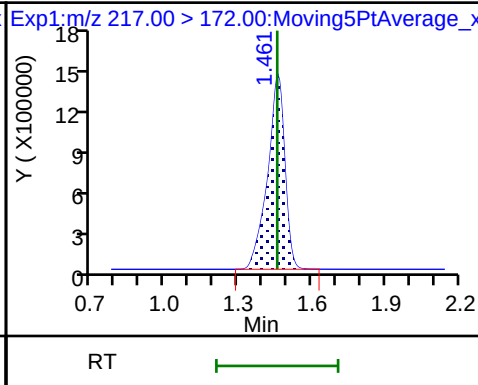
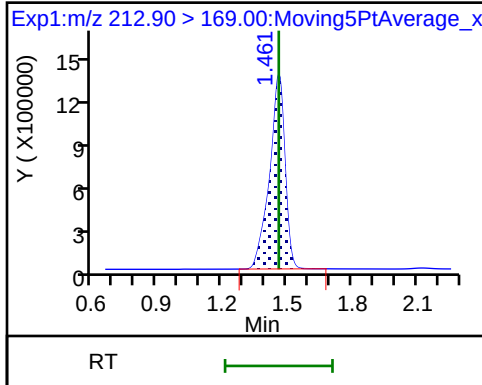
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid

## D 1 13C4 PFBA

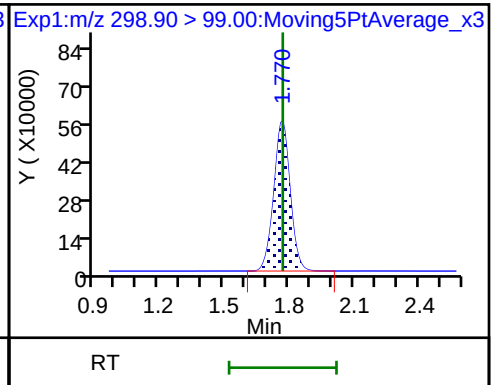
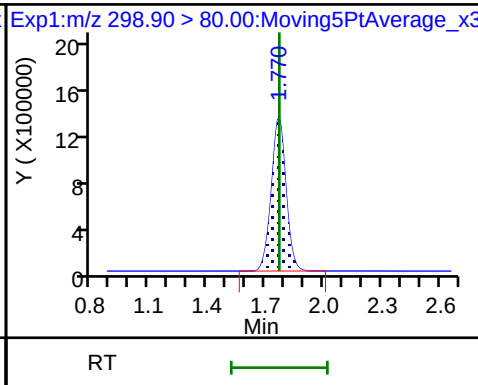
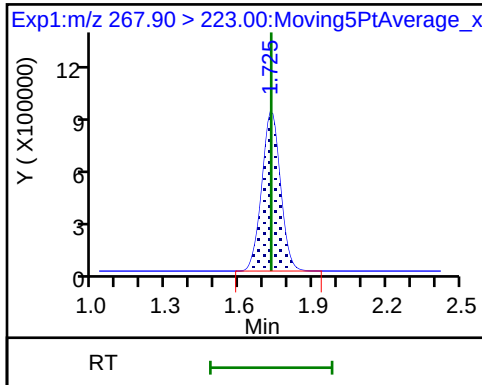
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

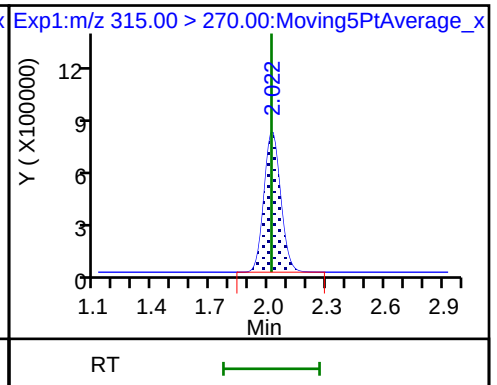
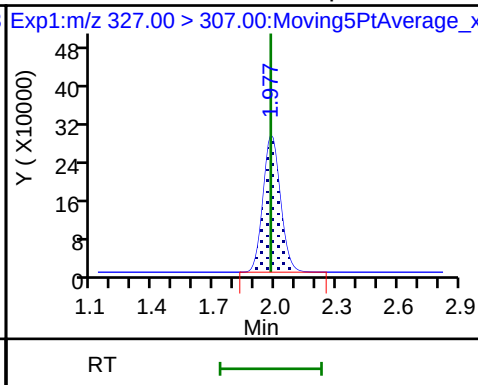
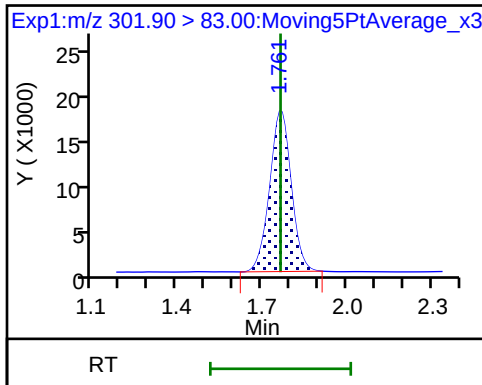
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexa

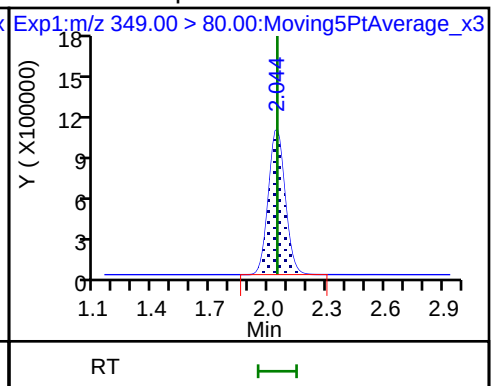
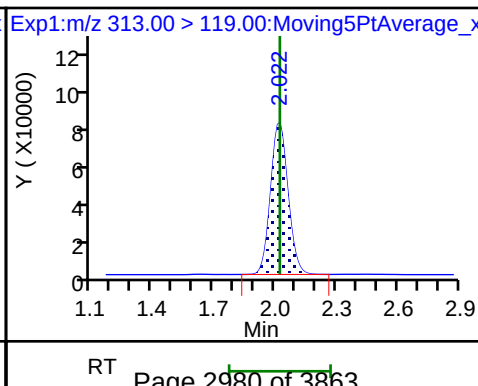
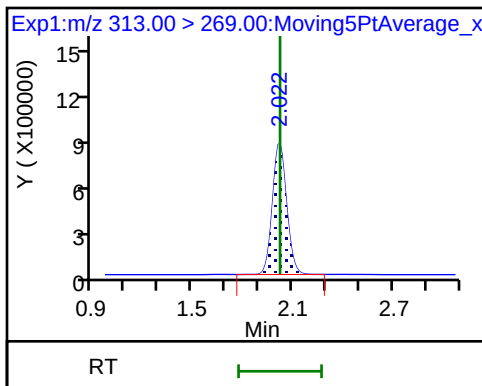
## De 7 13C2 PFHxA



## 6 Perfluorohexanoic acid

## 6 Perfluorohexanoic acid

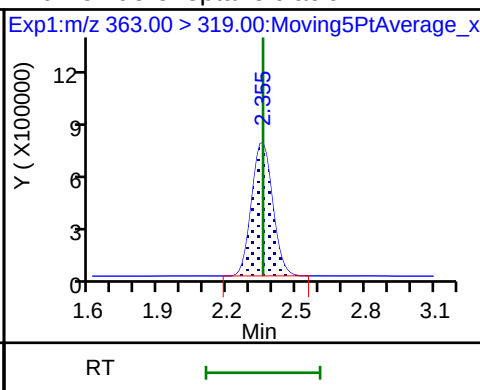
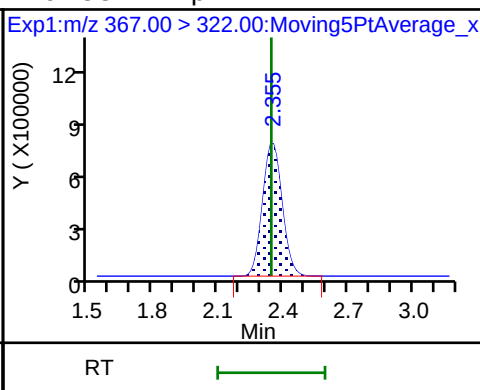
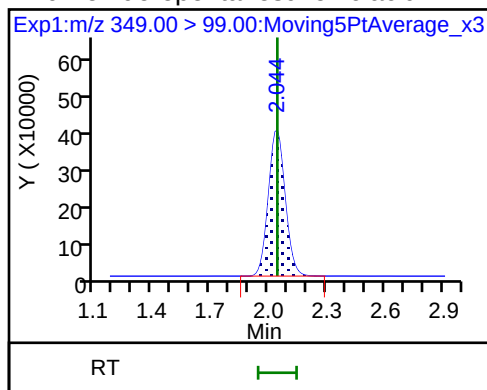
## 70 Perfluoropentanesulfonic acid



## 70 Perfluoropentanesulfonic acid

## D 9 13C4-PFHpA

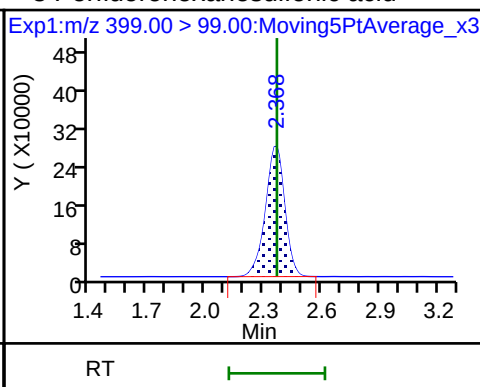
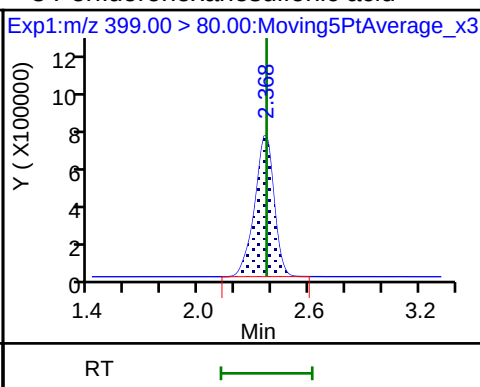
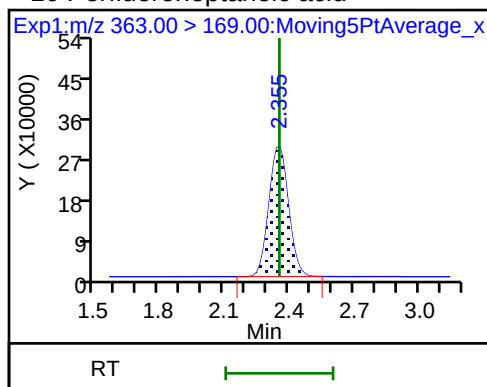
## 10 Perfluoroheptanoic acid



## 10 Perfluoroheptanoic acid

## 8 Perfluorohexanesulfonic acid

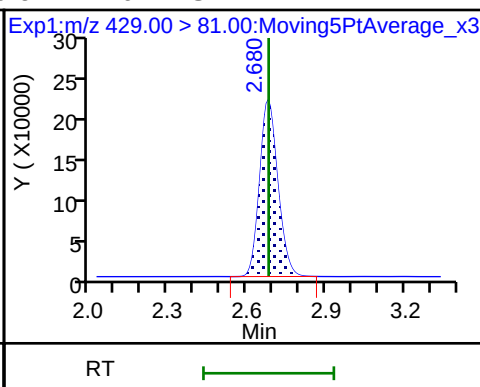
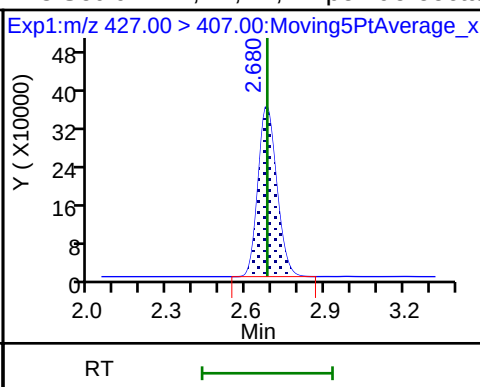
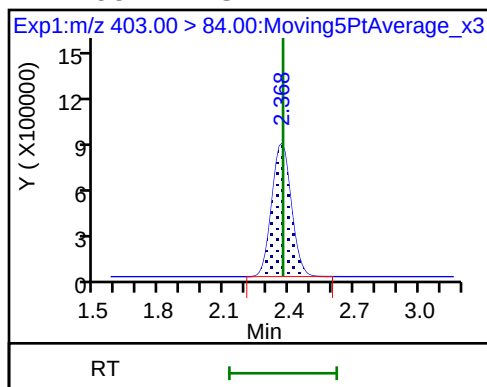
## 8 Perfluorohexanesulfonic acid



## D 11 18O2 PFHxS

## 13 Sodium 1H,1H,2H,2H-perfluorooctadecanoate

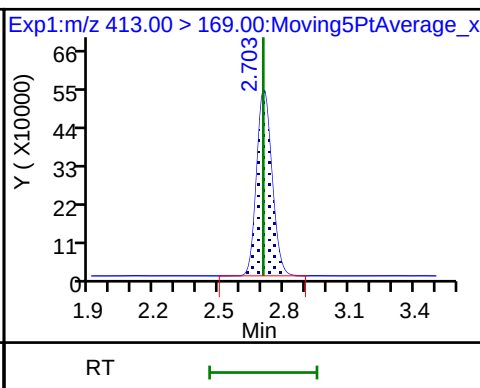
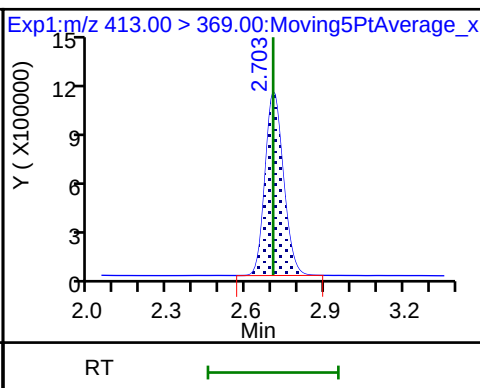
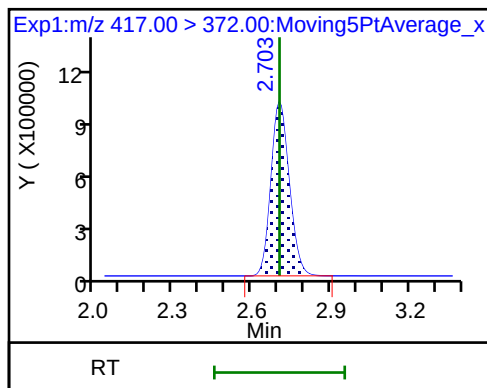
## D 12 M2-6:2FTS



## D 14 13C4 PFOA

## 15 Perfluorooctanoic acid

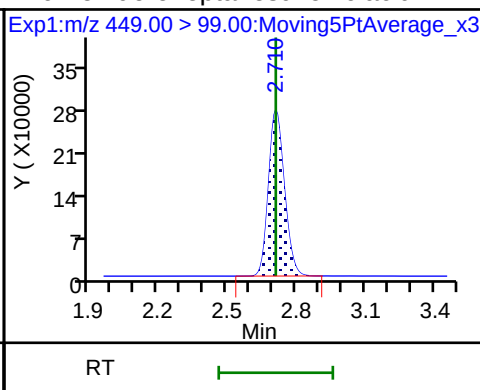
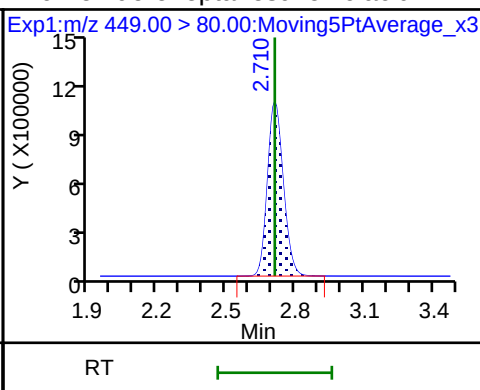
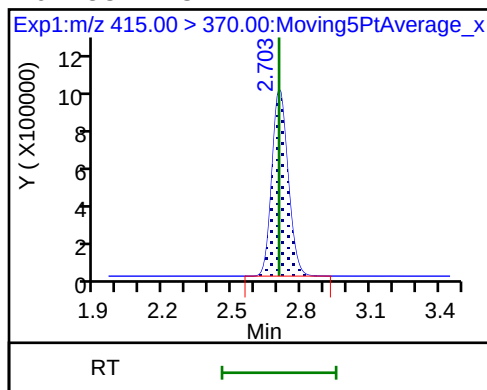
## 15 Perfluorooctanoic acid



\* 62 13C2-PFOA

16 Perfluoroheptanesulfonic acid

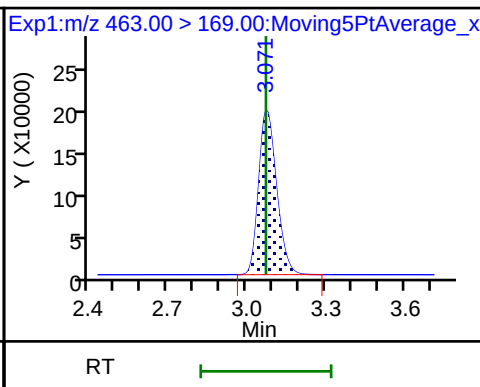
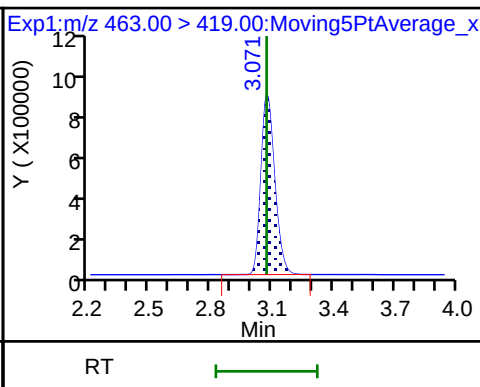
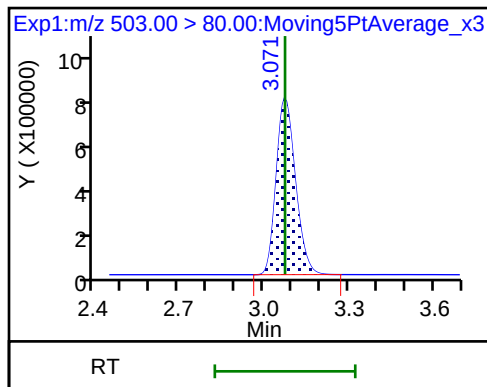
16 Perfluoroheptanesulfonic acid



D 18 13C4 PFOS

20 Perfluorononanoic acid

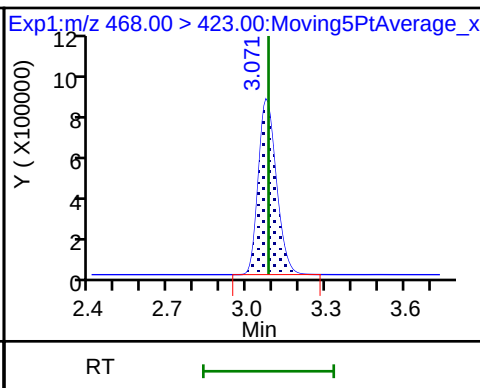
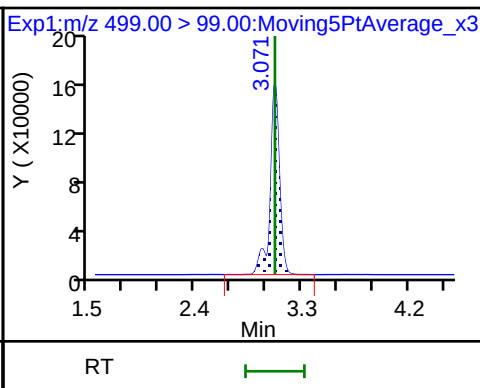
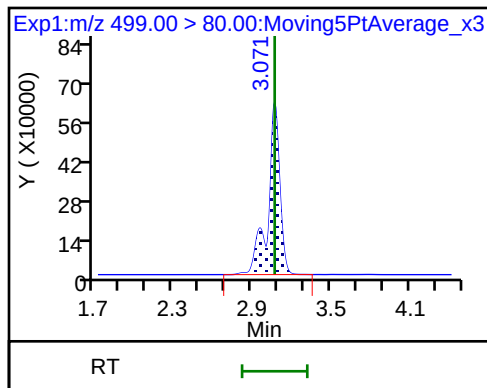
20 Perfluorononanoic acid



17 Perfluorooctane sulfonic acid

17 Perfluorooctane sulfonic acid

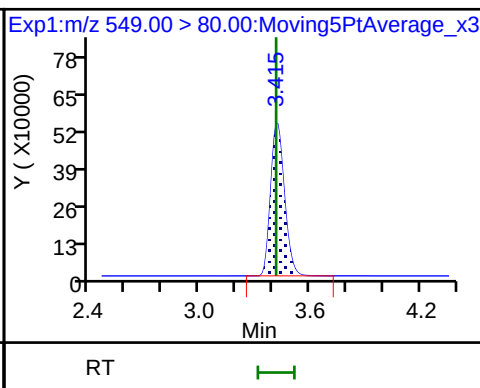
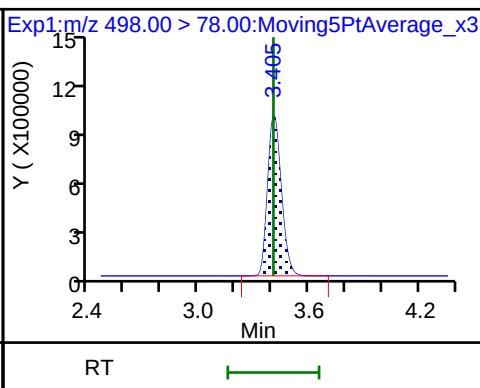
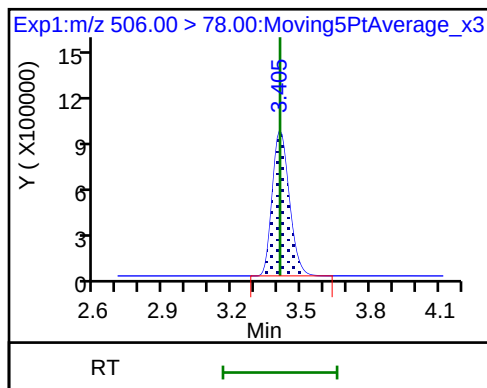
D 19 13C5 PFNA



D 21 13C8 FOSA

22 Perfluorooctane Sulfonamide

68 Perfluorononanesulfonic acid



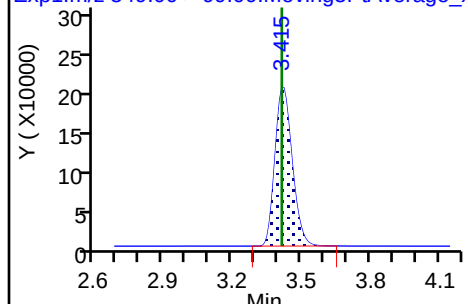


68 Perfluorononanesulfonic acid

D 26 M2-8:2FTS

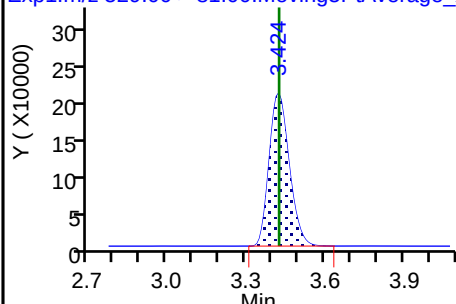
25 Sodium 1H,1H,2H,2H-perfluorodecane

Exp1:m/z 549.00 &gt; 99.00:Moving5PtAverage\_x3



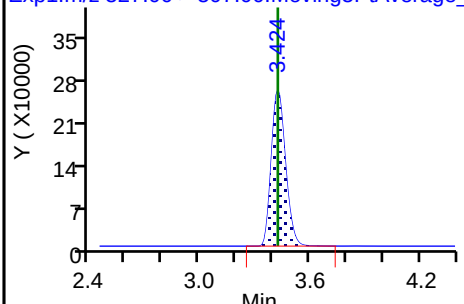
RT

Exp1:m/z 529.00 &gt; 81.00:Moving5PtAverage\_x3



RT

Exp1:m/z 527.00 &gt; 507.00:Moving5PtAverage\_x3



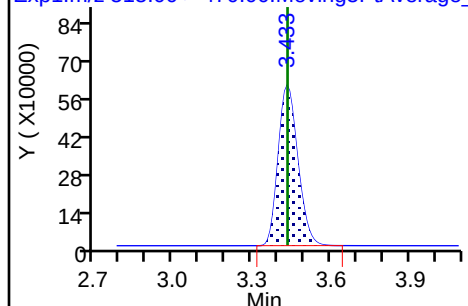
RT

D 23 13C2 PFDA

24 Perfluorodecanoic acid

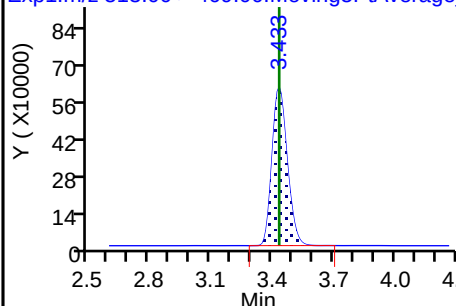
24 Perfluorodecanoic acid

Exp1:m/z 515.00 &gt; 470.00:Moving5PtAverage\_x3



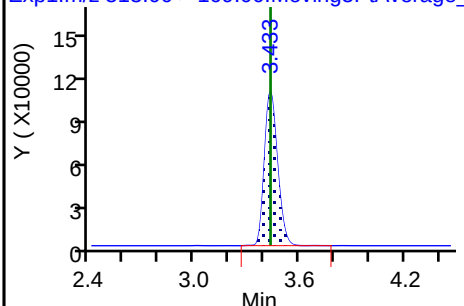
RT

Exp1:m/z 513.00 &gt; 469.00:Moving5PtAverage\_x3



RT

Exp1:m/z 513.00 &gt; 169.00:Moving5PtAverage\_x3



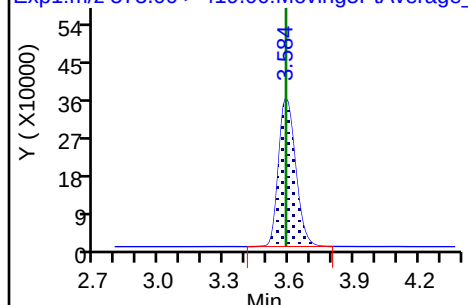
RT

D 27 d3-NMeFOSAA

28 N-methyl perfluorooctane sulfonami

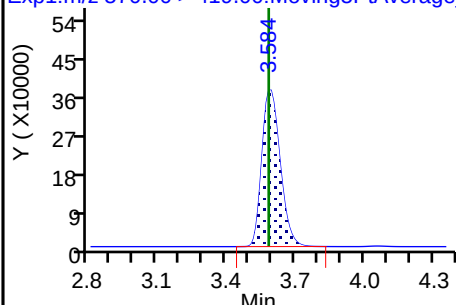
29 Perfluorodecane Sulfonic acid

Exp1:m/z 573.00 &gt; 419.00:Moving5PtAverage\_x3



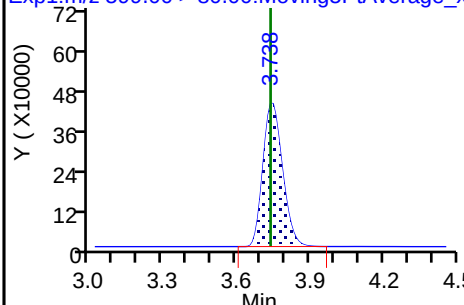
RT

Exp1:m/z 570.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 599.00 &gt; 80.00:Moving5PtAverage\_x3



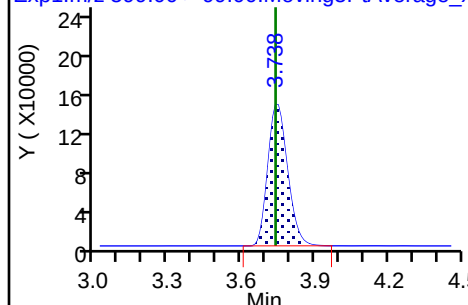
RT

29 Perfluorodecane Sulfonic acid

D 32 d5-NEtFOSAA

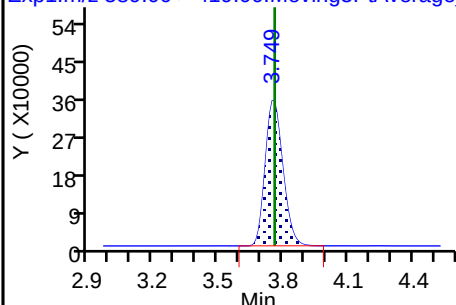
D 30 13C2 PFUnA

Exp1:m/z 599.00 &gt; 99.00:Moving5PtAverage\_x3



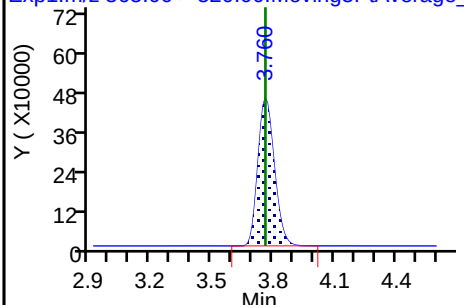
RT

Exp1:m/z 589.00 &gt; 419.00:Moving5PtAverage\_x3



RT

Exp1:m/z 565.00 &gt; 520.00:Moving5PtAverage\_x3

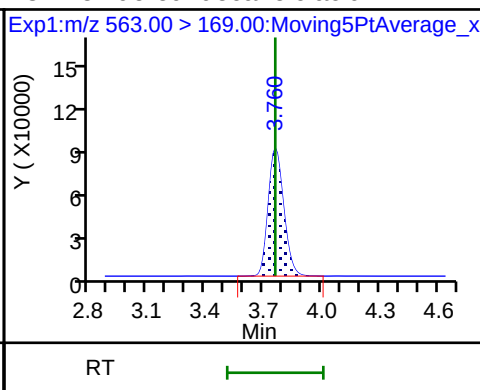
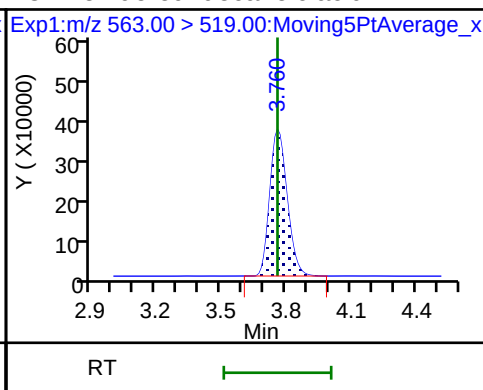
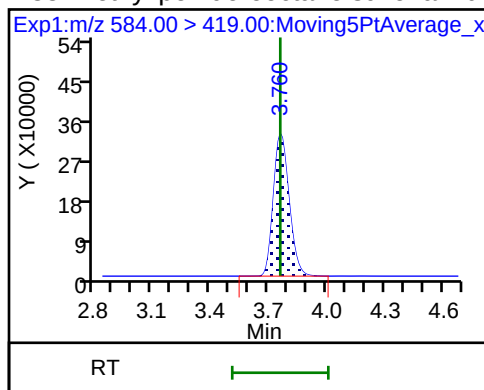


RT

33 N-ethyl perfluorooctane sulfonamid

31 Perfluoroundecanoic acid

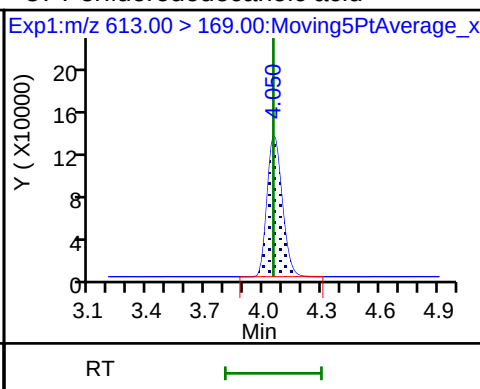
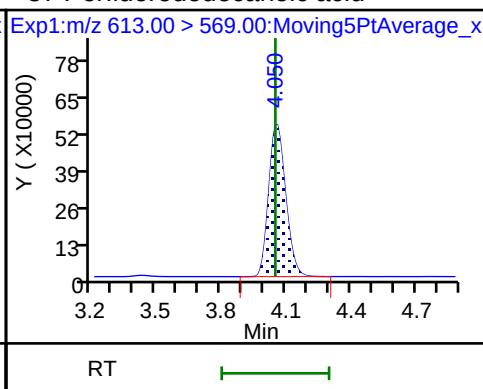
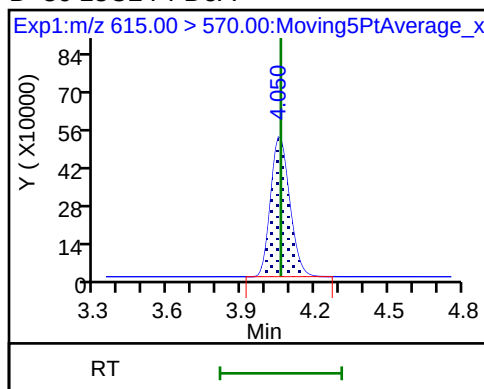
31 Perfluoroundecanoic acid



D 36 13C2 PFDaA

37 Perfluorododecanoic acid

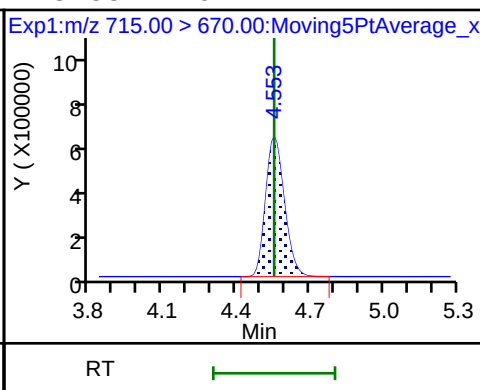
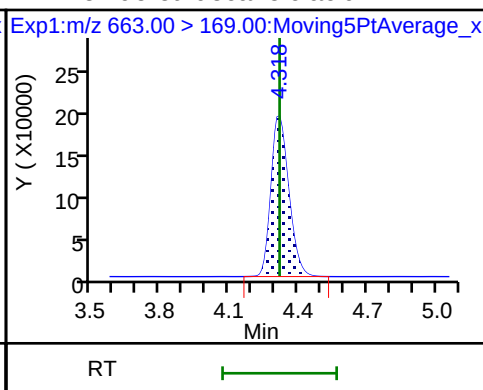
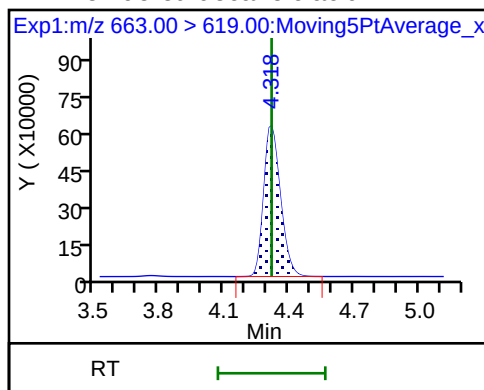
37 Perfluorododecanoic acid



41 Perfluorotridecanoic acid

41 Perfluorotridecanoic acid

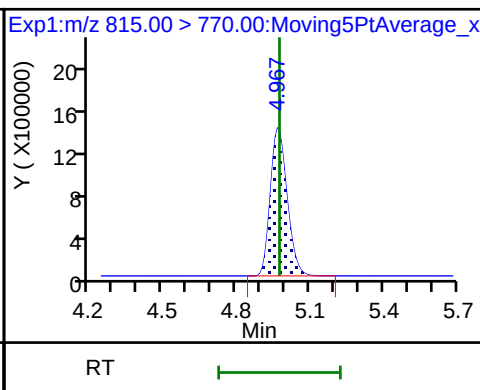
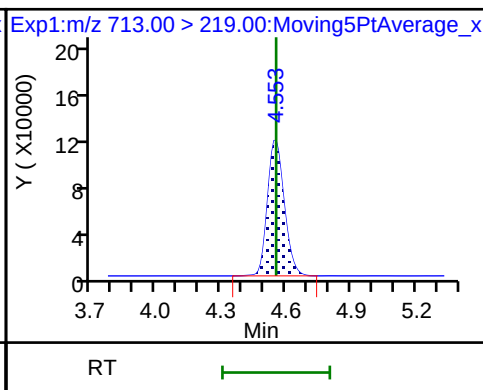
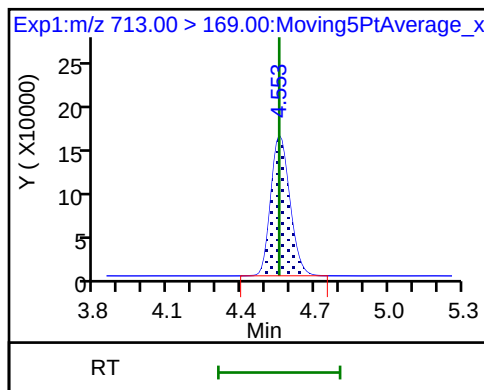
D 43 13C2-PFTeDA



42 Perfluorotetradecanoic acid

42 Perfluorotetradecanoic acid

D 44 13C2-PFHxDA





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1

SDG No.: \_\_\_\_\_

Lab Sample ID: CCVL 320-225899/2 Calibration Date: 05/29/2018 07:12

Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13

GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39

Lab File ID: 2018.05.28LLB\_004.d Conc. Units: ng/mL

| ANALYTE                                                    | CURVE TYPE | AVE RRF | RRF    | MIN RRF | CALC AMOUNT | SPIKE AMOUNT | %D    | MAX %D |
|------------------------------------------------------------|------------|---------|--------|---------|-------------|--------------|-------|--------|
| Perfluorobutanoic acid (PFBA)                              | AveID      | 0.9298  | 0.9926 |         | 0.0534      | 0.0500       | 6.7   | 30.0   |
| Perfluoropentanoic acid (PFPeA)                            | AveID      | 1.181   | 1.317  |         | 0.0558      | 0.0500       | 11.6  | 30.0   |
| Perfluorobutanesulfonic acid (PFBS)                        | AveID      | 78.09   | 83.93  |         | 0.0475      | 0.0442       | 7.5   | 30.0   |
| 4:2 FTS                                                    | AveID      | 16.57   | 16.58  |         | 0.400       | 0.0467       | 0.0   | 30.0   |
| Perfluorohexanoic acid (PFHxA)                             | AveID      | 1.028   | 1.052  |         | 0.0512      | 0.0500       | 2.4   | 30.0   |
| Perfluoropentanesulfonic acid                              | AveID      | 69.55   | 68.07  |         | 0.0459      | 0.0469       | -2.1  | 30.0   |
| Perfluoroheptanoic acid (PFHpA)                            | AveID      | 1.056   | 1.000  |         | 0.0474      | 0.0500       | -5.3  | 30.0   |
| Perfluorohexanesulfonic acid (PFHxS)                       | AveID      | 1.127   | 1.281  |         | 0.0517      | 0.0455       | 13.7  | 30.0   |
| 6:2FTS                                                     | L2ID       |         | 1.861  |         | 0.400       | 0.0474       | -15.6 | 30.0   |
| Perfluorooctanoic acid (PFOA)                              | AveID      | 1.177   | 1.159  |         | 0.0493      | 0.0500       | -1.5  | 30.0   |
| Perfluoroheptanesulfonic Acid (PFHpS)                      | AveID      | 1.332   | 1.296  |         | 0.0463      | 0.0476       | -2.7  | 30.0   |
| Perfluorononanoic acid (PFNA)                              | AveID      | 1.059   | 1.033  |         | 0.0488      | 0.0500       | -2.5  | 30.0   |
| Perfluorooctanesulfonic acid (PFOS)                        | AveID      | 1.176   | 1.309  |         | 0.0517      | 0.0464       | 11.4  | 30.0   |
| Perfluorooctane Sulfonamide (PFOSA)                        | AveID      | 0.9736  | 1.058  |         | 0.0544      | 0.0500       | 8.7   | 30.0   |
| Perfluorononanesulfonic acid                               | AveID      | 0.7575  | 0.7938 |         | 0.0503      | 0.0480       | 4.8   | 30.0   |
| 8:2FTS                                                     | AveID      | 1.349   | 1.273  |         | 0.400       | 0.0479       | -5.7  | 30.0   |
| Perfluorodecanoic acid (PFDA)                              | AveID      | 0.9722  | 0.9501 |         | 0.0489      | 0.0500       | -2.3  | 30.0   |
| N-methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA) | AveID      | 1.015   | 0.9268 |         | 0.400       | 0.0500       | -8.7  | 30.0   |
| Perfluorodecanesulfonic acid (PFDS)                        | AveID      | 0.6714  | 0.6513 |         | 0.0468      | 0.0482       | -3.0  | 30.0   |
| N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)  | AveID      | 0.9400  | 0.8591 |         | 0.400       | 0.0500       | -8.6  | 30.0   |
| Perfluoroundecanoic acid (PFUnA)                           | AveID      | 0.8352  | 0.8710 |         | 0.0521      | 0.0500       | 4.3   | 30.0   |
| Perfluorododecanoic acid (PFDoA)                           | AveID      | 1.044   | 1.014  |         | 0.0486      | 0.0500       | -2.8  | 30.0   |
| Perfluorotridecanoic Acid (PFTriA)                         | AveID      | 1.144   | 1.098  |         | 0.0480      | 0.0500       | -4.0  | 30.0   |
| Perfluorotetradecanoic acid (PFTeA)                        | AveID      | 0.2525  | 0.2724 |         | 0.0539      | 0.0500       | 7.9   | 30.0   |
| 13C4 PFBA                                                  | Ave        | 1.528   | 1.300  |         | 2.13        | 2.50         | -14.9 | 30.0   |
| 13C5-PFPeA                                                 | Ave        | 0.9798  | 0.8888 |         | 2.27        | 2.50         | -9.3  | 30.0   |
| 13C3-PFBS                                                  | Ave        | 0.0221  | 0.0189 |         | 1.98        | 2.33         | -14.8 | 30.0   |
| 13C2 PFHxA                                                 | Ave        | 1.045   | 0.9549 |         | 2.29        | 2.50         | -8.6  | 30.0   |
| 13C4-PFHpA                                                 | Ave        | 1.001   | 0.8986 |         | 2.24        | 2.50         | -10.2 | 30.0   |
| 18O2 PFHxS                                                 | Ave        | 1.237   | 1.096  |         | 2.10        | 2.37         | -11.4 | 30.0   |
| M2-6:2FTS                                                  | Ave        | 0.2210  | 0.2107 |         | 2.26        | 2.38         | -4.7  | 30.0   |

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-39023-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-225899/2 Calibration Date: 05/29/2018 07:12  
 Instrument ID: A8\_N Calib Start Date: 05/15/2018 15:13  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 05/15/2018 16:39  
 Lab File ID: 2018.05.28LLB\_004.d Conc. Units: ng/mL

| ANALYTE     | CURVE<br>TYPE | AVE RRF | RRF    | MIN RRF | CALC<br>AMOUNT | SPIKE<br>AMOUNT | %D    | MAX<br>%D |
|-------------|---------------|---------|--------|---------|----------------|-----------------|-------|-----------|
| 13C4 PFOA   | Ave           | 0.9468  | 0.9255 |         | 2.44           | 2.50            | -2.3  | 30.0      |
| 13C4 PFOS   | Ave           | 0.8503  | 0.7470 |         | 2.10           | 2.39            | -12.2 | 30.0      |
| 13C5 PFNA   | Ave           | 0.7745  | 0.7414 |         | 2.39           | 2.50            | -4.3  | 30.0      |
| 13C8 FOSA   | Ave           | 1.113   | 0.9275 |         | 2.08           | 2.50            | -16.7 | 30.0      |
| M2-8:2FTS   | Ave           | 0.2515  | 0.2472 |         | 2.35           | 2.40            | -1.7  | 30.0      |
| 13C2 PFDA   | Ave           | 0.6587  | 0.6613 |         | 2.51           | 2.50            | 0.4   | 30.0      |
| d3-NMeFOSAA | Ave           | 0.3634  | 0.3850 |         | 2.65           | 2.50            | 6.0   | 30.0      |
| d5-NEtFOSAA | Ave           | 0.3729  | 0.3932 |         | 2.64           | 2.50            | 5.4   | 30.0      |
| 13C2 PFUnA  | Ave           | 0.5216  | 0.5398 |         | 2.59           | 2.50            | 3.5   | 30.0      |
| 13C2 PFDoA  | Ave           | 0.5613  | 0.5487 |         | 2.44           | 2.50            | -2.2  | 30.0      |
| 13C2-PFTeDA | Ave           | 0.6891  | 0.6558 |         | 2.38           | 2.50            | -4.8  | 30.0      |
| 13C2-PFHxDA | Ave           | 1.170   | 1.240  |         | 2.65           | 2.50            | 6.0   | 30.0      |

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_004.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 29-May-2018 07:12:08 ALS Bottle#: 21 Worklist Smp#: 2  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCVL  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-A8\_N\*sub32  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\A8\_N.m  
 Limit Group: LC PFC\_QSM5-1 ICAL  
 Last Update: 31-May-2018 07:57:32 Calib Date: 15-May-2018 16:39:20  
 Integrator: Picker  
 Quant Method: Isotopic Dilution Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180515-58217.b\2018.05.15LLC\_ICAL\_006.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: mongkols

Date: 31-May-2018 07:57:32

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)    | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|------------------|------|-------|-------|
| 2 Perfluorobutyric acid               |       |        |        |        |          |              |                  |      |       | M     |
| 212.90 > 169.00                       | 1.461 | 1.456  | 0.005  | 1.000  | 132880   | 0.0534       |                  | 107  | 58.9  | M     |
| D 1 13C4 PFBA                         |       |        |        |        |          |              |                  |      |       |       |
| 217.00 > 172.00                       | 1.461 | 1.458  | 0.003  | 1.000  | 6693874  | 2.13         |                  | 85.1 | 34213 |       |
| 4 Perfluoropentanoic acid             |       |        |        |        |          |              |                  |      |       |       |
| 262.90 > 219.00                       | 1.734 | 1.725  | 0.009  | 1.000  | 120561   | 0.0558       |                  | 112  | 69.6  |       |
| D 3 13C5-PFPeA                        |       |        |        |        |          |              |                  |      |       |       |
| 267.90 > 223.00                       | 1.734 | 1.730  | 0.004  | 0.563  | 4575577  | 2.27         |                  | 90.7 | 58560 |       |
| 5 Perfluorobutanesulfonic acid        |       |        |        |        |          |              |                  |      |       |       |
| 298.90 > 80.00                        | 1.770 | 1.761  | 0.009  | 1.000  | 144175   | 0.0475       |                  | 107  | 727   |       |
| 298.90 > 99.00                        | 1.770 | 1.761  | 0.009  | 1.000  | 57522    |              | 2.51(1.25-3.74)  |      | 560   |       |
| D 47 13C3-PFBS                        |       |        |        |        |          |              |                  |      |       |       |
| 301.90 > 83.00                        | 1.770 | 1.766  | 0.004  | 1.000  | 90363    | 1.98         |                  | 85.2 | 825   |       |
| 61 Sodium 1H,1H,2H,2H-perfluorohexane |       |        |        |        |          |              |                  |      |       |       |
| 327.00 > 307.00                       | 1.988 | 1.977  | 0.011  | 1.000  | 30087    | 0.0467       |                  | 100  | 1660  |       |
| D 60 M2-4:2FTS                        |       |        |        |        |          |              |                  |      |       |       |
| 329.00 > 81.00                        | 1.988 | 1.982  | 0.006  | 1.000  | 740470   | NC           |                  |      | 7497  |       |
| D 7 13C2 PFHxA                        |       |        |        |        |          |              |                  |      |       |       |
| 315.00 > 270.00                       | 2.022 | 2.016  | 0.006  | 1.000  | 4916329  | 2.29         |                  | 91.4 | 94217 |       |
| 6 Perfluorohexanoic acid              |       |        |        |        |          |              |                  |      |       | M     |
| 313.00 > 269.00                       | 2.022 | 2.016  | 0.006  | 1.000  | 103479   | 0.0512       |                  | 102  | 145   | M     |
| 313.00 > 119.00                       | 2.022 | 2.016  | 0.006  | 1.000  | 10791    |              | 9.59(5.03-15.10) |      | 118   |       |
| 70 Perfluoropentanesulfonic acid      |       |        |        |        |          |              |                  |      |       |       |
| 349.00 > 80.00                        | 2.045 | 2.038  | 0.007  | 1.000  | 124085   | 0.0459       |                  | 97.9 | 1418  |       |
| 349.00 > 99.00                        | 2.045 | 2.038  | 0.007  | 1.000  | 46934    |              | 2.64(1.36-4.07)  |      | 758   |       |
| D 64 13C3 HFPO-DA                     |       |        |        |        |          |              |                  |      |       |       |
| 332.10 > 287.00                       | 2.124 | 2.117  | 0.007  | 1.000  | 243044   | NC           |                  |      | 4456  |       |

| Signal                                | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|-----------|-----------|-----------|----------|-----------------|-----------------|------|-------|-------|
| 67 Perfluoro(2-propoxypropanoic) acid |       |           |           |           |          |                 |                 |      |       |       |
| 329.10 > 285.00                       | 2.124 | 2.118     | 0.006     | 1.000     | 18678    | NC              |                 |      | 126   |       |
| D 9 13C4-PFHpA                        |       |           |           |           |          |                 |                 |      |       |       |
| 367.00 > 322.00                       | 2.355 | 2.347     | 0.008     | 1.000     | 4625997  | 2.24            |                 | 89.8 | 53212 |       |
| 10 Perfluoroheptanoic acid            |       |           |           |           |          |                 |                 |      |       |       |
| 363.00 > 319.00                       | 2.355 | 2.347     | 0.008     | 1.000     | 92551    | 0.0474          |                 | 94.7 | 120   |       |
| 363.00 > 169.00                       | 2.355 | 2.347     | 0.008     | 1.000     | 33591    |                 | 2.76(1.13-3.40) |      | 202   |       |
| D 11 18O2 PFHxS                       |       |           |           |           |          |                 |                 |      |       |       |
| 403.00 > 84.00                        | 2.368 | 2.360     | 0.008     | 1.000     | 5339987  | 2.10            |                 | 88.6 | 45694 |       |
| 8 Perfluorohexanesulfonic acid        |       |           |           |           |          |                 |                 |      |       |       |
| 399.00 > 80.00                        | 2.368 | 2.360     | 0.008     | 1.000     | 131604   | 0.0517          |                 | 114  | 615   |       |
| 399.00 > 99.00                        | 2.368 | 2.360     | 0.008     | 1.000     | 43535    |                 | 3.02(1.50-4.49) |      | 304   |       |
| 65 Adona                              |       |           |           |           |          |                 |                 |      |       |       |
| 377.00 > 251.00                       | 2.403 | 2.397     | 0.006     | 1.000     | 288190   | NC              |                 |      | 4888  |       |
| 377.00 > 85.00                        | 2.403 | 2.397     | 0.006     | 1.000     | 171063   |                 | 1.68(0.84-2.53) |      | 2850  |       |
| 13 Sodium 1H,1H,2H,2H-perfluorooctane |       |           |           |           |          |                 |                 |      |       |       |
| 427.00 > 407.00                       | 2.688 | 2.675     | 0.013     | 1.000     | 38264    | 0.0400          |                 | 84.4 | 792   |       |
| D 12 M2-6:2FTS                        |       |           |           |           |          |                 |                 |      |       |       |
| 429.00 > 81.00                        | 2.688 | 2.684     | 0.004     | 1.000     | 1030364  | 2.26            |                 | 95.3 | 13908 |       |
| * 62 13C2-PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 415.00 > 370.00                       | 2.711 | 2.705     | 0.006     |           | 5148291  | 2.50            |                 |      | 57701 |       |
| 15 Perfluorooctanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 413.00 > 369.00                       | 2.711 | 2.705     | 0.006     | 1.000     | 110494   | 0.0493          |                 | 98.5 | 33.9  |       |
| 413.00 > 169.00                       | 2.711 | 2.705     | 0.006     | 1.000     | 56810    |                 | 1.94(0.84-2.52) |      | 234   |       |
| D 14 13C4 PFOA                        |       |           |           |           |          |                 |                 |      |       |       |
| 417.00 > 372.00                       | 2.711 | 2.706     | 0.005     | 1.000     | 4764831  | 2.44            |                 | 97.7 | 48645 |       |
| 16 Perfluoroheptanesulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 449.00 > 80.00                        | 2.718 | 2.713     | 0.005     | 1.000     | 94861    | 0.0463          |                 | 97.3 | 1035  |       |
| 449.00 > 99.00                        | 2.718 | 2.713     | 0.005     | 1.000     | 26943    |                 | 3.52(1.94-5.82) |      | 546   |       |
| 17 Perfluorooctane sulfonic acid      |       |           |           |           |          |                 |                 |      |       |       |
| 499.00 > 80.00                        | 3.081 | 3.072     | 0.009     | 1.000     | 93451    | 0.0517          |                 | 111  | 475   |       |
| 499.00 > 99.00                        | 3.081 | 3.072     | 0.009     | 1.000     | 21040    |                 | 4.44(2.31-6.93) |      | 258   |       |
| 20 Perfluorononanoic acid             |       |           |           |           |          |                 |                 |      |       |       |
| 463.00 > 419.00                       | 3.081 | 3.072     | 0.009     | 1.000     | 78861    | 0.0488          |                 | 97.5 | 204   |       |
| 463.00 > 169.00                       | 3.081 | 3.072     | 0.009     | 1.000     | 17269    |                 | 4.57(1.90-5.69) |      | 312   |       |
| D 18 13C4 PFOS                        |       |           |           |           |          |                 |                 |      |       |       |
| 503.00 > 80.00                        | 3.081 | 3.076     | 0.005     | 1.000     | 3676295  | 2.10            |                 | 87.8 | 20595 |       |
| D 19 13C5 PFNA                        |       |           |           |           |          |                 |                 |      |       |       |
| 468.00 > 423.00                       | 3.081 | 3.076     | 0.005     | 1.000     | 3817137  | 2.39            |                 | 95.7 | 67637 |       |
| 69 9-Chlorohexadecafluoro-3-oxanonane |       |           |           |           |          |                 |                 |      |       |       |
| 531.00 > 351.00                       | 3.287 | 3.280     | 0.007     | 1.000     | 129888   | NC              |                 |      | 2865  |       |
| D 21 13C8 FOSA                        |       |           |           |           |          |                 |                 |      |       |       |
| 506.00 > 78.00                        | 3.416 | 3.411     | 0.005     | 1.000     | 4775216  | 2.08            |                 | 83.3 | 46865 |       |
| 22 Perfluorooctane Sulfonamide        |       |           |           |           |          |                 |                 |      |       |       |
| 498.00 > 78.00                        | 3.416 | 3.412     | 0.004     | 1.000     | 101081   | 0.0544          |                 | 109  | 559   |       |
| 25 Sodium 1H,1H,2H,2H-perfluorodecane |       |           |           |           |          |                 |                 |      |       |       |
| 527.00 > 507.00                       | 3.435 | 3.422     | 0.013     | 1.000     | 31026    | 0.0452          |                 | 94.3 | 849   |       |

| Signal                                | RT    | EXP RT | DLT RT | REL RT | Response | Amount ng/ml | Ratio(Limits)   | %Rec | S/N   | Flags |
|---------------------------------------|-------|--------|--------|--------|----------|--------------|-----------------|------|-------|-------|
| 68 Perfluorononanesulfonic acid       |       |        |        |        |          |              |                 |      |       |       |
| 549.00 > 80.00                        | 3.426 | 3.422  | 0.004  | 1.000  | 58610    | 0.0503       |                 | 105  | 951   |       |
| 549.00 > 99.00                        | 3.426 | 3.422  | 0.004  | 1.000  | 19824    |              | 2.96(1.33-3.97) |      | 454   |       |
| D 26 M2-8:2FTS                        |       |        |        |        |          |              |                 |      |       |       |
| 529.00 > 81.00                        | 3.435 | 3.430  | 0.005  | 1.000  | 1218953  | 2.35         |                 | 98.3 | 20937 |       |
| 24 Perfluorodecanoic acid             |       |        |        |        |          |              |                 |      |       |       |
| 513.00 > 469.00                       | 3.444 | 3.431  | 0.013  | 1.000  | 64694    | 0.0489       |                 | 97.7 | 317   |       |
| 513.00 > 169.00                       | 3.444 | 3.431  | 0.013  | 1.000  | 11659    |              | 5.55(2.36-7.09) |      | 224   |       |
| D 23 13C2 PFDA                        |       |        |        |        |          |              |                 |      |       |       |
| 515.00 > 470.00                       | 3.444 | 3.439  | 0.005  | 1.000  | 3404545  | 2.51         |                 | 100  | 43738 |       |
| D 27 d3-NMeFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 573.00 > 419.00                       | 3.596 | 3.589  | 0.007  | 1.000  | 1982100  | 2.65         |                 | 106  | 24319 |       |
| 28 N-methyl perfluorooctane sulfonami |       |        |        |        |          |              |                 |      |       |       |
| 570.00 > 419.00                       | 3.596 | 3.591  | 0.005  | 1.000  | 36740    | 0.0457       |                 | 91.3 | 296   |       |
| 29 Perfluorodecane Sulfonic acid      |       |        |        |        |          |              |                 |      |       |       |
| 599.00 > 80.00                        | 3.750 | 3.744  | 0.006  | 1.000  | 48291    | 0.0468       |                 | 97.0 | 811   |       |
| 599.00 > 99.00                        | 3.750 | 3.744  | 0.006  | 1.000  | 18457    |              | 2.62(1.39-4.16) |      | 662   |       |
| D 32 d5-NEtFOSAA                      |       |        |        |        |          |              |                 |      |       |       |
| 589.00 > 419.00                       | 3.761 | 3.753  | 0.008  | 1.000  | 2024261  | 2.64         |                 | 105  | 21360 |       |
| D 30 13C2 PFUnA                       |       |        |        |        |          |              |                 |      |       |       |
| 565.00 > 520.00                       | 3.771 | 3.763  | 0.008  | 1.000  | 2778897  | 2.59         |                 | 103  | 39847 |       |
| 31 Perfluoroundecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 563.00 > 519.00                       | 3.771 | 3.765  | 0.006  | 1.000  | 48407    | 0.0521       |                 | 104  | 306   |       |
| 563.00 > 169.00                       | 3.771 | 3.765  | 0.006  | 1.000  | 13303    |              | 3.64(2.12-6.36) |      | 618   |       |
| 33 N-ethyl perfluorooctane sulfonamid |       |        |        |        |          |              |                 |      |       |       |
| 584.00 > 419.00                       | 3.771 | 3.765  | 0.006  | 1.003  | 34780    | 0.0457       |                 | 91.4 | 765   |       |
| 66 11-Chloroeicosafuoro-3-oxaundecan  |       |        |        |        |          |              |                 |      |       |       |
| 631.00 > 451.00                       | 3.928 | 3.912  | 0.016  | 1.000  | 195107   | NC           |                 |      | 4100  |       |
| D 36 13C2 PFDaA                       |       |        |        |        |          |              |                 |      |       |       |
| 615.00 > 570.00                       | 4.061 | 4.051  | 0.010  | 1.000  | 2825036  | 2.44         |                 | 97.8 | 17709 |       |
| 37 Perfluorododecanoic acid           |       |        |        |        |          |              |                 |      |       |       |
| 613.00 > 569.00                       | 4.061 | 4.055  | 0.006  | 1.000  | 57318    | 0.0486       |                 | 97.2 | 69.8  |       |
| 613.00 > 169.00                       | 4.061 | 4.055  | 0.006  | 1.000  | 15968    |              | 3.59(2.13-6.40) |      | 303   |       |
| 41 Perfluorotridecanoic acid          |       |        |        |        |          |              |                 |      |       |       |
| 663.00 > 619.00                       | 4.329 | 4.315  | 0.014  | 1.000  | 62045    | 0.0480       |                 | 96.0 | 59.7  |       |
| 663.00 > 169.00                       | 4.329 | 4.315  | 0.014  | 1.000  | 18784    |              | 3.30(1.25-3.76) |      | 242   |       |
| 42 Perfluorotetradecanoic acid        |       |        |        |        |          |              |                 |      |       |       |
| 713.00 > 169.00                       | 4.562 | 4.550  | 0.012  | 1.000  | 18395    | 0.0539       |                 | 108  | 275   |       |
| 713.00 > 219.00                       | 4.562 | 4.550  | 0.012  | 1.000  | 12353    |              | 1.49(0.71-2.13) |      | 335   |       |
| D 43 13C2-PFTeDA                      |       |        |        |        |          |              |                 |      |       |       |
| 715.00 > 670.00                       | 4.562 | 4.553  | 0.009  | 1.000  | 3376334  | 2.38         |                 | 95.2 | 18235 |       |
| D 44 13C2-PFHxDA                      |       |        |        |        |          |              |                 |      |       |       |
| 815.00 > 770.00                       | 4.974 | 4.967  | 0.007  | 1.000  | 6383014  | 2.65         |                 | 106  | 12703 |       |
| 45 Perfluorohexadecanoic acid         |       |        |        |        |          |              |                 |      |       |       |
| 813.00 > 769.00                       | 4.982 | 4.973  | 0.009  | 1.002  | 177606   | NC           |                 |      | 79.2  |       |
| 813.00 > 169.00                       | 4.982 | 4.973  | 0.009  | 1.002  | 28792    |              | 6.17(2.86-8.58) |      | 286   |       |



| Signal                        | RT    | EXP<br>RT | DLT<br>RT | REL<br>RT | Response | Amount<br>ng/ml | Ratio(Limits)    | %Rec | S/N  | Flags |
|-------------------------------|-------|-----------|-----------|-----------|----------|-----------------|------------------|------|------|-------|
| 46 Perfluorooctadecanoic acid |       |           |           |           |          |                 |                  |      |      |       |
| 913.00 > 869.00               | 5.335 | 5.326     | 0.009     | 1.000     | 128083   | NC              |                  |      | 44.5 |       |
| 913.00 > 169.00               | 5.335 | 5.326     | 0.009     | 1.000     | 15110    |                 | 8.48(3.83-11.48) |      | 217  |       |

### QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

### Reagents:

LCPFC\_LL2\_00004

Amount Added: 1.00

Units: mL

## TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180529-58853.b\2018.05.28LLB\_004.d

Injection Date: 29-May-2018 07:12:08

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

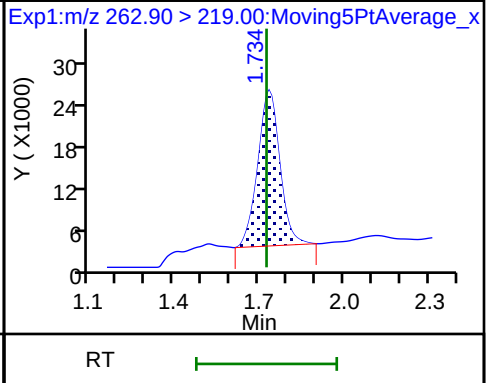
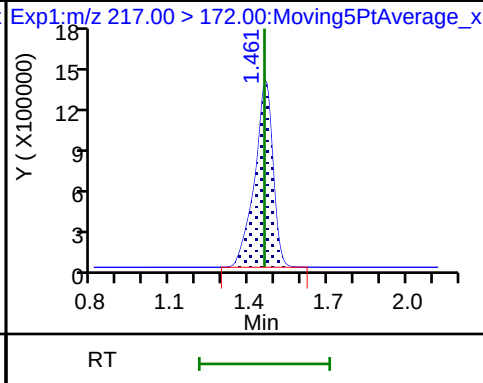
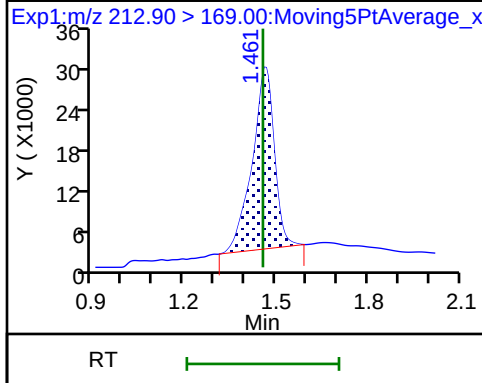
Method: A8\_N

Limit Group: LC PFC\_QSM5-1 ICAL

## 2 Perfluorobutyric acid (M)

## D 1 13C4 PFBA

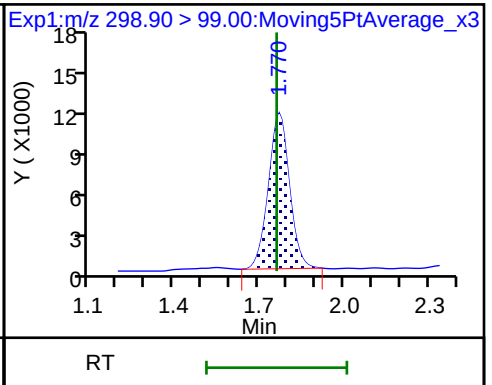
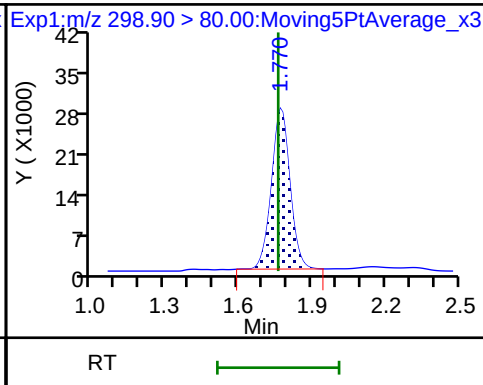
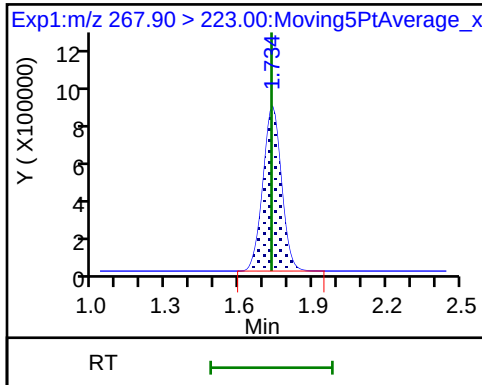
## 4 Perfluoropentanoic acid



## D 3 13C5-PFPeA

## 5 Perfluorobutanesulfonic acid

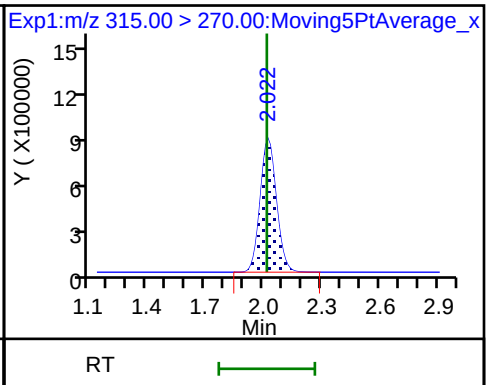
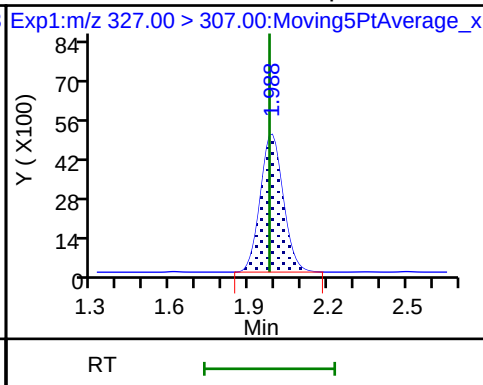
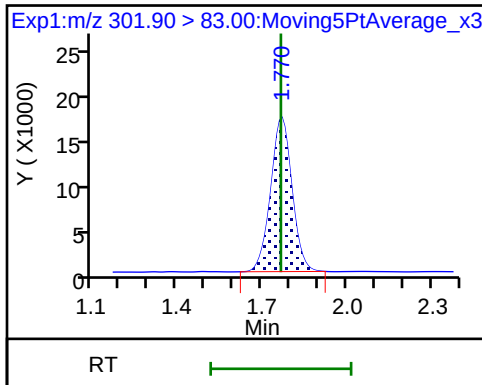
## 5 Perfluorobutanesulfonic acid



## D 47 13C3-PFBS

## 61 Sodium 1H,1H,2H,2H-perfluorohexanoate

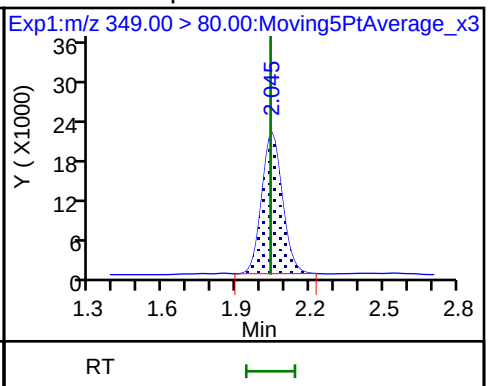
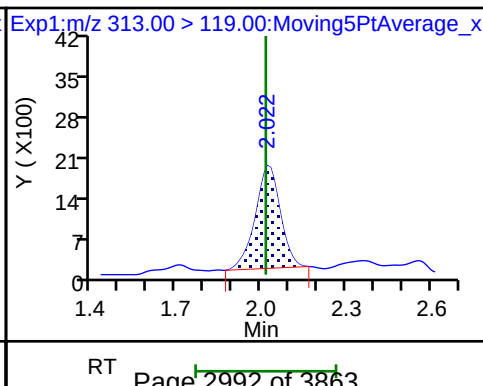
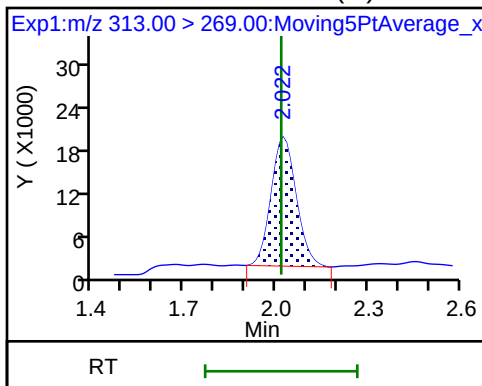
## De 7 13C2 PFHxA



## 6 Perfluorohexanoic acid (M)

## 6 Perfluorohexanoic acid

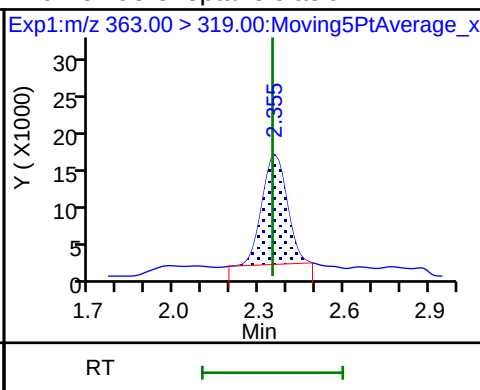
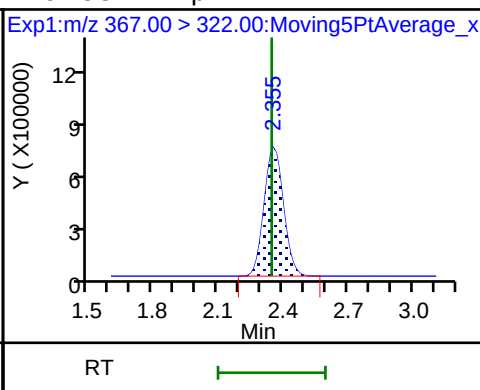
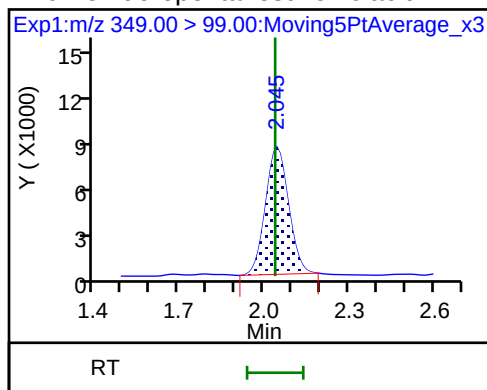
## 70 Perfluoropentanesulfonic acid



70 Perfluoropentanesulfonic acid

D 9 13C4-PFHpA

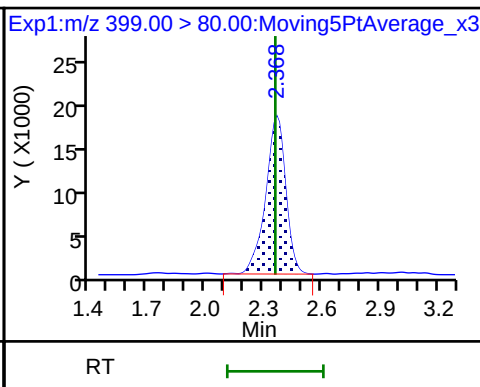
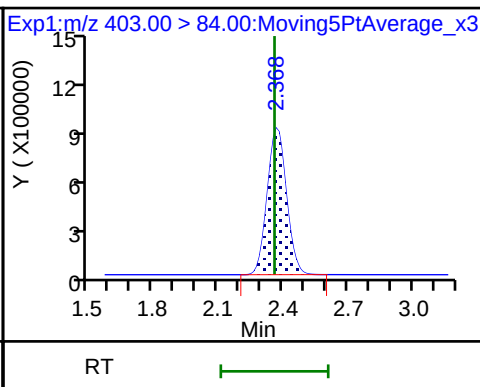
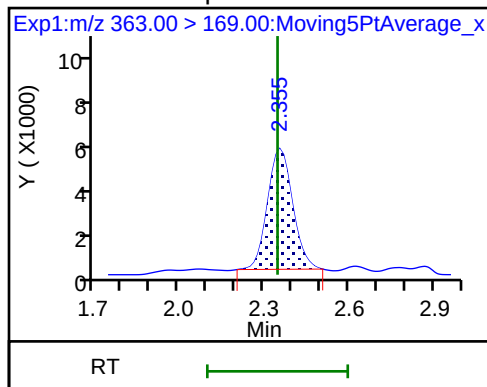
10 Perfluoroheptanoic acid



10 Perfluoroheptanoic acid

D 11 18O2 PFHxS

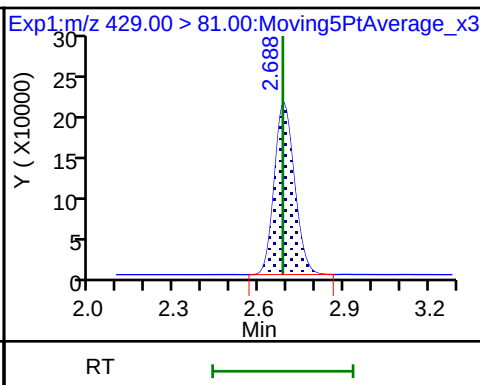
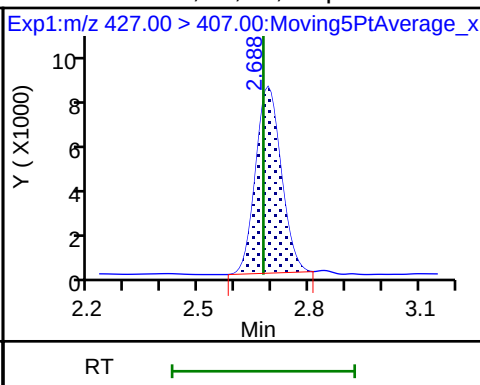
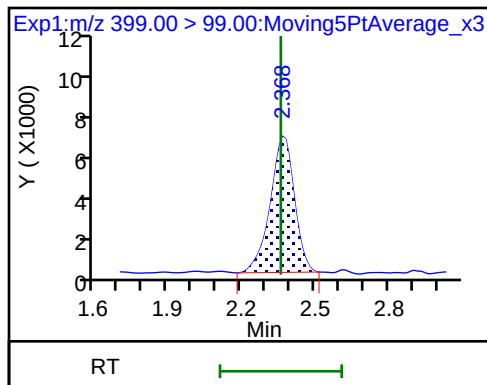
8 Perfluorohexanesulfonic acid



8 Perfluorohexanesulfonic acid

13 Sodium 1H,1H,2H,2H-perfluorooctadec-12-ynoate

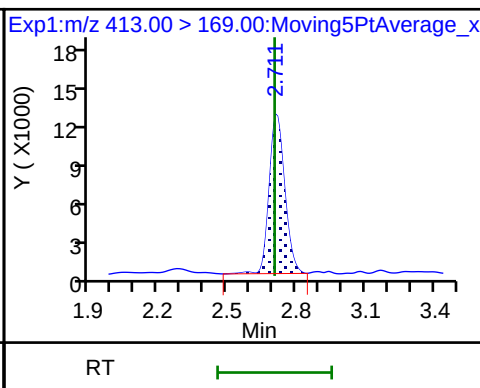
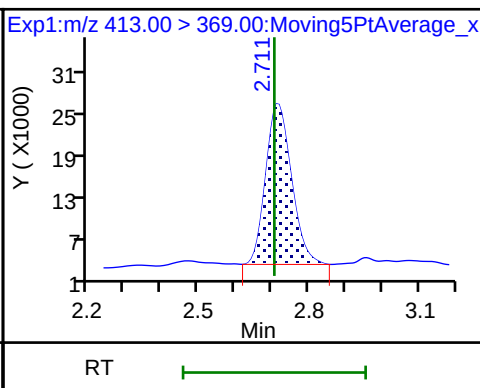
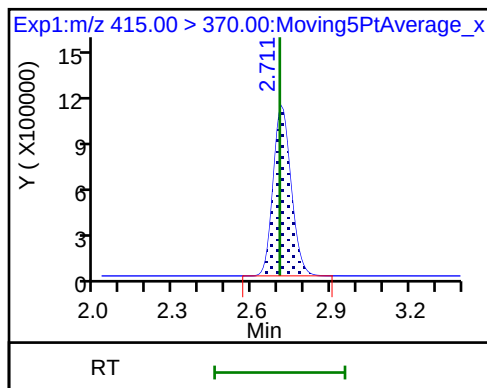
D 12 M2-6:2FTS



\* 62 13C2-PFOA

15 Perfluorooctanoic acid

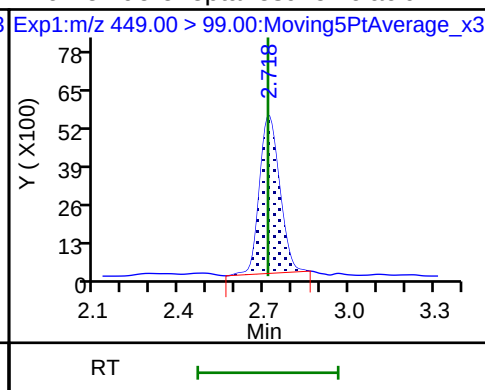
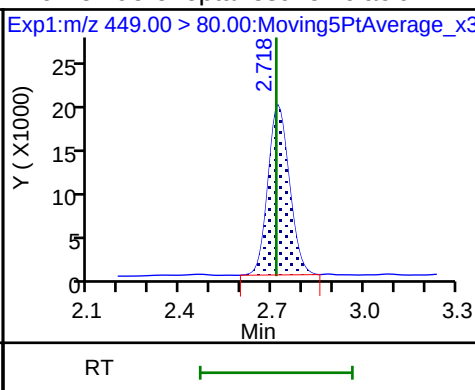
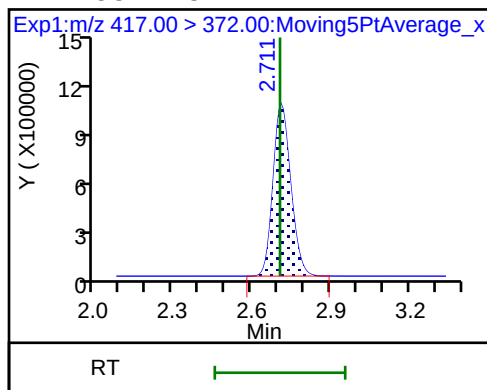
15 Perfluorooctanoic acid



## D 14 13C4 PFOA

## 16 Perfluoroheptanesulfonic acid

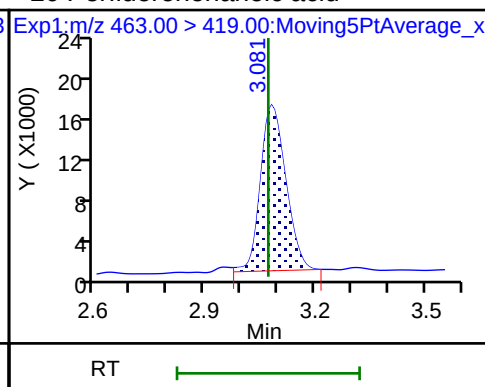
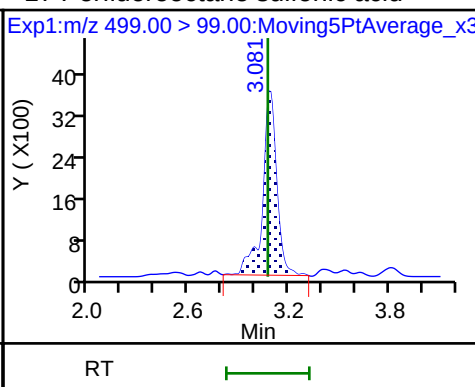
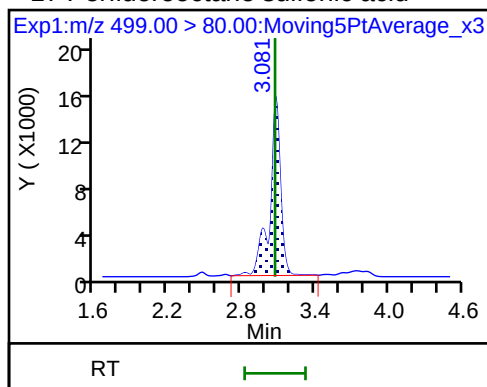
## 16 Perfluoroheptanesulfonic acid



## 17 Perfluorooctane sulfonic acid

## 17 Perfluorooctane sulfonic acid

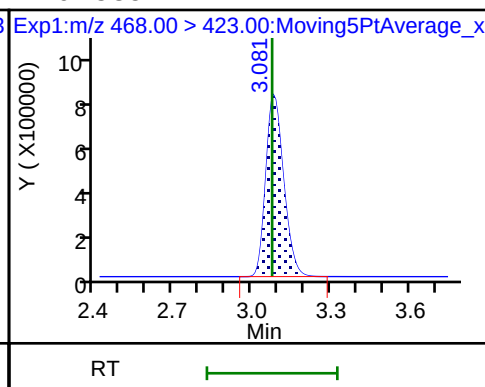
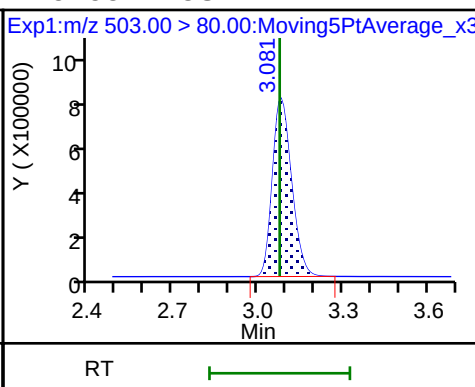
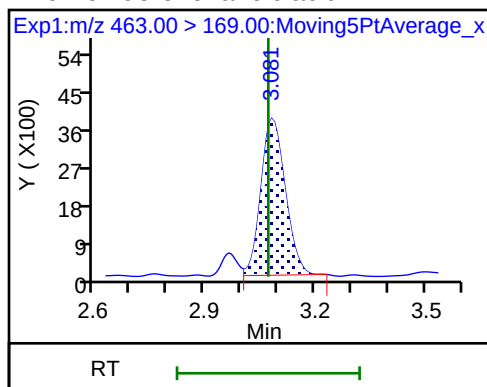
## 20 Perfluorononanoic acid



## 20 Perfluorononanoic acid

## D 18 13C4 PFOS

## D 19 13C5 PFNA



## D 21 13C8 FOSA

## 22 Perfluorooctane Sulfonamide

## 25 Sodium 1H,1H,2H,2H-perfluorodecane

